IMPACT OF PHARMACY SERVICES IN THE RENAL TRANSPLANT POPULATION

Shameem Aadam, RPh*; Erin Newkirk, PharmD, BCPS, CDE; Binita Patel, MS PharmD; Jordan Dow, MS, PharmD; Erika Smith, PharmD, BCPS; Carolyn Haupert, RPh; Molly Mieska, PharmD

Froedtert Hospital,9200 W.Wisconsin Ave,Milwaukee,WI,53266

shaadam@froedterthealth.org

Purpose:
Centers for Medicare and Medicaid Services mandate a pharmacologica expert, universally recognized as a pharmacist, to be involved in transplant patient care, this is also acknowledged to be essential by the United Network for Organ Sharing. Pharmacists have an in depth understanding and knowledge of pharmacotherapy allowing them to address intricate issues related to the care of a transplant patient. Medication adherence to immunosuppressive therapy is central to maintaining graft survival and preventing rejection. However, over a third of graft failures due to non adherence.
The purpose of this study is to evaluate the value of comprehensive pharmacy services provided to renal transplant patients by pharmacists in the inpatient, ambulatory and medication management mail order pharmacy settings. Using a transplant questionnaire, this study will also evaluate the current education provided to patients after transplant to identify areas of improvement and further development.

Methods:
The initial phase of this project is a retrospective analysis of outcomes in renal transplant patients who received ambulatory pharmacy services between June 2009 to November 2010 and are enrolled in the medication management mail order pharmacy compared to patients who were solely seen by a pharmacist in the inpatient transplant setting between January 2008 to December 2009. The primary outcome measures include medication adherence, graft survival and rejection rates at 1 year, re-admissions related to graft rejection, blood pressure and blood glucose control at 6 months and 1 year intervals.

The second phase of the study will evaluate the current education provided by pharmacists to patients following transplant using a medication questionnaire to identify areas of improvement and further development .The questionnaire will help to develop a communication tool to streamline care provided between inpatient and outpatient pharmacy services.

Results:
Results and conclusion will be presented at the Great Lakes Residency Conference.

Learning Objectives:

Identify tools to improve collaboration between inpatient and outpatient pharmacy services

Discuss the impact of a pharmacist in the renal transplant population

Self Assessment Questions:

In which of the follwing settings does having a pharmacist involved in the care of a renal transplant patient improve patient care?

A Inpatient transplant pharmacists
B: Ambulatory transplant pharmacists
C: Mail order pharmacists
D: Inpatient transplant pharmacist, ambulatory transplant pharmacist

Non adherence to immunosuppressant medications is the cause of over a _____ graft failure

A Third
B Half
C Quarter
D Two thirds

Q1 Answer: D Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-650 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

METHICILLIN-RESISTANT STAPHYLOCOCCUS AUREUS (MRSA) NARES COLONIZATION AT HOSPITAL ADMISSION AND ITS EFFECT ON SUBSEQUENT MRSA INFECTION

Victoria L. Adams*, PharmD, BCPS; Jamie S. Winner, PharmD, BCPS-AQID; Mark A. Beilke, MD

Clement J. Zablocki Medical Center,5000 West National Ave,Milwaukee,WI,53295

Victoria.Adams@va.gov

Purpose:
The primary objective of this project is to evaluate the incidence of asymptomatic MRSA colonization and the development of subsequent MRSA infection. Secondary objectives are to evaluate patient characteristics with subsequent infection and type of acquired MRSA infection after asymptomatic MRSA nares colonization.

Methods:
The study will consist of a retrospective electronic chart review, data collection and compilation to assess the outcomes associated with MRSA nares colonization within the Milwaukee Veterans Affairs patient population. Review of the patient medical record will involve primarily provider comments, laboratory values, hospitalization records and summaries and available patient demographics. Any patient with documented MRSA nares colonization during the time period of January 1, 2010 and June 30, 2010 will be assessed for subsequent MRSA infection and considered for inclusion. Documented MRSA infection will be defined as recovery of the organism from either normally sterile sites (blood samples or urine specimens without a foley catheter in place) or nonsterile sites concomitant with a diagnosis of infection by the primary physician caring for the patient. Nonsterile sites include indwelling vascular catheters, skin and soft tissue, and sputum. Patients who received a MRSA nares screen within 48 hours of admission will be included. Exclusion criteria will include foley catheterization and negative MRSA nares screen.

Results/Conclusions:
This study is still under investigation with final results and conclusions to be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Describe the incidence of asymptomatic MRSA nares colonization and the development of subsequent MRSA infection within the Milwaukee VA patient population

Identify clinical patient characteristics of asymptomatic MRSA nares colonized patients who develop subsquent MRSA infection

Self Assessment Questions:

The main mode of transmission of MRSA infection is:

A Objects contaminated with bacteria
B: Hand-to-handcontact
C: Coughing or sneezing
D: Airborne

Routine decolonization of MRSA nasal carriers with mupirocin is not recommended for general hospital or outpatient use because:

A Mupirocin has not been shown to be active against MRSA
B Mupirocin's systemic risks do not outweigh the benefits for decolon
C The role of mupirocin to actually reduce infection from MRSA has r
D It is too costly to treat everyone found to be MRSA positive

Q1 Answer: B Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-300 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

DRUG SHORTAGE COMMUNICATION TO THE OPERATING ROOM: EVALUATION OF A DIRECTED NOTIFICATION TOOL

Berook Addisu, PharmD, BCPS*; Shannon K. Hobson, PharmD
William S. Middleton VA Hospital,2500 Overlook Terrace,Madison,WI,537052254
Berook.Addisu@va.gov

Purpose: Drug shortages have become a serious concern for hospitals nationwide. As the number of affected drugs reaches unprecedented levels, pharmacy departments continue to grapple with how to best manage these shortages. An important facet of shortage management is effective communication strategies to providers. Recent literature suggests the three most common methods of shortage notifications are emails, clinician-to-clinician discussions, and newsletters. The purpose of this research is to assess the ability of a directed notification tool to effectively augment existing drug shortage communication methods.

Methods: A notification tool was built with Microsoft Access. The database contained the 237 medications routinely available in the Madison VA operating rooms (OR). Representatives from the 13 surgica services, the Chief of Anesthesiology, and the OR Nurse Manager identified medications they would need to be notified of in case of a future shortage. The database was also created to store any pertinent information related to active shortages.

A functionality of the database included auto-population of a Microsoft Outlook email with two "clicks" of a medication name in Microsoft Access. Auto-populated information included all providers that requestec notification in the "To" field as well as relevant information in the email body such as identified therapeutic alternatives.

Baseline data was obtained to assess the effectiveness of existing shortage communication methods. Providers reported the number of surgery cases that resulted in compromised safety, avoidable delays prior to a procedure, and avoidable delays during a procedure due to ineffective shortage communication over a three-month period. Additionally, an assessment of provider frustration and perceived utility of communication strategies was assessed using a 5-point Likert scale.

The same data will be collected for comparison after three months of implementation.

Results/Conclusions: Pending.

Learning Objectives:

Identify aspects of a drug shortage pharmacy departments should communicate

Recognize common methods of drug shortage communication with providers

Self Assessment Questions:

According to the 2009 ASHP Guidelines on Managing Drug Product Shortages in Hospitals and Health Systems, an important piece of information to communicate regarding drug shortages includes:

A Reason for shortage
B: Anticipated resolution date
C: Identified therapeutic alternatives
D: Anticipated cost to hospital

According to the nationwide, 2011 Kaakeh et al study, the three most common forms of drug shortage communication to providers are:

A Emails, newsletters, and clinician-to-clinician discussions
B Staff meetings, posters, and websites
C Intranet, alerts in electronic systems, and charts
D Weekly in-services, hospital “hotline,” and posters

Q1 Answer: C Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-651 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

EFFECTS OF ETOMIDATE ON VASOPRESSOR USE IN PATIENTS WITH SEPSIS OR SEVERE SEPSIS

Nerissa J. Alday, Pharm.D.*; Jennifer W. McCallister, BS Pharm, MD; Gary S. Phillips, MAS; Bruce A. Doepker, Pharm.D., BCPS
The Ohio State University Medical Center,368 Doan Hall,410 West 10th Avenue,Columbus,OH,43210
Nerissa.Alday@osumc.edu

PURPOSE: Etomidate is a rapid-acting, sedative hypnotic agent commonly used to facilitate intubation. There is controversy surrounding the safety of single bolus etomidate use for induction due to its ability to suppress adrenal steroidogenesis. Critically ill patients depend upon the ability to mount a compensatory adrenal stress response to maintain vascular homeostasis; the clinical significance of this short period of relative adrenal insufficiency remains unclear. The literature to date remains inconclusive regarding the hemodynamic consequences of etomidate use for induction in septic patients and the implications of its use on clinical outcomes such as vasopressor requirements, inpatient length of stay, and mortality. The purpose of this study is to evaluate the effects of etomidate on the need for vasopressor support when used as an induction agent to facilitate intubation in patients with sepsis or severe sepsis.

METHODS: This is a retrospective, single-center, propensity matched cohort study comparing patients with sepsis or severe sepsis who either received etomidate or did not receive etomidate for intubation. Patients between 18-89 years of age will be evaluated if they were intubated at The Ohio State University Medical Center. Inmates, pregnant women, chronic adrenal insufficiency, use of vasopressors, etomidate or corticosteroids prior to intubation, and history of chronic immunosuppression are indications for exclusion. The primary outcome will be the difference in the need for vasopressor support between patients who received etomidate compared to those who did not receive etomidate for intubation. Secondary outcomes will include the use of multiple vasopressors, change in mean arterial pressure from baseline, duration of vasopressor use, duration of mechanical ventilation, intensive care unit and hospital length of stay, and the incidence of hospital mortality.

RESULTS: Data collection and analysis are currently being conducted; final results and conclusions will be presented at the 2012 Great Lakes Residency Conference.

Learning Objectives:

Explain the mechanism through which etomidate causes adrenal suppression.

Discuss the potential hemodynamic consequences of etomidate when it is used for intubation in critically ill septic patients.

Self Assessment Questions:

Etomidate may cause adrenal suppression through inhibition of which enzyme?

A deoxycortisol
B: 11β-hydroxylase
C: 21-hydroxylase
D: 3β-hydroxysteroid-dehydrogenase

Which of the following adverse effects may result from adrenal insufficiency associated with etomidate use?

A Nausea and vomiting
B Myoclonus
C Seizures
D Hypotension

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-301 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

ASSESSMENT OF PHARMACIST MANAGED DIABETES CLINIC WITH EMPHASIS IN UNCONTROLLED HYPERTENSION

Asima N. Ali*, PharmD; Edward N. Battjes, PharmD; Edward P. Sheridan, PharmD

St. Joseph Regional Medical Center - IN,Saint Joseph's Regional Medical Center Family Medicine Center,837 East Cedar Street,South Bend,IN,46617

aliasn@sjrmc.com

Purpose:
Hypertension and type II diabetes (T2DM) are chronic illnesses that require monitoring of various clinical indicators such as systolic (SBP) and diastolic blood pressure (DBP), heart rate (HR), hemoglobin A1c (HbA1c), microalbuminuria, and examination of eyes and feet. Vigilant monitoring of such clinical markers has been shown to improve patient outcomes. A literature search revealed that several trials have determined the benefits of pharmacist-managed clinics for the treatment of hypertension and diabetes. However, minimal studies have evaluated such markers in patients with T2DM and uncontrolled hypertension in a family medicine residency program. The purpose of this study is to assess of the performance of a pharmacist managed diabetes clinic with emphasis in uncontrolled hypertension within the Saint Joseph Family Medicine Residency Program. The clinic was initiated in September 2011 to assist in achieving recognition for diabetes care from the National Committee for Quality Assurance (NCQA) and to increase the diversity of care within the pharmacy residency program.

Methods:
This study received Institutional Review Board approval. Inclusion criteria consisted of referred patients with T2DM, between the ages of 18 75 with uncontrolled blood pressure (SBP greater than 130 mmHg and/or DBP greater than 80 mmHg). The following data will be collected: HbA1c, SBP, DBP, HR, lipid panel, eye and foot exams, microalbuminuria screenings, number of antihypertensive medications and patient return rate. A paper patient satisfaction survey will be conducted at the fourth clinic visit. Also, an electronic physician satisfaction survey will be conducted in February 2012. All data will be recorded without patient identifiers and maintained confidentially. Collected data will be analyzed to determine if the clinic is sustainable clinically, financially and educationally. Post data analysis, limitations and modifications for improvement will be identified.

Results and Conclusion:
Results and conclusion to be presented at Great Lakes Residency Conference.

Learning Objectives:

List the benefits of pharmacist-managed clinics on patient care, with emphasis in the management of diabetes and hypertension.

Define the American Diabetes Association guideline recommendations for surrogate goals to help reduce the risk of macrovascular and microvascular complications in diabetic patients.

Self Assessment Questions:

Which of the following is correct?

A Pharmacist-managed hypertension clinics eliminate the need for pl
B: Pharmacist-managed diabetes and hypertension clinics improve pa
C: Pharmacist-managed diabetes clinics eliminate the need for blood
D: Pharmacist-managed hypertension clinics decrease patient satisfa

According to the American Diabetes Association, which of the following is the goal blood pressure for diabetic patients?

A Less than 135/85
B Less than 130/80
C Less than 120/80
D Less than 140/90

Q1 Answer: B Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-302 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF A PHARMACIST-MANAGED ANTICOAGULATION CLINIC COMPARED TO PHYSICIAN-MANAGED ANTICOAGULATION AT A LARGE ACADEMIC MEDICAL CENTER

Faaria Z. Ali*; Rachelle Busby; Andrius Cepenas

University of Chicago Medical Center,5841 South Maryland Avenue,Chicago,IL,60453

faaria.ali@uchospitals.edu

Purpose: Warfarin is one of the most commonly prescribed medications as a result of its effectiveness in preventing and treating arterial and venous thrombosis. However, its safety and efficacy is limited by its narrow therapeutic window, as measured by the international normalized ratio (INR). Failure to provide adequate anticoagulation may result in thromboembolic events, while excessive anticoagulation puts patients at increased risk of bleeding. Successful anticoagulation management in an outpatient setting requires careful monitoring of the INR, ongoing patient education and effective communication between patients and caregivers. The purpose of this study is to evaluate the outcomes in patients managed by AMS compared to usual care by physicians.

Methods: This study will be a retrospective cohort analysis comparing two strategies of anticoagulation management in the outpatient setting at UCMC between October 1st, 2010 and October 1st, 2011. Patients will randomly be selected from the administrative lists of AMS, Primary Care Group (PCG) and cardiology. Patients to be included in this study must be 18 years of age and older and followed between the time period of October 1st, 2010 and October 1st, 2011. Patients will be excluded from the study if they have less than 2 INR values recorded during the study period or if they are managed by a physician but referred to AMS for bridging purposes. The primary outcome to be evaluated is the time within therapeutic range (TTR) of INR values, which would be considered as 0.2 of the goal INR range indicated for each patient. Secondary outcomes include the incidence of thromboembolism, bleeding (major and minor), emergency department visits and/or hospitalizations and mortality, between the two groups. Categorical variables will be compared using a Chi-squared analysis, while continuous variables will be compared using the Students t-test.

Results: To be presented

Conclusion: To be presented

Learning Objectives:

Recognize potential adverse events which may be associated with under managed warfarin therapy

Identify the options patients may have for the management of their outpatient anticoagulation

Self Assessment Questions:

What is/are potential adverse event(s) associated with an INR which is not within goal therapeutic range

A Stroke
B: Hypertension
C: Gastrointestinal Bleed
D: A and C

How can anticoagulation with warfarin be monitored in an outpatient setting?

A Primary care physician
B Pharmacist
C Cardiologist
D All of the above

Q1 Answer: D Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-303 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

REPEAT ADMINISTRATION OF RASBURICASE FOR THE TREATMENT OF TUMOR LYSIS SYNDROME

Katherine Allen*, PharmD, Alana Dikopf, PharmD, Steve Trifilio, RPh,
Northwestern Memorial Hospital,251 E Huron,LC 700,Chicago,IL,60611
kaallen@nmh.org

Purpose

Rasburicase, a recombinant version of the enzyme urate oxidase, is used to treat hyperuricemia associated with tumor lysis syndrome (TLS). Rasburicase has been shown to elicit antibodies that inhibit the activity of rasburicase in vitro. For this reason, rasburicase is not recommended to be administered for more than one course of therapy. Further study is needed to fully address the effect of antibody production on the efficacy of rasburicase since currently there are no other options available to decrease pre-formed uric acid in patients with TLS. The primary objective of this study is to compare the effectiveness (defined as uric acid less than 7 mg/dL) of the first administration of a single, non-weight based dose of rasburicase with subsequent administrations. Secondary outcomes will compare the following characteristics between first and subsequent administrations of rasburicase: uric acid percent change from baseline, allergic reaction, and renal function.

Methods

This study will consist of a retrospective chart review of Northwestern Memorial Hospital patients from 2004 to 2012. Patients included in the study will have received at least two equal doses of rasburicase at least three weeks apart. Criteria for exclusion will include patients who received weight-based doses of rasburicase, doses administered less than three weeks apart, and non-equivalent doses. Data collection will include the following information: diagnosis, rasburicase dose, serum uric acid concentration, serum electrolytes, and LDH. IRB approval has been obtained for this study.

Results/Conclusions

Data collection and analysis are currently in progress. Results and conclusions will be presented at the Great Lakes Residency Conference

Learning Objectives:

Describe the potential for decreased effectiveness of rasburicase with repeat administration.

Recognize the need for repeat administration of rasburicase due to the lack of effective options to decrease pre-formed uric acid.

Self Assessment Questions:

For what reason is repeat administration of rasburicase not recommended?

A Antibody formation may lead to renal failure.

B: Rasburicase may cause a patient to produce neutralizing antibodie

C: Better treatment options exist to decrease uric acid.

D: Tumor lysis syndrome only occurs once in a patient's lifetime.

Why does hyperuricemia associated with tumor lysis syndrome require treatment?

A Elevated uric acid will decrease the effectiveness of chemotherapy

B Elevated uric acid may cause liver dysfunction.

C Uric acid can crystallize in the eyes causing blindness.

D Uric acid precipitates at elevated concentrations, increasing the ris

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-304 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF UNNECESSARY PICC LINE PLACEMENT FOR ANTIBIOTIC TREATMENT IN AN URBAN ACADEMIC MEDICAL CENTER

Jordan Ambrose, PharmD*, Jean Patel, PharmD, BCPS
Northwestern Memorial Hospital,251 E Huron,Chicago,IL,60611
jambros1@nmh.org

Purpose

As the health care system continues to progress towards early discharge, outpatient antimicrobial therapy has been increasingly utilized. Newer data has demonstrated the importance of Infectious Disease (ID) consultation in improving care of selected infectious diseases. The thought behind this is that ID clinicians are more comfortable with discharging stable patients on oral antimicrobial therapy. Changing antimicrobials to oral treatment has been described for many infections that include community-acquired pneumonia, biliary tract and other intra-abdominal diseases, among others. Switching outpatient antimicrobial therapy from intravenous to oral can improve both safety and cost savings. One study that looked at the impact of a formal Outpatient Parenteral Antimicrobial Therapy (OPAT) medical team found that PICC line placement was prevented in 8.4% of their patients, which was associated with a savings of $58,080.

Methods

A retrospective chart review of 150 patients who received a PICC line for outpatient antimicrobial therapy will be conducted. Data that will be collected include whether ID was consulted and the date, date of PICC line placement, infectious diagnosis, antibiotic treatment and culture data, including susceptibilities. The appropriateness of PICC line placement will be assessed for these patients by looking at the type of infection, culture susceptibilities, and evidence supporting oral antimicrobial therapy as an adequate treatment option. Evidence has shown that linezolid, sulfamethoxazole/trimethoprim, fluoroquinolones, metronidazole, clindamycin, and azithromycin are appropriate treatment options for certain infections. The primary objective is to determine if patients who have an ID consult are more likely to have a PICC line appropriately placed. Patients will be excluded if there is not culture data or they have an infection where evidence has determined intravenous antibiotics are necessary and preferred (ie: endocarditis).

Results/Conclusions

Data collection and analysis are currently in progress. Results and conclusions will be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Identify infections where oral options are an appropriate treatment for patients upon discharge from the hospital.

Describe the risks associated with outpatient parenteral antimicrobial therapy (OPAT).

Self Assessment Questions:

Which of the following oral medications provide bloods levels that are comparable to those achieved with intravenous medications?

A linezolid

B: fluoroquinolones

C: clindamycin

D: all of the above

Which of the following adverse events is associated with parenteral antimicrobial therapy, but not oral antimicrobial treatment?

A thrombocytopenia

B rash

C line-related infections

D diarrhea

Q1 Answer: D Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-787 -L05-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF THE MAINTENANCE OF GLYCEMIC CONTROL IN VETERANS DISCHARGED FROM A PHARMACIST-MANAGED DIABETES CLINIC

Charity Anicete*, Pharm.D., Seema Kapadia, Pharm.D. BCACP, Mansi Patel, Pharm.D. BCPS, Anthony Tardi, Pharm.D.

Jesse Brown VA Medical Center,820 South Damen Ave (119),Chicago,IL,60612

charity.anicete@va.gov

PURPOSE: At the Jesse Brown VA Medical Center, patients who have an A1c ≥9% are enrolled in the pharmacist-managed diabetes clinic. Patients who achieve an A1c less than 9% are discharged from the diabetes clinic and referred back to their primary care team for continued care. The purpose of this study is to evaluate if veterans who are discharged from the pharmacist-managed diabetes clinic are able to maintain glycemic control below the A1c value of 9%.

METHODS: This study is a retrospective, electronic chart review of patients with an ICD-9 diagnosis of type 2 diabetes mellitus (DM2) who were evaluated in the diabetes clinic from January 2009 through the end of data collection. Data will be collected from January 1, 2008 through September 15, 2011 to allow for assessment of baseline labs available within the past one year prior to initial diabetes clinic appointment and fo follow-up laboratory parameters. Patients aged 18 years and older with a diagnosis of DM2, a baseline A1c of ≥9%, at least two documented diabetes clinic visits, and a documented transfer of care from the diabetes clinic to primary care will be included in the study. Patients who were lost to follow-up after one diabetes clinic visit will be excluded from the study. In addition, patients who did not have a follow-up A1c after the initial diabetes clinic, within 12 months after discharge from the diabetes clinic, and/or prior to September 15, 2011 will also be excluded. The primary efficacy endpoint is the number of patients who were able to maintain their A1c below 9% within 12 months after discharge from the diabetes clinic.

RESULTS/CONCLUSION: Data collection and analysis are pending and will be presented at the Great Lakes Pharmacy Resident Conference in April 2012.

Learning Objectives:

List the various interventions that can be performed by a clinical pharmacist in a diabetes clinic and the impact they have in diabetes management.

Identify some of the challenges patients face in managing diabetes.

Self Assessment Questions:

Pharmacist-managed diabetes clinics have been shown to:

A Improve reduction in A1c

B: Increase adherence to diabetes standards of care as outlined by th

C: Enhance medication compliance

D: All of the above

Which of the following are common challenges patients encounter in managing diabetes?

A Complex medication therapy

B Frequent monitoring

C Lifestyle modifications

D All of the above

Q1 Answer: D Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-305 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

IMPACT OF AN ANTIMICROBIAL STEWARDSHIP PROGRAM COMPREHENSIVE CARE BUNDLE ON THE MANAGEMENT OF CANDIDEMIA

Allen D. Antworth, PharmD*, Curtis D. Collins, PharmD, MS, Anjly Kunapuli, PharmD, Kristin Klein, PharmD, Peggy Carver, PharmD, FCCP, Tejal Gandhi, MD, Laraine Washer, MD, and Jerod L. Nagel, PharmD, BCPS

University of Michigan Health System,UH B2 D301,1500 E. Medical Center Dr., SPC 5008,Ann Arbor,MI,48109

aantwort@umich.edu

Purpose: To analyze the impact of an antimicrobial stewardship team (AST) directed care bundle on the management of candidemia.
Methods: A candidemia care bundle was developed by an interdisciplinary AST, incorporating key elements from the Infectious Diseases Society of America Clinical Practice Guidelines for the management of candidemia. The AST made prospective recommendations in accordance with the bundle. Bundle elements included utilization of appropriate antifungal agents and duration of therapy, removal of intravenous catheters, obtaining repeat blood cultures, monitoring time until clearance of candidemia, and performance of ophthalmological exams. Compliance with endpoints and associated outcomes achieved in the AST intervention group were compared to historical controls.
Results: Compliance with all candidemia care bundle endpoints was significantly higher in the AST intervention group vs the control group (78% vs. 40%, p=0.0016). Mortality (21% vs. 21%) and recurrent candidemia (5.5 vs. 4.9%) were similar in both groups. Implementation of a candidemia care bundle significantly improved rates of opthalmological consult from 75.7% to 97.6% (p=0.01), selection of appropriate antifungal therapy (86.5 vs. 100% p=0.0488), and compliance with an appropriate duration of therapy (67.7 vs. 97.6% p=0.0012). Additionally, the AST group had fewer excess total days of therapy beyond the recommended duration (83 vs. 5 total antifungal days).
Conclusion: A comprehensive candidemia care bundle directed by an AST improved management of patients with candidemia at our institution

Learning Objectives:

Describe the impact of care bundles.

Report the results of a Comprehensive Candidemia Care Bundle implemented by an Antimicrobial Stewardship Team.

Self Assessment Questions:

Care bundles are :

A Used to systematically manage specific diagnoses in order to impr

B: Used to ensure 100% clinical success

C: Used to ensure patients consistently receive optimal treatment

D: Both A and C

The Comprehensive Candidemia Care Bundle showed a(n):

A Difference in all-cause in-hospital mortality

B Improved overall compliance with the bundle elements

C Decreased amount of recurrent candidemia

D Decrease in appropriate duration of therapy

Q1 Answer: D Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-306 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

THE EFFECT OF A HYPOGLYCEMIA TREATMENT PROTOCOL ON GLYCEMIC VARIABILITY IN CRITICALLY ILL PATIENTS

Patrick Arnold, Pharm.D.*; Renee Alexander, Pharm.D, BCPS; Stephanie Edwin, Pharm.D, BCPS; Kelly McNorton, Pharm.D., BCPS; Chris Giuliano, Pharm.D.; Michelle Dehoorne-Smith, Pharm.D.

St. John Hospital and Medical Center,22101 Moross,Detroit,MI,48236

patrick.arnold@stjohn.org

Background:
Hypoglycemia and glucose variability are independently associated with increased mortality in septic, surgical, and mixed ICU patients. Hypoglycemia is especially dangerous in the ICU setting, as many patients are unconscious and lack noticeable signs of hypoglycemia.

In light of these findings, St. John Hospital and Medical Center (SJHMC) has developed a standardized hypoglycemia treatment protocol designed for critically ill patients that focuses on minimizing glucose variability and preventing subsequent hypoglycemic episodes from occurring.

Purpose:
The purpose of this study is to evaluate the treatment of hypoglycemia and subsequent glycemic variability following implementation of a hypoglycemia treatment protocol for critically ill patients. This study will also determine if implementation of a hypoglycemia treatment protocol had an impact on the re-occurrence of hypoglycemic episodes or mortality.

Methods:
This retrospective, observational study includes ICU patients 18 years of age or older with at least one blood glucose level less than 70 mg/dL. Baseline patient data was collected from April - June, 2011, and will be compared with patient data post-hypoglycemic treatment protocol implementation between February - April, 2012. Demographics, blood glucose levels, amount of dextrose administered, and frequency of monitoring information will be collected. Glucose variability will be evaluated by computing the coefficient of variation in glucose values during the four hour period after glucose administration.

Results:
In Progress

Learning Objectives:

Discuss recent literature relating to glucose variability in critically ill patients.

Recognize risk factors for hypoglycemia in critically ill patients.

Self Assessment Questions:

Increased glucose variability has been shown to be independently associated mortality in critically ill patients when the following are true:

A Patients are diabetic
B: Mean blood glucose is within target range
C: Patients must have at least one blood glucose reading greater thar
D: Patients must have at least one blood glucose reading less than 6(

Modifiable risk factors for hypoglycemia in critically ill patients include:

A Liver failure
B Total parenteral nutrition
C Excess insulin
D Vasopressor use

Q1 Answer: B Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-788 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

IMPACT OF PHARMACIST EDUCATION ON METERED DOSE INHALER TECHNIQUE IN THE INPATIENT SETTING

Katelyn R. Arns, PharmD* and Michael Mikrut, PharmD

CPS/Mercy Hospital and Medical Center,2525 S. Michigan Ave.,Chicago,IL,60616

karns@mercy-chicago.org

Purpose: High rates of metered dose inhaler (MDI) misuse among hospitalized patients provides an opportunity for clinical pharmacists to provide MDI education. The objective of this study is to determine pharmacist impact on patient MDI technique and satisfaction of pharmaceutical services provided during hospitalization.

Methods: The institutional review board approved this prospective study. The health systems electronic medical record identified patients with an active order for a MDI. Inclusion criteria were as follows: ≥ 18 years old, hospital stay ≥ 24 hours, history of asthma or chronic obstructive pulmonary disease (COPD), order for a MDI, and MDI prescribed prior to hospital admission. Exclusion criteria were as follows: acute respiratory symptoms, unable to use a MDI, use of a device other than a MDI, unable to read or speak English, hypersensitivity to therapy, unstable cardiac disease, residence at an extended care facility, critical care patient, and spacer device utilization. The primary outcome was the average number of errors in MDI technique pre-pharmacist and post-pharmacist MDI education. Secondary outcomes included: patient satisfaction, frequent errors in MDI technique, number of patients who have been previously counseled on MDI technique, and 30-day hospital readmission rates.

Results: Based on preliminary results, the average number of errors in MDI technique pre-pharmacist intervention was 2.41 1.72. The average number of errors in MDI technique post-pharmacist intervention improved to 1 1.18. The most frequent errors in MDI technique pre-pharmacist and post-pharmacist intervention included waiting at least 15 seconds in between short-acting beta agonist actuations and exhaling prior to each actuation. Patient satisfaction survey results will be reviewed after the completion of the study to reduce bias.

Conclusions: In hospitalized patients with a history of asthma and/or COPD who have been previously prescribed a MDI, preliminary results show an improvement in MDI technique after pharmacist education.

Learning Objectives:

List the most common errors in metered dose inhaler technique.

List the proper steps required for metered dose inhaler administration.

Self Assessment Questions:

How long should a patient wait between short-acting beta agonist actuations?

A Patient does not need to wait
B: Less than 5 seconds
C: 5 to 10 seconds
D: 15 to 30 seconds

What is the minimum amount of time a patient should hold their breath after delivering a short-acting beta agonist actuation?

A 1 second
B 2 seconds
C 3 seconds
D 4 seconds

Q1 Answer: D Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-307 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

SUCCESS RATE OF 0.5MG/2ML ALTEPLASE (T-PA) DOSING FOR RESTORING PATENCY OF OCCLUDED CENTRAL VENOUS ACCESS DEVICES

Christopher A Arp, PharmD*, Heidi W Smith, PharmD, Kristin K Hanson, MS, RPh, Christopher P Sanders, PharmD

Froedtert Hospital,12400 MacAlister Way,Apartment 208,New Berlin,WI,53151

Christopher.Arp@FroedtertHealth.org

Purpose: In September of 2001 alteplase (t-PA) was approved by the FDA for clearance of central venous access devices (CVADs) as a 2 mg/2 mL dose. Other studies have shown efficacy of alteplase in smaller dosages with smaller volumes, such as 0.5 mg/1 mL and 1mg/1mL. As a result, in 2004, Froedtert Hospital established 0.5 mg/1 mL as an initial dose to restore patency of an occluded CVAD. Since that time, dosing has become inconsistent based upon provider preference and perceived efficacy. It has been hypothesized that the lower dose is insufficient because the dose volume does not adequately fill the CVAD lumen. The purpose of the project is to evaluate the success rate of equivalent alteplase dosages when diluted in larger volumes, 0.5 mg/2 mL and 1 mg/2 mL, to restore patency of occluded CVADs as compared to previous usage of alternate volumes of 0.5 mg/1 mL and 1 mg/1 mL.

Methods: Revised alteplase dose preparation methods have been approved through the Froedtert Hospital Medication Safety and Pharmacy, Nutrition & Therapeutics Committees in September 2011 with all doses being diluted to a total volume of 2 mL. Data collection is currently underway and will be retrospectively analyzed upon completion of collection in late February. All 1 mL intra-catheter alteplase administrations, excluding those used in dialysis catheters, from January 1, 2011 through June 27, 2011 as well as the 2 mL administrations from October 2011 through February 2012, are being included in the project. The primary outcome will be total dose necessary for successful restoration of catheter patency. The secondary outcome will be the cost impact associated with therapy.

Results & Conclusions: Data collection and analysis is ongoing. Results and conclusions will be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Explain the literature assessing alteplase usage, for occluded central venous access devices, in doses other than 2 mg/2 mL.

Discuss data collected on the success rate of 0.5 mg/2 mL & 1 mg/2 mL alteplase usage at Froedtert Hospital.

Self Assessment Questions:

What is the FDA approved dose when using alteplase for restoring patency of occluded central venous access devices?

A 2 mg/ 1 mL
B: 1 mg/ 2 mL
C: 2 mg/ 2 mL
D: 0.5 mg/ 2 mL

In determining the FDA approved dose for catheter clearance, alteplase was shown to be safe in doses up to how many milligrams?

A 2 mg
B 4 mg
C 6 mg
D 8 mg

Q1 Answer: C Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-308 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

ACUTE HEMODYNAMIC EFFECTS OF SILDENAFIL IN PULMONARY HYPERTENSION: A BRIDGE TO CARDIAC TRANSPLANTATION

*Andrew Arter, PharmD; Douglas Jennings, PharmD, BPCS (AQ CV)

Henry Ford Health System,2799 West Grand Blvd,Detroit,MI,48202

aarter1@hfhs.org

Statement of the purpose:
To develop more effective guidelines for the dose titration of oral sildenafil as a means of reducing pulmonary vascular pressure in patients with end-stage systolic heart failure. The specific aims of the project are to determine the effect of repeated doses of oral sildenafil on cardiopulmonary hemodynamic parameters and to describe the safety of dose titrations of oral sildenafil.

Statement of methods used:
This is a prospective observational study of the acute hemodynamic effects of sildenafil in patients with pulmonary hypertension secondary to heart failure. All patients admitted to the advanced heart failure service with a pulmonary artery (PA) catheter who were started on sildenafil between October 1, 2011 and June 30, 2012 were eligible. Hemodynamic measurements from the PA catheter are recorded at baseline and throughout the sildenafil initiation period and include mean pulmonary arterial pressure (mPAP), pulmonary capillary wedge pressure (PCWP), pulmonary vascular resistance (PVR), cardiac output (CO), mean arterial pressure (MAP), and central venous pressure (CVP). For the primary aim of this project, the peak hemodynamic changes in mPAP from baseline to 2 hours after the first dose will be compared to the incremental change after each of the subsequent doses to determine the degree of additional mPAP reduction. For the second specific aim, change in MAP will be monitored throughout the dosing interval and any drug discontinuation secondary to side effects will also be collected.

Learning Objectives:

Explain the pathophysiology of pulmonary hypertension secondary to advanced heart failure.

Describe the acute hemodynamic effects of oral sildenafil as a means of reducing pulmonary pressures.

Self Assessment Questions:

Sildenafil reduces pulmonary artery pressures primarily by which of the following mechansms?

A Binds to endothelin receptors, which prevents pulmonary artery va
B: Increases the amount of cAMP by inhibiting phosphodiesterase-3,
C: Decreases thromboxane A2-mediated vasoconstriction, which resu
D: Increases the amount of cGMP by inhibiting phosphodiesterase-5,

The addition of sildenafil to a pulmonary hypertension regimen has been shown to lower pulmonary vascular pressures to what extent after one dose?

A 5%
B 20%
C 50%
D 80%

Q1 Answer: D Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-309 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

IMPLEMENTATION OF A SPECIALTY-OUTPATIENT PHARMACY WITHIN A HOSPITAL SYSTEM

*Brandon, S, Arthur, Pharm.D., Joyce, A, Thomas, Pharm.D., CACP, Carrie, Morton, Pharm.D., MBA

Deaconess Health System,600 Mary Street,Evansville,IN,47747

brandon.arthur@deaconess.com

Purpose:
As an increasing number of prescription drugs fall under the category of specialty medications, hospitals administering these medications to their patients are faced with difficult decisions regarding procurement and billing. Thus, the implementation of specialty pharmacies into the hospital health system is becoming increasingly more important.
With rising administrative costs and increasing overall healthcare expenses, hospital systems that are self-insured face the dilemma of either increasing premiums for employees or reducing other hospital services to cover the added expense. This issue has led to the advent of outpatient pharmacy services aimed at employees to help assist in driving down overall healthcare costs to the individual institution and ultimately saving the employees money.
The objective of this project is to evaluate the procedures necessary to implement an outpatient-specialty pharmacy that services both patients requiring specialty medications and employees with prescription needs. Secondly, this project is aimed at illustrating how an outpatient-specialty pharmacy, that services this population, can help to resolve the current specialty medication problem while also aiding to reduce the expense attributed to rising healthcare costs and the hospital systems insurance expenses.
Methods:
Approval of the institutional review board was not necessary, as this research-in-progress is an evaluation of a pharmacy service.
This project will evaluate the components that must be implemented before opening a specialty-outpatient pharmacy that services a hospital systems employees and patients. These components include, but are not limited to, prescription claims analysis, insurance contract negotiation, formulary selection, computer operating system selection, incentive- based prescription cost and coverage, pharmacy design, own use considerations, pharmacy license type, policies and procedures and location. Lastly, an analysis will be performed to evaluate cost savings resulting from the implementation of a self-insured, hospital system specialty-outpatient pharmacy.
Results and Conclusion:
Final conclusions and results/information will be shared at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

List the financial advantages to the implementation of a specialty outpatient pharmacy within a healthcare system.

Identify the necessary departments and their involvement in the implementation of a specialty outpatient pharmacy within a healthcare system

Self Assessment Questions:

Which of the following would be considered a direct financial advantage to the implementation of a specialty outpatient pharmacy within a healthcare system?

A Allow overflow of inpatient prescriptions to be filled in the outpatien
B: Increase the use of generic substitutes when applicable
C: Stimulate competition among other retail pharmacy chains in the a
D: Implementation of zero dollar co-pay to attract more patients and e

Which of the following departments is likely responsible for the design of a self-insured hospital systems employee health plan?

A Pharmacy
B Medical affairs
C Public relations
D Human resources

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-652 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

DEVELOPMENT AND IMPLEMENTATION OF A CHRONIC OBSTRUCTIVE PULMONARY DISEASE MANAGEMENT PROGRAM IN A LARGE, COMMUNITY CHAIN PHARMACY

Kimberly F. Arvin*, PharmD, Stacey M. Frede, PharmD, Erin R. Puening, PharmD, and Michael A. Hegener, PharmD

University of Cincinnati/Kroger Pharmacy,114 North Fort Thomas Avenue #2,Fort Thomas,KY,41075

arvinkf@mail.uc.edu

Background:
Chronic obstructive pulmonary disease (COPD) is a progressive airway disorder associated with significant morbidities, hospitalizations, and costs. Despite the development of evidence-based guidelines and effective drug therapy, patients still suffer from acute exacerbations that require increased utilization of health-care resources. COPD self-management and rehabilitation programs have demonstrated decreased utilization of healthcare services and improvements in health status. However, community pharmacist-led COPD management programs have not been adequately explored.

Purpose:
The purpose of this study was to develop, implement, and evaluate a COPD Management Program. The objectives were to increase health-related quality of life, patient knowledge, and indicators of COPD management.

Methods:
This project was conducted at two sites in a large, community pharmacy chain located in the Midwest. Subjects 45 years of age and older with a diagnosis of COPD were recruited. All staff at each practice site received training in recruitment of patients. Pharmacists and residents received additional educational training in COPD management, including development of customized action plans and smoking cessation. Patients met on a regular basis with a trained pharmacist for educational and disease state management services. Services focused on COPD education, medication use, inhalation technique, avoidance of risk factors, adoption of healthy lifestyle habits specific to COPD, and development of a customized action plan. Smoking cessation services for current smokers were provided.
Clinical and humanistic outcomes were evaluated at baseline and at defined intervals thereafter utilizing the St. Georges Respiratory Questionnaire (SGRQ-C), Patient Health Questionnaire (PHQ-9), Morisky Adherence Questionnaire, and Modified Medical Research Council Dyspnea Scale (MMRC). Changes in inhalation technique, medication compliance, vaccination status, and smoking cessation were measured. Patient satisfaction was also evaluated.

Results:
Results and conclusions to be presented at the Great Lakes Residency Conference.

Learning Objectives:

Describe the components of a pharmacy-based COPD management program

Discuss effective patient self-management strategies for COPD and techniques to evaluate patient progress

Self Assessment Questions:

Which of the following is not considered a component of effective COPD management?

A Assess and monitor disease
B: Reduce risk factors
C: Disease-state education
D: Annual spirometry

Which of the following validated questionnaires assesses disease-specific quality of life?

A Patient Health Questionnaire (PHQ)
B COPD Knowledge Assessment Questionnaire (COPD-Q)
C St. George's Respiratory Questionnaire (SGRQ-C)
D The Short Form (36) Health Survey (SF-36)

Q1 Answer: D Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-310 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF CARDIOVASCULAR ADVERSE EVENTS AND VARENICLINE: A RETROSPECTIVE EVALUATION IN VETERANS

Trista L. Askins-Bailey, Pharm.D.,* Ann M. Segraves, Pharm.D., Terrence B. Baugh, Pharm.D., BCPS, Jeanne M. Chattaway, Pharm.D., BCPS

Battle Creek VA Medical Center,5500 Armstrong Road,Battle Creek,MI,49037

trista.askins@va.gov

Purpose
Assess the rate of cardiovascular adverse events for patients on varenicline at the Battle Creek Veterans Affairs Medical Center (BCVAMC).

Methods
The study will be a single-center, retrospective chart review. Patients receiving a prescription for varenicline between January 1, 2007 and June 30, 2010 are being reviewed. Data is being assessed to see if a patient had a cardiovascular adverse event while on varenicline or within 52 weeks after first dose of medication. A cardiovascular adverse event is defined as a nonfatal myocardial infarction, coronary revascularization hospitalization for angina pectoris, hospitalization for congestive heart failure, transient ischemic attack, nonfatal stroke, new diagnosis of peripheral vascular disease, hospitalization for peripheral vascular disease, cardiovascular-related death, or sudden death. Laboratory data, progress notes, and outside medical records are being reviewed. Inclusion criteria include age 18 to 75 years, diagnosis of tobacco dependence, and at least one prescription for varenicline. Exclusion criteria include suicidal or homicidal ideation or attempt within one year prior to therapy, unstable psychiatric illness, unstable cardiovascular disease within two months of therapy, pregnant or lactating women, uncontrolled hypertension, or significant neurological sequela of cerebrovascular disease. The primary objective is to determine the rate of cardiovascular adverse events of patients taking varenicline. Secondary objectives include the rate of cardiovascular events among patients with prior cardiovascular disease, the rate of cardiovascular events among patients with no prior cardiovascular disease, and the rates of the different cardiovascular events.

Preliminary Results
A total of 1599 patients were identified as having received a prescription for varenicline from the BCVAMC during the specified study period. A sample of 500 patients will be assessed to determine if a cardiovascular event occurred while taking varenicline or within 52 weeks after first dose.

Conclusions
Data analysis is ongoing and comprehensive results and conclusions wil be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Discuss the place of therapy for varenicline in smoking cessation

Describe the possible risk of cardiovascular events when taking varenicline in patients with and without prior cardiovascular disease

Self Assessment Questions:

Smoking cessation can lead to a ____ decrease in all-cause mortality.

A 25%
B: 36%
C: 50%
D: 66%

Which is a proposed mechanism of how varenicline may increase the risk of cardiovascular events?

A Dilation of left ventricle in the heart
B Plaque build-up in arteries and veins
C Increased likelihood of QTc prolongation
D Stimulation of nicotinic receptors in brainstem

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-789 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

TIME IN THERAPEUTIC RANGE BEFORE AND AFTER PATIENT SELF-TESTING OF INTERNATIONAL NORMALIZED RATIO

Adrienne Au, Pharm.D.*, Roshani Raval, Pharm.D., Eunha Lai, Pharm.D., CACP, Todd Lee, Ph.D., Pharm.D.

Edward Hines, Jr.VA Medical Center,5000 South 5th Ave.,Hines,IL,6014

Adrienne.Au@va.gov

Background: Anticoagulation with warfarin reduces the risk of thromboembolism in a variety of indications, most notably in patients with atrial fibrillation or mechanical heart valves. Although anticoagulation clinics improve anticoagulation therapy, barriers to appropriate anticoagulation therapy exist for many patients. One way to improve anticoagulation management is the use of patient self testing (PST) of International Normalized Ratio (INR). Currently, there is a national VA task force working to adapt a PST model within the VA system. In the meantime, the Anticoagulation Clinic at the Edward Hines, Jr. VA Hospital has a policy in place to allow patients to receive PST supplies and services.

Purpose: The primary purpose of this study is to assess the changes in time in therapeutic range (TTR) before and after PST of the INR in patients at the Edward Hines, Jr. VA Hospital. The primary outcome of the study is TTR before and after the initiation of PST, measured as a percentage of time using the Rosendaal method. Secondary outcomes of the study include INR values below therapeutic range, critical INR values, number of pharmacist encounters, appointment compliance, adverse events, and results of the PST ease of use survey.

Methods: A list of all patients who are currently utilizing PST of INR will be generated from the Hines Anticoagulation Clinic. The first 70 patients to meet criteria will be included in the study. Charts will be reviewed for the following information: patient demographics, indication for warfarin, INR values, and the occurrence of adverse events. Secondary outcomes of the study include INR values not in therapeutic range, number of pharmacist encounters, appointment compliance, adverse events, and results of the PST ease of use survey.

Results/Conclusions: Data collection is in progress. Results will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Identify the American College of Chest Physicians (ACCP) recommendation on PST.

Explain the Hines VA requirements for eligibility for PST use.

Self Assessment Questions:

Which of the following statements is an American College of Chest Physicians (ACCP) recommendation?

A PST should be available to all patients on warfarin therapy
B: PST should be implemented in patients who are suitably selected a
C: PST should only be implemented in patients with atrial fibrillation
D: PST should be reserved for homebound patients

What do the Hines VA requirements for eligibility for PST include?

A Chronic oral or IV anticoagulation, caregiver participation, access t
B Chronic oral anticoagulation, warfarin for at least 2 months prior, a
C Chronic oral anticoagulation, warfarin for at least 2 months prior, to
D Chronic oral anticoagulation, warfarin for at least 3 months prior, a

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-311 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

IMPACT OF PHARMACIST-MANAGED MEDICATION RECONCILIATION AND DISCHARGE COUNSELING ON PREVENTABLE ADVERSE DRUG EVENTS

Jennifer H Austin, PharmD*; Matthew S Nelson, PharmD; Leah E Bentley, PharmD, BCPS

University of Chicago Medical Center,5841 S Maryland Ave,Chicago,il,60637

jennifer.austin@uchospitals.edu

The discontinuity of care that occurs at hospital discharge is a significant concern for patient safety, which may lead to adverse drug events (ADEs), emergency department visits, and readmissions. As approximately half of these ADEs may be preventable, it is hypothesized that implementing a pharmacist-managed medication reconciliation and discharge counseling consultation service will improve patient outcomes and reduce avoidable ADEs.

This prospective cohort study will be conducted at the University of Chicago Medical Center (UCMC) between December 2011 and March. All adult patients admitted to the general medicine service will be assigned to a study group based on the admitting team. Patients will be excluded if they are discharged to a facility or leave against medical advice. In the intervention group, a clinical pharmacist will review the patients discharge medication list, correct discrepancies found with the prescriber, and provide discharge counseling. Adult patients discharged from UCMC without standardized discharge reconciliation and counseling by a pharmacist will serve as the control group.

All included patients will be contacted via telephone approximately thirty days after discharge to determine if they experienced any ADEs or had unscheduled healthcare visits as well as to assess medication compliance, post-discharge medication discrepancies, and patient satisfaction. A standardized data collection form will be used during the telephone interview to record this information. A physician adjudicator will assess all possible ADEs to determine if they were medication-related and preventable. Demographic data will be collected from the electronic medical chart. The primary endpoint will be the incidence of patients experiencing preventable ADEs in the intervention group compared to the control group. Secondary endpoints include the ADE occurrences, emergency department and urgent care visits, and readmissions within 30 days after discharge as well as mean patient satisfaction scores.

Learning Objectives:

Describe pharmacist-driven interventions during the discharge process that can improve patient care

Recognize the impact of pharmacist involvement in discharge on preventable adverse drug events

Self Assessment Questions:

Previous studies have shown that pharmacist-intervention at discharge leads to

A increased rates of rehospitalization.

B: reduction in preventable adverse drug events.

C: 100% adherence to medication regimens.

D: increased length of hospital stay.

Pharmacist-driven interventions that can be provided during the discharge process include

A obtaining a medication history.

B providing the patient with an extra supply of medication.

C picking up medications at the community pharmacy and delivering

D discharge medication reconciliation and counseling.

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-653 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

IMPLEMENTATION OF EDUCATIONAL TOOLS TO PROMOTE COMPREHENSION AND MEDICATION ADHERENCE AMONG HEMODIALYSIS PATIENTS

Katie L Axford, PharmD, BCPS*; Megan F Dorrell, PharmD, BCPS

Indiana University Health,1701 N Senate Blvd,AG401,Indianapolis,IN,46202

khinkle2@iuhealth.org

PURPOSE: Hyperphosphatemia, a major complication of end-stage renal disease (ESRD), contributes to high-turnover bone disease and has been shown to be an independent risk factor for cardiovascular disease in patients with renal failure. Consequently, hyperphosphatemia is associated with increased mortality in this patient population.

Current guidelines recommend dietary phosphorus restriction as first-line treatment in patients with ESRD on hemodialysis. When dietary restrictions are insufficient, phosphate binding agents may be used. Unfortunately, these medications must be taken with each meal and can create a significant pill burden to achieve adequate phosphorus control. As a result, patient adherence to prescribed phosphate binder regimens is often compromised.

The objective of this study is to develop and implement educational tools to increase comprehension of disease-state management and promote improved medication adherence among hemodialysis patients.

METHODS: All patients at the Indiana University Health North Capitol Dialysis Center between November 1st 2011 and March 31st 2012 were identified as potential study subjects. Subjects were eligible for enrollment in the study if they were at least 18 years of age, had end-stage renal disease on a stable thrice-weekly hemodialysis regimen, and had an active physician order for any phosphate binder.

Patients were administered an assessment survey to evaluate comprehension of and adherence to phosphate binder therapy. Following the assessment survey, investigators conducted a brief interactive educational session focused on phosphate management. Patient-friendly written information was provided to complement the session.

Comprehension and retention of information were measured by administration of the assessment survey immediately following and 7 to 21 days after participation in the educational session. Pre-education survey scores were compared to post-education survey scores to gauge efficacy of the educational tool in promoting patient comprehension.

RESULTS: Results and conclusions will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Recognize recommended options for the management of hyperphosphatemia in patients on hemodialysis.

Identify important counseling points when educating patients about phosphate binder therapy.

Self Assessment Questions:

Which of the following is NOT recommended for long-term management of hyperphospatemia in patients with ESRD on hemodialysis?

A Dietary phosphorus restriction

B: Sevelamer hydrochloride

C: Calcium acetate

D: Aluminum hydroxide

Which of the following is an appropriate educational point to share with patients receiving phosphate binder therapy?

A Take on an empty stomach.

B If you skip a meal, skip your dose.

C Avoid all foods containing protein.

D It is okay to crush sevelamer tablets if they are too big to swallow v

Q1 Answer: D Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-312 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

ESTABLISHING AN EXTENDED BEYOND USE DATING SYSTEM FOR CHEMOTHERAPY AGENTS WITH THE USE OF THE A CLOSED SYSTEM DRUG TRANSFER DEVICE

Mahshid Azimi, Pharm.D. *, Kathryn Schultz, Pharm.D., BCPS, BCOP, Sarah Hopps, Pharm.D., BCPS, Matthew A. Kemper, Pharm.D.

Rush University Medical Center,155 N Harbor Drive,Unit 814,Chicago,IL,60601

mahshid_azimi@rush.edu

Purpose: Common practice in compliance with the United States Pharmacopeia (USP) Chapter <797> guidelines for the disposal of single use vials maintained in an ISO Class 5 air is to use a "beyond use time of 6 hours, unless specified otherwise by the manufacturer". The purpose of this study is to use the PhaSeal Closed System Drug Transfer Device (CSTD) and determine if the beyond use date for these products, in particular with chemotherapy agents, can be extended up to the FDA approved 168 hours. This beyond use date extension is proposed to decrease the amount of chemotherapy waste to provide a means to maximize product use, decrease healthcare costs and provide a solution to the continuous drug shortage crisis.
Methods: The study will be prospective in nature and the data will be collected using Rush University Medical Center's inpatient and outpatien pharmacies. All chemotherapy agents that are manufactured in single-use vials and used in our pharmacies will be included. Currently, the standard practice is consistent with the USP Chapter <797> guidelines. Data collected will compare a pre and post implementation of this study. Analysis will look at the difference in the number of chemotherapy medication vials saved and used at 6 hours vs. up to a 168 hour sterility window. The amount of milligrams of each drug wasted and the possible cost savings associated with the implementation of the study will be calculated and analyzed.
As this is a prospective study and active data collection is being carried out, the summary of results & conclusion will be available upon presentation.

Learning Objectives:

Define what is a closed system drug transfer device

Identify advantages seen when extending the beyond use date for single vials

Self Assessment Questions:

Which of the following statements best defines a closed system drug transfer device (CSTD)?

A A CSTD prohibits the entry of contaminants into the system

B: A CSTD prohibits the exit of hazardous drugs into the environment

C: A CSTD prohibits the entry of contaminants and exit of hazardous

D: A CSTD offers no protection against the exist of hazardous drugs i

Which of the following is an advantage if the beyond use date for single use vials is extended?

A It will result in an increase in vial waste

B It will contribute to higher healthcare costs

C It will resolve the drug shortage crisis

D It will provide a means to maximize our product use

Q1 Answer: C Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-654 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

OBESITY AND HEPARIN DOSING FOR VENOUS THROMBOEMBOLISM: DO PATIENTS RECEIVE THE RECOMMENDED DOSE?

Brian T. Badgley*, Pharm.D., Suprat Saely, Pharm.D. BCPS, Peter Whittaker, Ph.D.

Detroit Receiving Hospital,4201 St. Antoine Blvd.,UHC-1B,Detroit,MI,48201

bbadgley@dmc.org

Purpose: Obesity, defined as a body mass index (BMI) ≥30kg/m2, is associated with an increased risk of venous thromboembolism (VTE). VTE is frequently treated with unfractionated heparin according to weight based nomograms: 80 unit/kg initial bolus and 18 unit/kg/hr infusion. However, evidence suggests obese patients often receive lower doses than recommended. We sought to determine if obese patients: (1) receive recommended heparin doses, (2) require longer to achieve therapeutic anticoagulation (aPTT>60s), and (3) experience more VTE-related adverse events. We hypothesized that conservative anticoagulation in the obese prolongs the time to therapeutic aPTT.

Methods: We retrospectively identified patients with VTE who presented to an emergency department and were initially treated with heparin. Patients were stratified into BMI groups: (1) <30.0, (2) 30.0-34.9, (3) 35.0-39.9, and (4) ≥40.0 kg/m2. We recorded each patients demographics, heparin bolus and infusion doses, first therapeutic aPTT, and adverse events (bleeding, 3-month recurrence, mortality). Currently, we have completed analysis for the BMI>40 kg/m2 group; means compared using t-tests and categorical data with Fishers exact test.

Results: Eighty-one patients were identified with BMI>40 kg/m2 of which 29 (BMI 47.57.8 kg/m2) received heparin. These patients were divided into those who achieved aPTT>60s within twelve hours (success, n=16) and those who did not (failure, n=13). There were no inter-group differences in demographics. The initial bolus was lower for the failures (44.918.5 vs. 55.67.3 units/kg; P<0.05). The starting infusion rate was also lower (10.62.8 vs. 12.81.4 units/kg/hr; P<0.01). Adverse event incidence did not differ between groups (success 1/16 vs. failure 0/13; P=1.00).

Conclusions: Our preliminary analysis revealed that obese patients were under-dosed according to standard nomograms. Furthermore, failure to achieve therapeutic aPTT within 12 hours was associated with lower heparin doses; findings consistent with our hypothesis of conservative anticoagulation in obese patients. However, this requires confirmation by assessing the remaining BMI groups.

Learning Objectives:

Review current literature regarding heparin dosing for venous thromboembolism in the obese.

Discuss possible short-comings of dosing strategies for unfractionated heparin to provide therapeutic anticoagulation for the obese.

Self Assessment Questions:

What are possible dosing strategies for unfractionated heparin in morbidly obese patients with venous thromboembolism?

A Use total body weight (TBW) with a maximum initial bolus and infus

B: Dose based on adjusted body weight (ABW) when TBW>130% IB

C: Consider ideal body weight (IBW) if patient is at high risk for bleedi

D: No validated strategy for the obese patient exists; any of the above

The results from our study suggest:

A Most obese patients are initially under-dosed on heparin based on

B Those patients who are under-dosed may experience prolonged tir

C Unfractionated heparin has been proven superior to other anticoag

D A & b

Q1 Answer: D Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-313 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

INFLUENCE OF ACCESS-SITE AND DRUG THERAPY ON BLEEDING DURING PERCUTANEOUS CORONARY INTERVENTION

Aaron J. Bagnola, Pharm.D*; Danielle M. Blais, Pharm.D, BCPS; Montoya K. Taylor, M.D.; Quinn Capers IV, M.D, FACC, FSCAI

The Ohio State University Medical Center,368 Doan Hall,410 West 10th Avenue,Columbus,OH,432101228

aaron.bagnola@osumc.edu

Purpose: Bleeding is a complication of percutaneous coronary intervention (PCI). Several trials have shown a reduction in access-site bleeding utilizing the radial artery for PCI. Other previous trials focusing on pharmacotherapy have touted a significant reduction in bleeding using bivalirudin versus a glycoprotein IIb/IIIa inhibitor with unfractionated heparin (UFH), but these trials have also noted a numerical increase in ischemic events. The current study is a single-center retrospective review evaluating bleeding outcomes of patients undergoing PCI via the radial artery and receiving a glycoprotein IIb/IIIa inhibitor with UFH versus the femoral artery and receiving bivalirudin.

Methods: Adult patients undergoing PCI between September 1, 2010 and September 30, 2011 at The Ohio State University Medical Centers Ross Heart Hospital will be included in this study if the intervention access-site was via the radial artery and the patient received a glycoprotein IIb/IIIa inhibitor with UFH, or the femoral artery was chosen and the patient received bivalirudin. Patients will be excluded if they are: undergoing PCI for a presumed ST-segment elevation myocardial infarction, under 18 years of age, or pregnant. Patient demographic and baseline data collected includes: age, sex, weight, serum creatinine, hemoglobin, INR, pertinent past medical and surgical history, and Mayo risk score. Procedural data collected will include PCI indication, access-site, drug therapy received (clopidogrel, prasugrel, UFH, abciximab, bivalirudin, and eptifibatide) with appropriateness of the dosing strategy (per current guidelines and activated clotting time goals), and the primary treatment strategy. The primary outcome measure is bleeding events within 72 hours. Secondary outcome measures include site of bleeding, hematoma (including size), any blood transfusion, other vascular complications requiring treatment, length of stay, and in-hospital mortality. Outcomes were adjudicated per the American College of Cardiology Foundation definitions.

Results/Conclusions: Results are ongoing and will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Review the current literature evaluating pharmacological and access-site options for patients undergoing PCI.

Identify pharmacological and procedural methods to reduce bleeding complications in patients undergoing PCI.

Self Assessment Questions:

The net clinical benefit of using bivalirudin for the management of patients undergoing PCI is driven by which of the following?

A Reduction in myocardial infarctions

B: Reduction in major bleeding events

C: Reduction in acute stent thrombosis

D: Reduction in unplanned revascularization for ischemia

Which of the following statements is true regarding the National Cardiovascular Data Registry (NCDR) CathPCI Registry bleeding events definitions?

A Bleeding events must have occurred within 48 hours of PCI

B Hemoglobin drop of greater than or equal to 4 g/dL

C Transfusion of at least 2 units of whole blood or packed red blood c

D Requires intervention at bleeding site to reverse/stop or correct ble

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-314 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

ENGAGING PHARMACISTS TO BECOME EFFECTIVE STEWARDS OF THE FORMULARY SYSTEM THROUGH THE USE OF COMMUNICATION, EDUCATION, AND DOCUMENTATION

Jeffrey W Bahng, PharmD, Leslie K Kenney, BS Pharm, BCPS

Norton Healthcare,Norton Healthcare Pharmacy Services, N-47,315 East Broadway, Suite 50,Louisville,KY,40202

jeffrey.bahng@nortonhealthcare.org

Purpose:
The concept of formularies dates back to the 1940s, serving as drug lists developed by the military. Since then, formularies have evolved into much more sophisticated systems that involve methods for safe prescribing, distribution, administration, and monitoring of medications. Pharmacists have historically been charged with maintaining the integrity of the formulary system; however, there are challenges that can limit the ability of pharmacists to do this. Norton Healthcare is implementing a new system-wide formulary policy that will require pharmacists to actively enforce formulary standards and engage healthcare providers. The purpose of this study is to identify the needs and barriers in communication, education, and documentation for pharmacists when enforcing the formulary process and to incorporate this data into strategies to improve the effectiveness of pharmacists managing the formulary.

Methods:
All Norton Healthcare pharmacists in 4 adult facilities will be invited to complete an electronic survey focusing on communication, education, and documentation in regards to managing the formulary. Demographic data will include age groups, gender, and experience in years as a pharmacist. Information from the survey will be used to develop a standardized process for managing the formulary that specifically addresses concerns of the pharmacists. This process will be presented to the pharmacists and a post survey will be completed to assess their perceptions of this process and their abilities to manage the formulary. Chi-squared tests will be used to analyze categorical data. Continuous variable data will be analyzed for comparison with t-tests.

Results:
Results and conclusions to be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Describe the importance of formularies in regards to safety, efficacy, and cost.

Identify barriers pharmacists may face in enforcing formulary initiatives to prescribers.

Self Assessment Questions:

Which of the following describe the roles of formularies?

A Maintaining consistency of drugs used

B: Maintaining safety of patients

C: Maintaining cost of drugs

D: B and C

What are the most significant challenges pharmacists may face when maintaining the formulary?

A Disturbing physicians

B Lack of time

C Delaying therapy to the patient

D B and C

Q1 Answer: D Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-655 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

CLINICAL IMPACT OF AN EMERGENCY DEPARTMENT (ED)-SPECIFIC ANTIBIOGRAM

Abby M. Bailey, PharmD*; Stephanie N. Baker, PharmD, BCPS; Kyle A. Weant, PharmD, BCPS

University of Kentucky HealthCare,800 Rose Street,Lexington,KY,40536

abby.mynatt@uky.edu

Purpose: The intent is to develop and implement an emergency department (ED)-specific antibiogram. Based on positive culture results for urinary tract infections (UTI), we will develop an antibiogram specific for ambulatory patients who present and are discharged from the University of Kentucky ED. We believe resistance patterns discovered from this patient population may vary from those of the institution as a whole. Also, we believe prescribing patterns do not reflect community resistance rates but more the resistance patterns of the institution. Objectively, we hope to determine whether an ED antibiogram will reveal a difference in resistance patterns as compared to the institution and if breaking the ED antibiogram into six month periods over three years will reveal any evolving resistance rates for organisms specifically known to cause urinary tract infections.

Methods: Data will be from January 1, 2007-October 31, 2011 for patients discharged from the ED with a UTI. Inclusion criteria include: adults 18 years of age or older, patients evaluated discharged from the ED with a diagnosis of urinary tract infection. Exclusion criteria include: age less than 18 years old, pregnancy. Our primary endpoint is a comparison of the ED and institutional antibiograms with regard to the resistance rates of Escherichia coli to levofloxacin. Our secondary endpoints include an analysis of the ED antibiogram over a period of 3 years to determine if changes in resistance patterns occurred during that time, to assess for risk factors associated with antimicrobial resistance in an ambulatory population, and discuss implications associated with inappropriate empiric therapy (i.e.-readmissions or recurrent ED visits). Data on antibiogram resistance rates will be assessed using chi-square or Fischers exact method and regression analysis will be used to compile risk factors for antimicrobial resistance.

Results: Results will be presented at the Great Lakes Pharmacy Residency Conference

Learning Objectives:

Discuss information outlined in the most recent guidelines for cystitis and pyelonephritis regarding appropriate scenarios for prescribing of fluoroquinolones for uncomplicated cystitis.

Discuss the clinical implications of an emergency department-specific antibiogram when comparing resistance rates of Escherichia coli to levofloxacin to an institutional antibiogram.

Self Assessment Questions:

Overutilization of fluoroquinolones have been implicated in which of the following:

A Decreased incidence of drug-related adverse events

B: Increased incidence of treatment failure

C: Increased incidence of collateral damage

D: Decreased incidence of hospital admissions

Fluoroquinolones should not be utilized for empiric therapy in urinary tract infections or pyelonephritis if resistance rates of Escherichia coli exceed what percentage?

A 5%

B 10%

C 15%

D 20%

Q1 Answer: C Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-315 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

ASSESSING CLINICAL OUTCOMES OF PATIENTS PRESCRIBED 24 MONTHS OF CLOPIDOGREL THERAPY FOLLOWING DRUG-ELUTING STENT IMPLANTATION

*Stacey R. Bailey, PharmD, Shelly R. Keiser, PharmD, BCPS, Melanie R. Smith, PharmD, BCACP, Masoor Kamalesh, MD

Richard L. Roudebush Veterans Affairs Medical Center,1481 W. 10th St.,Indianapoli,IN,46202

Stacey.Bailey@va.gov

Statement of Purpose: The purpose of this study is to evaluate clinical outcomes of patients prescribed 24 months of clopidogrel therapy following drug-eluting stent (DES) implantation. The primary (composite) endpoint is the rate of occurrence of in-stent rethrombosis/restenosis, MI, CVA/TIA, and CV death. The secondary endpoint assesses safety by evaluating incidence of major bleeding. Major bleeding will be defined per TIMI criteria as a decrease in hemoglobin ≥ 5% or hematocrit ≥ 15%.
Statement of Methods: A retrospective chart review will be performed on patients prescribed 24 months of clopidogrel following implantation of a DES. Patients receiving a stent between January 1, 2007 and December 31, 2008 will be reviewed. The single inclusion criterion for this study is implantation of a first DES at Roudebush VAMC over the 2-year period from January 1, 2007 through December 31, 2008. Exclusion criteria include previous DES placement or use of clopidogrel for any indication other than DES. Prior to initiation of this study, approval from IUPUI IRB and VA Research and Development Committee was obtained. From the computerized patient record system, the following data will be reviewed for each patient: age, gender, height, weight, and race; type of stent placed; prescription of any of the following medications (and duration of use): clopidogrel, aspirin, warfarin, ticlopidine, dipyridamole; occurrence of any of the following complications (and whether they occurred while taking clopidogrel; if not, how soon after discontinuation): in-stent rethrombosis/restenosis, MI, CVA/TIA, CV death, or occurrence of major bleed per TIMI criteria. Data analysis will be conducted with Statistical Package for Social Sciences (SPSS) software. Descriptive statistical analyses will be used to evaluate collected data. McNemars non-parametric test of paired samples will be utilized to evaluate nominal data. A paired t-test will be utilized to evaluate continuous data.
Conclusions: Pending at time of submission.

Learning Objectives:

Recall the most recent recommendations for duration of clopidogrel therapy following DES implantation.

Describe some potential risks associated with clopidogrel therapy.

Self Assessment Questions:

Which of the following statements is true?

A Clopidogrel therapy should last for 6-9 months following DES impla

B: Clopidogrel therapy is not necessary following DES implantation.

C: Clopidogrel therapy should last for a maximum of 1 year following I

D: Clopidogrel therapy should last at least one year following DES imp

Which of the following is a potential adverse event associated with clopidogrel therapy?

A Gastrointestinal bleeding

B Nephrotoxicity

C Vision disturbances

D Headache

Q1 Answer: D Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-316 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

CHARACTERIZATION OF INFECTIONS AND COMPARISON OF OUTCOMES ASSOCIATED WITH VANCOMYCIN-INTERMEDIATE STAPHYLOCOCCUS AUREUS AND METHICILLIN-RESISTANT STAPHYLOCOCCUS AUREUS WITH VARYING VANCOMYCIN MICS

Katie E. Barber, Pharm.D.*; Anthony M. Casapao, Pharm.D.; Jason M. Pogue, Pharm.D.; Michael J. Rybak, Pharm.D., MPH

Detroit Receiving Hospital,4201 St. Antoine Boulevard,Detroit,MI,48201

kbarber2@dmc.org

Purpose: Staphylococcus aureus is a problematic Gram-positive organism with continually evolving virulence and drug resistance. Over the past decade, isolates with varying degrees of reduced susceptibility or resistance to vancomycin have emerged. Isolation of multidrug resistant S. aureus decreases the likelihood of a positive patient outcome. There have been several clinical reports that have associated loss in vancomycin susceptibility and a poor patient response including persistent bacteremia, increase in morbidities and prolonged hospital stay. The purpose of this study is to determine the effect of vancomycin susceptibility on patient outcomes including costs in patients with S. aureus bacteremia.

Methods: All adult patients at the Detroit Medical Center (DMC) with a positive blood culture from 2005 to 2011 with vancomycin susceptibility data will be included. VISA patients, identified by a positive blood culture with a vancomycin MIC of ≥4 mg/L, will be matched for age, source of infection and Pitt Bacteremia Score to patients with a MRSA positive blood culture with vancomycin MICs of >1 mg/L to <4mg/L and MICs of ≤1 in a 1:1:1 ratio. Isolates will be confirmed as S. aureus and the vancomycin MICs reported by DMC microbiology laboratory determined by Clinical Laboratory and Standards Institute (CLSI) guidelines. Patients with hVISA will be excluded by macro Etest and or population analysis determined by the Anti-Infective Research Laboratory, Wayne State University. Data to be collected will include: demographics, length of stay, hospital cost, culture and susceptibilities, drug therapy, location within the hospital, requirement of hemodialysis, disease outcomes and attributed mortality at 30 days after the first positive blood culture and all-cause mortality. Pitt Bacteremia Score will be utilized to assess severity of illness.

Results/Conclusion: Data collection will be completed in March and compiled for presentation at the 2012 Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Recognize the evolving virulence of Staphylococcus aureus and potential concerns that may be attributed.

Discuss the impact of vancomycin minimum inhibitory concentration on patient outcomes with MRSA bacteremia.

Self Assessment Questions:

What is the associated cost increase due to infections with methicillin-resistant S. aureus vs. methicillin-susceptible S. aureus bacteremias?

A 1.4 times costs

B: 2.8 times costs

C: 4.2 times costs

D: 5.6 times costs

Which of following risk factors is NOT associated with increased mortality in S. aureus bacteremias?

A age

B increased number of co-morbidities

C methicillin-resistance

D decreased vancomycin MICs

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-317 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

PHARMACIST USE OF AN ELECTRONIC MEDICAL RECORD TO IMPROVE CARE AND MONITORING OF CHRONIC KIDNEY DISEASE IN A PATIENT-CENTERED MEDICAL HOME

Kelli D. Barnes PharmD*, Neeraj Tayal MD, Amy Lehman M.A.S., Stuart J. Beatty PharmD, BCPS

The Ohio State University College of Pharmacy,500 W. 12th Ave.,Columbus,OH,43210

kelli.barnes2@osumc.edu

Purpose: The purpose of this study is to use the electronic medical record (EMR) and pharmacist intervention to identify patients with stage 3, 4, or 5 CKD and improve care within a patient-centered medical home. Objectives of the study are to increase compliance with the National Kidney Foundation guidelines for monitoring and care of CKD, ensure appropriate dosing of medications based on patients calculated creatinine clearance, determine the percentage of pharmacist recommendations accepted by the patients primary care physician, and track pharmacist time spent completing the intervention.

Methods: The EMR will generate a list of adult patients with an estimated glomerular filtration rate <60 mL/min/1.73mm2. A retrospective chart review of identified patients will be performed to: 1) confirm presence of CKD in patients with criteria for stage 3, 4 or 5 CKD, 2) assess completion of recommended laboratory monitoring and medication therapy for CKD, and 3) assess appropriate dosing of medications. Pharmacist recommendations for care will be communicated with the patients primary care physician through use of the EMR; patients will be contacted if laboratory measures or medication changes are recommended. A second review of the EMR will take place 30 days after communication to determine the percentage of recommendations acted upon by the physician.

Results: The proportions of patients with each recommendation for laboratory monitoring or medication changes ordered 30 days after intervention and a 95% confidence interval will be reported. Results from the EMR review leading to pharmacists recommendations will be reported. Statistical differences in the laboratory monitoring and medication use of patients with and without CKD listed as a medical problem in the EMR prior to intervention will be reported. Time spent by the pharmacist to complete this intervention will be reported to characterize implementation of this novel pharmacy practice model.
Conclusions: Pending

Learning Objectives:

Classify stage of chronic kidney disease based on patients calculated creatinine clearance

Outline the recommended laboratory tests and medication therapy for patients with stage 3, 4, or 5 chronic kidney disease

Self Assessment Questions:

DG is a 63 year old African American male with SCr of 1.72 and eGFR of 49 mL/min/1.73 m2. DG has

A Stage 2 CKD

B: Stage 3 CKD

C: Stage 4 CKD

D: Stage 5 CKD

Which of the following is NOT a recommended laboratory test for DGs chronic kidney disease?

A Thyroid Stimulating Hormone

B Lipid Panel

C Complete Blood Count

D Serum Ca, phosphorus, and parathyroid hormone

Q1 Answer: B Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-318 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

COMPARISON OF TREATMENT OUTCOMES FOR VANCOMYCIN ALONE VERSUS COMBINATION THERAPY IN SEVERE CLOSTRIDIUM DIFFICILE INFECTION

Stephanie N. Bass, Pharm.D.*; Seth R. Bauer, Pharm.D., BCPS; Elizabeth A. Neuner, Pharm.D., BCPS; Simon W. Lam, Pharm.D., BCPS.

Cleveland Clinic Foundation,9500 Euclid Avenue,JJN1-02,Cleveland,OH,44195

basss@ccf.org

Background: According to treatment guidelines for Clostridium difficile infection (CDI), the recommended treatment of severe infection is oral vancomycin 125 mg four times daily for 10-14 days. Combination therapy with metronidazole and vancomycin is recommended only in severe-complicated cases with shock, ileus, or toxic megacolon. However, many patients with severe infection are often treated with combination therapy. To date, no comparison studies have been published on the in vivo effect of combination therapy with vancomycin and metronidazole.

Objective: To evaluate differences in treatment outcomes for patients with severe CDI treated with oral vancomycin alone or with combination therapy.

Methodology: This study is a non-interventional, retrospective chart review. The primary objective of the study is to assess time to clinical cure of CDI defined as resolution of diarrhea without development of a complication. Secondary objectives include comparing rates of complications, which are defined as the development of toxic megacolon or colonic perforation, or the need for emergency colectomy within 10 days of initiation of therapy. Furthermore, rates of CDI recurrence and death within 30 days will be assessed. Adult patients with severe CDI receiving either oral vancomycin or combination therapy for at least 72 hours without crossover are included. Patients were excluded if they had mild, severe-complicated, or recurrent CDI, irritable bowel disease, graft versus host disease, neutropenia, or cirrhosis. Data describing patient demographics, anti-C. difficile agents used, daily CDI symptoms, complications, and recurrence rates will be collected. The students t-test or Mann Whitney-U test will be used to evaluate continuous data as appropriate, while nominal data will be assessed with either the Chi-square test or Fishers exact test. Time to clinical cure will be evaluated with Cox proportional hazards method.

Results and Conclusions: To be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Classify the treatment of Clostridium difficile according to severity of illness

Outline the research design and methods

Self Assessment Questions:

What is recommended treatment for severe Clostridium difficile infection?

A Metronidazole 500 mg PO TID

B: Metronidazole 500 mg IV TID

C: Vancomycin 125 mg PO QID

D: Vancomycin 500 mg PO QID plus metronidazole 500 mg IV TID

According to SHEA and IDSA treatment guidelines, what patients should receive combination therapy with oral vancomycin and intravenous metronidazole for treatment of Clostridium difficile infection?

A Mild infection

B Moderate infection

C Severe infection

D Severe-complicated infection

Q1 Answer: C Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-319 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

CUSTOMIZATION OF MEDICATION-RELATED ALERTS TO OPTIMIZE COMPUTERIZED CLINICAL DECISION SUPPORT

Carly J. Bates*, PharmD; Dennis Brierton, PharmD, BCPS, FASHP

Aurora Health Care,2900 W Oklahoma Ave,Milwaukee,WI,53215

carly.bates@aurora.org

Purpose: Comprehensive medication related databases intended to enhance clinical decision making and improve patient safety may be of limited value in actual practice due to the nature and number of alerts presented to physicians and pharmacists at the point of medication order entry and order verification. Studies have suggested that unfiltered vendor databases are associated with an overwhelming number of alerts leading to desensitization and alert fatigue. In the end, this reduces the likelihood that these medication databases are seen as a meaningful clinical tool. The purpose of this project is to assess the nature and response to medication-related alerts in an integrated healthcare system database and to use this information to make appropriate modifications to available vendor filters. This will provide more clinically meaningful alerts and minimize unwanted interruptions in the medication ordering and verification process.

Methods: The initial steps of this project included learning how to most effectively use the Alerts Statistics Report, a tool created to measure the alerts that fire during order entry and order verification. The report is used to analyze the quantity and quality of specific alert types including drug-disease, duplicate therapy, duplicate medication, drug-drug, and drug-dose alerts. At the same time, vendor databases containing the information the alerts are based on are analyzed.
The various options for filter settings for each alert type are assessed. Recommendations to various governing committees are made regarding the filter settings based on the analysis from the alerts statistics report and the vendor databases. Once filter settings are adjusted, follow-up analysis of the effects will be completed.

Results/Conclusions: Data collection is in progress; results and conclusions will be presented at Great Lakes Residency Conference.

Learning Objectives:

Discuss the difference between a filter and suppressed alert

Identify the difference between duplicate therapy alerts and duplicate medication alerts

Self Assessment Questions:

What is true of a filtered alert?

A Data on filtered alerts is collected on the Alerts Statistics Report

B: Filtered alerts cannot be seen by caregivers

C: A suppressed alert is another name for a filtered alert

D: If an alert is filtered for one caregiver, it is filtered for all caregivers

Which medication pair would produce a duplicate medication alert?

A Heparin 5,000 units SC BID and enoxaparin 30 mg SC BID

B NS IV flush BID PRN and NS 250 mL bolus one time

C NS IV flush BID and NS 250 mL bolus one time

D KCl 20 mEqu daily and KCl 20 mEqu every 4 hours PRN

Q1 Answer: A Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-790 -L05-P

Activity Type: Knowledge-based Contact Hours: 0.5

A FINANCIAL ANALYSIS OF INFLIXIMAB AND DEVELOPMENT OF A THERAPEUTIC INTERCHANGE PROGRAM WITHIN NORTHSHORE UNIVERSITY HEALTHSYSTEM

Dharmesh B. Bavda, PharmD*; George Vass, PharmD, MBA

NorthShore University HealthSystem,Glenbrook Hospital,2100 Pfingsten Road,Glenview,IL,60026

Dbavda@northshore.org

Purpose:
Tumor-necrosis alpha (TNF-alpha) inhibitors are biological agents used for a variety of disease states including rheumatoid arthritis, Crohns disease, ulcerative colitis, psoriasis, and ankylosing spondylitis. Agents such as such as infliximab, adalimumab and etanercept are similar in their clinical effectiveness but differ in indications, route, frequency of administration, and cost. Infliximab is the only TNF-alpha inhibitor which is administered as an infusion at a physician office or a hospital infusion center. Increasingly physicians are referring patients to a hospital infusion center for administration of infliximab because of the cost burden.

At NorthShore University HealthSystem (NorthShore), assessing the infusion center business model is a primary goal of the organization because of drug acquisition and operation costs. Additionally, the reimbursement model for infusion centers are changing; Center for Medicare and Medicaid Services currently has set reimbursement at average sale price plus 5% with further decreases anticipated. Because of these factors, a financial analysis of infusion centers at NorthShore will be conducted specifically looking at infliximab and its utilization. If justified, a cost-savings therapeutic interchange program will be developed.

Methods:
Monthly utilization reports from September 2010 through September 2011 will be reviewed to collect infliximab indication, prescriber and dosage. Patient revenue will be calculated using a charge formula. Information regarding operational expenses will be obtained from the finance department. A cost-savings analysis will be conducted for infliximab based on these findings. Finally, a policy outlining the criteria for a therapeutic interchange of infliximab to an alternative agent will be created within NorthShore.

Results/Conclusion:
Data collection and analysis is ongoing. Results and conclusions will be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Outline the process for a financial analysis for medications used in an infusion center.

Describe the method for development of a therapeutic interchange program

Self Assessment Questions:

Which of the following statements is correct?

A TNF-alpha inhibitors have the same route and frequency of admini
B: Infliximab is given within a patient's place of residence.
C: The clinical effectiveness is similar among TNF-alpha inhibitors.
D: All TNF-alpha inhibitors have the same approved indications for us

Which of the following is a reason to develop a therapeutic interchange for biologics?

A Costs are remaining the same for biologics
B A cost burden is placed on administration and the pharmacy depar
C Hospitals are shifting infliximab infusions to physician offices.
D Reimbursement rates will increase for infliximab from average who

Q1 Answer: C Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-656 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

IDENTIFICATION OF PATIENTS AT RISK FOR GLUCOCORTICOID-INDUCED OSTEOPOROSIS AND ASSESSMENT OF A TARGETED PROVIDER INTERVENTION

Joshua B. Bayer, PharmD*, Angela C. Paniagua, PharmD, BCPS, CGP, Angela S. Green, PharmD, BCPS, Jill M. Hansen, PharmD, Denise A. Teves Qualler, MD

Clement J. Zablocki Medical Center,5000 W. National Ave.,Milwaukee,WI,53295

joshua.bayer@va.gov

Statement of the purpose:
The purpose of this project is to assess the medical centers current evaluation and treatment of Glucocorticoid-Induced Osteoporosis (GIOP) in patients using long-term prednisone therapy (greater than 7.5 mg per day for greater than 3 months). The project will also assess a prospective, targeted provider intervention for patients with an indication for prevention and treatment of GIOP, but not currently receiving therapy

Statement of methods used:
The first phase of the study will involve a retrospective chart review for patients with an active prescription that meets the study-defined criteria for long-term prednisone therapy. Patients taking prednisone 7.5mg per day or more for greater than 3 months during a predefined one year time period will be used in the study. The chart review will assess the following factors: bone mineral density testing, history of fracture, and medication prescribed for bone loss prevention. The second phase of the study will assess the effectiveness of a targeted provider intervention (via a progress note in the Computerized Patient Record System). The progress note will be placed in patient charts and the primary provider alerted if the patient has not received bone mineral density testing or not currently receiving therapy for the prevention/treatment of GIOP with recommendations based on the current guidelines for prevention/treatment of GIOP. A follow-up assessment (via chart review) will be the final phase of the study to determine any provider action taken related to recommendation to determine the efficacy of the intervention.

Summary of (preliminary) results to support conclusion: Data collection is underway at this time.

Conclusions reached: Not available at this time.

Learning Objectives:

Recognize current trends in provider practice related to the prevention and treatment of GIOP.

Identify patient populations most at risk for GIOP who would warrant use of preventative therapy.

Self Assessment Questions:

Which of the following statements is correct based on current studies assessing GIOP?

A The majority of patients at risk for GIOP from long-term steroid use
B: Knowledge regarding prevention and treatment of GIOP appears to
C: Current studies on GIOP have shown poor adherence to the ACR g
D: There is a lack of good treatment options for prevention of GIOP.

Which of the following patients would be a candidate for alendronate therapy based on their risk for developing GIOP (according to American College of Rheumatology 2010 Recommendations for the Prevent

A 66 year old male with an acute exacerbation of COPD receiving a 2
B 55 year old male receiving prednisone 2.5mg daily for Rheumatoid
C 72 year old male taking prednisone 20mg daily x 5 days for gout at
D 68 year old male receiving prednisone 10mg daily for severe COPI

Q1 Answer: C Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-320 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

IMPACT OF A FIVE WEEK MTM BASED PHARMACY PRACTICE EXPERIENCE ON APPE STUDENTS

Morgan L. Beck* PharmD/MBA, Julie N. Bosler PharmD, BC Childress PharmD

Sullivan University College of Pharmacy,2100 Gardiner Lane,Louisville,KY,40205

mbeck@sullivan.edu

Objective:
Assess the impact of a MTM based APPE rotation on students rotating through the InterNational Center for Advanced Pharmacy Services (INCAPS). The results will be used to make improvements to the MTM focused rotation offered at INCAPS.

Methods:
Beginning in October of 2011, APPE students rotating through the InterNational Center of Advanced Pharmacy Services (INCAPS), at Sullivan University in Louisville, KY, will be given a pre-test during the first week of rotation. The pretest will assess each students prior knowledge of five different topics or disease states that are commonly encountered during MTM consults. The pre-test will contain 25 questions or five from each of the following topic areas: osteoporosis, hypertension, diabetes, inappropriate use of medications in the elderly, and asthma/COPD. The pre-tests will be graded and each student will receive a percentage score for each of the five areas to determine which areas they are weak in. During the five-week rotation students will be conducting MTM sessions on a daily basis and they will be given a weekly topic discussion by the residents or preceptor relating to one of the five topic areas. All five topics will be covered throughout the five week rotation using a standard presentation. On the last day of rotation a post-test identical to the pre-test will be given to assess whether or not the students knowledge of these five topics or disease states improved over the course of their MTM rotation at INCAPS. A survey given on the last day of rotation will assess the students experience at INCAPS as well as how they feel their confidence performing MTM improved. The data will be compiled and evaluated to see how INCAPS is impacting students.

Results: Pending

Conclusion: Pending

Learning Objectives:

Describe the impact of a MTM based APPE rotation on Post-assessment scores of APPE students rotating through the InterNational Center for Advanced Pharmacy Services (INCAPS)

Discuss the overall results obtained from the post-rotation survey results regarding student APPE experience at the InterNational Center for Advanced Pharmacy Services (INCAPS)

Self Assessment Questions:

Which of the five topic areas assessed on the Pre- and Post-Assessment showed the highest percentage of improvement over the 5 weeks?

A Asthma/COPD
B: Diabetes
C: Osteoporosis
D: Innappropriate use of medications in the Elderly

According to the post-rotation survey how did the majority of students feel their confidence performing MTM changed over the course of the INCAPS rotation?

A Greatly Improved
B Improved
C Stayed the same
D Decreased

Q1 Answer: A Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-657 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

RETROSPECTIVE REVIEW OF EMERGENCY DEPARTMENT TREATMENT PRACTICES FOR SKIN AND SOFT TISSUE INFECTIONS

Starr-Maree C. Bedy, PharmD*; Jeffrey M. Caterino, MD, MPH; Mary Beth Shirk, PharmD

The Ohio State University Medical Center,368 Doan Hall,410 West 10th Ave,Columbus,OH,432101228

starr.bedy@osumc.edu

Objective: Uncomplicated skin and soft tissue infections (SSTIs) are a common presentation in the Emergency Department (ED). Anecdotal evidence at The Ohio State University Medical Center (OSUMC) indicated patient care could be improved using local sensitivity data. The purpose of this study is to evaluate current ED treatment practices for uncomplicated SSTIs at OSUMC.

Methods: This single-center retrospective study was approved by the local institutional review board. Adults discharged from the ED between January 1 and June 30, 2011 with a diagnosis of uncomplicated SSTI were included. Exclusion criteria were incarceration, animal bite wounds, and previous treatment for the current infection. The primary outcome was discharge antibiotic prescription rate for non-observation service patients. To account for the diversity of patients, the a priori sample size was 150. Descriptive statistics were used to summarize results. Subjects were identified through a computer generated patient list from the health systems centralized data repository.

Results: The initial query returned 1151 unique medical record numbers. Subjects were randomly selected for screening against exclusion criteria. At the interim analysis, 71 of 194 subjects screened were included. Antibiotic prescription rate in non-observation service patients was 92% (48/52) with 52% receiving multiple antibiotic prescriptions. The abscess size was less than or equal to 5 cm for 15 of the 20 patients with documentation of size. Cultures were performed in 14 subjects and 50% were positive for MRSA. All MRSA positive cultures were sensitive to clindamycin, trimethoprim-sulfamethoxazole, and tetracycline. Not all patients had follow-up information; however, 11 patients (15%) had treatment failure based on an unscheduled return visit or a scheduled return visit at which therapy was altered.

Conclusion: Current practices in the OSUMC ED show considerable variability between prescribers. There is potential to improve empiric prescribing practices based on local sensitivities and development of treatment guidelines.

Learning Objectives:

Identify risk factors for community-acquired MRSA skin and soft tissue infections

Identify the most common pathogens associated with skin and soft tissue infections

Self Assessment Questions:

Staphyloccocus aureus is the most common pathogen associated with:

A Cellulitis
B: Abscess
C: Diabetic foot infections
D: Necrotizing fasciitis

Which of the following is a risk factor for community-acquired MRSA skin and soft tissue infections?

A Living in an apartment building
B Good hygiene
C Having an open surgical site
D Attending daycare

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-321 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

BEERS CRITERIA AND STOPP/START CRITERIA: MEDICATION EVALUATION WITH SCREENING TOOLS IN ELDERLY OUTPATIENTS

Ashton E. Beggs, PharmD*. Alison M. Walton, PharmD, BCPS. Jessica E. Wilhoite, PharmD, BCACP. Diane W. Healey, MD.

St. Vincent Hospital and Health Services,8414 Naab Road,Pharmacy,Indianapolis,IN,46260

axbeggs@stvincent.org

Purpose: Medication adverse effects can have profound medical and safety consequences for elderly patients. Strategies to identify both potentially inappropriate and appropriate medications have been developed. Tools utilized to identify potentially inappropriate medication are the Beers criteria and the Screening Tool of Older Persons Prescriptions (STOPP) criteria. Additionally, the Screening Tool to Alert doctors to Right Treatment (START) criteria is utilized to determine potentially appropriate medications in the elderly. Limited data is available comparing the Beers criteria and STOPP criteria, with most data coming primarily from the inpatient population. Additional data is needed to determine which criteria would be most suitable in an outpatient setting. The primary outcome of this study is to determine the most appropriate screening tool in the ambulatory setting for evaluating medication use in an ambulatory geriatric population comparing the Beers and STOPP criteria.

Methods: This institutional review board approved retrospective chart review will include patients referred for geriatric assessments at the St. Vincent Center for Healthy Aging during the months of January 2011 through February 2012. Exclusion criteria include patients who present with no medications, patients in whom a medication list is unable to be obtained, follow-up appointments, or patients age less than 65 years. Each patients medication list and medical history will be screened using the three tools described above (Beers criteria, START/STOPP criteria). Recommendations based on Beers criteria and STOPP criteria will be compared in regards to the number of potentially inappropriate medications, prescription cost savings, pill burden, and Anticholinergic Drug Scale scores. These factors will be modeled using multiple regressions and the adjusted means produced will be used to compare the criteria.

Results/Conclusions: Data collection is ongoing. Results and conclusions will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

List available criteria to evaluate medication lists for potentially inappropriate and appropriate medications in elderly patients.

Describe differences between the Beers criteria and STOPP/START criteria.

Self Assessment Questions:

Which of the following criteria can be utilized to assess for potentially APPROPRIATE medications in elderly patients?

A Beers criteria
B: STOPP criteria
C: START criteria
D: GO criteria

Which of the following statements is TRUE?

A STOPP criteria is updated annually
B STOPP criteria generally lists medications by name, while the Bee
C Beers criteria is revised annually
D Beers criteria generally lists medications by name, while the STOP

Q1 Answer: C Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-322 -L05-P

Activity Type: Knowledge-based Contact Hours: 0.5

AN EVALUATION OF ARGATROBAN DOSING IN CRITICALLY ILL PATIENTS AT UNIVERSITY OF ILLINOIS MEDICAL CENTER CHICAGO

Stephanie L Bennett, PharmD*; Michael T Johnson, PharmD

University of Illinois at Chicago,833 S. Wood St,Chicago,IL,60612

slbenn@uic.edu

Purpose: The objective of this study is to retrospectively compare efficacy and safety of initial argatroban dose ≥ 1 mcg/kg/min and < 1 mcg/kg/min in critically ill patients.

Background: Argatroban is a direct thrombin inhibitor used for the treatment of clinically-suspected heparin-induced thrombocytopenia. The first dosing study in critically ill patients with new onset multi-organ dysfunction prospectively evaluated 24 patients initiated on argatroban 2mcg/kg/min or 0.2mcg/kg/min continuous infusion. The authors found no difference in time to achieving therapeutic PTT but a reduced incidence of overt bleeding in patients started on 0.2mcg/kg/min. The purpose of this study is to further elucidate argatroban dosing in critically ill patients.

Methods: This study is a retrospective chart review that includes all patients administered argatroban while admitted to the medical/surgical intensive care unit from 9/1/2006 - 8/31/2011. Baseline demographics or day of MICU admission were collected that include SOFA score, SAPS I score, MELD score, age, gender, baseline platelet count, and vasopressor administration. Clinical data collected included anti-platelet factor 4 assay, serotonin release assay, initial argatroban dose, argatroban dose at which 2 sequential PTT 60-100 seconds, incidence of major bleeding (defined as bleeding causing mortality and/or a hemoglobin drop of ≥2 gram/deciliter or greater and requiring transfusion of ≥2 units packed red blood cells or bleeding intracranially, retroperitoneally, or into a major prosthetic joint), and any interventions required to correct a presumed bleed. The primary endpoint is time to therapeutic PTT in patients administered an initial argatroban dose ≥ 1 mcg/kg/min versus argatroban dose < 1 mcg/kg/min. Secondary endpoints include a comparison of the number of dose adjustments required to attain therapeutic PTT and incidence of major bleeding.

Results/Conclusions: Data collection is in progress and conclusions will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Select appropriate argatroban dose and monitoring parameters.

Describe available literature regarding argatroban dose recommendations.

Self Assessment Questions:

Argatroban can lead to falsely elevated:

A Partial Thromboplastin Time
B: Platelet count
C: International Normalized Ratio
D: Liver enzymes

Package insert recommended argatroban dosing is based on:

A Randomized trials
B Retrospective cohort trials
C Double-blind, placebo-controlled trials
D Prospective trials with historical control

Q1 Answer: C Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-323 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF INPATIENT SUSPENSION OF ORAL BISPHOSPHONATE THERAPY FOR OSTEOPOROSIS TREATMENT AND PREVENTION

Elizabeth Bentley, PharmD, MS*; Jia Zhou, PharmD

NorthShore University HealthSystem,Highland Park Hospital,777 Park Avenue West,Highland Park,IL,60035

ebentley@northshore.org

Purpose:
The oral bisphosphonates alendronate, risedronate, and ibandronate treat and/or prevent postmenopausal osteoporosis and its associated complications through the suppression of osteoclast activity, which decreases bone turnover and increases bone mineral density. After bisphosphonates are incorporated into bone, their estimated half life is more than 10 years. Based on study data, discontinuation of bisphosphonates after 3 to 5 years of therapy does not increase patients fracture risk. The administration of oral bisphosphonates is also staff-intensive and creates the risk of adverse drug events, such as dysphagia and heartburn. The purpose of this project is to implement a program to hold oral bisphosphonates upon patient admission and to estimate the resulting cost savings.

Methods:
A proposal to hold oral bisphosphonates upon patient admission will be presented to the Pharmacy and Therapeutics Committee at NorthShore University HealthSystem. In addition to the implementation strategy, a safeguard to ensure resumption of outpatient prescriptions upon discharge medication reconciliation will be included. Based on the number of orders filled for a one-year period, the annual cost savings to the health system will be calculated based on the wholesale cost. In addition, patient charts for that timeframe will be analyzed for any adverse effects potentially attributable to bisphosphonate use.

Results/Conclusion:
Results and conclusions will be presented at the Great Lakes Residency Conference.

Learning Objectives:

Describe the process required to implement an automatic hold of oral bisphosphonates upon hospital admission, including the clinical rationale for this recommendation.

Report estimated cost savings to the health system based on a typical years usage of oral bisphosphonates

Self Assessment Questions:

Which of the following oral bisphosphonates has the longest half life?

A Alendronate
B: Risedronate
C: Ibandronate
D: Risedronate, but they all have a half life of years once incorporated

Which of the following is a long-term (non-acute) side effect associated with oral bisphosphonates?

A Dysphagia
B New/worsening heartburn
C Atraumatic fracture
D Retrosternal pain

Q1 Answer: D Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-658 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

STANDARDIZATION OF NON STERILE COMPOUNDING THROUGHOUT A MULTIHOSPITAL SYSTEM

*Bouchra Bernichi, MS, PharmD, Stacy Wucherer, RPh

Aurora Health Care,1009 N. Jackson St,Milwaukee,WI,93215

bouchra.bernichi@aurora.org

Research-In-Progress Abstract
Purpose: There is a lack of consistency with non-sterile compounding documentation and computer entries within Aurora Health Cares 15 hospital integrated system. The current practices are variable between sites and are incompatible with U.S. Pharmacopoeia USP <795> standards and ASHP Technical Assistance Bulletin. The primary objectives of this study are standardization of non-sterile compounding documentation and computer entries throughout a multihospital system.
Methods: Prior to project initiation, approval from Institutional Review Board was obtained. An evaluation of system wide documentation of non-sterile compounding within Aurora Health Care was performed via a gap analysis survey. The survey was completed by site pharmacy managers system-wide who sent their non sterile compounding recipes and compounding documents. In addition, a system-wide compounding/formulation document was developed in accordance with USP <795> standards and ASHP requirements. A literature search will validate all compiled recipes. Therapeutically equivalent commercial products will be assessed to identify obsolete recipes. The standardized recipes will be built as computer entries.
Results: Twelve out of fifteen sites completed the survey. Nine out of the participating sites have formulation records that are available electronically or on hard copy. Five out of the participating sites have compounding records with variable content. To date, only four sites submitted recipes that are not included in the Aurora Health Care electronic manual. A formulation compounding record was created and will be used to implement validated recipes.

Learning Objectives:

Describe USP <795> documentation requirements for non sterile compounding

Recognize the steps involved on how to standardize and implement non sterile compounding documentation

Self Assessment Questions:

What are the required documents for non sterile compounding documentation according to USP <795>?

A A formulation record only
B: A compounding record only
C: Both a formulation and a compounding record
D: No documentation is required for non sterile compounding

What is the first step in implementing USP <795> documentation throughout a multihospital system?

A Create a formulation/compounding log
B Conduct a gap analysis survey
C Compile system recipes
D Standardize system recipes

Q1 Answer: C Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-659 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF CLINICAL OUTCOMES WITH MONOTHERAPY VERSUS COMBINATION THERAPY IN THE TREATMENT OF CLOSTRIDIUM DIFFICILE INFECTION

Pulkit Bhuptani, PharmD*, Lisa L. Forsyth, PharmD, Allycia M. Natavio, PharmD

William Beaumont Hospital,3601 W. Thirteen Mile Rd,Royal Oak,MI,48073

pulkit.bhuptani@beaumont.edu

Background
Clostridium difficile infection (CDI) is the leading cause of antibiotic associated diarrhea in the institutional setting. The role of antibiotic monotherapy with either oral metronidazole or oral vancomycin, as stratified by disease severity, has been established by published literature and practice guidelines formulated by the Infectious Diseases Society of America (IDSA). Routine employment of combination therapy in current practice is largely driven by expert opinion and prescriber preference. To our knowledge there are no studies comparing use of monotherapy against combination antibiotic therapy in the treatment of CDI.

Purpose
The purpose of this study is to evaluate clinical outcomes of CDI treatment with monotherapy, either with oral or intravenous metronidazole or oral vancomycin (study antibiotics), as compared to combination therapy with both antibiotics.

Methods
This was a retrospective single-center study. Patients were eligible for participation if they were ≥ 18 years of age, had a positive C.difficile toxir test (CDTT) and displayed clinical or radiographic evidence suggestive of CDI. Patients were excluded if they received < 72 hours of inpatient study antibiotics, had a positive CDTT but were not treated with antibiotics, had a history of a pre-disposing condition to diarrhea such as Crohns disease, were initially started on any drug other than the study antibiotics with anti-C.difficile activity or had a history of allergy or intolerance to study drugs. The primary end point is the time to clinical improvement of CDI. Secondary endpoints include: reoccurrence and major complications of CDI, rate of antibiotic failure and appropriateness of initial drug therapy selection as defined by IDSA guidelines. Data collected (patient demographics, CDI risk factors, drug regimen specific data and clinical, laboratory and radiologic parameters) will be used to classify disease severity and to monitor ongoing clinical improvement of infection.

Results
Results and conclusions will be presented at the conference.

Learning Objectives:

Identify common pharmacotherapeutic options used in the management of CDI

Describe the role of monotherapy and combination antibiotic therapy in relation to CDI disease severity

Self Assessment Questions:

Which of the following is NOT an appropriate therapeutic option for the management of CDI?

A IV metronidazole
B: PO metronidazole
C: IV vancomycin
D: PO vancomycin

A patient is diagnosed with CDI for the first time based on a positive PCR toxin test, clinical findings (> 5 loose stools per day and abdominal pain) and laboratory findings (WBC = 12.5, Scr = 0.90 [

A PO metronidazole
B IV metronidazole
C PO vancomycin
D IV metronidazole + PO vancomycin

Q1 Answer: C Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-324 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF THE TREATMENT OF ACUTE DELIRIUM IN THE INTENSIVE CARE UNIT AT AN ACADEMIC MEDICAL CENTER

Ann N Biesboer*; William J Peppard; Garret L Newkirk; Seth J Thomas

Froedtert Hospital,933 Royalty Court,Oconomowoc,WI,53066

abiesboe@fmlh.edu

Delirium in the intensive care unit (ICU) is associated with numerous negative sequelae, including but not limited to increased hospitalization time, cost, and mortality. Antipsychotic medications have been suggested to be effective pharmacologic options for the treatment of ICU delirium.

This study is a retrospective analysis evaluating the efficacy of various treatment regimens of acute delirium in the ICU setting at an academic medical center. Patients who were admitted to the medical, surgical, or cardiovascular intensive care unit, were of age greater than eighteen years at admission, and had a documented positive CAM-ICU were included in this study. Exclusion criteria include patients with a brain injury, baseline neurologic dysfunction other than dementia, hepatic encephalopathy, or alcohol withdrawal. The primary outcome is the duration of delirium. Secondarily, we will assess the duration of antipsychotic therapy, adverse events, survival at discharge, and length of stay in the intensive care unit.

Following institutional review board approval, data collection and evaluation will commence.

Learning Objectives:

List potential negative sequelae associated with delirium in the intensive care unit.

Discuss the potential methods that can be utilized to identify patients with delirium in the intensive care unit.

Self Assessment Questions:

Which of the following is a negative sequelae that is associated with delirium in the intensive care unit?

A Longterm cognitive impairment
B: Increased hospitalization length of stay
C: Increased mortality
D: All of the above

Which of the following is a validated method that can be utilized to identify patients with delirium in the intensive care unit?

A Cam-icu
B SOFA score
C 4T score
D CHADS score

Q1 Answer: D Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-325 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

THE INCIDENCE OF INPATIENT FALLS IN RELATION TO THE USE OF ZOLPIDEM

Andrew M Biskupski, Pharm.D.*; Gay Alcenius, Pharm.D.
Allegiance Health,205 N East Ave,Jackson,MI,49201
andrew.biskupski@allegiancehealth.org

Background:
Insomnia is common amongst hospitalized patients where the initiation and maintenance of sleep can be problematic. Medical conditions, hospital operations, and an unfamiliar environment can all lead to a disruptive sleep patterns. To combat the insomnia experienced in hospital settings, pharmaceutical sleeping agents are often included in the treatment plan. The sedative/hypnotics commonly prescribed for insomnia come with the warnings of abnormal behavior including "sleep-related activities" and may possibly increase the risk of falls. Falls have been reported as the most common type of inpatient hospital accident, accounting for approximately 70% of inpatient accidents. These unforeseen accidents often lead to complications including undue harm, poor quality of life, increased length of hospital stay, admission to a long-term care facility, and increased costs.

Purpose:
The primary objective of this study was to investigate the possibility of zolpidem increasing the rate of falls in a community hospital setting.

Methods:
This was a retrospective study that evaluated patients who experienced a fall while an inpatient at Allegiance Health between July 2009 and August 2011. Each patient having a fall will be evaluated using Allegiance Healths electronic medical records system (Solcom) for whether the patient received zolpidem prior to the reported fall. Other data to be collected includes if the patient received other sedative/hypnotics, if the fall resulted in injury or an increased length of stay, the patients prior fall risk, admitting diagnosis, and orientation status of the patient. The primary outcome of this study is to determine if zolpidem used for insomnia during an inpatient stay will lead to an increased rate of falls.

Results/Conclusions:
Results and conclusion to be presented at the Great Lakes Residency Confrence.

Learning Objectives:

Discuss whether zolpidem increases the risk of falls when used for insomnia during an inpatient hospital admission

Identify methods to reduce the rates of falls during an inpatient hospital admission

Self Assessment Questions:

Which of the following is a warning/precaution associated with zolpidem?

A Delirium
B: Sleep-related behaviors
C: Insomnia
D: Hypoglycemia

What is the recommend initial dose of zolpidem for insomnia in geriatric patients?

A Zolpidem 10 mg at bedtime
B Zolpidem 7.5 mg at bedtime
C Zolpidem 5 mg at bedtime
D Zolpidem 2.5 mg at bedtime

Q1 Answer: B Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-791 -L05-P

Activity Type: Knowledge-based Contact Hours: 0.5

MANAGEMENT OF BONE AND JOINT INFECTIONS (BJI) WITH OUTPATIENT PARENTERAL ANTIMICROBIAL THERAPY (OPAT) IN A VETERANS POPULATION: OUTCOMES AND RISK FACTORS

Leslie Bittner, PharmD *; Sharanie Sims, PharmD, BCPS; Amy Hirsch, PharmD, BCPS ; Usha Stiefel, MD; Marion Skalweit, MD, PhD
Louis Stokes Cleveland VAMC,10701 East Boulevard,Cleveland,OH,44106
leslie.bittner@va.gov

Purpose: The use of outpatient parenteral antimicrobial therapy (OPAT) has been increasingly adopted due to evidence of reduced risk of nosocomial infection, decreased healthcare-related costs, and improved quality of life. Bone and joint infections (BJI) are the second most common OPAT diagnosis. Treatment with OPAT may be delivered via two modalities: healthcare-administration, in which therapy is administered by a healthcare professional, or self-administration, in which therapy is administered by the patient or caregiver. Despite the well-documented benefits of OPAT, information describing outcomes and guidance surrounding patient selection criteria with regard to delivery modality are lacking. The purpose of this study is to assess the OPAT success versus failure rate at the LSCVAMC and to identify possible risk factors for OPAT failure in patients who underwent self-administration of therapy.

Methods: This study is a retrospective chart review evaluating patient outcomes following treatment of BJI with OPAT. The study population was identified from a registry of patients enrolled in the LSCVAMC OPAT program from August 2009 - August 2011. Patients having a diagnosed or clinically suspected BJI (in the opinion of the provider) and who also underwent self-administration of therapy were included. Patients were included for their first course of therapy during the study period only. Data was collected regarding demographics, past medical history, social history, diagnosis, antimicrobial therapy, treatment duration, microbiology, source of cultures, intravenous line, adverse effects, adherence, and outcome. Patients were classified as a treatment failure if one of the following criteria were met: requiring an extension of IV therapy or addition of suppressive oral antimicrobial therapy, having a relapse of infection within 60 days after end of therapy, requiring admission or unanticipated surgical intervention for the site of initial treatment within 60 days after end of therapy, or failure to complete the full course of therapy.

Results/Conclusions: Pending

Learning Objectives:

Recognize the benefits of outpatient parenteral antimicrobial therapy

Review the recommendations from the IDSA practice guidelines for outpatient parenteral antimicrobial therapy (OPAT)

Self Assessment Questions:

Which of the following is a benefit of the use of outpatient parenteral antimicrobial therapy (OPAT)?

A Reduced risk of nosocomial infection
B: Increased healthcare – related costs
C: Decreased quality of life
D: Increased length of hospital stay

According to the IDSA guidelines, which of the following statements is correct regarding recommendations for OPAT?

A Patient characteristics should not be considered when selecting a
B All patients should receive IV antibiotics at a healthcare facility
C Outcomes with OPAT are supported primarily by prospective literat
D Outcomes monitoring is a key element of an OPAT program

Q1 Answer: A Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-326 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF FIXED DOSE RECOMBINANT FACTOR VII FOR WARFARIN REVERSAL IN NEUROSURGICAL PATIENTS

Gregory F. Blank II, PharmD*, Serena A. Harris, PharmD, BCPS, Melissa M. Vandenberg, PharmD, Karen J. McAllen, PharmD

Spectrum Health,Spectrum Health Butterworth Hospital Pharmacy,100 Michigan St NE MC001,Grand Rapids,MI,49503

gregory.blank@spectrumhealth.org

PURPOSE: Patients receiving warfarin have a 5-10 fold higher risk for intracranial hemorrhage (ICH) and frequently require reduction of the international normalized ratio (INR) before neurosurgical interventions. The objective of this study was to evaluate the efficacy of fixed low-dose recombinant factor-VII (rFVIIa) to reverse warfarin coagulopathy in patients with intracranial hemorrhage. Efficacy was defined by the number of bleeding complications.

METHODS: Adult patients treated with 1 mg rFVIIa for warfarin related ICH were retrospectively identified. Patients were divided into two groups, treatment success (INR ≤1.5) and treatment failure (INR >1.5), after administration of rFVIIa. Patients were excluded if they had an acute spontaneous subarachnoid hemorrhage. The primary outcome was incidence of bleeding complications. Secondary outcomes included: functional patient outcomes at hospital discharge, intensive care unit (ICU) and hospital length of stay (LOS) and survival at hospital discharge.

RESULTS: There were 157 patients identified and 17 patients met the inclusion criteria (9.8%). Three patients were included in the treatment failure group (17.6%) and 14 in the treatment success group (82.4%). The mean age was 73.511.3 years and 35% were male. The mean INR was 2.60.8 at baseline and 1.140.3 one hour after rFVIIa administration. There was no significant difference between the two groups in regards to bleeding complications (p=0.331), modified Rankin score (p=0.658), and Glascow Outcome Score (p=0.658). The median ICU and hospital LOS was 6 (0-19) and 9 (4-13) days respectively, and this was not significantly different (p=0.343 and p=0.230). No difference was found in survival at hospital discharge (p=0.465).

CONCLUSIONS: Between the two treatment groups, treatment success and treatment failure, there appears to be no difference with regards to bleeding complications, functional outcomes, ICU and hospital LOS, and survival at hospital discharge.

Learning Objectives:

Identify risk factors that are associated with a poor clinical response to rFVIIa administration.

Explain a potential benefit of using rFVIIa over other anticoagulation reversal agents.

Self Assessment Questions:

Which of the following has been shown to be a risk factor associated with poor clinical response to rFVIIa administration?

A Hemoglobin
B: Age
C: pH
D: Gender

In comparison to fresh frozen plasma which of the following reasons might rFVIIa be considered a better option for anticoagulation reversal?

A Cost
B Smaller volume of administration
C Safety of administration
D Slow onset of action

Q1 Answer: C Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-328 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

RETROSPECTIVE EVALUATION OF N-ACETYLCYSTEINE FOR THE PREVENTION OF CONTRAST INDUCED NEPHROPATHY IN PATIENTS WITH CHRONIC KIDNEY DISEASE UNDERGOING CARDIAC CATHETERIZATION

Michelle M. Boguslaski, PharmD*; Elizabeth Wilpula, PharmD, BCPS; Elizabeth A. Petrovitch,PharmD, BCPS

Harper University Hospital,3990 John R,Detroit,MI,482012018

mbogusla@dmc.org

Purpose: Contrast administration during diagnostic and therapeutic procedures such as cardiac catheterization, can result in the development or worsening of nephropathy, especially in patients with chronic kidney disease (CKD). N-acetylcysteine (NAC) has been studied for prevention of contrast induced nephropathy (CIN), but has inconsistent evidence to support its use. Despite these findings, the inexpensive cost and favorable safety profile of NAC has lead to routine use as prophylaxis. The objective of this study is to evaluate the effect of NAC on the incidence of CIN in high risk patients with chronic kidney disease undergoing cardiac catheterization.

Methods: This study is a retrospective chart review of patients who underwent cardiac catheterization with contrast at Harper University Hospital, Detroit, MI from January 1 to August 31, 2011, before and during the national drug shortage of NAC. Patients were included who are 18-89 years of age, have eGFR < 60mL/min/1.73m2, and have adequate baseline and post-catheterization records of serum creatinine. Patients with acute kidney injury, contrast exposure in last 10 days, treatment for hypotension during the admission, and ESRD on dialysis were excluded. The primary outcome of this study is to evaluate the incidence of CIN in patients who have and have not been treated with NAC. Secondary outcomes include evaluating length of stay, cost avoidance, need for dialysis secondary to CIN, percent change in the serum creatinine at baseline and after cardiac catheterization and compliance with the CIN prevention pathway at our institution. All analyses will be conducted using a significant p value < 0.05.

Results/Conclusions: To date there are 260 patients that have been included in the study. Full results to be presented at the 2012 Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Identify the risk factors for contrast induced nephropathy.

Discuss the use of N-acetylcysteine in the prevention of contrast induced nephropathy.

Self Assessment Questions:

What prophylaxis treatment for CIN would you NOT recommend?

A 0.9% normal saline
B: Sodium Bicarbonate
C: IV Furosemide
D: N-acetylcysteine

Which of the following patients are at the highest risk for CIN?

A 25 YO AAM with CKD stage 3, uncontrolled HTN
B 75 YO WM with CKD stage 3, T2DM x 8 years
C 54 YO AAF with new onset CP and 30 pack year tobacco history
D 78 YO AAM with T2DM x 12 years, CKD stage 3, and hemodynam

Q1 Answer: C Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-329 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

IMPACT OF BARCODE POINT OF CARE TECHNOLOGY ON MEDICATION ADMINISTRATION ERRORS IN THE EMERGENCY DEPARTMENT

Joseph Bonkowski; Joseph Melucci; Beth Prier; Cynthia Carnes; Jay Mirtallo; Robert Weber

The Ohio State University Medical Center,368 Doan Hall,410 W. 10th Avenue,Columbus,OH,43202

joseph.bonkowski@osumc.edu

Background/Purpose: The medication use system is error prone with medication administration accounting for 34-54% of medication errors. Barcode medication administration (BCMA) improves the accuracy of medication administration in hospital inpatients, but has limited use in emergency departments (ED); this is mainly due to short lengths of ED stay and limited use of electronic medical records (EMR). The Ohio State University Medical Center implemented an EMR and BCMA in the ED, allowing the opportunity to study the impact of this technology on medication administrations errors.

Methods: A single-center, pre/post observational study was conducted to compare medication administration errors after implementing BCMA. Nave observers documented medication administration 2 months prior to and 4 months post BCMA. A medication administration error was defined as any discrepancy between the administered medication and the physicians order. The primary aim of this study, medication administration error rate, was calculated by dividing the number of medication administration errors by the number of medication observations. A secondary aim compared medication administration errors to the time of day and therapeutic class. Medications administered by non-nursing staff were excluded from observation. Pre and post medication administration error rates are compared using a 2 proportion z-test; time of day and medication category differences are calculated using linear regression.

Results: 996 medication observations were conducted in the baseline period with an error rate of 6%. 951 observations are planned in the study period (4 months post BCMA).

Summary/Conclusion: Data collection and evaluation is currently in progress.

Learning Objectives:

Describe the rationale for using BCMA in the ED

Identify challenges of implementing BCMA in the ED

Self Assessment Questions:

Which of the following is a reason to implement BCMA in the ED?

A BCMA reduces medication administration times

B: BCMA reduces medication errors

C: BCMA improves nursing workflows

D: BCMA makes patients more comfortable

Which of the following is a challenge of implementing BCMA in the ED?

A The Hawthorne effect

B Banding patients admitted to the ED

C Workflow of BCMA is intuitive

D The sound made by the scanners disturbs patients

Q1 Answer: B Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-792 -L05-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF GLYCEMIC CONTROL ASSOCIATED WITH CURRENT INPATIENT INSULIN THERAPY

Jennifer E. Bonnell*, PharmD; Virginia F. Mendoza, RPh; Kathryn A. Jost, PharmD

Vista Medical Center East,1324 N. Sheridan Road,Waukegan,IL,60087

jennifer_bonnell@chs.net

Purpose:
The purpose of this project is to reduce hypoglycemic events occurring while inpatient at Vista Medical Center East (VMCE). Reasons for hypoglycemic events will be identified and a protocol will be implemented for the reduction of these occurrences. Hypoglycemia is defined as a blood glucose value less than or equal to 60mg/dL.

Methods:
A retrospective chart review was conducted that included patients admitted to VMCE between September 1, 2011 through October 31, 2011, administered any schedule of any insulin therapy, and experienced a hypoglycemic event that required reversal with 50% dextrose, glucagon or snack. Exclusion criteria: patients not admitted between the dates specified or not receiving insulin therapy throughout their hospital stay. Charts were reviewed of the patients meeting inclusion criteria with the following information collected: gender, age, location, admitting diagnosis, past medical history, home antidiabetic medications, diet, blood glucose values, and HgbA1C, if available. The findings from this retrospective chart review identified 43.6% of hypoglycemic events were associated with the use of insulin aspart protamine/insulin aspart 70/30. An automatic therapeutic interchange was developed to provide the most benefit for reduction of hypoglycemic events, hospital-wide. This interchange was approved by Pharmacy and Therapeutics, Medicine, and Medical Executive committees. Following implementation of this interchange, a pharmacist counsels each patient on signs and symptoms of hypoglycemia and monitors blood glucose values closely. Recommendations for further adjustments to insulin therapy are completed via physician communication forms.

Results/Conclusions:
Will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Review pharmacokinetic properties of the different insulin products available.

Identify ways that an inpatient healthcare team can reduce hypoglycemic events.

Self Assessment Questions:

When should insulin aspart be administered to patients?

A 30 minutes before meals

B: 15 minutes before meals

C: Immediately at the start of a meal

D: B or C

Which of the following is/are ways that an inpatient healthcare team can assist in the reduction of hypoglycemic events?

A Recognizing precipitating factors or trigger events.

B Monitoring blood glucose at bedside.

C Educating patients, family, friends, and staff of symptom recognitio

D All of the above.

Q1 Answer: D Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-330 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

DELAYED RELEASE COMPARED TO IMMEDIATE RELEASE PANCRELIPASE FORMULATION TO CLEAR OBSTRUCTED FEEDING TUBES

Stephanie R Bowman*, PharmD; Susie J Crowe, PharmD, BCPS; Mark R Cox PharmD, BCPS; Karen Kirschbaum PharmD, BCPS; Carolyn W Chou, PharmD

University of Louisville Hospital,530 South Jackson St,Louisville,KY,40202

stephabo@ulh.org

Purpose: Feeding tube obstruction is a complication of enteral nutrition and occurs in 3.5-35% of patients. Currently the American Society of Parenteral and Enteral Nutrition supports the use of water first, followed by pancreatic enzymes if water is unsuccessful for unclogging feeding tubes. However, in April 2010 the immediate release formulations of pancrealipase were removed from the market. To date, there is no in vivo data to support similar efficacy of the delayed release pancrealipase formulation to unclog feeding tubes. The purpose of this study is to provide information regarding the efficacy of delayed release pancrelipase compared to the immediate release pancrelipase product taken off the market.

Methods: This study is a retrospective comparison examining the previous standard of care, immediate release pancrealipase, to currently available delayed release pancrelipase. There are three phases of the investigation. Phase I is a retrospective data collection of immediate release usage. Phase II includes approval and implementation of a hospital wide protocol regarding delayed release pancrelipase use for tube declogging. Phase III is a retrospective data collection of delayed release pancrealipase usage. The time, in hours, the patient went without nutrition as well as the need for a replacement feeding tube was evaluated in addition to whether the product was effective for clearing the obstruction.

Results: Pending completion of data collection.

Conclusion: To be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Discuss the role of pancreatic enzymes in unclogging feeding tubes

Describe the efficacy of delayed release pancreatic enzymes compared to immediate release pancreatic enzymes for unclogging feeding tubes

Self Assessment Questions:

According to the American Society of Parenteral and Enteral Nutrition (A.S.P.E.N) what is first line treatment for unclogging feeding tubes?

A Acidic beverages (cola or juice)

B: Pancreatic enzymes

C: Tube replacement

D: Water

What is the correct administration of pancreatic enzymes for unclogging feeding tubes?

A Enzymes crushed alone

B Enzymes crushed with warm water

C Enzymes crushed with sodium bicarbonate and mixed with warm w

D Enzymes crushed with sodium bicarbonate and mixed with cold wa

Q1 Answer: D Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-660 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF HEMOGLOBIN A1C, WEIGHT, LDL, AND DEPRESSION OUTCOMES IN PRIMARY CARE PATIENTS ENROLLED IN THE INTEGRATED CARE DEPRESSION CARE MANAGEMENT PROGRAM

Anna E. Bremer, PharmD*; Catherine D. Johnson, PharmD, BCPS, MS; Rachel C. Molander, MD

William S. Middleton VA Hospital,2500 Overlook Terrace,Madison,WI,53705

anna.bremer2@va.gov

Purpose:
Collaborative care teams are currently being used in Veterans Affairs Medical Centers for management of patients in the primary care setting. Integrated Care Depression Care Management is a service within primary care which focuses on providing care for veterans with depression. The use of collaborative care teams in managing depressior has been shown to improve depression outcomes in both the short term (6 months) and longer term (24 months). Recent studies of collaborative care models show 12-month improvement in hemoglobin A1c, LDL cholesterol levels, systolic blood pressures, and depression symptom scale scores compared to patients receiving usual depression care provided by a single primary care physician.

Methods:
A retrospective review of up to 300 veterans receiving Depression Care Management (DCM) services at the William S. Middleton Memorial Veterans Hospital will be conducted. Records will be reviewed for patients receiving a minimum of two Depression Care Management contacts. Data collected will include weight, hemoglobin A1c, and LDL within six months prior to the initial Care Management contact and a subsequent weight, hemoglobin A1c, and LDL collected nine to fifteen months after the initial DCM contact. Depression outcomes will be measured by collecting Patient Health Questionnaire-9 (PHQ-9) scores at the initial and final DCM contacts. If a patient was receiving antidepressant therapy at the initial DCM contact, antidepressant use at the final DCM contact will be evaluated.

Results/Conclusion: Data collection and analysis are currently being conducted. Results will be presented at the Great Lakes Residency Conference.

Learning Objectives:

Describe the role of Depression Care Management in the treatment of depression at VA Medical Centers

Identify the benefits of collaborative care in the treatment of depression in a primary care setting

Self Assessment Questions:

Which of the following responses most accurately describes the role of Integrated Care in the VA setting?

A A mental health provider and primary care provider located in the s

B: A mental health provider functioning as a member of the primary ca

C: A mental health provider and primary care provider exchanging inf

D: A primary care provider referring a patient to the mental health clin

A recent study conducted by Katon, et al. showed 12-month improvement in which of the following measures in patients with depression managed in a collaborative care setting:

A Hemoglobin A1c

B LDL cholesterol

C Systolic blood pressure

D All of the above

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-331 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF THE CURRENT STATUS OF PHARMACEUTICAL EMERGENCY AWARENESS AND PREPAREDNESS FOR MICHIGAN HOSPITALS - THE MICHIGAN P.E.A.P STUDY

Christopher M. Brink, B.A., Pharm.D*.; Greg Pratt, R.Ph.; Robert P. Coffey, Pharm.D., B.C.P.S.; Beth M. Kurtz, R.Ph., M.S.A.; Kathleen M. Dantes, Pharm.D.; Michael Q. Lewis; Shaun W. Phillips, Pharm.D., M.B.A.

Bronson Battle Creek,300 North Avenue,Battle Creek,MI,49017

brinkc@bronsonhg.org

Purpose:
Emergency situations can occur at any time and include chemical, biological, radiological, nuclear, and explosive (C.B.R.N.E.) threats. Since 2001, increased efforts to establish emergency preparedness plans for these threats have been put into place in order to minimize and/or prevent their outcomes. While the CDC has repeatedly published assessments of bioterrorism and mass casualty preparedness over the past decade, original research relating to specific state-wide assessment of pharmaceutical emergency awareness and preparedness (P.E.A.P.) remains limited. The purpose of this study will be to evaluate the current status of P.E.A.P. for Bronson Battle Creek. With partnership with the Michigan Pharmacist Association, similar assessments will be performed for the approximately 180 hospitals in the state of Michigan.

Materials and Methods:
During this randomized cross-sectional study, an electronic survey will be distributed via email to Michigan pharmacy directors, pharmacy managers, and pharmacists with active Michigan pharmacy licenses. Prior to survey distribution, invitation emails will be emailed to announce the survey and survey non-responders will receive once-weekly email reminders until the survey is complete. The primary outcome measure will be to evaluate the current clinical quality of P.E.A.P. for Bronson Battle Creek and all participating Michigan hospitals. Secondary outcome measures, as assessed via a 2012 ACE MPA CE course and a Region 5 MPA-directed educational session, include the following: (1) individual pharmacist training regarding Michigan P.E.A.P.; (2) individual pharmacist growth in P.E.A.P.; (3) improved pharmacy personnel communication with designated contacts in the event of a C.B.R.N.E. incident; and (4) the financial impact of increasing P.E.A.P. for Michigan hospitals.

Results and Conclusion:
Data collection and analysis are currently in progress. Study results will help establish the current status of P.E.A.P. for Bronson Battle Creek in addition to participating Michigan hospitals and will be presented at the Great Lakes Pharmacy Residency Conference in April 2012.

Learning Objectives:

Recall the agents/diseases that are listed by the Centers for Disease Control as "Category A".

Recognize available CE courses and certifications that can help clinicians build a stronger P.E.A.P. knowledge base.

Self Assessment Questions:

Which of the following are Category A agents/diseases as listed by the Centers for Disease Control?

A Anthrax, Botulism, Plague, Smallpox, Typhus, Viral encephalitis str
B: Anthrax, Botulism, Plague, Smallpox, Tularemia, Viral hemorrhagic
C: Brucellosis, Epsilon toxin, Glanders, Melioidosis, Q Fever, Ricin to
D: Brucellosis, Epsilon toxin, Psittacosis, Staphylococcal enterotoxin I

What are some CE courses and certifications offered to help clinicians build a stronger P.E.A.P. knowledge base?

A ICS 100, ICS 200, ICS 700, and BDLS (Basic Disaster Life Suppor
B ICS 110, ICS 220, ICS 770, and BDLS (Basic Disaster Life Suppor
C ICS 150, ICS 250, ICS 750, and BDLS (Basic Disaster Life Suppor
D ICS 500, ICS 600, ICS 700, and BDLS (Basic Disaster Life Suppor

Q1 Answer: B Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-661 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

CHARACTERIZATION OF AMINOGLYCOSIDE USE IN CRITICALLY ILL PATIENTS AT A TERTIARY CARE HOSPITAL

*Alison Brophy, Pharm D. BCPS, Alia Daghstani, Pharm D. BCPS, and Laura Perry Pharm D. BCPS

Mercy St. Vincent Medical Center,2213 Cherry Street,Perrysburg,OH,43551

Alison_brophy@mhsnr.org

Purpose: Aminoglycoside antibiotic dosing for critically ill patients is challenging due to alterations in patients volume of distribution or changes in drug elimination due to fluctuating renal function. Several different aminoglycoside dosing strategies, nomograms, and monitoring algorithms have been evaluated in the literature. At Mercy St. Vincent Medical Center, a 450 bed tertiary care hospital, use and monitoring of aminoglycoside antibiotics is initiated by many different providers, including physicians and pharmacists. As resistance to other antimicrobial agents rises, assessment of varying therapeutic strategies and monitoring is essential for aminoglycoside use in critically ill patients. The objective of this study is to describe the usage, efficacy, and toxicity of aminoglycoside treatment in critically ill patients in the previous two years at Mercy St. Vincent Medical Center

Methods: The primary endpoints of this IRB approved retrospective descriptive chart review study include the use of traditional, extended interval, or synergy dosing strategy, clinical resolution of suspected infection, and nephrotoxicity. Secondary endpoints include duration of antibiotic therapy, number of inappropriate therapeutic drug levels ordered, number of appropriate therapeutic drug levels ordered, number of patients without therapeutic drug level monitoring despite indication for monitoring, number of cases with ratio of aminoglycoside peak level to bacterial MIC is greater than 10 mcg/mL. Subgroup analysis based on physician service ordering medication and baseline creatinine clearance will also be completed. Patients will be identified through a pharmacy computer system report of orders for intravenous amikacin, gentimicin, or tobramycin initiated while hospitalized in hospital units with ability to care for critically ill patients. Descriptive statistics will be use for data analysis.

Results: From September 1, 2009 to September 1, 2011, 173 cases of aminoglycoside use in critically ill patients were identified. Data collection for 90 cases is completed with anticipated completion of collection and analysis by April 2012.

Conclusions: To be determined

Learning Objectives:

Review traditional and extended interval dosing of aminoglycoside antibiotics

Describe the challenges associated with aminoglycoside use in critically ill patients

Self Assessment Questions:

Which of the following changes in kinetic properties of aminoglycosides are associated with critical illness?

A Increased Vd
B: Increased renal clearance
C: Increased ke
D: Decreased fu

Aminoglycoside toxicity is associated with:

A traditional dosing methods
B extended interval dosing methods
C high peak concentrations
D high trough concentrations

Q1 Answer: A Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-843 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

IMPLEMENTATION OF ANTIBIOTIC USE GUIDELINES

Krista L Brown, PharmD*

Indiana University Health,2423 N. New Jersey St.,Indianapolis,IN,46205

kbrown19@iuhealth.org

Background

Antimicrobial resistance results in increased morbidity, mortality, and costs of health care. Antimicrobial stewardship programs are being implemented in acute care hospitals to limit the emergence of antimicrobial resistance and prevent the spread of resistant microbes. The Infectious Disease Society of America published guidelines in 1997 for the prevention of antibiotic resistance and in 2007 for the development of antimicrobial stewardship programs. These guidelines propose several methods for improving the prescribing practices of providers and include prospective auditing and feedback, formulary restriction, preauthorization for restricted antibiotics, educations of providers, implementation of guidelines for use, and the use of order sets.

In July 2008, the Centers for Medicare and Medicaid Services announced it would no longer pay the additional costs of treating certain hospital acquired infections. Healthcare acquired infections are often caused by antibiotic resistant pathogens and these infections can increase the cost of treatment significantly. By decreasing the rates of antimicrobial resistance, it is possible to reduce healthcare costs.

Purpose

To determine if implementing guidelines for the appropriate use of five high cost or high use antibiotics will improve empiric antibiotic selection at Indiana University Health Arnett.

Method

Guidelines for the use of daptomycin, linezolid, tigecycline, meropenem, and micafungin were developed with input from infectious disease physicians, the antimicrobial stewardship committee, and the Pharmacy and Therapeutics committee. These were presented to the hospitalists and pharmacists at Indiana University Health Arnett Hospital. A retrospective chart review was conducted for the three month period following the introduction of these guidelines (Dec. 2011 - Feb. 2012) and for the corresponding three month period for the prior year (Dec 2010-Feb. 2011). The primary endpoint is the rate of adherence to the guidelines.

Results:

To be presented at Great Lakes Pharmacy Residency Conference.

Learning Objectives:

State two benefits of antimicrobial stewardship.

Identify the core strategies IDSA recommends to implement an antimicrobial stewardship program.

Self Assessment Questions:

Antibiotic stewardship results in:

A Increased cost of antibiotics

B: Decreased antimicrobial resistance

C: Increased length of stay

D: Decreased patient satisfaction

One of the core strategies IDSA recommends in the implementation of an antimicrobial stewardship program is:

A Antimicrobial cycling

B Combination therapy

C Prospective audit

D Antimicrobial order forms

Q1 Answer: B Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-663 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

IMPACT OF THE AFFORDABLE CARE ACT ON MEDICATION ADHERENCE IN A POPULATION OF MEDICARE PART D BENEFICIARIES

Courtney R. Brown, PharmD*, Melea A. Ward, PharmD, MS, Yihua Xu, PhD

Humana, Inc.,325 West Main Street,WFP-6W,Louisville,KY,40202

cbrown37@humana.com

BACKGROUND:

The Medicare Part D coverage gap has been highly debated. Previous literature has demonstrated the association between the coverage gap and higher rates of non-adherence to maintenance medications, which may translate to negative clinical outcomes. One provision of the Patient Protection and Affordable Care Act (ACA) requires the elimination of the coverage gap by 2020. In 2010, any Medicare Part D beneficiary who reached the coverage gap was given a tax-free, one-time $250 rebate by the Centers for Medicare & Medicaid Services. In 2011, Part D beneficiaries receive a 50% discount on the total cost for brand medications from the drug manufacturer and a 7% discount on generic medications from their plan. This study seeks to assess the impact of the ACA as the initial changes to the coverage gap are implemented.

PURPOSE:

To assess how the changes in coverage during the Medicare Part D coverage gap impacted adherence to brand and generic diabetes and brand anti-platelet medications across and within the plan years 2009, 2010 and 2011 for those members who reached the coverage gap.

METHODS:

A large Medicare Part D population will be used to identify beneficiaries who reached the coverage gap in 2009, 2010, or 2011 with at least one fill of a targeted diabetes or anti-platelet medication in January prior to entering the Medicare coverage gap. Medicare Prescription Drug Plan and Medicare Advantage beneficiaries with 12 months continuous enrollment in a plan year will be included. Beneficiaries who meet inclusion criteria will be identified separately for each plan year. Adherence to brand and generic medications will be assessed using Medication Possession Ratio. Mean adherence pre and post-coverage gap will be assessed. Trends in adherence across plan years will also be assessed.

RESULTS AND CONCLUSIONS:

To be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Describe recent and future changes in drug coverage during the Medicare coverage gap enacted as part of the Affordable Care Act (ACA).

Identify how the changes enacted as part of the ACA have impacted adherence to targeted drug classes for Medicare Part D beneficiaries.

Self Assessment Questions:

One provision of the Patient Protection and Affordable Care Act (ACA) requires the elimination of the coverage gap; by which year will the coverage gap be eliminated entirely?

A 2012

B: 2015

C: 2020

D: 2025

In 2011, Part D beneficiaries receive a 7% discount on generic medications from their plan and a ____% discount on the total cost for brand medications from the drug manufacturer.

A 20%

B 30%

C 40%

D 50%

Q1 Answer: C Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-662 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

MEDICATION HISTORY PROCESS IMPROVEMENT FOR MEDICATION HISTORY TECHNICIANS IN THE EMERGENCY DEPARTMENT

Caleb Bryant, PharmD.*; Angela Green, PharmD., BCPS; George Kuhnert, RPh; Lisa Tyjewski, PharmD.; Ted Woods, RPh

Mercy Health Partners,1500 East Sherman Blvd,Muskegon,MI,49444

bryantce@trinity-health.org

Background: Patient safety concerns associated with medication errors and adverse drug events are well established in medical literature. The Joint Commission continues to recognize the significance of these errors and the importance of admission medication reconciliation upon arrival to an emergency department (ED). To improve the medication reconciliation process, some institutions utilize the unique skill set of pharmacy technicians to perform medication histories in the ED. Available evidence demonstrates that pharmacy technicians may significantly reduce medication error rates. Mercy Health has utilized pharmacy technicians as medication historians in the ED for approximately five years at the Hackley campus and for one year at the Mercy Campus. These medication historians have been managed and trained by the emergency department staff. Due to transition to a new computer system and training deficits, errors were prevalent in home medication documentation and a need for process improvement was determined.

Purpose: To determine if a pharmacists involvement with proper training and process improvement will impact medication historian error rates.

Methods: Baseline data was collected in patients with medication histories completed by medication historians. These patients were randomly selected to have a medication history repeated by a pharmacy practice resident or a fourth year pharmacy student after hospital admission to determine accuracy. After initial data collection, the pharmacy resident provided education to medication historians as part of a process improvement. Post-intervention medication histories were collected in the same manner previously stated approximately one month after process improvement education. The primary outcome was to determine the percentage difference in medication error rate pre-intervention versus post-intervention. Secondary outcomes include staff satisfaction before and after intervention, staffing cost analysis, and accuracy of medication histories among different medical professions.

Results: Results to be presented at the Great Lakes Pharmacy Conference.

Learning Objectives:

Discuss the impact of admission medication reconciliation on patient care.

Describe the importance of a pharmacists involvement in training pharmacy technicians to properly obtain a medication history.

Self Assessment Questions:

What was the most common error initially found on admission medication histories?

A Omission
B: Wrong dose
C: Wrong frequency
D: Addition

Which of the following is a benefit of medication reconciliation?

A Increase medication errors
B Decrease medication errors
C Increase hospital costs
D Decrease patient satisfaction

Q1 Answer: A Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-793 -L05-P

Activity Type: Knowledge-based Contact Hours: 0.5

PHARMACIST DRIVEN MEDICATION RECONCILIATION WITH CRESTWOOD CARE CENTER PATIENTS AT TWO ADVOCATE SITES

Emily Bryar, PharmD*, Meghan E. Nawrocki, PharmD, Rolla Sweis, PharmD, MA, BCPS, Donald Morath, MD

Advocate Christ Medical Center,4440 W. 95th Street,Oak Lawn,IL,60453

emily.bryar@advocatehealth.com

Purpose
To decrease readmissions and adverse events related to medications due to incomplete or incorrect medication reconciliation in patients admitted one of two Advocate sites from Crestwood Care Center (Crestwood), a nursing and rehabilitation center.

Methods
In the retrospective arm, the pharmacist reviewed admissions of Crestwood patients to Advocate Christ Medical Center (ACMC) that did not have a pharmacist involved in medication reconciliation. The research pharmacist recorded medication discrepancies that occurred. If a drug was omitted, the dose, route, and frequency were all counted as an omission. If an adverse drug event occurred or was the cause of re-admission that was also recorded.
In the prospective arm, the pharmacist at ACMC or Advocate South Suburban Hospital (SSH) is notified when a Crestwood patient is admitted to either site. The pharmacist evaluates the patients medication list from Crestwood, reviews and/or completes the patients medication reconciliation, and contacts the physician if there are any discrepancies. After the physician or nurse completes the discharge medication reconciliation at the site, a pharmacist at Pharmerica will confirm the accuracy of that list with the Crestwood admission orders they receive. Pharmerica is the pharmacy that supplies medications to Crestwood. The Pharmerica pharmacist will contact the prescriber if there are any discrepancies.

Results/Conclusion
In the retrospective arm, 57 patients were evaluated. Fewer medication discrepancies occurred when an admission medication reconciliations was completed. The total number of discrepancies found was 717. Omission of the route of medication was the most common discrepancy (151/717).
The prospective research is currently in data collection phase. Results of this study, along with conclusions will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Identify medication discrepancies and factors that contribute to these in the medication reconciliation process.

Recognize the benefits of utilizing pharmacists in the medication reconciliation process.

Self Assessment Questions:

What was the most common discrepancy found when pharmacists were not involved in medication reconciliation?

A Omission of drug
B: Omission of route
C: Omission of frequency
D: Omission of medication

What are the benefits of pharmacist driven medication reconciliation?

A More complete medication lists and histories
B Decreased adverse events due to medications
C Fewer medication related readmissions
D All of the above

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-664 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

CLINICAL AND ECONOMIC BENEFITS OF EXPANDED CLINICAL ONCOLOGY PHARMACY SERVICES AT AN ACADEMIC MEDICAL CENTER

Cara L. Burditt, PharmD*, Sandeep D. Parsad, PharmD, BCOP, Rakesh B. Beri, PharmD, BCOP and Anne Westerman, PharmD, BCPS

University of Chicago Medical Center,5841 S. Maryland Avenue,Chicago,IL,60637

Cara.Burditt@uchospitals.edu

Clinical oncology pharmacy (COP) services optimize clinical outcomes by improving the quality and safety of patient care. Additionally, COP services help to reduce drug costs and adverse drug events (ADE). In 2010, the Pharmacy Department of University of Chicago Medicine expanded COP services with the addition of clinical pharmacists and residents. The purpose of the proposed study is to determine the clinica and economic impact of expanding the COP practice model.

The primary objective of this retrospective, observational study is to determine the return on investment of expanding COP services. Several financial markers will be used to determine the return on pharmacists salaries and benefits. They include the value of pharmacist interventions, four cost-savings initiatives, ADE avoidance, change in oncology drug budget spending and drug expenditure for the bone-marrow transplant service Medicare Severity-adjusted Diagnosis Relatec Group (MS-DRG).

The secondary objectives are to compare the clinical and economic outcomes before and after expansion of the practice model. Clinical outcomes will be determined by comparison of self-documented, pharmacist-driven interventions for patient care. Economic outcome measures will include change in oncology drug budget spending, change in drug expenditure for the bone-marrow transplant service MS-DRG, cumulative value of total pharmacist-documented interventions and four cost-savings initiatives. The cost-savings initiatives include: 1) preferential outpatient administration of high-cost chemotherapy, 2) preferential outpatient administration of pegfilgrastim, 3) designation of pamidronate as bisphosphonate of choice and 4) implementation of a rasburicase dosing pathway.

Data will be obtained from reports of pharmacist interventions documented in the electronic medical record. The value of each intervention was derived from peer-reviewed literature or internal medication use analyses. Financial data will be obtained from reports generated from the University HealthSystem Consortium database and internal budget records.

The proposed project has been accepted for IRB review. Data collection, analysis and results are pending expedited approval.

Learning Objectives:

Define the appropriate calculation of the return on investment for clinical pharmacy services

Identify pharmacist-driven clinical outcomes documented in the literature

Self Assessment Questions:

Which of the following is the appropriate calculation of the return on investment for clinical pharmacy services?

A Net cost savings, cost avoidance and value of pharmacist interven
B: Net cost reduction of drug expenditure during hospital stay gained
C: Net cost reduction from four cost-savings initiatives gained per doll
D: Net cost savings from adverse drug event aversion gained per doll

Which of the following oncology pharmacist-driven clinical interventions have been previously described in the literature?

A Reducing hospital readmission rates for COPD exacerbations
B Ensuring medication appropriateness and documenting and prevei
C Decreasing morbidity and mortality in high-risk patient populations
D Ensure early discharge to help facilitate transiton of care

Q1 Answer: A Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-665 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

OUTCOMES OF EXTENDED-INFUSION PIPERACILLIN-TAZOBACTAM FOR THE TREATMENT OF GRAM NEGATIVE INFECTIONS IN A VA POPULATION

Ursula C. Patel, Pharm.D., BCPS AQ-ID, *Nicholas J. Burge, Pharm.D., Todd Lee, Ph.D., Pharm.D.

Edward Hines, Jr.VA Medical Center,5000 S. Fifth Avenue,Hines,IL,60141

nick.j.burge@gmail.com

Background: There has been a recent interest in evaluating the dosing and infusion strategies of antibiotics such as piperacillin-tazobactam (PT) in order to optimize drug exposure for potential increased efficacy, while limiting drug-related toxicities. Pharmacodynamic analysis has shown that extending the infusion time for PT from the traditional 30 minutes to 4 hours results in optimal drug levels. Studies looking at the clinical outcomes associated with this extended infusion dosing method have shown potentially better outcomes in critically ill patients. To date, there is limited outcome data of extended infusion PT in a VA population.

Purpose: The purpose of this study is to compare traditional dosing of PT to extended-infusion dosing in a VA setting, looking at various clinica and cost-related outcomes. The primary outcomes that will be evaluatec are length of stay (LOS) in the hospital and 14 and 30 day mortality rates.

Methods: This study is a retrospective, electronic chart review that will compare outcomes of patients who had received traditional dosing of PT to those who had received extended-infusion dosing after a protocol was put into place at the Edward Hines, Jr. VA Hospital in February 2011. Charts will be reviewed for the following information: demographics, LOS, mortality data, unit of admission where PT was started, indication for PT, co-morbidities, recent healthcare exposure, patient serum creatinine at PT initiation, site and source of infection if available , pertinent antibiotic regimens, adverse drug events to PT, and microbiological data. We will calculate the average length of stay in each group and compare the average using a t test. The difference in mortality between groups at 14 and 30 days will be compared with a chi square test and logistic regression.

Results/Conclusions: Data collection is in progress. Results will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Recognize the pharmacodynamic principles that support the extended-infusion dosing method of beta-lactam antibiotics such as piperacillin-tazobactam

Identify the patient sub-group where a benefit of extended-infusion piperacillin-tazobactam dosing has been shown

Self Assessment Questions:

What is the primary clinical advantage of using extended-infusion dosing for piperacillin-tazobactam?

A Reduce drug toxicity by lowering peak and trough drug levels.
B: Lessen nursing responsibilities of exchanging IV bags, allowing for
C: Potential increase of efficacy by maintaining drug concentration lev
D: Cost savings possible by using a smaller total amount of antibiotic

Which of the following patients would derive the most benefit out of extended-infusion piperacillin-tazobactam dosing compared to traditional infusion methods based on previous clinical trials?

A A 53 year old admitted to the general medicine ward from a nursing
B A 67 year old in the MICU with hospital-acquired pneumonia. APAC
C 38 year old admitted to the general medicine ward from the spinal
D A 78 year old in the MICU with potential aspiration pneumonia. AP/

Q1 Answer: C Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-332 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

DEVELOPMENT OF A PHYSICIAN ORDER SET FOR SEVERE SEPSIS/SEPTIC SHOCK FOR USE IN THE CRITICAL CARE UNIT

John C. Burgess III, PharmD*, Margo N. Ashby, PharmD, BCPS, Heath Adams, PharmD

Trover Health System Regional Medical Center,900 Hospital Dr,Madisonville,KY,42431

jburgess@trover.org

Purpose:
Patients with severe sepsis or septic shock present a dynamic challenge for physicians and hospital staff. Guidelines are needed to properly identify, treat, and manage these patients. The Surviving Sepsis Campaign recommendation for early goal-directed therapy (EGDT) and the treatment bundle concept allows for the creation of order sets to facilitate the treatment of these patients. Currently, an order set does not exist at our facility for following EGDT in the septic patient. A medication use evaluation was conducted to determine the need for a physician order set for severe sepsis/septic shock for use in our critical care unit (CCU).

Methods:
A chart review of recent patients with a diagnosis code of sepsis and at least one day spent in the CCU was used to determine how closely physicians at this facility were following EGDT without the use of an order set. Charts were evaluated for initial resuscitation, diagnosis, antibiotic therapy, source identification and control, fluid therapy, vasopressor use, ionotropic therapy, steroid use, and recombinant human activated protein C. Current guidelines were evaluated to provide reference for developing a physician order set tailored to our facility and hospital staff. Once drafted, the order set will be reviewed by various committees which will provide input and improvements before it is adopted for use in the CCU.

Results:
Data collection and analysis are currently ongoing. Results and conclusions will be presented at the Great Lakes Residency Conference

Learning Objectives:

Define the terms: systemic inflammatory response syndrome, sepsis, severe sepsis, and septic shock

Discuss the importance of early goal-directed resuscitation in the treatment of severe sepsis/septic shock

Self Assessment Questions:

Septic shock can be defined as:

A Sepsis associated with cardiac arrest

B: Sepsis due to presence of viable bacteria or fungi in the bloodstrea

C: Sepsis with persistent hypotension despite fluid resuscitation

D: Sepsis associated with organ dysfunction, hypoperfusion, or hypot

Ideally, the therapies outlined in the sepsis resuscitation bundle should be completed in the first:

A 1 hour

B 6 hours

C 8 hours

D 24 hours

Q1 Answer: C Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-333 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

IMPLEMENTATION OF A PHARMACIST-RUN PAIN MEDICATION MANAGEMENT SERVICE IN A PRIMARY CARE SETTING

Amy M. Burton, PharmD*; Mark E. Wilson, PharmD; Marcy S. Glisczinski, PharmD; Angela C. Paniagua, PharmD

Clement J. Zablocki Medical Center,5000 West National Avenue,Milwaukee,WI,53295

amy.burton@va.gov

Purpose: The Joint Commission recognizes the right of every patient suffering from pain to receive appropriate and thorough pain management. The objective of this study is to implement a pharmacist-run pain medication management service to improve the efficacy and safety of pain medications used in patients with non-malignant, chronic pain in a primary care setting.

Methodology: The primary care clinic providers (physicians and nurse practitioners) will refer patients with non-malignant, chronic pain to the pharmacist for review. The computerized patient record system will be utilized by the pharmacist to perform a comprehensive chart review. The following information will be assessed for appropriateness: drug-drug interactions, dosing of opioid and non-opioid pain medications, frequency of renewal requests and approvals, and presence of adverse drug reactions. The pharmacist will also contact the patient to assess his/her pain and to address any questions or concerns the patient might have. A summary of the chart review, conversation with the patient and any recommendations suggested by the pharmacist will be sent to the provider. Data collection will consist of a survey that will be distributed to all clinic providers prior to and three months after implementation of the program to determine the value and benefit of the service.

Results: Data collection and evaluation remain in progress. Results (to date) will be presented at the Great Lakes Pharmacy Residency Conference.

Conclusions: Conclusions (to date) will be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Discuss barriers to implementing a pharmacist-run pain service and how to navigate them.

Identify areas for future improvement and expansion of the current pharmacy pain service.

Self Assessment Questions:

The number of adults using narcotic medications to relieve chronic pain

A is on a downward trend

B: continues to rise

C: has stayed the same

D: is insignificant

The Veterans Health Administration directive on pain management supports

A an integrated approach to patient care

B using quality of life as a standard outcome measurement of effecti

C frequent monitoring for improvement in outcomes of pain managen

D all of the above

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-334 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

PHYSICIAN ATTITUDES TOWARD COMMUNITY PHARMACISTS AFTER IMPLEMENTATION OF A NEW PATIENT-FOCUSED PHARMACY MODEL

Helen A. Bush, PharmD*, Andrew N. Schmelz, PharmD, Patricia M. Elsner, PharmD, Catherine J. Simmons, RPh, Tiffany L. Boelke, PharmD, and Margie E. Snyder, PharmD, MPH

Walgreens - Purdue University,1000 Sagamore Parkway West,West Lafayette,in,47906

helen.bush@walgreens.com

Purpose:
One large community pharmacy chain is piloting a new patient-centered pharmacy model in Indiana. This model involves a redesign of the dispensing workflow, enhanced technology to allow the pharmacists to focus on patient care, and positioning of the pharmacist to increase patient access. The objective of this study is to determine if the physician-pharmacist relationship is impacted by the implementation of the new pharmacy model. This study will examine changes in physicians opinions regarding comfort with pharmacist-provided patient care services, extent of collaboration with pharmacists, and opinions regarding formal collaborative practice agreements.

Methods:
Physicians actively practicing in the area of West Lafayette, Indiana whose patients collectively fill greater than one hundred prescriptions at the West Lafayette pharmacy will be invited to participate in the study. These physicians will be surveyed at baseline, invited to attend an optional open house to experience the new pharmacy model, and surveyed again three months later to assess the impact of the new pharmacy design. The survey incorporates the Physician/Pharmacist Collaboration Index (PPCI), a previously validated questionnaire, to examine the physician-pharmacist relationship across relationship initiation, trustworthiness, and role specification domains. It will also include a professional interaction scale consisting of close and open-ended questions. Analysis of quantitative data will use descriptive statistics, parametric statistics, and non-parametric statistics as appropriate. Analysis of open-ended questions will be done using qualitative methods. This study has been approved by the Purdue University Institutional Review Board.

Results and Conclusions:
Data collection is in progress. Results will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Describe services community pharmacists can offer to improve patient care

Explain potential benefits of physician-pharmacist collaboration

Self Assessment Questions:

1. Which of the following is a service offered by community pharmacists in Indiana for which they do not routinely receive third party reimbursement?

A Medication therapy management (MTM)
B: Immunizations
C: Health testing
D: Dispensing

2. Collaborative drug therapy management (CDTM) allows community pharmacists in Indiana to

A Diagnose
B Adjust patients' medications via a physician-signed protocol
C Provide health testing services
D Perform medication therapy management (MTM)

Q1 Answer: C Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-666 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF HYPOCALORIC VERSUS TYPICAL PARENTERAL NUTRITION REGIMENS FOR HOSPITALIZED OBESE PATIENTS

Matt Byrdy, PharmD*; Harish Yalamanchili, MD; Ainsley Malone, MS, RD, LD, CNSC

Mt. Carmel Medical Center,793 W. State St.,Columbus,OH,43222

mbyrdy@mchs.com

Background: Standard predictive energy equations may overestimate caloric requirements for hospitalized obese patients receiving parenteral nutrition (PN) support. The hypocaloric regimen provides 22 kcal/kg of ideal body weight (IBW) whereas other predictive energy equations such as the Harris-Benedict (HB) and the Ireton-Jones (IJ) equations provide obese patients 25 - 30 kcal/kg of IBW + 10%. Compared to regimens based on traditional energy expenditure equations, the hypocaloric regimen permissively underfeeds the amount of total calories and provides higher amounts of protein in a range of 1.7 - 2 g/kg of IBW. The intent is to maintain basal metabolic processes by exclusively feeding lean body mass while avoiding hyperglycemia and associated complications.

Purpose: The objective of this study is to retrospectively compare the hypocaloric regimen to previously used regimens for obese hospitalized patients at this institution.

Methods: Institutional Review Board approval was obtained prior to initiation of the following procedures and data collection was subsequently commenced. A chart review was initiated and included all patients who were consulted to the nutrition support team (NST) service between 1999 and 2011. Eligible patients had a body mass index (BMI) greater than or equal to 30 kg/m2 and an indication for PN as per institutional policy. Obese patients were excluded on the basis of the following criteria: 1) renal insufficiency, defined as serum creatinine greater than 2mg/dL, 2) hepatic dysfunction, defined as total bilirubin greater than 3mg/dL, or 3) pregnancy. Qualifying patients were placed into one of two groups according to the date of consult: Group 1, years 1999-2005 and Group 2, years 2007-2011. Results will analyze the differences between groups in terms of macronutrient dosages, blood glucose levels, PN insulin additives, hospital length of stay, PN days, antibiotic days, and potential weight change.

Results and Conclusions: Data collection is currently underway and results are pending.

Learning Objectives:

Recognize the physiologic differences between obese and non-obese patients and the need for patient-specific PN formulations.

Describe the concept of hypocaloric feeding and its use in hospitalized obese patients.

Self Assessment Questions:

Which of the following statements is correct?

A All patients utilize energy in the same way
B: Conventional energy expenditure calculations apply to both obese
C: It is impossible to overfeed an obese patient with parenteral nutritic
D: Hyperglycemia is a common consequence of caloric overfeeding

According to the hypocaloric PN regimen, the dosage is increased for which of the following macronutrients?

A Lipid
B Carbohydrate
C Protein
D Both A and C

Q1 Answer: D Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-335 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

CONSERVATIVE VERSUS TRADITIONAL DELIRIUM MANAGEMENT IN SURGICAL INTENSIVE CARE (SICU) PATIENTS

Megan L. Cadiz*, Pharm.D., PGY-2 Critical Care Pharmacy Resident, Lisa L. Forsyth, Pharm.D., Surgical Critical Care Pharmacy Specialist, Allycia M. Natavio, Pharm.D., Surgical Critical Care Pharmacy Specialist

William Beaumont Hospital,3601 W. Thirteen Mile Road,Department of Pharmaceutical Services,Royal Oak,Mi,480736769

megan.cadiz@beaumont.edu

Background: Delirium is a significant concern for many hospitalized patients, particularly those whom are critically ill. Sedation and analgesic clinical practice guidelines published by The Society of Critical Care Medicine (SCCM) recommend haloperidol as the primary modality for the treatment of delirium. Despite having a sedation/analgesia/delirium treatment algorithm at our institution, haloperidol dosing is heavily practitioner dependent.

Purpose: The purpose of this study is to characterize the two prominent dosing strategies of haloperidol identified in our SICUs; a conservative strategy (doses < or equal to 2mg) administered around the clock, compared to a traditional strategy (doses > 2mg) given as needed. The primary objective is to assess efficacy of the strategies, defined as time to resolution of symptoms per Confusion and Assessment Method (CAM) score. The secondary objective is to evaluate patient safety by assessing the proportion of patients experiencing adverse events associated with haloperidol treatment.

Methods: For this retrospective investigation, we collected information regarding pharmacy haloperidol orders for patients admitted to an SICU between March 1, 2009 and March 31, 2011. Patients were identified via ICD-9 code of "delirium" or having received at least one dose of haloperidol while admitted to an SICU. Exclusion criteria included: age <18 years, alcohol or drug withdrawal, cognitive impairment, non-English speaking, allergy to haloperidol, aphasic stroke, anti-psychotics prior to admission, legal deafness/blindness or those with an incomplete medica record. Data collection included: age, admitting diagnosis, APACHE II score, medication allergies, past medical/surgical history, haloperidol dose, route, frequency, prescriber, length of therapy and total daily dose, time to resolution of symptoms via CAM score, sedation score, QTc, ICU and hospital length of stay and discharge disposition.

Results/Conclusion: Data collection is underway with final results and conclusions to be presented at the Great Lakes Pharmacy Resident Conference 2012.

Learning Objectives:

Review the available dosing guidelines for the treatment of delirium with haloperidol.

Discuss the advantages of appropriate delirium management and treatment.

Self Assessment Questions:

Which of the following is/are a benefit of appropriate management of ICU delirium?

A Lower mortality rates

B: Prolonged length of stay

C: Shorter duration of mechanical ventilation

D: A & c

Which of the following pharmacologic agents has the most available literature in treating ICU delirium?

A Lorazepam

B Haloperidol

C Quetiapine

D Risperidone

Q1 Answer: D Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-336 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

PHARMACIST INTERVENTIONS DURING HOSPITAL DISCHARGE MEDICATION RECONCILIATION AND THEIR IMPACT ON HOSPITAL READMISSION RATES: A PILOT STUDY

Andy, J, Caputo

Mt. Carmel Medical Center,793 W. State Street,Columbus,OH,43222

acaputo2@mchs.com

Purpose: Upon hospital discharge, 49 percent of patients experience at least one medical adverse event, often leading to a hospital readmission. Readmission rates for pneumonia, congestive heart failure and myocardial infarction are currently reported as outcome of care measures for Medicare. Currently at Mount Carmel West, pharmacists have a role in admission medication reconciliation but are not involved in discharge medication reconciliation. The study objective is to determine the efficacy and feasibility of pharmacist interventions on the process of hospital discharge medication reconciliation at Mount Carmel West. Methods: The study protocol has been approved by the Institutional Review Board. The included population consists of adult patients admitted to the hospitalist physician group with a presenting diagnosis of pneumonia or chronic obstructive pulmonary disease (COPD) exacerbation. The study took place during two weeks in December 2011. Each patients discharge medication list was reviewed by the pharmacy resident for accuracy and appropriateness and medication counseling was provided at the time of discharge. The resident communicated with the attending physician in regards to any necessary changes to the patients regimen. Patient information collected for aggregate analysis included age, sex, number of disease states, number of admission and discharge medications, and length of stay. Interventions performed by the pharmacy resident were documented and categorized based on problem identification (i.e. inappropriate dosing, inaccurate medication list, etc.). The primary outcome statistic is the thirty-day readmission rate for patients included in the study. This statistic will be compared to the existing thirty-day readmission rates for patients with pneumonia or COPD exacerbation at Mount Carmel West. Results and Conclusion: Preliminary results show that one of the thirteen patients in the study was readmitted within 30 days of hospital discharge. Final data analysis is underway and results and conclusions will be reported at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Describe the importance of medication reconciliation and hospital readmission rates within the context of the current healthcare system.

Classify interventions that pharmacists can make through participation in discharge medication reconciliation.

Self Assessment Questions:

For which of the following disease states are 30-day hospital readmission rates currently reported by Medicare as outcome of care measures?

A Stroke

B: Diabetes

C: Pneumonia

D: Dyslipidemia

Which of the following statements best describes the positive impact pharmacists can make on patients through participation in discharge medication reconciliation?

A Give the patient medication guides for all of their discharge medica

B Provide patient counseling and reinforce patient understanding of a

C Tell the patient to call their primary care physician if they do not un

D Provide the patient with a printed list of all the medications they tak

Q1 Answer: C Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-667 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

ASSESSMENT OF DABIGATRAN UTILIZATION AND PRESCRIBING PATTERNS IN A PHYSICIAN GROUP PRACTICE SETTING

Blake Carley*, PharmD; Sara Griesbach, PharmD, BCPS, AE-C; Tonja Larson PharmD, BCPS, CGP, AE-C; Kori Krueger, MD; Po-Huang Chyou, PhD

Marshfield Clinic,1000 North Oak Avenue,Marshfield,WI,544495777

carley.blake@marshfieldclinic.org

Background:
Dabigatran is an oral direct thrombin inhibitor FDA approved for prevention of stroke and systemic embolism in patients with non-valvular atrial fibrillation. Many differences exist compared to warfarin (e.g. reversal agents, lab monitoring, drug interactions, experience). Although the RE-LY Study suggests superior stroke prevention with dabigatran (150 mg dose), the increased risk of gastrointestinal bleeding was significant. Controversy on the safety of this novel agent continues.

Purpose:
Evaluate the utilization and prescribing patterns of dabigatran in a physician group practice setting.

Methods:
This is a retrospective study approved by the Marshfield Clinic Institutional Review Board. All patients at Marshfield Clinic who have received or are currently receiving dabigatran are included. Patients with a primary care provider outside of the Clinic system are excluded. Descriptive statistics will be utilized. Data to be collected include: indication of use, dose, renal function (MDRD vs. Cockroft-Gault), drug interactions, prescriber specialty, history of warfarin therapy, and risk assessment scores. The CHADS2 score assesses the one year risk of thromboembolic stroke in patients with atrial fibrillation on a scale of 0-6. In contrast, the HAS-BLED score is a novel scoring system utilized to assess the one year bleeding risk in patients with atrial fibrillation. A direct comparison of CHADS2 scores and HAS-BLED scores will be reported to assess risk of stroke versus risk of bleeding.

Results:
Preliminary findings include 21.1% off-label use (8.5% without atrial fibrillation and 12.6% with a history of valvular disease). Extensive use (41%) has also been identified in a group considered to be at low risk for stroke population (CHADS2 score of 0-1), and comparison of Cockroft-Gault and MDRD equations suggest that Cockroft-Gault may better assess need for renal adjustments. Complete results and conclusions to be presented at the Great Lakes Residency Conference (final analysis pending).

Learning Objectives:

Identify the FDA approved indication for dabigatran therapy.

Identify the recommended dabigatran dose and when renal dosing adjustment is recommended.

Self Assessment Questions:

Dabigatran is FDA approved for which of the following?

A Treatment of pulmonary embolism
B: Prevention of venous thromboembolism post knee or hip replacem
C: Prevention of stroke in patients with atrial fibrillation
D: Treatment of deep vein thrombosis

Identify the point (CrCl) at which dabigatran requires renal adjustment and what is the recommended dose?

A <50 mL/min and 150 mg once daily
B <30 mL/min and 150 mg once daily
C <50 mL/min and 75 mg BID
D <30 mL/min and 75 mg BID

Q1 Answer: C Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-668 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

FILLING THE GAP: ASTHMA EDUCATION IN PEDIATRICS

Amy Carlson, PharmD*, Lindsey Sloman, PharmD, Zeina Samara, PharmD, Jennifer Arnoldi, PharmD, BCPS

St. John Hospital and Medical Center,201 Winter Park,Chatham,IL,6262

amy.carlson815@gmail.com

Background
There have been many scientific advances in both our understanding of asthma and development of asthma medications proven to prevent morbidity and increase quality of life. Despite these advances, the burden of asthma, healthcare use, and mortality still remain high.

Purpose
The specific aims of this study are to indentify differences, if any, in the time to next exacerbation, cost savings, and trends in both asthma knowledge and management pre and post counseling session with a pharmacist and/or pharmacy student.

Methods
This study, approved by the Institutional Review Board, involves both retrospective and prospective data collection evaluating the effectiveness of pharmacy-provided education. Patients admitted to the hospital for an asthma exacerbation will be identified and targeted to receive discharge counseling provided by a pharmacist and/or pharmacy student. Our patient population will include all patients, ages 0-17 years, admitted to St. Johns Childrens Hospital with the primary diagnosis of asthma. Any patients not meeting these criteria will be excluded from the study. Once patients have received counseling, they will be followed for 90 days post discharge and will be reviewed for asthma exacerbations 90 days prior to admission. During these time frames, asthma exacerbations requiring admittance and/or emergency department visits will be documented and the time to each exacerbation will be calculated. The following data will also be collected: age, gender, asthma classification, admission date, discharge date, current asthma medications, and asthma assessment results. Informed consent will be obtained prior to counseling session. At the conclusion of 90 days, we will call patients to confirm that they did not receive care for an asthma exacerbation at another location and re-administer the asthma assessment.

Results/Conclusion
To be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Identify opportunities for pharmacists to aid in improving asthma management and prolonging the time to next exacerbation.

Recognize the value of pharmacist-provided asthma education in the pediatric population and its affects on the outcomes studied.

Self Assessment Questions:

How often should an asthma action plan be reviewed with the patient?

A Monthly
B: Yearly
C: Every 2 years
D: Every follow-up visit

How often should long-term controller medications, such as inhaled corticosteroids, be used in managing a patients asthma?

A Daily
B Weekly
C Seasonally
D As needed

Q1 Answer: D Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-337 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

POTENTIALLY INAPPROPRIATE MEDICATIONS IN A COMMUNITY LIVING CENTER

Antonio Carson, PharmD*, Sandra Tolbert, PharmD, CGP, Patria Gerardo, MD

Louis Stokes Cleveland VAMC,Pharmacy Service 119(W),10701 East Boulevard,Cleveland,OH,441061702

antonio.carson2@va.gov

Purpose: Potentially inappropriate medication (PIM) use is highly prevalent among older people. Certain drugs are considered potentially inappropriate in older patients because of the higher risk of intolerance related to adverse pharmacodynamics, pharmacokinetics or drug-disease interactions. These observations have formed the basis for various sets of criteria for PIMs in older people, the best known of which is Beers criteria. The Beers criteria is widely known and accepted by many geriatric practitioners as an aid in the identification of PIMs in the elderly. One would therefore reasonably expect a significant association between PIMs and adverse drug events (ADEs). However, 2 recent large-scale retrospective studies that specifically examined the association between Beers criteria PIMs and the incidence of ADEs found no significant association. Due to the lack of a reproducible, statistically significant association between Beers criteria PIMs and ADEs, a research group recently devised and validated a new set of PIM criteria in older people, called STOPP (Screening Tool of Older Persons potentially inappropriate Prescriptions). A recently published study concluded that the STOPP criteria are more sensitive to PIMs that result in ADEs than Beers criteria and are therefore more clinically relevant.

Methods: Retrospective chart review of patients age 65 years or greater who were discharged from the CLC between June 2010 and June 2011. Patients will be excluded if they have insufficient medication records, hospice patients and patients who expire prior to discharge from CLC. The data regarding patient demographics, comorbidity, number of medications at admission and discharge, number of hospital admissions and reason for each admission, and number of falls will be collected for each patient. Medications will be reviewed from admission and discharge from CLC for PIMs, defined by the 2008 STOPP criteria. Students T-test will be used for continuous variables, and chi-squared test for ordinal data.

Results/Conclusions: Results will be presented at Great Lakes Pharmacy Resident Conference

Learning Objectives:

Identify medications that are potentially inappropriate for use in elderly patients according to the STOPP criteria

Describe changes in the prevalence of potentially inappropriate medication prescribing before and after admission to a community living center

Self Assessment Questions:

Which of the following medications is potentially inappropriate for use in elderly patients according to the STOPP criteria?

A Digoxin > 0.125mg/day

B: Tricyclic antidepressants

C: First generation antihistamines > 1 week

D: Non-COX selective Non-Steroidal Anti-Inflammatory Drugs

Which of the following potentially inappropriate medications were more commonly prescribed on discharge from the community living center?

A Use of long-acting benzodiazepines > 1 month

B Use of long-term stimulant laxatives without chronic opiate use

C Use of tricyclic antidepressants in patients with a history of dement

D Use of metoclopramide in patients with a history of Parkinson's dis

Q1 Answer: C Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-794 -L05-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF VITAMIN B12 DEFICIENCY AND MEGALOBLASTIC ANEMIA IN DIABETIC PATIENTS UTILIZING METFORMIN MEDICATION THERAPY

Rebecca M Castner, PharmD*; Alicia Pence, PharmD, CACP; Jennifer Endres, PharmD

UC Health-University Hospital,234 Goodman St,ML 0739,Cincinnati,OH,45219

rebecca.castner@uchealth.com

Background/Purpose
Research indicates a link between metformin use and vitamin B12 deficiency. The cause is under investigation, but displacement of divalent calcium cations by metformin at the lumen surface, leading to impaired uptake of B12-intrinsic factor complex, is considered the most likely mechanism for this association. Currently no guidance exists regarding management, although suggestions for new standards of care include annual megaloblastic anemia/B12 deficiency screening and calcium supplementation. The purpose of this study will be to determine if educating physicians regarding this link leads to improved detection and treatment of metformin-associated B12 deficiency.

Methods
This investigator-initiated, single-center, retrospective study will be conducted at UC Health General Medicine Ambulatory Clinics within University Hospital in Cincinnati, Ohio. Participants include adult patients with a diagnosis of diabetes mellitus type 2 utilizing metformin during the study period.
Demographic information, complete blood count values, and dosing of metformin and B12 therapies will be recorded. If documented, serum folate, serum cobalamin, and calcium supplementation will be recorded. A diagnosis of neuropathy will be noted, as well as its improvement for up to 12 months after B12 therapy initiation, if ordered.

Preliminary Results
This study has been submitted and is pending approval by the University of Cincinnati Institutional Review Board.

Preliminary Conclusions
Preliminary research and observation suggests most participants in this study will not be routinely screened for vitamin B12 deficiency. However physician education regarding deficiency may lead to increased detection and treatment. Payment for routine vitamin B12 levels remains a barrier to screening as tests ordered outside of known standards of care may not be deemed medically necessary by payers.

Learning Objectives:

Describe three possibe causes of metformin-associated vitamin B12 deficiency

List appropriate pharmacologic treatment of B12 deficiency, including drug, dose, route, and frequency

Self Assessment Questions:

Which of the following is a currently proposed cause for development of metformin-associated B12 deficiency?

A Dispacement of vitamin B12 by metformin leading to impaired upta

B: Displacement of calcium by metformin leading to impaired uptake

C: Displacement of intrinsic factor by metformin leading to impaired u

D: Displacement of potassium by metformin leading to impaired uptak

Which of the following is an example of appropriate treatment of vitamin B12 deficiency?

A Cobalamin 1-2 g by mouth daily x 1-2 weeks, then 1-2 g daily indef

B Cobalamin 100-200 mg by mouth daily x 1-2 weeks, then 100-200

C Cyanocobalamin 1 g intramuscularly/deep subcutaneoulsy daily x

D Cyanocobalamin 100 mg intramuscularly/deep subcutaneously dai

Q1 Answer: B Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-338 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

SAFETY OF THERAPEUTIC DOSES OF UNFRACTIONATED HEPARIN AND ENOXAPARIN IN PATIENTS WITH RENAL INSUFFICIENCY

Lyndsey B. Caudel, PharmD*, Kip Eberwein, RPh, Kevin L. Poe, PharmD, BCPS

St. Joseph's Hospital - KY,One Saint Joseph Drive,Lexington,KY,40504

caudellb@sjhlex.org

Background: There has been great debate over whether or not one should adjust the dose for enoxaparin in patients with renal impairment. No current studies have been able to prove without a doubt that dosing adjustments are or arent necessary. Currently ACCP and the College of American Pathologists recommend using unfractionated heparin instead of low-molecular-weight heparin in patients with a creatinine clearance of 30 mL/min or less.
Objective: To examine the safety of unfractionated heparin and enoxaparin used for the treatment of VTE in patients with renal insufficiency.
Study Design: The study is an IRB approved retrospective, single-center, two-arm observational study of patients with renal insufficiency who received unfractionated heparin or enoxaparin for the treatment of VTE. Investigators will review patient charts and data from patients admitted between June 2009-June 2011 at St. Joseph Hospital in Lexington, KY.
Methods:
Data Collection:
Gender, age, height, weight, BMI, serum creatinine, creatinine clearance (calculated with the Cockcroft-Gault equation), type of VTE, other anticoagulant medications, any minor or major bleeding events, K+ level platelet count, aPTT
Inclusion data:
1.Patients with creatinine clearance 15-30 ml/min and patients with ≥ 60 ml/min. 2.Treatment for VTE with UFH drip or subcutaneous enoxaparin. 3. An inpatient at St. Joseph Hospital.
Abbreviated Exclusion data:
1.Underwent a surgical procedure within previous 24 hours of initiating anticoagulation. 2.Patients with supratherapeutic INR >3. 3.Prior exposure to tPA. 4.Undergoing any RRT. 5.Were transferred from an OSH already being treated with UFH or enoxaparin. 6.Morbidly obese patients (>150 kg)
Outcomes:
Primary UFH & Enoxaparin Treatment - CrCl 15-30 mL/min: Incidence of bleeding.
Secondary
1.Incidence of bleeding in patients ≥ 75 years old & underweight patients. 2. Hyperkalemia. 3.Thrombocytopenia
Statistical Analysis:
Appropriate statistical analysis will be performed once data collection is completed.
Results & Conclusions:
Data collection in progress.

Learning Objectives:

Identify the appropriate anticoagulant for treatment of a VTE based on ACCP guidelines according to the patients renal function.

Classify a bleed according to TIMI bleeding criteria.

Self Assessment Questions:

Patient is a 65 YOF admitted to the hospital with respiratory distress due to a PE. The patient has PMH of atrial fibrillation (CHADS score = 1), HTN, dyslipidemia, and type 2 diabetes. Once admitted,

A Enoxaparin 100 mg SQ BID
B: Heparin 5000 units SQ every 8 hours
C: Enoxaparin 100 mg SQ daily
D: Heparin 25000 units/250 mL 0.45% NaCl infusion

The same patient was started on the appropriate anticoagulant. After one day of therapy the patient develops dark tarry stools. A follow-up CBC reveals a drop in the patients hemoglobin from 12.6 g/d

A Major
B Minor
C Minimal
D Patient likely has no bleeding

Q1 Answer: D Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-795 -L05-P

Activity Type: Knowledge-based Contact Hours: 0.5

ESTABLISHING A COMPREHENSIVE PHARMACY SERVICE PROGRAM USING PHARMACY TECHNICIANS TO MAXIMIZE REVENUE CYCLE PERFORMANCE AND THE PATIENT EXPERIENCE THROUGH TRANSITIONS IN CARE

*Cesarz, Joe, PharmD; Rough, Steve, MS, RPh

University of Wisconsin Hospital and Clinics,600 Highland Avenue F6/133-1530,Madison,WI,53792

jcesarz@uwhealth.org

Purpose: To improve the patient experience through transitions in care and maximize revenue cycle performance through the integration and expansion of four pharmacy service programs which are supported by pharmacy technical personnel. Three of these programs (Medication Assistance Program, Clinic Administered Medication Prior Authorization Program, and Discharge Medication Specialist Program) were partially in existence prior to initiation of this project, and the fourth (Ambulatory Specialty Clinic Take Home Medication Prior Authorization Program) had been conceptualized just prior to project initiation.

Methods: A team of stakeholders was identified to serve as an oversight committee to guide the objectives of this resident-led project. Gap analyses were performed to compare the current roles and responsibilities of the positions to the formal job descriptions. Using this information, the idealized role, scope, and skill set of each position were defined to determine if the programs could be combined to create a comprehensive pharmacy service program. Next, volume metrics and time studies were used to determine resource requirements needed for each of the programs. Additionally, workflow analyses were conducted determine if areas of improved efficiency existed. If resources (FTE) were needed for any of the programs, the number and source of these resources was determined collaboratively with the human resources department. Position descriptions were modified accordingly, and business plans were developed in cases where new FTE were being requested. Finally, these positions were retrofitted into varying levels of a newly developed pharmacy technician career ladder.

Summary of results to support conclusion: Results will be presented at the Great Lakes Pharmacy Resident Conference

Conclusions: Conclusions will be presented at the Great Lakes Pharmacy Resident Conference

Learning Objectives:

Describe the transitional care pharmacy technician programs at the University of Wisconsin Hospital & Clinics.

Explain the importance of expanding pharmacy technician roles into transitional care programs to improve the patient experience, the quality of patient care, and maximize revenue cycle performance.

Self Assessment Questions:

Which of the following is a service provided by the Medication Prior Authorization Coordinators at the University of Wisconsin Hospital & Clinics?

A Assure proper medical record documentation for Medicare and priv
B: Refer patients to other institutions if medications will not be covere
C: Evaluate the clinical appropriateness of medication therapies admi
D: Obtain medication histories from patients during their visit to the int

Which of the following metrics was collected to determine the impact of the expanded roles of the Discharge Medication Specialist (Transitional Care Pharmacy Technician)?

A Pharmacy technician satisfaction
B Nurse satisfaction
C Rate of patient referrals to specialty physician clinics
D Patient satisfaction (e.g. Press Ganey, HCAHPS)

Q1 Answer: A Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-669 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

BRIDGING FOR AN UNINTENTIONAL SUBTHERAPEUTIC INR WITH LMWH: A COST ANALYSIS

Tiffany W. Chang, PharmD*, Alicia Pence, PharmD, CACP, Jennifer Endres, PharmD, Megan Lyons, PharmD, CACP, Sharon Wright, PharmD

UC Health-University Hospital,234 Goodman St,ML 0740,Cincinnati,OH,45208

tiffany.chang@uchealth.com

Background: Warfarin (Coumadin) is a commonly prescribed anticoagulant that is effective in preventing thromboembolic events, but has a narrow therapeutic index. For patients whose INR becomes subtherapeutic, there is concern that the gap in therapy may increase the risk of stroke and death. Bridging with a short-acting parenteral anticoagulant agent, such as low-molecular-weight heparin (LMWH), may be necessary for optimal anticoagulation. There are currently no guidelines on an optimal method of bridging in patients with subtherapeutic INRs during long-term warfarin therapy. The benefits and harms of anticoagulant bridge therapy, such as bleeding, cost, and risk for thromboembolism need to be weighed in assessing whether a patient with a subtherapeutic INR should be bridged with LMWH.

Purpose: To evaluate the clinical practice of initiating LMWH bridge therapy for an unintentional subtherapeutic INR and to potentially result in a change in practice that may subsequently reduce health care cost.

Methods: This retrospective chart review examined 270 episodes of unintentional subtherapeutic INR occurring in 196 patients at the Pharmacy Anticoagulation Clinic at UC Health - University Hospital. All episodes were categorized as bridged or non-bridged. Costs were estimated and compared between groups through calculating direct medical costs accrued within 90 days of the incidence of unintentional subtherapeutic INR. Adverse events were assessed for bleeding within 30 days and thrombosis within 90 days following subtherapeutic INR.

Results: Study subjects were predominately African American (65.3%) with mean age of 56.4 years. Indications for warfarin therapy were primarily venous thromboembolism (57.7%), atrial fibrillation (18.4%), and mechanical heart valves (12.2%). Sixty-six episodes (24.4%) were bridged with dalteparin (80.3%), lovenox (18.2%), or fondaparinux (1.5%). Costs were significantly higher in the bridged group. Data collection and analysis is still in progress.

Conclusion: The conclusion of this study will be developed upon completion of data collection and analysis.

Learning Objectives:

Identify possible predictors for bridging for an unintentional subtherapeutic INR.

Discuss the challenges, including potential risks, benefits, and costs, associated with bridging an unintentional subtherapeutic INR.

Self Assessment Questions:

According to guidelines by the American College of Chest Physicians for perioperative management of patients receiving warfarin, high risk patients should be bridged with which of the following?

A Therapeutic-dose LMWH
B: Prophylactic-dose LMWH
C: Low-dose unfractionated heparin
D: No LMWH bridging is needed

Which of the following factors should be considered before bridging a patient with an unintentional subtherapeutic INR?

A Cost
B Risk factors for bleeding
C Risk for thromboembolism
D All of the above

Q1 Answer: A Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-339 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

DRUG INDUCED ACUTE RENAL FAILURE

Sean Chantarapanont, PharmD*; Bharat A. Patel, PharmD, BCPS; Nancy A. Nora, MD

NorthShore University HealthSystem,777 Park Avenue West,Highland Park,IL,60035

schantarapanont@northshore.org

Purpose:
Acute renal failure is defined as a rapid loss of renal function due to damage to the kidneys. In the hospital setting, acute kidney injury has been reported to occur in 5-7% of all hospital inpatients. Acute renal failure has been shown to increase mortality, health-care costs and hospital length of stay. The objectives of this study are to evaluate the medication classes that most commonly cause acute renal failure at NorthShore University HealthSystem, assess the appropriateness of use of these medications and to develop guidelines or clinical decision support tools that can help prevent drug induced renal failure.

Methods:
The Institutional Review Board granted exemption as the evaluation was deemed to be a quality assurance study. A retrospective chart review wil be conducted to identify patients age 18 and above who were administered any of the medications included in this study between September 30, 2010 and October 1, 2011. Two hundred and twenty seven patient charts, designated by a random numbering system, will be reviewed using the health system electronic medical record. The sample size will achieve detection of an estimated 18 percent rate of drug induced renal failure within a 95 percent confidence interval. For the purpose of the evaluation, the Naranjo algorithm will be utilized to determine the likelihood of the medications causing the acute renal failure. All data will be recorded without patient identifiers to maintain confidentiality. From this data, rates of drug induced acute renal failure at NorthShore University HealthSystem will be evaluated by the primary investigator.

Results/Conclusions:
Analysis of results is ongoing. Results and conclusions will be presented at the Great Lakes Residency Conference.

Learning Objectives:

Identify the medication classes that most commonly cause acute renal failure at NorthShore University HealthSystem.

Discuss potential clinical decision support tools and guidelines that can help prevent drug induced renal failure.

Self Assessment Questions:

Which of the following laboratory abnormalities can be seen in NSAID induced acute renal failure?

A Decreased Blood Urea Nitrogen (BUN)
B: Decreased serum potassium
C: Decreased serum creatinine
D: Decreased urine sodium

Which of the following strategies is recommended to prevent contrast media induced renal failure?

A Administration of lisinopril 10 mg by mouth daily for one week lead
B Periprocedural hydration with 250 mL normal saline per hour for fo
C Periprocedural hydration with 250 mL normal saline per hour for fo
D Administration of N-acetylcysteine 600 mg by mouth twice daily five

Q1 Answer: D Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-340 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF A PHARMACIST ASSISTED MEDICATION RECONCILIATION DISCHARGE PROGRAM IN SURGICAL PATIENTS

Tiffany R. Chapman, PharmD* and Peter T. Mui, PharmD, MS

NorthShore University HealthSystem,777 Park Avenue West,Highland Park,IL,60035

tchapman2@northshore.org

Purpose: The purpose of this study is to evaluate the pharmacist assisted medication reconciliation program in surgical patients at NorthShore University HealthSystem (NorthShore) by determining the effect of pharmacists on the completeness of a patients discharge medication list. This project will also involve the development, validation and distribution of a provider survey to all surgical physicians and surgical physician assistants in order to evaluate their satisfaction with the newly implemented pharmacist assisted medication reconciliation discharge program in surgical patients at NorthShore.

Methods: A retrospective report of all patients discharged from June 1, 2011 through August 31, 2011 will be obtained. This list will be sorted by service to include only discharges by surgical services. This report will provide the baseline percentage of all medications reconciled at discharge for all surgical patients discharged between June 1, 2011 and August 31, 2011 at NorthShore. A second retrospective report containing all patients discharged after the implementation of the pharmacist assisted medication reconciliation discharge program, from October 1, 2011 through December 31, 2011, will be obtained. This report will be sorted as described above and will be used to compare the rate of all medications reconciled by pharmacists to the rate reconciled by physicians and physician designees. A survey to assess provider satisfaction with the pharmacist assisted medication reconciliation discharge program will be developed and initially reviewed by the Pharmacy Medication Reconciliation Task Force. Upon approval, the survey will be validated by the lead surgical physician assistants at each NorthShore Hospital. Following validation, the survey will be distributed to all surgical physicians and surgical physician assistants at NorthShore. The surveys will be analyzed and recommendations for improvement of the pharmacist assisted medication reconciliation discharge process will be made.

Results: Data collection and analysis is ongoing. Results and conclusions will be presented at the conference.

Learning Objectives:

Describe the medication reconciliation process implemented at NorthShore

Discuss the impact of including a clinical pharmacist in the medication reconciliation process

Self Assessment Questions:

The medication reconciliation process at NorthShore focused on which of the following patient populations?

A Pediatric Patients
B: Surgical Patients
C: Medical Patients
D: Geriatric Patients

Which of the following is a potential advantage of including pharmacists in the medication reconciliation process?

A Increase in direct hospital expenses
B Increase in direct medication cost
C Decrease in medication related errors
D Both A and B

Q1 Answer: B Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-671 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

TECHNICIAN-CHECKING-TECHNICIAN PILOT PROGRAM AT NORTHSHORE UNIVERSITY HEALTHSYSTEM

Bret A. Chapman, PharmD* and George T. Vass, PharmD, MBA

NorthShore University HealthSystem,2100 Pfingsten Road,Glenview,IL,60026

bchapman@northshore.org

Purpose:
To develop and implement a safe and effective technician-checking-technician (TCT) pilot program for dispensing medications to automated dispensing cabinets, and thus, allowing pharmacists time to be reallocated to clinical activities.

Methods:
Pharmacy technician training for this pilot program will be modeled after the training program developed by the Minnesota Society of Health-System Pharmacists in 2003. The training will include a didactic lecture and an associated competency exam. Pharmacy technicians will need 90% to pass the competency and participate in the pilot program. After completion of all training, the program will be implemented throughout the month of January, 2012. Errors will be introduced and documented by a Quality Assurance Investigator into the medication cart fill at a rate of 5 errors for every 2500 doses, which is consistent with previously published programs. After the errors are introduced, a pharmacy technician will verify all medications for accuracy and document any errors. These identified errors will remain in the cart for the pharmacist to verify. The pharmacist will verify all medications in concordance with current pharmacy policies at NorthShore. Any errors that are identified by the pharmacist will be documented and removed from the cart. Finally, a Quality Assurance Investigator will utilize the error audit form as well as both error detection forms to insure that all errors have been removed from the cart. Error detection rates will be calculated for both technicians and pharmacists by using the following formula: error detection rate = number of detected errors documented/total number of doses checked. This data will be used to determine the feasibility of utilizing well trained pharmacy technicians and barcode verification to accurately dispense unit dose medications to automated dispensing cabinets.

Results/Conclusion:
Data collection is ongoing and results will be presented at the conference.

Learning Objectives:

Outline the design of a technician-checking-technician pilot program

Discuss potential advantages and disadvantages to implementing a technician-checking-technician program

Self Assessment Questions:

Which of the following should be in place prior to implementing a technician-checking-technician program?

A Technology Safeguards
B: Advanced Pharmacy Technician Training
C: Additional Pharmacy Technician Staff
D: Both A and B

Which of the following is a potential advantage to implementing a technician-checking-technician program?

A Better utilization of pharmacy resources
B Decreased inventory costs
C Decrease in technician staffing
D Both A and B

Q1 Answer: D Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-670 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

DOES MEAN ARTERIAL BLOOD PRESSURE PREDICT OUTCOMES IN ACUTE SPINAL CORD INJURY PATIENTS? A RETROSPECTIVE COHORT STUDY

Lauren Cherrier, PharmD, BCPS*; Emily Hutchison, PharmD BCPS; Robert Reed MD; James Callahan MD; Katherine Stenson MD

Wishard Health Services,1001 W. 10th st,Indianapolis,IN,46202

lcherrier@gmail.com

Patients with acute spinal cord injury (ASCI) often develop cardiovascular abnormalities as a result of their injury, especially those with high cervical and thoracic injuries. These complications, categorized as neurogenic shock, can involve bradycardia and hypotension due to the loss of sympathetic outflow and unopposed parasympathetic discharge. Cardiovascular instability can also be exacerbated by under resuscitation after trauma. The current ASCI guidelines recommend using treatment algorithms similar to traumatic brain injury (TBI) to prevent secondary injury and improve overall patient outcome and mortality. In TBI patients, the goal is to maximize cerebral perfusion pressure. Currently, the ideal mean arterial blood pressure (MAP) for ASCI is unknown since we do not measure spinal perfusion pressure. There are a limited number of non-randomized studies which have targeted a general supraphysiologic MAP greater than 85 mmHg with positive outcomes. However, these studies have not correlated outcomes with MAP goals less than 85 mmHg. Despite the lack of strong evidence to maintain an elevated MAP post-injury, some neurosurgery practices have applied this treatment goal in the standard management of ASCI. This study theorizes that there will be no difference in patient recovery when MAP goals are normotensive versus supraphysiologic MAPs.
IRB approval was obtained and data collection forms were utilized to collect patient data. Trauma patients greater than 18 years old admitted with ASCI to Methodist Hospital or Wishard Health Services from January 2009 to December 2010 and transferred to the Rehabilitation Hospital of Indiana will be evaluated. Patients with concomitant TBI, prisoners, and pregnant women will be excluded from analysis. This retrospective cohort study will use regression analysis to compare functional outcomes in patients with ASCI treated to various MAPs. The study will also evaluate any adverse outcomes associated with vasopressor use. Results and outcomes will be presented at the Great Lakes Conference.

Learning Objectives:

Explain the mechanism and pathophysiology of neurogenic shock

Describe the literature reviewing the effect of mean arterial blood pressure on neurologic outcomes in acute spinal cord injury

Self Assessment Questions:

At what spinal cord injury level are you most likely to see the development of neurogenic shock?

A C5
B: C8
C: T6
D: L1

What vasopressors are recommended for the treatment of neurogenic shock in ASCI according to the Spinal Cord Medicine guidelines?

A Epinephrine
B Norepinephrine
C Dopamine
D B and C

Q1 Answer: C Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-341 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATING THE IMPACT OF A GERIATRIC SERVICE ON THE ANTICHOLINERGIC RISK SCALE SCORE IN LONG-TERM CARE PATIENTS AT THE EDWARD HINES, JR. VA HOSPITAL

Bhairvi Patel, Pharm.D., BCPS, CGP, *Thomas D. Chiampas, Pharm.D., Kavita Palla, Pharm.D., BCPS, Syed Imam, M.D., Rakhi Yadav, M.D., Todd Lee, Ph.D., Pharm.D.

Edward Hines, Jr.VA Medical Center,5000 S. Fifth Avenue,Hines,IL,60141

thomas.chiampas@va.gov

Background: Anticholinergic medications commonly prescribed in the geriatric population are of great concern due to their impact on overall cognition and physical function which may lead to increased mortality. The Anticholinergic Risk Scale (ARS) is a validated tool that calculates an ARS score by rating a medication's anticholinergic potential on a 3 point scale with 3 being the most and 0 being the least anticholinergic risk, and then adding up the total score. Higher ARS scores are associated with an increased risk of anticholinergic side effects.

Purpose: To evaluate the impact of the geriatric service on the ARS score in long-term care (LTC) patients and understand the impact of the healthcare team in decreasing the ARS score for a patient. The study will also evaluate the impact of pharmacy recommendations as an integral part of the multidisciplinary team on the ARS score and overall unnecessary medication use.

Methods: This is a retrospective, chart review of patients >65 years admitted to LTC who receive an initial review by the interdisciplinary team, medication reviews by a pharmacist, and who have been on the service for at least 30 days. The initial ARS score upon admission will be compared to the ARS score upon discharge or second pharmacist review, whichever occurs first, and the difference will be calculated. Information collected includes: reason for admission, demographics, number of disease states, number of medications, medications with anticholinergic risk, doses of medications, dose adjustments, drug-drug interactions, drug-disease interactions, adverse drug reactions, allergies, laboratory monitoring, and medications added, discontinued or changed. Depending on the type of data, various tests will be used to compare outcomes, including means and standard deviations, a paired t test, chi square, or Fischers exact test.

Results/Conclusions: Data collection is in progress. Results will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Describe the utility of the Anticholinergic Risk Scale score.

Review the impact of potential anticholinergic side effects in a geriatric patient.

Self Assessment Questions:

A higher Anticholinergic Risk Scale score may indicate which of the following?

A The patient has a greater possibility of experiencing anticholinergic
B: The patient has zero or a negligible possibility of experience antich
C: The patient's life expectancy has been reduced by half
D: The patient will require close monitoring while inpatient

Which of the following best represents potential hazardous side effects caused by anticholinergic medications?

A bradycardia, hyperglycemia, pyrexia, dyspepsia, orthostatic hypote
B dizziness, confusion, constipation, urinary retention, delirium, cogn
C hypoglycemia, tachycardia, thrombocytopenia, visual changes, ren
D hepatotoxicity, nausea, vomiting, diarrhea, agranulocytosis, lactic a

Q1 Answer: A Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-672 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

COMPARISON OF METOLAZONE VERSUS CHLOROTHIAZIDE AS ADD-ON THERAPY TO LOOP DIURETIC FOR ACUTE DECOMPENSATED HEART FAILURE IN PATIENTS WITH RENAL INSUFFICIENCY

Suji Choi, PharmD*; Michael P. Moranville, PharmD, BCPS; Edward Scott Lozano, PharmD, BCNSP

University of Chicago Medical Center,5841 S. Maryland Avenue,Chicago,IL,60637

suji.choi@uchospitals.edu

Purpose: Despite lack of survival benefit, loop diuretics are a mainstay o acute decompensated heart failure (ADHF) treatment. Loop diuretic resistance can be an obstacle in patients receiving these medications fo extended periods of time and escalating doses may still be ineffective. Sequential nephron blockage with a loop diuretic plus thiazide or thiazide like diuretic has been utilized in order to overcome resistance, but there is insufficient data to recommend one agent over the other in patients with renal insufficiency. The purpose of this non-inferiority study is to compare oral metolazone and intravenous chlorothiazide as add-on therapy to loop diuretic in ADHF patients with renal insufficiency.

Methods: This single-center restrospective cohort review at the University of Chicago Medical Center will be conducted from June 2008 through September 2011. Adult heart failure patients will be included if the following criteria are met: receiving furosemide plus metolazone or chlorothiazide with creatinine clearance 15-50 mL/min. Exclusion criteria are end stage renal disease on renal replacement therapy at any time during the hospitalization, liver disease, on study drug for less than 60 hours, and cross over between study drugs. The primary endpoint is net urine output at 72 hours. Secondary endpoints include UOP at 12 hour increments after study drug initiation, length of stay, renal dysfunction, hypotension, and electrolyte abnormalities. Drug reports and ICD9 codes will be utilized to identify study patients and co-morbid conditions. A minimum of 60 patients per treatment group will be necessary to achieve 80% power with an a priori alpha of 0.05. Results will be expressed using incidence for nominal data and mean with standard deviation for continuous variables. Assuming normal distribution, nominal and continuous data will be analyzed using a chi squared and student t-tests, respectively.

Results: To be presented

Conclusion: To be presented

Learning Objectives:

Describe diuretic resistance in acute decompensated heart failure (ADHF) patients and methods to overcome it.

Discuss results and clinical impact of metolazone versus chlorothiazide as add-on diuretic therapy in ADHF

Self Assessment Questions:

What is the mechanism of thiazide diuretics?

A Inhibit the sodium-potassium-chloride cotransporter in the thick asc
B: Inhibit the sodium-chloride transporter in the distal tubule
C: Antagonize the actions of aldosterone at the distal segment of the
D: nhibit the transport of bicarbonate out of the proximal convoluted tu

Which of the following is a reason why clinicians may choose metolazone over chlorothiazide for sequential nephron blockade in heart failure patients experiencing diuretic resistance?

A Diabetes
B Hypotension
C Ascites
D Renal insufficiency

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-342 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

COMPARISON OF APPROPRIATE VITAMIN D DOSING AND MONITORING IN PATIENTS WITH VITAMIN D DEFICIENCY BEING FOLLOWED BY PRIMARY CARE VERSUS SPECIALTY CARE PROVIDERS

Jennifer A. Jende, Pharm.D., Melissa L. Christ, Pharm.D.*, Arpi H. Roach, Pharm.D.

Chalmers P. Wylie VAOPC,2489 Loggers Run Ct,Columbus,OH,43235

melissa.christ@va.gov

Purpose: Vitamin D is essential to maximize skeletal health. There are growing concerns that much of the population is deficient in this nutrient. Vitamin D deficiency can lead to osteoporosis, osteomalacia, and increased risk of falls and fractures due to muscle weakness. Vitamin D deficiency is defined as 25-hydroxyvitamin D levels less than 20 ng/ml; however, different regulatory bodies disagree on the definition of vitamin D sufficiency. This lack of consensus has led to suboptimal management of patients with vitamin D deficiency. Evidence suggests some patients with vitamin D deficiency may not receive the correct vitamin D formulation, as well as adequate monitoring. The objective of this study is to evaluate whether vitamin D is being dosed and monitored appropriately in patients with vitamin D deficiency being followed by primary care compared to specialty care providers. At the conclusion of this study, prescriber practices relative to current guidelines may identify educational opportunities to improve the management of patients with vitamin D deficiency.

Methods: This retrospective chart review of veterans with vitamin D deficiency will be conducted at the Chalmers P. Wylie Veterans Affairs Ambulatory Care Center in Columbus, Ohio. Information will be obtained by analysis of laboratory values and progress notes available in the Veterans Affairs computerized records system. Veterans aged 18 years and older with vitamin D deficiency receiving a prescription for ergocalciferol 50,000 IU initiated between January 1, 2009 and June 30, 2011 will be randomly selected from a computer database-generated list. Patients will be excluded from the study if they received ergocalciferol prior to January 1, 2009 or if actively receiving chemotherapy. Patient charts will be reviewed for 25-hydroxyvitamin D levels, risk factors for vitamin D deficiency, and prescribing providers.

Results/Conclusions: To be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Discuss vitamin D status based on 25-hydroxyvitamin D levels.

Select the correct vitamin D formulation and dose based on 25-hydroxyvitamin D levels.

Self Assessment Questions:

Which 25-hydroxyvitamin D level is indicative of vitamin D insufficiency based on the Endocrine Society Clinical Practice Guidelines?

A 17 ng/ml
B: 24 ng/ml
C: 32 ng/ml
D: 45 ng/ml

If a 50 year old female patient has a baseline 25-hydroxyvitamin D level of 15 ng/ml, what vitamin D formulation and dose should the patient receive?

A Cholecalciferol 1000 units once daily
B Cholecalciferol 2000 units once daily
C Ergocalciferol 50,000 units once weekly
D Ergocalciferol 50,000 units twice weekly

Q1 Answer: B Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-343 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

PATIENTS PERCEPTIONS OF A PHARMACIST-MANAGED LEG CIRCULATION HEALTH SERVICE IN A COMMUNITY SETTING

Stephanie Chu, Pharm.D.*, Klodiana Myftari, Pharm.D., Sonali Kshatriya, Pharm.D., Susan Winkler, Pharm.D., BCPS

Dominick's/Midwestern University,711 Jorie Boulevard,Oak Brook,IL,60523

stephanie.chu@safeway.com

Purpose:
To assess patients perceptions of a community pharmacy-managed leg circulation health service. Secondary objectives include assessing patients adherence with compression hosiery after consultation with the pharmacist and their perceived improvement in leg symptoms after one month of wearing compression hosiery.
Methods:
This pilot, survey-based prospective study consists of a leg circulation health service implemented in multiple supermarket pharmacy sites. Inclusion criteria include subjects ≥ 18 years old who are interested in participating in this study. Pharmacist-conducted screenings will be performed using a photoplethysmography (PPG) machine to differentiate between normal and potentially impaired venous function of the legs. Based on patients venous refill time and severity of venous function, pharmacists will recommend compression stockings and an appropriate compression level. Pharmacists will provide: fitting and correct sizing for patients, counseling and education about the importance of compression stockings, and instruction on methods of applying and caring for their hosiery. Data will be collected through surveys, completed immediately following screening participation and again after one-month via telephone. The pre-survey will be used to gather patient demographic information, leg symptom history, perceptions on compression stockings, value of the pharmacy service provided, and satisfaction with the service. The post-survey will measure adherence with compression stockings and assess perceived symptom improvement.
Preliminary Results:
Survey responses will be analyzed by the principal investigator using SPSS.
Implications:
Community pharmacists are in the ideal position to implement a new clinical service and assist patients with the appropriate use of compression stockings. The results of this study can identify a practice model for community pharmacists to implement a leg health screening service to provide recommendations for compression hosiery. This service can increase patient awareness on the benefits of compression stockings and their use, and may potentially prevent complications such as ulceration and deep vein thrombosis.

Learning Objectives:

Explain photoplethysmography as a non-invasive technique for screening patients with venous insufficiency and deep vein thrombosis

Describe the pharmacists role in counseling and education to patients about compression stockings and the methods of applying and caring for their hosiery

Self Assessment Questions:

What is an indication for lower extremity venous insufficiency evaluation?

A Opening draining ulcers
B: Visible varicose veins
C: Obesity
D: Skin infections

Which measurement unit is gradient compression therapy commonly expressed?

A Atmospheres (atm)
B KiloPascals (kPa)
C Millimeters of mercury (mmHg)
D Millibars (mb)

Q1 Answer: B Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-673 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

CLINDAMYCIN VERSUS VANCOMYCIN FOR THE TREATMENT OF CA-MRSA IN THE PEDIATRIC POPULATION: A RETROSPECTIVE STUDY

Rachel L Ciaramello, Pharm.D.*, Jennifer L Pawelek, Pharm.D., BCPS

Bronson Methodist Hospital,601 JOHN ST,BOX 56,KALAMAZOO,MI,49007

vandervr@bronsonhg.org

Bronson Methodist Hospital, 601 John St, Kalamazoo, MI 49007
vandervr@bronsonhg.org
269-341-7869

Background: Historically, methicillin-resistant Staphylococcus aureus (MRSA) was almost exclusively encountered as a nosocomial infection. Since the 1990s, infections from MRSA have been occurring in the community setting (CA-MRSA) in patients with no known risk factors for the development of a MRSA infection. In the pediatric population, the majority of MRSA infections are community-acquired. The effectiveness of vancomycin against CA-MRSA is well known, however there is concern that resistance patterns are developing toward clindamycin and its effectiveness in treating CA-MRSA has decreased.
Purpose: The primary objective of this study is to determine the use and effectiveness of clindamycin versus vancomycin in the treatment of CA-MRSA in the pediatric population at Bronson Methodist Hospital. It is hypothesized that clindamycin will be noninferior to vancomycin in this population.
Methods: The current study will be a retrospective study examining patients equal to or less than 18 years of age who have a diagnosis of CA-MRSA. Through examining the patients medical charts, the use and effectiveness of clindamycin and vancomycin in treating CA-MRSA in pediatric patients can be determined. With the use of ICD-9 codes, patients discharged between January 1st 2005 and December 31st 2011 will be examined for inclusion into the study. Along with determining the use of clindamycin and vancomycin to treat CA-MRSA in the pediatric population, the effectiveness will also be determined by assessing the amount of time it takes for patients to become afebrile while on one of the agents, the amount of time before switching from IV therapy to oral therapy, reported adverse effects that occur warranting a switch in therapy, the time to discharge, and re-admission rates.
Results/Conclusions: Data collection is ongoing and final results will be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Describe the differences between HA-MRSA and CA-MRSA infections

List the available treatment options for HA-MRSA versus CA-MRSA infections

Self Assessment Questions:

Which one of the following statements about CA-MRSA infections is true?

A CA-MRSA infections are susceptible to fewer antibiotics than HA-M
B: CA-MRSA is the primary strain of bacteria found in pediatric skin a
C: Risk factors for developing CA-MRSA infections are similar to thos
D: CA-MRSA is easier to treat than HA-MRSA because of less toxin p

Which one of the following treatment options for CA-MRSA skin and soft tissue infections is considered first line therapy?

A Clindamycin IV therapy
B Clindamycin PO therapy
C Vancomycin IV therapy
D Incision and drainage

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-344 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATING RECENT MODIFICATIONS OF AN INTRAVENOUS TO ORAL ANTIBIOTIC PROTOCOL IN AN EMERGENT ANTIMICROBIAL STEWARDSHIP PROGRAM

Kalin M. Clifford, PharmD*, Christine R. Soedel, PharmD
Columbus Regional Hospital,2400 East 17th Street,Columbus,IN,47201
kclifford@crh.org

Purpose: The Infectious Disease Society of America (IDSA) recently published guidelines on developing an antimicrobial stewardship program. One specific recommendation is to develop conversion protocols for the interchange from intravenous to oral antibiotic therapy. There have been randomized studies that have found value in these conversion protocols. One controlled trial found that utilization of an intravenous to oral conversion protocol decreased length of stay by 1.53 days and lead to an increase in cost savings. The primary objective is to evaluate the expansion of an intravenous to oral antibiotic protocol in order to demonstrate the potential benefit of developing an antimicrobial stewardship program in an acute care hospital setting. Secondary objectives are identifying antibiotic usage for specific disease states, providing a cost-analysis, and determining if intravenous to oral conversion was appropriate.
Methods: The project has two phases: a retrospective and a prospective chart review that evaluates current usage of azithromycin and ampicillin/sulbactam. The chart review for both study phases is designed to review the indication for antibiotic use, cost-analysis for antibiotic regimen, and the conversion from intravenous to oral therapy. The second phase of the study also evaluates if the change in therapy was appropriate. The retrospective chart review (Phase One) contains data from July 1, 2011 through August 31, 2011. The prospective chart review (Phase Two) timeframe is from December 20, 2011 through February 20, 2012. The Pharmacy and Therapeutics Committee at Columbus Regional Hospital approved the study and protocol changes on October 13, 2011.
Results and Conclusions: Phase One has been completed. At this time, data collection for Phase Two is ongoing. Results and conclusions will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Recognize the advantages of converting patients from intravenous to oral therapy

Identify the disease states where intravenous antibiotic therapy is required for the entire course of therapy

Self Assessment Questions:

Which of the following reasons is a benefit for converting patients from intravenous to oral antibiotic therapy?

A Inconvenience to the patient
B: Cost implications to the patient
C: Increases in average length of stay
D: Decreases in average length of stay

Which of the following infectious disease states requires the use of intravenous antibiotics for teh complete duration of therapy?

A Meningitis
B Sinusitis
C Otitis Media
D Pharyngitis

Q1 Answer: D Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-345 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

IMPACT OF PHARMACISTS ON DIMINISHING UNNECESSARY PRESCRIBING OR CONTINUATION OF STRESS ULCER PROPHYLAXIS AT A TEACHING HOSPITAL

Kristina D. Clyburn, PharmD,* Jennifer E. Confer, PharmD, BCPS, Edgar R. Gonzalez, PharmD, FASHP, FASCP
Cabell Huntington Hospital,1340 Hal Greer Blvd,Huntington,WV,25701
kristina.clyburn@chhi.org

Purpose:
Stress ulcer prophylaxis (SUP) with proton pump inhibitors (PPI) or histamine-2 receptor antagonists (H2RAs) is commonplace in intensive care units (ICUs). Because SUP can produce adverse events, SUP is not without risk. This study will assess the impact of ICU clinical pharmacists (ICPs) and PGY1 pharmacy residents on the unnecessary use of SUP in medical or surgical ICU patients at a teaching hospital.

Methods:
Phase I: Retrospective pre-pharmacy intervention chart review:
Medical records for all admissions to the medical/surgical ICUs between March and September 2011 were reviewed retrospectively if inclusion and exclusion criteria were met. Inclusion criteria were: age > 18 years and SUP with either a PPI or an H2RA for > 48 hours. Exclusion criteria were: ICU stay of < 48 hours; upper gastrointestinal bleed on admission to ICU; or outpatient PPI or H2RA use for gastroesophageal reflux disease.

Phase II: Prospective pharmacy intervention:
ICPs and PGY1s evaluated all adult ICU patients prescribed a PPI or an H2RA for SUP to determine if criteria for SUP were met. If patients failed to meet SUP criteria or were discharged from the ICUs, prescribers were called to request that SUP be discontinued.

Data Collection and Analysis:
Demographic variables, SUP risk factors, diagnosis, pertinent laboratory data, and clinical outcomes were collected and entered into Excel for analysis. Pairwise comparisons assessed significant differences in patient demographics and baseline variables between Phase I and Phase II. Fishers exact test compared differences regarding unnecessary SUP between Phases I and II, as well as the percent of patients maintained on SUP after discharge from the ICU.

Results and Conclusions:
Data collection and analysis are on going. Results and conclusion will be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Classify risk factors for the development of stress mucosal injury as either absolute or relative

Identify concerns for inappropriate stress ulcer prophylaxis therapy

Self Assessment Questions:

Which of the following in an absolute risk factor for the use of stress ulcer prophylaxis therapy?

A NPO status
B: Acute renal dysfunction
C: Coagulopathy
D: Septic shock

Which of the following is a concern for inappropriate stress ulcer prophylaxis therapy?

A Anemia
B Clostridium difficile infection
C Thrombocytopenia
D Osteonecrosis of the jaw

Q1 Answer: C Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-346 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

HEALTH LITERACY IN VA DIABETES POPULATION

Canice A. Coan*, PharmD; Allison B. Riendeau, PharmD; Arthur A. Schuna, RPh, MS, FASHP

William S. Middleton VA Hospital,2500 Overlook Terrace,Madison,WI,537052286

Canice.Coan2@va.gov

Purpose:
Health literacy is defined as "the degree to which individuals are capable of attaining and processing basic health information as well as the ability to make appropriate health decisions." Approximately one-third of the American adult population has low health literacy. Low health literacy is more commonly seen in the elderly, patients with chronic diseases, racial and ethnic minorities, and those with low education and/or income levels. An association has been shown between low health literacy and poor health status, increased hospitalizations, as well as higher mortality and health care costs. The purpose of this study is to determine if the current level of health literacy is predictive of health outcomes in Veteran patients with diabetes.

Methods:
This observational study was conducted at the William S. Middleton Memorial Veterans Hospital from March 2009 to June 2009 and April 2011 to June 2011, and was approved by the Institutional Review Board for continued enrollment starting January 2012. Patients with type 2 diabetes are invited to participate in the study while attending an appointment in a pharmacy-managed ambulatory care clinic. Patients are pre-screened based on exclusion criteria, and invited to participate ir the study during one of their regularly scheduled visits. After obtaining verbal informed consent, a survey is administered to patients, which includes a single question validated to determine level of health literacy. Based on the patients response, he or she is classified as having adequate, marginal, or inadequate health literacy. In addition, patients are asked questions regarding demographics, diabetes medications, anc diabetes-related health outcomes. Diabetes-related endpoints such as hemoglobin A1c, blood pressure, and lipids are retrospectively collected using the most recent documented values in the medical record. Results will be adjusted for confounding variables.

Results/Conclusion:
The results and conclusion are pending.

Learning Objectives:

Recognize the prevalence of low health literacy in the United States.

Identify characteristics of individual patients who are more likely to have low health literacy, and who may benefit from further clinical instruction regarding medication therapy management of diabetes.

Self Assessment Questions:

What percent of American adults have been shown to have low health literacy?

A 5%
B: 11%
C: 17%
D: 33%

Low health literacy is more commonly seen in:

A Patients using five or more medications
B Patients without chronic disease
C Racial and ethnic minorities
D Well-educated individuals

Q1 Answer: D Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-347 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EFFECT OF DAILY GLUCOMANNAN IN OVERWEIGHT PATIENTS

Katherine M Cochran,* PharmD; Steven R Smith, MS, RPh, BCACP; Ashley M Parrott, PharmD; Louito C Edje, MD; Lindsey J Bostelman, MD; David R Knieriem, MD

Toledo Hospital/Toledo Children's Hospital,2051 W. Central Ave.,Toledo,OH,43606

katherine.cochran@promedica.org

Purpose: The purpose of this single-center, 12-week, randomized, double-blind, placebo-controlled trial was to evaluate the efficacy of glucomannan fiber supplementation for weight loss.

Methods: Patients >18 years old with a BMI ≥25 kg/m2 were randomized to receive either glucomannan 575 mg or placebo, 2 capsules three times daily 30-minutes before meals. Patients who attempted weight loss through a diet or exercise program within a month before enrollment or those on medications known to cause changes in weight were excluded. Patients with a history of heart failure, inflammatory or irritable bowel disease, structural abnormalities of the esophagus or gut, or gastrointestinal surgery for weight reduction were also excluded. Study subjects were instructed not to change their diet or exercise habits. At baseline, a brief diet and exercise history was obtained and weight and height were recorded. Subjects were given 4 weeks of therapy. After the first 2 weeks of therapy, study subjects were called to assess safety and tolerability. At 4-week intervals subjects were weighed, adverse effects were evaluated and pill counts were preformed. The primary outcome is change in weight after 12 weeks of therapy and will be evaluated using a t-test for independent samples (α=0.05). A 5% change in weight will be considered clinically significant. Assuming a 25% dropout rate, 20 patients per treatment group will be required to meet 80% power. An intention-to-treat analysis will be performed for all patients receiving at least one dose of therapy. The last observation will be carried forward for all patients who completed at least one month of the study.

Results: Forty patients were enrolled in the trial. Results from this study will be presented at the Great Lakes Pharmacy Resident Conference in April 2012.

Learning Objectives:

Recall the proposed mechanisms by which glucomannan is thought to produce weight loss.

Describe the role of glucomannan for weight loss.

Self Assessment Questions:

Which of the following is a proposed mechanisms by which glucomannan is thought to produce weight loss?

A Glucomannan speeds up gastric and small bowel transit time
B: Glucomannan increases the metabolic rate
C: Glucomannan adds bulk to the gastric content and reduces appetit
D: Glucomannan inhibits serotonin and norepinephrine reuptake

Which of the following is true regarding the current literature for glucomannan in weight loss?

A Current literature has found glucomannan to be successful in prod
B Current literature found glucomannan to be unsuccessful at produc
C Current literature is limited by small sample sizes and short duratio
D A and C

Q1 Answer: C Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-348 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

ANALYSIS OF MEDICATION USE AND WEANING SCHEDULE FOR NEONATAL ABSTINENCE SYNDROME AT COMMUNITY HEALTH NETWORK

*Katrina D Coffey, Dennis C Gardner
Community Health Network,1500 N Ritter Avenue,Indianapolis,IN,46219
kcoffey3@ecommunity.com

Purpose: Current American Academy of Pediatrics guidelines recommend using tincture of opium or methadone for opiate withdrawal and phenobarbital for sedative withdrawal in infants with neonatal abstinence syndrome (NAS). It is advised that a scoring tool be used to monitor an infants progress. Current practice at Community Health Network uses morphine and occasionally phenobarbital for treatment. Variation exists in how medications are dosed and weaned. No formal analysis has been completed to determine how dosing and weaning schedules relate to Lipsitz scores. The primary objective was to examine the effectiveness of morphine dosing and weaning in obtaining Lipsitz scores less than or equal to three. Secondary objectives included: length of therapy for NAS, duration of hospital stay, initial and final doses (mg/kg/dose), dose (mg/kg/dose) at which adjunct therapy was added, and time interval between dose changes.

Methods: Approval from the Institutional Review Board was obtained before beginning research. A retrospective chart review was conducted looking at infants presenting in the neonatal nurseries between the dates of January 2000 and September 2011. Patients with neonatal abstinence syndrome were identified based on ICD-9 codes. Data collected includes: infant age and weight at birth, results of the meconium and urine drug screen, maternal drug history, Lipsitz scores throughout therapy, doses and dosing intervals of medications, and information on the weaning schedule. Additionally, the length of medication therapy and duration of hospital stay were recorded. No patient identifiers were collected during data analysis, and all data was kept confidential.

Conclusion: There appears to be no pattern as to how the dose schedule impacts the Lipsitz scores, number of dose increases, duration of therapy, or duration of hospital stay. Weaning infants with NAS using morphine is very patient specific and could not be performed using a precise algorithm.

Learning Objectives:

Describe symptoms of withdrawal seen in neonates identified with NAS.

Identify scoring systems used for NAS and the advantages and/or disadvantages to the scoring systems.

Self Assessment Questions:

Which of the following is a common symptom experienced by neonates going through withdrawal?

A Constipation
B: Decreased blood pressure
C: Irritability
D: Increased appetite

Which of the following is true in regards to the scoring systems used for NAS?

A The Lipsitz tool is considered more objective than the Finnegan me
B The Finnegan method assesses seizure activity and the inability to
C AAP recommends use of the Lipsitz tool over the Finnegan metho
D Scores greater than a six using the Finnegan method indicate a ne

Q1 Answer: C Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-349 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

ASSESSING THE APPLICATION OF CULTURAL COMPETENCE TRAINING DURING ADVANCED PHARMACY PRACTICE EXPERIENCES

Loren-Ashley Cooper*, PharmD; Rosalyn S. Padiyara, PharmD, CDE; Ana C. Quinones-Boex, PhD
Midwestern University,555 31st St,Downers Grove,IL,60515
lcoope@midwestern.edu

Background:
The racial and ethnic composition of the United States population is rapidly changing. With the increase in diversity, it is inevitable that pharmacists will interact with people from various cultural and ethnic backgrounds. Cultural competence is one strategy to providing comprehensive health care for multicultural patients as well as reducing health disparities and improving patient outcomes. Although studies have shown students learn what is taught and depict enhanced knowledge, none have addressed if the knowledge is applied. In this study, the students assessment of their application of cultural competence training during Advanced Pharmacy Practice Experiences (APPE) will be explored.

Methods:
Fourth-year professional pharmacy students at Midwestern University Chicago College of Pharmacy were asked to complete a cross-sectional questionnaire during a mandatory class meeting at the end of their fourth rotation. The questionnaire contained 4 parts assessing the students cultural competence experiences while on APPEs, level of comfort in a variety of cultural situations and encounters, the amount of training previously received, and student demographics. Primary endpoints included identifying what types of cultural competency events students experienced, describing how they applied their cultural competence knowledge, and identifying their perceived level of comfort in providing culturally competent care to patients. Surveys will be analyzed using descriptive statistics, Mann-Whitney U, Chi Square, and ANOVA analysis.

Preliminary Results:
A total of 124 questionnaires were received. Average age of the respondents was 25.9 years; 66% were female. Approximately 75% specified English as their first language with 30% living in at least one other country. Most respondents described their household as upper middle class (39.5%) or lower middle class (36.3%). Two-thirds of the students considered themselves religious, and approximately 56% had community or retail experience.

Conclusions:
Research efforts are on-going with projected completion date March 1, 2012.

Learning Objectives:

Describe cultural competent care

Identify the type of cultural competence events encountered by fourth year professional students at Midwestern University Chicago College of Pharmacy

Self Assessment Questions:

Which of the following statements BEST describes cultural competent care?

A The ability to provide care to patients of different ethnic and racial b
B: The ability to provide care to patients with diverse values, beliefs, a
C: The ability to provide care to patients who have mental and physica
D: The ability to provide care to patients who cannot afford their medi

What was the MOST common type of cultural competence event students encountered?

A Providing care to patients with limited English proficiency
B Providing care to patients who are uninsured/underinsured
C Providing care to patients whose religious beliefs opposed standar
D Providing care to patients with poor health literacy

Q1 Answer: B Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-674 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF PRESCRIBING FOR RENAL DYSFUNCTION IN A VETERAN POPULATION

*Elena M. Coppol, PharmD; Katherine Freeman, PharmD, BCPS; Carolyn Zaleon, PharmD

VA Ann Arbor Healthcare System,2215 Fuller Rd,Ann Arbor,MI,48105

elena.coppol@va.gov

Background
Following review of an audit of medications requiring renal dose adjustments at the VA Ann Arbor Healthcare System (VAAAHS) in the inpatient setting over a two-day period in 2011, 22/303 (7.26%) patients were dosed incorrectly based on renal impairment. Currently, there is no readily available tool in place to assist providers with dose adjustments. Since inappropriate dosing can lead to drug accumulation, and further result in toxicities and adverse outcomes, it is important to determine if providers are, in fact, dosing renally-eliminated medications properly.

Purpose
The purpose of this study is to evaluate prescribing practices in renal dysfunction at the VAAAHS, and to further ascertain the need for additional provider education, guideline implementation, and/or an update to the current clinical decision support tool (CDST) in the order entry system.

Methods
Ambulatory care patients are eligible for inclusion in this retrospective chart review if prescribed morphine, nitrofurantoin, colchicine, sotalol, and/or lithium from October 1, 2006 through October 1, 2011, with at least one glomerular filtration rate (GFR) value <50mL/min in the five-year time frame. Data collection includes age, race, sex, weight, height, labs (serum creatinine (SCr), calculated creatinine clearance (CrCl), and GFR), diagnoses, and adverse events associated with the study medications. The Naranjo ADR Probability Scale will be applied for suspected adverse events and the chart will be reviewed to assess for possible sequelae. Potentially interacting medications will be considered For each study medication prescribed, all pertinent prescription information will be recorded (dose/frequency, date(s) filled, new prescription vs renewal, clinic involved, and, if available, provider rationale for the dose chosen and/or reason for discontinuation).

Results/Conclusion
Data analysis is currently in progress. Results/conclusion will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Identify common medications that can potentially be harmful if doses are not renally adjusted.

List the potential toxicities of selected renally-eliminated medications if inappropriately dose-adjusted based on renal function.

Self Assessment Questions:

Torsades de Pointes is a potential toxicity of which of the following medications?

A Morphine
B: Nitrofurantoin
C: Sotalol
D: Lithium

The use of which medication is contraindicated in patients with a creatinine clearance (CrCl) of < 60mL/min?

A Morphine
B Nitrofurantoin
C Colchicine
D Sotalol

Q1 Answer: C Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-350 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

UTILIZATION AND EVALUATION OF A MAINTENANCE WARFARIN-DOSING TOOL BY AN INPATIENT, PHARMACIST-LED ANTICOAGULATION CONSULT SERVICE

Jordan J. Counts, PharmD*; Mark Friedman, PharmD; Karen Knoell, PharmD

Riverside Methodist Hospital,3535 Olentangy River Road,Columbus,OH,43214

jcounts2@ohiohealth.com

Purpose: To incorporate the principles of weekly dose adjustments, used by outpatient anticoagulation clinics, to develop and evaluate a warfarin-dosing tool for maintenance therapy available to pharmacists participating in an inpatient pharmacist Coumadin consult service. The aim is to ensure a more standardized maintenance warfarin-dosing regimen.

Methods: A retrospective chart review was performed for patients who were managed by the inpatient, pharmacy Coumadin consult service. Patients were selected for inclusion if they were on warfarin therapy prior to admission to the hospital. Pharmacists had use of the implemented warfarin-dosing tool when evaluating potential options for a daily warfarin dose. Ultimate selection of the daily warfarin dose was at the clinical discretion of the pharmacists, regardless of the dose recommended by the dosing tool. The warfarin-dosing tool evaluated warfarin doses based on the absolute value of the daily INR, the rate of change in the INR from the previous day, and the presence of new drug interactions. Pharmacists documented whether or not they utilized the tool-recommended dose. Patient data was collected and included for statistical analysis from the time they met inclusion criteria until discharge, therapy interruption, or therapy discontinuation, whichever occurred first.

Results/Conclusions: Data collection is ongoing. Data will be statistically analyzed via t-test to compare the percentage of INR values within therapeutic range for patients with warfarin maintenance therapy prior to and after implementation of a warfarin-dosing tool. Secondary outcomes will also be analyzed through a t-test statistical analysis.

Objectives:
Identify the reasons for the development of a maintenance warfarin-dosing tool for inpatient pharmacists participating in a warfarin consult service.
Describe the criteria for assessing pharmacists agreement with dose recommendation provided by the maintenance warfarin-dosing tool.

Learning Objectives:

Identify the reasons for the development of a maintenance warfarin-dosing tool for inpatient pharmacists participating in a warfarin consult service.

Describe the criteria for assessing pharmacists agreement with dose recommendation provided by the maintenance warfarin-dosing tool.

Self Assessment Questions:

What three broad concepts were used to justify the development of the maintenance warfarin-dosing tool?

A Efficacy, Safety, Standardization
B: Regulatory compliance, Safety, Standardization
C: Economics, Efficacy, Safety
D: Economics, Efficacy, Standardization

Pharmacists documented utilization of the warfarin-dosing tool if they wrote an order for a dose within:

A 2mg of the recommended dose
B 0.5mg of the recommended dose
C 1mg of the recommended dose
D The tool-recommended dose must have been ordered

Q1 Answer: A Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-351 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF THE INCIDENCE OF BLOODSTREAM INFECTIONS IN PULMONARY ARTERIAL HYPERTENSION PATIENTS RECEIVING INTRAVENOUS PROSTACYCLIN TREATMENT

Mark A. Crist, PharmD*; Karri A. Bauer, PharmD, BCPS; Namita Sood, MD, FCCP; Jose A. Bazan, DO; Laura A. Duvall, PharmD, BCPS

The Ohio State University Medical Center,410 West 10th Ave,Room 368 Doan Hall,Columbus,OH,43210

mark.crist@osumc.edu

Purpose: Pulmonary Arterial Hypertension (PAH) is a serious lung disease characterized by increased pulmonary artery pressure and pulmonary vascular resistance. Intravenous (IV) prostacyclin therapy has been shown to improve survival. Epoprostenol and treprostinil are the IV prostacyclin medications currently available. Both agents require continuous administration via central venous catheter (CVC).

Studies demonstrate the incidence of catheter associated bloodstream infections (CABSI) in PAH patients treated with prostacyclin therapy to be 0.26 and 0.55 cases per 1000 treatment days. The rate of CABSI and the prevalence of Gram negative organisms were higher in patients treated with treprostinil therapy.

The primary objective of this study is to determine the incidence of CABSI in PAH patients receiving prostacyclin therapy. Secondary objectives include identification of risk factors and 28-day mortality.

Methods: This retrospective, single-center study evaluated PAH patients receiving either epoprostenol or treprostinil from January 1, 1998 to August 31, 2011. Patients less than 18 years or greater than 89 years of age, prisoners, and those who received both epoprostenol and treprostinil therapy were excluded.

Data collected includes: age, gender, prostacyclin medication, cause of PAH, time from PAH diagnosis, immunosuppressive conditions, use of immunosuppressive drugs, type of CVC, time from catheter placement to positive blood culture, time from initiation of prostacyclin therapy to positive blood culture, organism and susceptibilities, antibiotic therapy, time from infection to appropriate antibiotic therapy, duration of bacteremia, infectious complications, type of new catheter placed, relapse, reinfection, ICU admission, length of stay (LOS), infection-related LOS, and 28-day mortality.

Chi Squared and Fishers exact and Wilcoxon rank sum tests will be used to analyze data. Univariate and multivariate hazard models will be performed to determine risk factors associated with the development of infection.

Results and Conclusions: Data collection and evaluation are currently being conducted with full results to be presented at the conference.

Learning Objectives:

Describe the prevalence of catheter associated bloodstream infections (CABSI) in Pulmonary Arterial Hypertension (PAH) patients treated with prostacyclin therapy

Recognize risk factors associated with the development of CABSI in PAH patients treated with prostacyclin therapy

Self Assessment Questions:

1.Which of the following statements is TRUE regarding the prevalence of CABSI in PAH patients treated with prostacyclin therapy?

A Gram-negative bacteremia is more common with treprostinil, comp
B: All-cause bacteremia is more common with epoprostenol, compar
C: Gram-positive bacteremia is more common with treprostinil, compa
D: CABSI is not a concern in patients with PAH treated with IV prosta

Which of the following has been identified in previous studies as a risk factor associated with the development of CABSI in PAH

A Female gender
B Treatment with treprostinil
C Age < 65
D Drug delivery through a Groshong catheter, as opposed to a Hickm

Q1 Answer: A Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-352 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

DEVELOPMENT AND IMPLEMENTATION OF PRODUCTIVITY STANDARDS WITHIN A HEALTHCARE SYSTEM PACKAGING CENTER

Theresa M. Crnic, Pharm.D,* Stacy L. Wucherer, R.Ph.

Aurora Health Care,2900 West Oklahoma Avenue,Milwaukee,WI,53215

theresa.crnic@aurora.org

Purpose: Increasing pressure to ensure quality of care while controlling cost has led to the growth of packaging centers amongst healthcare systems. Packaging centers allow for the reduction of full time employees (FTEs) and labor costs, improved drug inventory management, improved safety, and increased workflow efficiency. Aurora Health Cares Packaging Center utilizes automation, four technician FTEs and one pharmacist FTE to prepare an average of 350,000 unit-dose items per month. Currently, no productivity standards or measurement tool exist within the Packaging Center. Productivity standards allow for the identification of productivity shortcomings and opportunities for improving efficiency and output. The objective of this project is to develop and implement productivity standards within Aurora Health Cares Packaging Center.

Methods: The initial steps of this project involved extensive familiarization with Packaging Center processes and data collection to determine baseline productivity of Aurora Health Cares Packaging Center. Data on six distinct product categories, as determined by the packaging process and the automation utilized, will be collected over a period of six weeks. Data includes the number of units per batch and the time batch packaging began and was completed. Data analysis will identify the average preparation time of the various products and the average preparation time per product category. Information gained will be used to establish productivity standards. Productivity standards will be implemented within Aurora Health Cares Packaging Center and used to identify productivity shortcomings and opportunities for improving efficiency and output.

Results/Conclusions: Data collection is currently in progress. Preliminary data indicate compounded products take an average of 1.8 minutes per product to prepare, over twice as long as all other products packaged within the Packaging Center. Final results and conclusions will be presented at the Great Lakes Residency Conference.

Learning Objectives:

Identify two functions of productivity standards.

Recall benefits of healthcare system packaging centers.

Self Assessment Questions:

What are two identified functions of productivity standards?

A Identify opportunities for improving productivity, provide instructions
B: Standardize packaging processes, reduce FTEs
C: Provide instructions for packaging products, provides a check that
D: Identify productivity shortcomings, identify opportunities for improvi

What is a benefit of healthcare system packaging centers?

A Increase health care costs
B Decrease workflow efficiency
C Improve drug inventory management
D Decrease utilization of automation

Q1 Answer: D Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-675 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

HIGH-DOSE MEDROXYPROGESTERONE FOR INAPPROPRIATE HYPERSEXUALITY IN DEMENTED ELDERLY MEN: A CASE SERIES

Bethany S. Cross, PharmD*, Kevin M. Furmaga, PharmD, BCPP, and G. Robert DeYoung, PharmD, BCPS

St. Mary's Health Care,3912 Yorkland Drive NW APT8,Comstock Park,MI,49321

crossbs@trinity-health.org

Objective: This case series retrospectively examines the utility of high-dose medroxyprogesterone (MPA) for the treatment of inappropriate hypersexuality (IH) in elderly men with dementia. Little data exists on effective therapy options for treatment-resistant demented patients with IH.

Design: Subjects were identified through hospital records with a search conducted from December 2005 to January 2011. Male subjects age 65 years-old or older receiving 100mg of MPA or more were eligible for study inclusion. Data on each patient in the series was collected to assess trends in dose, side effects, use of other symptom-modifying medications prior to MPA initiation, and the successful return to pre-admission placement.

Methods: Ten subjects (mean age 80.9 years, range 65-93 years) were included from Pine Rest Christian Mental Health Services-Older Adult Unit. Clinical and demographic details were collected and described with descriptive statistics.

Results: Seventy percent of subjects studied were trialed on a serotoneric agent prior to MPA initiation. Sixty percent of subjects failed a trial of an antipsychotic before MPA initiation, while 40% of subjects did not have response to the use of both a seronergic agent and antipsychotic agent before MPA was initiated. The average length of inpatient admission was 21.5 days (range 10-35 days) and the average daily dose of MPA was 300mg (range 100mg-400mg/day). No adverse effects were documented from either physician or nursing notes. Seventy percent of subjects experienced favorable effects from high-dose MPA therapy and were subsequently able to return to the prior living arrangement. No subject has been readmitted for IH to Pine Rest Christian Mental Health Services-Older Adult Unit since discharged on MPA in the time period included in this review.

Conclusions: While requiring further study, based on the results of this case-series investigation, high-dose MPA (100-400mg/day) may represent a safe and effective treatment option for subjects displaying IH

Learning Objectives:

Review the treatment options for inappropriate hypersexuality.

Recognize which subjects may be good candidates for medroxyprogesterone therapy.

Self Assessment Questions:

What is an example of a first line agent to treat inappropriate hypersexuality?

A amitriptyline
B: citalopram
C: divalproex
D: bupropion

Which is a potential side effect of medroxyprogesterone therapy?

A decreased libido
B aggression
C weight loss
D thrombocytopenia

Q1 Answer: B Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-353 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

CATEGORIZING MELPHALAN EFFICACY AND TOXICITY IN MULTIPLE MYELOMA PATIENTS WITH RENAL INSUFFICIENCY

Kathryn A. Culos PharmD*, Karen Sweiss PharmD BCOP, Damiano Rondelli MD, Pritesh Patel MD, Shilpa Patel PharmD Candidate

University of Illinois at Chicago,Department of Pharmacy Practice (MC886),833 S. Wood St., 164 PHARM,Chicago,IL,606127230

kclenn2@uic.edu

Background/Purpose:
High Dose (HD) melphalan (200 mg/m2) is the standard of care for conditioning regimens previous to autologous stem-cell transplant (ASCT) in multiple myeloma (MM) patients. Of MM patients nearly 40% experience some degree of renal insufficiency. Currently, there is no clear correlation between melphalan disposition in renal failure and efficacy and toxicity outcomes in these patients. The objective of this study is to determine the efficacy and toxicity associated with HD melphalan when used as the conditioning regimen for ASCT in MM patients with respect to their renal function at time of treatment initiation.

Methods:
The University of Illinois Medical Center stem-cell transplant database was used to identify over 100 patients who have undergone a HD melphalan conditioning regimen and an ASCT in the past 11 years. This retrospective chart review excluded patients younger than 18 years or who underwent an allogeneic or syngeneic transplant. The following data will be collected starting upon hospital admission until infusion of stem cells: age, gender, race/ethnicity, glomerular filtration rate (GFR), creatinine clearance (CrCl) and average serum creatinine (SCr), blood urea nitrogen (BUN) and albumin. Diagnosis, disease stage, previous cancer therapy, overall response and survival and time to disease progression will also be examined. Laboratory parameters such as basic metabolic panel, complete blood count with differential, liver function tests, coagulation panel, urine analysis, microbiology data and radiological data will be investigated. These data will be used to assess factors such as length of hospital stay, time to engraftment, rate of infection and need for total parenteral nutrition (TPN). These facts will be analyzed to determine the efficacy and toxicity associated with HD melphalan.

Results/Conclusions:
Final results and conclusions will be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Discuss the pathophysiology and clinical sequelae of MM.

Identify the current treatment guidelines for MM and controversy associated with HD melphalan in conditioning regimens for ASCT.

Self Assessment Questions:

Patients diagnosed with multiple myeloma often present with symptoms described by the acronym CRAB, which stands for:

A Elevated calcium levels, renal dysfunction, anemia and biliary obst
B: Elevated calcium levels, renal dysfunction, amnesia and biliary obs
C: Elevated calcium levels, renal dysfunction, anemia and bone lesior
D: Elevated catecholamine levels, renal dysfunction, anemia and bon

Current clinical practice dictates that MM patients who have a favorable performance status and co-morbidity profile be worked up to receive treatment with:

A High dose chemotherapy and allogeneic stem-cell transplant.
B High dose chemotherapy and autologous stem-cell transplant after
C High dose chemotherapy with cyclophosphamide and etoposide fo
D High dose chemotherapy with cyclophosphamide and etoposide fo

Q1 Answer: C Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-354 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EFFECT OF CLINICAL PHARMACY SPECIALIST-STAFFED NURSE CASE MANAGEMENT ON BLOOD PRESSURE

*Tori L. Cunningham, Pharm.D., Jessica L. O'Neill, Pharm.D., BCACP, CLS, Emily P. Bartley, Pharm.D., BCACP

VA Ann Arbor Healthcare System,2215 Fuller Rd (119),Ann Arbor,MI,48105

Tori.Cunningham3@va.gov

Purpose:
With substantial increases in the number of patients followed by the Veterans Health Administration in recent years, it is important to explore nontraditional avenues to improve access to care. Studies have shown interventions by registered nurse (RN) case managers and clinical pharmacy specialists alone have led to improved control of blood pressure. However, clinical pharmacy specialist (CPS)-staffed registered nurse case management (RNCM) of hypertension has not been described in the literature. This study will explore a unique avenue of care and identify if CPS-staffed RNCM is non-inferior to usual care with RNCM at reducing blood pressure in a primary care setting.

Methods:
This retrospective chart review was designed to evaluate CPS-staffed RNCM versus usual care with RNCM for hypertension management in the primary care clinics at the Veterans Affairs Ann Arbor Healthcare System. RN case managers use clinical judgment to assess the patient and staff the case by presenting each patient case to either a physician, deemed usual care, or a CPS to design and execute a care plan. Patients followed in outpatient or telephone clinics by RN case managers for hypertension and staffed with either a physician or CPS will be eligible for inclusion. The difference in systolic blood pressure from presentation for RNCM and scheduled follow-up will be measured and the differences between the two groups evaluated. Rates of the following will also be assessed: home blood pressure cuff prescription, lifestyle modification referrals for supplemental care in blood pressure management, appropriate laboratory parameters ordered, and the average number of blood pressure agents required.

Results and Conclusions:
Results and conclusions to be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Discuss alternative means of access to care for blood pressure management in a primary care setting

Describe the impact of clinical pharmacy specialists in the management of blood pressure in a primary care setting

Self Assessment Questions:

Which of the following is true regarding registered nurse case management (RNCM) and clinical pharmacy specialist (CPS) interventions in a primary care setting

A Patients receiving RNCM or CPS interventions are more likely to a
B: Patients receiving RNCM or CPS interventions are not more likely
C: Interdisciplinary care teams containing RNCM or CPS do not incre
D: Case management using physician extenders, such as RNCM or C

Which of the following is true

A Registered nurse case management of blood pressure has not bee
B Clinical pharmacy specialist management of blood pressure has be
C Clinical pharmacy specialist management of blood pressure has nc
D Clinical pharmacy specialist staffed registered nurse case manage

Q1 Answer: A Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-355 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

USE OF THORACIC EPIDURALS FOR POST OPERATIVE PAIN MANAGEMENT IN LUNG TRANSPLANTATION

Leanne M Current, Lucas W Mitchel, Judith Jacobi

Indiana University Health,1701 N. Senate Boulevard,AG 401,Indianapolis,IN,46206

lcurrent@iuhealth.org

Pain control in patients receiving thoracotomy for lung transplantation can be challenging. Uncontrolled pain can result in shallow breathing, as a patient splints to prevent diaphragm excursions during inspiration. Deep breathing and adequate coughing are essential for graft expansion and elimination of secretions decrease pulmonary complications. Thoracic epidural analgesia in combination with systemic administration of opioids is thought to be a superior method of pain control after thoracotomy. The addition of thoracic epidural analgesia can also reduce the dosing requirement of systemic opioid administration resulting in lower sedative effects that could prevent a patient from ventilation weaning.

The purpose of this study is to compare pain control, morbidity, and mortality of lung transplant recipients receiving thoracic epidurals post-operatively versus lung transplant recipients who did not receive thoracic epidurals post-operatively.

This is an institutional review board approved retrospective cohort study of lung transplant recipients with thoracotamy approach ≥ 18 years of age receiving lung transplantation between January 1, 2010 and January 1, 2011. Patients were excluded if they were less than 18 years of age, requiring cardiopulmonary bypass during transplantation, or receiving a sternotomy approach for transplantation. No pregnant females or prisoners were included in the study. Patients were identified through the transplantation database reports.

Following patient identification, patient demographics and history of preoperative analgesia requirements will be collected. Data including intra-operative anesthesia, systemic analgesia, and local analgesia will be collected. Epidural medication delivery, local anesthetic delivery, systemic analgesia, sedative administration, pain scores, change of pain scores, and change in analgesia dosing will be recorded for a total of seven days post-operatively. Monitoring parameters including return of bowel function, ventilator days, ICU length of stay, pulmonary complications and documented gastrointestinal complications will be collected during patient hospital course.

Results/Conclusions: Pending

Learning Objectives:

Identify complications from inadequate pain control post-operatively in lung transplantation

Explain the potential benefit of utilizing thoracic epidurals for post operative pain management in lung transplantation

Self Assessment Questions:

Which of the following are complications from inadequate pain control post-operatively in lung transplantation?

A Increased coughing, resulting in lung injury
B: Increased inspiratory excursion and graft expansion
C: Retention of secretions
D: Over sedation

Which of the follwing are potential benefits of utilizing thoracic epidurals for post operative pain management in lung transplantation?

A Decreased ventilator days due to decreased sedation
B Decreased pulmonary complications due to ability to take deep bre
C Ability of patient to tolerate coughing in order to eliminate secretion
D All of the above

Q1 Answer: C Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-356 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

DETERMINATION OF FACTORS ASSOCIATED WITH BLEEDING IN PATIENTS RECEIVING ALTEPLASE FOR PULMONARY EMBOLISM: A FOCUS ON BODY WEIGHT

Garrett M. Curtis, Pharm.D.*; Simon W. Lam, Pharm.D., BCPS; Anita Reddy, M.D., FCCP; Seth Bauer, Pharm.D., BCPS

Cleveland Clinic Foundation,9500 Euclid Avenue,Cleveland,OH,44115

curtisg@ccf.org

Purpose

Patients who present with massive or submassive pulmonary embolism (PE) may require immediate intervention using thrombolytic agents. Previous trials have indicated an increased rate of PE resolution and improved hemodynamics for patients receiving thrombolytics plus heparin versus heparin alone. In a recent study, alteplase 50 mg infused over 2 hours showed similar efficacy to the FDA-approved dose of 100 mg infused over 2 hours. Overall bleeding was numerically higher in the 100mg group, but this was not significantly different. Subgroup analyses based on body weight noted similar efficacy between doses, but a significantly lower bleeding rate in patients weighing less than 65 kg who received the 50 mg dose. Since the 50 mg dose is not used routinely in clinical practice, this study aims to evaluate the effect of body weight on the incidence of bleeding in patients given alteplase 100 mg over 2 hours for PE.

Methods

This non-interventional, retrospective, case-control chart review evaluated the effect of body weight on the incidence of bleeding within 72 hours of alteplase administration in patients who receive alteplase 100 mg for PE. Case patients included those experiencing bleeding while control patients are those who did not bleed. Secondary objectives include evaluation of the influence of known risk factors for bleeding after alteplase administration for the treatment of PE. All patients at least 18 years of age who received alteplase 100 mg over 2 hours for a confirmed diagnosis of PE were included. Exclusion criteria include administration of alteplase for indications other than PE or use of alternative dosing regimens. Collected data describes patient demographics, indication for alteplase, laboratory data, imaging data indicating bleeding, concomitant therapies including heparin, and risk factors for bleeding.

Results and Conclusions

Data collection/analysis is ongoing. Results and conclusions will be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Explain the pathophysiology and clinical impact of a pulmonary embolism

Discuss the methodology and results of the presented study

Self Assessment Questions:

Which of the following indications for thrombolytics in PE are recommended by the CHEST guidelines?

A Extensive clot burden
B: Hemodynamic compromise
C: Saddle embolus noted on CT scan
D: Diffuse bilateral pulmonary emboli

Which of the following is an absolute contraindication to thrombolytics?

A Severe hypertension (systolic blood pressure >180 mm Hg or diast
B Recent internal bleeding (within the past 2 to 4 weeks)
C Pregnancy
D Intracranial hemorrhage

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-357 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF THE CHANGE IN HBA1C IN TYPE 2 DIABETES MELLITUS PATIENTS WHEN SWITCHING FROM INSULIN VIAL/SYRINGE TO INSULIN PEN AT EDWARD HINES, JR. VA HOSPITAL

Andrea Mendyk, PharmD, BCPS, Roshani Raval, PharmD, Robina Cyriac, PharmD* , Todd Lee, PhD, PharmD

Edward Hines, Jr.VA Medical Center,5000 5th St.,Hines,IL,60141

robina.cyriac@va.gov

Background: Among U.S. residents 65 years or older, 10.9 million or 26.9% had type 1 or 2 diabetes in 2010. Although there are numerous potential benefits with the usage of insulin pens, clinical data regarding achievement of outcomes (goal HbA1c <7.0%) is quite limited. As of summer 2011, the use of insulin pens by patients was restricted and approved on a case-by-case basis at Edward Hines, Jr. VA hospital .

Purpose: The purpose of this study is to determine the magnitude of change in HbA1c when switching patients from a traditional vial/syringe insulin administration to an insulin pen administration at Edward Hines, Jr. VA Hospital. The primary outcome of the study is to evaluate the efficacy of insulin pen by assessing change in HbA1c 12 months 3 months after switching from insulin vial/syringe. The secondary outcomes of the study will be looked at 24 months 3 months. A cost analysis will also be completed.

Methods: Those patients included will consist of type 2 diabetics who had a non-formulary request for an insulin pen between 2008-2010, no history of insulin pen usage prior to change and who have a HbA1c within six months of non-formulary request. At baseline the following will be collected: age, gender, weight, date and reason for non-formulary request (i.e. dexterity, visual impairment, compliance, etc.), if the patient is enrolled in the MOVE program and the most recent HbA1c (within 6 months of switch). At 12 3 months prior to and after switch, the following will be collected: HbA1c, weight, BMI, diabetic medications and number of hospitalizations. At 24 3 months after switch HbA1c will be collected.

Results/Conclusions: Data collection is in progress. Results will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Discuss the pros/cons of using insulin pen versus traditional insulin vial/syringe.

Explain the clinical significance of switching from traditional vial/syringe to insulin pen.

Self Assessment Questions:

In what populations can switching from traditional insulin vial/syringe to insulin pen be beneficial:

A Patients with dexterity problems
B: Patients with visual problems
C: Patients with an active/busy lifestyle
D: All the above

Further studies are needed to determine if insulin pens can:

A Promote adherence
B Improve clinical outcomes (HbA1c <7%)
C Promote quality of life
D Promote self-care

Q1 Answer: D Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-358 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

RISK OF CEREBROVASCULAR EVENTS (CVE) ASSOCIATED WITH ANTIPSYCHOTIC USE

Amanda G. Dalrymple*, PharmD; Jeffery C. Talbert, PhD; Yevgeniya Gokun, MS; Melody Ryan, PharmD, MPH
Lexington VA Medical Center,1101 Veterans Drive,Lexington,KY,40502
Amanda.Dalrymple2@va.gov

Purpose: Antipsychotic use has been associated with an increased risk of CVE in older adults, including individuals 50 years old and older. However, there are limited studies evaluating the risk of CVE in younger populations exposed to antipsychotics. The objective of this study is to evaluate the incidence of CVE in patients aged 65 years old and younge who were exposed to antipsychotics.

Methods: This study protocol has been approved by the Institutional Review Board. A retrospective case-control study will be conducted utilizing a large data mart containing three years of de-identified commercial and Medicaid health insurance information for 15 million patients. Cases will include individuals less than 65 years old and newly started on an outpatient antipsychotic, with at least one refill and 12 months or more of continuous eligibility for follow-up. Controls will include individuals less than 65 years old with at least 12 months of continuous eligibility for follow-up, who were not taking any antipsychotic during the study period. Individuals with previous CVE, those who were exposed to a combination of antipsychotics, and those who were switched between antipsychotics during the study period will be excluded. The following data will be collected: patient age; gender; antipsychotic name, dose, directions and fill history; co-morbidities and concomitant medications that might influence CVE incidence; incident CVE, including ischemic and hemorrhagic events. Propensity scores will be used to match cases to controls and differences between the two study samples will be analyzed using chi-square analysis, T-tests, odds ratios, and Cox proportional hazards model.

Results/Conclusions: Data collection completed and data analysis currently ongoing. Results will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Identify potential mechanism by which antipsychotics may increase the risk of CVE.

Describe the current knowledge pertaining to the risk of CVE associated with antipsychotic use in younger patient populations.

Self Assessment Questions:

The following include potential mechanisms by which antipsychotic use may increase CVE risk, EXCEPT:

A Enhance platelet aggregation
B: Decrease cerebral perfusion
C: Increase blood pressure
D: Induce tachycardia

In which of the following populations of individuals is there evidence of an increased risk of CVE associated with antipsychotic use?

A ≥ 65 years old with dementia
B ≥ 50 years old without dementia
C < 18 years old
D A & b

Q1 Answer: C Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-676 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

THE IMPACT OF COMPREHENSIVE HEALTH COACHING ON CARDIOVASCULAR RISK FACTORS AND PRESENTEEISM

Mary G. Day, PharmD*; Carrie Maffeo, PharmD, BCPS, CDE
Butler University,4600 Sunset Ave,Indianapolis,IN,462083485
mgday@butler.edu

Background:
Diet, physical activity, and other healthy lifestyle practices are important aspects for the management of chronic diseases such as diabetes and cardiovascular disease. The association between poor employee health and significant financial and productivity loss to employers has increasec interest in workplace health programs which have been shown to reduce both medical costs and loss of productivity.

Purpose:
This study examines the hypothesis that a work-site health promotion program focusing on employees at high cardiovascular risk and providing a combination of pharmacist-provided health coaching and sessions with a personal trainer will decrease presenteeism, improve medication adherence, augment healthy lifestyle behaviors, and improve objective clinical measures including lipid profile, BMI, blood pressure, fasting plasma glucose, and hemoglobin A1C.

Methods:
Study participants were recruited from Butler University employees who had previously participated in the onsite employee health and disease prevention program. Eligibility criteria include age over 18 years, Englisl speaking, and high risk of cardiovascular events. Exclusion criteria include inability to participate in physical activity due to health conditions cardiovascular event within the past 12 months, and pregnancy.
All study participants will undergo baseline and final health and fitness assessments including blood pressure, waist circumference, fasting lipid panel, fasting blood glucose, weight, and body mass index. Hemoglobin A1C will also be tested in patients with diabetes. Participants will attend four individual health coaching sessions focusing on self-identified SMART (specific, measurable, attainable, and timely) goals. A personal trainer will meet with participants twice weekly for ten weeks to develop and implement individualized physical activity plans. Participants will be encouraged to attend bi-monthly lunch-and-learn educational sessions throughout the study period.

Results:
Final health and fitness assessments will take place in May and April 2012. Study results will be available at that time.

Learning Objectives:

Review the need for lifestyle modifications to prevent disease and improve productivity in the workplace

Describe the role of Health Coaching in improvement of patient health

Self Assessment Questions:

Presenteeism is defined as

A Productivity loss due to absence
B: Increased productivity in the workplace
C: Increased risk of disease transmission in the workplace
D: On the job productivity loss

One of the primary roles of a health coach is to:

A Prescribe medications
B Provide accountability
C Teach about healthy habits
D Persuade patients to change behaviors

Q1 Answer: D Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-359 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

IMPACT OF AN INSTITUTIONAL GUIDELINE ON OPIOID INFUSION PRESCRIBING ERRORS IN END-OF-LIFE PATIENTS

*Matthew B. Delahunty, PGY1 Pharmacy Practice Resident, PharmD, BCPS; Amber D. Hartman, PharmD, Specialty Practice Pharmacist, Palliative Medicine; Robert J. Weber, PharmD, MS, BCPS, FASHP, Senior Director of Pharmaceutical Services

The Ohio State University Medical Center,410 W 10th Avenue,Doan Hall Room 368,Columbus,OH,43210

matthew.delahunty@osumc.edu

The Ohio State University Medical Center (OSUMC) Department of Pharmacy conducted an audit of morphine infusion orders for Do-Not-Resuscitate (DNR) patients in January 2010. The audit identified that a percentage of these orders contained open-ended titration parameters. An open-ended titration parameter, such as "titrate to comfort," is considered a prescribing-related medication error at OSUMC. Subsequently, a guideline for parenteral opioid use in end-of-life care was developed by the Department of Pharmacy and the OSUMC Center for Palliative Care. The guideline was established in May 2011 and is intended to assist practitioners in the optimal prescribing of opioid infusions as part of end-of-life care.

The current study is an experimental, retrospective cohort, single-center, nonrandomized study evaluating a prescribing-related medication error and related aspects of orders for morphine and hydromorphone continuous infusions used in end-of-life care. Two cohorts were evaluated, one before and one after establishment of the guideline.

Patients admitted to OSUMC, ordered DNR status, and ordered a morphine or hydromorphone infusion during the period of June 1, 2009 through September 30, 2009 or June 1, 2011 through September 30, 2011 were included. The total number of DNR patients during these time periods was noted. The primary outcome measure is the percentage of initial morphine and hydromorphone infusion orders with open-ended titration parameters. Secondary outcomes are percentage of morphine or hydromorphone infusion patients who had a corresponding PRN opioid order for breakthrough pain, time between DNR order placement and morphine or hydromorphone infusion order placement, and percentage of all patients with a DNR order who were prescribed a morphine or hydromorphone infusion.

The data was collected and evaluation has commenced. Outcome measures will be investigated by comparison of the two cohorts. Preliminary results indicate a decrease in 2011 for the total number of opioid infusions and the percentage with prescribing errors.

Learning Objectives:

Discuss when an opioid is indicated for an actively dying patient

Describe when a continuous infusion opioid is indicated compared to an IV push bolus opioid

Self Assessment Questions:

Opioids alleviate which one of the following common symptoms in an actively dying patient?

A Anxiety
B: Apnea
C: Delirium
D: Dyspnea

All of the following hospital inpatients have recently become unable to take oral medications. Which patient is the best candidate for pain control with a continuous infusion opioid?

A 59 yof with metastatic breast cancer taking oxycodone SR 80mg ti
B 33 yom trauma patient just transferred from the OR after surgical r
C 71 yom with a new massive myocardial infarction found unrespons
D 86 yof with heart failure is actively dying and experiencing pain in h

Q1 Answer: D Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-796 -L05-P

Activity Type: Knowledge-based Contact Hours: 0.5

BIVALIRUDIN VERSUS HEPARIN PLUS EPTIFIBATIDE FOR PATIENTS UNDERGOING TRANSRADIAL PERCUTANEOUS CORONARY INTERVENTION (PCI)

Lindsey A. DeMers, PharmD*; Greg Mateyoke, PharmD; Marintha Short, PharmD, BCPS, AQ Cardiology; Shawn King, PharmD; Kevin Poe, PharmD, BCPS

St. Joseph's Hospital - KY,1 Saint Joseph Drive,Lexington,KY,40504

demersla@sjhlex.org

Purpose:
For patients who undergo PCI, it is imperative to administer a combination of antiplatelet and anticoagulant agents. A variety of pharmacological combinations exist, with no single regimen superior to others. Traditionally, vascular access for PCI has been through the femoral artery. Despite significant information regarding the use of bivalirudin compared to unfractionated heparin (UFH) plus a glycoprotein IIb/IIIa inhibitor (GPI), limited data is available comparing these two regimens in patients undergoing transradial PCI. Recent studies have shown that PCI performed transradially has decreased bleeding, complications, and cost compared with the femoral approach. The study purpose is to evaluate the safety and efficacy of bivalirudin versus UFH plus eptifibatide for transradial PCI.

Methods:
This study will be submitted to the Institution Review Board for approval. This is a mixed cohort study conducted in patients who underwent transradial PCI at Saint Joseph East in Lexington, KY from September 1 2010 through May 1, 2012. The following patient data will be collected: patient demographics and baseline characteristics, indication for PCI, PCI data (serum creatinine, relevant cardiac enzymes, type of procedure, number of lesions, number and kinds of stents, concurrent medications pre- and post-intervention, medications and doses that were given upstream to PCI), 30-day all cause death, ischemic events, or revascularization, number of transfusions given, location of bleeding, hemoglobin, hematocrit, and platelet count, length of hospital stay, cost of bivalirudin, UFH, and eptifibatide. The primary endpoint is to evaluate the risk of major bleeding (TIMI criteria) in patients who received bivalirudin or UFH plus eptifibatide for PCI. Secondary objectives include: risk of minor bleeding, ischemic complications, 30-day readmission or urgent repeat revascularization, and cost analysis between treatment regimens.

Results:
Data collection is still in progress. Final results and conclusions will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Recall the mechanism of action for bivalirudin

Describe the potential benefits of transradial approach for PCI over the transfemoral approach

Self Assessment Questions:

What is the mechanism of action for bivalirudin?

A Factor Xa inhibitor
B: Direct thrombin inhibitor
C: Glycoprotein IIb/IIIa inhibitor
D: Binds to antithrombin III

Which of the following are potential benefits of transradial access compared to transfemoral for PCI

A Reduced bleeding complications
B Earlier ambulation
C Neither A or B
D Both A and B

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-360 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

DEVELOPMENT OF MODELS FOR PHARMACIST INVOLVEMENT IN DISCHARGE MEDICATION RECONCILIATION PROCESS AT AURORA HEALTH CARE

Megha Desai* PharmD, BCPS, Arlene Iglar RPh, MS
Aurora Health Care,2900 W Oklahoma Avenue,Milwaukee,WI,53215
megha.desai@aurora.org

Hospital admissions can unintentionally lead to discrepancies between medications used before and after discharge. There is a huge potential of reducing or preventing medication errors at admission and discharge. In the Joint Commissions recently updated National Patient Safety Goal on reconciling medications (NPSG.03.06.01), it states that a qualified individual should compare medication information brought by the patient from home with medications ordered for the patient in the hospital, and to identify and resolve discrepancies5. Moreover, the American Society of Health-System Pharmacists (ASHP) 2015 Initiative has set forth a goal that in 90% of hospitals, pharmacists will ensure that effective medication reconciliation occurs during transitions across the continuum of care by 20154. In addition, ASHPs recent Pharmacy Practice Model Initiative (PPMI) has put forth strong recommendations for pharmacists to be involved in medication reconciliation at transitions of care and to provide discharge education to patients. Aurora Health Care is an integrated healthcare system comprised of 15 hospitals spanning eastern Wisconsin. The 15 hospitals vary in bed size, patient populations and pharmacy staffing models. Currently, pharmacists are not involved in discharge medication reconciliation at any hospitals in the system. Based on the potential impact on medication safety and patient care, pharmacist involvement in discharge medication reconciliation process at Aurora Health Care is of paramount importance. Various discharge medication reconciliation models with or without counseling were developed and implemented at various hospitals within the Aurora Health Care system. Through trials of various models, the objective was to develop best practices to achieve a reduction in medication-related errors/discrepancies, a reduction in readmissions to the hospital or EDs, increase prescription capture at outpatient pharmacies and improved patient satisfaction. Results of the various discharge medication reconciliation models and future project plans will be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Identify trends in reduction of medication errors/discrpeanices with pharmacist involvement

Describe increase in prescription capture with involvement of pharmacy department in discharge medication reconciliation

Self Assessment Questions:

With pharmacists involvement in discharge medication reconciliation, a large percentage of patients had which one of the following intervention made by a pharmacist?

A Pharmacists led adjustment of dosage and/or frequency of medica
B: Pharmacists discovered new prescriptions not signed by attending
C: Pharmacists discovered mew prescriptions added for another patie
D: No interventions were made during discharge medication reconcili

With pharmacy services department involvement in discharge medication reconciliation, what percentage of pilot patients filled their prescriptions at hospital outpatient pharmacy?

A 10%
B 20%
C 30%
D >50%

Q1 Answer: A Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-677 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF THE TREATMENT OF VANCOMYCIN RESISTANT ENTEROCOCCAL (VRE) BACTEREMIA: A COMPARISON OF LINEZOLID VERSUS HIGH DOSE DAPTOMYCIN

Katie L. Devaul, Pharm.D.*; Erica E. Reed, Pharm.D., BCPS; Mark Lustberg, MD; Karri A. Bauer, Pharm.D., BCPS
The Ohio State University Medical Center,410 W. 10th Avenue, Room 368 Doan Hall,Columbus,OH,43210
Katie.DeVaul@osumc.edu

Background:
Enterococci are a common cause of nosocomial bloodstream infections (BSI) with Enterococcus faecalis (E. faecalis) and Enterococcus faecium (E. faecium) the most prevalent. Vancomycin is frequently used to treat Enterococci BSIs. Unfortunately, resistance to vancomycin is increasing. This leads to challenges in optimal treatment of vancomycin-resistant Enterococcus (VRE) BSIs. For these reasons, linezolid and daptomycin are commonly used in the treatment of VRE BSIs.

Linezolid is active against VRE, but demonstrates bacteriostatic activity. Daptomycin is also active against VRE, and demonstrates bactericidal activity which may offer advantages over linezolid. Enterococci have a thicker cell wall compared to other Gram positive organisms which may hinder the ability of antibiotics that work intracellularly to reach the target for activity. Studies have demonstrated clinical and microbiological success with linezolid and daptomycin (6 mg/kg) in the treatment of VRE BSI. However, there may be a clinical or microbiological benefit in using high doses of daptomycin (≥8 mg/kg) in the treatment of VRE BSIs.

Purpose:
The primary objective of this study is to determine the time to microbiologic clearance in patients with VRE BSI treated with linezolid compared to high dose daptomycin (≥8 mg/kg). Secondary objectives include: hospital length of stay (LOS), infection-related LOS, relapse, 14 day mortality, and overall mortality.

Methods:
This is a retrospective study of adult inpatients with a positive blood culture for VRE who received >48 hours of linezolid (standard dose) or daptomycin (≥8 mg/kg) between January 1, 2008 and December 31, 2010. Data collection includes: age, gender, hospital service, Charlson comorbidity index, APACHE II score, receipt of prior antibiotic therapy, prior hospitalization, culture and susceptibilities, antibiotic therapy and duration, source of infection, time to source removal, surgical intervention, and discharge disposition.

Results/Conclusions:
Data collection and analysis are currently being conducted; results and conclusions with be presented at the conference.

Learning Objectives:

Review current treatment options for vancomycin resistant Enterococcal (VRE) bacteremia

Discuss clinical outcomes of patients with VRE bloodstream infections (BSI) treated with linezolid and daptomycin

Self Assessment Questions:

Which risk factor is most highly correlated with VRE?

A Recent utilization of vancomycin in the previous 90 days
B: Charlson Index Score >6
C: Female
D: Intravenous Drug Abuse

Given a patient with VRE, which species often demonstrates resistance to vancomycin?

A E. faecalis
B E. casselflavus
C E. gallinarum
D E. faecium

Q1 Answer: A Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-361 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

ANTIMICROBIAL PROPHYLAXIS IN NEUTROPENIC HEMATOPOIETIC STEM CELL TRANSPLANT PATIENTS: EVALUATION AFTER PROTOCOL IMPLEMENTATION WITH LEVOFLOXACIN

Lisa DiGrazia*, PharmD; Kathryn Schultz, PharmD; Sarah Hopps, PharmD, Christopher Crank, PharmD; Henry Fung, MD.

Rush University Medical Center,1653 West Congress Parkway,Chicago,IL,60612

lisa_digrazia@rush.edu

PURPOSE: Hematopoietic stem cell transplant (HSCT) patients experience long periods of neutropenia and are highly susceptible to infection. The objective of this study is to determine whether the currently implemented standard of practice regarding antibacterial prophylaxis during HSCT will decrease the incidence of febrile episodes while not increasing bacterial resistance to fluoroquinolones.

METHODS: Prior to initiation, the study will be submitted to the Institutional Review Board for approval. A hematology database will be used to identify patients who have received allogeneic and autologous stem cell transplants 1 year previous and 1 year after policy initiation, from August 2010 to September 2011. Those who have received a fluoroquinolone for purposes other than prophylaxis will be excluded. The health-systems electronic medical record system and the hematological database will be used to collect the following data: patient age, gender, type of hematologic cancer, type of HSCT, length of hospital stay, number of febrile episodes, antibiotic therapy, type and number of infections, pertinent hematological findings, survival at 30 days and 100 days after transplant, and the incidence of graft-versus-host-disease. Patients will be matched to within plus or minus 5 years of age and type of HSCT. Absolute neutrophil count will be calculated at first febrile episode, as well as number of days from neutropenia to febrile episode. Data analysis will include comparison of incidence of neutropenic fever and a regression analysis to determine contributing factors. Microbiological data will also be reported for each group.

RESULTS/CONCLUSIONS: Data analysis and conclusions are pending and will be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Recognize the criteria for neutropenic fever.

Review current guidelines for prophylaxis in hematopoietic stem cell transplant patients.

Self Assessment Questions:

In this study, what temperature is needed to define febrile neutropenia?

A ≥100°f

B: ≥100.4°F for one hour

C: ≥101°f

D: Both B and C

The National Comprehensive Cancer Network (NCCN) recommends which of the following drugs for bacterial prophylaxis in neutropenic hematopoietic stem cell transplant patients?

A Consider a cephalosporin

B Consider a fluoroquinolone

C Consider vancomycin

D Consider an aminoglycoside

Q1 Answer: D Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-362 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF A CONTINUOUS INFUSION UNFRACTIONATED HEPARIN PROTOCOL FOR VENOUS THROMBOEMBOLISM ON PATIENT OUTCOMES AT AN ACADEMIC MEDICAL CENTER

Alyssa A. Douville, PharmD*; Denise M. Kolanczyk, PharmD, BCPS; Katherine D. Mieure, PharmD, BCPS;

University of Chicago Medical Center,5841 S. Maryland Avenue,Chicago,IL,60637

alyssa.douville@uchospitals.edu

Purpose: Studies have indicated an important predictor of subsequent recurrent venous thromboembolism (VTE) in patients receiving continuous infusion (CI) unfractionated heparin (UFH) is failure to achieve the therapeutic threshold within 24 hours. The use of a UFH protocol has shown positive outcomes in the attainment of therapeutic activated partial thromboplastin time (aPTT) quicker than standard dosing strategies. The Joint Commission (TJC) created National Patient Safety Goals recommending the use of approved protocols for the initiation and maintenance of anticoagulant therapy. Due to TJC recommendations, the University of Chicago Medical Center (UCMC) implemented a CI UFH weight-based protocol for the treatment of VTE. The purpose of this study is to determine the incidence of patients who achieve a therapeutic aPTT within 24 hours on the protocol compared to conventional physician-directed dosing.

Methods: A single-center, retrospective, cohort analysis will be conducted of all patients receiving CI UFH from May 2010 until August 2011 for VTE treatment. Patients less than 18 years of age will be excluded. Demographic data, UFH dosing data, laboratory data, and outcomes data will be collected. The primary objective of this study is to determine the incidence of patients who achieve a therapeutic aPTT within 24 hours on the protocol compared to conventional physician-directed dosing. The secondary objectives include time to first therapeutic aPTT, length of time in the target aPTT range, and incidence of major and minor bleeding, and thrombosis. A subgroup analysis of patients will determine characteristics associated with subtherapeutic or supratherapeutic aPTTs.

Results and Conclusion: Data collection and analysis are currently under investigation, as is determination of power.

Learning Objectives:

Review the incidence, morbidity and mortality of venous thromboembolism in the general population.

Discuss the risk of recurrent venous thromboembolism and goals for achieving a therapeutic activated partial thromboplastin time.

Self Assessment Questions:

How many hospitalizations in the United States per year are attributed to venous thromboembolism?

A 500,000

B: 300,000

C: 100,000

D: 5,000

To reduce the risk of recurrent venous thromboembolism, a therapeutic activated partial thromboplastin time after initiating continuous infusion unfractionated heparin should be attained within _____

A 6 hours

B 12 hours

C 24 hours

D 48 hours

Q1 Answer: B Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-363 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

A PHARMACOKINETIC AND PHARMACODYNAMIC EVALUATION OF VANCOMYCIN, CIPROFLOXACIN, AND PIPERACILLIN/TAZOBACTAM IN PATIENTS RECEIVING CONTINUOUS RENAL REPLACEMENT THERAPY

Ryan R. Draheim, Pharm.D.*, Michael Hofmann, MD., Paul Hutson, Pharm.D., Ph.D., Lucas Schulz, Pharm.D., BCPS, Jeffrey Fish, Pharm.D., BCPS

University of Wisconsin Hospital and Clinics,600 Highland Avenue F6/133-1530,Madison,WI,53792

rdraheim@uwhealth.org

Purpose:
Continuous renal replacement therapy (CRRT) is a form of dialysis in the critical care setting used as supportive care during acute kidney injury or renal failure. Robust evidence of proper antibiotic dosing while receiving CRRT is lacking, and many of the current dosing recommendations are based on case reports. More studies are necessary in order to determine the appropriate dose of antibiotics in individuals who are receiving CRRT, in order to achieve therapeutic efficacy and also avoid antibiotic toxicity. The purpose of this study is to assess the removal, obtain serum concentrations, and define the optimal dose of three antibiotics: vancomycin, ciprofloxacin, and piperacillin/tazobactam, in critically ill patients in the intensive care unit with acute kidney injury undergoing CRRT.

Methods:
Criteria for study enrollment inclusion will be patients age > 18 years old, admitted to the University of Wisconsin Hospital and Clinics (UWHC) medical or surgical intensive care service, receiving vancomycin, ciprofloxacin, and/or piperacillin/tazobactam antibiotics as part of their required medical care, and receiving CRRT for the treatment of acute renal failure. One ultrafiltrate and four serum samples will be collected at various points within a drug interval in order to determine the amount of mechanical drug clearance being contributed by CRRT. The sample times will be based on the pharmacokinetic and pharmacodynamic principles of the antibiotics in question. The serum samples will be centrifuged, the plasma separated, and stored at -80 degrees centigrade. These samples will later be analyzed via high-performance liquid chromatography in order to determine a quantitative drug level achieved in the serum, and the sieving coefficient of the CRRT system. Based on the quantitative data, a CRRT dosing program will be developed in order to maximize antibiotic dosing.

Results and Conclusions:
To be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Describe the pharmacokinetic profile of an antibiotic that would likely be highly removed by CRRT, and would likely require a dosing modification.

Select the proper dosing modification based on gathered pharmacokinetic data, taking into account the pharmacodynamics of the antibiotic in question.

Self Assessment Questions:

Of the three pharmacokinetic profiles listed, which of the following medications would most likely be removed by CRRT?

A Large volume of distribution, High protein binding
B: Large volume of distribution, Low protein binding
C: Small volume of distribution, High protein binding
D: Small volume of distribution, Low protein binding

It was determined that an aminoglycoside was highly removed by CRRT, which of the following would likely be the most appropriate dose adjustment based on its pharmacodynamic principles?

A Decrease the dose
B Leave the dose the same
C Leave the dose the same, shorten the dosing interval
D Increase the dose

Q1 Answer: D Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-364 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

ASSESSING PHARMACISTS CONFIDENCE IN COUNSELING PATIENTS WITH MENTAL ILLNESS

Jamie L. Drees, PharmD*, Gayle L. Kamm, PharmD, BCPS

University of Toledo Medical Center,3000 Arlington Ave,MS 1060,Toledo,Oh,43146

jamie.drees@utoledo.edu

Background: Pharmacist interaction with physicians has been shown to optimize the treatment of their patients by improving their adherence and attitudes toward antidepressant and antipsychotic medications used to treat psychiatric conditions. Despite these results, it has been shown that few patients are counseled on these medications. It has been documented that antipsychotic medications as a therapeutic class is in the top five for medication spending in the United States in 2010. Although psychotropic medications are widely prescribed and dispensed the number of hours devoted to psychiatric disorders in pharmacy schoo curricula throughout the United States is relatively small. There are little data to show that pharmacists are confident and knowledgeable in counseling patients on psychotropic medications.

Purpose: This study will be assessing the confidence and knowledge of practicing pharmacists in counseling patients with mental illness on psychotropic medications. Overall, this information will be analyzed to determine the need for curricular changes in colleges of pharmacy in order to better prepare pharmacists for educating those who suffer from mental illness.

Methods: An online survey will be sent to licensed pharmacists who have an active email address registered with the Ohio State Board of Pharmacy. To increase response rate in the target population, an email reminder and survey request will be sent out at week one, two, and three from the original email request. The survey will be a questionnaire to evaluate antipsychotic therapeutic knowledge and confidence in communicating this knowledge to patients suffering from a mental illness. Respondents will also be asked to provide demographic information including gender, years in practice, state where degree was obtained, current practice setting, degrees and/or further educational training.

Conclusions: Study is still under investigation with results and conclusions to be presented at the Great Lakes Residency Conference.

Learning Objectives:

Report current trends in counseling on prescription medications by pharmacy personnel

Discuss the reason for counseling patients on psychotropic medications

Self Assessment Questions:

Which therapeutic class is most often counseled on in the outpatient setting?

A Antidiabetics
B: Antibiotics
C: Antihypertensives
D: Antipsychotics

Which of the following classes of psychotropic medications is the most prescribed in the United States?

A Antipsychotics
B Mood stabilizers
C Stimulants
D Antidepressants

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-678 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

CULTURE SHOCK: IMPACT OF A PHARMACIST-RUN ANTIMICROBIAL CULTURE FOLLOW-UP PROGRAM IN THE EMERGENCY DEPARTMENT

Lisa E. Dumkow, Pharm.D*, Rachel M. Chambers, Pharm.D, BCPS (AQ ID), Nancy MacDonald, Pharm.D, BCPS, Susan L. Davis, Pharm.D

Henry Ford Health System,2799 W. Grand Blvd,Detroit,MI,48202

ldumkow1@hfhs.org

Background:
Emergency Departments (EDs) across the United States treat over 100 million patients annually. The ED setting can be a chaotic environment and poses several risk factors which could lead to medication errors. It is estimated that 5.6% of patients discharged from the ED receive an inappropriate medication. Antimicrobials are the second most common type of drug prescribed upon ED discharge. Inappropriate prescribing of antimicrobials along with inadequate follow-up methods put patients at risk for ED revisit or hospital admission. There is therefore a need for expansion of pharmacy practice models to enhance antimicrobial stewardship in the ED. Antimicrobial stewardship programs have shown to have a positive impact on patient safety and outcomes within healthcare systems and decrease antimicrobial resistance. Previous published studies of antimicrobial stewardship in the ED have been limited by suboptimal use of technology and have not established the financial impact of such a program.

Purpose:
To evaluate clinical outcomes and health-care resource utilization of a new pharmacist-managed culture follow-up program within the Henry Ford Hospital ED compared to the current standard of care.

Methods:
This IRB approved study will be conducted using a quasi-experimental design. To assess the current standard of blood and urine culture follow up in the ED, a retrospective records review will be conducted using the Henry Ford Hospital electronic medical records. This will be followed by a pharmacist-managed culture follow-up program in a similar population. Patients 18 years of age or older, presenting to Henry Ford Hospital Main Campus ED, who are discharged home and have a blood or urine culture taken which yield a positive result will be included. Patients not meeting the inclusion criteria and those who are admitted to Hospice care will be excluded.

Results and Conclusions:
Results and conclusions will be presented at the Great Lakes Residency Conference.

Learning Objectives:

Review the literature concerning pharmacist-initiated antimicrobial stewardship programs in the Emergency Department.

Discuss the clinical and economic outcomes of a pharmacist-initiated antimicrobial follow-up program compared to the current standard of care.

Self Assessment Questions:

Prior literature regarding pharmacist-managed culture follow-up programs in the Emergency Department have shown which of the following outcomes?

A Decreased number of revisits to the Emergency Department
B: Decreased treatment failure
C: Decreased physician workload
D: All of the above

Which of the following was the most common reason pharmacist-initiated patient follow-up was required?

A Dose adjustment based on renal function and patient factors
B Drug-bug mis-match
C Asymptomatic bacteruria in pregnancy
D Increased length of therapy required

Q1 Answer: D Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-797 -L05-P

Activity Type: Knowledge-based Contact Hours: 0.5

MEDICATION SAFETY: A PROSPECTIVE LOOK AT THE MEDICATION EVENTS AT UNION HOSPITAL AND AN EFFORT TO DECREASE THE EVENT RATE

Megan A. Dunford, Pharm.D. *, Daniel J. Cleveland, Pharm.D., BCPS, Kristi K. Williams, Pharm.D., BCPS

Union Hospital,1606 N 7th Street,Terre Haute,IN,47804

mdunford@uhhg.org

Purpose: Even with advancements of technology in hospital settings across the country, medication errors still remain a significant cause of morbidity and mortality in hospitalized patients. Each member of the healthcare team plays a role in making sure the correct medication is administered to the correct patient at the correct time. As pharmacists, we must ensure that safe-guards are put into place to achieve that desired result. The purpose of this study is to evaluate breakdowns in the medication administration process in an effort to reduce the number of preventable medication errors at Union Hospital. It is the intent of this study to provide education throughout the institution on the current medication safe-guards in place and also to develop new strategies to prevent any medication errors from occurring.
Methods: This study includes the formation of a multi-disciplinary medication safety team (MST) which encompasses nurses, pharmacists, and physicians. The MST will utilize Medication Administration Check (MAK) reports to identify breakdowns that occur in the medication administration process. The education component of this study will be directed towards reducing the preventable medication events at Union Hospital. Education will be provided to all clinical staff of Union Hospital via the online Healthstream Education Portal. Data for this project will be collected from September 1, 2011 through January 31, 2012 using the medication event summaries generated from MAK.
Results and Conclusions: Data collection and analysis is ongoing. Results and conclusions will be reported at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Identify common breakdowns in the medication administration process.

Recall the processes implemented at Union Hospital to decrease the number of preventable medication events.

Self Assessment Questions:

Which of the following has been identified as a common breakdown in the medication administration process?

A Improper initial order verification
B: Medications given at the incorrect time
C: Invalid high risk medication administration double check
D: both A and C

Which of the following is an initiative of the Medication Safety Team at Union Hospital as an effort to decrease the number of preventable medication errors at Union Hospital?

A Implementation of a 12-hour chart check policy
B Incorporation of MAK software for medication administration
C Pharmacy technician medication order entry with pharmacist as or
D Implementation of standardized medication administration times

Q1 Answer: D Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-798 -L05-P

Activity Type: Knowledge-based Contact Hours: 0.5

IMPACT OF VHA VISN 12 CRITERIA FOR USE FOR COLCHICINE ON NUMBER OF GOUT ATTACKS, EMERGENCY ROOM VISITS AND DURATION OF HOSPITALIZATIONS

Frederick N. Dunkerson, PharmD*; Arthur A. Schuna MS, FASHP

William S. Middleton VA Hospital,2500 Overlook Terrace,Madison,WI,537052286

Frederick.Dunkerson@va.gov

Purpose:
In March 2011, the VHA VISN 12 re-classified colchicine as a formulary restricted medication with new criteria for use which caused many patients who had been on colchicine to be switched to an alternative therapy. The change stemmed from an FDA mandate which made Colcrys the only FDA approved single ingredient oral colchicine product causing a large increase in price for colchicine. The objective of this study is to evaluate whether those veterans who no longer met criteria to receive colchicine from the Madison Veterans Affairs (VA) Hospital for either gout prophylaxis or acute gout attacks due to new formulary restrictions had more incidences of gout attacks, emergency room visits for acute gout attacks or longer duration of hospital stays due to gout attacks.

Methods:
A retrospective records review for veteran patients who were on colchicine therapy for either acute gout attacks or prophylaxis and received formulary restricted consults for colchicine between 3/1/2011 and 11/1/2011 will be conducted. The records will be reviewed for if the patients were eligible to remain on colchicine therapy once the new formulary guidelines went into effect or, if the patients were not eligible to continue on colchicine therapy, what medication they were converted to if any. For those patients who were then converted to alternative therapy, records will be reviewed to see whether there was any change in the number of emergency room presentations for acute gout attacks, the length of hospital stay for gout attacks and finally the overall number of reported gout attacks during an equivalent time interval before and after the restricted formulary consult was placed.

Results/Conclusions:
The results and conclusion are pending.

Learning Objectives:

Describe the VHA VISN 12 criteria for use for colchicine.

Explain the history behind the FDA changes impacting colchicines availability.

Self Assessment Questions:

Of the following, which represents an inclusion criteria for colchicine based on current VISN 12 formulary criteria for use?

A Patient with a current diagnosis of Peyronie's disease.
B: Patient on chronic uric-acid lowering therapy for the past two years
C: Patient with a documented prednisone and NSAID allergy with an a
D: Patient with a SCr >2.0.

In the AGREE trial, why was low dose colchicine preferred over high dose colchicine for acute gout flare treatment?

A More favorable treatment outcomes were seen in the low dose colc
B More favorable side effect profile was seen in the low dose colchic
C More favorable treatment outcomes and side effect profile were se
D No differences in treatment outcomes or side effect profile were ob

Q1 Answer: C Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-365 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF WARFARIN MANAGEMENT AND THE IMPACT OF STANDARDIZED WARFARIN GUIDELINES ON PATIENT OUTCOMES

Stephanie Dunseith, PharmD*; Beth White, PharmD, BCPS; Luba Burman, PharmD

University of Chicago Medical Center,2405 N Clybourn,#3,Chicago,IL,60614

stephanie.dunseith@uchospitals.edu

Purpose: Anticoagulants, including warfarin, are effective at preventing and treating thrombotic events. Warfarin dosing can be complicated by inter-patient variations in dose response, comorbidities and drug interactions, making initial dose titration to therapeutic levels challenging and potentially dangerous. At the University of Chicago Medical Center (UCMC), an expansion in pharmacy services over the past two years has led to an increase in patients whose warfarin therapy is guided by a pharmacist. Additionally, standardized guidelines outlining appropriate use of warfarin and vitamin K have been implemented. However, the impact of the standardized warfarin guidelines and increase in pharmacist driven warfarin dosing services at UCMC has not been studied. This retrospective cohort study will evaluate the appropriateness of warfarin initial dose titration for patients monitored by a pharmacist utilizing the UCMC pharmacist influenced inpatient warfarin protocol compared to patients managed by other providers prior to expansion of clinical pharmacy services.

Methods: Admitted patients who received warfarin from June 2009 through July 2011 will be identified through drug utilization reports. A retrospective chart review will be conducted for each patient. This data will be compared to a group of patients who received warfarin from 2006 through 2008, prior to the expansion of clinical pharmacy services. The primary outcome measured will be proportion of patients who achieve therapeutic INR within 5-7 days. Secondary outcomes include average time to therapeutic INR, incidence of major and minor bleeding, use of vitamin K, total hospital length of stay and readmissions within 30 days due to bleeding and or clotting events. The primary outcome and secondary outcomes will be analyzed using Students t test. Patient specific demographic data will be compared using a chi square test. A p value of 0.05 or less will be considered statistically significant.

Results: To be presented.

Conclusions: To be presented.

Learning Objectives:

Describe the challenges associated with warfarin dose titration

Discuss the rationale behind overlapping parenteral and enteral anticoagulants during initial dose titration of warfarin

Self Assessment Questions:

Which of the following statements is correct?

A All patients will require the same amount of warfarin to achieve the
B: Drug interactions have little effect on warfarin dosing.
C: Alterations in diet may have a large impact on warfarin dose requir
D: Comorbid conditions have no effect on warfarin dosing.

Warfarin's inhibition of which of the following can initially lead to a prothrombotic state?

A Protein C and Protein S
B Factor II
C Factor VII
D Factor IX

Q1 Answer: C Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-679 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

ANTIBIOTIC USE FOR BACTERIA ON URINALYSIS IN PATIENTS PRESENTING TO THE EMERGENCY DEPARTMENT

Kelsey M. Duplaga, PharmD*, Amy Rybarczyk, PharmD, BCPS, Jacob Zimmerman, PharmD, Kathryn Heimann, PharmD, Ronda Ambroziak, PharmD

Akron General Medical Center,400 Wabash,Akron,OH,44307

kelsey.duplaga@akrongeneral.org

Purpose: Inappropriate antibiotic treatment can lead to bacterial resistance, adverse effects, and increased healthcare costs. Antibiotics for asymptomatic bacteriuria are not indicated in a majority of patients, yet many receive treatment. The objective of this study is to determine the proportion of patients presenting to the emergency department (ED) with bacteria on urinalysis without clinical signs or symptoms of a urinary tract infection (UTI) who receive antibiotic treatment.

Methods: This retrospective review was approved by the Institutional Review Board. ED records were used to identify patients presenting to the ED from January 1, 2005 to November 1, 2011 with a diagnosis of chest pain and a completed urinalysis. Patients 18 years or older with bacteria on urinalysis were included. The following patients were excluded: confirmed pregnancy, immunocompromised, documented signs or symptoms of a UTI, or UTI was not listed as an indication for antibiotics. Demographics, the presence of certain comorbidities, urinalysis findings, urine culture results, and antibiotic data were collected. Patients without criteria for symptomatic UTI were divided into two groups: those treated and those not treated for bacteria on urinalysis. The primary outcome is the proportion of patients with bacteria on urinalysis without criteria for symptomatic UTI that were treated with antibiotics. Secondary outcomes include the risk of receiving antibiotic treatment in the presence of certain comorbidities or other positive findings on urinalysis, the percentage of completed urine cultures in treated patients, patients treated with specific antibiotics, treated patients with an organism resistant to the chosen antibiotic, and the duration and the total cost for antibiotics. Descriptive statistics will be used. This information will be used to identify patients inappropriately treated for bacteria on urinalysis, triggers for ordering antibiotics, and the additional cost of treatment to the healthcare system.

Results/Conclusions: Results and conclusions will be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Identify the indications for treatment of asymptomatic bacteriuria.

Discuss triggers for ordering antibiotics for bacteria on urinalysis in patients without signs or symptoms of a UTI.

Self Assessment Questions:

Which of the following patients should receive antibiotics for asymptomatic bacteriuria?

A A 54 year old diabetic woman
B: A 91 year old man living in an extended care facility
C: A 25 year old woman with a history of UTIs
D: A 31 year old pregnant woman

A definitive indication for antibiotic treatment for UTI is:

A Nitrites on urinalysis
B Dysuria
C Leukocyte esterases on urinalysis
D Elevated white blood cells in the serum

Q1 Answer: D Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-366 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION AND REVISION OF AN INTRODUCTION TO EXPERIENTIAL ROTATIONS COURSE

Eliza A. Dy, PharmD*

Indiana University Health,1701 N Senate Blvd,Indianapolis,IN,46202

edy@iuhealth.org

Statement of Purpose
The objective of this study is to evaluate the perceived student value of topics taught in the Butler University Introduction to Experiential Rotations (RX500) course and to implement course revisions to address any perceived course weaknesses.

Statement of Methods Used
Initially, current Butler University Advanced Pharmacy Practice Experience (APPE) students from the PharmD class of 2012 will be surveyed via SurveyMonkey to assess the perceived usefulness and design of RX500. Based on the findings of the initial data, two to three course revisions will be developed and implemented for the spring 2012 course. Following implementation, students completing the spring 2012 course (PharmD class of 2013) will be given the SurveyMonkey survey to re-assess potential changes in the perceived value of the course. Descriptive statistics will be utilized to evaluate the results from all surveys.

Summary of (preliminary) results to support conclusion
Preliminary analysis of initial survey results identified two key changes: one topic revision and one topic addition. Modification of the curriculum vitae (CV) review was detected as an area for revision. Additionally, better preparation for patient case work-up was found to be a topic in which students expressed interest.

Conclusions reached
Preliminary data shows deficiencies in RX500s ability to prepare students for the APPE year. Changes are currently being implemented to address these areas of needed improvement. Preliminary conclusions will be presented.

Learning Objectives:

Outline the role that student perceptions have played in assessing pharmacy school curricula.

Identify potential teaching styles that may be beneficial for pharmacy students.

Self Assessment Questions:

Which of the following statements is correct?

A The Preceptions of Preparedness (PREP) survey utilizes faculty fe
B: Student perceptions have demonstrated increased confidence in a
C: Student confidence has been shown to decrease following student
D: Students in two published studies were found to be most confident

Which of the following teaching methods was found to be most beneficial to Butler University pharmacy students?

A Audio presentation
B Visual presentation
C Hands-on activity
D Reading assignment

Q1 Answer: B Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-680 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

ASSESSMENT OF TREATMENT OUTCOMES FOR METHICILLIN-RESISTANT STAPHYLOCOCCUS AUREUS SKIN AND SOFT TISSUE INFECTIONS IN BURN PATIENTS AFTER HOSPITAL DISCHARGE

Nikita L. Eagleson, PharmD*; Todd A. Walroth, PharmD, BCPS; Megan Jacobs, NP; David Roggy, RN; Rajiv Sood, MD

Wishard Health Services,4921 Hawthorn Ter,Apt E,Indianapolis,IN,4622

nikita.eagleson@wishard.edu

Purpose: To assess treatment outcomes of patients with skin and soft tissue infections (SSTIs) within the Richard M. Fairbanks outpatient Burn Center population, to determine if there is a correlation between nasal colonization with methicillin-resistant Staphylococcus aureus (MRSA) and subsequent outpatient MRSA SSTI complications in burn patients, and to identify additional risk factors that may contribute to the development of MRSA SSTIs. Any identified risk factors will be compared and contrasted with previously reported risk factors in burn patients and known MRSA risk factors in the general patient population.

Methods: This retrospective, single-center, observational, non-randomized study included adult patients admitted to the Burn Center at Wishard Health Services from January 2009 through December 2011 with a positive nasal MRSA swab during hospitalization and those who presented to the outpatient burn service with an SSTI during the same time period. Prisoners were included in order to evaluate whether incarceration was a risk factor for outpatient MRSA SSTI complications in this patient population. Patients were excluded if they were <18 or >90 years of age at the time of treatment or if they were in the burn unit for Stevens-Johnson Syndrome/Toxic Epidermal Necrolysis.

Results and Conclusions: To be presented at the Great Lakes Pharmacy Resident Conference

Learning Objectives:

List risk factors for development of MRSA skin and soft tissue infections.

Describe the impact of MRSA on empiric treatment of varying presentations of skin and soft tissue infections in Burn patients.

Self Assessment Questions:

Which of the following is a known risk factor for development of MRSA skin and soft tissue infections?

A Crowded living conditions

B: Hospitalization in an ICU

C: Previous use of topical antibiotics

D: A and B

Which of the following is appropriate initial management of folliculitis in a patient with no systemic symptoms?

A Silver sulfadiazine cream

B Clindamycin gel

C Erythromycin ointment

D Sodium hypochlorite solution

Q1 Answer: D Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-367 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EFFECTS OF USING A STANDARD ORDER SET ON COMPLIANCE WITH THE JOINT COMMISSION NATIONAL HOSPITAL INPATIENT QUALITY MEASURES FOR STROKE

Kimberly G. Elder, PharmD, BCPS*, Sandra K. Lemon, PharmD, BCPS

Community Health Network,830 Gardenbrook Circle,Apartment K,Indianapolis,IN,46202

kelder@ecommunity.com

Statement of the purpose:
The overall aim of this study is to investigate whether an acute stroke order set has a positive influence on compliance with The Joint Commission (TJC) standards for Primary Stroke Center certification and short-term patient outcomes for ischemic stroke. The primary objective of the study is to determine if use of a predefined order set results in adherence to all eight required standards for stroke set by TJC. The secondary objectives are to determine if use of the order set results in adherence to individual standards, impacts length of hospitalization, and produces differing discharge status. This study is being performed to determine potential improvements to the order set and look for possible opportunities for education of physicians in order to increase compliance and standardize care throughout Community Health Network.
Statement of methods used:
Retrospective chart review will be performed on a random sampling of adult patients treated for ischemic stroke at Community Hospital East from January 1, 2007 to August 31, 2011 and at Community Hospitals North and South from September 1, 2009 to August 31, 2011. Patients who were treated using the Acute Stroke order set will be compared to those treated without an order set. Patients will be excluded if they are pregnant, less than 18 years or greater than 89 years of age, prisoners, or those with hemorrhagic stroke. Data collection will include age, sex, hospital, admitting physician and specialty, use of order set, and presence of modifications to order set. Adherence to standards set forth by TJC, as well as reasons for not adhering to such standards will also be collected and examined. Data will also be collected regarding patient discharge status and length of hospitalization.
Summary of (preliminary) results to support conclusion:
Results to follow.
Conclusions reached:
Conclusions to follow.

Learning Objectives:

Define Primary Stroke Center

Describe the eight mandatory standards that must be adhered to in order to obtain the designation of Primary Stroke Center

Self Assessment Questions:

Which of the following is an example of an organizational body that currently awards Primary Stroke Center certification?

A Accreditation Counsel for Pharmacy Education

B: American Neurological Association

C: American Heart Association

D: The Joint Commission

Which of the following statements is correct in regards to The Joint Commission (TJC) certification as a primary stroke center?

A Patients/caregivers must receive interactive stroke education in orc

B Primary Stroke Centers must comply with the standards set forth b

C Smoking cessation counseling is a required standard to comply wit

D TPA must be used in all patients presenting with ischemic stroke s

Q1 Answer: D Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-368 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

NON-RANDOMIZED, PHASE I LONGITUDINAL STUDY FOR THE EVALUATION OF THE SAFETY AND EFFICACY OF ETHANOL LOCK AS PROPHYLACTIC THERAPY FOR THE PREVENTION OF CATHETER LINE ASSOCIATED BLOODSTREAM INFECTIONS

Joshua J. Elder, PharmD, BCPS*; Amy E. Helvie, PharmD; Paul R. Haut, MD, FAAP; Elaine G. Cox, MD

Indiana University Health,830 Gardenbrook Circle,Apartment K,Indianapolis,IN,46202

jelder@iuhealth.org

Purpose:
Catheter Line Associated Bloodstream Infections (CaBSIs) are a significant contributor of morbidity and mortality in the pediatric oncology population. The incidence of CaBSIs remains high at Riley Hospital for Children despite use of the "bundle" measures for line insertion and maintenance, especially in the pediatric oncology subset of the population. The implementation of prophylactic ethanol lock therapy is being piloted as a means to reduce the incidence of these infections. Data surrounding ethanol lock therapy as a preventative measure for line infections remains sparse in the pediatric population. Minimal data exists regarding this practice in the pediatric oncology subset as well. The aim of this study is to determine the incidence of CaBSIs post-implementation of 70% ethanol lock therapy instilled once weekly for 4 hours in patients who have a tunneled central venous catheter, compared to historical data that did not receive ethanol lock in similar settings.

Methods:
Patients were identified to receive 70% ethanol lock dwells via a tunneled central venous catheter in the Pediatric Hematology-Oncology unit at Riley Hospital for Children. Eligible patients included those with malignancy ≤ 18 years of age who had an existing or newly implanted tunneled central venous catheter of silicone type. Patients with line access via a non-silicone type catheter or a peripherally inserted central catheter were excluded. Patients being treated for an active infection were excluded from study as well.
Ethanol locks were initiated as a once weekly, 4 hour dwell in the inpatient setting, with patients transitioning to receive their ethanol lock therapy as an outpatient upon discharge. Patients were followed for 2 months after institution of ethanol lock therapy.

Results and Conclusions:
Data collection is in progress, and results and conclusions will be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Discuss primary literature surrounding ethanol locks as a prophylactic therapy for CaBSIs.

Recognize challenges associated with the implementation of the ethanol lock study in the pediatric hematology-oncology population.

Self Assessment Questions:

What is the rationale for implementing ethanol lock as only a once weekly modality?

A Costs
B: Drug Shortages
C: Feasibility
D: Safety

Which catheter size required different lock volumes in each lumen?

A 6.6 French
B 7 French
C 9 French
D 10 French

Q1 Answer: C Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-369 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

RETROSPECTIVE ANALYSIS OF CHEMOTHERAPY-INDUCED FLUCTUATION IN INR AND RECOMMENDATIONS FOR ANTICOAGULATION MANAGEMENT

Dwight D. Eplin II, Pharm.D.*; Sharon A. Kennedy-Norris, Pharm.D., BCACP, CACP, CGP, FASCP; Derek Grimm, Pharm.D., BCPS

Huntington Veterans Health Administration Medical Center,1540 Spring Valley Drive,Huntington,WV,25704

Dwight.Eplin@va.gov

Purpose: Despite the addition of recently approved drugs for anticoagulation treatment of various disease states, warfarin remains the mainstay of pharmacologic anticoagulation. Unfortunately, warfarin has numerous drug interactions due to its involvement in the cytochrome P450 system, extensive protein binding, VKORC1 mutations, and its involvement on the clotting cascade. Cancer and other paraneoplastic syndromes often cause a hypercoagulable state in patients and can indirectly cause thromboembolism requiring anticoagulation treatment. Due to the potential interactions between these disease states, antineoplastic agents, and warfarin, research is warranted to attempt to identify interactions between these medications in the hope of predicting and avoiding potential complications of therapy.

Methods: A retrospective chart review was performed on all patients seen at the HVAMC who received warfarin concomitantly with antineoplastic therapy for the treatment of malignancy from July 1st 2001 to June 30th 2011. The INR was compared between the last level drawn before antineoplastic therapy was initiated, and the first INR level drawn after the 1st cycle of antineoplastic therapy is completed. Regression analysis was performed between warfarin and various chemotherapy agents on the null hypothesis that there is no difference in INR before antineoplastic therapy is initiated and after the first cycle of antineoplastic therapy.

Results: Data is currently being collected and analyzed. Results and conclusions will be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Review the mechanisms of various drug interactions with warfarin.

Discuss the potential interaction in INR between warfarin and chemotherapy agents.

Self Assessment Questions:

Which of the following is a property of warfarin that could cause increased chance for drug interactions?

A Low protein binding
B: Metabolism involvement of the CYP 2C9 isoenzyme
C: Wide therapeutic index
D: Full excretion of unchanged parent drug by the kidneys

Which of the following is a correct statement regarding cancer, chemotherapy, and bleeding risk?

A Chemotherapy agents can increase the risk of bleeding independe
B Many cancer patients are typically in a hypercoagulable state.
C Monoclonal antibodies and tyrosine kinase inhibitors do not affect l
D A and B.

Q1 Answer: C Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-370 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

AMIODARONE AND THE INCIDENCE OF ACUTE RESPIRATORY DISTRESS SYNDROME AFTER TRANSTHORACIC ESOPHAGECTOMY

Chris Anderson, PharmD, BCPS, *Michael Erdman, PharmD
Indiana University Health,1701 N Senate Blvd,Room AG401,Indianapolis,IN,46202
merdman1@iuhealth.org

Background:
Amiodarone was first approved for use in the United States in 1985. Since then, it has become a mainstay in the treatment of atrial fibrillation. Unrelated to its antiarrhythmic effects, amiodarone also has a well documented adverse effect of pulmonary fibrosis with chronic use, occurring in 2 to 17% of patients.
Several previous studies have demonstrated an increased rate of acute respiratory distress syndrome (ARDS) with amiodarone use post pulmonary and cardiac surgery. In a studies of patients after cardiothoracic surgery, rates of ARDS range from 11-50%. Atrial fibrillation is common after transthoracic esophagectomy, occurring in roughly 20% of patients during or shortly after surgery.
Objective:
This study will evaluate whether amiodarone administration for atrial fibrillation prophylaxis is associated with an increased rate of acute respiratory distress syndrome after transthoracic esophagectomy.
Methods:
This institutional review board approved retrospective chart review used electronic patient charts of patients ≥ 18 years admitted to University Hospital from January 1st, 2007 to June 30th, 2011. Patients will be eligible if they underwent a transthoracic esophagectomy during the study period. Patients were excluded if they received amiodarone prior to surgery, had a history of ARDS, underwent esophagectomy due to perforation or infection, a pathogenic microbe was identified on bronchoalveolar lavage while in the SICU, witnessed aspiration, or pulmonary embolism occurred. Patient data points collected included age, gender, surgical indication, pre-existing pulmonary disease, dose per day of amiodarone and route of administration, incidence of atrial fibrillation, length of time on mechanical ventilation, length of SICU stay, length of hospital stay, total mortality, 28-day mortality, and presence of ARDS (PaO2:FiO2 ratio <= 200, mention in clinical note, positive radiologic interpretation of ARDS).
Results:
Results and conclusion are to be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Recognize patient populations at increased risk for atrial fibrillation

Identify the potential association between amiodarone and acute respiratory distress syndrome

Self Assessment Questions:

Which of the following creates a high risk of atrial fibrillation?

A bronchoalveolar lavage
B: esophagectomy
C: total hip replacement
D: lumbar puncture

Which of the following antiarrhythmic medications has been associated with acute respiratory distress syndrome?

A amiodarone
B diltiazem
C esmolol
D verapamil

Q1 Answer: B Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-371 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

STANDARDIZING THE MEDICATION DESENSITIZATION PROCESS AT FROEDTERT HOSPITAL

Elizabeth K. Erlain, Pharm.D.*, Cindy Hennen, BS, RPh., Carla Karczewski, RPh., Heidi Smith, Pharm.D., Seth Thomas, Pharm.D.
Froedtert Hospital,10155 W. Coldspring Road,Apt 202,Greenfield,WI,53228
elizabeth.erlain@froedterthealth.org

Purpose
Medication desensitization is the process of administering very low doses of a drug and gradually increasing the dose in order to achieve tolerance. This process may be considered in patients with proven or highly suspected hypersensitivity reactions to a drug that has no optimal alternative. Medication desensitization is associated with several risks including breakthrough reactions and anaphylaxis. Recommendations are based on expert opinion and current practice. Due to the risks and time commitment associated with desensitization, it is important to have a standardized process in order to safely desensitize a patient to a specific drug. Currently at Froedtert Hospital, there are between 20 and 30 desensitizations performed annually without a standardized process or protocol. This may lead to an inconsistent workflow due to multiple disciplines involved with the desensitization process.

Methods
This project focuses on developing a pathway for medication desensitization, standardizing an order set to be used for hypersensitivity reactions, and building electronic order entries. A pathway is being developed in order to outline the various components for desensitization. This will include identifying patients who are to be desensitized, determining the appropriate timing for desensitization and defining the roles of nursing, pharmacy, and physicians. The standardized order set for hypersensitivity reactions will include specific medications to be ordered in the event of signs and symptoms of allergic and anaphylactic reactions. The order set is being developed by reviewing current literature and common practice at academic medical centers. Once completed, electronic order entries will be built for the standardized order set and desensitization protocols.

Results/Conclusion
Standardizing the medication desensitization process at Froedtert Hospital will enhance patient safety and optimize the workload and efficiency of the interdisciplinary team.

Learning Objectives:

Describe the risks and benefits involved in medication desensitization.

Identify the medications that can be used during breakthrough reactions and anaphylaxis.

Self Assessment Questions:

Which of the following statements is correct about medication desensitization?

A It can only be performed in IgE-mediated allergic reactions
B: Once a patient is desensitized to a medication, the tolerance is ma
C: It will prevent a patient from having an anaphylactic reaction
D: The process is both dose and time dependent

What is the initial starting dose when administering epinephrine for a hypersensitivity reaction?

A Epinephrine 1mg (1:10000) IV
B Epinephrine 0.3 mg (1:1000) IM
C Epinephrine 0.3 mg (1:1000) IV
D Epinephrine 1mg (1:10000) IM

Q1 Answer: D Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-372 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF PRESCRIBER ERRORS AFTER IMPLEMENTING CHEMOTHERAPY REGIMEN ORDER SETS

Jason P. Ernstberger, PharmD*; Heather A. Jackson, PharmD, BCPS; Travis Day, RPh, PhD; Marjorie Hamilton, RPh

Wishard Health Services,1001 W. 10th Street,Indianapolis,IN,46202

jason.ernstberger@wishard.edu

Purpose:
In an effort to reduce prescriber errors and standardize the chemotherapy ordering process Wishard Health Services (WHS) has decided to implement hematology chemotherapy regimen order sets (CROSs). The hematology orders were chosen to be the pilot disease state to resolve the majority of the workflow issues prior to standardizing all of the CROSs. Currently, WHS has a triplicate order sheet for non-hematology orders containing all of the formulary medications that can be ordered through the infusion center. The CROSs will be organized by cancer type, have one specific chemotherapy regimen per sheet including appropriate pre-medications, and will be adapted to correspond to the WHS formulary.

Methods:
This study is a prospective, observational cohort study which will compare the number of prescriber errors detected before and after the implementation of the CROSs. Prior to initiation, the study was approved by the Institutional Review Board at Indiana University-Purdue University Indianapolis. Due to a lack of retrospective data, a prescriber error documentation form was implemented for pharmacists to transcribe the error and staple it to the front of all chemotherapy order sheets containing a prescriber error. The documentation form will be utilized to compare the prescriber error rates between the hematology CROSs and the triplicate order sheet. The use of serotonin antagonist anti-emetic medications will also be analyzed before and after the implementation of the CROSs to assess for appropriate use. Additionally, cases of chemotherapy-induced nausea and vomiting (CINV) will be recorded to compare the incidence before and after the implementation of the CROSs. Data on use of serotonin antagonist anti-emetics and CINV will be collected by utilizing a pharmacy report and electronic chart review.

Results:
Data are pending.

Conclusions:
Data are pending.

Learning Objectives:

Identify the recommended components of standardized chemotherapy regimen order sheets

Recall pathophysiology and pre-treatment of chemotherapy induced nausea and vomiting

Self Assessment Questions:

Which of the following should be components of chemotherapy regimen order sheets?

A Chemotherapeutic agents with doses and schedules corresponding
B: Appropriate pre-medications corresponding to the chemotherapy re
C: Section for patient specific information
D: All of the above

Which of the following correspond to the appropriate use of serotonin antagonist anti-emetics?

A As a pre-medication for low emetogenic potential regimens
B As a pre-medication for medium emetogenic potential regimens
C As a pre-medication for high emetogenic potential regimens
D B & c

Q1 Answer: D Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-799 -L05-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF INPATIENT BLOOD GLUCOSE CONTROL IN A COMMUNITY HOSPITAL

Bahijat O Erogbogbo, PharmD*, Jennifer Szajkovics, PharmD, Art Fojas, PharmD, Sun Lee-Such, PharmD, MBA, BCPS, Susan Jula, PharmD, BCPS

Franciscan St. Margaret Health,5454 Hohman Ave,Hammond,IN,463201999

bahijat.erogbogbo@franciscanalliance.org

Background:
Appropriate glycemic control continues to be a challenge facing most hospitals today. Improved inpatient blood glucose (BG) control can decrease hospital length of stay, hypoglycemic and hyperglycemic events, and healthcare costs.

Purpose:
The purpose of this study is to assess current inpatient practice and identify opportunities for improvement of BG management at Franciscan Saint Margaret Health (FSMH).

Methods:
This study is IRB approved. A baseline retrospective chart review was performed. Patients over the age of 18 admitted from January to June 2011 with a diagnosis of diabetes mellitus (DM) were included. Data collected included demographics, anti-hyperglycemic therapy, BG measurements, hemoglobin A1C, length of hospital stay, and 30 day readmissions.

Baseline Results:
Of the 95 patients reviewed, 52% were female with an average age of 55 years (range 19 to 92). Eighty-five percent had type 2 DM and 14% were newly diagnosed. Hemoglobin A1C was obtained in 80 patients with an average A1C of 10.2 % (range 5 to greater than 17). Anti-hyperglycemic regimens include basal insulin 54%, insulin sliding scale 79%, bolus insulin regimen 53%, and oral medications 37%. Average BG upon admission was 365 mg/dL (range 20 to 1034) and 75% of the patients achieved their target goal BG of 60 to 180 mg/dL by day 3 of admission. The average length of stay was 5 days (range 2-12). Average BG at discharge was 189 mg/dL (range 59 to 365). Five patients were readmitted within 30 days.

Conclusion:
Results and conclusion will be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Review the current ADA recommendations for diabetes care in hospitalized patients.

Discuss barriers to achieving goal blood glucose levels in hospitalized, non-critically ill patients.

Self Assessment Questions:

What is the current ADA recommended target random blood glucose level in hospitalized, non-critically ill patients treated with insulin?

A <110 mg/dL
B: <150 mg/dL
C: <140 mg/dL
D: <180 mg/dL

What is the ADA recommended therapy to achieve glycemic control in non-critically ill hospitalized patients?

A Oral antihyperglycemic agents and correctional insulin therapy
B Correctional insulin therapy alone
C Intravenous insulin therapy alone
D Basal, nutritional and correctional insulin therapy

Q1 Answer: D Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-373 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

PHARMACIST CONSULT SERVICE TO IMPROVE MEDICATION USE IN HEART FAILURE PATIENTS

Brennan Ertmer* PharmD, Hina Patel PharmD, BCPS

NorthShore University HealthSystem,9600 Gross Point Road,Skokie,IL,60076

bertmer@northshore.org

Purpose:
Heart failure (HF) is a progressive chronic disease that is a growing burden to the healthcare system as a result of frequent hospital admissions and high mortality rates. In the Unites States, HF affects approximately 5 million people and is associated with healthcare costs exceeding 29 billion dollars. Approximately 20% to 50% of HF patients will be readmitted within a year of their first HF hospitalization. Heart failure readmissions due to disease progression may not be preventable however, readmissions associated with medication non-adherence and suboptimal medication prescribing are preventable. Pharmacists are ideally positioned and possess the necessary medication knowledge to contribute to the care of HF patients. Pharmacist involvement in the care of HF patients has proven to reduce the risk of all-cause and heart failure hospitalization, especially when incorporated into a multidisciplinary team. The purpose of this project was to improve medication prescribing for HF patients through a pharmacist consult service.

Methods:
A pharmacist consult service was developed to parallel the corporate task forces mission to reduce HF readmissions within 30 days of discharge. Patients were identified by pharmacists attending multidisciplinary nursing rounds and by other healthcare providers on the pilot units. The consult consisted of a pharmacist medication profile review to ensure patients were prescribed an angiotensin converting enzyme (ACE)-inhibitor or angiotensin receptor blocker (ARB) in accordance with clinical quality guidelines. If these medications were not prescribed or were contraindicated, the pharmacist collaborated with providers to ensure proper prescribing or documentation of the contraindication in the electronic medical record. The pharmacist also screened for inappropriate with-in class duplicate therapy and followed up with physicians as required. The prescribing rate for an ACE-inhibitor or ARB at the end of the intervention period was compared to the baseline rate obtained from the HF core measure data.

Learning Objectives:

Recognize the importance of medication management in the care of HF patients

Review the role of the pharmacist within the HF multidisciplinary team

Self Assessment Questions:

Which of the following is an acceptable contraindication to receiving an ACE-inhibitor per the clinical quality measures from the Centers for Medicare and Medicaid Services (CMS)?

A Hyperkalemia
B: Headache
C: Normal renal function
D: Dizziness

Which of the following statements is correct?

A Pharmacist care has been shown to decrease mortality in HF patie
B Pharmacist care is limited to screening medication profiles
C Pharmacist care has been shown to reduce HF hospitalizations
D Pharmacist care in the care of HF patients is not cost effective

Q1 Answer: A Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-374 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

SILVER WEAR: EFFICACY OF SILVER EMBEDDED WHITE COATS WITH EXTENDED USE

Nathan A Everson, PharmD*; Robert J Tibbetts, PhD; Susan L Davis, PharmD; Rachel M Chambers, BCPS AQ-ID

Henry Ford Health System,2799 W. Grand Blvd,Pharmacy Administration,Detroit,MI,48202

neverso1@hfhs.org

Purpose:
Preventing nosocomial infections is increasingly becoming a goal of all major health disciplines. Efforts are being made to reduce transmission through hygiene, prevention of resistance with judicious use of antibiotics, and additionally a focus recently has been on antimicrobial devices and textiles. Silver not only has a storied history as an antimicrobial, but also has efficacy today in reducing antimicrobial burden on catheters, wound dressings and clothing. White medical coats used regularly in the hospital are washed infrequently and are known to harbor multi-drug resistant bacteria. This study will follow the use of antimicrobial coats and assess the presence of bacteria with continued use.

Methods:
This study is a prospective crossover comparing silver embedded white coats utilizing X-Static techonology against control white polyester lab coats. Two medical teams rounding the infectious diseases internal medicine floor of Henry Ford Hospital will initially wear the coats, one team active and the other control. After seven days the teams will crossover to the other coat. Bacterial cultures will be taken from three places on the coats: the sleeve of the dominant hand, front pocket and middle of the back. Cultures will be obtained baseline when the medical resident is given the coat and again at 7 days of wear. Identification and susceptibilities of the bacterial cultures will be performed. Data will be collected for three months beginning in February 2012 with an estimated n = 24.

Results:
Data collection is ongoing at the time of abstract submission

Learning Objectives:

Describe the use of silver as an antimicrobial

Explain the benefits and uncertainties of using antimicrobial textiles

Self Assessment Questions:

Antimicrobial textiles have been shown to accomplish all of the following EXCEPT:

A Achieving an overall reduction in bacterial burden
B: Achieving a 4-log reduction in bacteria in one hour
C: Reducing nosocomial transmission of pathogens achieve
D: A and B

Silver has shown to be effective on bacterial pathogens. Which of the following is TRUE regarding silvers use as an antimicrobial.

A Silver has excellent efficacy against mycobacteria
B Silver has one main method of action
C Silver resistance has been documented
D A and B

Q1 Answer: C Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-681 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

CLINICAL PHARMACY ANTICOAGULATION DISCHARGE SERVICE AT RUSH UNIVERSITY MEDICAL CENTER

Olabisi Falana *, Pharm.D.; Nora Flint, Pharm.D. BCPS, FASHP; Nina Sivanawin-Huynh, Pharm.D., BCPS

Rush University Medical Center,100 N Hermitage,Unit 711,Chicago,IL,60612

olabisi_falana@rush.edu

Purpose: One of the Joint Commissions National Patient Safety Goals (NPSG.03.05.01) outlines standards for maintaining safety during anticoagulation that healthcare institutions must meet. As part of Rush University Medical Center (RUMC) efforts to improve quality and patient safety, the pharmacy department is implementing a pharmacy-directed anticoagulation discharge service. The purpose of this study is to evaluate the impact of this pharmacy-directed anticoagulation discharge services on transition of care and clinical outcomes associated with anticoagulation therapy.

Methods: Prior to commencement, this study was approved by RUMC Institutional Review Board for approval. This is a prospective, observational cohort study in patients 18 years of age or older that receive at least one dose of warfarin at RUMC between December 26, 2011 and March 2, 2012. Patients will be included in this study regardless of whether warfarin is newly initiated or a continuation of therapy. The intended goal of starting the study is to develop a workflow to communicate transition of care to the next provider after hospital discharge. The clinical pharmacy staff will assess the discharge warfarin dose for appropriateness based on either the warfarin dose on admission (if continuing therapy) or the RUMC warfarin dosing protocol (if new start). When appropriate, interventions and recommendations for warfarin dose adjustments will be made. Furthermore, patients will be educated on their warfarin therapy and education will be documented in the electronic medical record. The clinical pharmacy staff will facilitate communication regarding warfarin dosing and time for International Normalized Ratio (INR) follow-up to the next provider of care. Assessment of follow-up will be through evaluation of INR testing done after discharge via the electronic medical record or by contacting physicians offices.

Results and Conclusion: Data collection and analysis is currently in progress. Results and conclusions will be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Review the Joint Commissions National Patient Safety Goal standards that healthcare institutions must meet for maintaining safety during anticoagulationfor institutions to evaluate and improve processes for safe anticoagulant use.

Discuss the role of pharmacists in improving transition of care and clinical outcomes for patients on warfarin after hospital discharge

Self Assessment Questions:

Which statement is true regarding The Joint Commissions National Patient Safety Goals on anticoagulant therapy

A All patients should be started on 5 mg of warfarin when initiating th
B: Institutions should evaluate anticoagulation safety practices, take a
C: Prior to starting a patient on warfarin, pharmacists should assess t
D: Education regarding anticoagulation therapy should not include ed

Pharmacists play an important role in ensuring appropriate management of warfarin therapy due to all of the following EXCEPT:

A Complexity of dosing and monitoring
B Lack of proper and consistent management
C Numerous drug and dietary interactions
D Injectable dosage form

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-375 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

IMPACT OF COMPREHENSIVE PHARMACY SERVICES ON PATIENT ADHERENCE AND READMISSION RATES IN BLOOD AND MARROW TRANSPLANT PATIENTS

Felicia E. Falvo*, PharmD; Mindy L. Waggoner, PharmD, BCOP; Angela M. Urmanski, PharmD, BCOP; Lisa Olson, RPh; Kathy Kovatovic, RPh; Katie McMillen, PharmD, MPH, MHA; Binita Patel, PharmD, MS; Molly Mieska, PharmD

Froedtert Hospital,9200 W. Wisconsin Avenue,Milwaukee,WI,53226

felicia.falvo@froedterthealth.org

PURPOSE: There are many barriers to patient adherence, including knowledge deficits, the number of medications a patient takes, and stress. In patients with more complex medication regimens, such as solid organ transplant, pharmacist education has been shown to increase overall adherence, increase the duration of adherence after transplant, and maintain therapeutic immunosuppressive levels. There is, however, limited data describing the benefits of such education in blood and marrow transplant patients. As of September 12, 2011, each patient receiving an allogeneic stem cell transplant (ASCT) at Froedtert Hospital (FH) is scheduled an outpatient appointment with a pharmacist before transplant to discuss current medications as well as immunosuppression and infection prophylaxis which start after ASCT. They are also enrolled in FHs Medication Therapy Management (MTM) program to provide more comprehensive care once discharged after ASCT.

METHODS: This is an observational, cohort, single-center, nonrandomized study evaluating the impact of pharmacist education and MTM services on patient adherence in the ASCT population. Patients at least 18 years old who receive an ASCT at FH will be included. The historical control group will be comprised of patients who received their ASCT before implementation of pharmacist education and MTM enrollment, but who did receive pharmacist education upon ASCT hospital discharge. The intervention group will include patients who receive their ASCT after September 12, 2011; these patients will receive pharmacist education before ASCT, will be enrolled in FHs MTM service and will receive additional pharmacist education upon ASCT hospital discharge. The primary outcome is patient adherence within the first 100 days after ASCT. Secondary outcomes are average adherence to immunosuppressants and infection prophylaxis, hospital readmission rates within the first 100 days after ASCT, and death within the first 100 days after ASCT.

RESULTS/CONCLUSION: Outcomes remain under investigation as data collection and evaluation are currently being conducted.

Learning Objectives:

Recognize three barriers to patient adherence.

Discuss the importance of patient education in allogeneic stem cell transplant patients.

Self Assessment Questions:

Which of the following is NOT a common reason for patient non-adherence?

A Cost of medications
B: Fear of dying
C: Taking more than 2 medications
D: Fear of the unknown

Allogeneic stem cell transplant patients should receive prophylaxis for which of the following?

A MAC, viral infections, fungal infections
B GVHD, viral infections, fungal infections
C Fungal infections, MAC, GVHD
D Bacterial infections, viral infections, MAC

Q1 Answer: C Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-682 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF AN ADULT SUBCUTANEOUS INSULIN ORDER SE PROMOTING THE USE OF BASAL, BOLUS, AND CORRECTION INSULIN IN NON-CRITICALLY ILL DIABETIC PATIENTS

Afomia A. Feleke, PharmD*; Shaila Sheth, PharmD, BCPS; Maxine Ng, PharmD, BCPS

William Beaumont Hospital,3601 W. 13 Mile Rd,Royal Oak,MI,48073

afomia.feleke@beaumont.edu

Background
Hyperglycemia in hospitalized patients has been associated with poor clinical outcomes such as increased incidence of infection, myocardial ischemia, inflammation, increased length of stay, and mortality. Subcutaneous insulin, specifically a regimen utilizing basal, bolus, and correction insulin, is preferred for the management of hyperglycemia in hospitalized non-critically ill adults. In April 2010, our institution implemented a new order set promoting the use of basal, bolus, and correction insulin.

Purpose
The objectives of this study are to assess compliance with the new subcutaneous insulin order set and to evaluate glycemic control before and after implementation.

Method
This was a retrospective chart review of 1,969 admissionsidentified through blood glucose data obtained from point-of-care glucometers on pre-specified general medical and surgical units. We evaluated data from two months before implementation of the new order set and two months after implementation. Patients with a known history of insulin-dependent diabetes mellitus (Type 1 or 2), 18 years of age or older, admitted and discharged from one of the specified patient care units within the study periods, and who received subcutaneous insulin therapy while hospitalized were included. Patients were excluded if they were using an insulin pump, using oralor non-insulininjectableantihyperglycemic agents prior to admission, receiving intravenous insulin or concomitant corticosteroid therapy while inpatient, admitted with a hyperglycemic crisis, or if an endocrinologist was managing the inpatient insulin therapy. The primary outcome of the study was to assess compliance with the order set, determined by the percentage of patients receiving the appropriate scheduled insulin regimen based ontheir nutritional status. The secondary outcome of the study was to evaluate glycemic control before and after implementation of the new order set.

Results/Conclusion: Data collection and analysis are currently ongoing. Results will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Recognize the complications associated with hyperglycemia in hospitalized patients

Describe the preferred method of managing hyperglycemia in non-critically ill patients

Self Assessment Questions:

Compared to hospitalized patients with normoglycemia, the risk of mortality in diabetic patients with hyperglycemia _____

A Doubles
B: Stays the same
C: Increases by four fold
D: Is unknown

Which of the following best describes a subcutaneous insulin regimen that is suitable for non-critically ill hospitalized patients with hyperglycemia and tolerating oral nutrition?

A Correction insulin only
B Basal and bolus insulin
C Basal, bolus, and correction insulin
D Basal and correction insulin

Q1 Answer: A Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-376 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF ADHERENCE TO GI PROPHYLAXIS GUIDELINES FOR ANTIPLATELET THERAPY

Amanda J Place, PharmD, BCACP; Janna Fett, PharmD*; Kena J Lanham, PharmD, BCPS; Karie Morrical-Kline, PharmD, BCACP; Alison Walton, PharmD, BCPS

St. Vincent Hospital and Health Services,2001 W 86th St,Indianapolis,IN,46260

jfett002@stvincent.org

Purpose:
Gastrointestinal (GI) hemorrhage is the most common serious bleeding complication associated with the use of antiplatelet therapy. Proton pump inhibitors (PPIs) are recommended as prophylactic therapy for patients at risk for GI bleeding who are receiving antiplatelet therapy. Recent concern has developed, however, regarding the concomitant use of PPIs and thienopyridine therapy, secondary to a drug-drug interaction. The American College of Cardiology Foundation (ACCF), the American College of Gastroenterology (ACG), and the American Heart Association (AHA) provided guidance in a focused consensus statement published in 2010 on appropriate gastroprotective therapy (i.e. GI prophylaxis) for patients at highest risk for GI bleed on antiplatelet therapy. This study reviewed adherence to the updated GI prophylaxis recommendations by the Family Medicine and Internal Medicine medical residents and faculty at the St. Vincent Joshua Simon Max Primary Care Center (PCC).
Methods:
This IRB-approved, retrospective study reviewed electronic charts of adult patients seen by a primary care provider at the PCC between July 2010 and July 2011 who have a thienopyridine (clopidogrel or prasugrel) listed as an active medication. Data collected include risk factors, as indicated by the 2010 ACCF/ACG/AHA focused consensus statement, to determine appropriateness of GI prophylaxis and characterize factors that may lead to inappropriate or omitted therapy. The primary objective is to evaluate primary care provider adherence to GI prophylaxis recommendations, with results stratified by prescriber specialty and practice experience of the physician.
Results:
An EMR query identified 217 patients, of which 161 met inclusion criteria for evaluation. Results and conclusions are under investigation and will be presented at Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Identify risk factors associated with the development of gastrointestinal hemorrhage for patients on antiplatelet therapy.

Describe the interaction between proton pump inhibitors and thienopyridine therapy.

Self Assessment Questions:

Which of the following is not considered a risk factor for GI bleeding for a patient receiving thienopyridine-based antiplatelet therapy?

A Concomitant anticoagulant therapy for a recent pulmonary embolis
B: Past medical history of gastroesophageal reflux disease
C: Prescription of a 10 day supply of a nonsteroidal anti-inflammatory
D: History of a GI bleed 5 years ago

Which cytochrome P450 (CYP) enzyme is implicated the most with the proposed interaction between PPIs and thienopyridines?

A Cyp2c9
B Cyp1a2
C Cyp2c19
D Cyp3a4

Q1 Answer: B Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-377 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EFFICACY AND SAFETY OF TENECTEPLASE FOR THE TREATMENT OF PERIPHERAL OCCLUSION

Katherine R. Fitz*, PharmD, Mark Friedman, PharmD
Riverside Methodist Hospital,3535 Olentangy River Road,Columbus,OH,43214
KFitz2@OhioHealth.com

Background/Purpose:
Two fibrinolytics have been commonly used in OhioHealth hospitals, alteplase and reteplase. Alteplase is used system-wide for peripheral procedures and ischemic stroke; reteplase has been used in the outlying hospitals for the treatment of MI and by cardiologists at Riverside for peripheral occlusions. Following the interruption of reteplase manufacturing, interventional cardiologists at Riverside have requested the addition of tenecteplase to formulary. Tenecteplase has a longer half-life, increased clot sensitivity and improved resistance to plasminogen activator inhibitor when compared to alteplase. The Assent 2 trial demonstrated less nonintracranial major bleeding and requirement for blood transfusions with tenecteplase compared to alteplase in patients with MI. Clinical outcomes of tenecteplase to treat patients with peripheral occlusions have been described but comparative outcomes with alteplase for this indication are not available. The purpose of this study was to evaluate the safety and efficacy of tenecteplase for treatment of peripheral occlusion as compared to reteplase.

Methods:
This retrospective study was submitted for review by the Institutional Review Board (IRB). All hospitalized patients initiated on the reteplase between July 2010 and December 2010 were compared with all hospitalized patients initiated on the tenecteplase between July 2011 and December 2011. Data collected included: demographic information (age, sex, weight), dose of thrombolytic (units of reteplase or mg of tenecteplase), duration of thrombolytic therapy (hours), indication for thrombolytic therapy, signs and symptoms of bleeding as classified by the TIMI bleeding criteria, outcome of intervention, and concurrent antiplatelet or anticoagulants administered. Patients where the thrombolytic was used for an indication other than peripheral occlusion were excluded. Continuous variables were compared with an independent t-test. Categorical data were compared with the Fishers test. The a priori level of significance was 0.05.

Results/Conclusion:
To be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Explain the process used by Riverside Methodist Hospital to utilize tenecteplase for treatment of peripheral occlusions.

Describe the impact of tenecetplase on clinical outcomes in patients treated with this agent for treatment of peripheral occlusion.

Self Assessment Questions:

According to the TIMI bleeding criteria, a minor bleeding event is classified as?

A Observed blood loss with a greater than or equal to 3 g/dl decreas
B: Intracranial hemorrhage or a greater than or equal to 5 g/dl decrea
C: No observed blood loss with a greater than or equal to 4 g/dl decre
D: A or C

Which of the following statements comparing alteplase and tenecteplase is true?

A Tenecteplase has a shorter half-life than alteplase, therefore has a
B Tenecteplase has decreased clot sensitivity but improved resistanc
C In the Assent-2 trial, patients treated with tenecteplase had less no
D Previously reported clinical outcomes of tenecteplase to treat patie

Q1 Answer: D Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-378 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

INFLUENCE OF A PHARMACIST-RUN EDUCATION SESSION ON INHALER EFFECTIVENESS IN PATIENTS USING TWO OR MORE INHALERS

Megan E Fleischman, PharmD*; Julie C Bartell, PharmD, CACP, BCACP
Monroe Clinic,515 22nd Avenue,Monroe,WI,53566
megan.fleischman@monroeclinic.org

Purpose:
Improper inhaler technique can increase the risk for exacerbations resulting in increased hospitalizations, emergency department visits, and rescue inhaler, oral corticosteroid and antibiotic use. The purpose of this study was to determine the effectiveness of pharmacist-run education sessions on the understanding and use of inhalers in an effort to reduce risks associated with exacerbations.

Methods:
An Ethics Committee approved, observational, prospective study was conducted in subjects older than 14 who were using two or more inhalers. Subjects completed a questionnaire to assess inhaler knowledge during one baseline educational session and one follow-up session. Also, the pharmacist evaluated and rated subjects inhaler technique during both sessions. A composite score was calculated from the questionnaires and inhaler technique evaluation. The primary outcome was the difference between the averages of composite scores taken at baseline and follow-up. Secondary outcomes included individua components of the primary outcome, patient satisfaction, and number of hospitalizations, emergency department visits, oral corticosteroid bursts, and antibiotic treatments. Statistical significance was defined as a p-value less than 0.1.

Preliminary Results:
Currently, eight subjects with either asthma or chronic obstructive pulmonary disease (COPD) have completed both sessions. Subjects were 70.88.8 years old, 62.5% had a diagnosis of COPD, and 37.5% were male. There was an improvement in primary outcome (65.88.7% versus 76.410.4%, NS). Secondary outcomes improved in the asthma control test scores (22.73.2 versus 27.34.4 points, NS), clinical COPD questionnaire scores (1.40.8 versus 0.80.5, NS), average technique scores (7518.6% versus 9010.2%, NS), and percentage of subjects who used their maintenance inhaler as instructed (62.5% versus 75%, NS). All subjects indicated they would recommend the class to other people with similar lung conditions.

Preliminary Conclusions:
Improvements in primary and secondary outcomes were not statistically significant; however, the improvement in overall inhaler use is clinically significant when treating lung diseases.

Learning Objectives:

Identify questions and tools that can be used to assess control of a subjects lung disease.

Recognize common mistakes made by subjects using inhaled medications and what a pharmacist can do to minimize these mistakes.

Self Assessment Questions:

To assess a patients symptom control, one can evaluate:

A Score on the Asthma Control Test or Clinical COPD Questionnaire
B: Frequency of maintenance inhaler use
C: Frequency of rescue inhaler use
D: Both A and C

Mrs. Smith attends your inhaler education class. She reports using two puffs of her albuterol inhaler at bedtime and as needed (but rarely needs). She reports using her Flovent HFA inhaler only when h

A Frequency of albuterol and Flovent use
B Length of time she holds her breath
C Rate of breathing in her medications
D Length of time she waits between puffs

Q1 Answer: D Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-379 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

THE PHARMACISTS ROLE IN SCREENING FOR OBSTRUCTIVE SLEEP APNEA AMONG PATIENTS WITH RESISTANT HYPERTENSION

Patrick J Fleming Jr., PharmD*; Adam J Bursua, PharmD; Mat Thambi, PharmD, BCPS

University of Illinois at Chicago,833 s Wood st,Chicago,IL,60612

patrick.j.fleming@gmail.com

Obstructive sleep apnea (OSA) is a sleep breathing disorder that occurs in a small percentage of the general population. However, in patients with resistant hypertension, the incidence of OSA is much higher. The pharmacist is uniquely positioned to identify patients who have resistant hypertension by having access to their medication history. The purpose of this study is to describe the results of a proof of concept pharmacy screening and referral program for patients who have resistant hypertension and may be unaware of having OSA. Patients > 18 years of age filling > 3 anti-hypertensive prescriptions at the University of Illinois at Chicago pharmacies will be included in the study. These patients will be asked to voluntarily self administer the Berlin Questionnaire. This questionnaire is a validated tool used to detect patients at high risk for having OSA. Patients who produce a high risk questionnaire will be contacted and asked to schedule a sleep study. Follow up to discuss the results of their sleep study will occur after the sleep study. Patient enrolment for this study is still ongoing. Expected data at the conclusion of this study will include survey results, number of patients eligible, number of patients completing the Berlin Questionnaire, percent of patients with a positive screening, percent of patients evaluated in the sleep center, percent diagnosed with OSA, and percent recommended to initiate treatment with a continuous positive airway pressure machine or referred for surgery.

Learning Objectives:

Describe the relationship between resistant hypertension and obstructive sleep apnea.

Recognize the potential role in the identification of patients at high risk for obstructive sleep apnea.

Self Assessment Questions:

Which of the following is the correct definition of resistant hypertension?

A Uncontrolled hypertension when using 3 or more anti-hypertensive

B: Hypertension due to non-compliance with anti-hypertensive medica

C: Uncontrolled hypertension despite life style modifications.

D: Hypertension resulting from a secondary medical conditions.

Which of the following facts supports pharmacists screening for obstructive sleep apnea (OSA)?

A OSA can be diagnosed by a simple breathing test done in the phar

B OSA is caused by certain medications and can be detected by a pl

C OSA has a high prevalence among patients taking multiple anti-hy

D OSA is life threatening and a pharmacist must know when it is ok t

Q1 Answer: A Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-380 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATING THE CONTINUUM OF CARE TO REDUCE MEDICATION-RELATED READMISSIONS

Ryan P Fleming, PharmD*; Todd A Karpinski, PharmD, MS; Garret L Newkirk, PharmD, MS, BCPS; Kate Schaafsma, PharmD, MS, MBA; Robert J Leinss, RPh, MBA; Erika E Smith, PharmD

Froedtert Hospital,9200 West Wisconsin Ave,Milwaukee,WI,53226

rfleming@froedterthealth.org

Purpose: Readmissions are frequent, preventable, and costly. Froedtert Hospital is an academic medical center with disproportionate share hospital status that has an opportunity to improve its readmission rates. The objectives of this quality improvement project are to: 1) coordinate and standardize the readmission data collection process across different departments including physician leadership, case management, quality improvement, and pharmacy, 2) collect reliable and comprehensive data about the underlying reasons why patients are readmitted, 3) identify key root causes of potentially preventable medication-related readmissions by conducting an in-depth review of select cases, and 4) implement medication-related improvement strategies to reduce potentially preventable readmissions.

Methods: Retrospective case reviews were performed utilizing three data collection tools, which consisted of a 30-day readmissions report, a patient interview, and a provider survey. The data was then condensed into a single Excel spreadsheet, allowing for further analysis. Root-cause analysis was used to identify causes of medication-related readmissions based on qualitative and quantitative data. Patients were included if they were hospitalized overnight within the last 30 days, admitted to the hospital through the emergency department, and at least 18 years of age. Patients were excluded if the readmission was planned, if the readmission was not documented by all three data collection tools, or if the readmission was not medication-related.

Results: While coordinating and standardizing the data collection process, a readmissions steering committee was identified, of which there is now a representative from the pharmacy department. Several other readmission initiatives were also identified to help determine where pharmacy should focus its efforts. Patient case reviews remain under investigation, with data collection and evaluation currently being conducted. Based on results, improvement strategies will be developed, and prioritized based on greatest impact on patient care and highest feasibility for implementation.

Conclusions: To be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Identify the data collection tools used to conduct in-depth case reviews of 30-day readmissions.

Discuss the importance of coordinating with other departments when trying to reduce 30-day readmission rates.

Self Assessment Questions:

How many data collection tools were used to conduct in-depth case reviews of 30-day readmissions?

A 1

B: 2

C: 3

D: 4

Why wasnt the pharmacy department able to collect data as originally intended?

A Senior leadership didn't support the idea of reducing readmissions

B Pharmacy resources were scarce

C The data was too complex to analyze

D Concern for overlap and duplicative efforts across other departmer

Q1 Answer: C Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-800 -L05-P

Activity Type: Knowledge-based Contact Hours: 0.5

PATIENT PERCEPTIONS OF E-PRESCRIBING AND ITS IMPACT ON THEIR RELATIONSHIPS WITH PROVIDERS: A QUALITATIVE ANALYSIS

Margie E. Snyder, PharmD, MPH, Caitlin K. Frail,* PharmD
Purdue University College of Pharmacy,Wishard Health Services, W7555 Myers Building,1001 W. 10th Street,Indianapolis,IN,462022879
frail@purdue.edu

Title: Patient Perceptions of e-Prescribing and its Impact on Their Relationships with Providers: A Qualitative Analysis

Purpose & Objective: To identify patient perceptions regarding the impact of e-prescribing on 1) patient interactions with prescribers and pharmacists and 2) patient engagement in their health care, particularly medication management.

Methods: Data collection will commence with approval from the Institutional Review Board (anticipated in February 2012). Qualitative semi-structured face-to-face interviews will be used for data collection. Questions will address patient attitudes and awareness of e-prescribing, how e-prescribing affects their relationship with their prescriber and pharmacist, and how e-prescribing affects the patients perceived engagement and participation in the prescribing process. Participants will be recruited from a community pharmacy setting. Purposeful sampling will be employed; those eligible for participation include individuals 18 years of age or older who use at least one chronic medication, and whose prescriber uses an EHR-integrated e-prescribing system. Interviews will continue until thematic saturation is reached, however a sample size of 15-30 patients is anticipated. Interviews will be audio recorded and transcribed verbatim. Both investigators will analyze the qualitative data gathered using qualitative data management software. In addition, a brief exit survey will be administered to participants to collect basic demographics; these data will be summarized using descriptive statistics.

Results: Results to be presented at the Great Lakes Pharmacy Resident Conference.

Conclusions: Information gathered from this study will further our understanding of patient-practitioner relationships and how technology may impact those relationships.

Learning Objectives:

Describe the potential impact of integrated e-prescribing on perceived pharmacist-patient and prescriber-patient discussions and relationships.

Discuss the potential effects of integrated e-prescribing on patients perceived engagement in the prescribing process and decisions about their care.

Self Assessment Questions:

Which of the following features is available from EHR-integrated e-prescribing software on the market today that could impact prescribing decisions?

A Formulary and benefits information
B: Refill histories
C: Inactive medication histories
D: All of the above

How could the use of EHR-integrated e-prescribing improve medication safety for patients?

A Decreased prescription legibility
B Increased availability of patient information
C Providers spending less time with patients
D Lost efficiencies from lack of paper charting

Q1 Answer: D Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-683 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

EFFECTIVENESS OF RESIDENT INTERVENTIONS TO REDUCE TECHNICIAN ORDER ENTRY ERRORS IN A SPECIALTY PHARMACY

Stephanie L. Freed, Pharm.D.*, Jeffrey M. Rowe, R.Ph., Heidi M. Hanna Pharm.D., AAHIVP, Jennifer K. Hagerman, Pharm.D., AE-C, Gary K. Rice, R.Ph., MS, MBA
Diplomat Specialty Pharmacy,4100 S. Saginaw Street,Flint,MI,48507
sfreed@diplomatpharmacy.com

Purpose: The objective of this retrospective study is to determine the effectiveness of resident interventions to reduce errors made by a specialty pharmacys order entry team (OET), which is comprised of pharmacy technicians.

Methods: Resident interventions with the specialty pharmacys OET commenced on September 16, 2011 and occurred monthly through December 16, 2011. Interventions were developed using the Institute for Safe Medication Practices (ISMP) error reduction strategies, which include standardization, redundancies, reminders and checklists, rules and policies, and education and information. OET performance measures were reported monthly from June 1, 2011 through December 31, 2011. Data collected included the number, type, and percentage of errors made by individual OET members and as a team. Retrospectively, this study will evaluate the effectiveness of resident interventions to reduce errors by comparing the number, type, and percentage of errors per patient reported before and after resident interventions. Secondary endpoints include post-intervention cost savings and perceived program impact as measured by OET member surveys administered after study conclusion.

Results: Patient error rates were compared three months before initial resident intervention to three months after initial intervention. From June through August 2011, the average patient error rate was 5.36%. Following the September intervention, the three month average patient error rate from October through December 2011 was 3.09%. The internal goal of ≤ 4% was met in November (2.12%) and December (3.09%). Sixteen types of errors were consistently reported each month. Incorrect quantity, wrong doctor, incorrect signature, and no prescription uploaded to the specialty pharmacys patient information database were the errors most influenced by resident interventions. The average pharmacist time saved was 296 minutes (4.93 hours) equaling $278.24 average monthly savings to the specialty pharmacy. Survey analysis is in progress.

Conclusion: Resident interventions are effective at reducing errors made by a specialty pharmacys OET.

Learning Objectives:

Identify the Institute for Safe Medication Practices (ISMP) error reduction strategies and the corresponding leverage level.

Describe the number, type, and percentage of errors reported before and after resident interventions.

Self Assessment Questions:

Which of the following Institute for Safe Medication Practices (ISMP) error reduction strategies is considered to have the lowest leverage when used alone?

A Fail-safes and constraints
B: Rules and policies
C: Education and information
D: Redundancies

Which of the following is correct? After resident interventions, errors:

A increased and goal was not obtained.
B decreased and goal was obtained.
C stayed the same and goal was not obtained.
D decreased and goal was not obtained.

Q1 Answer: C Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-801 -L05-P

Activity Type: Knowledge-based Contact Hours: 0.5

IMPACT OF AN AUTOMATIC REFILL SYSTEM ON MEDICATION POSSESSION RATIOS IN THE COMMUNITY PHARMACY SETTING

Jennifer R. Frerick, Pharm.D.*, Tara R. Green, Pharm.D.

The Ohio State University College of Pharmacy,7608 Mill Bench Ct. Apt. D,Dublin,OH,43016

frerick.4@osu.edu

Medication adherence is directly associated with improved clinical outcomes. Therefore, it is crucial to ensure that pharmacists encourage patients to remain adherent through available channels. Enrollment of patients in an automatic refill system aims to improve medication adherence by making it easier for patients to fill their medications on time. One useful way to measure this impact is through the medication possession ratio (MPR) which is defined as the ratio of the number of days between the last refill and the next expected refill to the number of days between the last refill and the next actual fill. Retrospective data will be collected for a random sample of patients enrolled in the automatic refill system at a community pharmacy chain. MPRs will be calculated for six months before and after enrollment to assess the impact of the automatic refill system. Specific disease states for comparison include hypertension, dyslipidemia, diabetes, depression, asthma/COPD, and gastroesophageal reflux disease. Demographic data of patients including age, gender, insurance coverage, number of chronic medications, and method of refill notification will also be collected and analyzed. Data collection will take place in January and February of 2012. Results will provide information to identify potential areas for improvement in counseling and patient care programs that may enhance adherence and patient outcomes.

Learning Objectives:

Define the medication possession ratio and its importance in assessing adherence.

List patient barriers to medication adherence.

Self Assessment Questions:

How is the MPR calculated?

A Expected days/actual days between refills

B: Expected days x actual days between refills

C: Actual days/expected days between refills

D: Actual days x expected days between refills

Which of the following is a potential barrier to medication adherence?

A Financial concerns

B Pharmacist counseling a patient on a medication

C Forgetfulness

D Both a and c

Q1 Answer: A Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-684 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

DEVELOPMENT AND IMPLEMENTATION OF CLINICAL DECISION SUPOPRT TOOLS FOR PHARMACIST PATIENT MONITORING

Adrianne M. Friemel*, PharmD, Erin C. Hendrick, PharmD, MS, BCPS, Sara B. Pivovar, PharmD, Philip J. Trapskin, PharmD, BCPS

University of Wisconsin Hospital and Clinics,600 Highland Avenue,F6/133-1534,Madison,WI,53792

afriemel@uwhealth.org

Purpose:
Clinical decision support (CDS) tools embedded within electronic order systems aim to reduce medication errors and increase efficiency of the medication use system. A number of healthcare disciplines have adapted different forms of CDS to improve workflow yet, to date, there is little published data that evaluates CDS as a means to improve the efficiency of clinical pharmacy activities. The purpose of this project is to develop basic CDS tools that utilize real time data to improve the efficiency of clinical pharmacists patient monitoring activities.

Methods:
Prior to commencement, a literature review of CDS tools used in healthcare and an informal survey of peer health systems was conducted to assess the current state of CDS utilization by clinical pharmacists in the inpatient setting. Pharmacy stakeholders from Epic Systems Corporation and the University of Wisconsin Hospital and Clinics (UWHC) met to discuss CDS capabilities of the existing EMR pharmacy module at UWHC. An advisory group, composed of nineteen clinical pharmacists representing thirteen subspecialty areas within the hospital, was formed and charged with identification and development of three CDS tools for use by inpatient clinical pharmacists. Post-implementation educational material will be developed using computer based training (CBT) and live in-services to train pharmacists on new functionality, workflows and expectations for monitoring patients. An electronic survey of clinical pharmacists will be conducted using a 5-point likert scale to quantify end user satisfaction and perceived efficiency gains. Lastly, resources required to develop and implement a clinical monitoring tool will be quantified by measuring the time for committee involvement, informatics, clinical validation, and training.

Results/Conclusion:
Conclusions will be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Recognize the impact of clinical decision support tools and be able to identify three different forms of clinical decision support.

Discuss the challenges involved when implementing a clinical monitoring tool.

Self Assessment Questions:

All of the following are potential benefits of clinical decision support except:

A Providing real time patient specific data to the end users.

B: Aids physicians or other end users in ordering by embedding guide

C: Creates an environment that completely eliminates errors.

D: A way to alert end users of interactions (i.e. drug-drug, drug-allergy

All of the following are true regarding a clinical monitoring tool except:

A There is a potential some patients will not fall within the rules of a c

B Post implementation updating form IT staff needs to continuously c

C The logic for a clinical monitoring tool is supported by “If”, “And” & ‘

D Patients that do not trigger an alert do not need to be monitored for

Q1 Answer: C Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-685 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

FINANCIAL JUSTIFICATION OF CLINICAL PHARMACY SERVICES IN A FAMILY MEDICINE PHYSICIAN OFFICE

Lindsey N. Frilling, Pharm.D.*; Kelly Epplen, Pharm.D., BCACP; Sarah Schaeffer, Pharm.D. Candidate

St. Elizabeth Healthcare,4900 Houston Road,Florence,KY,41042

lindsey.frilling@stelizabeth.com

Purpose

The creation of viable billing mechanisms, combined with estimation of cost-savings secondary to clinical pharmacist interventions, may justify the addition of pharmacy services in a physician office setting. This study examines the financial justification of such services.

Methods

This research study was submitted to the St. Elizabeth Healthcare (SEH) Institutional Review Board and has been granted an exempt status. This is a retrospective study of interventions documented at the Family Practice Center (FPC) of SEHC. The FPC is a full-service, academic physicians office with 24 resident physicians and a panel of board certified faculty members. Resident and faculty physicians work collaboratively with nursing, pharmacy, and supportive staff to ensure patients receive optimal care at each point of contact within the FPC. All clinical pharmacist interventions provided by members of the pharmacy staff between January 1, 2010 and June 30, 2011 will be included in the analysis. Interventions include: patient education, drug information, anticoagulation monitoring and dose recommendation, adverse event monitoring and follow-up, performance of medication histories, medication reconciliation, laboratory monitoring and follow-up, dose recommendation and discharge follow-up post hospitalization.

The primary outcome of this study is the total cost savings due to pharmacist intervention estimated by Quantifi and Epic within the FPC. Secondary outcomes include estimated cost-savings associated with individual intervention types such as discharge medication reconciliation and follow-up. In addition, estimation of potential revenue for Medication Therapy Management services (MTMs) will be reported.

Results

During the eighteen months of data collection, 2407 clinical pharmacy interventions were documented. Of these interventions, 640 drug therapy recommendations were made. Of the recommendations, 467 were accepted (73%). Preliminary application of covered services for eligible patients shows potential billing revenue of $5191. Further analysis of results will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Describe the financial impact of implementing clinical pharmacy services in a family medicine physician office setting.

Discuss the clinical pharmacy interventions with the highest cost to benefit ratio that can be applied within a family medicine clinic.

Self Assessment Questions:

What method of billing for cognitive services can be utilized by pharmacists without the need for an established contract with a payer?

A 99211- incident-to billing

B: 99605- MTMs initial visit provided by a pharmacist

C: 99606- MTMs visit with an established patient

D: 99607- MTMs visit, additional 15 minutes

Literature shows favorable cost-benefit data for clinical pharmacist management of which disease states:

A chronic anticoagulation

B hyperlipidemia

C major depressive disorder

D both a & b

Q1 Answer: A Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-381 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

INITIATION OF ANTICOAGULATION FOR PROPHYLAXIS IN PATIENTS WITH SPONTANEOUS INTRACEREBRAL HEMORRHAGE

Andrew C Fritschle, PharmD*; Laura E Aykroyd, PharmD, BCPS; Ranjeet S Singh, MD

Indiana University Health,1701 N. Senate Blvd.,Room AG401,Indianapolis,IN,46202

afritsch@iuhealth.org

Background: The 2010 American Heart Association (AHA) guidelines fo the management of spontaneous intracerebral hemorrhage (ICH) suggest initiation of low-dose subcutaneous low-molecular-weight heparin or unfractionated heparin for prevention of venous thromboembolism in patients with lack of mobility after 1 to 4 days from ICH onset. Evidence from a recent study published in 2011 suggests that the early use of pharmacological VTE prophylaxis in patients with ICH was not associated with hematoma expansion. The study evaluatec patients with ICH who received enoxaparin, heparin, or dalteparin. However, the evidence currently supporting the 2010 AHA guidelines lacks significant strength to persuade many reluctant practitioners currently caring for this patient population.

Purpose: The purpose of this study is to evaluate the incidence of hematoma expansion in patients after spontaneous ICH initiated on pharmacologic venous thrombosis prophylaxis compared to cases where prophylaxis was withheld.

Methods: The study is a retrospective matched cohort of all patients admitted to Indiana University Health Methodist Hospital with ICD-9-CM diagnosis codes for spontaneous ICH between the dates of January 1, 2011 to December 31, 2011. Patients will be matched by location of bleed. Baseline characteristics to be assessed include age, sex, bleed location, prior anticoagulation therapy, and receipt of fresh frozen plasma, prothrombin complex concentrate, or Factor VII. Exclusion criteria includes diagnosis with traumatic ICH, less than 18 years of age, diagnosis of hemophilia, death within 48 hours, and cerebral lesion related to tumor. The primary endpoint is hematoma expansion by 33% or greater from baseline. Evaluation of hematoma expansion will be performed using the validated ABC/2 method. Secondary endpoints include the rate of thrombosis occurrence, number of head computed tomography (CT) studies, time to initiation of pharmacologic prophylaxis, and 28-day mortality.

Results/Conclusion: Data collection is ongoing. Results and conclusions will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Discuss the controversy associated with anticoagulation prophylaxis initiation in the spontaneous intracerebral hemorrhage population.

Identify the appropriate time to initiate anticoagulation prophylaxis in patients post spontaneous intracerebral hemorrhage.

Self Assessment Questions:

The ABC/2 method for evaluating hematoma expansion by computer tomography includes:

A Largest cross-sectional diameter

B: Second diameter drawn at right angle

C: Number and thickness of slices

D: All the above

The 2010 American Heart Association guidelines recommend venous thromboembolism prophylaxis be initiated:

A 4 to 7 days after initial event

B Within first 2 hours after establishment of no active bleed present

C 1 to 4 days after establishment of no active bleed present

D 7 days after initial event

Q1 Answer: D Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-382 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EXPLORING GAPS WITHIN PRIMARY CARE FOR A HUMAN IMMUNODEFICIENCY VIRUS (HIV) POPULATION

*Christina M. Gaard, PharmD, MPH; Jamie Winner, PharmD, BCPS-AQID; Mark Beilke, MD; Angie Paniagua, PharmD, BCPS, CGP

Clement J. Zablocki Medical Center,12400 MacAlister Way #208,New Berlin,WI,53151

cgaard@gmail.com

Statement of the purpose:
The principal purpose of this project is to assess the primary care of patients in the HIV population at the Clement J. Zablocki VA Medical Center. The Infectious Disease Clinic functions within the primary care clinics. The infectious disease providers are responsible for primary care and HIV management. The percentages of HIV patients meeting specific Veterans Health Administration (VHA) primary care goals will be compared to non-HIV primary care patients. Secondary objectives are to assess monitoring and follow-up for patients on specific HIV medications and to identify patients who lack immunizations and hepatitis and tuberculosis screenings.

Statement of the methods used:
This study consists of a retrospective chart review of all qualifying patients pertaining to the primary care of the HIV population compared to the primary care of non-HIV patients. Inclusion criteria for study patients are those that are HIV positive and have been seen within the last year by an Infectious Disease Clinic fellow. Data was collected in a standardized format. Information evaluated for the primary objective are hemoglobin A1c if diabetic, fasting blood glucose, lipid panel, blood pressure, body-mass-index, renal function, liver function, influenza and pneumococcal immunization status, adherence to the HIV medication regimen based on refill history, the presence of a high risk behavior screen, depression screen, annual prostate exam, colonoscopy within ten years and tobacco use status. The percentage of patients who meet established VHA goals in this HIV population was then compared to the percentage of overall primary care patients who meet established goals. Secondary endpoints for the study group look at dosing and monitoring of tenofovir, liver function for patients taking atazanavir and the presence or absence of hepatitis and tuberculosis screens.

Preliminary results to support conclusion:
Data collection and evaluation remain in progress.

Learning Objectives:

Recognize current gaps in primary care, especially in the HIV population

Identify areas for future improvement and expansion of the current Infectious Disease clinic.

Self Assessment Questions:

Protease inhibitors, especially the older generations, appear to be the most associated with which of the following complications:

A Flushing
B: Lipohypertrophy
C: Fatigue
D: Headache

2.Which of the following increase risk of cardiovascular events and/or are associated with unfavorable lipid profiles:

A Uncontrolled HIV infection
B Antiretrovirals in general, especially protease inhibitors
C Smoking
D All of the above

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-644 -L02-P

Activity Type: Knowledge-based Contact Hours: 0.5

DEVELOPMENT OF A BUSINESS PLAN BASED ON IDENTIFIED NEEDS FOR A MULTIDISCIPLINARY OUTPATIENT ONCOLOGY SYMPTOM MANAGEMENT CLINIC

Kelly Gaertner*, PharmD, Teresa Meier, PharmD, BCOP

Riverside Methodist Hospital,3535 Olentangy River Road,Columbus,OH,43214

KGAERTN2@ohiohealth.com

Background
Cancer patients are afflicted with a wide variety of symptoms as a result of their disease, treatment, or both. With experience in planning, implementing, and evaluating a therapeutic plan, a pharmacist has much to offer in collaboration with other healthcare professionals to provide optimal symptom management for oncology patients. Reported benefits of pharmacist involvement in ambulatory care settings include improved therapeutic outcomes, increased patient satisfaction, and cost savings. Practical benefits of a symptom management clinic are improved patient satisfaction with the care received and quality of life.

Purpose
The primary objective of this study is to identify if both a need, and an interest, exist for a multidisciplinary outpatient oncology symptom management clinic. A secondary objective will be to develop recommendations for the implementation of such a clinic at Riverside Methodist Hospital.

Methods
Upon approval from the Institutional Review Board (IRB), patients at each of the outpatient clinics and the infusion center will be offered an anonymous survey. Physicians will be surveyed anonymously via the use of an internet survey tool. Once the specific needs of oncology patients at this institution are identified, a plan can be developed to best address these needs.

Results/Conclusions
Data collection is ongoing. Results and analysis will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Identify the most common symptoms reported by outpatient oncology patients.

Discuss the reported benefits of a multidisciplinary outpatient oncology symptom management clinic.

Self Assessment Questions:

Based on published results of surveys of outpatient oncology patients, what is the most common symptom reported by these patients?

A Fatigue
B: Depression
C: Nausea/vomiting
D: Pain

A reported outcome of pharmacist involvement in ambulatory care settings is:

A Decreased patient satisfaction
B Increased medication costs for patients
C Improved therapeutic outcomes
D Increase in medication errors

Q1 Answer: D Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-383 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

PERCEPTIONS AND OUTCOMES OF PATIENT SELF HOME MONITORING (PSM) COMPARED TO STANDARD CARE WITHIN AN ANTICOAGULATION CLINIC

Magdalena B. Gandera, PharmD*, Kathleen M. Vest, PharmD, CDE, Mary Ann Kliethermes, BS., PharmD, Shaunte Pohl, PharmD, Thomas J. Reutzel, PhD.

Midwestern University,555 31st Street,Downers Grove,IL,60615

mgande@midwestern.edu

Purpose: In addition to physician and anticoagulation clinic (ACC) International Normalized Ratio (INR) monitoring, patients now have an option of self monitoring their INR at home. Patient self monitoring (PSM) involves using a portable INR monitoring machine to obtain the INR and report the results to ACC staff for further management. The purpose of this study is to evaluate a home INR monitoring program. The aims of this study are to: 1) determine if there is a difference in time-in-therapeutic range (TTR) between ACC monitored patients compared to patients who self monitor (PSM), 2) determine if there is a difference in anticoagulation knowledge between the two groups, and 3) assess satisfaction with the home self monitoring program.

Methods: This study consists of two parts: a retrospective chart review and an anonymous survey. Current anticoagulation clinic (ACC) patients 18 years old and older on chronic warfarin therapy for 12 or months were included in the study. PSM patients with at least 6 months of home monitoring and 6 months of prior clinic monitoring were included. Home nursing patients, INRs drawn at a laboratory, and patients unable to speak, read or understand the English language were excluded. Additionally, PSM patients were excluded from the survey part of the study if a nurse/family member checks the INR for the patient. Twelve months of INR data will be collected from chart review. TTR will be reported as a percentage (number of therapeutic INRs over total number of INR readings). The survey consists of 10 multiple choice and 5 behavioral type questions to assess anticoagulation knowledge, as well as 6 satisfaction questions. Surveys will be distributed during clinic visits to ACC patients, and will be mailed to PSM patients. All surveys meeting inclusion criteria received by February 15, 2012 will be included for analysis.

Results: Pending.

Learning Objectives:

Identify factors necessary for successful warfarin therapy in patients in need of anticoagulation.

List the benefits of patient self monitoring of anticoagulation.

Self Assessment Questions:

Which of the following can lead to ineffective warfarin therapy in anticoagulation patients?

A Clinic monitoring of INR

B: Consistency in the diet

C: Home monitoring of INR

D: Varied consumption of vitamin K

Which of the following is a benefit of patient self monitoring of INR?

A Allows for no patient-pharmacist interaction

B Allows for discontinuation of warfarin therapy

C Allows for patient involvement in ther care

D Allows for patient management of warfarin

Q1 Answer: D Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-384 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EFFECTS OF DEPRESSION ON GLYCEMIC CONTROL IN VETERANS WITH DIABETES MELLITUS

Kristen M. Garcia*, PharmD, Donna Givone, PharmD, BCPP, James Kotek, PharmD, Judith Toth, PharmD, CGP, CDE

Jesse Brown VA Medical Center,820 South Damen Ave. (119),Chicago,IL,60612

kristen.garcia@va.gov

BACKGROUND:
Diabetes is a leading cause of morbidity, mortality, and increased healthcare costs in the United States. Available evidence suggests that patients with depression and diabetes have poorer glycemic control and a higher risk of diabetic complications compared to non-depressed patients. Currently, there is minimal data investigating the longitudinal effects of depression on glycemic control in adults with diabetes. Consequently, current clinical guidelines lack recommendations for the screening and management of depression in patients with diabetes.

PURPOSE:
The purpose of this study is to evaluate the longitudinal effect of depression on glycemic control in diabetic veterans.

METHODS:
This study was IRB and VA Research & Development Committee approved. It is a retrospective, electronic chart review of patients at JBVAMC with uncontrolled diabetes, defined as a glycosolated hemoglobin A1c (gHbA1c) ≥9%, and depression, identified as those who have been prescribed an antidepressant within 3 months of the baseline gHbA1c. Exclusion criteria includes individuals with concomitant use of atypical antipsychotics, protease inhibitors, long term continuous systemic corticosteroids (≥3 months), patients prescribed trazodone monotherapy, or patients prescribed bupropion for the treatment of smoking cessation.

The following data was collected: demographics, past medical history, gHbA1c, antidepressant and insulin information, medication compliance, therapeutic lifestyle changes, clinic appointment attendance, and depression screening information.

The primary endpoint will be the mean difference in gHbA1c between depressed and non-depressed subjects with diabetes over a 3 year period of time. The secondary endpoints will be the mean difference in gHbA1c between patients diagnosed with diabetes less than 1 year and patients diagnosed with diabetes for at least 1 year within each study arm, completion of a depression screening, nutrition, managing overweight and/or obesity for veterans everywhere (MOVE!), and diabetes education class appointment adherence, primary care clinic appointment adherence, and adherence to diabetic agents and antidepressants.

RESULTS/CONCLUSIONS:
Data collection and analysis are ongoing.

Learning Objectives:

Identify the potential impact depression has on glycemic control in the veteran population

Discuss behaviors that may influence glycemic control in diabetics with depression

Self Assessment Questions:

Diabetic patients with co-existing depression are at increased risk for the following:

A Blindness

B: Amputation

C: Stroke

D: All of the above

Diabetics with depression have a significantly lower adherence to the following:

A Diet

B Medication Adherence

C Appointment Adherence

D All of the above

Q1 Answer: D Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-385 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

ASSESSMENT OF A PHARMACIST-RUN MEDICATION EDUCATION GROUP FOR INPATIENT PSYCHIATRIC PATIENTS

Leiha L. Gavin, PharmD*, TheresaM. Frey, PharmD
William S. Middleton VA Hospital,4725 Sheboygan Ave,Apt 241,Madison,WI,53705
leiha.gavin@va.gov

Purpose: Patients that are admitted to the Inpatient Psychiatric Unit at the William S. Middleton VA Hospital are patients in an acute mental health crisis and are on a locked inpatient psychiatric unit. These patients benefit from group therapy to learn coping skills while on the inpatient psychiatric unit. Patients may benefit from a group which educates patients that are in an acute crisis how to manage medication side effects and how to better manage their medications.

The goal of this study is to assess the patient knowledge gained from the new pharmacist-run inpatient medication education group that was recently started on the inpatient psychiatry unit. Identifying common gaps in medication adherence and medication side effects knowledge in mental health patients will guide the future content and method of education of the group.

Primary objective of the study is to compare the scores from the modified Medication Understanding and Use Self-Efficacy Scale(MUSE) medication adherence tool and modified Frequency, Intensity, and Burden of Side Effects Ratings (FIBSER) medication side effects tool between patients who attended the new group versus patients who did not attend the group. The secondary objective is to identify if attending more than one inpatient medication education group increased assessment scores.

Methods:
Patients who are admitted to and discharged from the inpatient psychiatry unit are asked to complete necessary paperwork. The addition of the medication education assessment survey tool will be included in the admission and discharge procedures and patients will be invited to fill out paperwork and participate in the study. Baseline demographic data collected includes the following information: gender, age, DSM-IV diagnosis at discharge, length of hospitalization, number of Inpatient Medication Education Groups attended, and psychiatric medications prescribed.

Results/Conclusions:
Results and conclusions are pending and will be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

List the domains of knowledge assessed by Medication Understanding and Use Self-Efficacy Scale(MUSE) medication adherence tool and modified Frequency, Intensity, and Burden of Side Effects Ratings (FIBSER) medication side effects tool .

Recognize the therapeutic benefits to group therapy in treating patients with psychological disorders.

Self Assessment Questions:

The domains assed by the MUSE scale include

A Frequency, intensity, and burden of side effects
B: Intensity of side effects and learning about medications
C: Learning about medications and taking medications
D: Taking medications and frequency of side effects

Some known therapeutic benefits to group therapy include which of the following

A Instilling selfishness
B Group Cohesiveness
C Isolation techniques
D Instilling lack of hope

Q1 Answer: C Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-386 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

IMPACT OF PHARMACIST INTERVENTIONS ON CLINICAL OUTCOMES IN HEART FAILURE AT ADVOCATE CHRIST MEDICAL CENTER

George Gavrilos, Pharm.D.*, Rolla Sweis, Pharm.D., MA, BCPS, Christopher Boyle, Pharm. D., Laura Raczkcowski, RN, Marc Silver, M.D
Advocate Christ Medical Center,4440 W. 95th Street,Oak Lawn,IL,50453
george.gavrilos@advocatehealth.com

Purpose:
Optimizing the management of heart failure (HF) can lead to improved mortality outcomes and decreased frequency and duration of hospital admissions. Both suboptimal therapeutic regimens and patient noncompliance are major contributors to poor outcomes for HF patients. Positive outcomes are achieved when a multidisciplinary approach is used to treat HF. As pharmacotherapy is the cornerstone of HF management, the goal of this study is to measure the impact a pharmacist has in overcoming the aforementioned barriers to care.

Methods:
In this prospective trial, a comparison will be made between HF patients on two telemetry units, one with pharmacist involvement. Pharmacist interventions will be made at two key stages. The pharmacist will complete accurate medication reconciliation on admission, and follow the patient over the course of stay to ensure optimal evidence-based therapy. Readmission will be evaluated post-discharge at 30 and 60 days. The following data will be collected: medication use, HF medication dose optimization, length of stay, mortality, and readmission at 30 and 60 days post-discharge.

Results:
This research is currently in the data collection phase. Results of this study, along with conclusions will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Review evidence-based therapies for the treatment of heart failure.

Identify the role of a pharmacist on a multidisciplinary team treating heart failure.

Self Assessment Questions:

Which of the following beta-blockers is/are indicated for the treatment of heart failure with systolic dysfunction (systolic heart failure)?

A Bisoprolol
B: Metoprolol Tartrate
C: Carvedilol
D: Both A & C

Which of the following medications/class of medications has been shown to reduce mortality in patients with systolic dysfunction?

A Digoxin
B Beta-blockers
C Furosemide
D Calcium-channel blockers

Q1 Answer: D Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-387 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

NEONATAL OUTCOMES FOLLOWING IN UTERO EXPOSURE TO BUPRENORPHINE/NALOXONE OR METHADONE

Kristen M Gawronski, PharmD*; Debra K Gardner, PharmD; Peter J Giannone, MD; Mona R Prasad, DO; K. Joy Lehman, PharmD, BCPS

The Ohio State University Medical Center,Room 368 Doan Hall,410 W. 10th Ave,Columbus,OH,43016

kristen.gawronski@osumc.edu

Opioid addiction is an increasingly common problem during pregnancy. Methadone has long been considered the primary treatment for opioid dependence during this time. However, exposure to methadone is associated with neonatal abstinence syndrome (NAS), characterized by central nervous system hyperirritability, autonomic nervous system dysfunction, and gastrointestinal complications. Neonates with NAS often require prolonged opioid treatment, as well as extended hospitalizations and increased medication-associated costs. Recently, there have been reports describing milder NAS in neonates with exposure to buprenorphine.

The MOTHER project found that buprenorphine-exposed infants required significantly less morphine compared to those exposed to methadone. There was also a statistically significant decrease in duration of NAS therapy and hospital length of stay (LOS). While these results suggest that exposure to buprenorphine may lead to improved outcomes, there is no data available on the use of buprenorphine/naloxone (Suboxone). At this center, it is standard practice to prescribe either methadone or buprenorphine/naloxone to opioid-dependent women during pregnancy.

The current study is a single-center, retrospective study evaluating NAS outcomes in infants exposed to buprenorphine/naloxone or methadone in utero. All pregnant women 18 years of age or older, who were on methadone ≤ 150 mg daily or buprenorphine/naloxone ≤ 24 mg daily for the treatment of opioid dependence, and delivered babies at OSUMC between January 1, 2010 and October 14, 2011 are eligible for study inclusion. Women who received a methadone taper prior to delivery, daily methadone doses > 150 mg or buprenorphine/naloxone doses > 24 mg, those who received buprenorphine (Subutex) alone, or methadone for chronic pain will be excluded. The primary outcome is total amount of oral morphine equivalents administered. Secondary outcomes include number of neonates requiring treatment, peak NAS score, length of treatment, and LOS.

Data collection and evaluation are currently ongoing and results will be presented at the conference.

Learning Objectives:

Define neonatal abstinence syndrome.

Identify potential neonatal benefits of buprenorphine/naloxone use for opiate addiction in pregnancy.

Self Assessment Questions:

Which of the following medications is commonly used to treat neonatal abstinence syndrome?

A Tincture of opium

B: Paregoric

C: Methadone

D: Clonidine

Which of the following is a neonatal benefit of buprenorphine/naloxone for opioid dependence compared to methadone?

A Higher incidence of neonatal abstinence syndrome.

B Decreased total oral morphine equivalent requirement.

C Higher mean NAS scores.

D Longer hospital length of stay.

Q1 Answer: C Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-388 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

COMPARISON OF PATIENT SATISFACTION SCORES FROM PATIENTS SEEN BY A MULTIDISCIPLINARY PAIN TEAM

Jessica Erin Geiger-Hayes, PharmD*, Suzanne Marques, PharmD, BCPS, CACP

St. Rita's Medical Center,730 W Market St,Lima,OH,45801

geigerhayes@gmail.com

Chronic pain affects approximately 116 million Americans while acute pain affects approximately 25 million Americans. Treating pain costs approximately $635 billion each year in medical care and loss of productivity. Poor pain management can influence quality of life, activities of daily living and can increase hospital stays. As the role of clinical pharmacists expands into pain management, it is important to evaluate the impact of pharmacist involvement. Previous studies show advantages, including improved pain scores and patient satisfaction when pharmacists are part of a multi-disciplinary team. The primary objective is to show a positive correlation between pharmacist involvement in pain management and patient satisfaction. The research will be a cross sectional survey study. The study will consist of two questionnaires that are exactly the same, but administered at different times during the patients admission to St. Ritas Medical Center. Participants will be asked to fill out the first patient satisfaction questionnaire on the day the pain consult is requested, prior to the pain service seeing the patient. The initial survey will be considered the baseline data. Participants will be asked to fill out the second patient satisfaction questionnaire within the first 24-48 hours after the pain team has seen the patient. If the patient is unwilling or unable to fill out the questionnaire, it will be read to the patient and the verbal answers will be recorded by the researcher. Paired students t-test will be used to compare before and after survey data. Each subject will serve as their own control. At this time, data collection is not complete and preliminary results and conclusions are not available. Data collection will cease on February 9th, 2012 and at that time the data will be analyzed and conclusions will be made. The results and conclusions will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Describe the impact of under treated pain

Discuss the role of a pharmacist in pain management

Self Assessment Questions:

Which of the following are implications of under treated pain?

A Decreased quality of life

B: Increased financial burden

C: Increased hospital stay

D: All of the above

Which below can be affected by pharmacist involvement in pain management

A Better diagnosis

B Improved pain scores

C Patient satisfaction

D Both B and C

Q1 Answer: D Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-389 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

ASSESSMENT OF METHADONE MONITORING IN PRIMARY CARE AT A VETERANS AFFAIRS MEDICAL CENTER

*Michael A. Geisler, Pharm.D., Darin C. Ramsey, Pharm.D., BCPS, Cassandra M. Ruoff, Pharm.D., BCPS, Erin E. Krebs, M.D., MPH

Richard L. Roudebush Veterans Affairs Medical Center,1481 W. 10th St,Indianapolis,IN,46202

michael.geisler@va.gov

Statement of Purpose: The purpose of this study was to evaluate ECG monitoring and initial dosing of methadone for chronic pain management in a primary care setting.

Statement of Methods Used: A list of patients, between January 1, 2010 to July 31, 2011, was generated and only included primary care patients who were on methadone for chronic pain. A retrospective review was performed using data from the electronic medical record. Patients started on methadone for chronic pain management during this time were randomly selected. The chart was reviewed and evaluated for initia date of initiation of methadone, dosing, dates of ECGs, drug interactions and methadone-related emergency department admissions. The adherence to recommendations from the Food and Drug Administration (FDA) and Department of Veterans Affairs Health Administration National Pharmacy Benefits Management Program (VA PBM) was documented as well. The collection and analysis of this study will be presented to the pain committee at the Richard L. Roudebush Veterans Affairs Medical Center and will help determine if new processes should be developed in regards of ECG monitoring in patients on methadone fo chronic pain management.

Data Collection/Analysis: IRB approval was obtained prior to the initiation of this study. Subjects were randomly selected from the patient population to achieve n=160. A data collection form was used to aid in the collection of data. The following demographic information was collected: age, gender, race and ethnicity. In addition, individual risk factors for QTc prolongation were collected. ECG monitoring and dosing of methadone was assessed for compliance to FDA and VA PBM recommendations. Finally, potentially interacting medications and any methadone-related emergency department (ED) visits were recorded for analysis. Data will be analyzed using descriptive statistics and a chi-square test will be used to analyze nominal data.

Conclusions: Pending at time of submission.

Learning Objectives:

List the current recommendations for ECG monitoring in patients on methadone for chronic pain management.

Translate information to your health-system to enhance patient safety related to methadone therapy.

Self Assessment Questions:

Which of the following increases the risk of QTc prolongation in patients on methadone?

A Age > 45
B: Tramadol
C: Structural Heart Disease
D: Female baseline QTc > 430 ms

Which of the following statements is true?

A The monitoring of ECGs should be performed prior to the initiation
B Drug interactions with methadone are of little concern as it is not h
C While on methadone, there is no need to monitor electrolyte balan
D Patients with a history of structural heart disease should not receiv

Q1 Answer: C Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-802 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

MEDICATION RECONCILIATION INITIATION BY PHARMACISTS, PHARMACY TECHNICIANS AND PHARMACY STUDENTS AT ST. JOHNS HOSPITAL

Kristin M. Genzlinger, PharmD*, Amber S. Stanton, PharmD, Mary E. Mullin, PharmD, J Mark Ruscin, PharmD, BCPS, Ginger J. Ertel, PharmD

St. John's Hospital,800 E. Carpenter Street,Springfield,IL,62769

kristin.genzlinger@st-johns.org

Purpose: The Joint Commission has set a national patient safety goal to reduce medical errors by improving medication reconciliation for all patients. The use of a pharmacist in the medication reconciliation process may reduce errors, increase efficiency and promote a safer outcome for the patient. The purpose of this study is to analyze the current medication reconciliation process at St. Johns Hospital. We plan to identify effectiveness and accuracy of the current medication reconciliation process, comparing nurses and pharmacy staff. This process will be analyzed for reduction in errors and improved accuracy.

Methods: This prospective study was approved by the local Institutional Review Board. Currently, nurses are the primary source for all medication reconciliation at St. Johns Hospital. Nurses will continue to perform medication reconciliation at St. Johns as standard practice. This medication reconciliation process will be followed by a second surveyor who will be a member of the pharmacy staff: a pharmacist, pharmacy technician or pharmacy student. All patients are over 18 years old, admitted to the cardiovascular care unit, and have their medications reconciled by the pharmacy staff within 48 hours of being admitted. Data collected will include: patients age, gender, number of current medications, dose, route, and frequency of current medications. Average number of medications reconciled and discrepancies will be calculated. Other data to be evaluated are the type of discrepancies, including frequency, dose, missing medications, etc. Accuracy and reduction in discrepancies will be compared between the nurses and pharmacy staff.

Results and Conclusion: Data collection and analysis is still ongoing. Results and conclusion will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Identify barriers with patients contributing to obtaining an inadequate medication reconciliation.

Recognize the benefits of utilizing a member of the pharmacy staff in the medication reconciliation process.

Self Assessment Questions:

Factors contributing to inadequate medication reconciliation can include:

A Good communication skills
B: Complete medication list
C: Poly-pharmacy
D: All of the above

How can a member of the pharmacy staff impact medication reconciliation?

A Knowledge of over-the-counter products
B Knowledge of USP 797
C Knowledge of brand and generic names for medications
D A and C

Q1 Answer: C Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-803 -L05-P

Activity Type: Knowledge-based Contact Hours: 0.5

OPTIMIZATION OF UNIT BASE CABINET INVENTORY AND CONTROLLED SUBSTANCES ACCOUNTABILITY THROUGH UTILIZATION OF REPORTING TOOLS

Stacy Gianakakos, Pharm.D. *, Stacy Wucherer, R.Ph., Angela De Ianni, R.Ph., MBA

Aurora Health Care,2900 W Oklahoma Ave,Milwaukee,WI,53215

stacy.gianakakos@aurora.org

Purpose: Utilization of reporting tools can aid in analyzing unit base cabinet inventory and controlled substance accountability. Medication inventory accounts for a large portion of a pharmacys expenses. Cost reductions achieved through inventory control can offset costs of hiring more staff or advancing technology to improve patient care. In addition, drug diversion is a huge economic burden in US as well as a danger for patients and diverters. The objective of this project is to develop an ongoing process for pharmacy managers at all Aurora Health Care sites to assess unit base cabinet drug diversion and inventory control using data reporting tools.

Methods: Currently, pharmacy managers at Aurora Health Care use a commercially available data reporting tool to assess unit base cabinet drug inventory and drug diversion. An assessment for managers was used to determine which features of the current tool are most useful and where there can be improvement. Next, a three month pilot at three Aurora Health Care sites for a new data reporting tool was conducted. Lastly, to optimize drug inventory control and drug diversion accountability, an ongoing process for the use of the data reporting tool will be designed and implemented to assure manager accountability in using the tool.

Preliminary Results: Pilot results indicated that the new commercially available data reporting tool used to assess unit base cabinet drug inventory and drug diversion is more efficient and useful. After presentation of this information to management, Aurora Health Care pharmacy department has decided to invest in the new tool.

Conclusions: Conclusions will be presented at Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Explain the importance of assessing unit base cabinet inventory and controlled substances accountability.

Explain how Aurora Health Care pharmacy department chose to implement the new commercially available data reporting tool.

Self Assessment Questions:

Which of the following is a reason to assess unit base cabinet inventory and controlled substances accountability?

A Cost reductions achieved through inventory control can offset costs
B: It is mandated by pharmacy management.
C: It is mandated by hospital administration to use data reporting tools
D: It is mandated by hospital administration to use data reporting tools

Which of the following was a step in the process that was used to implement the new commercially available data reporting tool?

A Pharmacy management decided which commercially available data
B A three month pilot at three Aurora Health Care sites of the new da
C All pharmacy managers at all sites voted on which data reporting to
D The pharmacy manager at the largest pilot site decided on which d

Q1 Answer: A Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-686 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

EFFECTS OF A PHARMACIST-INITIATED OUTREACH PROGRAM ON CONTROLLER MEDICATION USE AND ASTHMA CONTROL IN NON-ADHERENT ASTHMATICS

Kelly A Gibas*, PharmD, Mary Ann Dzurec, PharmD, Paul R Bandfield, PharmD, Amy M Kramer, PharmD

Kaiser Permanente Health Plan of Ohio,12301 Snow Road,Parma,OH,44130

Kelly.A.Gibas@kp.org

Background:
Short-acting-beta2-agonists (SABAs) are generally very effective at treating asthma attacks by relaxing bronchial smooth muscle. Overuse of SABAs is associated with increased risk of adverse effects and the development of tolerance leading to less effective responsiveness during an exacerbation. Appropriate use of controller medications such as inhaled corticosteroids (ICS) should decrease SABA utilization and improve asthma control in persistent asthmatics. Patients receiving intensive counseling on appropriate asthma treatment may be more likely to use an ICS. Pharmacists can play a key role in providing this educational intervention to patients.

Purpose:
To evaluate the impact of a new program in which primary care clinical pharmacists (PCCP) in an ambulatory care setting outreach to non-adherent patients with persistent asthma.

Methods:
This IRB-approved retrospective study includes non-COPD patients aged five to sixty-four with a diagnosis of persistent asthma who received PCCP outreach triggered by an electronic refill authorization request for albuterol. To qualify for outreach subsequent chart review had to indicate at least one of the following: overutilization of albuterol; lack of/non-adherence to an ICS; same-day/ER visit for asthma exacerbation in the past three months; or oral steroid prescription for asthma exacerbation filled in the past three months. To determine the effectiveness of this new outreach program, SABA and ICS utilization three months before and after PCCP outreach will be evaluated. Improvement in asthma control will be assessed by two methods: comparing quantity of oral steroid prescriptions utilized for acute asthma exacerbation three months before and after outreach and change in Asthma Control Test (ACT) scores between initial outreach and follow-up approximately one month later. Patient satisfaction will be assessed using a five-point Likert scale survey which will be mailed to all patients.

Results/Conclusions:
Data collection is on-going; results and conclusions to be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Indicate appropriate first-line treatment options in a patient with persistent asthma.

Identify the risks associated with short-acting-beta2-agonist (SABA) overutilization.

Self Assessment Questions:

First-line treatment for a patient with persistent asthma includes which of the following?

A Regularly scheduled use of short-acting-beta2-agonist
B: Regularly scheduled use of inhaled corticosteroid
C: As needed use of inhaled corticosteroid
D: As needed use of anticholinergic

Frequent use of short-acting-beta2-agonists (SABA) over time can result in which of the following?

A Decreased responsiveness to SABA during acute exacerbation
B Decreased airway responsiveness to allergens
C Decreased risk of adverse effects associated with SABA
D Improved overall asthma control

Q1 Answer: B Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-390 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

CLINICAL OUTCOMES ASSOCIATED WITH CEFTAROLINE OFF-LABEL UTILIZATION

Rene Gonzalez, PharmD*; Rachel M. Chambers, PharmD, BCPS (AQ-ID); Susan L. Davis, PharmD

Henry Ford Health System,2799 West Grand Boulevard,Detroit,MI,48202

rgonzal2@hfhs.org

Clinical Outcomes Associated with Off-Label Ceftaroline Utilization

Rene Gonzalez, PharmD*; Rachel M. Chambers, PharmD, BCPS (AQ-ID);
Susan L. Davis, PharmD
Henry Ford Hospital, 2799 West Grand Blvd, Detroit, MI 48202
(313) 916-1088; rgonzal2@hfhs.org

Ceftaroline is a cephalosporin recently approved for the treatment of community acquired bacterial pneumonia (CAP) and acute bacterial skin and skin structure infections (ABSSSIs). It possesses activity against methicillin resistant S. aureus (MRSA) and belongs to an anti-infective class most physicians are comfortable prescribing. For this reason, Ceftaroline may be an appealing option for the treatment of infections that lie outside of its FDA approved labeling, however there is limited clinical data supporting this use.

This single-center, observational cohort analysis sought to evaluate clinical outcomes and safety of Ceftaroline therapy for the treatment of off-label indications. The primary objective of this study was to identify characteristics associated with therapeutic success for patients receiving off-label Ceftaroline. Patients were eligible for inclusion if they were at least 18years of age and received at least one dose of Ceftaroline during an inpatient stay at Henry Ford Hospital between January 2011 through March 2012. Exclusion criteria included any patient who received Ceftaroline therapy for an FDA approved indication or received Ceftaroline as an investigational agent. Data collected included baseline patient demographics, prior antibiotic use/healthcare contact, and infection characteristics, including culture results and organism sensitivity. Additionally, clinical response and therapeutic success were evaluated according to pre-defined criteria which included assessment o resolution of all signs and symptoms upon completion of therapy and absence of any adverse effect associated with therapy.

Results and conclusions to be presented at the Great Lakes Residency Conference.

Learning Objectives:

Describe Ceftarolines spectrum of activity, pharmacology, pertinent pharmacokinetic parameters, and FDA-labeled indications.

Explain Ceftarolines potential niche within our current antibiotic arsenal including utilization for off-label indications.

Self Assessment Questions:

Which of the following was the most common off label indication for Ceftaroline therapy identified in this study?

A Bacteremia
B: Osteomyelitis
C: Health-care Associated Pneumonia
D: Urinary Tract Infection

Which of the following is the most pertinent parameter with regards to maximizing the anti-biotic efficacy of Ceftaroline?

A Time > MIC
B AUC: MIC ratio
C Peak: MIC ratio
D Serum trough concentrations

Q1 Answer: B Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-391 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EFFECTS OF ENZYME-INDUCING ANTI-EPILEPTIC MEDICATIONS ON LIPID CONTROL AND STATIN USE

Ted R. Grabarczyk, PharmD*; Barry Gidal, PharmD; Arthur A. Schuna, MS

William S. Middleton VA Hospital,2500 Overlook Terrace,Madison,WI,53705

ted.grabarczyk@va.gov

PURPOSE:
The purpose of this study is to investigate the effect of enzyme-inducing anti-epileptic medications (EIAEDs), versus non-enzyme inducing anti-epileptic medications (NEIAEDs) on lipid control and statin dose in patients with epilepsy.

METHODS:
Epilepsy is a relatively common neurologic disorder. Many of the traditional, older antiepileptic drugs (AEDs) are broad spectrum inducers of hepatic and intestinal CYP enzymes. This predisposes patients taking these medications to a greater risk of drug interactions and increased clearance of other medications, such as statins.

A retrospective chart review will be completed of patients concurrently prescribed an antiepileptic agent along with a statin. Patients will be divided into two groups, those prescribed an EIAED versus those prescribed a NEIAED. The primary endpoints for this study are the change of LDL cholesterol between baseline and at least 3 months following the index date of first concurrent prescribing of AED and statin medications and the proportion of patients with LDL reaching goal. Secondary endpoints include the required simvastatin-equivalent statin dose, the proportion of patients requiring a high potency statin (rosuvastatin), the number of concurrently prescribed antihyperlipidemic medications, and the difference in average LDL values between groups. Patients will be included if they are over the age of 18 years old, have a diagnosis of epilepsy (ICD-9 CM 345.xx, 780.3x), have a current prescription for phenytoin, carbamazepine, phenobarbital, levetiracetam, lamotrigine, zonisamide, gabapentin, or pregabalin as well as a current prescription for lovastatin, fluvastatin, simvastatin, atorvastatin, or rosuvastatin, have at least one recorded LDL value at least 3 months following the index date, and are not receiving any other broad-spectrum CYP450 inducers or inhibitors.

RESULTS/CONCLUSION:
Results and conclusions are currently pending and will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Describe the mechanism of the drug interaction between popular older AEDs and statins.

Identify which common anti-epileptic medications are broad-spectrum CYP450 enzyme inducers.

Self Assessment Questions:

The primary mechanism of the drug interaction between common older anti-epileptic medications (except valproic acid) is:

A Induction of CYP450 enzymes.
B: Induction of UGT enzymes.
C: Inhibition of statin absorption.
D: Inhibition of CYP450 enzymes

Which of the following anti-epileptic medications is NOT a broad-spectrum CYP450 enzyme inducer?

A Carbamazapine
B Levetiracetam
C Phenobarbital
D Phenytoin

Q1 Answer: A Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-392 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

LOW FIXED DOSE RECOMBINANT FACTOR VIIA FOR REVERSAL OF WARFARIN ANTICOAGULATION IN ACUTE INTRACRANIAL HEMORRHAGE

Kasey Greathouse, PharmD, BCPS*, Amy Green, PharmD, BCPS, Gourang Patel, PharmD, MSc, BCPS

Rush University Medical Center,1653 W. Congress Pkwy,Chicago,IL,60612

kasey_greathouse@rush.edu

Purpose

Intracranial hemorrhage (ICH) is one of the most feared complications of anticoagulation therapy with warfarin. Patients receiving anticoagulation are not only at increased risk of developing an ICH, they also have a risk of increased severity due to hematoma expansion. Additionally, anticoagulated patients have an ICH-related mortality that is more than double that of a non-anticoagulated patient. The initial management of a warfarin-associated ICH is aimed at rapidly reversing the anticoagulant effects with the hopes of preventing hematoma expansion and allowing prompt surgical intervention.

The current treatments for reversal of anticoagulation in patients with a warfarin-associated ICH are vitamin K and fresh frozen plasma (FFP); however both of these treatment options have several limitations. Activated recombinant factor VII (rFVIIa), a cloned activated form of endogenous human factor VII, has been used for warfarin-associated ICH in several small studies. These studies have shown that rFVIIa has the ability to rapidly correct the INR; however the dosing of rFVIIa in these studies varied significantly.

In November 2008, the Pharmacy and Therapeutics Committee at Rush University Medical Center approved new guidelines for the off-label use of rFVIIa. The guidelines allow a patient to receive one dose of 1000 mcg of rFVIIa to reverse anticoagulation in a warfarin-associated ICH. This retrospective chart review will be the first to evaluate the use of a low, fixed dose of rFVIIa for the reversal of anticoagulation in warfarin-associated ICH.

Methods

All patients admitted to the Neuroscience Intensive Care Unit between December 2008 and October 2011 for the management of an intracranial hemorrhage will be included if they were taking warfarin prior to admission, had an INR greater than 1.3 upon admission and received 1000 mcg of rFVIIa. Data will be analyzed using descriptive statistics.

Results/Conclusion

To be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Discuss the advantages and disadvantages of using vitamin K, fresh frozen plasma (FFP) and rFVII to reverse warfarin anticoagulation in ICH

Review the guideline recommendations for the use of rFVIIa to reverse warfarin anticoagulation in ICH.

Self Assessment Questions:

Which of the following is an advantage to using rFVIIa to reverse warfarin anticoagulation in ICH, compared to vitamin K and FFP?

A rFVIIa is inexpensive

B: rFVIIa has a quick onset of action

C: rFVIIa replaces several depleted coagulation factors

D: rFVIIa is available at all hospitals

What is the recommendation from the American Stroke Association regarding the use of rFVIIa to reverse warfarin anticoagulation in ICH?

A rFVIIa should be used in combination with vitamin K, FFP and PCC

B rFVIIa can be used as an alternative to FFP.

C rFVIIa can be used as the sole agent.

D rFVIIa should not be used as the sole agent.

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-393 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

THE EFFECTIVENESS OF EDWARD HINES, JR. VA HOSPITAL LOW MOLECULAR WEIGHT HEPARIN PROTOCOL FOR INITIAL DALTEPARIN DOSES IN OBESE PATIENTS

Jayme A. Greenberg, Pharm.D.; Roshani Raval, Pharm. D.; Eunha Lai Pharm.D. CACP; Todd Lee, Ph.D., Pharm.D.

Edward Hines, Jr.VA Medical Center,Edward Hines Jr. VA Hospital,5000 South Fifth AVE,Hines,IL,60141

Jayme.Greenberg@va.gov

Background:

Approximately one-third of adults in the U.S. are classified as obese. Obese patients are associated with an increased risk of developing thrombosis when compared to the average weight individual. Low molecular weight heparin (LMWH) therapy has been shown to be both efficacious and beneficial in the treatment and prophylaxis of venous thromboembolic (VTE) and ischemic complications. Concern has risen on the potential for overdosing versus underdosing of LMWHs, and for the risk of serious adverse events in the obese population. The Edward Hines, Jr. VA Hospital LMWH protocol (LMWH protocol) was established in July 2009 to guide in the dosing of LMWH for various thromboembolic disorders.

Purpose:

The primary purpose of this study is to determine the use of the Edward Hines, Jr. VA LMWH dosing protocol in the obese population and compare the proportion of patients at therapeutic anti-factor Xa levels when using the protocol versus not using the protocol. The secondary outcomes of the study include dose adjustment, time to therapeutic anti-factor Xa level, recurrent VTE, any correlation between increased weight and dalteparin dose required, cost difference for treatment with dalteparin versus using enoxaparin, and baseline characteristics (weight, renal function, adverse events).

Methods:

A list will be generated of all anti-factor Xa levels drawn between January 2009 through February 2012. The list will be generated from a search, and the first 200 patients who meet the inclusion criteria will be included in the study. Charts will be reviewed for the following information: patient demographics, indication for dalteparin use, anti-factor Xa levels, initial dalteparin dose, use of Hines LMWH protocol, length of therapy, and adjustments made to dalteparin dose.

Results/Conclusions:

Data collection is in progress. Results will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Describe LMWH dosing and anti-factor Xa goals in the obese population in both the CHEST guidelines and the Hines LMWH protocol

Recognize the proportion of the obese population on dalteparin at therapeutic anti-factor Xa levels according to the Edward Hines, Jr. VA Hospitals VTE and ACS LWMH protocol

Self Assessment Questions:

According to the LMWH protocol at Hines, patients at Hines with a weight greater than or equal to 99 kg should be dosed using a weight-based dose of dalteparin _____ subcutaneously every 12 hours.

A 5 mg/kg

B: 75 mg/kg

C: 100 mg/kg

D: 200 mg/kg

Which of the following anti-factor Xa levels are therapeutic according to the Edward Hines, Jr. VA Hospital VTE LMWH protocol in the obese population?

A 0.2-0.5 units/mL

B 1.2-2.2 units/mL

C 0.5 to 1.0 units/mL

D 2.0-3.0 units/mL

Q1 Answer: C Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-394 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

IMPROVING PHARMACEUTICAL VENOUS THROMBOEMBOLISM (VTE) PROPHYLAXIS COMPLIANCE POST-OPERATIVELY IN NEUROSURGERY PATIENTS

Katie A Gregory,* PharmD; Benjamin J Jung, PharmD MPA; Matthew J Thill, PharmD; Kristine A Melass Merkel, RN, MA

Ministry Health - St. Joseph's Hospital - WI,611 Saint Joseph's Ave,Marshfield,WI,54449

katie.gregory@ministryhealth.org

Venous thromboembolism is a life-threatening complication in neurosurgery that can be prevented by use of anticoagulants; however, no guidelines are available to direct the use of pharmaceutical prophylaxis. The risk of bleeding can lead to serious even life-threatening events and, therefore, pharmaceutical prophylaxis must be used with caution. Ministry Saint Josephs Hospital (MSJH) policy states that patients with intracranial injuries or interventions receive appropriate VTE prophylaxis. Currently at MSJH, pharmaceutical prophylaxis in neurosurgery patients is infrequently initiated post-operatively, increasing the risk of VTE. The primary objective of this project is to improve compliance with pharmaceutical prophylaxis post-operatively in neurosurgery patients. The secondary objectives are evaluating adverse drug events related to anticoagulation and VTE events. A baseline retrospective chart review was completed for neurosurgery patients under the Diagnosis Related Groups (DRGs) 20-27 from April 1, 2011 through September 30, 2011 to assess whether VTE prophylaxis was initiated post-operatively in high risk patients according to policy. Data collection consisted of BMI, bleeding and VTE events, pharmaceutical VTE prophylaxis given, history of anticoagulation and history of VTE. Out of 63 patients, 31 patients were considered high risk, of which 13% received pharmaceutical VTE prophylaxis. Fourteen of the sixty-three patients, all of whom did not receive pharmaceutical prophylaxis, developed a DVT post-operatively and four of those patients developed a pulmonary embolism. There were no documented serious bleeding events while on anticoagulation. A multi-disciplinary team was formed to modify the policy and improve VTE prophylaxis compliance. Final results and conclusions will be presented at the Great Lakes Regional Conference.

Learning Objectives:

Discuss venous thromboembolism prophylaxis in the neurosurgery population.

Review the current venous thromboembolism prophylaxis practice in the neurosurgery population at Ministry Saint Josephs Hospital.

Self Assessment Questions:

According to the guidelines, pharmaceutical VTE prophylaxis should begin with what agent and what day post-operatively?

A Enoxaparin 40 mg subcutaneously daily beginning on post-operati
B: Heparin 5000 units subcutaneously three times a day beginning or
C: Fondaparinux 2.5 mg subcutaneously daily beginning on post-oper
D: No current guidelines exist.

According to Ministry Saint Josephs policies, high risk populations include?

A BMI < 30, history of anticoagulation, history of VTE, prolonged intu
B BMI > 30, history of anticoagulation, history of VTE, history of heac
C BMI > 30, history of anticoagulation, history of VTE, prolonged intu
D BMI < 30, history of anticoagulation, history of VTE, paralysis

Q1 Answer: D Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-804 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

QUANTIFYING THE MAGNITUDE OF CLINICAL VIRULENCE OF KPC THROUGH TRANSLATIONAL STUDY

Milena Griffith, PharmD, BCPS*, Maria Renee Advincula, PharmD Candidate, Chao Qi, PhD, Michael Malczynski, BS, Marc H. Scheetz, PharmD, MSc, BCPS

Midwestern University,1230 N State Parkway,Apt 16D,Chicago,IL,60610

milgriff@nmh.org

Purpose

Carbapenem resistant Enterobacteriaceae (CRE) are a broad category of organisms resistant to carbapenems with very few useful antibiotics remaining for treatment. Klebsiella pneumoniae producing carbapenemase (KPC) Klebsiella pneumoniae (KPCKP) is an emergent pathogen within CRE in the Midwestern United States with the propensity to cause poor patient outcomes. Clinical studies have been unable to consistently or accurately classify virulence of KPCKP. The aims of this study are to (1) determine the clinical virulence of KPCKP blood stream infections by comparing KPC (+) to KPC (-) infections while controlling for confounding variables with standard clinical data modeling techniques and (2) to assess the relative virulence of representative KPC (+) strains from the clinical study in an in-vivo invertebrate model.

Methods

This study will be completed in two phases at Northwestern Memorial Hospital, Chicago, IL. The first phase will consist of a retrospective, observational, cohort study that has been designed to evaluate the clinical virulence of KPCKP blood stream infections relative to KPC (-) K. pneumoniae blood stream infections. The second phase will utilize an in-vivo Galleria mellonella model to ascertain the relative virulence of KPC (+) versus KPC (-) K. pneumoniae. All statistical analyses will be performed with Intercooled STATA, version 11.1 (Statacorp, College Station, TX). IRB approval has been obtained for this study and G. mellonella are exempted from IACUC review.

Results/Conclusions

Data collection and analysis are currently in progress. Results and conclusions will be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Recognize the effect of Klebsiella pneumoniae producing carbapenemase (KPC) production on patient outcomes

Explain the use of in-vivo models to reduce bias in virulence studies

Self Assessment Questions:

Which of the following statements is correct regarding KPCKP?

A Infections with this organism have a well defined mortality risk
B: Older antimicrobial agents that may be active have associated toxi
C: The enzyme produced hydrolyzes only carbapenems
D: This organism is in a separate category from CREs

Which of the following statements is correct regarding in-vivo models?

A G. mellonella has not been validated as a host-pathogen interactio
B In-vivo models reduce bias that may be introduced by patient comc
C It is difficult to standardize inoculums for in-vivo models
D Results from in-vivo models may not be translated to clinical care

Q1 Answer: B Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-395 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

IMPACT OF INITIAL HIGH-DOSE VERSUS STANDARD-DOSE VANCOMYCIN IN ACHIEVING GOAL TROUGH CONCENTRATIONS AND IMPLEMENTATION OF A PHARMACIST-MANAGED PEDIATRIC PHARMACOKINETICS SERVICE

Ilona V. Grigoryan*, PharmD; Palak H. Bhagat, PharmD, BCPS; Allison L. Thompson, PharmD, BCPS

University of Chicago Medical Center,MC MC0010, TE026,5841 S. Maryland Avenue,Chicago, IL,IL,606371470

Ilona.Grigoryan@uchospitals.edu

Purpose:
Vancomycin is often used for the treatment of nosocomial infections; however, its over-utilization has become a concern for the emergence of resistant organisms. According to a consensus review in 2009, vancomycin serum trough concentrations are recommended to be maintained between 10 to 20 mg/L due to concern for increased resistance. By extrapolating adult recommendations to pediatrics, higher initial doses of vancomycin would be needed to achieve new goal trough concentrations of 10 to 20 mg/ L. The primary objective is to determine if high-dose vancomycin is superior to standard-dose in achieving serum trough concentrations of 10 to 20 mg/L. Secondary objectives are to determine the incidence of patients with serum trough concentrations greater than 20 mg/L and less than 10 mg/L with the initial regimen, overall trends in achieving goal serum trough concentrations, and adverse effects related to vancomycin.

Methods:
Following approval from the Institutional Review Board, a retrospective cohort analysis will be conducted. Pediatric patients, between the ages of greater than 28 days to less than or equal to 18 years with normal renal function and at least one vancomycin serum trough concentration, admitted between March 2008 and October 2011 will be included. Patients will be identified using an electronic database. Baseline characteristics and demographics will be evaluated using descriptive statistics, categorical variables will be evaluated using Chi square and Students t-test will be used to evaluate continuous variables. Results will be used to implement a pharmacist-managed pediatric pharmacokinetics service at Comer Childrens Hospital at The University of Chicago Medicine. Lastly, the economic impact of the implementation of a pharmacist-managed pediatric pharmacokinetics service will be evaluated.

Results: To be presented

Conclusion: To be presented

Learning Objectives:

Review current vancomycin goal trough recommendations.

Identify updates made to the 2009 consensus guidelines due to concern for increased vancomycin resistance.

Self Assessment Questions:

Regarding previous literature and new guideline recommendations, which of the following is correct?

A Standard vancomycin dosing regimens were not high enough to ac
B: Higher empiric doses lead to more toxicity
C: New goal vancomycin trough concentrations should be between 15
D: Vancomycin should be initiated at 15mg/kg every 6 hours

According to the 2009 consensus guidelines, which of the following is correct?

A AUC/MIC ≤ 400 is the target to achieve clinical effectiveness with v
B Trough concentration of ≥ 10 mg/L is recommended to prevent res
C Trough concentration of 15-20 mg/L is recommended for all infecti
D Trough concentration of 10-20 mg/L is recommended for methicillir

Q1 Answer: A Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-687 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

INITIATION OF AN ARGATROBAN PROTOCOL FOR THE MANAGEMENT OF HEPARIN-INDUCED THROMBOCYTOPENIA (HIT

Chelsea L. Grombir, Pharm.D.*, Philip DiMondo, Pharm.D., BCPS, Terry Baumann, Pharm.D., BCPS, Heather Tolfree, Pharm.D.

Munson Medical Center,1105 Sixth Street,Traverse City,MI,49684

cgrombir@mhc.net

Purpose
Heparin-induced thrombocytopenia (HIT) is a rare, but serious adverse reaction to heparin administration resulting in rapid platelet reduction. Direct thrombin inhibitors (DTIs) are an ideal option for anticoagulation in HIT as they do not activate HIT antibodies. HIT diagnosis is complex, therefore the decision to initiate DTI therapy for HIT is challenging. Inappropriate DTI use can result in unnecessary errors and costs to the institution. The objective of this study is to compare patient outcomes following the implementation of a new HIT protocol utilizing argatroban in place of lepirudin, to patient outcomes prior to protocol implementation.

Methods
This is a retrospective-prospective, observational study comparing data from patients before and after the initiation of a heparin-induced thrombocytopenia (HIT) recognition and management protocol. Patients will be identified from drug charge data, and included if they are age 18 or older with suspected or documented HIT. The study will evaluate HIT recognition in patients using the calculated 4Ts score (Thrombocytopenia, Timing of platelet count fall, Thrombosis, and oTher possible causes), and management of HIT in patients before and after the replacement of lepirudin with argatroban in the HIT protocol. Patients will be stratified into a pre-protocol group and post-protocol group. The primary endpoint is to evaluate the effectiveness of the HIT protocol in achieving a therapeutic activated partial thromboplastin time (aPTT). Secondary endpoints include appropriate use the protocol using the calculated 4T score, incidence of major bleeding, and new or worsening thrombosis.

Results
The study is still under investigation. Data collection and statistical analysis will be complete by April 2012. Final results and conclusions wil be presented at the Great Lakes Residency Conference.

Learning Objectives:

List the four components of the 4Ts score used to estimate the clinical probability of HIT.

Discuss current treatment strategies for the management of a patient with HIT.

Self Assessment Questions:

Which of the following is used to calculate the 4Ts score?

A Treatment with Direct Thrombin Inhibitors (DTIs)
B: Thrombosis
C: Therapeutic dose of heparin
D: Test for PF4-heparin antibodies

Which of the following agents is appropriate for use as initial treatment for HIT in a patient with compromised renal function?

A Enoxaparin
B Lepirudin
C Argatroban
D Warfarin

Q1 Answer: B Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-396 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF PHARMACY FACULTY KNOWLEDGE AND PERCEPTIONS OF THE PATIENT-CENTERED MEDICAL HOME (PCMH) WITHIN PHARMACY EDUCATION

Anisha B. Grover, PharmD*, Bella H. Mehta, PharmD, Jennifer L. Rodis, PharmD, BCPS, Kristin A. Casper, PharmD, Whitney A. Shaffer, PharmD, CDE, Randy K. Wexler, MD, MPH

The Ohio State University College of Pharmacy,500 West 12th Avenue,Columbus,OH,43210

grover.80@osu.edu

OBJECTIVES/PURPOSE: The Patient Protection and Affordable Care Act of 2010 emphasizes the need for a reorganized primary care system and supports patient centered medical home (PCMH) as a primary care initiative. Future pharmacists have an important opportunity to advance practice by participating in PCMH team care, and pharmacy education has a central responsibility in preparing pharmacists to effectively contribute in this setting. This project aims to 1) assess pharmacy faculty knowledge about key PCMH principles, 2) evaluate pharmacy faculty perception of inclusion of PCMH information in didactic and/or experiential pharmacy curriculum, and 3) evaluate pharmacy faculty perception of where and how information about PCMH should be taught. METHODS: A roster of current pharmacy faculty will be obtained from the American Association of Colleges of Pharmacy (AACP) and used to create a database of potential participants. A customizable survey program will be used to develop and implement an anonymous, online survey. The survey will be pilot tested by non-AACP members that are involved in teaching at The Ohio State University College of Pharmacy and modified as needed. The survey will then be sent out to all AACP faculty members. Faculty will rate their familiarity with key PCMH principles. Participants will indicate whether or not PCMH concepts should be included in pharmacy education and if so, where in the curriculum, required or elective, and how much time should be dedicated to this topic. Demographic information will be collected. The survey will remain open for one month and two reminder emails will be sent during the midpoint and final week of the data collection period. Descriptive statistics will be used to report responses. RESULTS: Reported outcomes will include descriptive data relating to study objectives. CONCLUSIONS: Characterization of pharmacy faculty knowledge and perceptions of PCMH will identify potential opportunities for pharmacy education.

Learning Objectives:

Define the Patient-Centered Medical Home (PCMH), according to the National Committee for Quality Assurance (NCQA).

Identify the Joint Principles for the Medical Education of Physicians as Preparation for Practice in the Patient-Centered Medical Home (PCMH).

Self Assessment Questions:

The National Committee for Quality Assurance (NCQA) defines the Patient-Centered Medical Home (PCMH), as a redesigned primary healthcare setting that _____:

A Serves mainly as a central location for filing pediatric medical reco
B: Utilizes information technology and health information exchange to
C: Provides healthcare within a residential facility for persons with chr
D: Focuses only on the delivery of acute and episodic care by an inte

2.The Joint Principles for the Medical Education of Physicians as Preparation for Practice in PCMH were developed collectively in February 2007 by a group of physician organizations. Which of the fo

A Pharmacist-directed medical practice
B Evidence-based medicine
C Coordinated and integrated care
D Patient advocacy

Q1 Answer: B Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-688 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

COMPARISON OF CONTINUOUS INFUSION UNFRACTIONATED HEPARIN PROTOCOL VERSUS PHYSICIAN DIRECTED MANAGEMENT FOR ATRIAL FIBRILLATION/FLUTTER AND MECHANICAL DEVICE PROPHYLAXIS AT A LARGE ACADEMIC MEDICAL CENTER

Stephanie J. Gryzmala*,PharmD; Denise M. Kolanczyk, PharmD, BCPS; Katherine D. Mieure, PharmD, BCPS

University of Chicago Medical Center,5841 S. Maryland Ave,MC0010 Room TE026,Chicago,IL,60637

stephanie.gryzmala@uchospitals.edu

Purpose: Patients with atrial fibrillation (AF) and mechanical valves have on average a 5% and 8%, respectively, chance per year of developing atrial thromboembolism if not anticoagulated. Current guidelines recommend patients with AF/mechanical valves undergo "bridging" with unfractionated heparin (UFH) peri-procedurally. In order to reduce the likelihood of harm associated with UFH The Joint Commission (TJC) implemented National Patients Safety Goals (NPSG) requiring institutions to have a protocol for initiation and maintenance of anticoagulation, to evaluate anticoagulation safety practices, take action to improve practices, and measure the effectiveness of those actions. In response to the NPSG published by TJC, The University of Chicago Medical Center (UCMC) implemented a continuous (CI) UFH protocol for AF/mechanical valve prophylaxis. Prior to the protocol, prescribers were responsible for initiating and titrating CI UFH therapy. The purpose of this study is to evaluate the safety and efficacy of the current protocol for AF/mechanical valves versus conventional, physician-directed, dosing.

Methods: This retrospective cohort analysis will be conducted in patients receiving CI UFH from May 2010 to August 2011 for atrial fibrillation or mechanical valve prophylaxis. Patients will be excluded if they are less than 18 years old or receiving unfractionated for any other indication. Using electronic records, data collection will include patient demographics, UFH data, lab data, and outcomes data. The primary objective is to determine the incidence of therapeutic activated partial thromboplastin time (aPTT) for AF/Mechanical valve prophylaxis within 24 hours. Secondary objectives are to determine the time to first therapeutic aPTT, time aPTT within therapeutic range, time aPTT sub- and supratherapeutic, incidence of major and minor bleed, and incidence of thrombosis. A subgroup analysis will be conducted to determine risk factors associated with sub- or supratherapeutic aPTTs.

Results: to be presented

Conclusion: to be presented

Learning Objectives:

Identify scoring tool used to identify risk of stroke in patients with atrial fibrillation

Discuss which mechanical valves are associated with the highest risk of thrombosis

Self Assessment Questions:

CHADS-2 is an acronym that is used for which of the following?

A to determine the risk of stroke in patients with atrial fibrillation
B: to determine the risk of bleeding in patients with atrial fibrillation
C: to determine anticoagulation needs in patients who have had valve
D: both A and C

Which of the following mechanical valves is associated with the highest risk of thrombosis?

A Aortic valve
B Mitral valve
C Both have equal risk of thrombosis
D None of the above are associated with thrombosis

Q1 Answer: A Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-805 -L05-P

Activity Type: Knowledge-based Contact Hours: 0.5

CREATING AND OPTIMIZING SYSTEM-WIDE PHARMACY TO PRESCRIBER COMMUNICATION

Tyler J. Guetschow, PharmD*

Aurora Health Care,2900 W. Oklahoma Ave.,Milwaukee,WI,53215

tyler.guetschow@aurora.org

Purpose: Aurora Health Care is comprised of fifteen hospitals, numerous clinics and many private physician practices across eastern Wisconsin. The Department of Pharmacy Services has historically communicated important drug information primarily to hospital based physicians. Non-hospital based physician groups recently requested receipt of drug-related information such as safety alerts and drug shortages from the Pharmacy Department. The purpose of this project is to establish a mechanism and develop a tool to communicate with all hospital and non-hospital based prescribers.

Methods: Approval from the Institutional Review Board was obtained prior to the initiation of this project. The current process for Pharmacy Department communication with prescribers was evaluated to identify areas for improvement. Input from the leadership of the major medical groups regarding the method and content of communication was acquired. Currently available media for communication were assessed for appropriateness. The largest medical group has begun increasing its utilization of the Aurora Health Care intranet. Working with this medical group and the internal communications department has allowed for the creation of a pharmacy news webpage within that groups intranet. The communication format was designed to facilitate ease of use and accessibility for individual prescribers and includes topics regarding relevant Pharmacy and Therapeutics Committee updates, newly approved drugs, safety alerts, drug shortage information and drug costs. Permission was obtained from authors of various documents to summarize their work and provide links to their complete documents. Feedback will be solicited from prescribers and improvements to the communication tool will be made continuously. A method for communication sustainability will be established and new media will be evaluated when available.

Results/Conclusion: Evaluation of this communication mechanism and the development of methods to reach the full target audience remain in progress. Additional progress will be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Describe the process required for exploring potential methods of communication with prescribers in a large healthcare system

Identify the key aspects related to implementation of an intranet tool to facilitate communication with the prescribers in a large medical group

Self Assessment Questions:

Which of the following statements regarding pharmacy department communication is true?

A Buy-in from all affected parties is not necessary prior to communica

B: Newsletters are an effective form of communication within a large c

C: Providing regularly scheduled publications paired with episodic upc

D: Prescribers typically prefer news updates in the form of long, detail

Which of the following are topics that prescribers may wish to receive communication about?

A FDA safety alerts

B New drug summaries

C Relevant drug shortages

D All of the above

Q1 Answer: C Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-689 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

IMPACT OF PHARMACIST INTEGRATION IN A PEDIATRIC PRIMARY CARE CLINIC ON VACCINATION ERRORS: A RETROSPECTIVE REVIEW

Anna Haas-Gehres*, Pharm.D., Sonya Sebastian, Pharm.D., Kristen Lamberjack, Pharm.D.

Nationwide Children's Hospital,700 Children's Drive,Columbus,OH,4320

anna.haasgehres@nationwidechildrens.org

Background:
Current immunization recommendations for pediatric populations involve complex and dynamic schedules. To practitioners of all levels, the complexity of these schedules presents a barrier to appropriate use of vaccinations.

Purpose:
The objective of this study is to measure the impact of pharmacist integration in an urban, pediatric resident primary care clinic on vaccination error rates.

Methods:
This retrospective chart review study has been approved by the Institutional Review Board. The health systems electronic medical record will be used to identify charts for review at two similar clinics within the health system. A full-time pharmacist is integrated into the clinic in the intervention group. There is no pharmacist present at the comparison clinic. Both clinics are staffed by pediatric resident and attending physicians. Visits included in the review will be patient visits for individuals ≤18 years of age during the months of April, May, and June 2011. Patient visits will be excluded for individuals with documented vaccination refusal or no vaccination history. A vaccination error will be defined as follows: doses administered before minimum recommended age, doses administered within the minimum recommended spacing from a previous dose, doses administered unnecessarily, live vaccination administered too close to a previous live vaccine, and doses invalid for combinations of these reasons. Data will be recorded without identifiers and maintained confidentially. Chart reviews will be completed by a member of the research team using a chart review rubric designed to identify the above listed vaccination errors. The vaccination error rate will be compared between the two clinics to determine the impact of pharmacist integration into a pediatric primary care clinic on vaccination errors.

Results/Conclusion: The research is in the data collection phase. Final results with conclusion will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Review the importance of vaccination schedules

Discuss the implications of reduction in vaccination errors

Self Assessment Questions:

Which of the following scenarios could decrease vaccine effectiveness?

A A live vaccine given 6 weeks before the recommended age

B: Two live vaccines given simultaneously with two inactivated vaccin

C: Administering a live vaccine after the recommended minimum age

D: Two live vaccines given simultaneously

Which of the following are benefits to reducing vaccination errors?

A Reduction of child discomfort

B Increase in population immunization rates

C Decrease of unnecessary vaccination cost

D All of the above

Q1 Answer: A Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-690 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

USING TECHNOLOGY TO INCREASE ACCESSIBILITY OF MEDICATION COST INFORMATION

Ashley M. Hahn, PharmD*, Susan Moreland-Wilkins, RPh
NorthShore University HealthSystem,2650 Ridge Avenue,Evanston,IL,60201
ahahn@northshore.org

Purpose:
A major component of clinical practice that is deficient in the educational curriculum of many medical and pharmacy training programs as well as residency training is formal teaching of medication costs and where such information can be found. Various studies have been done to evaluate physician and medical residents awareness of drug costs and attitudes towards the importance of such information.1,2,3,4,5 There have been a variety of strategies evaluated to provide medication cost information to clinicians such as drug price guide booklets and implementation of drug cost information into the electronic health record.6,7,8,9,10,11
The objectives of this project are to develop and implement a means for clinicians to readily access medication cost and charge information.

Methods:
A literature search was performed to determine what other research has been done regarding making medication cost information available to clinicians. Next, a team of healthcare professionals with varying areas of expertise was assembled. Project goals were reviewed and established with stakeholders, along with a discussion of the means by which these could be accomplished. Upon identification of an approach to provide all of the desired components, implementation occurred. Thereafter, education will be provided for all healthcare professionals that will have access to such medication cost tools to increase their awareness and to train on the proper use of such tools. Finally, a survey will be created and distributed to evaluate the utility and practicality of the tools provided. Feedback will be used to determine what changes can be made to increase user satisfaction and usefulness.

Results/Conclusion:
Analysis of results is ongoing. Results and conclusions will be presented at the Great Lakes Residency Conference.

Learning Objectives:

Describe means to provide medication cost/charge information to clinicians.

Identify barriers in implementing medication cost/charge tools in the hospital setting.

Self Assessment Questions:

Which of the following is the method that medication cost/charge information was made available to clinicians at NorthShore University HealthSystem?

A Drug cost guide booklets
B: Conferences
C: Developed an app for clinicians to download
D: Provided pharmacists with view only access to the formulary

Which of the following is a possible barrier when implementing medication cost/charge tools in the hospital setting?

A Medication cost information is difficult to find
B Too many medication cost tools to choose from to implement
C Medication cost information is proprietary information
D Medication cost information can be shared, but not medication cha

Q1 Answer: D Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-691 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

UNFRACTIONATED HEPARIN MONITORING WITH ANTIFACTOR XA ASSAY VERSUS ACTIVATED PARTIAL THROMBLOSPLASTIN TIME FOR VENOUS THROMBOEMBOLISM TREATMENT

*Adam A Hampel, PharmD; Ronald J Frey, PharmD, CACP
St. Elizabeth Healthcare,85 North Grand Avenue,Fort Thomas,KY,41075
adam.hampel@stelizabeth.com

Purpose: Unfractionated heparin (UFH) monitoring is a routine and recommended component of heparin therapy since the anticoagulation response varies between patients. Two common anticoagulation tests used to monitor UFH are the activated partial thromboplastin time (aPTT) and the antifactor Xa heparin assay (anti-Xa). The objective of this study is to compare the use of the aPTT and the anti-Xa assay for efficacy and safety when monitoring and adjusting intravenous UFH therapy for venous thromboembolism in an inpatient hospital setting.

Methods: This study has been submitted to the Institutional Review Board and will begin after approval. St Elizabeth Healthcares Epic electronic medical record system will be used to identify patients who received UFH therapy during an inpatient admission for the treatment of a deep vein thrombosis (DVT) or pulmonary embolism (PE). Patients will be identified from three-month periods before and after the institution switched from using aPTT testing to anti-Xa testing. Patients younger than 18 years of age and patients receiving less than 24 hours of UFH treatment will be excluded from the study. The following data will be collected: patient age; sex; weight; PE or DVT diagnosis; time to therapeutic aPTT or anti-Xa result; number of adjustments to UFH needed to reach therapeutic result; number of tests required to reach therapeutic result; number of supratherapeutic and subtherapeutic results; total number of tests performed; concomitant use of other anticoagulant or antiplatelet medications; and major bleeding, recurrent thrombosis, or death during admission or a three-month interval following initial UFH treatment. All data will be recorded without patient identifiers and confidentially maintained. Descriptive statistics will be used to characterize the patient population and to compare results of aPTT and anti-Xa testing. Logistic regression analysis will be used to determine predictors of successful UFH monitoring and adjustment.

Results: Research in progress.

Learning Objectives:

Describe the differences between the aPTT and antifactor Xa laboratory tests.

Discuss the advantages and disadvantages of antifactor Xa versus aPTT monitoring of unfractionated heparin.

Self Assessment Questions:

Which labaratory test directly measures heparin activity?

A Activated Clotting Time
B: Antifactor Xa Assay
C: Activated Partial Thromboplastin Time
D: Prothrombin TIme

Which co-existing condition may reduce the reliablity of aPTT monitoring?

A Leukocytosis
B Iron-deficiency anemia
C Atrial Fibrillation
D Lupus Anticoagulant

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-397 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF AN INTERVENTION DESIGNED TO INCREASE SEASONAL INFLUENZA VACCINATION RATES IN INNER-CITY COMMUNITY PHARMACIES

Jeffrey G. Hamper*, Pharm.D., Amir Masood, Pharm.D., Susan R. Winkler, Pharm.D., BCPS, Megan Wagner, Pharm.D.

SUPERVALU, Inc.,7329 S. Cass Ave,Darien,IL,60561

jeffrey.hamper@supervalu.com

Purpose: Seasonal influenza infection causes significant morbidity and mortality in the United States. Over 200,000 hospitalizations per year in the US have been attributed to illnesses related to seasonal influenza infections, and there has been an increasing overall trend in the number of influenza-related hospitalizations. Seasonal influenza vaccination rates remain low, especially among certain minority groups, despite the recommendation that everyone over 6 months of age receives the vaccine annually. Employees of community pharmacies are in a position to address this disparity by communicating with patients, providing education, and providing easy access to immunizations. The primary objective of this study is to assess whether an educational intervention regarding the flu vaccine changes staff knowledge and perceptions about the seasonal influenza vaccine. The secondary objective is to assess whether the number of seasonal influenza vaccinations administered in selected inner-city community pharmacies changes after the educational intervention.

Methods: Eleven pharmacies in the city of Chicago, IL and one in the village of Oak Park, IL were selected based on location and patient population. A total of six sites were designated as control sites, and six designated as intervention sites. The total number of vaccinations provided per group in the previous season is similar. All sites received a pre-assessment survey and will receive a post-assessment survey to determine influenza vaccination knowledge, perceptions and vaccination rates among employees. Intervention sites also received an educational presentation discussing common misconceptions regarding safety, efficacy, and need for the vaccine. Stores were also also provided educational flyers to distribute to patients targeting misconceptions about the vaccine.

Results: Data collection currently in progress.

Conclusions: The results of this study are expected to provide insight on effective ways to increase influenza vaccination rates in inner-city community pharmacies. This information will be useful for pharmacists and other healthcare professionals to address racial and ethnic disparities.

Learning Objectives:

Discuss the impact of influenza infection on morbidity and mortality in the United States.

Identify strategies to increase influenza vaccination rates in inner-city community pharmacies.

Self Assessment Questions:

Which one of the following statements regarding influenza infection is correct?

A The US incurs about $200 billion per year in costs due to annual in
B: Illnesses related to influenza cause over 200,000 hospitalizations y
C: Combined with pneumonia, influenza is the leading cause of death
D: People at high risk for complications include children younger than

Which one of the following statements is true regarding the influenza vaccine?

A The CDC recommends the vaccine to all persons over the age of 6
B The influenza vaccine is available as a subcutaneous injection
C The inactivated vaccine produces 95% protection against currently
D Low grade fever is the most common side effect of the influenza va

Q1 Answer: B Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-692 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

COMPARISON OF CLINICAL AND ECONOMIC OUTCOMES OF TWO PHARMACY PRACTICE MODELS FOR INPATIENT VANCOMYCIN AND AMINOGLYCOSIDE MONITORING

Zhe Han*, PharmD; Natasha N. Pettit, PharmD, BCPS; Emily L. Mawdsley, MD; Benjamin D. Brielmaier, PharmD, BCPS

University of Chicago Medical Center,5841 S. Maryland Avenue,MC001(TE026,Chicago,IL,60637

Zhe.Han@uchospitals.edu

Purpose: With significant transformation of pharmacy practice over the past 2 decades, pharmacists role has evolved from product-focused to a patient-centered care model. Clinical pharmacokinetic (PK) services that manage vancomycin and aminoglycoside therapies have demonstrated cost savings and improved outcomes including reduced mortality, length of stay (LOS) and incidence of adverse events. In May 2010, the University of Chicago Medical Center (UCMC) implemented a 24-hour a day, 7 days a week (24/7) "optimal" pharmacy practice model for inpatient vancomycin and aminoglycoside management. This consisted of the creation of a pharmacist-managed PK consult service in addition to universal surveillance and monitoring under the "conventional" model that operated during typical business hours, 7 days a week. The objectives of this study are to summarize utilization of vancomycin, aminoglycosides and other broad spectrum antimicrobials, compare clinical and economic outcomes of patients managed by optimal and conventional practice models, and to identify areas for quality improvement of existing PK management at UCMC.

Methods: This is a single-centered, retrospective, observational, cohort study conducted in adult inpatients (age ≥ 18 years) receiving intravenous vancomycin and/or aminoglycosides from May 2009 to April 2010 (conventional practice model) and from November 2010 to October 2011 (optimal practice model). Surgical prophylaxis and one-time doses were excluded. Primary objectives are to compare clinical and economic outcomes between the two practice models. Clinical outcomes include all-cause mortality, LOS, and intensive care unit LOS (if applicable). Economic outcomes include laboratory and antimicrobial costs. Secondary objectives are proportion of serum concentrations drawn appropriately, days to therapeutic serum concentrations and proportion of patients with initial therapeutic serum concentrations. A target sample size of 100 patients will be collected and data will be analyzed using description statistics, students t-test and the Mann-Whitney U test.

Results: To be presented

Conclusion: To be presented

Learning Objectives:

Discuss the value of inpatient clinical pharmacokinetic services in improving patient outcomes

Identify appropriate metrics for measuring antimicrobial utilization

Self Assessment Questions:

Which of the following is/are true of clinical pharmacokinetic services?

A Reduced cost
B: Reduced mortality and length of stay
C: Reduced incidence of adverse events
D: All of the above

Which of the following is/are appropriate measures of antimicrobial utilization?

A Days of therapy (DOT)
B Defined daily dose (DDD)
C Average daily dose
D All of the above

Q1 Answer: D Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-693 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

OPTIMIZING COMPLIANCE WITH VENOUS THROMBOEMBOLISM QUALITY MEASURES THROUGH PHARMACIST INTERVENTION

Melissa Handcock*, PharmD; Bethanne Held, PharmD; Dave Herrmann, PharmD; Sara Hubbard, PharmD; Amanda Sweet, PharmD, BCPS; Garrett Newkirk, PharmD, MS, BCPS; Jordan Dow, MS, PharmD

Froedtert Hospital,9200 West Wisconsin Avenue,Milwaukee,WI,532063596

melissa.handcock@froedterthealth.org

Background:
Pharmacy practice is continually evolving to meet the needs for improved quality of care and reduction in healthcare costs. The Centers for Medicare & Medicaid Services has established value-based purchasing quality metrics to drive a high standard of care for patients. Among these measures are the surgical care improvement project (SCIP) measures for venous thromboembolism prophylaxis (SCIP-VTE-1 and SCIP-VTE-2). Future metrics will include venous thromboembolism (VTE) prevention for all hospital admissions. At Froedtert Hospital, a tertiary care, academic, medical center affiliated with the Medical College of Wisconsin, pharmacists are a fundamental component of the patient care team. In order to achieve compliance with SCIP-VTE-1 and SCIP-VTE-2, a multidisciplinary approach is in progress. Pharmacists are supporting this effort by assuming partnered ownership with physicians in this initiative.

Purpose:
The purpose of this project is to achieve 100% compliance with SCIP-VTE-1 and SCIP-VTE-2.

Methods:
The project team utilized technology to implement a standard workflow and developed VTE prevention education for pharmacists, physicians, and nurses to promote awareness and compliance with SCIP-VTE measures. Workflow changes required pharmacists review and documentation for appropriate VTE prophylaxis ordered and entered on all hospital admissions within 24 hours of inpatient stay. The primary outcome of the project is percent compliance with SCIP-VTE-1 and SCIP-VTE-2. Secondary outcome measures include post-operative VTE rate per thousand cases, percent of patients assessed for prophylaxis by a pharmacist, and percent of patients receiving anticoagulation.

Results:
Results and conclusions of this project will be presented at the Great Lakes Residency Conference.

Learning Objectives:

Define the value based purchasing quality measures for surgical care improvement project venous thromboembolism prophylaxis (SCIP-VTE-1 and SCIP-VTE-2).

Recognize three challenges for achieving 100% compliance for SCIP-VTE-1 and SCIP-VTE-2 quality measures.

Self Assessment Questions:

What quality measure refers to a patient receiving VTE prophylaxis within 24 hours prior to Anesthesia Start Time to 24 hours after Anesthesia End Time?

A Scip-vte-1
B: Vte-1
C: Scip-vte-2
D: Vte-2

Which of the following challenges did Froedtert Hospital encounter in an effort to improve compliance with SCIP-VTE-1 and SCIP-VTE-2?

A Develop a change to workflow with minimal impact on resources th
B Communicate complicated and specific requirements of quality me
C Design a means for tracking and evaluating progress with workflow
D All of the above.

Q1 Answer: C Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-398 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

PHARMACIST-DRIVEN HOSPITAL-TO-HOME TRANSITIONAL CARE VS. STANDARD OF CARE IN PATIENTS HOSPITALIZED FOR HEART FAILURE

Sarah Hanigan, PharmD; Rob DiDomenico, PharmD; Vicki Groo, PharmD

University of Illinois at Chicago,1133 North Dearborn,Apt 1102,Chicago,IL,60610

shanigan@uic.edu

Background: Heart failure is a prevalent disease associated with high rates of morbidity and mortality as well as cost. Heart failure accounts for the highest rates of 30-day rehospitalization, at an average of 24.5 percent nationwide. Initiatives have been taken on a national level to reduce all-cause readmission rates among patients discharged with heart failure through a combination of strategies. The goal of the present study is to determine if a pharmacist-based discharge follow-up program improves patient outcomes and medication adherence when compared to usual post-discharge care.
Methods: This is a prospective, unblinded study with a planned enrollment of 150 patients. Eligible patients include: (1)age greater than 18 years, (2)hospitalization for acute decompensated heart failure, and (3)under care of the inpatient cardiology service during admission. Patients will be excluded if: (1)discharged to a nursing home, long-term care facility, or prison where medications are administered by facility personnel, (2)receiving heart failure follow-up care with providers outside of UIMCC, or (3)inability to perform telephone follow-up. Patients will be assigned based on year of birth into one of two treatment groups: pharmacist-based post-discharge follow-up or usual post-discharge care. Patients in the intervention group will receive a follow-up phone call at 3-5 days post-discharge to assess their symptoms, medication and diet compliance, as well as knowledge of follow-up appointment. Interventions will be made for deficits found in any of these areas. All study participants will receive a phone call at 30-days post-discharge to assess clinical events such as rehospitalizations, ED visits, and length of hospital stay.
Results: Study enrollment is ongoing.
Conclusions: Results from this study will help determine if a pharmacist-based follow-up program is beneficial in addition to standard of care for reducing 30-day readmission rates in heart failure patients. Favorable results could also lead to larger scale implementation of this program.

Learning Objectives:

List goals and initiatives that are being implemented nationally and locally to improve care of heart failure patients

Identify the components of the pharmacist-driven discharge follow-up program

Self Assessment Questions:

What is the primary goal of the "Hospital to Home Initiative" developed by the American College of Cardiology (ACC) and the Institute for Healthcare Improvement (IHI)?

A Reduction of all-cause readmission rates among patients discharg
B: Improvement in patient satisfaction regarding hospital discharge pr
C: Reduction in medication errors made by physicians and patients du
D: Increased availability of transportation services from the hospital to

What was one of the principle components of the pharmacist-driven discharge follow-up program?

A Follow-up phone call 3-5 days post discharge regarding symptom a
B Provision of hard-copy prescriptions at discharge
C Discharge counseling by nurse only
D Follow-up phone call 3-5 days post discharge regarding patient sat

Q1 Answer: A Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-399 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF THE EMETOGENIC POTENTIAL OF TIGECYCLINE 50MG TWICE DAILY VERSUS 100MG ONCE DAILY

Nehal G Hashem, PharmD, Greg Mateyoke, PharmD, William R Judd, PharmD, BCPS, Meghna I Vallabh, PharmD, BCPS, Mark J Dougherty, MD

St. Joseph Hospital East,150 N Eagle Creek Drive,Lexington,SC,40509

hashemng@sjhlex.org

Objectives:
Tigecycline is the first-in-class glycylcycline antimicrobial agent used for the treatment of multidrug resistant organisms. Tigecycline is generally well-tolerated with nausea and vomiting being the predominant adverse effects, occurring in up to 26% and 18%, respectively. The severity of nausea and vomiting seen with tigecycline is dose related. Studies have shown that tigecycline can be administered once daily due to its prolonged half-life. The purpose of this study is to compare the incidence of nausea and vomiting between the administration of 100 mg once daily versus 50 mg twice daily of tigecycline and the utilization of anti-emetic agents.

Methods:
A retrospective, cohort, observational, multicenter study on all patients administered tigecycline from January 1st 2010 through June 30th, 2011 admitted to Saint Joseph Hospital, Saint Joseph East and Continuing Care Hospital will be included. Patients will be stratified into two groups based on the dosing schedule. Groups will then be evaluated for the incidence of nausea and vomiting. Data will be collected from electronic chart reviews at each site. The study will use categorical analyses including the chi-squared test ($\chi 2$) and Fishers exact test where appropriate. Continuous data will be tested for significant differences between groups by the Students t-test and ANOVA and the Wilcoxon rank sum test.

Results:
A total of 277 subjects were included during the study period. Of the 277 evaluated 79% (n=220) were in the 50mg twice daily group and 21% (n=57) were in the 100mg once daily group. In the twice-daily group, 22% (n=49) were administered prophylactic anti-emetics and 51% (n=110) required additional anti-emetic doses. In the once-daily group, 21% (n=12) were administered prophylactic anti-emetics and 38% (n=20) required additional anti-emetic doses [OR 0.54, 95% CI (0.28-1.03)].

Conclusion:
Tigecycline once daily was associated with decreased anti-emetic utilization and less incidence of nausea and vomiting as compared to twice daily regimen.

Learning Objectives:

Recognize the role of tigecycline in the armamentarium of current antimicrobials

Explain how the change in tigecycline dosing regimen affects the side effect profile making it more favorable

Self Assessment Questions:

What is the most common side effect of tigecycline?

A Nausea and vomiting
B: Phototoxicity
C: Nephrotoxicity
D: Teeth-discoloration

Which of the following is an approved-FDA indications for tigecycline?

A Complicated urinary tract infections
B Complicated intra-abdominal infections
C Nosocomial pneumonia
D Prevention of Clostridium difficile infection

Q1 Answer: A Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-400 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

ADDITION OF A PHARMACIST TO THE CARDIOPULMONARY RESUSCITATION TEAM

Zahra Hashemipour, Pharm. D.*; Stephanie Edwin, Pharm. D., BCPS; George Delgado Jr, Pharm.D.; Greg Umstead, Pharm D.; Michelle Dehoorne-Smith, Pharm.D

St. John Hospital and Medical Center,22101 Moross Road,Detroit,MI,48236

zahra.hashemipour@stjohn.org

Purpose: Pharmacist participation in code blue management has been shown to improve compliance with the American Heart Associations guidelines on advanced cardiac life support (ACLS). The goal of this study is to develop a process for pharmacist integration into the management of medical emergencies at St. John Hospital and Medical Center (SJHMC). Compliance to ACLS guidelines and mortality will be compared between codes with and without pharmacist presence.

Methods: Current pharmacists at SJHMC will be surveyed prior to commencement to determine their perceptions and preferences about this new clinical service. To evaluate how clinical services surrounding medical emergencies are managed elsewhere, a survey will be distributed to hospitals in the metro-Detroit area. Information gathered will include training modalities used, roles of pharmacists, and basic set-up of this service. To determine the impact of adding a pharmacist to code blue teams, a retrospective cohort study was designed to evaluate mortality and compliance to ACLS guidelines prior to and following addition of a pharmacist to code blue teams. The events will be evaluated for initial EKG rhythm, outcome of event, compliance to ACLS guidelines, timing and location, and quality issues encountered. Electronic medical records will also be reviewed to obtain all necessary information.

Results/Conclusion: Data collection and evaluation is ongoing and will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Identify barriers to pharmacists actively participating on code blue response teams.

List the potential benefits of incorporating pharmacists into code blue response teams.

Self Assessment Questions:

Which of the following is a perceived major potential barrier to pharmacist participation as part of a code blue response team?

A Lack of training in rapid sequence intubation
B: Lack of familiarity with medications
C: Inadequate staffing time
D: Lack of notification about code blue situations

Which of the following is a potential benefit of incorporating pharmacists into code blue response teams?

A Increased survival rates
B Faster return of spontaneous circulation
C Lower medication costs
D More accurate EKG determination

Q1 Answer: C Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-401 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

ASSESSMENT OF PHARMACY STUDENTS AND COMMUNITY PHARMACISTS CONFIDENCE RELATING TO DIABETES CARE

*Brian J. Heckman, PharmD, Marjorie L. Laciak, PharmD, Sarah M. Kennedy, PharmD, Margie E. Snyder, PharmD, MPH

Fagen Pharmacy - Purdue University,3125 N Calumet,Valparaiso,IN,46383

brian.heckman@fagenpharmacy.com

Purpose: To identify perceived knowledge gaps relating to the care of patients with diabetes present among pharmacy students and community pharmacists

Methods: Pharmacy students in the third and fourth professional years from two colleges of pharmacy, and a sample of licensed Indiana pharmacists practicing in a community pharmacy setting will be asked to participate in an online questionnaire. The questionnaire, developed and pilot tested by the authors, will consist of approximately 25 items asking respondents to rate their diabetes knowledge confidence on a 5-point Likert-type scale. The questionnaire will assess several domains of diabetes care. Outcomes measured include overall perceived diabetes knowledge scores, and perceived knowledge scores for each domain. Scores will be compared across the following study groups using appropriate statistics; 1) third year pharmacy students, 2) fourth year pharmacy students, 3) community pharmacists who have been in practice less than five years, and 4) community pharmacists who have been in practice for greater than five years.

Results: Approval from the Institutional Review Board was obtained in January of 2012 in the exempt status for human subjects research category. Data collection will begin in February of 2012 and results will be presented at the Great Lakes Pharmacy Residency Conference in April 2012.

Conclusions: It is anticipated that the results of this study will be used to identify opportunities for future educational efforts in order to better equip current and future pharmacists to care for patients with diabetes.

Learning Objectives:

List the four sample groups analyzed in this study

Identify the disease state the assessment tool in this study focused on

Self Assessment Questions:

Which of the following sample groups was assessed in this study?

A Inpatient pharmacists
B: Nuclear pharmacists
C: Community pharmacists
D: International pharmacists

What disease state was the assessment tool in this study focused on?

A Diabetes
B Hypertension
C Hyperlipidemia
D Asthma

Q1 Answer: C Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-402 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EFFECT OF AGE ON TOBRAMYCIN HIGH-DOSE EXTENDED INTERVAL DOSING PHARMACOKINETICS IN CYSTIC FIBROSIS PATIENTS

Carolyn A. Hempel, PharmD*; Robert J. Kuhn, PharmD; Brian M. Gardner, PharmD; Michael I. Anstead, MD; George A. Davis, PharmD, BCPS

University of Kentucky HealthCare,UK HealthCare,800 Rose St., H110,Lexington,KY,40502

che226@uky.edu

Purpose:
The 2009 Cystic Fibrosis Foundation (CFF) guidelines recommend in patients with CF and normal renal function a tobramycin dose of 10mg/kg/day for both adult and pediatric patients >5 years old. There are limited data regarding once daily dosing pharmacokinetics comparing these patients in the CF population. Previous pharmacokinetic literature has established clear differences in aminoglycoside pharmacokinetics between adult (>18 years) and pediatric patients, such as increased volume of distribution and clearance in the pediatric population. With advances in management of CF patients, the population is getting older and guidelines do not differentiate if we should treat adult patients differently. The purpose of this study is to evaluate the effect of age on tobramycin pharmacokinetics following high-dose extended interval (HDEI) dosing in patients with cystic fibrosis.

Methods:
This is a retrospective chart review looking at all CF patients greater than 5 years old who were admitted to UK Chandler Medical center between August 2007 and September 2011, and who received HDEI tobramycin. Patients were included if they received tobramycin and had two serum concentrations. Patients who were post-lung transplant were excluded. Pharmacokinetic parameters including CL, AUC, t1/2, ke, and Vd will be compared between three populations: < 18 years, 18-30 years, and > 30 years using one-way ANOVA to compare data with normal distribution, and using the Kruskal Wallis test to compare data without normal distribution. Post hoc tests will be used to evaluate pair wise relationships among the groups if there is a significant overall difference. The primary objective is to determine any difference in pharmacokinetic parameters between the three different age groups. Secondary outcomes are investigating whether baseline SCr, other nephrotoxic agents, past aminoglycoside exposure, or history of diabetes are contributing.

Results/Conclusions: Data collection is in progress and results will be presented.

Learning Objectives:

Describe current recommendations for aminoglycosides in CF patients and identify limitations in these recommendations

List the current pharmacokinetic differences between each age group in cystic fibrosis patients and understand what could possibly be contributing to these differences

Self Assessment Questions:

Which of the following is currently recommended in the CFF guidelines for aminoglycoside dosing in CF patients >5 years of age and normal renal function?

A A total tobramycin dose of 8mg/kg/day divided every 8 hours
B: A total tobramycin dose of 8mg/kg/day once daily every 24 hours
C: A target peak concentration of 8-10mg/dl and trough of <2mg/dl
D: A target peak concentration of 25-35mg/dl and an undetectable co

All of the following are benefits for aminoglycoside high-dose extended interval in CF patients except:

A Increased quality of life due to ease of once daily administration
B Aminoglycoside post antibiotic effect may decrease antimicrobial re
C The possibility of decreased nephrotoxicity due to undetectable co
D Maximize concentration dependent killing while minimizing toxicity

Q1 Answer: D Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-403 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATING THE IMPACT OF HEALTH LITERACY ON MEDICATION ADHERENCE AND OUTCOMES IN PATIENTS WITH HEART FAILURE

Kristin E Henry*, PharmD; Sara Griesbach, PharmD, BCPS, AE-C; Joseph Wagner, RN, MSN, MBA; Susan Kline, RN, DNP; Po-Huang Chyou, PhD

Marshfield Clinic,1000 North Oak Avenue,Marshfield,WI,54449

henry.kristin@marshfieldclinic.org

Background:
Health literacy is the degree to which individuals have the capacity to obtain, process, and understand basic health information needed to make appropriate health decisions. Health literacy is not regularly assessed by health care practitioners even though low health literacy has the potential to affect medication adherence and has been associated with higher all-cause mortality in heart failure patients. It is important to have accessible health literacy assessment tools for clinicians to utilize in their daily practice.

Purpose:
The goals of this study are to validate three clinical questions for health literacy in heart failure patients and to evaluate the relationship between health literacy, medication adherence, history of hospitalization, and patients knowledge of clinical goals. Additionally this study will assess how well nurses and pharmacists are able to gauge health literacy through their interactions with patients.

Methods:
This Institutional Review Board-approved observational study will include up to 50 patients from the Marshfield Center Heart Failure Clinic. Exclusion criteria include patients who live at assisted living facilities, have a diagnosis of dementia, are non-English speaking and are legally blind. Health literacy will be evaluated using three clinical questions and two validated tools: 1) the Rapid Estimate of Adult Literacy in Medicine - Revised and 2) Short Test of Functional Health Literacy in Adults. Medication adherence will be evaluated subjectively using the Moriskys Medication Adherence Scale and objectively using refill records for ACE inhibitors and/or beta blockers. The patients knowledge of heart failure goals (e.g., daily sodium intake, weight monitoring parameters) as well as the nurse and pharmacist perception of the patients health literacy level will also be assessed. Spearman correlation coefficients and corresponding p-values will be used to determine the relationship between health literacy and each of the outcome variables.

Results:
Results and conclusions to be presented at the Great Lakes Residency Conference.

Learning Objectives:

Recognize the prevalence of low health literacy in individuals with heart failure.

Discuss how health literacy and medication adherence can affect outcomes in patients with heart failure.

Self Assessment Questions:

Approximately what percentage of individuals with heart failure have low health literacy?

A 5%
B: 20%
C: 50%
D: 90%

Which of the following provides a validated indicator or measure of health literacy?

A Socioeconomic status
B Self-rated reading ability
C Stofhla
D Phq-9

Q1 Answer: B Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-694 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

USE OF AN ELECTRONIC MEDICAL RECORD BY PHARMACY STUDENTS IN A STANDARDIZED PATIENT INTERVIEW

Kathryn S Hentzen*, PharmD and Karen J Kopacek, RPh

William S. Middleton VA Hospital,2500 Overlook Terr,Madison,WI,53705

kathryn.hentzen2@va.gov

Purpose:
The purpose of this educational study is to describe pharmacy students communication skills while using electronic medical records (EMR) to document medication histories during standardized patient interviews.

Methods:
Second year students at the University of Wisconsin-Madison School of Pharmacy during 2011-2012 were invited to participate in the study. Participants were identified by enrollment in a Pharmacotherapy I course during the Fall 2011 semester and were initially recruited via email. A baseline survey was administered to define participants prior pharmacy work history, previous experience using EMR in practice settings, prior participation in taking medication histories, perceived comfort level using EMR during patient interviews, and perceptions on the use of EMR in pharmacy practice. Each student prepared for the first patient interview by watching a training video demonstrating the correct use of EMR and completing an evaluation of the taped patient encounter using a standard assessment form. Students then completed the first simulated patient interview using EMR to record medication history information during a laboratory session. During the simulation, each students communication skills were evaluated by a student peer using the same assessment form. Participants completed an electronic post-survey describing his/her comfort level with using EMR during the first simulated interview. For the second simulated patient interview to be held in Spring 2012, hired actors will play the role of the standardized patient and will assess each students communication skills using EMR. Students will complete a final electronic post-survey describing his/her comfort level with using EMR during the second simulated patient interview and overall perceptions of using EMR in the Pharmacotherapy Lab. Statistics will be calculated using non-parametric tests to compare survey results and assessment form results. We hypothesize that students confidence and communication skills will increase with training.

Results/Conclusions:
Results and conclusions pending and will be presented at Great Lakes Pharmacy Residency Conference.

Learning Objectives:

List the EMR specific communication skills

Describe the comfort level of student pharmacists using EMR during simulated patient interview

Self Assessment Questions:

Which of the following are considered EMR specific communication skills?

A Alerted patient verbally when turning attention from patient to comp
B: Introduced self to patient after turning to computer and worked with
C: Moved close enough for patient to read the screen and constructed
D: Visually shared EMR information on the screen to include patient r

At baseline, which of the following statements correctly identifies student pharmacists comfort level with using EMR during simulated patient interviews?

A Greater than 33% of students were at least moderately confident th
B Greater than 50% of students were at least moderately confident th
C Greater than 67% of students were at least moderately confident th
D Greater than 85% of students were at least moderately confident th

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-695 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

RETROSPECTIVE EVALUATION OF AN ELECTROLYTE REPLACEMENT GUIDELINE IN THE INTENSIVE CARE UNITS

Jeremy, S. Hilty*, PharmD,PhD; Victoria A. Tate, PharmD, BCPS

Cincinnati Veteran Affairs Medical Center,3200 Vine Street,(Pharmacy: 119),Cincinnati,OH,45220

jeremy.hilty@va.gov

Background:
Electrolyte disturbances are a frequently encountered lab abnormality in critically ill patients that can result in serious complications, prolonged hospitalizations, and increased mortality. Implementation of protocols and order sets in intensive care units (ICUs) provides standardization of care, reduces workload, and improves outcomes. Limited data exists regarding efficacy of electrolyte guidelines in ICUs.

Purpose:
To evaluate the efficacy and safety of recently implemented electrolyte replacement guidelines in the ICU.

Methods:
This retrospective cohort study evaluated patients admitted to the ICUs that had electrolyte levels indicated for replacement. Pre-guideline patients were selected for ICU stays from November 1, 2010 thru December 31, 2010 and post-guideline patients for ICU stays from November 1, 2011 thru December 31, 2011. Low electrolytes indicated for replacement were defined as serum potassium (<3.9 mmol/L), phosphate (<3 mg/dL), calcium (<8.6 mg/dL), or magnesium (<2 mg/dL). Patients were excluded for age<18 years old, CrCl<30 ml/min, renal replacement therapy, pregnancy, extended ICU stay (>14 days), receiving total parenteral nutrition (TPN), patients without an electrolyte panel within 24 hours of a replacement dose, receiving IV loop diuretic bolus or drips, and short bowel syndrome. The primary objective of this study was to assess the efficacy of the electrolyte guideline, defined as percent of electrolytes within goal range 2 to 24 hours post replacement. The secondary objectives of this study were to determine the safety of the guideline (replaced electrolyte > high end of normal), number of doses per patient, and percentage of indicated replacement doses given. P-value <0.05 was considered significant.

Results:
Results and conclusions to be presented at the Great Lakes Residency Conference.

Learning Objectives:

Review the literature regarding electrolyte abnormalities in critically ill patients.

Discuss potential benefits and disadvantages of electrolyte replacement guidelines in the ICU.

Self Assessment Questions:

Which of the following is a clinical symptom of hypokalemia?

A Headache
B: Dizziness
C: Muscle spasms
D: Hypotension

Hypomagnesemia is present in upto this percent of ICU patients?

A 25%
B 35%
C 45%
D 65%

Q1 Answer: C Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-404 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

INCIDENCE OF NEPHROTOXICITY IN PATIENTS WITH AMYLOIDOSIS FOLLOWING AUTOLOGOUS STEM CELL TRANSPLANTATION

Megan Hinkley, PharmD, PGY-2 Hematology/Oncology Pharmacy Resident*; Rafat Abanour, MD, Professor, Department of Medicine, Indiana University School of Medicine; Patrick Kiel, PharmD, BCPS, BCOP, Clinical Pharmacy Specialist, Hematology and Stem Cell Transplant

Indiana University Health,550 N. University Blvd.,AOC 6201,Indianapolis,IN,46202

mhinkley@iuhealth.org

Purpose
Amyloidosis (AL) is a type of plasma cell proliferative disorder that accounts for approximately 10% of all patients with multiple myeloma (MM). AL may produce complications including effects on the heart, liver, and kidneys. Treatment options include multiple agent chemotherapy and high-dose chemotherapy followed by autologous cell rescue. The hypothesis of this review is that patients with amyloidosis will have a higher incidence of nephrotoxicity at engraftment.

Methods
A retrospective review will be conducted of patients with AL and MM (1 AL : 2 MM matched cohort). The primary endpoint evaluated is the incidence of acute renal failure at time of engraftment. Acute renal failure is defined as serum creatinine change by 0.5 within 48 hours of engraftment, in patients with previously documented chronic renal failure having a serum creatinine change by 1 if baseline is greater than 2, or a urine output of 500 or less. Engraftment is defined as ANC > 500 for 3 days. Secondary endpoints evaluated will include use of steroids during engraftment, incidence of capillary leak syndrome, incidence of hemodialysis use after transplant, and disease status and length of survival after transplant.

Included in this retrospective review are patients with multiple myeloma and amyloidosis presenting for first autologous stem cell transplant. Exclusion criteria include previous stem cell transplant, renal dysfunction during transplant within the first 7 days of stem cell reinfusion, and baseline creatinine clearance < 30 ml/min. Data collected for patients meeting inclusion criteria will include: age, gender, prior chemotherapy history, comorbidities, baseline renal function (measured as 24 hour urine collection and serum creatinine prior to admission), urine protein, melphalan dose prior to transplant, other organs involved, and cause of death.

Results and Conclusions
To be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Discuss current treatment options for patients with amyloidosis.

Recognize potential complications of high-dose chemotherapy in patients with amyloidosis.

Self Assessment Questions:

Which of the following is a treatment option for a patient with amyloidosis?

A High-dose chemotherapy followed by allogeneic stem cell rescue
B: High-dose chemotherapy followed by autologous stem cell rescue
C: Single agent chemotherapy
D: No current treatment options are available

Which of the following is a potential complication of amyloidosis?

A Liver failure
B GI complications
C Vision complications
D Respiratory failure

Q1 Answer: B Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-696 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

BACTERIOLOGY OF COPD EXACERBATIONS IN PATIENTS ADMITTED TO THE MEDICAL ICU AT UNIVERSITY OF MICHIGAN HOSPITAL: AN EVALUATION OF CURRENT EMPIRIC ANTIBIOTIC THERAPY

Cuong Hoang*

University of Michigan Health System,1500 E. Medical Center Dr.,Ann Arbor,MI,48109

hoangc@med.umich.edu

Purpose: Currently, patients admitted to the medical ICU at University of Michigan Hospital with COPD exacerbations receive triple antibiotic therapy consisting of piperacillin/tazobactam, azithromycin or levofloxacin, and vancomycin. Patients are started on vancomycin despite the fact that previous studies have indicated that the incidence o resistant gram positive organisms in patients with COPD exacerbations is low. The objective of this study is to examine the bacteriology of patients with COPD exacerbations in order to determine the need to use vancomycin empirically.

Methods: This retrospective cohort study will be submitted to the Institutional Review Board for approval prior to commencement. All patients presenting to UMHS medical ICU with COPD exacerbations between January 1, 2005 and December 31, 2010 will be identified via APACHE III database search. The electronic medical record and electronic medication administration record will be used to collect the following data: age, sex, APACHE III score, organ failure, comorbidities, previous and current antibiotic treatment, recent hospital stay, smoking status, recent steroid use, ICU and hospital length of stay, mechanical ventilation, FEV, FVC, culture results and susceptibilities, temperature, WBC, and initial chest X-ray (presence of pneumonia). The incidence of multi-drug resistant Streptococcus pneumoniae and methicillin resistant Staphylococcus aureus/epidermidis (MRSA/MRSE) will be calculated. Patient factors associated with multi-drug resistant gram positive organisms will also be evaluated.

Results: In progress

Conclusion: In progress

Learning Objectives:

Describe the rationale for antibiotic use in COPD exacerbations.

Identify bacteria commonly isolated from patients with COPD exacerbations.

Self Assessment Questions:

Which of the following statements is true regarding antibiotic use in COPD exacerbations?

A Antibiotics should be started in all patients with COPD exacerbatio

B: Antibiotics are used because COPD exacerbations are caused by

C: Antibiotic use is associated with reduced treatment failure in patier

D: Antibiotic regimens should routinely consist of two antipseudomona

Commonly isolated bacteria from patients with COPD exacerbations are:

A S. pneumoniae, H. influenzae, P. aeruginosa

B S. aureus, P. aeruginosa, B. fragilis

C S. pneumoniae, S. aureus, S. epidermidis

D H. influenza, K. pneumoniae, A. baumannii

Q1 Answer: C Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-405 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

PERCEIVED BENEFIT OF OVERALL HEALTH AND WELLNESS THROUGH THE DISSEMINATION OF NUTRITIONAL INFORMATION FOR UNIVERSITY-PROVIDED DINING SERVICES

Ericka R. Hoffine*, Michael J. Rush, Karen L. Kier

Ohio Northern University/ONU HealthWise,525 S. Main St.,Ada,OH,45810

e-hoffine@onu.edu

Abstract/Overview: The U.S. is currently experiencing an "obesity epidemic" with approximately 33% of Americans considered to be obese1 (BMI >30) today, and a predicted increase to 50% by 2030.2 The consequences of this epidemic are vast varying from the economic burden on the national healthcare system, to dangers to the individual regarding sickness and likelihood of developing morbidities.3 The Surgeon General recommends the CARE (Communication Action Research & Evaluation)approach to taking action in fighting this epidemic. The communication element, may be the simplest and least invasive way to improve current habits and nutrition in individuals. Improving health communication and health literacy among Americans may have positive effects on their decision-making and consequently their overall health. The purpose of this study is to determine the level and perceived value of health literacy among college students. Methodology: All participants were given a questionnaire that included a sample nutrition label and questions pertaining to it, to assess the participants baseline comprehension. Additionally, the questionnaire addressed participants attitudes and opinions regarding the usefulness of nutritional information and perceived benefit of its availability for university-provided dining services. A survey was given to all first year pharmacy and a separate survey to all fifth year pharmacy students. The surveys were similar, however, tailored to meet the needs of the given population. The surveys addressed attitudes, and behaviors regarding: appetite, eating habits, activity level, sleep patterns, and stress level. The surveys also inquired about the participants perception of his/her own weight and diet, relative to the general population.
To further explore the knowledge, attitudes, and ideas, a focus group of 10-12 first year students and 10-12 fifth year students was assembled. Using the Delphi method, topics discussed during the focus group session were based on results of the initial questionnaire and survey.

Learning Objectives:

Define health literacy and health communication

Identify differences between first- and fifth-year students regarding the importance of the availability of nutrition information

Self Assessment Questions:

Health literacy can be defined as:

A the ability to read the nutrition facts on a food label

B: the ability to read, understand, and act on basic health information

C: a measure of an individual's health status based on education leve

D: a tool to determine risk of illness

Regarding availability of nutrition information for university-provided dining services

A First-year students felt it was more important that nutrition informat

B Fifth-year students felt it was more important that nutrition informat

C Both first- and fifth-year students felt equally regarding the importa

D The data was inconclusive regarding differences between the grou

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-697 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

ASSESSMENT OF THE EFFECTS OF ADHERENCE INTERVENTIONS ON LABORATORY TEST ACQUISITION RATE

Alexander Hoffman, Pharm.D.*; Shannon Just, Pharm.D.; Paul Bandfield, Pharm.D., Amy Kramer, Pharm.D.

Kaiser Permanente Health Plan of Ohio,12301 Snow Road,Clinical Pharmacy Dept,Parma,OH,44130

alexander.r.hoffman@kp.org

Background: Research investigating the use of adherence interventions like phone calls and letters has been shown to increase patient attendance rate at scheduled appointment times but little research has been done to determine if these same interventions can increase attendance rate at unscheduled but required yearly laboratory testing. In an effort to increase adherence to laboratory draw attendance, the Kaiser Permanente Medication Management Clinic (MMC) instituted a range of adherence interventions: automated phone calls with a reminder message from the patients primary care physician, automated phone calls with a reminder message from the pharmacists at the MMC, letters, and digital messages through the KP.org secure online interface.

Objective: To evaluate the Kaiser Permanente Medication Management Clinics intervention strategy and determine which applied interventions increased adherence most.

Methodology: A non-interventional, retrospective chart review of interventions performed on patients who annually require lab testing for their ACE-Inhibitors (ACE-I), angiotensin receptor blockers (ARBs), or diuretic medications. Primary endpoint is rate of their acquisiton within one month of intervention. Secondary endpoint is cost per intervention. All patients at Kaiser Permanente on an ACE-I, ARB, or diuretic medication who have not had an annual serum creatnine and potassium in 2011 are included in this study. Data describing patient demographics type of intervention, and labwork draw date will be collected. An alpha o less than 0.05 will be considered statistically significant. The chi-squared test will be used to analyze categorical data.

Results and Conclusions: To be presented at Great Lakes Residency Conference 2012.

Learning Objectives:

Explain the basic design of this study and how the results may affect the practices of Kaiser Permanente Ohio.

List the four patient interventions analyzed in this study.

Self Assessment Questions:

Which of the following statements are true?

A All patients who required any laboratory monitoring in 2011 were ir
B: The patient interventions in this study were performed to maintain s
C: The results of this study will be used to promote the use of digital n
D: Laboratory testing in this study monitored ACE-Inhibitors, ARBs, di

Which of the following patient interventions were included in the analysis for this study?

A Text messaging services
B Personal phone calls from the patient's physician
C Digital messages through KP.org
D Emails from the patient's physician

Q1 Answer: B Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-406 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF DEEP SEDATION FOR PEDIATRIC PROCEDURES

*Holly L. Hoffmaster, PharmD, Cynthia M. Dusik, PharmD

Toledo Hospital/Toledo Children's Hospital,21799 King's Pointe Blvd #201,Trenton,MI,48183

holly.holman@promedica.org

Background

Infants and young children often require deep sedation to stay still to successfully complete procedures such as magnetic resonance imaging (MRI) or computerized tomography (CT) scans. The greatest challenge in pediatric sedation is optimizing the efficacy of the sedating agent while minimizing adverse events such as respiratory or cardiac depression. Dexmedetomidine, ketamine, and propofol are agents commonly used in the sedation of pediatric patients for procedures.

Purpose

The purpose of this study is to evaluate outcomes associated with deep sedation for procedures in pediatric patients.

Methods

This study is a retrospective chart review that has been submitted and approved through the hospitals institutional review board. Patients aged 6 months through 17 years of age who received deep sedation to complete a procedure such as MRI or CT at ProMedica Toledo Childrens Hospital in Toledo, Ohio between March 1, 2011 and January 1, 2012 were included in this study. Patients were excluded if they were in critical condition prior to the procedure or if they had a known American Society of Anesthesiologists (ASA) score of greater than 3. Data was collected retrospectively from each patients medical records and included demographics, procedural information, information about the sedative regimen, and adverse events. Outcomes included efficacy, measured by achievement of adequate sedation, and safety, measured by the incidence and severity of adverse events.

Results/Conclusions

A total of 336 patients had completed the deep sedation protocol during this time period and were eligible for inclusion in the study. Of these, one patient was excluded due to incomplete information in the medical record. The most commonly selected agent was propofol. Final results and conclusion will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Describe pharmacological properties of the agents used in the sedation of pediatric patients who undergo procedures.

Identify common adverse events associated with the pharmacological agents used in the sedation of pediatric patients who undergo procedures.

Self Assessment Questions:

Which of the following has an FDA-indication for use in children?

A Ketamine
B: Propofol
C: Dexmedetomidine
D: A and C

The most common side effects of the sedative agent propofol include:

A Hypotension and bradycardia
B Photosensitivity and rash
C Arrhythmias and chest tightness
D Injection site reactions and phlebitis

Q1 Answer: B Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-698 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EXAMINING NEW PHARMACY DRIVEN VANCOMYCIN DOSING STRATEGIES IN A COMMUNITY HOSPITAL

Brian S. Hoffmaster*, PharmD, Sharelle Brown, PharmD, Dena L. Stout, PharmD

William Beaumont Hospital,44201 Dequindre Road,Troy,MI,48083

brian.hoffmaster@beaumont.edu

Purpose: To compare recent vancomycin utilization in a post-intervention, retrospective analysis to utilization prior to quality improvement implementation within pharmacy dosing services at our facility.

Methods: The proposed evaluation was approved by our facilitys Institutional Review Board prior to research. Quality improvement initiatives originated from identification of potential inappropriate vancomycin utilization with respect to current vancomycin consensus statements (Rybak MJ, et al. Am J Health-Syst Pharm. 2009 Jan 1;66:82-98). They included revising institutional medication guidelines, policies, nomograms, and integrating revisions into clinical informatics. Data from admitted patients receiving vancomycin intravenously after quality improvement implementation were collected from electronic medical records. Patients excluded from our research: were pregnant, had no available vancomycin trough level, received a vancomycin loading dose of 25-30 mg/kg, received less than four doses of vancomycin, were prescribed vancomycin for any off-label indication, or had received vancomycin IV within 24 hours prior to our facilitys initial dose. Data collected from patients records included: age; gender; height weight; BUN; serum creatinine; vancomycin doses, administration times, and trough levels and collection timing; suspected infectious source, pathogen, or suspected diagnosis; culture results, sources, and sensitivities; pharmacy dosing service consult and discharge timing; and other clinical notes applicable to vancomycin therapy. Vancomycin therapy courses were evaluated for adherence to consensus recommendations and clinical appropriateness by a team of three pharmacists. The primary outcome is the composite proportion of secondary outcomes including: proportion of pharmacy dosing consults that received an appropriate initial dose, maintenance regimen, and targeted trough levels and collection times, and number of trough collections. Data collected after quality improvement implementation will be compared to similar outcome points of research prior to quality improvement implementation.

Results/Conclusion: Complete data analysis utilizing descriptive and comparative statistics is currently ongoing. Results and conclusions will be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Recognize the appropriateness of intravenous vancomycin therapy initial doses based on patient weight.

Outline the appropriate recommendations for serum vancomycin level targeting and monitoring.

Self Assessment Questions:

Which of the following is the recommended weight used to calculate vancomycin dosing?

A Ideal Body Weight
B: Lean Body Weight
C: Adjusted Body Weight
D: Actual Body Weight

In average patients, serum vancomycin levels are approximately at steady state before which dose?

A 2nd
B 4th
C 6th
D 8th

Q1 Answer: D Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-407 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF THE IMPLEMENTATION OF A STRESS ULCER PROPHYLAXIS (SUP) GUIDELINE IN A NEUROSCIENCE INTENSIVE CARE UNIT (NICU)

Jennifer M. Hogg PharmD*, Kiranpal Sangha PharmD., Shaun P. Keegan PharmD

UC Health-University Hospital,234 Goodman St.,Cincinnati,OH,452192316

Jennifer.Hogg@UCHealth.com

Statement of purpose:
Critically ill patients are at an increased risk for stress ulcers. After major physiological stress such as brain injury, endoscopic evidence of mucosal lesions can appear within 24 hours. GI stress ulceration is multi factorial and represents an imbalance between protective and destructive factors acting on the gastric mucosa. Acid suppressing medications can decrease the incidence of stress ulcers. However, current literature associates medications used for stress ulcer prophylaxis (SUP) such as H2 blockers and proton pump inhibitors with an increased risk of hospital-acquired pneumonia and Clostridium difficile infection. The purpose of our study is to determine the incidence of SUP before and after the initiation of a SUP guideline in the Neuroscience Intensive Care Unit (NSICU); determine the incidence of GI bleed, hospital-acquired pneumonia and Clostridium difficile colitis before and after SUP guideline implementation; evaluate the number of patients who were inappropriately treated with SUP before and evaluate the cost of SUP before and after guideline implementation.

Statement of methods:
This is a single center retrospective study at UC Health - University hospital. Patients will be evaluated for inclusion if they were admitted to the NSICU for greater than 72 hours from January 2009 through May 2009. In addition, the first 200 patients admitted after the implementation of the SUP guideline from January 2010 through May 2010 will be evaluated. This allows for a 6-month implementation period of the SUP guideline. Demographic information (age, sex, race, past medical history, APACHE II score) will be collected. As well SUP medication dose, duration, indication for use, number of ICU and total hospital days.

Statement of results:
Results are in progress and will be presented at the Great Lakes Residency Conference.

Learning Objectives:

Define Stress Related Mucosal Disease (SRMD) and Stress Related Injury (SRI).

Outline and identify the pathophysiology/pathogenesis of the disease state.

Self Assessment Questions:

Which of the following is incorrectly defined:

A Stress Related Injury (SRI): involves superficial mucosal damage p
B: Stress Related Mucosal Disease (SRMD): Includes SRI and Stress
C: Stress Ulcers: involve focal deep mucosal damage and carry a hig
D: Stress Related Injury (SRI) and Stress Ulcers: Found in physiologi

2.What % of patients are at risk for experiencing clinically significant bleeding with in the first 24 to 48 hours of ICU admission?

A 74-100% of ICU pts
B 5% of ICU pts
C 0.1% to 4% of ICU pts
D 6% to 25% of ICU pts

Q1 Answer: B Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-408 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

NATIONAL SURVEY OF PHARMACY RESIDENCY ON-CALL PROGRAMS

Martina C. Holder, PharmD*, Kelly Smith, PharmD, Tracy E. Macaulay, PharmD, BCPS (AQ CV), Ann Wiesner, PharmD, BCPS, Aaron Cook, PharmD, BCPS

University of Kentucky HealthCare,800 Rose Stret, RM H110,Lexington,KY,40536

mho235@uky.edu

Purpose: In recent years there has been an increased interest in pharmacy residency programs, and as application numbers rise, programs continue to grow. The American Society of Health-System Pharmacists (ASHP) has established accreditation standards for programs to meet and maintain. Yet, many programs have sought ways to individualize and advance their program to meet the specific needs of the institution and to individualize what their program can offer a resident. One area of differentiation is an on-call component. Programs classify "on-call" to mean a variety of different responsibilities that offer the resident a varying range of opportunities. There is little information on the intricate details of individual program requirements and unique qualities. To date, no published data has described the number of pharmacy residency programs nationwide that include an on-call component. Furthermore, with the recent change in Accreditation Council for Graduate Medical Education (ACGME) duty hour requirement, some programs have made changes, while others await an ASHP-specific duty hours statement. The purpose of this study is to evaluate the number of programs with on-call components and to characterize typical practices and responsibilities of on-call pharmacy residents nationwide, while assessing the implications of ACGME duty hour revisions and the prospective for a pharmacy-specific standard. Methods: A survey was developed jointly with ASHP. An email invitation including a link to the survey was sent to 1,292 directors of ASHP-accredited residency programs. Sites with multiple residency programs received the survey for each respective program. The survey was opened on November 7, 2011, and closed on November 23, 2011. Emails were sent to non-responders during weeks one and two. Statistical analysis will be mostly descriptive in nature with some analysis of relationships and associations using appropriate techniques. Results/Conclusions: The response rate was 40% (518/1292). Data analysis is ongoing.

Learning Objectives:

Review the history of pharmacy residency on-call programs based on available literature.

Discuss the current ACGME duty hour requirements and the current state of the ASHP statement on pharmacy residency duty hour requirements.

Self Assessment Questions:

Based on the current ASHP-endorsed ACGME guidelines for duty hours, what is the current total number of consecutive hours a PGY1 pharmacy resident can be in-house?

A 48

B: 30

C: 10

D: 16

Pharmacy Residencies have been granted a temporary exemption waiver from the current ACGME standards.

A True

B False

C N/a

D N/a

Q1 Answer: B Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-699 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

VASOPRESSIN IN SEPTIC SHOCK: EARLY VERSUS LATE ADMINISTRATION

Danielle R. Holowecky*, Pharm.D., Lisa Hall Zimmerman, Pharm.D., BCPS, BCNSP, Tahuanty A. Pea, M.D., M.S., Linda A. Browning, Pharm.D., BCPS

Detroit Receiving Hospital,4201 St. Antoine Blvd,Detroit,mi,482012153

dholowec@dmc.org

Purpose:
To assess whether vasopressin before or after 24 hours of onset of septic shock effects the resolution of shock.

Methods:
This retrospective study evaluated 35 critically ill patients from 3/10 to 6/11. Patients included were in septic shock and received vasopressin for at least 6 hours. Septic shock was defined as hypotension (SBP <90mmHg) secondary to sepsis and refractory to fluid resuscitation in addition to signs of organ hypoperfusion. Groups were defined as the early group (vasopressin administered <24 hrs from onset of sepsis) and the late group (Vasopressin ≥24 hrs after onset of sepsis). p-value < 0.05 was considered significant.

Results:
Of the 35 patients (16 early vs19 late), mean age was 5715 years and 51% were male. The overall score for APACHE II was 2910, and SOFA was 105. In patients surviving > 48 hours, sepsis onset to last vasopressor being discontinued was faster with early vs late, [2.11.2 vs 4.32.5 days, p=0.03]. The magnitude of change in SBP tended to be greater with early vs late, [2722 vs 1712 mmHg, p=0.15]. The resolution of shock (4 consecutive SBP measurements >90 mmHg) tended to be higher with early vs late, [31% vs 10%, p=0.12]. Steroids were more likely utilized in the early vs late, [62% vs 31%, p=0.08]. Overall mortality was not different between early vs late, [75% vs 57%, p=0.47]. In addition, mortality was not affected if the patient was on 1 vs ≥2 vasopressors at the time vasopressin was initiated, [68% vs 100%, p=0.27].

Conclusion:
Early administration of vasopressin during septic shock resulted in a faster time from onset of sepsis to vasopressor discontinuation, a higher magnitude of SBP change, and higher rates of shock resolution. More studies are needed to address the relationship between the timing of vasopressin and the onset of sepsis.

Learning Objectives:

Discuss the pathophysiology and mechanism of action of arginine vasopressin

Review the most current literature on arginine vasopressin use in septic shock

Self Assessment Questions:

Which of the following is true regarding arginine vasopressin?

A It is released by the kidneys

B: It is released by the pituitary gland

C: It is synthesized by the hypothalmus

D: B and C

Which of the following is the recommended arginine vasopressin dose in septic shock?

A 0.03 units/minute

B 0.03 units/hour

C 3 units/minute

D 3 units/hour

Q1 Answer: D Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-409 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

THE IMPACT OF A MANDATORY COUNSELING PROGRAM IN A COMMUNITY PHARMACY

Amy N. Honebrink, PharmD*; Stacey M. Frede, PharmD, CDE; Pamela C. Heaton PhD, RPh; Shelly M. Rosser PharmD

University of Cincinnati/Kroger Pharmacy,Wherry 301B,3225 Eden Ave,Cincinnati,OH,45267

honebrinkamy@gmail.com

Purpose: The purpose of this study was to develop, implement, and evaluate a change in computer software designed to increase counseling provided to patients. The objectives were to increase the counseling rates for new therapy prescriptions, improve the pharmacy workflow, and increase patient satisfaction with the counseling encounter. Methods: Counseling is offered to patients regularly, however, current counseling rates have not been meeting the needs of our patients. Therefore, this project has been implemented at two Kroger pharmacies located in Cincinnati, Ohio, to increase the frequency of pharmacist/intern initiated counseling. Pre-intervention data was collected during a two month period to determine counseling rates of new therapy prescriptions that were manually generated counseling notes created by a pharmacist, prescription ready-rates, and wait times. Additionally, a patient survey instrument, utilizing a Likert scale (1=strongly disagree, 5=strongly agree), was administered to general pharmacy patients 18 years of age or older to assess patient satisfaction with the service received. Pharmacy staff received training after the pre-intervention data was collected. Training included a review of optimal counseling techniques and education on the computer software change to come, the primary intervention. In order to increase patient counseling rates, the computer dispensing software system had a new feature implemented that automatically generated a computerized prompt to counsel on every new therapy prescription. Only pharmacists/interns were able to acknowledge the prompt and provide counseling before the prescription was dispensed to the patient. Pharmacists/interns who provided counseling then documented if counseling was provided or refused by the patient, and the content of counseling provided. Subsequently, identical post-intervention data was collected during a 2-month period.
Results & Conclusions: Data will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Review the professional and legal responsibilities pharmacists have regarding counseling.

Discuss current counseling rates and how to overcome barriers in order to increase the frequency of counseling.

Self Assessment Questions:

Counseling has been deemed so important that ___ states have legally required oral counseling to occur when prescriptions are dispensed.

A 6
B: 13
C: 19
D: 23

According to Kimberlin etal, what has shown to increase the rate of counseling?

A Workflow re-design in the pharmacy
B Pharmacist handing the prescription to the patient at the register
C Private counseling areas in the pharmacy area
D Utilization of automation technology in the pharmacy

Q1 Answer: C Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-700 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

IMPLEMENTATION OF PHARMACY SERVICES INTO AN INPATIENT MULTIDISCIPLINARY PALLIATIVE CARE CONSULT TEAM AT A VETERANS AFFAIRS MEDICAL CENTER

Jeremy Hooker, Pharm D*; Susan Bullington, Pharm D, BCOP

Richard L. Roudebush Veterans Affairs Medical Center,1481 W 10th St,Indianapolis,IN,46202

jeremy.hooker@va.gov

PURPOSE
While studies have been published demonstrating the positive impact on patient outcomes and cost avoidance made by including a pharmacist as a member of the healthcare team, few have looked specifically at the impact of a pharmacist in the palliative care setting. These few studies evaluating the pharmacists role within palliative care are limited primarily to the ambulatory care and hospice settings, providing minimal insight into the impact of a pharmacist in the inpatient palliative care setting. The primary objective of this research is to measure the cost effectiveness of establishing a pharmacist as a member of the inpatient palliative care consult team at a VA hospital

METHODS
A pharmacy resident participated as a member of the inpatient palliative care multidisciplinary consult team to assess and document pharmacy-related interventions. A cost avoidance dollar amount was assigned to each intervention based on a published study performed at a comparable VA medical center. Interventions were classified into one of the following seven categories: drug interaction, prevention or management of a drug allergy, dose or frequency adjustment, untreated diagnosis, prevention or management of an adverse drug event, medication not indicated, and duplication of therapy. The data will be incorporated into an administrative business plan to demonstrate areas of potential patient care improvement and cost-effectiveness of pharmacy services in the palliative care setting.

RESULTS
The pharmacy resident participated as a member of the inpatient multidisciplinary palliative care team rounds on twenty-five separate occasions over a two month period. During that time, 39 separate interventions were documented. The final results will be presented at the Great Lakes Pharmacy Resident Conference pending completion of data analysis.

CONCLUSION
Conclusions will be presented at the Great Lakes Pharmacy Resident Conference pending completion of data analysis and review.

Learning Objectives:

Define palliative care as outlined by the Clinical Practice Guidelines for Quality Palliative Care (2009)

Discuss the financial implications of establishing pharmacy services in the inpatient palliative care setting at a Veterans Affairs medical center

Self Assessment Questions:

1)According to the Clinical Practice Guidelines for Quality Palliative Care (2009), the primary goal of palliative care is to:

A Prolong length of life
B: Hasten end-of-life in suffering patients
C: Prevent and relieve disease imposed burdens
D: Provide bereavement counseling for patient's family members

2)According to the study performed by Lee et al., which of the following interventions was associated with the greatest average cost avoidance?

A Duplication of therapy
B Prevention or management of an adverse drug event
C Prevention or management of a drug allergy
D Drug interaction

Q1 Answer: C Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-701 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATING THE ROLE OF STATINS IN THE PREVENTION OF CONTRAST-INDUCED NEPHROPATHY

Matthew J. Hoover, PharmD*, Vincent F. Mauro, PharmD, FCCP, Todd E. Gundrum, PharmD, BCPS, Mariann D. Churchwell, PharmD, BCPS

University of Toledo Medical Center,3000 Arlington Ave,Mail Stop 1060,Toledo,OH,43614

matthew.hoover@utoledo.edu

Purpose: Contrast-induced nephropathy (CIN) is a well-known complication of using iodinated contrast media. Studies have evaluated a wide range of pharmacologic interventions to prevent CIN, including statins. Statins may have the ability to increase nitrous oxide production, provide beneficial effects on endothelial function, and scavenge free oxygen radicals. These pleiotropic effects may lend to their role in the prevention of CIN. Three recently published meta-analyses on the subject of statins for prevention of CIN have all come a similar conclusion; that the role of statins is still unclear and further studies are needed. This study assesses whether statins prevent CIN in patients at our institution.

Methodology: Electronic medical records of patients who received contrast media and had a procedure code indicating a cardiac catheterization at the University of Toledo Medical Center between January 2009 and August 2011 will be retrospectively reviewed. Patients baseline demographics, risk factors for CIN, specific statin used, nephrotoxic drugs, and measures used to prevent CIN will be obtained. Any patients over the age of 18 who received contrast media at the time of catheterization, had a baseline serum creatinine concentration obtained within 24 hours prior to receiving contrast media, serum creatinine concentrations for at least 48 hours after exposure to the contrast media, and a record of outpatient prescription medications will be included in the study. Patients who have end-stage renal disease requiring dialysis will be excluded from the study. The primary outcome, contrast-induced nephropathy, will be defined as an increase in serum creatinine > 0.5 mg/dL or 25% from baseline within 48 hours following exposure to contrast media. Based on the definition, patients will be classified as having CIN or not having CIN.

Results and conclusions: Data collection is in process. Results and conclusions will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Explain the rationale behind using statins in the prevention of contrast-induced nephropathy.

List risk factors for contrast-induced nephropathy.

Self Assessment Questions:

Which of the following is a pleiotropic effect associated with statins?

A Lower LDL cholesterol

B: Dilate the renal efferent arteriole

C: Increase nitrous oxide production

D: Decrease serum creatinine

Which of the following patients have a modifiable risk factor for contrast-induced nephropathy?

A 56 year old male with diabetes mellitus

B 24 year old female on lisinopril

C 88 year old male with pneumonia

D 32 year old female with CKD stage 3

Q1 Answer: C Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-410 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

OUTCOMES AFTER MEDICAL MANAGEMENT AND/OR MECHANICAL INTERVENTION FOR ISCHEMIC STROKE IN A COMMUNITY HOSPITAL EMERGENCY DEPARTMENT

Mary Hormese*, Pharm.D., Rolla Sweis, Pharm.D., M.A,. BCPS, James Jensen, B.S., Pharm.D., BCPS, Melvin Wichter, MD, Erik Kulstad, MD, MS

Advocate Christ Medical Center,4440 W.95th St,Oak Lawn,IL,60453

mary.hormese@advocatehealth.com

Purpose: Despite increased use of thrombolysis as treatment for acute ischemic stroke in the emergency department (ED), controversy persists in the selection of optimal patients for this treatment. Several clinical trials have assessed the benefits and risks associated with the use of tissue plasminogen activator (tPA) for ischemic stroke. At our institution, we found a higher rate of mortality and intracerebral hemorrhage after tPA administration when compared to rates reported by other investigations. In this study, our objective is to assess a larger patient population with ischemic stroke and re-evaluate the outcomes after tPA use. Additionally, mortality rates of patients who received mechanical interventions such as intra-arterial thrombolysis and/or stenting will be assessed.

Methods: Prior to commencement, this study will be submitted to the Institutional Review Board for approval. This study is a retrospective, single-centered, non-randomized chart review of patients who presented to our ED over a 65-month period with symptoms of ischemic stroke and treated with tPA. Patients younger than 18 years of age will be excluded from this study. The following data will be collected: patient age, gender, co-morbidities, home medications, vitals, pertinent lab values, location of infarct, pertinent radiology data, tPA dose and time of administration, adverse outcomes, use of other medical and mechanical interventions for stroke, and outcome of the patient including functional status and recurrent stroke. The outcomes will be determined through review of medical records and/or contact with the patient or the patients family. All data will be recorded without patient identifiers and maintained confidentially.

Results/Conclusion: To be presented at the Great Lakes Pharmacy Resident Conference

Learning Objectives:

Discuss the role of tissue plasminogen activator in the treatment of ischemic stroke.

Report the rate of intracerebral hemorrhage associated with the use of tissue plasminogen activator in a community hospital setting.

Self Assessment Questions:

What is the rate of intracerebral hemorrhage associated with the use of tissue plasminogen activator for ischemic stroke as reported in the National Institute of Neurological Disorders and Stroke (NIN

A 2%

B: 4.4%

C: 6.4%

D: 10%

2)Which of the following is the commonly used scale to measure degree of disability or dependence after stroke?

A Glasgow coma scale

B Modified rankin scale

C The National Institutes of Health Stroke Scale (NIHSS)

D Expanded disability status scale (EDSS)

Q1 Answer: C Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-411 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

POST GRADUATE YEAR ONE RESIDENCY PROGRAM EXPANSION: FINANCIAL JUSTIFICATION AND OPTIMIZATION OF PROGRAM MODEL

Susan E Horsman, PharmD*; Kristin K Hanson, MS, RPh; Anne K Szulczewski, PharmD; William J Peppard, PharmD; Ryan P Fleming, PharmD; Todd A Karpinski, MS, PharmD

Froedtert Hospital,9200 W Wisconsin Ave,Milwaukee,WI,53226

shorsman9@gmail.com

Purpose: The goal of this project is to expand Froedtert Hospitals PGY1 pharmacy residency program while maintaining or improving program quality. Objectives include evaluation of the program structure and financial justification of additional resident positions.

Methods: A survey was developed to gather feedback from pharmacists at Froedtert Hospital regarding residency program expansion and how to best incorporate residents into pharmacy practice. Further assessment of the program structure was conducted by evaluating the utility of a pharmacy residency program based on the medical model. Financial justification of additional PGY1 residents was completed by budget analysis and optimizing reimbursement of program costs through the Centers for Medicare and Medicaid Services (CMS). In order to accurately determine program costs, the time preceptors spend with PGY1 residents and the services that PGY1 residents provide were documented.

Results: Based on information gathered from the pharmacist survey, changes to the program structure have been proposed in order to successfully incorporate additional residents into the pharmacy practice model. Changes include resident rotations on second and third shift and residency start dates in June and July. The time spent by preceptors with PGY1 residents was documented on six rotations and extrapolated to reflect the entire program. This process revealed that current program costs related to preceptor time were being significantly underestimated. Financial justification was achieved, in part, by submitting newly determined program costs for CMS reimbursement, and by assessing other benefits PGY1 residents provide. A business proposal was then approved to add five positions to Froedtert Hospitals pharmacy residency program.

Conclusion: Expansion of a PGY1 pharmacy residency program can be successfully achieved by making necessary modifications to the programs structure. Furthermore, financial justification of additional residency positions may be accomplished by accurately capturing program costs associated with preceptor time, as well as highlighting benefits of program expansion.

Learning Objectives:

Describe how to identify and implement necessary changes to a PGY1 residency programs structure and model in order to accommodate more residents

Discuss methods that can be used to financially justify additional PGY1 pharmacy resident positions

Self Assessment Questions:

Which of the following changes was made to Froedtert Hospitals PGY1 pharmacy residency program to accommodate an increased number of PGY1 residents?

A reducing the number of required rotations
B: residency start dates in June and July
C: rotations on 2nd and 3rd shift
D: B and C

Which of the following was used by Froedtert Hospitals PGY1 pharmacy residency program to financially justify additional resident positions?

A arbitrarily submitting program costs for CMS reimbursement
B calculating the amount of pharmacist FTEs offset by resident staffi
C increasing the amount of hours residents staff throughout the resid
D reducing pharmacist FTEs by replacing pharmacists with residents

Q1 Answer: D Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-702 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

INCIDENCE OF VENOUS THROMBOEMBOLISM (VTE) IN CORONARY ARTERY BYPASS GRAFT (CABG) PATIENTS RECEIVING MECHANICAL PLUS PHARMACOLOGICAL PROPHYLAXIS VERSUS MECHANICAL ALONE

*Xiaomeng Hou, PharmD; Marintha Short, PharmD, BCPS, AQ Cardiology; Kevin Poe, PharmD, BCPS; Lindsey DeMers, PharmD

St. Joseph's Hospital - KY,One Saint Joseph Drive,Lexington,KY,40504

houx@sjhlex.org

Purpose: The incidence of VTE associated with CABG surgery is uncertain and the necessity of thromboprophylaxis is controversial. Current guidelines for the prevention of VTE recommend to use thromboprophylaxis with low-molecular-weight heparin (LMWH), low-dose unfractionated heparin (LDUH), optimally used bilateral graduated compression stockings (GCS) or intermittent pneumatic compression (IPC) devices in patients undergoing CABG surgery. The objective of this study is to identify the incidence of VTE in patients receiving either mechanical prophylaxis or a combination of mechanical and pharmacologic prophylaxis after CABG surgery.

Methods: This will be a retrospective medical record review of CABG surgery patients who received either mechanical or a combination of mechanical and pharmacologic VTE prophylaxis. Patients younger than 18 years of age will be excluded. Baseline demographic data, medications and laboratory values will be collected. Endpoints will include those specific for VTE (DVT and/or PE, location of VTE). Total length of hospital stay, length of intensive care unit stay, incidence of rehospitalization for VTE, and mortality rate will also be assessed. Data will be analyzed to determine any statistically significant differences in outcomes between two study groups. Baseline characteristics and study endpoints will be compared using the Students unpaired t-test, Chi-square or Fishers exact test and Mann-Whitney rank sum test as appropriate.

Results: A total of 773 patients undergone CABG surgery from July 2010 - October 2011 at Saint Joseph Hospital was reviewed for inclusior in the study. Patients will be excluded according to predetermined criteria. We expect to see no significant difference in VTE event rate between two study groups. Data collection and analysis is ongoing and comprehensive results will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Discuss ACCP guideline recommendations for VTE prophylaxis in CABG patients

List risk factors of VTE (PE and/or DVT) in CABG patients

Self Assessment Questions:

Which of the following prophylaxis regimen is not recommended by the ACCP guideline?

A Enoxaparin 40 mg SubQ daily
B: Heparin 5000 units SubQ TID
C: Intermittent pneumatic compression device
D: Warfarin 5 mg PO daily, dose adjusted based on PT/INR

Which of the following is NOT the risk factor for VTE in CABG patients?

A Immobility, lower-extremity paresis
B Inflammatory bowel disease
C Iron deficiency anemia
D Central venous catheterization

Q1 Answer: D Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-412 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

COMPARISON OF INFECTION RATES FOLLOWING ALLOGENEIC STEM CELL TRANSPLANT IN PATIENTS RECEIVING REDUCED-INTENSITY AND FULL-INTENSITY CONDITIONING REGIMENS

Shannon M Hough, PharmD*; Denise Markstrom, PharmD; David Frame, PharmD

University of Michigan Health System,6947 Manderson Ter,West Bloomfield,MI,48323

smbauer@med.umich.edu

Purpose:
Infection is a common cause of morbidity and mortality among allogeneic stem cell transplant (SCT) recipients. The incidence of graft-versus-host disease (GVHD) with full-intensity conditioning (FIC) and reduced-intensity conditioning (RIC) regimens has been compared, but little data has been reported related to post-SCT infection rates. Information regarding infection rates between the two conditioning regimens would aid in the selection of prophylactic antimicrobials. The objective of this investigation is to compare infection rates at 100 days and one year in patients receiving RIC to FIC prior to allogeneic SCT. A secondary objective is to compare antimicrobial utilization for the treatment of infections at 100 days and one year.

Methods:
This retrospective, single-center cohort study has been approved by the institutional review board. Patients receiving an allogeneic SCT between January 2005 and September 2010, greater than 18 years of age will be included in this study. HIV-positive patients, patients receiving cord blood transplants or t-cell depleted grafts, and patients receiving a reduced intensity conditioning regimen containing alemtuzumab or thymoglobulin will be excluded from this study. A bone marrow transplant database will be used to identify patients. The electronic medical record and searching software will be used to collect demographic information, primary disease, GVHD status, steroid use, hospitalizations, mortality, infection, and data regarding use of antibiotics. A sample size of 70 patients in each group will be needed to detect a 50% difference between groups with an alpha of 5% and power of 72%. Descriptive statistics will be used to illustrate baseline characteristics. The primary outcome will be determined using a time-to-event analysis. Measures will be used to report secondary outcomes including ANOVA and Chi-square test.

Results:
Data collection and analysis is currently ongoing. Results and conclusions will be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Describe the risk factors for infection associated with stem cell transplantation

Discuss the differences in infection rates between RIC and FIC regimens following allogeneic SCT

Self Assessment Questions:

Reactivation of which of the following viruses is commonly seen between days 30 and 100 after SCT?

A Herpes Simplex Virus
B: Cytomegalovirus
C: Varicella Zoster Virus
D: Human Metapneumovirus

Which of the following risk factors for infection are seen in the pre-engraftment phase through day +30?

A Acute GVHD
B Chronic GVHD
C Impaired humoral immunity
D Impaired cellular immunity

Q1 Answer: B Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-413 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATING CHARACTERISTICS OF ELECTRONIC PRESCRIPTIONS USING PHARMACY CLAIMS DATA

Jaren C. Howard, PharmD*; Lane Slabaugh, PharmD, MBA; Damion Nero, Ph.D.

Humana, Inc.,325 West Main Street,WFP-06 West,Louisville,KY,40202

jhoward12@humana.com

Background: Adoption of electronic prescribing remains limited despite initiatives to increase use. A prescriber's ability to electronically send an accurate prescription directly to a pharmacy from the point-of-care is important in improving quality of care. Few studies have investigated which medications, therapeutic classes, disease states, prescriber types, or geographic regions are more common among various methods of prescription delivery. Understanding these characteristics may elucidate barriers to electronic prescription uptake.

Purpose: To describe characteristics of prescription sources (electronic prescriptions versus other methods of delivery) related to: a) Percentage of prescriptions delivered electronically; b) Most common drug classes and drugs prescribed electronically; c) Formulary position of electronic prescriptions; d) Percent of prescriptions delivered electronically by geographic region; e) Uptake of electronic prescribing by prescriber type; and f) Demographic and clinical characteristics associated with electronic prescriptions.

Methods: All Humana pharmacy claims for the period January 1, 2010 to December 31, 2011 will be included. Prescription origin code will be used to identify prescription source (electronic versus other). All claims for controlled substances and claims from Humanas mail order facility will be excluded. Analyses will be conducted separately for Medicare and commercial lines of business. All claims for each line of business will be compiled and categorized based upon source. The most frequent drug, drug class, formulary position, geographic region, and prescriber type found in each prescription source will be reported for each category Additionally, a multivariate logistic regression model will be used to determine demographic and clinical characteristics associated with a prescription being written electronically.

Results/Conclusions: Describing the characteristics of electronic prescriptions may further explain barriers to electronic prescribing and thus help guide future efforts to increase uptake among prescribers. Conclusions will be presented at Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Describe the key traits of the Medicare Electronic Prescribing (eRx) Incentive Program

Discuss significant trends in electronic prescription utilization

Self Assessment Questions:

Eligibility for the Medicare Electronic Prescribing Incentive program requires practitioners to report electronic prescription usage for how many unique patient visits per year?

A 1
B: 25
C: 100
D: 250

Nationally, the percentage of all prescriptions submitted electronically in 2010 by office-based prescribers is estimated to be:

A <5%
B 10%-15%
C 20%-40%
D >70%

Q1 Answer: B Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-703 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

DEVELOPMENT AND IMPLEMENTATION OF A DISEASE MANAGEMENT CLINIC FOCUSED IN HEART FAILURE

Allyson R Howard, PharmD*, Dorianne F Dunkle, PharmD, BCPS

Franciscan St. Elizabeth Health,1701 South Creasy Lane,Lafayette,IN,479054972

allyson.howard@franciscanalliance.org

Background:
Heart failure is the most frequent cause of hospitalization in patients older than 65 years of age and accounts for 34% of cardiovascular-related deaths. The estimated total yearly cost of heart failure in the United States is $39.2 billion. Much of this cost is incurred due to high readmission rates. During the six months following discharge, readmission rates are as high as 50% for heart failure patients. By identifying these patients and providing prompt follow-up and outpatient care, heart failure exacerbations and hospital readmissions can likely be prevented or decreased.

Purpose:
The objective of this project is to develop and implement dosing protocols and a collaborative practice agreement for utilization in a disease management clinic with the goal of reducing heart failure exacerbations and hospital readmissions.

Methods:
Adult patients discharged from Franciscan St. Elizabeth Health with a diagnosis of heart failure will be referred to a disease management clinic for follow-up care. The clinic will be staffed with a nurse practitioner and pharmacist who will collaborate together to treat and educate patients to prevent future readmissions. Dosing protocols for diuretics, ACE Inhibitors/angiotensin II receptor blockers, beta blockers, potassium, magnesium, hydralazine, nitrates, digoxin, and aldosterone antagonists will be utilized for medication therapy management.

Results/Conclusion:
To be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Indicate which stage of heart failure a patient is in according to their risk factors, symptoms, or extent of structural heart disease.

Identify the appropriate medications for a patient according to their stage of heart failure.

Self Assessment Questions:

A patient with known structural heart disease and currently experiencing shortness of breath, fatigue, and reduced exercise tolerance is in what stage of heart failure?

A Stage A
B: Stage B
C: Stage C
D: Stage D

Which of the following medication classes prevent cardiac remodeling in heart failure patients?

A ACE Inhibitors, Aldosterone Antagonists
B ACE Inhibitors, Diuretics
C Aldosterone Antagonists, Diuretics
D Beta Blockers, Diuretics

Q1 Answer: C Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-414 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

CLINICAL EFFICACY OF VANCOMYCIN IN RELATION TO MICS FOR TREATMENT OF PULMONARY EXACERBATIONS IN CYSTIC FIBROSIS PATIENTS WITH METHICILLIN RESISTANT STAPHYLOCOCCUS AUREUS

*Christina H. Hsu, PharmD, Jessica L. Tansmore, PharmD, Kimberly J. Novak, PharmD, BCPS

Nationwide Children's Hospital,191 Vine St. #110,Columbus,OH,43215

christina.hsu@nationwidechildrens.org

Purpose: The Infectious Diseases Society of America (IDSA) guidelines recommend against using vancomycin for methicillin resistant Staphylococcus aureus (MRSA) isolates with a vancomycin MIC greater than or equal to 2 mcg/mL due to the low likelihood of achieving a target AUC/MIC of greater than or equal to 400. Vancomycin is commonly used for treatment of pulmonary exacerbations in cystic fibrosis (CF) patients with sputum cultures positive for MRSA regardless of MIC value. Vancomycin doses are adjusted at our center to achieve a goal trough of 15 to 20 mcg/mL regardless of MRSA MIC, however, little is known if IDSA guidelines translate to CF patients colonized with MRSA in whom reduction of bacterial load is the target as opposed to eradication. The objective of this study is to compare clinical efficacy of vancomycin regimens among CF patients with isolates having MICs greater than or equal to 2 mcg/mL and MICs less than 2 mcg/mL.

Methods: This Institutional Review Board-approved single center retrospective study will evaluate all CF patients who received vancomycin for treatment of pulmonary exacerbations between October 1, 2009 to September 30, 2011. Inclusion criteria: patients 6 years of age and older with one or more positive culture(s) for MRSA from the sputum or broncheoalveolar lavage, reported vancomycin MIC value on MRSA culture, receipt of dual IV antipseudomonal antibiotics, vancomycin for at least 7 days while inpatient, and at least one evaluable vancomycin trough concentration. Exclusion criteria: patients who are unable to perform pulmonary function tests. The primary endpoint will be clinical efficacy as determined by return to baseline FEV1, defined as best FEV1 in the preceding 12 months.

Results: Results will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Explain the pharmacodynamic rationale of vancomycin dosing and therapeutic drug monitoring

Identify therapeutic goals of antibiotic therapy for pulmonary exacerbations in cystic fibrosis patients

Self Assessment Questions:

What is the best predictor of vancomycin effectiveness?

A Auc/mic
B: Dose in mg/kg
C: Serum trough concentration
D: Serum peak concentration

Colonization with which of the following organisms in addition to MRSA would impact the rate of return to baseline FEV1 in cystic fibrosis pulmonary exacerbations?

A Burkholderia cepacia
B Pseudomonas aeruginosa
C Enterobacter spp.
D A & b

Q1 Answer: A Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-415 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

THE IMPACT OF A PAY-FOR-PERFORMANCE-FOR-PATIENTS (P4P4P) MODEL FOR DIABETES IN A GROCERY STORE SETTING

Bonnie C. Hui-Callahan*, PharmD, Stacey M. Frede, PharmD, CDE, Heidi R. Luder, PharmD

University of Cincinnati/Kroger Pharmacy,3225 Eden Ave # 136HBV,Cincinnati,OH,452670001

bonnie.c.hui@gmail.com

Purpose: To (1) determine whether patients with diabetes who utilize a financial incentive program in a grocery chain pharmacy will have increased rates of self-reported healthy behaviors; (2) measure the economic impact of the incentive program on the grocery store; and (3) assess the clinical impact of the incentive program.

Methods:
Studies demonstrate the P4P4P model has successfully increased healthy behaviors in beneficiaries of large employer groups and health care institutions. It is not yet known, however, whether this model can be applied to patients with diabetes in a grocery chain pharmacy setting. This prospective study took place at one location of a large grocery chain pharmacy in Cincinnati, Ohio. Patients with diabetes on at least one diabetes medication were eligible to enroll. Twenty-five patients were recruited in December 2011 and the program started in January 2012. Patients received five dollars for each weeklong behavior log completed and reviewed with the pharmacist. The pharmacist counseled on ways to improve healthy behaviors. One-time rewards were also given for meeting ADA standards of care. Patients could receive up to $250 total over the three-month study period. A baseline survey was given to determine frequency of healthy behaviors performed prior to the start of the rewards program. Patients will complete a post-study survey to determine there was an increase in healthy behaviors. Patients baseline A1C will be compared with A1C at the end of the study period. The economic impact will be measured by increase in store revenue. Grocery store spend for patients will be tracked during the study period and compared with total spend during the same time period in the previous year.

Results/Conclusion:
To be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Explain the purpose of the P4P4P model.

Describe how the P4P4P model can be implemented within a grocery chain pharmacy setting.

Self Assessment Questions:

P4P4P is a model aimed to:

A Minimize healthcare expenditures by initiating quality improvement
B: Increase healthy behaviors and reduce costly complications by rew
C: Meet quality target outcomes in patients by targeting and providing
D: Reduce costs of medications by establishing contracts with large e

In this study, the P4P4P model was implemented in a grocery chain pharmacy by:

A Rewarding physicians for each patient who shows a 1% decrease
B Rewarding patients with diabetes for attending diabetes education
C Rewarding physicians for referring their patients to the program
D Rewarding patients with diabetes for recording their blood glucose,

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-416 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

THE EFFECTIVENESS OF PHARMACY REMINDERS TO IMPROVE MEDICATION LAB MONITORING IN A VETERAN POPULATION

Stephanie Huizar*, PharmD, Hong Lam, PharmD, Sindhu A. Abraham, PharmD, BCPS, Gwenn Rosen, RPh

Jesse Brown VA Medical Center,820 S Damen Ave,Chicago,IL,60612

Stephanie.Huizar-Garcia@va.gov

Background: Routine laboratory monitoring plays a vital role in guiding therapy and is essential for patient safety and the prevention of adverse drug events. However, lab monitoring is not regularly conducted. Few studies suggest that pharmacist may improve compliance with lab monitoring and therefore decrease the risk of adverse drug events.

Purpose: To evaluate the effectiveness of pharmacist-driven lab monitoring reminder process utilizing a customized comment added to the prescription label advising the patient to return for appropriate lab monitoring (referred to as the "sig comment") in increasing lab monitoring compliance in a veteran population.

Methods: This study was an Institutional Review Board and VA Research and Development Committee approved retrospective, electronic chart review of patients on selected medications without relevant laboratory monitoring such as serum creatinine, liver function tests and/or blood chemistry for more than 365 days. Patients aged 18 years and older with a prescription for the selected medications between January 1, 2009 through August 31, 2011 will be included in this study. Those patients who did not receive a sig comment added to the prescription label during the previously mentioned time period will serve as the control group. Patients with more than one primary care visit, labs ordered by specialty providers, labs ordered more than 90 days prior, labs completed before the reminder, labs completed by an outside provider and documented in CPRS, received a reminder letter, phone call, or sig comment added to the prescription label for a non-selected medication will be excluded from this study.

Results/Conclusion: Data collection and analysis are pending and will be presented at the Great Lakes Pharmacy Residency Conference in April 2012.

Learning Objectives:

Review the importance of routine laboratory monitoring.

Identify the potential benefits of pharmacist involvement in improving patient compliance with routine medication laboratory monitoring.

Self Assessment Questions:

Which of the following is true about regular laboratory monitoring?

A May lead to the detection and prevention of adverse drug events
B: Is important for guiding therapy
C: Does not affect patient safety
D: A and B

Pharmacists involvement with reminders to laboratory monitoring has lec to?

A No change in laboratory monitoring compliance
B Reduction in laboratory monitoring compliance
C Increase in laboratory monitoring compliance
D Pharmacists do not play a role in laboratory monitoring

Q1 Answer: D Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-704 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

SIROLIMUS USE IN OBESE KIDNEY TRANSPLANT PATIENTS DOES NOT IMPACT WOUND HEALING COMPLICATIONS

Amanda L. Hulbert, PharmD, BCPS*; April J. Delahunty, PharmD, BCPS; Amer Rajab, MD, PhD; Rachel Forbes, MD; Holli A. Winters, PharmD, BCPS

The Ohio State University Medical Center,368 Doan Hall,410 W. 10th Ave,Columbus,OH,43210

amanda.hulbert@osumc.edu

Background: Wound healing is a known complication associated with sirolimus (SRL) therapy in kidney transplant recipients (KTR). Several studies have demonstrated that obesity, defined as a body mass index (BMI) of >30 kg/m2, is a risk factor for the development of wound healing complications (WHC) in patients receiving SRL therapy; however, the incidence has not been defined.

Purpose: To evaluate the incidence of WHC within 6 months of transplant in patients with a BMI >30 kg/m2 at the time of transplant who received SRL-containing regimens as compared to SRL-free regimens.

Methods: This is a single-center, retrospective cohort study of KTR on SRL versus SRL-free maintenance immunosuppression (IS) regimens transplanted between January 2002 and April 2011. Primary adult KTR with BMI of >30 kg/m2 at the time of transplant were eligible for inclusion. Patients were excluded if they were on steroids prior to transplant, expired within 4 weeks from transplant, or received steroids for the treatment of acute rejection. Patients were categorized as SRL-free if they received <7 days of SRL during their transplant admission and were not discharged on SRL.

Results: A total of 317 KTR, 246 in the SRL group and 71 in the SRL-free group, were eligible for inclusion. There was no difference in the primary outcome of WHC in the SRL group as compared to SRL-free group (32.1% vs 29.6%, P=0.107). There was no difference in WHC between the SRL group and SRL-free group among patients in obesity Class I (27.3% vs 15.1%, P=0.064), Class II (36.6% vs 34.8%, P=0.195), or Class III (48.0% vs 53.3%, P=0.243). There was no difference in the incidence of lymphoceles between groups (SRL 5.3% vs SRL-free 1.4%, P=0.112).

Conclusion: SRL does not negatively impact WHC in obese KTR and can be used as a component of maintenance IS regimens immediately after transplant.

Learning Objectives:

Describe the risk factors for the development of wound healing complications in kidney transplant recipients.

Define the safety of sirolimus as a component of maintenance IS regimens in obese kidney transplant recipients.

Self Assessment Questions:

Sirolimus is a(n):

A Calcineurin inhibitor
B: IL2 antagonist
C: mTOR inhibitor
D: Co-stimulation blocker

Which of the indications for transplant has been reported as a risk factor for wound healing complications?

A IgA nephropathy
B Diabetes mellitus
C Polycystic kidney disease
D Focal segmental glomerulosclerosis

Q1 Answer: C Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-417 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF CONCENTRATED U-500 INSULIN USE IN THE INPATIENT SETTING

Nicole R Hume, PharmD*; Lorrie L Burns, PharmD; Kelly J Besco, PharmD, FISMP

Riverside Methodist Hospital,3535 Olentangy River Road,Columbus,OH,432143998

nhume2@ohiohealth.com

Background:
Insulin therapy is the mainstay of glycemic control in the hospital. However, insulin therapy carries a major risk for hypoglycemia. Insulin regular U-500 (500 units/mL) poses an additional risk, should a medication error occur, as it provides a 5-fold higher dose compared to the standard U-100 (100 units/mL) concentration. Utilization of insulin regular U-500 has traditionally been rare; however, more patients are being initiated on the product as incidence of insulin resistance with type II diabetes mellitus increases. Currently, insulin regular U-500 is a non-formulary medication at this institution. Physicians, pharmacists and nurses are often unfamiliar with how to safely manage the utilization of the product. Due to the safety risk of the product and increased number of patients coming into the hospital on this medication, our institution is proactively designing procedures to ensure safe use of the medication prior to formulary addition.

Purpose:
The purpose of this investigation is to evaluate the safety and efficacy of insulin regular U-500 for glycemic control in hospitalized patients before and after institutional formulary addition.

Methods:
This study will retrospectively evaluate patients prescribed insulin regula U-500 in the inpatient setting. The primary outcome will assess percentage of glucose readings at goal. Secondary outcomes include number of hypoglycemic and hyperglycemic episodes, number of pharmacist interventions, and reported medication errors. Continuing education will be provided to staff members about safety precautions associated with the use of insulin regular U-500. An assessment will be completed to evaluate the knowledge base of hospital staff regarding insulin regular U-500 before and after the education program.

Results/Conclusions:
Forthcoming

Learning Objectives:

Review safety risks involving use of concentrated insulin regular U-500

Describe pharmacological differences between standard concentration regular insulin (100 units/mL) and insulin regular U-500 (500 units/mL)

Self Assessment Questions:

Which of the following procedures can reduce the risk of errors involving insulin regular U-500

A Store insulin regular U-500 separately from other insulin types
B: Do not use insulin regular U-500 in the hospital as the risk of error
C: Require physicians provide number of mL and number of units of ir
D: A and C

Compared to standard concentration regular insulin (100 units/mL), insulin regular U-500 (500 units/mL) has a

A Shorter half-life
B Longer half-life
C Shorter onset of action
D Longer onset of action

Q1 Answer: D Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-806 -L05-P

Activity Type: Knowledge-based Contact Hours: 0.5

A PILOT MULTIDISCIPLINARY INVESTIGATIONAL TEAM TO MONITOR CONTROLLED SUBSTANCE DOCUMENTATION IN A COMMUNITY HOSPITAL

Timothy J. Humlicek, PharmD*; Carol Heunisch, PharmD, BCPS

NorthShore University HealthSystem,9600 Gross Point Rd,Skokie,IL,60076

thumlicek@northshore.org

Purpose:
The Joint Commission established that hospitals must define processes to address drug diversion and account for all unused, expired, or returned medications. There are no comprehensive published guidelines for hospital institutions to follow and the detection of drug diversion remains problematic for both controlled and non-controlled substances. A recent survey ascertaining institutional compliance with best practices resulted in broad variation in operating room and nursing unit practices.

Diversion detection software can be used to identify potential diversion episodes or improve documentation practices. One university based health system has established a standard monitoring practice, including required multidisciplinary investigations for users greater than three standard deviations above the mean. The controlled substance monitoring software used by this health system is capable of preparing reports on any removal, return, waste, inventory, or cancelled transaction, which is then reconciled against the administration record. The purpose of this project was to use a multidisciplinary team to implement a standardized process to identify candidates for investigatior of controlled substance use and assess documentation for potential diversion opportunities.

Methods:
A multidisciplinary team consisting of pharmacists and nurse managers was established to review monthly controlled substance reports generated from data collected from automated dispensing machines. Data from November 1, 2011 to February 29, 2012 was used to identify employee candidates at risk for drug diversion. Controlled substance documentation audits were conducted on eligible candidates generated from transaction reports comparing the number of removals against all hospital users, peers with similar patients, and daily averages. All transactions of controlled substances for the audited user were inspected for appropriate documentation. Separately, controlled substance discrepancies for each month were collected to analyze documentation practices.

Results/Conclusions:
Preliminary and final results are unavailable at this time. Analysis of results will be presented at the Great Lakes Residency Conference.

Learning Objectives:

Outline the process of interpreting controlled substance reports generated from automated dispensing machines that can identify high risk users

Recognize potential controlled substance diversion episodes using electronic medication administration documentation

Self Assessment Questions:

Which of the following users meets at least one criteria to be eligible for a controlled substance transaction audit?

A A user with a monthly average of removals less than 3 standard de
B: A user with a daily average removals less than 2 standard deviatio
C: A user with a monthly average of removals less than 2 standard de
D: A user with a monthly average of removals greater than 3 standarc

Which of the following could be considered a potential controlled substance diversion episode?

A Removal of a controlled substance and a documented patient refus
B Removal of a controlled substance without an order
C Removal of a controlled substance with a documented administrati
D Canceled removal of a controlled substance with subsequent docu

Q1 Answer: D Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-705 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

EFFECT OF CLINICAL DECISION SUPPORT ON EFFICIENCY OF A HOSPITAL PHARMACY RENAL DOSING SERVICE

Ryan Hung*, PharmD; Loren Carrell, PharmD; Megan Pinter, MA, PharmD; Brian Stehula, BS, PharmD; Cheryl Strom, BSN

Gundersen Lutheran Medical Center,1900 South Avenue,La Crosse,WI,546015400

RLHung@gundluth.org

Background:
Clinical decision support (CDS) and computerized physician order entry (CPOE) have demonstrated clinical benefits including improved medication safety. When CDS systems were integrated into the provision of pharmacy services, similar benefits were seen with reduced costs and adverse drug event avoidance observed due to pharmacy services such as antibiotic dosing. Many of the systems evaluated in the literature describe measures relying on providers for initiation (e.g. provider entering a pharmacokinetic consult) or finalization (e.g. pharmacist presenting information to the provider for evaluation). The goal of this study is to determine if a computerized, rules-based CDS can improve efficiency of hospital pharmacy services.

Purpose:
The purpose of this study is to evaluate the effect of real-time CDS on pharmacist efficiency in providing a renal dosing service.

Methods:
This will be a retrospective chart review comparing pharmacy dosage adjustments before and after implementation of CDS criteria at Gundersen Lutheran Medical Center. Efficiency will be measured by using the time between first reported serum creatinine resulting in a creatinine clearance that may place the patient at risk for receiving inappropriate drug therapy and entry time of a progress note documenting the dosage change. Creatinine clearance is based upon the electronic health records pre-programmed calculation using ideal body weight with the Cockcroft-Gault equation. Interventions to be included for the primary measure of efficiency and secondary measure of prevented adverse drug events will be identified by progress notes. Primary analysis will be a paired t-test comparing the median time difference of reported serum creatinine and progress note entry time before and after implementation of the CDS criteria. Secondary analysis will be a Students t-test comparing cost savings and number of dosage adjustments before and after implementation.

Results/Conclusions:
To be presented at the Great Lakes Pharmacy Resident Conference

Learning Objectives:

Restate the clinical implications associated with a computerized decision support system.

Identify the sources of potential cost savings with a renal dosing decisior support system.

Self Assessment Questions:

Which weight was utilized to calculate the creatinine clearance in this study?

A Actual body weight
B: Adjusted body weight
C: No body weight
D: Ideal body weight

Pharmacy computerized clinical decision support system has been shown to do which of the following?

A Decrease medication errors
B Increase physician efficiency
C Decrease medication cost
D Prevent adverse drug reactions

Q1 Answer: D Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-706 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATING THE IMPACT OF A PHARMACY MONITORED PROCALCITONIN PROTOCOL IN THE TREATMENT OF BACTERIAL INFECTIONS

Gloria Huynh*, PharmD, Angel Heyerly, PharmD, Gordon H Bokhart, PharmD, Ron J Jones, PharmD

Lutheran Health Network,6322 Farmswood Drive, Apt 3B,Fort Wayne,IN,46804

ghuynh@lhn.net

Background: Procalcitonin, a biomarker that is produced during a bacterial infection, may help differentiate between bacterial versus viral infections. The potential benefits of monitoring procalcitonin levels include decreased antibiotic use, decreased emergence and selection of antibiotic resistance, decreasing inappropriate antibiotic use, and cost savings. The procalcitonin protocol, approved and implemented last year, is being monitored by pharmacists specifically for patients with suspected pneumonia. With this protocol, pharmacists may recommend de-escalation or discontinuation of antibiotic therapy based on both clinical presentation and supplementation with procalcitonin levels.

Purpose: To determine the current use and impact of procalcitonin by physicians and pharmacists based on the implemented pharmacy monitoring protocol at Lutheran Hospital, a community hospital.

Methods: A restrospective review will be conducted using the Lutheran Hospital electronic medical record system. Patients with procalcitonin levels ordered during their stay will be evaluated to determine how and if procalcitonin levels were used to guide antibiotic therapy. The following data will be collected: patient age, gender, suspected infection, co-morbidities, reason for admission, antibiotic therapy throughout hospitalization, white blood cell count, procalcitonin levels, culture results, physician specialty (if a physician ordered procalcitonin levels), any changes made in therapy, and if pharmacy was monitoring procalcitonin levels. The information gathered will help determine the utility of monitoring procalcitonin at Lutheran Hospital. This may also provide information on what changes may need to be made in the procalcitonin monitoring protocol.

Results: Results and conclusion to be presented at the Great Lakes Residency Conference.

Learning Objectives:

Identify patients in which a procalcitonin level may be beneficial.

Describe the role pharmacists can play in monitoring procalcitonin.

Self Assessment Questions:

What might explain a low procalcitonin level despite signs and symptoms indicated an infection?

A Too early in course of infection

B: Systemic infections

C: Major surgery

D: Pancreatitis

What recommendation should be made if a patients procalcitonin level at baseline is 1.2 ng/mL?

A No antibiotics needed

B Discontinue antibiotics if already started

C Order a repeat level in 12 hours

D Consider antibiotics

Q1 Answer: A Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-418 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

VANCOMYCIN NEPHROTOXICITY ASSOCIATED WITH OUTPATIENT PARENTERAL ANTIMICROBIAL THERAPY

Adanna C. Igboko, PharmD*, Ronald S. Smith, RPh, Crystal C. Owens, PharmD

Robley Rex VA Medical Center,800 Zorn Avenue,Louisville,KY,40206

Adanna.Igboko@va.gov

Background: Vancomycin is an antibiotic frequently prescribed for the treatment of Methicillin-resistant Staphylococcus aureus (MRSA). The Infectious Diseases Society of America (IDSA) has published MRSA and vancomycin monitoring guidelines that recommend vancomycin trough concentrations of 15-20 g/mL for serious infections. Nephrotoxicity is a known adverse effect of vancomycin and has been correlated with high serum trough concentrations, prolonged vancomycin therapy, and elevated baseline serum creatinine. Early research evaluating the association between vancomycin and nephrotoxicity was performed when target trough levels were maintained between 5-10 g/mL. Since the publication of guidelines recommending trough levels between 15-20 g/mL, the rate of nephrotoxicity is less defined. Recent literature suggests that vancomycin outpatient parenteral antimicrobial therapy (OPAT) may increase the risk of nephrotoxicity due to a longer duration of therapy and maintenance of higher serum trough levels. The rate of nephrotoxicity in patients receiving OPAT with vancomycin is currently unknown due to lack of adequate studies. The objective of this study is to determine the rate of nephrotoxicity in Veterans receiving vancomycin OPAT.

Methods: This is a retrospective study of Veterans who received vancomycin OPAT between June 24, 2008 and June 30, 2011. A list of OPAT patients was obtained from a database created and maintained by the infectious disease clinical pharmacists. Veterans who received vancomycin therapy for greater than 2 weeks and who had at least one serum trough level and two serum creatinine values were included in this study. Veterans who required dialysis, resided in a nursing home, or received aminoglycosides or amphotericin B with vancomycin therapy were excluded from this study.

Results and Conclusions:
Results and conclusions will be presented at the Great Lakes Pharmacy Resident Conference.

This material is the result of work supported with resources and the use of facilities at the Robley Rex VA Medical Center.

Learning Objectives:

Discuss IDSA recommendations for vancomycin serum trough levels.

Describe risk factors that may be associated with vancomycin induced nephrotoxicity.

Self Assessment Questions:

According to IDSA, what is the recommended vancomyin serum trough level for serious MRSA infections?

A 5 – 10 µg/mL

B: 10 – 15 µg/mL

C: 15 – 20 µg/mL

D: 20 – 25 µg/mL

Which of the following is a risk factor for the development of vancomycin induced nephrotoxicity?

A Serum trough concentration of < 10 µg/mL

B Previous treatment with vancomycin

C Prolonged duration of therapy

D Serum creatinine < 1.0

Q1 Answer: C Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-419 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

25-HYDROXYVITAMIN D STATUS AND THE INCIDENCE OF ACUTE CELLULAR REJECTION IN KIDNEY TRANSPLANT RECIPIENTS

Amanda I Ingemi, Pharm.D*, Megan Rech, Pharm.D, James Flemming, Pharm.D BCPS, Nicole Pinelli, Pharm.D BCPS, Carol Moore, Pharm.D, BCPS, BCACP

Henry Ford Health System,2799 West Grand Blvd,Detroit,MI,48202

aingemi1@hfhs.org

Background:
Vitamin D is a steroidal hormone whose receptors are found on most cells and tissues in the body. When activated, vitamin D can elicit immunosuppressant properties; on macrophages, activated vitamin D can block interleukin-2 production and decrease human leukocyte antigen-DR expression. In animal kidney transplant models, vitamin D has shown to be beneficial in preventing rejection and prolonging allograft function. Preliminary human studies suggest that vitamin D may have a potential role in improving post-transplant outcomes in kidney transplant recipients.

Purpose:
To examine the association of 25-hydroxyvitamin D status in the year following transplant on the incidence of acute cellular rejection in renal transplant patients.

Methods:
This is a retrospective cohort study of renal transplant recipients from 2004 to 2010 who received a kidney transplant at Henry Ford Hospital. Baseline patient and donor information, immunosuppressive medication, vitamin D supplementation, and vitamin D levels will be collected in the 1 year post transplant period. Clinical outcomes will be recorded with regard to acute cellular rejection, delayed graft function, change in serum creatinine from baseline, polyomavirus (BK) viremia or cytomegalovirus (CMV), death, and time to graft failure.

The primary endpoint is acute cellular rejection in transplant patients within one year of transplant. For the primary analysis, patients will be classified into two groups based on mean 25-hydroxyvitamin D level for the first year post transplant: insufficient (20 ng/mL or less) and sufficient (greater than 20 ng/mL). The incidence of acute rejection will be compared between these two groups. The secondary endpoints include change in serum creatinine from baseline, infection with CMV or BK viremia, delayed graft function, and time to rejection.

Results and Conclusions:
The results and conclusions will be presented at the Great Lakes Residency Conference.

Learning Objectives:

Review the role of vitamin D and its immunosuppressive properties.

Identify a potential role for vitamin D therapy in kidney transplant recipients.

Self Assessment Questions:

By blocking the transcription of interleukin-2, vitamin D can act as an immunosuppressant similar to what other immunosuppressive agent?

A Prednisone
B: Tacrolimus
C: Rituximab
D: Azathioprine

25-hydroxyvitamin D is a reliable indicator of vitamin D status because

A It circulates in the body and can be activated by many different tiss
B It has a longer half-life than the active metabolite, 1,25-OH vitamin
C It reflects endogenous and exogenous vitamin D.
D All of the above.

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-420 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

ANTIMICROBIAL USAGE FOLLOWING A THREE MONTH HIATUS FROM A PHARMACIST-DRIVEN ANTIMICROBIAL STEWARDSHIP PROGRAM

*David M. Jacobs, PharmD; Diane M. Cappelletty, PharmD

University of Toledo Medical Center,3000 Arlington Ave.,Toledo,OH,43614

david.jacobs@utoledo.edu

Purpose: A major health problem that has substantially impacted patient treatment and outcomes is the worldwide emergence of antimicrobial resistance. Antimicrobial stewardship programs have been utilized in order to optimize clinical outcomes while minimizing unintended consequences of antimicrobial use such as toxicity, selection of pathogenic organisms, and the emergence of resistance. The purpose of this study is to assess antibiotic usage during a three month hiatus from a pharmacist-driven antimicrobial stewardship program.

Methods: An institutional pharmacy report was generated in order to identify patients who received at least one of the specified antimicrobials and were screened to determine if they met inclusion criteria for chart review. A pre-data set was collected retrospectively (November 2010 - January 2011) and will represent the time antimicrobial stewardship was being performed by an infectious disease trained clinical pharmacist. A post-data set was collected retrospectively as well (November 2011 - January 2012) and will represent the period in which the stewardship position was vacant. Patients ≥ 18 years old, who have received either piperacillin/tazobactam, linezolid, micafungin, or imipenem/cilastin for at least 72 hours will be included. In the pre-data set patients will be included if the patient had an intervention made by the antimicrobial stewardship pharmacist. Data collected includes dose of antibiotic, duration of therapy, type of infection, microbiological results, de-escalation therapy and whether the patient was located in an intensive care unit at the start of therapy. The primary outcome will be the change in antibiotic usage over a three month period following the departure of an antimicrobial stewardship pharmacist. Secondary outcomes include the occurrence of C. difficile within the hospital and average duration of antimicrobial use following negative culture results.

Results: Data collection and analysis currently in progress and will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Identify the two core strategies suggested to help curb the spread of resistance.

Name the antimicrobials that were targeted by the antibiotic steward.

Self Assessment Questions:

Which of the following is an active core antimicrobial stewardship strategy?

A Formulary restriction and pre-authorization
B: Prospective audit with intervention and feedback
C: Physician education and clinical pathways
D: A and B

Which anti-infective was regularly assessed by the antimicrobial stewardship pharmacist?

A Cefazolin
B Clindamycin
C Linezolid
D Aztreonam

Q1 Answer: D Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-422 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

FROM DABIGATRAN TO WARFARIN: A CHANGE IN PROGRESS

Ashley N. Jacobs, Pharm.D.*, Brook Sipe, Pharm.D., Angel Heyerly, Pharm.D., Gordon Bokhart, Pharm.D., Ronald Jones, Pharm.D.

Lutheran Health Network,7950 W. Jefferson Blvd,Fort Wayne,IN,46804

anjacobs@lhn.net

Purpose:
Dabigatran is a direct thrombin inhibitor recently approved to reduce the risk of systemic embolism and stroke in patients with non valvular atrial fibrillation. After the introduction of dabigatran, there were a number of patients initiated on this new therapy. Recently, there have been patients who were previously treated with dabigatran returning to the pharmacist managed Lutheran Hospital Anticoagulation Clinic, in order to either initiate or restart warfarin therapy. In addition, there have been patients admitted to Lutheran Hospital who were previously treated with dabigatran and then switched to warfarin therapy. The goal of this study is to determine the reasons why patients who were once being treated with dabigatran are now being switched to warfarin therapy.

Methods :
This study will take place in Fort Wayne, Indiana at the Lutheran Hospital Anticoagulation Clinic and Lutheran Hospital. Via patient interviews and review of patient charts, information indicating why patients were changed from dabigatran therapy to warfarin therapy will be collected. Failure of therapy, adverse drug events, and cost of therapy are among the potential causes of dabigatran treatment discontinuation that will be evaluated in this study. In addition, data will be gathered regarding patient age, sex, past medical history, indication for anticoagulation, and renal function. Patients in this study will be followed from the time dabigatran was released in November 2010 until April 2012. Data gathered from patient interviews and chart reviews will then be used to assist with patient education, to make prescriber recommendations, and to identify adverse drug events that should be reported.

Results/Conclusions:
Data collection and evaluation currently in progress. Results and conclusions will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Select the appropriate dabigatran dose, when given a patient's creatinine clearance.

Identify patients who should be carefully evaluated prior to starting dabigatran treatment.

Self Assessment Questions:

A patient has a CrCl of 25 mL/min. Which dose of dabigatran should be prescribed for this patient?

A 150 mg PO daily
B: 75 mg PO BID
C: 150 mg PO BID
D: Dabigatran is contraindicated in this patient

Which organ system is commonly associated with dabigatran side effects?

A Respiratory system
B Endocrine system
C Excretory system
D Digestive system

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-421 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

TIMING OF NUTRITION SUPPORT AND COMPLICATIONS IN PATIENTS UNDERGOING ESOPHAGECTOMY

Samuel Jacobson*, PharmD; Anthony Gerlach, PharmD, BCPS, FCCM

The Ohio State University Medical Center,410 W 10th Avenue,Columbus,OH,43210

samuel.jacobson@osumc.edu

Purpose: Esophagectomy is a complex operation involving the abdomen, neck, and chest necessitating prolonged nothing by mouth (NPO) status to allow healing of the newly formed anastomosis. Complications such as anastomotic leak and wound dehiscence are common in patients post esophagectomy and are associated with increased length of stay morbidity and mortality. Poor nutritional status impairs wound healing after surgery and is associated with increased morbidity and mortality. The aim of this investigation is to assess if delaying nutrition support after esophageal surgery increases the incidence of complications such as anastomotic leaks. Previous studies have investigated the significance of specialized postoperative nutrition in many surgical procedures, but not after esophagectomy yielding conflicting results.

Methods: This is a retrospective chart review conducted on patients who underwent esophagectomy during admission at the Ohio State University Medical Center from 5/1/1996 through 12/31/2010. Exclusion criteria included patients less than 18 years of age, age greater than 89, pregnant females, and prisoners. Data collected includes demographics, indication for surgery, type of surgery (transhiatal, Ivor Lewis, or minimally invasive), use and timing of nutrition support, laboratory values, complications (anastomotic leak, wound dehiscence) and ICU and hospital length of stay (LOS). Patients enrolled in the study were evaluated for preoperative anthropomorphic criteria including weight loss of 10% and percent of ideal body weight. The primary endpoint of this study is to assess the timing of nutrition support after surgery and the incidence of complications such as anastomotic leaks and wound dehiscence. Statistical analysis was performed by Students T test for continuous parametric data, Mann Whitney U test for ordinal or nonparametric data, and Fishers exact test for nominal data.

Results: Results and conclusions will be presented at Great Lakes Pharmacy Resident Conference

Learning Objectives:

Define the impact of timing of nutrition support on the incidence of complications in patients undergoing esophagectomy.

Identify comorbid conditions that impair wound healing after surgery.

Self Assessment Questions:

Which of the following is a common complication in patients after esophagectomy?

A Rash
B: Anastomotic leak
C: Bacteremia
D: Colitis

Which of the following is the best marker for nutritional status?

A Prealbumin
B Bun
C SCr
D Hemoglobin

Q1 Answer: B Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-423 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

IODINE, SHELLFISH AND CONTRAST MEDIA ALLERGY DOCUMENTATION AND FUNCTIONALITY IN THE ELECTRONIC HEALTH RECORD

Urszula Jagodynska, PharmD, Pharmacy Resident*; Jennifer A. Szparkowski, PharmD, Clinical Pharmacist

NorthShore University HealthSystem,2100 Pfingsten Rd,Room B207,Glenview,IL,60026

ujagodynska@northshore.org

Purpose: Patients are often given a diagnosis of iodine allergy after developing reactions to shellfish, topical iodine or iodinated contrast media (ICM) because of the presence of iodine in these compounds. However, the American College of Radiology states that no evidence exists to support this practice. The American Academy of Asthma, Allergy, and Immunology states that "a general atopic disposition, rather than an iodine-specific reactivity accounts for the increased incidence of reactions." At NorthShore University HealthSystem, multiple products are being flagged when a patient is labeled iodine allergic in the electronic health record. This results in a large number of misleading alerts (i.e. alerts caused by general iodine allergens) since an allergy to iodine does not predispose patients to developing reactions to ICM, shellfish or iodine-containing topical products. The purpose of this project is to improve iodine, shellfish and contrast media allergy documentation and its functionality in the electronic health record.

Methods: To decrease the number of misleading alerts involving iodine, alternative allergy choices will be introduced in the electronic health record. When documenting an allergy to iodine, users will have to question patients allergy further to choose from one of the following options: iodinated contrast media, topical iodine products or shellfish-derived products. Patients will also be contacted via phone or email to clarify and update existing iodine allergy documentation in the electronic health record. The primary endpoint of the study is the difference in rate of misleading alerts before and after implementation. Secondary endpoints include number of desensitization kits used in radiology procedures requiring contrast, number of iodine allergy alerts received by the dietary department and number of adverse drug reactions to iodinated contrast media before and after implementation.

Results/Conclusion: Analysis of results is ongoing. Results and conclusions will be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Describe the relationship between iodine, shellfish and contrast media allergies.

Outline a process for improving allergy documentation within an electronic medical record.

Self Assessment Questions:

Which of the following is correct?

A Reactions to iodinated contrast media mimic anaphylaxis but are n
B: Iodine or shellfish allergy predisposes patients to develop reaction
C: Reactions to shellfish are anaphylactic and are caused by iodine
D: The American College of Radiology supports the practice of withhc

One way to improve iodine/shellfish/contrast media allergy documentation within an electronic medical record is to:

A Introduce alternative allergy choices to encourage users to questio
B Introduce an “iodine/other” allergy choice so users can document g
C Contact patients via phone or email to clarify and update existing ic
D A and C

Q1 Answer: A Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-707 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

IMPLEMENTATION OF A MINIMUM INTERVAL ALERT: ANALYSIS AND IMPLICATIONS ON INCREASED PATIENT SAFETY

Juhi Jain* , R.Ph, Pharm.D, Mark T. Baumgart, R.Ph, Pharm.D, Pat Hanson, R.N., BSN, MSN, Wanita Kumar, M.D.

Indiana University Health,1515 Senate Ave.,Indianapolis,IN,46206

jjain@iuhealth.org

Background: Clinical decision support (CDS) alerts are created to allow for assistance in clinical decisions in conjunction with a clinicians professional judgment. However when too many system CDS alerts are put into place, it can cause alert fatigue, possibly rendering future use and evaluation of alerts less effective. A common area of medication errors lie in medications that are ordered "as needed" or "PRN" with various intervals and routes. Practitioners must be cognizant of maintaining accurate medication lists, especially with duplicate medications at any given point in time. A CareAdmin or CareMobile device is used by nurses for bedside barcode scanning ensuring the patient is receiving medications via the "Five Rights" principle of safe medication use. Often nurses have to administer medications earlier due to a patients condition or at patients request. Patients could be receiving the same medication multiple times via different routes that could lead to exceeding dose limits. An automated solution was to implement a minimum interval alert, which fires on CareAdmin or CareMobile device or the eMAR if a nurse tries to give a medication too frequently.

Methods: Using the Cerner electronic medical record, we will be analyzing up to 1 month retrospective data on "PRN" medications and approximately 1 month of post-alert implementation data to study the implications of total daily doses given during a 24 hour period during the study month. There will be an in depth analysis of how an alert request travels from the requestor to our team, and discussion of factors involved in building it. Implementation support and training that was required to educate the health care force utilizing this alert will also be described. Decision for which medications will be studied are still under discussion, however will likely be focused on pain medications especially those containing acetaminophen.

Learning Objectives:

Discuss the process of implementation of CDS alerts in the medication administration process.

Identify barriers to post implementation and revision to clinical decision support tools.

Self Assessment Questions:

CareMobile and CareAdmin are handheld devices that are used for which of the following:

A Barcode medication identification and administration
B: Automated drug-drug interaction checking tool prior to medication a
C: Automated drug-allergy checking tool prior to medication administr
D: All of the above

CDS alerts are used for which of the following health care professionals

A Nurses
B Physicians
C Pharmacists
D All of the above

Q1 Answer: D Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-807 -L05-P

Activity Type: Knowledge-based Contact Hours: 0.5

SYSTEMATIC REVIEW OF THE LITERATURE WITH EVALUATION AND APPLICATION OF COST-JUSTIFICATION MODELS TO CLINICAL TELEPHARMACY SERVICES

*Kyla E. James, PharmD and Miriam A. Ansong, PharmD

Sullivan University College of Pharmacy,2100 Gardiner Lane,Louisville,KY,40205

kjames@sullivan.edu

Purpose: identify cost-justification model that can be applied to clinical telepharmacy

Methods

A systematic review of the literature was conducted to identify potential models for cost justification for clinical telepharmacy based upon existing published cost justification models for ambulatory clinical pharmacy services. Of all studies, three were chosen as a potential cost justification model for clinical telepharmacy services. Factors influencing selection included, but was not limited to the following criteria: type of comparator used: historical control data versus actual control group attributes of the population that was studied, type and description of economic analysis, and type of study. The systematic review will be followed by a comparison of perceptions of independent pharmacists of rural Kentucky and clinical telepharmacy practitioners in regards to an applicable cost justification model for clinical telepharmacy services. Independent pharmacists will be surveyed to assess attitudes and perceptions of clinical telepharmacy. Surveys will be sent to participants through web-based survey software. Administered surveys will contain three proposed cost justification models for provision of clinical pharmacy services that were chosen from the aforementioned systematic review. An identical survey will be administered to clinical pharmacists that deliver clinical telepharmacy services to assess attitudes and perceptions of clinical telepharmacy. Survey results obtained from independent pharmacists will be compared to that of clinical pharmacists providing telepharmacy services.

Results

Three cost models were selected. Surveys responses from pharmacists will be analyzed to determine their perception on the best cost model for clinical telepharmacy service. The chosen cost model will be applied to the result of the clinical therapy pilot study. Appropriate statistical analysis will be applied and the data will be presented at the conference.

Conclusions

The data will be used to publish an article and share with other healthcare professionals.

Learning Objectives:

Describe the role that clinical telepharmacy plays in providing patient-centered pharmaceutical care

List one barrier in creating a cost-justification model for clinical telepharmacy services

Self Assessment Questions:

Which of the following best fits the description of Clinical Telepharmacy?

A Rural hospital pharmacy using remote order entry services during
B: Retail pharmacist providing patient counseling over telephone
C: Remote verification services by video teleconferencing conducted
D: Medication Therapy Management Services conducted by video co

Which of the following statements best describes the reasoning for lack of a cost justification model for clinical telepharmacy services?

A Limited number of publications describing pharmacoeconomic outc
B Clinical telepharmacy does not currently lie within the scope of pha
C Pharmacoeconomic studies have failed to justify clinical telepharm
D Clinical and humanistic outcomes have failed to justify clinical telep

Q1 Answer: D Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-708 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

FACTORS AFFECTING HEART FAILURE READMISSION RATES IN JESSE BROWN VA MEDICAL CENTER PATIENTS

Grazina Janeliauskaite*, Pharm.D.; Claresta L. Bergman, Pharm.D., BCPS; Blair J. Schwartz, Pharm.D.

Jesse Brown VA Medical Center,820 South Damen Avenue,Pharmacy Service (119),Chicago,IL,60612

grazina.janeliauskaite@va.gov

Purpose: Heart failure (HF) is the leading discharge diagnosis in patients treated at Veterans Affairs (VA) hospitals. In order to identify areas for improvement in regards to quality of care and HF readmission rates, this study aims to determine major factors contributing to hospital readmissions for HF at Jesse Brown VA Medical Center (JBVAMC).

Methods: This study is a retrospective, electronic chart review of JBVAMC patients hospitalized for HF exacerbation any time between October 1, 2010 and March 1, 2011. A report will be generated to identify potential patients to include in the study using ICD-9 HF codes. The report will specifically include patients discharged from JBVAMC with a principal discharge diagnosis of HF. A list will be generated to review a maximum of 250 patients. Patients aged 18 years and older with one of the ICD-9 HF codes as the principal discharge diagnosis between October 1, 2010 and March 1, 2011 will be included in the study. Patients will be excluded if transferred to/from an outside hospital, discharged without an ICD-9 principal diagnosis code for HF, electively admitted, not treated for HF during hospitalization, left the hospital AMA, chart documented with comfort measures only, discharged/transferred to hospice, active HF medications listed under non-VA medications in the electronic profile, or did not receive follow-up at JBVAMC. Baseline, hospitalization, post-discharge, and re-admission information will be collected, including demographics, co-morbid conditions, vital signs, select laboratory values, patient medications, medication compliance, length of in-hospital oral diuretic therapy, in-hospital HF assessment, and frequency/type of follow-up. The primary endpoint is percent difference in patient characteristics between two groups of patients, those readmitted for HF within 30 days of the index hospitalization and those readmitted after 30 days or not at all.

Results/Conclusions: To be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Discuss the significance of heart failure readmissions.

Identify specific heart failure guideline recommended interventions for all hospitalized patients prior to discharge.

Self Assessment Questions:

Which of the following is true regarding heart failure (HF) related hospitalizations?

A >50% of HF patients are readmitted for HF before their first outpati
B: HF is the second most common discharge diagnosis in Jesse Brov
C: Increasing quality improvement efforts have resulted in declining n
D: Persons over 75 years old comprise the largest percentage of all p

Which intervention is recommended in all hospitalized patients?

A Initiating a β-blocker in patients with left ventricular ejection fractior
B Assisting with hospital to home transition
C Providing comprehensive discharge instructions
D Both B and C

Q1 Answer: A Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-424 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

RABBIT ANTI-THYMOCYTE GLOBULIN VS. BASILIXIMAB AS INDUCTION THERAPY IN HEART TRANSPLANTATION

Arin S. Jantz,* Pharm.D., Mike Latran, Pharm.D.

Indiana University Health,Indiana University Health-Methodist Hospital,1701 N. Senate Blvd., Room AG401,Indianapolis,IN,46202

ajantz@iuhealth.org

Purpose: Heart transplantation is the therapy of choice for end stage heart failure and is used for a number of other indications. The use of appropriate immunosuppressive medications, including induction agents has been shown to decrease the incidence of acute cellular rejection (ACR) in heart transplant patients. Prior to 2010, both basiliximab and anti-thymocyte globulin (ATG) were used as induction agents at Methodist Hospital, but since that time all patients have received ATG. The purpose of this study is to compare the efficacy and incidence of adverse events in heart transplant patients receiving ATG or basiliximab as induction therapy at Methodist Hospital.

Methods: This is a retrospective cohort study of heart transplant recipients transplanted at Methodist Hospital between November 2006 and December 2010. All patients were followed for one year post-transplant. Patients were included if they were over 18 years of age and were receiving their first orthotopic heart transplant at Methodist Hospital with either ATG or basiliximab induction therapy. Patients were excluded if they received any other induction agent or were receiving a re-transplant or a multi-organ transplant. The primary outcome is to compare the incidence of grade 2 or higher rejection episodes between the two groups at 12 months. Secondary outcomes include the incidence of treated rejection episodes, infections, graft failure, and death at 12 months.

Results and Conclusions: Research is in progress. Results and conclusions will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Discuss the reasons for using induction immunosuppressive therapy in heart transplant patients

Identify the differences in the incidence of rejection episodes and infection rates between basiliximab and ATG

Self Assessment Questions:

Which of the following are possible benefits for using induction immunosuppressive therapy in transplant patients?

A Decrease in the incidence of rejection

B: Decrease in the incidence of graft loss

C: Reduction of adverse events related to maintenance immunosuppr

D: All of the above

When basiliximab and ATG are compared in clinical studies, heart transplant patients who received ATG conclusively experienced:

A Lower rates of infection

B Lower rates of rejection

C Lower incidence of mortality

D Lower rates of graft loss

Q1 Answer: D Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-425 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF PAIN CONTROL AFTER CERVICAL SPINAL CORD STIMULATION IN PATIENTS WITH ANEURYSMAL SUBARACHNOID HEMORRHAGE

Katherine A. Jennings, PharmD*; Eljim P. Tesoro, PharmD, BCPS; Jeffrey J. Mucksavage, PharmD, BCPS; Keri S. Kim, PharmD, MS CTS, BCPS; Karriem S. Watson, MD, MS, CCRC; Konstatin V. Slavin, MD

University of Illinois at Chicago,833 South Wood St,PHARM 164,Chicago,IL,60612

kjenning@uic.edu

Purpose: Cerebral vasospasm is a major cause of morbidity and mortality following aneurysmal subarachnoid hemorrhage (aSAH). Cervical spinal cord stimulation (SCS) has been studied for the prevention of cerebral arterial vasospasm following aSAH at the University of Illinois Hospital. Currently, SCS is an accepted strategy used for the treatment of chronic pain due to both central and peripheral mechanisms. Patients with aSAH experience pain from surgery and from direct meningeal irritation by subarachnoid blood. The study goal is to evaluate the use of opioid pain medications in patients who received cervical SCS for the prevention of vasospasm following aSAH to determine if these patients required less pain medications compared to those patients who did not undergo cervical SCS.

Methods: This descriptive, retrospective case-control study will compare patients who received cervical SCS for the prevention of cerebral vasospasm to patients who did not receive this intervention. Matching will be performed on a 2:1 basis with controls matched to cases by: Hunt & Hess and Fisher grades, age, gender, and surgical intervention. The primary objective is to compare the total amount of opioid used between the two groups in the first 14 days following aSAH. Total daily dose of opioid (based on morphine equivalents) will be calculated for each patient. Secondary objectives include: total amount of non-opioid pain medications used between the two groups, incidence of opioid-related complications of over-sedation and new-onset ileus, and the use of glucocorticoids as an adjuvant treatment in pain control. A Chi-square or Fishers exact will be used to compare categorical variables between the two groups. A t-test will be utilized for the primary objective and for all other continuous variables.

Results: Results and conclusions will be presented at the Great Lakes Pharmacy Residence Conference.

Learning Objectives:

Describe the mechanism and current role for spinal cord stimulation in the treatment of pain

Review the complications of aneurysmal subarachnoid hemorrhage and cerebral vasospasm

Self Assessment Questions:

Spinal cord stimulation is currently being utilized to treat which of the following conditions:

A Multiple sclerosis

B: Traumatic brain injury

C: Peripheral vascular disease

D: Spinal cord injury

Cerebral vasospasm following aneurysmal subarachnoid hemorrhage is:

A Associated with a decrease in cerebral blood flow

B An acute event occurring hours after the hemorrhage

C Associated with a decrease in morbidity and mortality

D Simple constriction of the cerebral blood vessels

Q1 Answer: C Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-426 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

IMPLEMENTATION OF A POST-HOSPITAL DISCHARGE FOLLOW-UP APPOINTMENT WITH A PHARMACIST WITHIN AN INTERNAL MEDICINE CLINIC

*Eric T. Johnson, Pharm.D.; Adam E. Gregg, Pharm.D., BCPS; Michael E. Meyers, Pharm.D.; Michael J. Lewandowski, Pharm.D., BCPS

Gundersen Lutheran Medical Center,1900 South Avenue,La Crosse,WI,54601

etjohnso@gundluth.org

Background:
Recent national healthcare reform has placed a growing emphasis on decreasing healthcare costs while maintaining high quality healthcare. Studies have demonstrated that hospital readmissions account for a large percentage of government healthcare spending. In addition, recen policies proposed by the Centers for Medicare and Medicaid Services would penalize health systems for preventable hospital readmissions resulting in decreased reimbursement. These factors have resulted in a growing movement to improve the transition of care at hospital discharge and improve the quality of healthcare that patients receive at primary care clinics. Several models have gained popularity to resolve these issues including the patient-centered medical home model. A pharmacist within the patient-centered medical home model has not yet been clearly defined.
Purpose:
To implement a pilot pharmacist service within an internal medicine clinic, while demonstrating a pharmacist role within the patient-centered medical home model.
Methods:
A pharmacist-patient appointment will be scheduled thirty minutes prior to the physician-patient appointment. During this appointment, the pharmacist will perform comprehensive medication reconciliation, reinforce medication education, and identify actual or potential drug therapy related problems. After the appointment, the pharmacist will document all relevant information within the electronic medical record and communicate all drug therapy problems to the physician. Patients included in the pilot service are any patient presenting to the internal medicine clinic for their first follow-up appointment after a hospital discharge. A total of ten internal medicine physicians have been identified to participate in this pilot service. A separate group of ten internal medicine physicians will serve as the control. Primary results will be thirty-day hospital readmission rates and associated cost. In addition, the number of total discrepancies noted on medication reconciliation and all drug therapy problems identified will be recorded.
Results/Conclusions:
To be presented at the GLRPC

Learning Objectives:

Explain the benefits of implementing a pharmacy service within a primary care clinic

Identify potential barriers to implementing a pharmacy service within a clinic setting

Self Assessment Questions:

Which of the following is NOT a potential benefit to implementing a pharmacist within an internal medicine clinic?

A Improved medication reconciliation at the time of the clinic appoint
B: A decrease in the total time that the patient spends at the clinic.
C: Improved compliance with previously prescribed medications.
D: A decrease in the cost associated with a patient's medication regin

Which of the following is NOT a potential barrier to implementing a pharmacy service in a clinic?

A Lack of available funding for pharmacist-based services from third
B The need for additional support staff to aid in scheduling, rooming,
C A small number of patients on chronic medications that are associa
D The difficulty accommodating provider, patient, and pharmacist sch

Q1 Answer: B Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-710 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

PHARMACIST INTERVENTIONS AND PATIENT PERCEPTIONS IN A NOVEL HEART FAILURE MEDICATION ADHERENCE CLINIC

Jennifer L. Johnson, Pharm.D.*, Lynette Moser, Pharm.D., Candice L. Garwood, Pharm.D., BCPS, Melissa Lipari, Pharm.D.

Harper University Hospital,3990 John R.,Detroit,MI,482012018

jljohnso@dmc.org

Purpose:
Medication and lifestyle non-adherence is a common cause for re-hospitalizations in patients with heart failure. This ranges from 10% to 64% depending on the patient population. Patients who receive post-discharge education and support from a pharmacist have less re-hospitalizations and shorter lengths of stay. Our institution recently implemented a novel medication adherence clinic aimed at improving transitions of care for patients with heart failure and taking more than 4 medications. The first objective of this study is to describe the interventions made by pharmacists in the clinic. The second objective is to identify changes in patient perceptions of pharmacy and pharmacists after one clinic visit.

Methods:
A retrospective review of all patients who attend the medication adherence clinic will be performed to evaluate pharmacist interventions. Pharmacist interventions within the clinic will be assessed using pharmacist documentation in the medical record. Each intervention will be categorized and analyzed using the PCNE V6.2 modified drug relatec problem classification tool. This study also includes a prospective, pre and post-survey comparison against a control group. Patient perceptions of pharmacy and pharmacists will be assessed using the Purdue Pharmacist Directive Guidance Scale. Participants are recruited during hospital admission using an electronic report that identifies patients with heart failure. Controls are matched in a 2:1 ratio using baseline demographic data. Residents of long-term care facilities, patients admitted for hospice care, and those with severe communication deficits are excluded from this portion of the study. After obtaining written consent, the questionnaire will be completed by each participant prior to hospital discharge, and also 1 month post-discharge via telephone. Within that 1 month period, an intervention patient will have an appointment at the medication adherence clinic.

Learning Objectives:

Define transitional care, and describe at least two types of transitional care programs aimed at improving patient-centered outcomes

Discuss the role of a pharmacist in disease management programs, and give an example of a pharmacist intervention

Self Assessment Questions:

Which of the following statements regarding transitions of care is correct?

A Medication reconciliations should be performed when a patient is a
B: A patient with heart failure should be seen by a provider within 7 da
C: Providing a patient with a printed set of discharge instructions will e
D: Minimizing patient involvement in discharge planning will prevent th

Which is an example of a patient-level intervention?

A Pharmacist recommended to increase a patient's beta-blocker dos
B Pharmacist recommended a brand to generic substitution
C Pharmacist provided patient with tips on how to remember to take
D Pharmacist researched a less costly alternative to an expensive m

Q1 Answer: B Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-427 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

OPTIMIZING MEDICATION ADHERENCE COMMUNICATION BETWEEN PHARMACISTS AND PRESCRIBERS

Abigail Johnson, Pharm.D*, Michelle A. Chui PhD, Pharm.D, Marvin R. Moore, Pharm.D, Brian C. Jensen, RPh, Mara A. Kieser, M.S., RPh

UW-Madison School of Pharmacy Community Pharmacy Residency Program,777 Highland Avenue,Madison,WI,53705

arjohnson1@wisc.edu

Purpose: Medication non-adherence is a major health concern leading to billions of dollars being spent on the resultant medical complications and hospital admissions. The purpose of this study is to determine how medication adherence information, obtained in a community pharmacy, can best be communicated to prescribers to collaboratively improve patient adherence.

Methods: The University of Wisconsin Social and Behavioral Institutional Review Board approved this research study. Three to five prescribers practicing in an ambulatory setting will be invited to participate in a 25-35 minute, semi-structured interview. Simulated patients cases portraying situations of medication non-adherence, mirroring that encountered in practice, along with potential solutions that could be provided by a pharmacist, will be utilized during the interview. This information will be entered into four different example fax forms for the prescribers to review. Prescriber interviews will be used to obtain information on the following: (1) their current practices in evaluating and addressing medication adherence (2) adherence data that prescribers view as valuable to patient care and (3) prescribers' preferred methods of communication about adherence information. Interviews will be audio recorded and transcribed to be retrospectively analyzed. A list detailing patient medication adherence information that prescribers view as useful and important will be created. This information, along with comments received on the example fax forms, will be used to create a fax template to be used by community pharmacists. Prescribers' opinions on potential barriers to prescriber-pharmacist collaboration regarding medication adherence, how often they would like to receive adherence information, and if and how they would refer patients for a pharmacist adherence consult will be investigated. Data collected from this study will be aimed at improving the collaboration between pharmacists and prescribers, allowing them to more effectively address medication non-adherence.

Results/Conclusions: Results and conclusions will be presented at the Great Lakes Residency Conference.

Learning Objectives:

Describe the significance of medication non-adherence as a health-care concern.

List the factors that contribute to medication non-adherence.

Self Assessment Questions:

According to the World Health Organization, what percentage of patients in the United States is thought to be non-adherent to their medications?

A 20%
B: 35%
C: 50%
D: 65%

Which of the following factors may contribute to higher rates of medication non-adherence?

A Patients using short-term medication for acute conditions
B Patients using multiple medications to treat their conditions
C Patients using a primary care provider versus individual specialists
D Both B and C

Q1 Answer: C Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-709 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

INDICATORS OF LENGTH OF STAY IN COCAINE POSITIVE PATIENTS PRESENTING WITH ACUTE RESPIRATORY DISTRESS

S. Ross Jones, PharmD*; Michael Peters, RPh, BCPS; Mark Mlynarek, RPh, BCPS; John Stine, PharmD, BCPS

Henry Ford Health System,2799 W Grand Blvd,Detroit,MI,48202

sjones29@hfhs.org

Purpose:
The purpose of this study is to determine risk factors for increased length of stay in patients presenting to Henry Ford Hospital medical intensive care units with acute respiratory distress and urinary toxicology screen positive for cocaine.
Methods:
This is a retrospective, case control study. Patients will be identified by admittance to a MICU, an ICD-9 for acute respiratory distress and a urinary toxicology screen upon presentation. The study group will consist of patients that meet the inclusion criteria and have a positive urinary toxicology screen for cocaine upon admission. Controls will be matched using nearest neighbor propensity score matching on a 1:1 basis. After matching the control group to the study population, ICU length of stay and urinary toxicology will be used to assess differences in length of stay between cocaine positive and cocaine negative patients. Univariate analysis will be conducted on the following data points: urinary toxicology positive for cocaine, opiates, ethanol, amphetamines, or marijuana, presence of heart failure (EF <40%), diabetes (A1c >6%), use of sedation, positive sputum, urine or blood cultures from day one of ICU admission, necessity of mechanical ventilator use on day one and two or more systemic inflammatory response syndrome (SIRS) criteria, and standing albuterol dosing schedule on day one of ICU admission. Factors that are found statistically significant ($p<0.2$) and are clinically relevant will be included in a multivariate regression analysis . A N:K ratio of 10:1 variables will be used to determine the number of variables permitted in the multivariate regression analysis.
Results:
Data Collection and analysis are underway.

Learning Objectives:

Describe the mechanisms of cocaine induced respiratory damage

Discuss the possible variables associated with increased length of stay in cocaine positive patients presenting to the ICU for acute respiratory distress

Self Assessment Questions:

What of the following are possible mechanisms attributed to cocaine induced respiratory distress?

A bronchospasm
B: vasodilation
C: anti-inflammatory actions in alveoli
D: increased blood flow to lungs

Which of the following statements is true?

A Cocaine use has been associated with decreased length of stay.
B Cocaine use has been associated with decreased admission rates
C Cocaine use has been associated with increased length of stay.
D None of the above answers are true.

Q1 Answer: A Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-428 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

COMPARISON OF CONTRAST-INDUCED NEPHROPATHY FOLLOWING IOPAMIDOL OR IODIXANOL IN CORONARY ANGIOGRAPHY PATIENTS

Amanda M. Jones, PharmD*, Kevin L. Poe, PharmD, BCPS, Kip A. Eberwein, RPh, Shawn R. King, PharmD

St. Joseph's Hospital - KY,1,Saint Joseph Drive,Lexington,KY,40504

jonesama@sjhlex.org

One proposed mechanism for decreasing nephropathy after contrast media administration is to alter the osmolarity. High-osmolar contrast media have a higher incidence of contrast-induced nephropathy (CIN) compared to low-osmolar or iso-osmolar agents, though comparison between low-osmolar and iso-osmolar agents has not been clearly defined. This study will compare the incidence of CIN in patients receiving iso-osmolar iodixanol and low-osmolar iopamidol for coronary angiography.

This is a retrospective, single-center, observational study which will utilize the hospitals electronic records to identify all patients administered iodixanol or iopamidol for coronary angiography between 6/1/2008 and 6/1/2011. The Institutional Review Board reviewed this study prior to any data collection. Data collection includes: gender, age, weight, height, body surface area, ethnicity, serum creatinine at baseline and within 96 hours post-procedure, blood-urea nitrogen, hemoglobin A1c, ejection fraction, blood pressure, type and volume of contrast and hydration administered, procedure details and all medications used within 3 days of angiography. Exclusion criteria includes patients who: received both contrast agents during the study period, received any nephrotoxic medication within 3 days of the procedure, patients with an ejection fraction less than or equal to 15%, patients with missing serum creatinine data, patients with a standardized creatinine clearance less than or equal to 15 mL/min and those less than 18 years old. Contrast-induced nephropathy is defined in this study as a serum creatinine increase of greater than or equal to 0.5 mg/dl or an increase of 25% or more from baseline within 96 hours of contrast administration. Additional data examined are: decrease in standardized creatinine clearance of 25% or more from baseline, treatment of acute renal failure after contrast administration and the number of deaths from any cause. The incidence of contrast-induced nephropathy between patients receiving iodixanol will then be compared to those receiving iopamidol.

Learning Objectives:

Define contrast-induced nephropathy following administration of contrast media in coronary angiography patients in this study.

Identify the different contrast media based on osmolarity.

Self Assessment Questions:

What is the definition of contrast-induced nephropathy in this study?

A Serum creatinine increase of ≥ 0.5 mg/dl or an increase of ≥ 25% v
B: Serum creatinine increase of ≥ 1.5 mg/dl or an increase of ≥ 25% v
C: Serum creatinine increase of ≥ 0.5 mg/dl or an increase of ≥ 50% v
D: Serum creatinine increase of ≥ 0.5 mg/dl or an increase of ≥ 25% v

Which of the following is an iso-osmolar contrast agent?

A iodixanol
B ioxilan
C iopamidol
D iohexanol

Q1 Answer: D Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-711 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

IMPLEMENTATION OF A DIABETIC KETOACIDOSIS PROTOCOL AT AN ACADEMIC CENTER

Talia M. Jones*, PharmD; Karishma S. Deodhar, PharmD, BCPS; Karalea D. Jasiak, PharmD, Kerri E. Degenkolb, PharmD, BCPS; Carolyn M. Jung, PharmD, BCPS; Monica L. Miller, PharmD, MS; Brian R. Overholser, PharmD

Wishard Health Services,1001 W 10th St.,Indianapolis,IN,46202

talia.jones@wishard.edu

Purpose

Diabetic ketoacidosis (DKA) is an acute and potentially fatal complication of diabetes mellitus. While mortality rates have significantly decreased, the incidence of DKA has increased. Due to the complex management of DKA and potential complications from mismanagement, hospitals are instituting protocols to streamline the care for these patients. The purpose of this project is to evaluate the implementation and use of a protocol for the treatment of DKA and its impact on patient care.

Methods

The study is a retrospective, observational chart review. Data collected from patients admitted from January 2010 to April 2010 prior to the DKA protocol initiation will be compared to data from patients post-implementation. The study population includes patients 18 years or older with a diagnosis of diabetic ketoacidosis. Prisoners and pregnant women are excluded. The primary endpoint of this study is time to calculated anion gap closing. Secondary endpoints include: time to treatment initiation, normokalemia prior to insulin initiation, time to dextrose addition to fluids, time to route change of insulin therapy, overlap of intravenous and subcutaneous insulin administration, occurrence of hypoglycemic events, length of stay, and death.

Results

Pending.

Learning Objectives:

Explain the pathophysiology of and treatment guidelines for diabetic ketoacidosis.

Describe the diabetic ketoacidosis treatment protocol developed for Wishard Heath Services and potential benefits of implementation.

Self Assessment Questions:

Which is a complication that can result from DKA treatment mismanagement?

A Hyperkalemia
B: Hypoglycemia
C: Peripheral edema
D: Thrombocytopenia

In patients experiencing DKA what is the appropriate management when the glucose approaches 200 mg/dL?

A Add dextrose to fluids until anion gap closes
B Discontinue all forms of insulin
C Double maintenance fluid infusion rate
D Add potassium to maintenance fluids

Q1 Answer: B Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-429 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

INITIATION AND EVALUATION OF A NOVEL PHARMACY MEDICATION HISTORY CONSULT SERVICE

*Jessica Jones, Pharm.D., Elizabeth Petrovitch, PharmD, BCPS, David Trupiano, Pharm.D., Lynette Moser, Pharm.D.

Harper University Hospital,3990 John R,Detroit,MI,48201

jjones9@dmc.org

Purpose: Accurate and complete medication histories in hospitalized patients play an important role in patient safety. Pharmacist involvement in the medication history process decreases medication errors and reduces the risk of adverse events. This study evaluates of the impact of pharmacist provided medication histories on pharmacy interventions, pharmacist workload, pharmacists attitude, and healthcare outcomes.

Methods: This is a prospective, observational study evaluating a pilot pharmacist medication history service, from October 2011 through February 2012. Patients identified for this service had a diagnosis of heart failure, received at least four medications as an outpatient, and were able to communicate. The pharmacist interviewed the patient/family, contacted the community pharmacy, updated the medical record, and contacted the prescriber to resolve identified issues discovered when completing the history. Pharmacists activities, time required, changes to the medical record, drug related problems identified, and interventions accepted were documented by the pharmacist using a uniform tool and will be described quantitatively and qualitatively. Pharmacists were surveyed about the perceived value of a pharmacist provided medication history prior to and at the conclusion of the pilot. A chi square test will be utilized to compare the before and after pharmacist perceptive surveys. Length of hospital stay will be compared with average length of stay for a retrospective cohort of heart failure patients using a student t-test. All analyses will be conducting using a p value of 0.05. This project obtained Institutional Review Board approval.

Results: To date, 74 medication histories have been completed by pharmacists. They have identified and resolved 291 discrepancies in the history (approximately 3.9 per patient), and documented 145 clinical interventions.

Conclusions: To be presented at the 2012 Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Recognize the importance of accurate and complete medication histories in hospitalized patients.

Describe the ways in which pharmacist involvement in the medication history process improves patient safety.

Self Assessment Questions:

Accurate and complete documentation of medications prior to admission leads to:

A Increased medication errors.

B: Patient confusion upon discharge.

C: Smooth and safe transitions of care.

D: Inappropriate inpatient prescribing.

Data has shown that medication history services provided by pharmacists:

A Do not increase the number of pharmacist clinical interventions.

B Decrease medication errors and reduce the risk of adverse events.

C Are not supported by TJC or ASHP goals and initiatives.

D Do not save time compared to histories obtained by other healthca

Q1 Answer: C Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-808 -L05-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF PROCALCITONIN USE FOR ANTIBIOTIC DISCONTINUATION IN MEDICAL INTENSIVE CARE PATIENTS AT A COMMUNITY TEACHING HOSPITAL

Sara E. Jordan*, PharmD, Lauren M. Flannery, PharmD, BCPS, Jamie Jenkins, PhD, Rodney K. Kusumi, MD, Phillip C. Hawley, MD, Kiran Devulapally, MD, Bradley R. Harrold, MD, Shiva D. Rahmanian, MD, Lauren DiBenedetto, Janelle Hartman, Vivek Trivedi

Grant Medical Center,111 S. Grant Ave.,columbus,OH,43215

sjordan3@ohiohealth.com

Background:
Procalcitonin (PCT), the prohormone of calcitonin, has been increasingly studied in various practice settings over the past decade as a biomarker of bacterial infection. The apparent correlation of serum PCT levels with infection onset, severity, and resolution after appropriate treatment has sparked interest in the utility of PCT-guided treatment algorithms in determining appropriate antibiotic usage.
Purpose:
To retrospectively assess the safety and efficacy of PCT use for antibiotic discontinuation compared to standard care without regard to PCT in medical intensive care patients at a community teaching hospital.
Methods:
This retrospective observational study was approved by the health-systems IRB and included all intensive care patients seen by the pulmonary/critical care service at Grant Medical Center from March 2010 through September 2011. Patients were excluded if they were being treated for endocarditis, osteomyelitis, tuberculosis, persistent bacteremia, and Legionnaires disease as these conditions require prolonged antibiotic courses. Remaining patients were then divided into one of three study arms: those in which PCT levels were not drawn, those in which PCT use to determine antibiotic duration did not reflect current recommendations, and those in which PCT was used to determine antibiotic duration per current recommendations. Primary outcomes were 28-day mortality and days of antibiotic therapy. Secondary outcomes included days of mechanical ventilation, ICU and hospital length of stay (LOS), incidence of C. difficile-associated diarrhea (CDAD), incidence of subsequent infection caused by multi-drug resistant (MDR) organisms during hospital stay, readmission within 28 days after discharge, and total medication charges for admission. Additional subgroup and sensitivity analyses were also performed this study determined the sensitivity, specificity, positive predicative value (PPV) and negative predictive value (NPV) of our PCT assay for bacterial infection.
Results/Conclusions:
964 patients have been identified as meeting inclusion criteria. Data collection is underway and further results and conclusions to be presented at the Great Lakes Residency Conference.

Learning Objectives:

Describe procalcitonin's potential role in determining antibiotic duration.

Identify currently-recommended procalcitonin cut-off values.

Self Assessment Questions:

An elevated procalcitonin (PCT) in an infected patient generally decreases precipitously after:

A Major trauma or surgery

B: Initiation of appropriate antibiotic therapy

C: Acute coronary syndromes

D: Initiation of vasopressors

Most current procalcitonin (PCT) assay manufacturer guidelines and applicable literature would recommend initiating or continuing antibiotic therapy in a patient with a PCT of:

A 0.002 ng/mL

B 0.02 ng/mL

C 0.2 ng/mL

D 2 ng/mL

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-430 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

INSULIN INTERCHANGE: COST, SAFETY AND OPERATIONAL STRATEGIES

Dena L. Stout, Pharm.D.; James T. Joseph*, MBA, Pharm.D.; Annette M. Karageanes, MS, RPh

William Beaumont Hospital,44201 Dequindre Rd,Troy,MI,48085

james.joseph@beaumont.edu

Purpose: With advancements in technology to improve patient safety and patient care, Beaumont Health System integrated bar-coded medication administration (BCMA) into its medication safety practices. Due to the incorporation of BCMA, many changes had to be made to current dispensing and administration processes. A cost analysis was performed to evaluate the cost of interchanging multi-dose insulin vials to options better suited for BCMA. The purpose of this analysis was to evaluate the cost, safety and feasibility involved with the therapeutic interchange of insulin from multi-dose vials to patient specific pens and unit-dose syringes. A post analysis was done to assess the validity of the analysis utilized prior to implementation.

Methods: Variables considered in the pre-implementation analysis were: medication contract costs adjusted for market share if applicable, estimated magnitude of insulin waste dependent on dispensing technique, estimated quantities of insulin dispensed per dispensing technique, patient and staff safety, staff education requirements, and operational strategies required to integrate the new dispensing techniques into the technology systems utilized by Beaumont Health System. BCMA was implemented in December of 2011 and data was collected during the months of January and February of 2012 to assess the accuracy of the variables listed above. Assessment techniques included were: estimating amount of insulin waste by collecting unused patient specific syringes, analyzing order receipts and inventory of all insulin products, analyzing operational/educational issues during the interchange, assessing staff satisfaction by utilizing questionnaires, and assessing lab reports for ratios of blood sugars falling within a certain range during the pre and post implementation periods.

Results: To be presented

Conclusion: To be presented

Learning Objectives:

Indicate which insulin interchange technique was estimated to have the biggest impact on cost savings.

Identify the issues that arose with the insulin interchange during the post implementation period.

Self Assessment Questions:

Which of the following insulin interchange strategies was estimated to show the greatest cost reduction in the pre-implementation analysis?

A Interchanging long acting insulins from multi-dose vials to drawn u
B: Interchanging long acting insulins from multi-dose vials to patient s
C: Interchanging intermediate acting insulin from multi-dose vials to d
D: Interchanging intermediate acting insulin from multi-dose vials to p

The magnitude of which of the following issues after the implementation of the interchange was highly underestimated?

A Time commitments for adequate staff education
B Labeling changes
C Bar-codes not scanning
D Duplicate dispensing and waste

Q1 Answer: A Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-712 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF VANCOMYCIN AND THE INCIDENCE OF RENAL IMPAIRMENT IN SURGICAL INTENSIVE CARE UNIT (ICU) PATIENTS

Mindy Joseph*, PharmD, Natasa Stevkovic, PharmD, BCPS, Angela M. Plewa, PharmD, BCPS

John H. Stroger Jr. Hospital,1901 West Harrison Street,Suite LL-170,Chicago,IL,60612

mjoseph14@cookcountyhhs.org

Purpose:
Dosing of antimicrobials is crucial especially with the increasing rate of bacterial resistance. The current IDSA/ASHP/SIDP Vancomycin Therapeutic Guidelines suggest a vancomycin dosing regimen that will achieve optimal trough concentrations and maximal target organ penetration often leading to doses >4 grams/day. Despite limited published literature on safety or efficacy of high dose vancomycin therapy in surgical ICU patients, clinicians often prescribe higher than normal doses of vancomycin to treat bacteremia, endocarditis, osteomyelitis, meningitis, and hospital-acquired pneumonia caused by Staphylococcus aureus. The objective of this study was to determine the incidence of renal impairment in surgical intensive care unit patients who have been treated with vancomycin for greater than three days. Nephrotoxicity was defined as an increase in serum creatinine by 0.5 mg/dL or by 50% of initial value. We hypothesized that vancomycin can be safely administered to ICU patients for treatment of severe infections without an increase in risk of nephrotoxicity.

Methods:
A prospective, observational study that has been submitted and approved by the Institutional Review Board for Cook County Health and Hospitals System. Patients in surgical ICUs (Trauma, Burn, General Surgery, Neurosurgery) were included if they were greater than 15 years old, on vancomycin therapy for more than 72 hours and met two or more systemic inflammatory response syndrome criteria. Patients were excluded if receiving hemodialysis prior to study entry, pregnant, or found to have burns covering a total body surface area greater than 30%. The study was designed for one year or until 100 patients have been enrolled. All data was collected from computerized medical records.

Results/Conclusion:
Research is currently in the data collection phase. Results and conclusion will be presented at the Great Lakes residency Conference.

Learning Objectives:

Describe the rational for use of high dose vancomycin for treatment of severe infections in surgical ICU patients.

Recall the definition of vancomycin induced nephrotoxicity as stated in IDSA/ASHP/SIDP Vancomycin Therapeutic Guidelines.

Self Assessment Questions:

What is the best description of the antimicrobial effect of vancomycin?

A Time-dependent and bactericidal
B: Concentration-dependent and bactericidal
C: Time dependent and bacteriostatic
D: Concentration-dependent and bacteriostatic

Which of the following definitions of vancomycin-induced nephrotoxicity is consistent with IDSA/ASHP/SIDP Vancomycin Therapeutic Guidelines?

A Increase in serum creatinine of 0.25 mg/dL or increase of 25% fron
B Decrease in serum creatinine of 0.25 mg/dL or decrease of 25% fr
C Increase in serum creatinine of 0.50 mg/dL or increase of 50% fron
D Decrease in serum creatinine of 0.50 mg/dL or decrease of 50% fr

Q1 Answer: A Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-809 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF DRUG-DRUG INTERACTION ALERTS FOR QTC PROLONGATION AT NORTHSHORE UNIVERSITY HEALTHSYSTEM

Anna Kabakov, PharmD* and Kristi Killelea, PharmD, BCPS

NorthShore University HealthSystem,2650 Ridge Ave.,Evanston,IL,6020

AKabakov@northshore.org

Purpose:
QTc prolongation increases the risk of developing Torsades de Pointes, a ventricular arrhythmia that has the potential of being lethal. Risk factors for QTc prolongation include baseline QTc >500 milliseconds (ms), female gender, age ≥ 65 years, bradycardia, hypokalemia, hypocalcemia, hypomagnesemia, and a history of cardiac disease (congestive heart failure and/or myocardial infarction). In general, drug-induced ventricular arrhythmias have been associated with QTc interval durations > 500 ms or with QTc intervals that increase by more than 60 ms from baseline.
The objective of this project is to evaluate pharmacist and prescriber actions on drug-drug interaction alerts for QTc prolongation in the electronic health record system within NorthShore University HealthSystem (NorthShore). The current intervention rate is unknown.

Methods:
A specific list of medications that have a high risk of prolonging the QTc interval and a list of risk factors for QTc prolongation was created and validated by a group of electrophysiology physicians at NorthShore. The authors of this project performed a retrospective chart review of all drug-drug interaction alerts that were presented to the prescriber from July 1, 2012 to June 30, 2011 between two medications from the specified list. The authors looked individually at each alert and assessed the patient associated with the alert. The list of risk factors was used to screen the patients risk for QTc prolongation and Torsades de Pointes and each patient was given a risk factor score. The authors assessed if an intervention was made by the ordering prescriber or pharmacist. Assessment was also made of the severity level of each drug-drug interaction alert. Based on the results, recommendations for creating an appropriate decision support tool may be made.

Results/Conclusion:
Analysis of results is ongoing. Results and conclusions will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Describe the risks of QTc prolongation.

Identify three risk factors present in a patient that can lead to Torsades de Pointes if the patient takes a medication that prolongs the QTc interval.

Self Assessment Questions:

Which of the following is correct?

A A risk factor for QTc prolongation is age ≥ 70 years old
B: A risk factor for QTc prolongation is a history of congestive heart fa
C: A risk factor for QTc prolongation is baseline QTc ≥ 600 ms
D: A risk factor for QTc prolongation is male gender

What is the most common formula in clinical practice to calculate the corrected QT interval?

A Michaelis-Menten formula
B Fridericia formula
C Bazett correctional formula
D QRS complex formula

Q1 Answer: B Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-810 -L05-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF INDICATION-SPECIFIC STOP DATES ON ANTIMICROBIAL THERAPY: A PROSPECTIVE REVIEW OF SEPSIS PATIENTS

Amanda R. Kahn, PharmD*, Katherine Pickerill, PharmD, Anita Schwartz, PharmD, BCPS

Franciscan St. Elizabeth Health,1701 South Creasy Lane,Lafayette,IN,47905

amanda.kahn@franciscanalliance.org

Purpose:
According to the Infectious Diseases Society of America and the Society for Healthcare Epidemiology of America, approximately 50% of all antibiotic orders are unnecessary. Decreased use of antibiotics, including shorter durations of therapy, is shown to decrease antimicrobial resistance, decrease cost, and decrease complications of therapy, such as Clostridium difficile infections. The Surviving Sepsis Campaign recommends that the typical length of antimicrobial therapy for sepsis patients is 7 to 10 days, yet patients often receive prolonged, unnecessary antibiotics. This project was implemented to promote antimicrobial stewardship in a community hospital setting. The goal of this program is to decrease the overall use of antimicrobial agents by decreasing the length of therapy based on clinical indication.

Methods:
A program was implemented on January 1, 2012 for pharmacists to automatically adjust the length of antimicrobial therapy based on clinical indication. For sepsis patients, a seven day automatic stop date was implemented for all intravenous antibiotics, oral fluoroquinolones, and oral clindamycin. A pharmacist reviews antibiotic orders at least 24 to 48 hours prior to the automatic stop date on the antibiotic and communication with physicians is made regarding the intervention. In this prospective study, all patients admitted to Franciscan Saint Elizabeth Health between January 1, 2012 and March 30, 2012 with a diagnosis of sepsis will be included. The primary endpoint is length of antimicrobial therapy. Secondary endpoints include cost of antimicrobial therapy, overall healthcare-related costs, and rates of Clostridium difficile infections. A retrospective review of patients admitted between June 1, 2011 and September 30, 2011 with a diagnosis of sepsis will serve as the control group.

Results/Conclusions:
To be presented at the 2012 Great Lakes Pharmacy Resident Conference

Learning Objectives:

Explain the current recommendations regarding appropriate duration of antimicrobial therapy for sepsis patients.

Identify the impact on length of antimicrobial therapy, healthcare-related costs, and complications of therapy of implementing automatic stop dates on antimicrobial therapy.

Self Assessment Questions:

According to the Surviving Sepsis Campaign, the appropriate length of antimicrobial therapy for sepsis is typically:

A 5-7 days
B: 7-10 days
C: 10-14 days
D: 14-21 days

Which of the following statements is true regarding antimicrobial use?

A Increased duration of antimicrobial therapy increases the risk for c
B Decreased antimicrobial use in hospital settings increases mortalit
C The duration of antimicrobial therapy does not affect the incidence
D Increased use of antimicrobial prophylaxis decreases the risk for re

Q1 Answer: B Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-431 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

ANTIBIOTIC ALGORITHM USE IN SEPSIS PATIENTS: ADHERENCE AND EFFECTIVENESS IN THE EMERGENCY DEPARTMENT

Teresa C. Kam, PharmD*; John Lock, PharmD, BCPS; Amber Cook, PharmD, BCPS

St. Vincent Hospital and Health Services,2001 W. 86th Street,Indianapolis,IN,46260

tkam@stvincent.org

Background
Sepsis continues to be a common cause of hospitalizations and mortality each year. In the 2008 Surviving Sepsis guidelines, early goal-directed therapy was recommended within the first six hours of severe sepsis presentation to decrease mortality. Several studies have demonstrated that the use of an antibiotic algorithm for empiric antibiotic prescribing for sepsis in the Emergency Department (ED) can lead to decreased time to antibiotic administration, length of stay, and mortality.

Purpose
The primary objectives of this study are to assess the adherence to and the effectiveness of an antibiotic algorithm at decreasing length of hospitalization and mortality in patients with sepsis presenting to the adult ED at St. Vincent Indianapolis Hospital.

Methods
In this IRB-approved, retrospective chart review, patients ages 18 years and older were included if they had a sepsis diagnosis in the ED and were admitted as an inpatient from January 1, 2011 to December 31, 2011. Patients were excluded if they were under 18 years old or if they died in the ED. Adherence outcomes were measured through comparison of the clinical infectious diagnosis with the recommended antibiotic regimen according to the algorithm. Factors evaluated to determine the effectiveness of the antibiotic algorithm include length of hospitalization, mortality, follow-up cultures and appropriateness of initial antibiotic selection based on reported susceptibilities, time to antibiotic orders from presentation to the ED, and time to antibiotic administration from physician orders.

Results and Conclusion
Data collection is ongoing. Results will be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Describe the recommended steps for initial management of sepsis patients.

Discuss the impact of having a sepsis protocol, including an antibiotic algorithm, on patient outcomes.

Self Assessment Questions:

According to the 2008 Surviving Sepsis Guidelines, within how many hours should antibiotics be given to a patient presenting with sepsis?

A 1 hour
B: 2 hours
C: 4 hours
D: 8 hours

Which of the following is true?

A Hypotension is a criterion for systemic inflammatory response sync
B One set of blood cultures should be obtained prior to antibiotic adn
C Early goal-directed therapy has been shown to decrease mortality.
D Combination antibiotic therapy should be given for at least 7 days.

Q1 Answer: A Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-432 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

COMPARATIVE EVALUATION OF AN ANTIMICROBIAL STEWARDSHIP PROGRAM AT A COMMUNITY HOSPITAL

Salem E. Kamalay, Pharm.D.*

Aspirus Wausau Hospital,333 Pine Ridge Blvd,Wausau,WI,54401

salem.kamalay@aspirus.org

Purpose: The purpose of the study is to pilot and evaluate the efforts of a collaborative physician and pharmacist antimicrobial stewardship team

Methods: During the months of November 2011 and April 2012, an Aspirus Wausau Hospital pharmacy resident will work collaboratively with an infectious diseases physician towards the goal of improving antimicrobial use at the hospital. Patients receiving selected antimicrobials will be identified daily by a report generated from information in our pharmacy information system. Medical records of identified patients will be reviewed daily for appropriateness of current therapy, updates in culture results, signs of adverse reactions, and potential for antimicrobial de-escalation or discontinuation. Recommendations for therapy changes will be discussed with primary prescribers and their acceptance status documented in the patients medical record. Use of six antibiotics; cefepime, vancomycin, piperacillin/tazobactam, ertapenem, meropenem and linezolid will be monitored retrospectively for the trial period to measure the impact of the antimicrobial stewardship team. The primary outcome of the study will be the number of doses administered per admission of the selected agents during a time period when stewardship services were active as compared to the number of doses administered per admission during a time period without active stewardship services. The secondary outcome will be total cost of antimicrobials per admission during the same time periods.

Results: The study is in progress at this time.

Conclusion: The study is in progress at this time.

Learning Objectives:

Discuss the importance of antimicrobial stewardship and the role of the pharmacist in enhancing stewardship services

Describe the implementation of a collaborative physician-pharmacist stewardship team at Aspirus Wausau Hospital and identify the effect of the team on overall antimicrobial use

Self Assessment Questions:

Which of the following is a rationale for antimicrobial stewardship?

A Antimicrobial stewardship can prevent both acquired and inherent
B: Antimicrobial use is associated with adverse effects
C: Eliminating necessary antimicrobial use will reduce costs
D: Stewardship teams are best prepared to make informed antimicrob

Use of which of the following antimicrobial agents was evaluated in this study?

A Levofloxacin
B Cefepime
C Imipenem/Cilastatin
D Moxifloxacin

Q1 Answer: B Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-433 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

PREDICTORS OF SLOW ELIMINATION OF HIGH DOSE METHOTREXATE

Kelly A Kampschmidt, PharmD*; Colleen Czerniak, PharmD; Steven Trifilio, PharmD

Northwestern Memorial Hospital,251 East Huron Street Feinberg Pavilion LC-700,Chicago,IL,60611

kkampsch@nmh.org

Purpose: Methotrexate is an antimetabolite chemotherapeutic agent which competitively inhibits dihydrofolate reductase, the enzyme responsible for converting folic acid to reduced folate cofactors. Methotrexate can be used for a variety of malignancies and rheumatoid arthritis. High doses of methotrexate in excess of 3g/m2 penetrate the CNS and are used clinically for osteosarcoma and breast cancer metastatic to the brain, as well as primary CNS lymphoma. At higher doses methotrexate is more toxic and causes more side effects including hepatotoxicity, nephrotoxicity, mucositis, myelosuppression, nausea and vomiting. Some individuals clear methotrexate slowly. The purpose of this study is to determine if risk factors can be identified for delayed clearance of methotrexate after high dose methotrexate is given to patients with primary CNS lymphoma. The first serum methotrexate level drawn will also be evaluated to determine if the level can predict clearance.

Methods: A retrospective cohort study was conducted at an academic medical center. Patients included had a primary diagnosis of CNS lymphoma and received methotrexate doses greater than 3g/m2. Patients were excluded for ESRD on hemodialysis and for dose adjustments made to methotrexate. Individual elimination rate constants were calculated from serial methotrexate levels. Patients with delayed elimination were compared to patients with normal elimination using T-tests and chi-squared tests. Delayed elimination was defined as a serum methotrexate level greater than 10 umol/L at 24 hours, greater than 1 umol/L at 48 hours, or greater than 0.1 umol/L at 72hours from the beginning of the methotrexate infusion.

Results/Conclusion: Final results and conclusion will be presented at the Great Lakes Pharmacy Resident Conference in April 2012.

Learning Objectives:

Identify risk factors for slow elimination of high dose methotrexate.

Recognize a patient who may be at risk for clearing methotrexate slowly.

Self Assessment Questions:

Patient KL is a 40 yof receiving 3.5g/m2 of methotrexate. Which of the following conditions would raise your suspicion for possible slow clearance of methotrexate?

A Hypertension

B: Pleural effusions

C: Diabetes

D: Rhinorrhea

Which of the following drug interactions with methotrexate is known to decrease the elimination of methotrexate and has a warning in the package labeling?

A Lansoprazole

B Filgrastim

C Ondansetron

D Dalteparin

Q1 Answer: B Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-434 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

COMPARISON OF HOSPITAL MORTALITY AMONG PATIENTS WITH SEPTIC SHOCK RECEIVING AZTREONAM VERSUS PIPERACILLIN/TAZOBACTAM FOR EMPIRIC ANTIMICROBIAL THERAPY

Sean P. Kane, PharmD, BCPS*; Michael T. Johnson, PharmD

University of Illinois at Chicago,833 S. Wood St,164 PHARM,Chicago,IL,606127230

spkane@uic.edu

Purpose: The early initiation of appropriate antimicrobial therapy has been associated with improved mortality in septic shock patients; however, in a climate with increasing gram-negative resistance, initially appropriate therapy may be more difficult to achieve. Empiric therapy is more complicated in patients with penicillin allergy, which has a self-reported incidence of approximately 10%. It is estimated that only 10-20% of patients reporting a penicillin allergy are truly allergic by skin testing. Aztreonam is a commonly used broad-spectrum agent for septic shock among patients with penicillin allergy, but there is a paucity of comparative data for aztreonam and B-lactam antibiotics for septic shock. Furthermore, data suggest that aztreonam susceptibility rates may be declining faster than other antibiotics used for similar indications, such as piperacillin/tazobactam. The objective of this study is to characterize the outcomes of patients with a reported penicillin allergy who receive aztreonam compared to patients who receive piperacillin/tazobactam for culture-positive gram-negative septic shock.

Methods: Prior to commencement, this study was approved by the Institutional Review Board for approval. The study was conducted as a retrospective cohort study. The electronic medical record system was used to identify patients who received at least 24 hours of aztreonam or piperacillin/tazobactam therapy for septic shock with at least one vasopressor. All patients were required to have a confirmed gram-negative culture result within 24 hours of vasopressor initiation. Patients younger than 18 years old or if they received the antibiotic of the comparative cohort were excluded. The primary efficacy endpoint was all-cause hospital mortality. Secondary endpoints include the incidence of inappropriate initial antibiotic therapy, length of stay, and the use of levofloxacin as an additive agent for antimicrobial therapy.

Results/Conclusion: Data collection for this study is ongoing. Conclusions will be assessed following data collection and analysis.

Learning Objectives:

Describe the estimated incidence of self-reported penicillin allergy.

Discuss the importance of early appropriate initial antimicrobial therapy in patients with septic shock.

Self Assessment Questions:

What is the estimated incidence of patient-reported penicillin allergy?

A 1%

B: 5%

C: 10%

D: 25%

According to retrospective analysis, what is the estimated increase in mortality per hour for each hour of delay in appropriate antimicrobial therapy in patients with septic shock?

A 1% per hour

B 3% per hour

C 8% per hour

D 15% per hour

Q1 Answer: C Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-435 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

IMPLEMENTATION OF A POST OPERATIVE NAUSEA AND VOMITING RISK ASSESSMENT TOOL IN THE ORTHOPEDIC SURGICAL POPULATION

Catherine E. Kane, PharmD*, Dipa A. Patel, PharmD
NorthShore University HealthSystem,2100 Pfingsten Road,Glenview,IL,60026
ckane@northshore.org

Purpose: Consensus guidelines published in 2003 by Gan TJ, et al, provide evidence based guidance for the prophylaxis and management of post operative nausea and vomiting in surgical patients. While these patients are often prescribed multiple antiemetic therapies with proven reduction of symptoms, they are prescribed without adequate instructions for use. The purpose of this retrospective analysis is to determine the current practice related to post operative nausea and vomiting assessment and prophylaxis as well as the utilization of antiemetic therapy for treatment in the orthopedic surgical population at NorthShore University HealthSystem (NorthShore).

Methods: Patients identified as having a scheduled orthopedic procedure from December 1, 2011 - March 1, 2012, requiring inpatient admission at any NorthShore site will be included. A retrospective chart review will be performed to determine a patients preoperative risk score for experiencing PONV, antiemetic medications received and episodes of nausea or vomiting within the first 24 hours to assess our current practice of preventing and treating PONV at NorthShore. A patients risk for PONV will be assessed using the Apfel score which identifies a patients risk of experiencing PONV using four factors: female gender, nonsmoker, history of PONV or motion sickness and post-operative opioids used to stratify their risk. The following data will be collected: gender, smoking status, history of PONV or motion sickness, antiemetic therapy administered type of surgery performed, and episodes of nausea or vomiting within the first 24 hours post surgery.

Results/Conclusion: Results and conclusions will be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Describe the Apfel score, a validated post operative nausea and vomiting (PONV) risk assessment and stratification tool used to identify high risk patients to aid in streamlining antiemetic use.

Identify patients at high risk for experiencing post operative nausea and vomiting.

Self Assessment Questions:

Which of the following are risk factors for experiencing post operative nausea and vomiting?

A Male gender
B: Smoking
C: History of post operative nause and vomiting
D: Post operative use of NSAIDs

A 45 year old nonsmoking female, with no previous history of motion sickness or post operative nausea and vomiting, presents to the ambulatory surgery unit for her knee replacement. She is scheduled

A No Risk
B Low
C Medium
D High

Q1 Answer: C Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-436 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

IMPACT OF A CANDIDEMIA AND DISSEMINATED CANDIDIASIS MANAGEMENT PATHWAY ON ANTIFUNGAL UTILIZATION AND COST

Young Kang, PharmD*; Sandeep Parsad, PharmD, BCOP; Benjamin Brielmaier, PharmD, BCPS; Natasha Pettit, PharmD, BCPS
University of Chicago Medical Center,5841 South Maryland Avenue,Chicago,IL,606371470
young.kang@uchospitals.edu

Purpose: The fourth most common cause of nosocomial bloodstream infections in the United States is due to Candida species and is associated with 39 percent mortality. Invasive fungal infections have been correlated with increase healthcare costs due to prolonged hospita stay and inappropriate therapy. The use of clinical pathways facilitates appropriate antimicrobial use by encouraging prescribers to implement guideline based therapy. This study will evaluate the impact of implementing a candidemia and disseminated candidiasis management pathway on the utilization of antifungal agents and the associated costs.

Methods: This retrospective cohort study will be conducted at the University of Chicago Medical Center (UCMC) from November 1, 2010 through February 14, 2012. Patients will be included in the study if they are at least 18 years of age and have empirically received an antifungal agent for suspected candidiasis with subsequent positive Candida culture within 12 months pre- or post-implementation. The primary outcome will be evaluating the incidence of appropriate initiation of empiric antifungal agents pre- and post-implementation of the candidemia and disseminated candidiasis management pathway. Secondary outcomes will include comparing the associated costs of using empiric antifungal agents and the incidence of initiating empiric micafungin, liposomal amphotericin B, voriconazole and fluconazole pre- and post-implementation of the treatment pathway. Utilizing electronic and paper records, data collection for appropriate antifungal therapy will include the agent, dose, renal and hepatic function for appropriate dose adjustments, and the date and time of initiation. Data collection for secondary outcomes will include the duration of empiric therapy, days of therapy normalized to 1000 patient days, cost of each antifungal agent per day, duration of species specific therapy, type of culture, specific Candida species, date and time of positive yeast culture, and sensitivities. Descriptive statistics will be used to analyze the data.

Results: To be presented

Conclusion: To be presented

Learning Objectives:

Describe the concerns for invasive Candida infections

Discuss the utility of creating clinical treatment pathways

Self Assessment Questions:

Which of the following statements is true?

A Candidemia is the 4th most common nosocomial bloodstream infe
B: Candidal infections are the leading cause of nosocomial infections
C: Candidemia is the 4th most common nosocomial bloodstream infe
D: Candidal infections are not associated with increased healthcare c

How are clinical treatment pathways useful?

A Provides a systematic method of facilitating guideline based treatm
B Provides a systematic method of facilitating guideline based treatm
C Does not provide a systematic method of facilitating guideline base
D Clinical treatment pathways are not useful

Q1 Answer: A Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-437 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

ENOXAPARIN DOSING IN OBESITY FOR PREVENTION OF DEEP VEIN THROMBOSIS

Sanna Kanjee* PharmD, Jennifer Locker PharmD, BCPS

Advocate Illinois Masonic Medical Center,836 West Wellington,Chicago,IL,60657

sanna.kanjee@advocatehealth.com

Purpose:
Venous thromboembolism (VTE) is a major cause of morbidity and mortality amongst hospitalized patients. There is limited data regarding the dose of enoxaparin for VTE prophylaxis in obese patients. The American College of Chest Physicians Antithrombotic and Thrombolytic Therapy Guidelines, 8th edition, published in 2008 recommend weight-based dosing as opposed to fixed dosing. The exact dosing is not specified. The FDA approved dose of enoxaparin 40 mg subcutaneously once daily may not be adequate to prevent VTE in the obese population due to alterations in pharmacokinetics. This study will compare enoxaparin weight-based dosing to fixed dosing in obese patients for VTE prophylaxis.

Methods:
A report generated by the pharmacy will identify patients needing anticoagulation. Patients with a BMI ≥ 30 and weighing >100 kg will be included in the study for analysis. Exclusion criteria includes surgery, trauma, pregnant, and psychiatric patients, patients taking other anticoagulants, BMI < 30, weight < 100 kg, CrCl < 30 ml/min, and any contraindications to enoxaparin. Patients will receive enoxaparin 0.5 mg/kg/day as opposed to enoxaparin 40 mg daily. Peak factor anti-Xa levels will be measured 3-6 hours after the 2nd dose (or 3rd, 4th, 5th, etc.) of enoxaparin. A matched control group of obese patients receiving enoxaparin 40 mg subcutaneously daily will be analyzed retrospectively from September 2011-February 2011 in order to compare the efficacy of fixed based dosing vs. weight-based dosing. Descriptive statistics will be performed on control and active treatment groups to analyze the number of patients with anti-Xa levels in therapeutic range.

Results/Conclusions:
Results will be used to identify whether enoxaparin 0.5 mg/kg (weight-based) subcutaneously once daily is more appropriate than enoxaparin 40 mg subcutaneously once daily in obese patients at our institution. Final data collection and evaluation will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Discuss the current literature supporting weight based dosing as opposed to fixed dosing regarding enoxaparin for VTE prophylaxis in obesity.

Identify the target anti-Xa level range for prophylactic dosing versus treatment dosing.

Self Assessment Questions:

Which of the following statements is true regarding enoxaparin dosing in obesity?

A One study concluded that enoxaparin 0.5mg/kg results in therapeu
B: Retrospective studies have shown enoxaparin 40 mg BID to result
C: Current guidelines recommend enoxaparin 0.5 mg/kg for obese pa
D: Current guidelines recommend enoxaparin 40 mg BID for obese pa

For enoxaparin in VTE prophylaxis, which of the following anti-Xa level ranges is appropriate?

A 0.5-1IU/ml
B 0.1-0.2 IU/ml
C 0.18-0.44 IU/ml
D 0.05-0.32 IUml

Q1 Answer: A Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-438 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

CLINICAL AND ECONOMIC OUTCOMES ASSOCIATED WITH EMPIRIC TREATMENT OF COMMUNITY ACQUIRED PNEUMONIA COMPARED TO HEALTHCARE ASSOCIATED PNEUMONIA IN A MEDICAL INTENSIVE CARE UNIT

Jenna M. Kast*, PharmD; Natasha N. Pettit, PharmD, BCPS; Ishaq Lat, PharmD, BCPS, FCCM

University of Chicago Medical Center,5841 South Maryland Ave,MC0010 Rm TE026,Chicago,IL,60637

jenna.kast@uchospitals.edu

Previous studies comparing community-acquired pneumonia (CAP) and healthcare-associated pneumonia (HCAP) have demonstrated increasec mortality, hospital length of stay, and mean hospital charges in patients with HCAP as compared to CAP. Patients with HCAP are also more likely to receive inappropriate antimicrobial treatment than those with CAP, further increasing mortality risk.

The University of Chicago Medical Center is a 596-bed academic teaching hospital with a 16-bed medical intensive care unit (MICU). The purpose of this study was to determine the impact provision of empiric therapy for CAP compared to HCAP had on clinical and economic outcomes in MICU patients. Outcome measures include clinical outcomes, such as in-hospital mortality, need for and duration of mechanical ventilation, and vasopressor requirement, as well as economic outcomes, such as ICU and hospital length of stay and cost of hospitalization and antibiotic therapy. Subgroup analyses compare clinical and economic outcomes among those who received appropriate vs. inappropriate empiric therapy, therapy consistent with national guidelines vs. not, and culture positive vs. culture negative pneumonia.

Following Institutional Review Board approval, a retrospective, single center, single unit cohort analysis was conducted. Patients ≥ 18 years of age admitted to the MICU between October 2008 and August 2011 who received empiric antibiotics for CAP or HCAP > 48 hours were eligible for inclusion. Exclusion criteria included: antibiotics initiated > 48 hours after ICU admission or continued for ≤ 48 hours, admission from an outside hospital, concurrent infections other than CAP or HCAP, and a documented immunocompromised state, pregnancy, or terminal/hospice care on admission. Patients were identified using ICD-9 codes and the medical record. Baseline characteristics, primary and secondary endpoints, and subgroup analyses were analyzed using chi-squared for categorical variables and students t-test or Wilcoxon rank sum for continuous variables. A p-value < 0.05 was considered significant. Results are pending.

Learning Objectives:

Review the classification and treatment guidelines for community acquired pneumonia (CAP) and healthcare associated pneumonia (HCAP).

Define the Clinical Pulmonary Infection Score (CPIS) and explain its utility in the diagnosis of pneumonia.

Self Assessment Questions:

Which of the following is a risk factor for HCAP?

A Hospitalization within the previous 120 days
B: Antibiotics within the previous 60 days
C: History of dialysis within the previous 90 days
D: Family member infected with a multi-drug resistant organism

Which of the following will influence an individual's CPIS score?

A RBC count
B % bands
C PaO2/FiO2 ratio
D Diagnosis of asthma

Q1 Answer: D Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-439 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

ASSESSING A HEALTH CARE ORGANIZATIONS READINESS AND OPPORTUNITIES TO IMPLEMENT THE AMERICAN SOCIETY OF HEALTH-SYSTEM PHARMACISTS (ASHP) PHARMACY PRACTICE MODEL INITIATIVE (PPMI)

Andrew R Kehrberg, PharmD, MBA*; Brook S Kawchak, PharmD, MS; Vanessa L Freitag, PharmD; Ann L Gilbertson-Gabel, PharmD

Ministry Health - St. Joseph's Hospital - WI,611 Saint Joseph Avenue,Marshfield,WI,544491898

andrew.kehrberg@ministryhealth.org

The goal of the PPMI is to advance the health and well-being of patients by developing a practice model that supports the most effective use of pharmacy personnel and technology to optimize patient care. The purpose of this project is to assess a 15-hospital health care organizations readiness and opportunities to adopt and implement concepts described in ASHPs PPMI. Two surveys were used to collect data for this project. The ASHP PPMI Self-Assessment Tool contains a 106-point survey and a 40-point action agenda which all 15 hospital pharmacy leaders were asked to complete. In addition, Ministry Health Care (MHC) pharmacy staff utilized an online survey tool to create and distribute the MHC PPMI Consensus Survey using a Likert scale ranging from zero (I would fight to prevent this) to five (I would champion this idea). The survey included 15 consensus-based statements built from the ASHP tool and was split into three categories: "pharmacist practice", "role of pharmacy technicians", and "automation & technology". The survey was distributed to all 15 MHC hospitals Pharmacy and Therapeutics Committee members, administrators, pharmacy staff, and MHCs Nursing Council to obtain a representative sample. The results of the ASHP PPMI Self-Assessment Tool are pending. After review, ASHP will share pertinent data to be further analyzed. A total of 116 respondents answered the MHC PPMI Consensus Survey with at least one response from each surveyed discipline and each hospital. The responses received yielded a mean score of 4.23 for "pharmacist practice"-based questions and 4.16 for "automation & technology"-based questions showing cultural readiness to adopt these concepts from the PPMI. Several respondents either stated that they were not familiar with the "role of pharmacy technicians" or were not as ready to support the statements yielding a mean score of 3.27.

Learning Objectives:

Identify the three main focus areas of the PPMI.

Identify an action that falls in line with the PPMI.

Self Assessment Questions:

What are the three main focus areas of the PPMI?

A Pharmacist Practice, Pharmacy Technician Roles, Automation and

B: Pharmacist Practice, Pharmacy Technician Roles, Continuing Pha

C: Pharmacist Practice, Automation and Technology, Antimicrobial St

D: Pharmacy Technician Roles, Automation and Technology, Antimic

Which of the following actions falls in line with the PPMI?

A Centralization of pharmacists

B Redeployment of pharmacist to complete tasks currently complete

C Promotion of pharmacy residencies

D Not providing continuing education for pharmacy technicians

Q1 Answer: A Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-713 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

ASSESSMENT OF THE WILLINGNESS AND BARRIERS OF MEDICATION THERAPY MANAGEMENT (MTM) FOCUSED ON PAIN MANAGEMENT AND MENTAL HEALTH

Megan E. Keller*, Pharm.D., David R. Bright, Pharm.D., BCACP, Donald L. Sullivan, R.Ph., Ph.D., Doug C. Cornelius, R.Ph.

Ohio Northern University,525 S. Main Street,Ada,OH,45810

m-keller@onu.edu

Purpose: Few studies have assessed the pharmacists role in MTM specifically involving pain management and depression. The objective of this study is to determine the willingness and barriers of community pharmacists to provide pain and mental health MTM services.

Methods: An anonymous, self-administered survey was distributed electronically to 350 licensed pharmacists in the Kroger Columbus Division. The survey consisted of a 60 question, Likert-type scale, where strongly disagree was assigned a value of one and strongly agree a value of seven. Constructs measured include: MTM interest, comfort with MTM, confidence with appropriate medication use and adjustment, educational needs, training required, time constraints, and work-related factors. Demographic data was also collected.

Preliminary Results/Conclusions: A total of 185 (52.9%) pharmacists completed the survey. Pharmacists agreed that patients would benefit from MTM focused on pain (5.6 1.39 [mean SD]) and/or depression (5.85 1.21) management and agreed pharmacists can make positive interventions (pain: 5.78 1.4; depression: 5.9 1.2). Pharmacists surveyed felt more confident to provide MTM for diabetes (5.97 1.36) compared to pain (4.97 1.62) and depression (4.89 1.58) management. In regards to pain and depression management, pharmacists surveyed were more comfortable with adverse events (pain: 5.95 1.03; depression: 5.72 1.13) versus mechanisms of action (pain: 5.17 1.29; depression: 5.44 1.23) and altering therapy (pain: 5.27 1.39; depression: 5.17 1.38). Pharmacists strongly agreed they would benefit from additional training regarding pain (6.17 1.21) and depression (6.25 1.13) MTM. Continuing education (51.6%) was the most preferred method of additional training. In regards to workload, respondents moderately disagreed that their current MTM load was too much (3.79 1.56), and neither agreed nor disagreed that with other responsibilities MTM was too much extra work for them (4.54 1.77).

Learning Objectives:

Identify barriers to providing MTM focused on pain and depression management.

Recognize the educational needs and preferred methods of training for pharmacists in the MTM setting.

Self Assessment Questions:

From the survey results, which of the following is not specifically listed as a barrier to providing MTM?

A Training

B: Time

C: Lack of pharmacist overlap

D: Hours the store is open

Survey respondents reported feeling adequately trained with which of the following disease states?

A Diabetes

B Depression

C Pain

D Asthma

Q1 Answer: D Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-714 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

INCIDENCE OF ACUTE RENAL DYSFUNCTION IN ACUTE LEUKEMIA PATIENTS WHO RECEIVE CONCOMITANT VANCOMYCIN AND PIPERACILLIN/TAZOBACTAM

*Julie M. Kennerly, PharmD; Jessica P. Duda, PharmD, BCOP; Julianna V.F. Roddy, PharmD, BCOP; Lisa M. Savage, PharmD, BCOP; Jeremy J. Taylor, PharmD, BCPS

The Ohio State University Medical Center,368 Doan Hall,410 West 10th Ave,Columbus,OH,43210

julie.kennerly@osumc.edu

Purpose: Current literature reports the incidence of vancomycin-induced renal toxicity to range from 2.3% to 12%, and the incidence of increased serum creatinine and acute renal failure with piperacillin/ tazobactam to be 1.8% and less than 1%, respectively. On the acute leukemia service at the Arthur G. James Cancer Hospital and Richard J. Solove Research Institute (The James), providers have perceived an increase in the number of patients who develop acute renal dysfunction following concomitant therapy with these medications. While this appears to be supported by anecdotal evidence, additional studies are needed to better estimate the incidence of acute renal dysfunction. The primary aim of this study is to estimate the incidence of acute renal dysfunction in patients with acute myeloid leukemia (AML) or acute lymphocytic leukemia (ALL), who are receiving concomitant therapy with vancomycin and piperacillin/ tazobactam.

Methods: This is a retrospective chart review of AML/ALL patients admitted to the acute leukemia service at The James from July 1, 2009 to June 30, 2011, that are receiving both vancomycin and piperacillin/ tazobactam within a 24 hour time period. Acute renal dysfunction is defined using the Risk category of the RIFLE criteria. The incidence of acute renal dysfunction will be estimated, along with its associated 95% confidence interval, using exact binomial methods. Logistic regression will be used to determine the impact of specific patient demographics or clinical characteristics (including additional nephrotoxic medications or intravenous contrast) that are associated with the incidence of renal dysfunction in this population.

Results/Conclusions: Data collection is on-going. Results and analysis will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Define the RIFLE criteria for evaluating acute renal dysfunction.

Identify medications that are commonly associated with acute renal dysfunction.

Self Assessment Questions:

If a patient has a baseline serum creatinine of 1.0 and upon administration of concomitant therapy with vancomycin and piperacillin/tazobactam experiences a rise in serum creatinine to 1.7, they fall

A Risk
B: Injury
C: Failure
D: Loss

Which of the following medications has been associated with drug-induced acute renal dysfunction?

A Acetaminophen
B Vancomycin
C Voriconazole
D Sevelamer

Q1 Answer: A Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-440 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

COMPARISON OF PHARMACIST OBTAINED MEDICATION HISTORIES VERSUS OTHER HEALTHCARE PROVIDERS AT AN ACADEMIC MEDICAL CENTER

Angela M Kerins PharmD*; Katherine D Mieure PharmD, BCPS, Amanda Dugal, PharmD

University of Chicago Medical Center,5841 S Maryland,Chicago,IL,6045

angela.kerins@uchospitals.edu

Purpose: An accurate medication history upon admission to the hospital is an integral part of patient assessment. Discrepancies can lead to interrupted or inappropriate drug therapy during hospitalization or result in failure to detect drug-related problems contributing to the hospitalization. The Joint Commission National Patient Safety Goal #8 addresses medication reconciliation and was developed to avoid errors of transcription, omission, and duplication as well as drug-drug interactions and drug-disease interactions. It does not, however, specify any one profession to assume responsibility of collecting medication histories. American Society of Health System-Pharmacists (ASHP) addresses medication histories and reconciliation in the ASHP 2015 Health System Pharmacy Initiative. The objectives of the first goal state: pharmacists will be directly involved in managing the acquisition, upon admission, of medication histories for a majority of high risk hospitalized inpatients; will ensure that effective medication reconciliation occurs during transitions of care; and will ensure quality of process whether directly performing it or not.. The purpose of this study is to demonstrate the benefit of a pharmacist obtained medication history compared to other health care providers.

Methods: This observational study will be conducted in patients admitted from October 2011 to March 2012. Patients less than 18 years of age will be excluded. After the standard admission medication history and reconciliation has been completed by the pharmacist or healthcare provider, a study pharmacist will obtain a medication history to identify errors. The primary objective is to determine the incidence of errors collected in a medication history obtained by a pharmacist compared to other healthcare providers. Secondary objectives are to determine the number of errors per 100 medications, the incidence of each type of error, and to categorize the medications errors according to National Coordinating Council for Medication Error Reporting and Prevention index.
Results: To be presented

Conclusion: To be presented

Learning Objectives:

Identify the common types of medication errors.

Recognize the ASHP 2015 Health System Pharmacy Initiative goals for pharmacists.

Self Assessment Questions:

How do medication errors occur?

A Ommission of drug
B: Incorrect transcription of drug
C: Duplication of drug
D: All of the above

The ASHP 2015 Health System Pharmacy Initiative sets for the following goals for pharmacists.

A Direct involvement in collection of medication histories
B Ensure that effective medication reconcilation occurs during transit
C Quality of the medication history process is ensured
D All of the above

Q1 Answer: D Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-811 -L05-P

Activity Type: Knowledge-based Contact Hours: 0.5

RETROSPECTIVE ANALYSIS EVALUATING THE EFFECTS OF A PHARMACIST-MANAGED DIABETES CLINIC AT A VETERANS AFFAIRS MEDICAL CENTER.

Tasleem Khansia, Pharm. D*, Nicholas Hall, Pharm.D, Derek Grimm, Pharm. D, BCPS

Huntington Veterans Health Administration Medical Center,1540 Spring Valley Drive,Huntington,WV,25704

tasleem.khansia@va.gov

Purpose: The Huntington Veterans Affairs Medical Center (HVAMC) instituted a pharmacist-operated diabetes clinic in 2010 to help manage patients with Type 2 diabetes mellitus (DM). The purpose of this study is to determine the difference in HgbA1C achieved in patients receiving care through the diabetes clinic compared to patients receiving care through their individual primary care provider.

Methods: A retrospective chart review will be performed comparing patients seen in a pharmacist-run clinic (cohort 1) and patients seen by their primary care provider (cohort 2), with at least one visit to their respective clinics between November 1st 2010 and July 30th 2011. Patients will be excluded if they have Type 1 DM, are managed by an endocrinologist, or are followed by a non-VA provider for diabetes management. For cohort 1, patients will also be excluded if they had < 3 appointments with a clinical pharmacist. The patients will be placed in one of three groups: patients who were on oral anti-diabetic medications at time of referral, patients who were on insulin with or without oral medications at time of referral, and patients who were not taking any anti diabetic medications at time of referral. Charts will be reviewed for HgbA1C value at initial clinical pharmacy appointment, time to HgbA1C < 7% defined by ADA guidelines, the mean difference in HgbA1C from initial clinic visit, and the number of emergency department visits or hospitalizations due to hypoglycemia. The primary endpoint will be time to HgbA1C < 7% and percentage of patients reaching goal HgbA1C < 7%. Secondary endpoints will include mean difference in HgbA1C from baseline (initial visit) and hypoglycemia requiring a visit to the emergency room or hospitalization.

Results: Data collection is currently in progress and conclusions will be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Review current American Diabetes Association (ADA) guidelines regarding diagnosis and management.

Discuss the impact of clinical pharmacy services on HgbA1c values when responsible for the care of diabetic patients.

Self Assessment Questions:

What are the potential benefits of a pharmacist-run clinic compared to a licensed provider?

A Targeted education against a single disease state versus an asses

B: Decreased diabetic education from pharmacist compared to provid

C: Increase in weight loss due to optimization of medication therapy.

D: Increased financial benefits to the pharmacist.

How often should HgbA1c be checked in patients whose therapy has changed or who are not meeting goals?

A Every 6 months.

B Every 12 months.

C Every 3 months.

D Every 9 months.

Q1 Answer: A Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-441 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

COMPARING PRASUGREL TO TWICE DAILY CLOPIDOGREL POST PERCUTANEOUS CORONARY INTERVENTION IN A VETERANS AFFAIRS POPULATION

Samreen Khatri*, PharmD, Tamra Pierce, PharmD, BCPS

Richard L. Roudebush Veterans Affairs Medical Center,1481 W. 10th Street,Indianapolis,IN,46202

samreen.khatri@va.gov

Purpose: The purpose of this study is to compare the regimens of clopidogrel 75 mg twice daily and prasugrel 10 mg daily in those patients who experience increased platelet reactivity on therapy with regards to cardiovascular outcomes, including MI, stroke, need for revascularization, and cardiovascular death. The secondary endpoint is to assess both major and minor bleeding events with these regimens.

Methods: A retrospective chart review was conducted on patients who received percutaneous coronary intervention (PCI) at the Richard L. Roudebush VA Medical Center and were subsequently prescribed either clopidogrel 75 mg twice daily or prasugrel 10 mg daily between October 1, 2009 and November 30, 2010. Patients with a P2Y12 assay result less than 50% on clopidogrel 75 mg daily were reviewed as well. Chart reviews allowed for at least six months of medication administration before data collection. Prior to data collection, approval for the study was obtained through both the IUPUI Institutional Review Board and VA Research and Development Committee. The VA electronic medical record system was utilized to identify patients who had active outpatient prescriptions for clopidogrel 75 mg twice daily or prasugrel 10 mg daily. Patients with active outpatient orders for clopidogrel 75 mg daily and P2Y12 assay results less than 50% and/or PRU <236 were also reviewed. Comorbid conditions such as hypertension, dyslipidemia, diabetes, and history of tobacco abuse were taken into consideration, along with any concurrent medication use that may increase bleeding risk such as aspirin, aspirin/dipyridamole, warfarin, enoxaparin, heparin, fondaparinux, and argatroban. Additionally, patients were assessed for optimal therapy regarding comorbid conditions, specifically examining use of statins, ACE inhibitors, beta blockers, and calcium channel blockers. Correlations between antiplatelet regimens and prevention of cardiovascular outcomes and bleeding events will be evaluated.

Results & Conclusions: To be presented at Great Lakes Pharmacy Resident Conference

Learning Objectives:

Identify a patient population that benefits from thienopyridine therapy

List major side effects of thienopyridine therapy

Self Assessment Questions:

What of the following patients would most benefit from use of a thienopyridine?

A A diabetic patient with neuropathy in his foot

B: A myocardial infarction patient post stent placement

C: A deep vein thrombosis patient with an inferior vena cava filter

D: A gout patient post acute flare

What is a well known side effect of thienopyridine therapy?

A Respiratory depression

B Hives

C Clotting

D Bleeding

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-442 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

METHODS FOR IMPROVING DISCHARGE PRESCRIPTION RATE CAPTURE

*Audra L. Kilburg, PharmD

Aurora Health Care,2900 W Oklahoma Ave,Milwaukee,WI,53215

audra.kilburg@aurora.org

Purpose: Approximately 25% of patients do not get their discharge prescriptions filled. This can lead to readmission to the hospital and be harmful to the patient. With an outpatient pharmacy located within the hospital, we have the opportunity to help prevent these readmissions and improve patient safety, generate revenue for the hospital though increased prescription capture.
Methods: This project consists of two pilots to increase discharge prescription capture. These pilots focused on increasing patient awareness of outpatient pharmacy services, decreasing prescription turnaround time, educating caregivers about improvements in patient safety with increased prescription capture, and decreasing nursings time required to send prescriptions to the pharmacy. Percentage of prescriptions filled at the outpatient pharmacy and patient satisfaction scores were measured. The most beneficial processes will be taken from each pilot for further implementation where appropriate.
Preliminary results: Pilot 1 was completed on a general medicine unit with an average daily census of 13 patients in fall of 2011. The percentage of prescriptions filled increased from a baseline of 30.9% to 32.4% after pilot 1 implementation. Inpatient pharmacists offered the outpatient pharmacy services and communicated medication reconciliation results for increased medication education. The answer "always" for the medication education domain of the Press Ganey survey increased from 38% to 61%.
Conclusions: After pilot 1, several opportunities were identified for improvement in pilot 2. Since discharge is often a busy time for patients, pilot 2 involves increasing awareness of the outpatient pharmacy during other points of the patient stay. Also, alternative methods were developed to decrease prescription turnaround time which was identified as a barrier for capturing prescriptions. Lastly, quality improvements and patient satisfaction scores from pilot 1 were used to motivate caregivers to recommend outpatient pharmacy services.

Learning Objectives:

Identify two benefits of increasing discharge prescription capture in a health care system

List one measurable goal that can be used to determine the success of a discharge prescription program.

Self Assessment Questions:

In what way(s) could capturing more discharge prescriptions positively impact a healthcare organization?

A Improve patient satisfaction
B: Provide additional revenue
C: Decrease pharmacy resources
D: Both A and B

What is one goal that can be used to determine the success of a discharge prescription program?

A Increase in percentage of prescriptions captured
B Decrease in percentage of prescriptions captured
C Increased patient census
D Increase in prescription turnaround time

Q1 Answer: D Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-715 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

DEVELOPMENT OF A TOOL TO ASSIST MODIFICATIONS TO MEDICATION ALERT SETTINGS IN THE ELECTRONIC HEALTH RECORD

Victoria E Kim, PharmD* and Lynn Boecler, PharmD, MS

NorthShore University HealthSystem,2650 Ridge Ave,Evanston,IL,60201

vkim@northshore.org

Purpose:
Medication alerts are commonly utilized within electronic medical record systems in order to minimize potential drug interactions, adverse reactions, drug-allergy reactions, and possible dosing errors with the end goal of ensuring patient safety. In order for the use of medication alert programs to be meaningful, a health care provider must be able to critically evaluate both the alerts and the clinical status of the patient. This can remain a difficult and time-consuming process if the number of clinically inappropriate alerts tends to dominate the amount of alerts firing. In order to ensure medication alerts will be clinically relevant, alert settings should be modified so that they will be optimally useful for clinical decision making. As changes to specific alerts become more complicated and difficult to evaluate on an individual basis, a tool such as a decision tree or algorithm, could aid with the clinical decision support in this area.
The objective of this project is to develop, implement, and validate a tool to support the decision making process regarding medication alert settings at NorthShore University HealthSystem (NorthShore).

Methods:
A survey was developed to assess the process used for determining medication alert settings by other institutions. A NorthShore University HealthSystem Clinical Decision Support Taskforce was established to analyze the results from those other institutions and to develop a decision support assessment tool to aid in setting drug interaction alert suppression. The number of alerts overridden will be measured and assessed in comparison to the number of alerts in which a medication was removed in response to the alert fired. Alerts will also be evaluated according to alerts firing across separate encounters, severity, literature recommendations, and onset of the interaction. This tool will be implemented and subsequently used to make recommendations.

Results/Conclusion:
Analysis of the algorithm is ongoing. Results and conclusions will be presented at the Great Lakes Residency Conference.

Learning Objectives:

Describe the risks that can occur with medication alert fatigue.

Identify two factors to consider when assessing the impact and classifications of medication alerts.

Self Assessment Questions:

Which of the following can be a risk of the overuse of drug interaction alerts?

A Awareness of the potential interactions of the ordered medication i
B: Overriding important alerts due to alert fatigue
C: Choosing different therapy due to a dangerous drug interaction
D: Careful clinical assessment of every drug interaction alert

Which of the following is a factor when assessing the classification a medication alert?

A Practitioner ordering the medication
B Patient weight
C Patient age
D Severity of the interaction

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-716 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

DEVELOPMENT AND IMPLEMENTATION OF A CLINICAL PATHWAY FOR THE MANAGEMENT OF HYPERTENSIVE EMERGENCY AT AN ACADEMIC MEDICAL CENTER

Andy K. Kim, PharmD*; Kate Schaafsma, MS, PharmD; Jessica Chang, PharmD, BCPS; Michael Katz, PharmD; Greg Stilin, RPh; Erin Turk, PharmD, Richard Arndt, PharmD

Froedtert Hospital,9200 West Wisconsin Avenue,Milwaukee,WI,53226

andy.kim@froedterthealth.org

Purpose:
Currently, there is no standard protocol at Froedtert Hospital for the initial blood pressure management in patients presenting with hypertensive emergency. Identification and analysis of present pharmacologic treatment usage patterns may determine if patients are being adequately and appropriately treated for the management of hypertensive emergency in Froedterts emergency department. Moreover, the development and implementation of a hypertensive emergency clinical pathway may guide clinicians in pharmacologic treatment selection, improve patient outcomes, while reducing unnecessary costs.

Methods:
This single center, nonrandomized study is part of a quality improvement initiative and consists of a retrospective cohort chart review, implementation of a hypertensive emergency clinical pathway, and post hoc analysis of findings. Primary outcomes will include the number of patients treated appropriately or inappropriately as measured by decrease in percent mean arterial blood pressure. Secondary outcomes will include time to target blood pressure, composite of adverse effects associated with interventions and time to transition from continuous IV infusion to bolus or oral interventions.

Patients who presented to the emergency department with clinical findings of hypertensive emergency from January 1, 2011 to present will be included in this study. Data collection and analysis are underway.

Results/Conclusions:
In progress

Learning Objectives:

Discuss appropriate treatment goals in patients presenting with hypertensive emergencies.

Identify appropriate pharmacologic interventions in hypertensive emergencies depending on type of end-organ damage present.

Self Assessment Questions:

Which type of pharmacologic therapy is preferred in hypertensive emergencies?

A Oral antihypertensives
B: Intravenous antihypertensives
C: Transdermal antihypertensives
D: Should not treat patient with antihypertensives

According to the JNC 7 Guidelines, reduction in mean arterial blood pressure should not exceed ___% within the first hour.

A 10%
B 25%
C 35%
D 50%

Q1 Answer: B Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-443 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF THE IMPACT OF PHARMACIST POLYPHARMACY REVIEWS ON READMISSIONS

Shelley N. King, Pharm D*

Aurora Health Care,2900 W. Oklahoma Ave.,Milwaukee,WI,53215

shelley.king@aurora.org

Purpose: Inpatient readmissions continue to be a problem for health care systems. The economic importance of reducing readmissions becomes even more evident as government rulings adversely affecting reimbursement for readmissions go into effect. Many patients receive multiple medications that may contribute to their readmission. The objective of this study is to evaluate 30-day readmissions when pharmacists review and intervene on patients receiving nine or more scheduled medications.

Methods: The study will take place at Aurora West Allis Medical Center, a community hospital that is a part of the Aurora Health Care System in Southeastern Wisconsin. Patients eighteen and older who receive multiple medications and are deemed "at risk" for polypharmacy by a pharmacist, physician or nurse will receive a formal pharmacist polypharmacy review. The pharmacists will review the patients medications, using modified ARMOR (Assess, Review, Minimize, Optimize, Reassess), START (Screening Tool to Alert doctors to the Right Treatment) and STOPP (Screening Tool of Older Persons potentially inappropriate Prescriptions) tools. The ARMOR tool weighs the risks and benefits of medications and focuses on restoring and maintaining functional status. START identifies potential prescribing omissions and STOPP identifies potentially inappropriate medications (PIMs). A progress note will be added to the patients charts for the physicians to review and will be forwarded to the outpatient primary care provider. The investigator will follow up to determine which, if any, recommendations were implemented. Thirty-day readmissions will be monitored for two types of patients: patients with a polypharmacy review with implemented recommendations and patients with a polypharmacy review without implemented recommendations. Using this information, the investigator will evaluate the potential impact of pharmacist polypharmacy reviews on 30-day readmission rates.

Results: Data collection is in progress. Results and conclusions will be presented at Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Recognize a patient who is experiencing polypharmacy.

Identify three tools that may be used in polypharmacy reviews.

Self Assessment Questions:

Which of the following patients is experiencing polypharmacy?

A A 59 yo female with two scheduled medications used for hypertens
B: A 76 yo male with twelve scheduled medications, including multiple
C: A 27 yo female on birth control.
D: A 68 yo male on five scheduled medications for hypertension, diab

Which of the following statements is correct?

A The ARMOR, START and BEERS tools may be used for polypharm
B The START, STOPP and SHIELD tools may be used for polypharm
C The ARMOR, START and STOPP tools may be used for polypharm
D The START, STOPP and BEERS tools may be used for polypharm

Q1 Answer: B Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-444 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

INCIDENCE OF ADVERSE EVENTS RELATED TO MILRINONE AND RENAL FUNCTION

Zachary B. Kirschner*, PharmD; Michael A. Schirmer, PharmD; Diane M. VanCamp, PharmD

Spectrum Health,100 Michigan Street NE,MC 001,Grand Rapids,MI,49503

zachary.kirschner@spectrumhealth.org

PURPOSE: Milrinone is a common therapy in advanced heart failure due to its positive inotropic and vasodilatory effects. Being primarily renally eliminated there may be a risk of increased adverse events related to milrinone therapy in patients with renal impairment. The purpose of this study was to assess if adverse events related to milrinone therapy occur more frequently in heart failure patients with normal versus impaired renal function.

METHODS: Adult patients admitted between January 1, 2011 and June 30, 2011 with a diagnosis of heart failure who received milrinone for at least 72 consecutive hours were identified retrospectively. Patients were stratified into renally impaired (CrCl less than 30 mL/min estimated by the Cockcroft-Gault equation) and normal renal function (CrCl 30 mL/min or greater) groups. The primary endpoint was the incidence of hypotension and any new onset arrhythmia. Secondary endpoints included length of stay (LOS) and 30 day readmission rate.

RESULTS: A total of 87 patients met inclusion criteria; 15 (17.2%) had renal impairment and 72 patients (82.8%) had normal renal function. A hypotensive reading occurred in 46% of impaired patients and 19.4% of non-impaired patients ($p<0.001$); hypotensive duration averaged 10.6 and 4 hours respectively ($p<0.001$). None of the impaired patients developed new onset arrhythmia compared to 9 patients (12.5%) with normal renal function ($p=0.348$). Average LOS was 17.8 days compared to 14.6 days for impaired versus normal renal function ($p=0.165$) with 30 day readmission for 7 (46.7%) and 17 patients (23.6%) respectively ($p=0.181$).

CONCLUSION: Heart failure patients receiving milrinone therapy should be monitored for hypotension. Since hypotension was more common with renal impairment, stricter monitoring for hypotension should be conducted for these patients.

Learning Objectives:

Recognize adverse events commonly associated with milrinone therapy

List common doses of milrinone for patients with and without renal impairment

Self Assessment Questions:

1.Possible adverse events associated with milrinone therapy include:

A a.Arrhythmias and hypoglycemia
B: b.Arrhythmias and hypotension
C: c.Arrhythmias and hypokalemia
D: d.Arrhythmias and hyponatremia

2.All of the following are common doses of milrinone except:

A a.0.2 mcg/kg/min
B b.0.375 mcg/kg/min
C c.0.5 mcg/kg/min
D d.1 mcg/kg/min

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-445 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

COMPARISON OF THIAZIDE DIURETICS IN COMBINATION WITH FUROSEMIDE AMONG HOSPITALIZED PATIENTS WITH HEART FAILURE

Kevin T. Kissling, Pharm.D*; Kerry K. Pickworth, Pharm.D, FCCP

The Ohio State University Medical Center,410 W. 10th St.,Doan Hall 368,Columbus,OH,43210

kevin.kissling@osumc.edu

Background

The American College of Cardiology Foundation/American Heart Association, and the Heart Failure Society of America uniformly recommend patients admitted for heart failure with evidence of fluid overload be treated with intravenous loop diuretics. Despite optimization of loop diuretic regimens, some patients may still have persistent volume overload and be termed diuretic resistant. To overcome this, the addition of a thiazide diuretic, such as intravenous chlorothiazide (CTZ), is recommended. Data regarding the use of thiazide-type diuretics to augment diuresis in patients with heart failure and diuretic resistance are limited. Both CTZ and hydrochlorothiazide (HCTZ) have been investigated independently and been shown to be efficacious; however, no comparative trials exist.

Purpose

To determine the relative effect of intravenous CTZ and oral HCTZ in augmenting diuresis among patients hospitalized with heart failure who are resistant to loop diuretic therapy.

Methods

The current study is a retrospective analysis of inpatients at The Ohio State University Medical Centers (OSUMC) Ross Heart Hospital receiving combination therapy with intravenous furosemide and either intravenous CTZ or oral HCTZ between September 1, 2010 and August 31, 2011. Patients receiving intravenous furosemide at a total daily dose of at least 160 mg, by intermittent bolus or continuous infusion, for at least 24 hours prior to the addition of either two target interventions will be eligible for inclusion. Exclusion criteria include treatment with a thiazide-type diuretic prior to admission, receipt of diuretics outside those being investigated, and use of other volume contracting measures pharmacologic or otherwise, including vasopressin antagonists, hemodialysis, or ultrafiltration. The primary outcome measure will be the change in 24-hour urine output following the first administration of either target intervention. Secondary outcomes will include change in weight loss, incidence of adverse events, and quality measures.

Results/Conclusions

Results and conclusions to be presented at the Great Lakes Pharmacy Resident Conference

Learning Objectives:

State the current recommendations for combination diuretic therapy in patients hospitalized with heart failure who are resistant to loop diuretic treatment

Recognize the mechanism of action of, and adverse events associated with, "sequential nephron blockade"

Self Assessment Questions:

Which of the following mechanisms of loop diuretic resistance may the addition of a thiazide-type diuretic overcome?

A “Braking Phenomenon”
B: Distal tubule hypertrophy
C: Low cardiac output/hypoperfusion
D: Excessive vasopressin-mediated water retention

Which of the following is the most common adverse event associated with the use of thiazide-loop diuretic combination therapy?

A Hypernatremia
B Hyponatremia
C Hypermagnesemia
D Hypokalemia

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-446 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

PHARMACIST-LED MEDICATION MANAGEMENT FOR INPATIENTS WITH A SURGICALLY-ALTERED GASTROINTESTINAL TRACT

Jennifer J. Klink, PharmD*; Harold M. Gollman, BS, MS Pharm, BCPS; Kathryn J. Marty, PharmD

St. Marys Hospital and Medical Center - WI,700 South Park Street,Madison,WI,53715

Jennifer_Klink@ssmhc.com

PURPOSE:
Surgical interventions altering the gastrointestinal (GI) tract for obesity and pancreatic tumors have been shown to be a beneficial treatment for the patients condition. Unfortunately, the altered GI tract leads to malabsorption of vitamins, nutrients, and medications. Certain medications are inappropriate for these patients such as extended-release oral dosage forms and medications which require an acidic environment for absorption. Due to extensive knowledge of the pharmacokinetic properties, side effect profiles and alternate formulations, a pharmacist involved with the multidisciplinary surgery team is positioned to be able to tailor the patients medications based on their individual needs. The purpose of this study is to assess the prescribing compliance with the standard of practice and effectiveness o pharmacist involvement in medication management for patients after a surgery altering the GI tract.

METHODS:
This prospective study will take place at a community hospital between March 2012 and May 2012. The study will include patients who are 18 years and older with a surgical history including Roux-en-y gastric bypass, gastrectomy, sleeve gastrectomy, laparoscopic gastric banding, pancreaticoduodenectomy, pancreatectomy, pancreatic bypass, or pancreaticojejunostomy. The patients hospital medication list will be reviewed daily by the pharmacist to identify and remove or replace inappropriate medications. The pharmacist will review the patients home medication list and remove or replace inappropriate medications to correct the home medication list at discharge. If the patient has been readmitted with inappropriate medications on the home medication list, the pharmacist will provide medication counseling to the patient during the admission. A retrospective review of patients admitted between January 2011 and September 2011 will be used as a control. The primary outcomes measured will be percent of appropriate home, in-patient, and discharge medications and percent of accepted pharmacist medication interventions.

RESULTS/CONCLUSION: Results and conclusions will be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Review the current guidelines and literature to guide medication and vitamin management.

Explain criteria that pharmacists must consider when reviewing medications for a patient with a surgically-altered GI tract.

Self Assessment Questions:

According to the guidelines, which vitamin supplement should be started the first day after a Roux-en-y gastric bypass surgery?

A Calcium citrate
B: Ferrous sulfate
C: Calcium carbonate
D: Ferrous gluconate

Which medication would be appropriate for a patient with a surgically-altered gastrointestinal tract?

A Bupropion extended-release tablet
B Ibuprofen immediate-release tablet
C Bisacodyl enteric-coated tablet
D Carvedilol immediate-release tablet

Q1 Answer: A Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-447 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EFFECT OF AN ANTIMICROBIAL STEWARDSHIP PILOT PROGRAM ON THE ACCEPTANCE OF ANTIMICROBIAL RECOMMENDATIONS IN A SURGICAL INTENSIVE CARE UNIT (SICU)

Shelley Klochan, PharmD*, Diane Cappelletty, PharmD, Mallory Williams, MD, MPH, Claudiu Georgesu, MD, Kylie Mueller, PharmD, BCPS

University of Toledo Medical Center,3000 Arlington Ave.,Toledo,OH,43614

shelley.klochan@utoledo.edu

Background:
Appropriate selection of antimicrobials is extremely important to limit the emergence of antimicrobial resistant pathogens, decrease the incidence of Clostridium difficile infections, and decrease healthcare costs. Antimicrobial stewardship programs have been developed in order to optimize antimicrobial usage, improve clinical outcomes, and decrease healthcare costs. The current antimicrobial stewardship program at University of Toledo Medical Center has been in existence since November 2010. The surgery services consistently have low acceptance of antimicrobial stewardship recommendations.

Purpose:
The objective of this study is to evaluate the change in acceptance rates of antimicrobial stewardship recommendations before and after implementation of a pilot program.

This pre and post intervention study, approved by the Institutional Review Board, included patients ≥ 18 years old, admitted to the SICU, had the SICU or trauma service as the primary service, and had received antimicrobials for at least 72 hours. An "Antimicrobial Stewardship Recommendation Form" must have been completed and placed in the patients chart. Patients who received antimicrobials for surgical prophylaxis or had a primary service other than the SICU or trauma service were excluded. The following data was collected: age, sex, comorbidities, APACHE II score, type of surgery, ICU and hospital days, antimicrobials used, recommendation made, recommendation rationale, recommendation acceptance/rejection, days of therapy, and occurrence of C. difficile. In the post-intervention group the rationale for any rejected recommendations were collected. Direct antimicrobial and indirect cost based on length of stay were calculated.

Results:
This study is still under investigation with final results & conclusions to be presented at Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Identify processes by which information can be streamlined in order to promote antimicrobial stewardship recommendations

Discuss the benefits of antimicrobial stewardship programs in intensive care units

Self Assessment Questions:

Which of the following processes can be used in order to promote appropriate antimicrobial use?

A Continuing the same antimicrobial throughout therapy
B: Streamlining therapy based on clinical criteria
C: Avoiding direct communication with physicians
D: Treating all patients for the same duration

Which of the following is a benefit seen after initiation of an antimicrobial stewardship program?

A Decrease in Clostridium difficile infections
B Increase in ICU patient mortality
C Increase in duration of antimicrobial therapy
D Decrease in acceptance of recommendations

Q1 Answer: B Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-448 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

ASSESSMENT OF PHYSICIAN AND PATIENT OPINIONS ON PHARMACISTS AND OUTPATIENT COLLABORATIVE DRUG THERAPY MANAGEMENT (CDTM) AGREEMENTS

Katharine D. Klyczek*, Pharm.D., Kristan M.S. Wilson, Pharm.D., Kathleen B. Haynes, Pharm.D., BCPS, CDE, Monika B. McDougal, Pharm.D., Chauntae M. Reynolds, Pharm.D., Erin J. Weber, Pharm.D.

Community Health Network - Wellspring Pharmacy,7120 Clearvista Parkway,Suite 1900,Indianapolis,IN,46256

kklyczek@ecommunity.com

Purpose:
Outpatient CDTM laws were recently passed in the state of Indiana (Indiana Code 25-26-16) allowing pharmacists to adjust patients drug regimens by a protocol agreement. The objectives of this study are: (1) to determine physicians receptiveness to an outpatient CDTM agreement with pharmacists in an already established employee disease state management program, Bridges to Health (BTH), within an Indiana hospital system; and (2) to evaluate patients comfort level with expressing health concerns to a pharmacist compared to a physician.
Methods:
An electronic survey will be sent via email to all physicians within Community Physician Network. The survey will consist of a variety of demographic questions and questions on receptiveness to a pharmacist performing functions involving drug therapy decision making, assessing responses to drug therapy, and documentation. They will be given a 5-point Likert scale to respond. Data will be evaluated to determine overal acceptability of outpatient CDTM and analyzed for any physician demographic characteristics influencing their receptivity. Patients enrolled in the BTH program will be given an electronic survey to complete independently prior to the start of his or her appointment. Questions will be asked regarding comfort level with sharing information and asking questions concerning medications, health, and lifestyle with his or her pharmacist compared to his or her physician. He or she will be asked how comfortable they would be with the pharmacist adding or changing medications associated with the disease state for which they are being seen. Patients will be given a 5-point Likert scale to respond and the data will then be evaluated to determine any differences between patients comfort levels with a pharmacist compared to a physician. Both surveys will be anonymous with no patient identifiers.
Results and Conclusion:
To be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

List physician characteristics that have previously been shown to be more supportive of a pharmacist providing medication therapy management services

Identify what has the largest impact on health outcomes in the United States

Self Assessment Questions:

Which of the following physician characteristics have been shown to be more supportive of a pharmacist providing medication therapy management services?

A Male
B: Primary Care Physicians
C: Specialists
D: Those with a greater number of years practicing

What has the largest impact on health outcomes in the United States?

A Behavior choices
B Medical care
C Environmental conditions
D Social circumstances

Q1 Answer: B Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-449 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

ANITCOAGULATION WITH FONDAPARINUX IN PATIENTS WITH HEPARIN-INDUCED THROMBOCYTOPENIA (HIT)

Tamara Knight Pharm.D., BCPS*, Alexander Ansara Pharm.D., BCPS

Indiana University Health,1701 North Senate Boulevard,Room AG401,Indianapolis,IN,46202

tknight2@iuhealth.org

Purpose: Heparin-induced thrombocytopenia (HIT) is an antibody-mediated complication of heparin and low-molecular weight heparin that results in an increased risk of thrombosis. The American College of Chest Physicians (ACCP) guidelines for the treatment of HIT recommend switching to an alternate parenteral anticoagulant then transitioning the patient to warfarin once the platelet count recovers. The only anticoagulants that are FDA approved for the treatment of HIT are direct thrombin inhibitors (DTIs) which have no cross-reactivity to heparin or HIT antibodies. Fondaparinux is a desirable alternative because, unlike DTIs, it can be administered subcutaneously once daily, requires less frequent monitoring, does not interfere with the international normalized ratio (INR), and is lower in cost. Studies have shown that the likelihood of a fondaparinux-induced HIT-like syndrome is low. The ACCP guidelines recommend fondaparinux as an alternative anticoagulant (grade 2C recommendation) for the treatment of HIT, but minimal data exists supporting its efficacy. The purpose of this study is to gain a better understanding of the safety and efficacy of fondaparinux in suspected or documented HIT.
Methods: The research population was identified by active argatroban or fondaparinux orders. Inclusion criteria were age 18 and older, diagnosis of HIT, and treatment with fondaparinux. Exclusion criteria were active major bleeding, bacterial endocarditis, creatinine clearance less than 30 ml/min, history of thrombocytopenia with fondaparanux, recent or planned lumbar puncture, hypersensitivity to fondaparinux, pregnancy, o DTI infusion of more than 24 hours prior to starting fondaparinux. Collected data include platelet count, hemoglobin, warfarin dose, time to therapeutic INR, serum creatinine, bleeding events, blood transfusions, and new thromboembolic complications. Descriptive statistics were used to analyze study data.
Results: Results and conclusions will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

List the benefits of utilizing fondaparinux as a potential alternative for the treatment of HIT.

Identify eligible candidates for treatment of HIT with fondaparinux.

Self Assessment Questions:

Which of the following is a potential benefit of fondaparinux over direct thrombin inhibitors (DTIs) for the treatment of HIT?

A Fondaparinux can be used safely in patients with renal and/or hepa
B: There is no risk of cross-reactivity with HIT antibodies using fondap
C: Fondaparinux requires less frequent monitoring
D: There is more evidence with fondaparinux vs. direct thrombin inhib

Which of the following patients is eligible for treatment of HIT with fondaparinux?

A Patient with normal liver function tests, creatinine clearance of 25
B Patient with elevated liver function tests, creatinine clearance of 40
C Patient with elevated liver function tests, creatinine clearance of 60
D Patient with normal liver function tests, creatinine clearance of 60

Q1 Answer: C Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-450 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

ARE US PHARMACY SCHOOLS PRODUCING HEALTHCARE PROFESSIONALS THAT WILL UPHOLD A CULTURE OF SAFETY?

*Amanda L. Kobylinski, PharmD; Margie E. Snyder, PharmD, MPH; Rich M. Frankel, PhD; Alan J. Zillich, PharmD

Richard L. Roudebush Veterans Affairs Medical Center,6717 Mill Creek Circle,Apt 926,Indianapolis,IN,46214

amanda.kobylinski@va.gov

Background:
The Accreditation Council for Pharmacy Education (ACPE) emphasizes patient safety as a goal for the doctor of pharmacy curriculum in the current revision to their accreditation standards. A recent report provided a baseline evaluation of the integration of the science of safety into the curricula of US colleges and schools of pharmacy. According to the report, no clear educational objectives for medication safety have been established for students by the pharmacy profession. The report revealed one of the likely gaps in safety education as a lack of student acceptance of a "culture of safety". Recommendations provided by the report included a call for studies to assess safety competencies that are being achieved by pharmacy students in order to gain a better understanding of the gaps in knowledge.

Purpose:
To assess baseline patient safety attitudes among graduating student pharmacists.

Methods:
A cross-sectional, online survey will be conducted with pharmacy students in their final professional year at US Colleges of Pharmacy. The survey will use a modified safety attitudes questionnaire (SAQ) which consists of ten items utilizing a five point Likert-type scale. Items on the survey assess teamwork and safety climate. Demographic information that will be collected in the survey includes: gender, age, completion of prior safety coursework and/or training, and previous pharmacy work experience. Respondents are also invited to provide additional open-ended comments at the end of the survey regarding their training and perspectives on safety. A modified Dillman method will be used for survey distribution inclusive of five points of contact during a two week period (pre-survey notification, initial survey request, follow-up reminder, second survey request, and final reminder). Survey data analysis will be summarized using descriptive statistics. Relationships between safety attitude scores and demographics will be evaluated using chi-square.

Results/Conclusion:
To be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Describe the safety attitudes questionnaire (SAQ) as a measurement tool.

Recognize the importance of integrating pharmacy students into a culture of safety.

Self Assessment Questions:

Which of the following statements is true?

A Safety culture emphasizes the contribution of safety efforts from ex
B: Safety culture is reflected in an organization's willingness to develc
C: An organization with a safe culture punishes those who communica
D: A safe culture ignores the extent to which individuals commit to pe

How can APPE students embrace a culture of safety?

A Practice evidence-based medicine
B Partake in root cause analysis
C Improve their communication skills
D All of the above

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-812 -L05-P

Activity Type: Knowledge-based Contact Hours: 0.5

NEONATAL ABSTINENCE OUTCOMES BY TREATMENT

Prajakta A Korde*, Pharm D & Karen Kelly, Pharm D

NorthShore University HealthSystem,2650 Ridge Avenue,Evanston,IL,60201

pkorde@northshore.org

Purpose:
Neonatal abstinence syndrome (NAS) is a group of problems that a neonate experiences when withdrawing from exposure to narcotics. The initial treatment for NAS is supportive management. The decision to use pharmacologic therapy is individualized to each case, depending on the severity of the withdrawal symptoms and the benefit versus risk of use. Several drugs are used for treatment of NAS including benzodiazepines, methadone, morphine, clonidine, phenobarbital, and diazepam. Review of published literature suggests that pharmacologic therapy should be initiated for abstinence scores of 8-10. At NorthShore University HealthSystem the current standard of care for treatment of NAS is clonidine and methadone. The purpose of this study is to evaluate clonidine and methadone use for the pharmacological management of neonatal abstinence syndrome.

Methods:
The authors of this study will conduct a retrospective chart review (from 8/1/2007 - 7/31/2011) to evaluate the use of clonidine and methadone for the management of neonatal abstinence syndrome. This study will compare the use of both clonidine and methadone used to achieve the desired goal abstinence score of 8-10 (average daily score). We will analyze the duration of treatment to reach the goal abstinence score as well as the total daily dose used (mg/kg/day) to achieve the goal score. In addition, the dose and duration of phenobarbital and lorazepam as adjunct pharmacologic therapies, and the duration of documentation of abstinence scores will be collected. Published literature and current best practices will be reviewed. Based on the results of this study, the current treatment guideline for NAS for NorthShore University HealthSystem may be updated to reflect these results.

Results/Conclusion:
Analysis of results is currently ongoing. The results and conclusions will be presented at the Great Lakes Residency Conference.

Learning Objectives:

Discuss some of the current treatment options for neonatal abstinence syndrome.

Describe the efficacy of using methadone and/or clonidine for the treatment of neonatal abstinence syndrome.

Self Assessment Questions:

Which of the following drugs are used for the treatment of neonatal abstinence syndrome?

A clonidine
B: morphine
C: methadone
D: all of the above

The initial treatment of neonatal abstinence syndrome is

A methadone
B clonidine
C supportive treatment
D A & b

Q1 Answer: D Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-451 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF THE EFFECT OF OBESITY ON VORICONAZOLE SERUM CONCENTRATIONS

Elizabeth Koselke, Pharm.D.*, Shawna Kraft, Pharm.D., Jeannina Smith M.D., Jerod Nagel, Pharm.D.

University of Michigan Health System,1500 E. Medical Center Dr., SPC 5008,Ann Arbor,MI,48109

kelleyel@umich.edu

Voriconazole is a second generation triazole antifungal, which was approved by the FDA in 2002, and is prescribed for the treatment or prophylaxis of various mold or yeast infections. Despite a decade worth of experience with voriconazole, there is no data evaluating voriconazole serum concentrations and toxicity in obese patients. To address this void in the literature, we evaluated voriconazole trough serum concentrations in a retrospective cohort study. The primary purpose of this study was to analyze voriconazole levels in morbidly obese versus normal weight patients when dosed based on 4mg/kg actual body weight. The average BMI was 38.6 kg/m2 and 21.7 kg/m2 in the obese and normal weight groups, respectively. The obese group had significantly higher mean serum voriconazole level than the normal weight group (6.2 mg/L and 3.5 mg/L, p = 0.005). Patients in the obese group also had higher rates of supratherapeutic voriconazole levels (>5.5 mg/L) than patients in the normal weight group (67% vs. 19%, p = 0.0018). Hepatotoxicity and neurotoxicity were evaluated and will be presented at the conference.

A secondary endpoint included analyzing mean serum voriconazole concentrations in the obese population when dosed at 4mg/kg IBW, adjusted body weight, and ABW, which were statistically significantly different at 2.7, 3.2 and 6.2 mg/L, respectively (p<0.001). When obese patients were dosed based on an IBW or adjusted body weight, no supratherapeutic levels were seen. Therapeutic voriconazole levels (2.0-5.5 mg/L) in obese patients were 28% when dosed on ABW, and 60% and 67% in IBW and adjusted body weight, respectfully. Our results suggest a strong association between supratherapeutic levels and morbidly obese patients dosed on 4 mg/kg actual body weight. Dosing voriconazole based on an ideal or adjusted body weight may be warranted although further studies are needed to determine the optimal dosing method in obese patients.

Learning Objectives:

Identify potential manifestations of voriconazole toxicity

Describe the effect of morbid obesity on voriconazole serum concentrations

Self Assessment Questions:

Which of the following is the most commonly observed voriconazole toxicity at levels > 8mg/L?

A Neurotoxicity
B: Tachycardia
C: Renal toxicity
D: Neuropathy

The highest rates of voriconazole supratherapeutic levels were observed when dosed on 4mg/kg

A Adjusted body weight
B Actual body weight
C Ideal body weight
D Lean body weight

Q1 Answer: A Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-452 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF COMPUTERIZED PRESCRIBER ORDER ENTRY ALERTS TO DECREASE INAPPROPRIATE MEDICATION CONTINUATION UPON TRANSFER FROM THE INTENSIVE CARE UNIT

Emily Kosirog, PharmD*; Natalie Buening, PharmD, BCPS; David Foster, PharmD, FCCP; Karalea Jasiak, PharmD; Eve McMichael, PharmD, BCPS; Kelly Williams, PharmD, BCPP

Wishard Health Services,1001 W. 10th Street,Indianapolis,IN,46202

emily.kosirog@wishard.edu

Purpose: To evaluate discontinuation rates and hospital drug acquisition costs associated with inappropriate acid suppression therapy (AST) and/or intensive care unit (ICU) delirium treatment before and after the implementation of computerized prescriber order entry (CPOE) medication alerts triggered upon patient transfer out of the ICU.

Methods: A retrospective, observational chart review was conducted from January 26, 2012 to March 15, 2012. Post CPOE alert implementation data was compared to data obtained from previous medication use evaluations (MUE) regarding AST use and ICU delirium treatment conducted in 2009 and 2011. Patients were included in the study if they were at least 18 years old with admission to an intensive care service, received one dose of AST and/or an antipsychotic for ICU delirium treatment and transferred to a non-ICU service. Patients who were taking these medications prior to admission were excluded. The primary outcome of the study was the percentage of patients continued on AST or an antipsychotic at transfer from the ICU before and after implementation of CPOE alerts. Secondary endpoints included hospital cost of inappropriate AST and antipsychotic continuation and percentage of patients discharged on AST or antipsychotics before and after CPOE alerts.

Results: In 2009, the hospital conducted a MUE of acid suppression therapy use. Of patients who had been initiated on AST in the ICU, 97% (n=61) of patients were continued on AST at time of transfer and 28% (n=45) were discharged on AST without an appropriate indication. In the fall of 2011, the hospital gathered data on the use of antipsychotics for ICU-related delirium treatment. Of 110 patients, 32% of patients (n=35) were continued on antipsychotic treatment upon ICU transfer and 9% (n=10) patients were discharged on an antipsychotic without an appropriate indication. Final results following CPOE alert implementation and conclusions to be presented.

Learning Objectives:

Describe the proper indications for both stress ulcer prophylaxis (SUP) and antipsychotic use while patients are in the ICU

Explain the benefits and challenges of implementing computerized prescriber order entry (CPOE) alerts to decrease inappropriate prescribing

Self Assessment Questions:

Which of the following patients have an appropriate indication for acid suppression therapy?

A JM, 39YO male, intubated for 3 days following MVA
B: ST, 89YO female, on a general floor with community-acquired pne
C: PT, 46YO female, in the ICU s/p renal transplant
D: Both A and C

Which of the following are benefits of CPOE alerts?

A Increased medication use overall
B Remind prescribers to follow guidelines to improve outcomes
C Increased patient safety and decreased misuse of medication
D Both B and C

Q1 Answer: D Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-813 -L05-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF FACTORS ASSOCIATED WITH ACHIEVING GLYCEMIC CONTROL IN A PHARMACIST-MANAGED DIABETES CLINIC

Matthew D. Kostoff*, PharmD; Melanie L. Boros, PharmD, BCPS; John M. Moorman, PharmD, BCPS; Lawrence A. Frazee, PharmD, BCPS

Akron General Medical Center,400 Wabash Avenue,Akron,OH,44307

matthew.kostoff@akrongeneral.org

Background: Pharmacist involvement in the management of diabetes has been associated with improved diabetes-related outcomes. The specific interventions resulting in improved glycemic control have not been well-described in the literature.

Purpose: To identify factors that are associated with patients achieving goal A1c after 6 months in a pharmacist-managed diabetes clinic.

Methodology: This study is a descriptive, retrospective chart review of patients enrolled in a pharmacist-managed diabetes clinic from July 2009 - July 2011. Patients with a diagnosis of type 2 diabetes mellitus (DM2) and a 6 month follow up A1c measurement were included. Patients with a documented A1c goal >7% or a diagnosis of type 1 diabetes mellitus were excluded. Collected data related to demographics include: age, gender, race, baseline and follow up A1c measurements, and diabetic medications prescribed at baseline and at 6 months. Collected data related to identified factors include: time since diagnosis of DM2, number of office visits attended and missed, diabetes education referral, presence of a care manager, social worker involvement, blood glucose logs brought to visits, interaction with patient in-between office visits, initiation of insulin or non-insulin medications and dose increases, hypoglycemic events preventing change in therapy, patient refusal to intensify therapy, and medications discontinued due to an adverse event or contraindication. The primary endpoint is the odds of each identified factor being associated with achievement of goal A1c after 6 months of enrollment in the diabetes clinic. The factors will also be evaluated within two subgroups of patients having at least 2 visits to the clinic within the first 6 months of enrollment. These subgroups include patients with a baseline A1c > 7% and patients with a baseline A1c >9% who achieved at least a 2% decrease in A1c.

Results and Conclusions: To be presented.

Learning Objectives:

Discuss the prevalence of diabetes and factors associated with achieving goal A1c

Identify goals and areas for improvement in the management of diabetes in the outpatient setting

Self Assessment Questions:

Which of the following statements is correct?

A Diabetes affects greater than 20 million Americans

B: Diabetes affects less than 20 million Americans

C: The prevalence of diabetes in America is decreasing

D: Diabetes is not a prevalent disease in America

Which of the following statements is correct?

A Pharmacist involvement has no association with improved diabetes

B The American Diabetes Association (ADA) defines goal A1c as <7

C Specific interventions leading to improvements in A1c outcomes ar

D It is not possible to reach goal A1c in most patients

Q1 Answer: A Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-453 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

PNEUMOCYSTIS JIROVECI PNEUMONIA (PCP) PROPHYLAXIS IN RENAL TRANSPLANT PATIENTS

Arati Kurani, Pharm.D.*; Christopher Crank, Pharm.D., BCPS; Edward F Hollinger, MD, PhD; Debra Dimartino, PA-C; Nicole Alvey, Pharm.D., BCPS

Rush University Medical Center,1653 W. Congress Parkway,Chicago,IL,60612

Arati_Kurani@rush.edu

Background: Opportunistic infections such as Pneumocystis jiroveci pneumonia (PCP) are life-threatening infections that are common in immunocompromised patients. As PCP causes mortality in about 50% of patients with renal transplants that contract PCP, providing them with prophylactic antibiotics has become the standard of care. The majority of data indicating the benefit of PCP prophylaxis comes from studies examining patients with HIV, the results of which indicate trimethoprim-sulfamethoxazole (TMP-SMX) as first line for prophylaxis and dapsone, atovaquone, and aerosolized pentamidine as possible alternative therapies. There are few studies that provide a direct comparison between TMP-SMX and alternative therapies in renal transplant patients.

Objective: This study will compare the safety and efficacy of PCP prophylaxis with TMP-SMX compared to dapsone in renal transplant patients at RUMC.

Methods: This study is a retrospective chart review of all patients that have received a renal transplant at RUMC between July 2008 and July 2011. Patients were identified through an electronic renal transplant database, and each medical record obtained was reviewed to determine if the patient received PCP prophylactic therapy. The following data was collected for these patients: age, gender, renal transplant type, pre-transplant labs (BUN, SCr, CrCl, GFR), allergies, G6PD deficiency status and concomitant nephrotoxic medications. The specific PCP prophylactic antibiotic that the patient received and rationale for its use, in addition to the patients transplant related immunosuppressive therapy regimen and follow-up labs was also evaluated.

The primary outcome looks at changes in glomerular filtration rate (GFR) after the start of prophylactic antibiotic therapy to determine whether TMP-SMX or dapsone have a negative effect on kidney function. Secondary outcomes include development of PCP, death from PCP, development of urinary tract infections and development of blood dyscrasias.

Data collection and evaluation are currently being conducted.

Learning Objectives:

Identify The anti-infectives recommended for prophylaxis against Pneumocystis jiroveci pneumonia.

Describe the appropriate dosing regimens for the prophylactic agents in renal transplant patients.

Self Assessment Questions:

Which medication is recommended in the IDSA guidelines as first line for prophylaxis of Pneumocystis jiroveci pneumonia (PCP)?

A dapsone

B: atovaquone

C: trimethoprim-sulfamethoxazole

D: aerosolized pentamidine

What are appropriate PCP prophylactic doses for sulfamethoxazole-trimethoprim for a patient with creatinine clearance > 30 mL/min?

A 1 double-strength tablet daily

B 1 single-strength tablet 3 times weekly

C 1 double-strength tablet 3 times weekly

D Both A and C

Q1 Answer: C Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-454 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF VITAMIN B12 DEFICIENCY ASSOCIATED WITH LONG TERM USE OF METFORMIN IN A VETERAN POPULATION

Saji Kurian, Pharm.D* ; Jo-Ann L. Caudill, RPh.

Cincinnati Veteran Affairs Medical Center,Cincinnati VA Medical Center (ML 119),3200 Vine Street,Cincinnati,OH,45220

saji.kurian@va.gov

Purpose: Metformin is considered one of the first treatment choices for type II diabetes. Studies have shown that long term use of metformin is associated with vitamin B12 deficiency in up to 30% of patients. The deficiency of vitamin B12 causes neurological and hematological abnormalities. There is no established guidelines for monitoring patients on metformin for vitamin B12 deficiency. Even though mean corpuscular volume (MCV) sensitivity is low, an elevated MCV does justify the measurement of serum B12 level to evaluate patients for deficiency. The primary objective of this retrospective study is to evaluate if patients on metformin for more than three years are appropriately monitored for B12 deficiency. Additionally, the study looks at what is the average time frame for drawing an MCV level, if MCV greater than > 98 fL, was a vitamin B12 level drawn or evaluated and are these patients appropriately treated if they have deficiency.
Methods: This Institutional Review Board approved protocol is awaiting approval from the Cincinnati Veterans Affairs Medical Centers (VAMC) Research and Development Committee to start data collection. In this retrospective chart review, all patients in the Cincinnati VA medical center on metformin for more than 3 years starting from January 2005 through December 2008 will be included. Patients are excluded if they have crohns disease, ileal resection, postgastrectomy, pernicious anemia, transcobalamin-II deficiency, history of alcohol abuse, receiving multivitamin with mineral, other known causes for anemia, chart lacks sufficient data, or if they have baseline vitamin B12 deficiency. A randomized sample size of 189 will give an estimate of the proportion of patients adequately monitored for B12 deficiency with a 95% confidence level.
Results: Results and conclusions to be presented at the Great Lakes Pharmacy Residency Conference

Learning Objectives:

Discuss the importance of monitoring diabetic patients for vitamin B12 deficiency associated with long term metformin use

Review the lab tests useful in evaluating patients for vitamin B12 deficiency.

Self Assessment Questions:

Treatment of diabetic patients with metformin is associated with

A Increase in vitamin B12 level
B: Decrease in vitamin B 12 level
C: No impact on vitamin B 12 level
D: Can increase or decrease vitamin B12 level

Which of the following lab test(s) is/are useful in evaluating a patient for vitamin B12 deficiency.

A Vitamin B 12 Level and MCV level
B Homocysteine Level
C Methylmalonic acid (MMA) level
D All of the above

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-455 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

SUBCUTANEOUS DOSING OF EPOETIN ALFA IN HEMODIALYSIS OUTPATIENTS

Brian M Kurtz, PharmD*; Jessica Ellis, PharmD, BCPS; Bonita Singal, MD, PhD

St. Joseph Mercy Hospital,5301 East Huron River Drive,PO Box 995,Ann Arbor,MI,48106

kurtzbm@trinity-health.org

Background:
The Kidney Disease Outcomes Quality Initiative guidelines recommend intravenous dosing of epoetin alfa for the treatment of anemia in hemodialysis patients, with a goal hemoglobin value of 11 - 12 g/dL. However, numerous studies have shown that lower doses can be utilized to maintain patients at goal hemoglobin when administering epoetin alfa subcutaneously. In April 2011, the St. Joseph Mercy Hospital Ann Arbor Hemodialysis Unit moved from an intravenous to a subcutaneous epoetin alfa dosing protocol based on this data.

Purpose:
The objective of this study is to determine if the outpatient subcutaneous dosing protocol at St. Joseph Mercy Hospital Ann Arbor is equivalent to the intravenous dosing protocol of epoetin alfa in achieving a target hemoglobin level of 10 g/dL - 12 g/dL within two months of protocol initiation in anemic, hemodialysis outpatients.

Methods:
This retrospective, cohort trial, which was approved by the Institutional Review Board, enrolled adult patients from the outpatient hemodialysis unit between March 2010 and December 2011 with a hemoglobin value less than 10 g/dL upon initiation of the epoetin alfa dosing protocol. Patients were also required to have at least two monthly hemoglobin values available after protocol initiation. Patients were excluded if they were hospitalized for more than one week, had a concurrent diagnosis related to hematology or oncology, experienced a GI bleed, or received epoetin alfa through both the intravenous and subcutaneous dosing protocols during the study period. Patients were divided into two cohorts based on the route by which they received epoetin alfa. The primary endpoint of the trial was the number of patients with a hemoglobin concentration > 10 g/dL and < 12 g/dL within two months after initiation of treatment.

Results:
This study is still under investigation with final results and conclusions to be presented at Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Discuss the role of subcutaneous dosing of epoetin alfa in hemodialysis patients.

Identify the risks associated with erythropoiesis-stimulating agent therapy when hemoglobin values exceed goal levels.

Self Assessment Questions:

According to recent FDA recommendations, which of the following is an ideal hemoglobin range for patients receiving erytropoesis-stimiulating agent therapy?

A 9 - 10 g/dL
B: 10 - 11 g/dL
C: 11 - 12 g/dL
D: 12 - 13 g/dL

The results of the TREAT trial (A Trial of Darbepoetin Alfa in Type 2 Diabetes and Chronic Kidney Disease) showed that a hemoglobin goal of 13 g/dL was associated an increased risk of?

A Myocardial Infarction
B Peripheral Vascular Disease
C Stroke
D Heart Failure

Q1 Answer: B Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-456 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

USE OF LYMPHOCYTE DEPLETING VS. NON-DEPLETING INDUCTION THERAPY IN LIVER TRANSPLANTATION - A SINGLE CENTER EXPERIENCE

Melissa Kusaka, PharmD*, Maya Campara, PharmD BCPS
University of Illinois at Chicago,833 S Wood St,Suite 164 (MC 886),Chicago,IL,606127230
kusaka@uic.edu

Purpose: Antibody induction therapy is used in solid organ transplantation to ensure engraftment and as a bridge to maintenance immunosuppressant therapy. Due to the lower immunologic risk of rejection, it has historically been used less frequently in orthotopic liver transplantation (OLT). However, its overall use in OLT has recently increased, mostly in an effort to reduce patient exposure to calcineurin inhibitors (CNI), a commonly used maintenance therapy. CNI toxicity is the most common cause of end-stage renal disease after OLT, which results in a significant decrease in patient survival. Studies have shown that antibody induction therapy with OLT allows for delayed and/or reduced doses of CNI in maintenance therapy.

Lymphocyte-depleting agents, such as polyclonal antithymocyte globulin as well as non-depleting agents, such as monoclonal antibodies directed at the IL-2 receptor, have been shown effective in the induction phase of immunosuppressant therapy in OLT. However, there have been no studies published directly comparing these two induction therapy strategies in OLT. This study will assess whether the use of lymphocyte-depleting versus non-depleting induction therapy in OLT affects patient survival and other outcomes, including but not limited to post-operative renal function and complications.

Methods: This retrospective study examines 309 adult patients who received a liver transplant at the University of Illinois Medical Center at Chicago from January 1, 2004 to September 30, 2011. The primary outcome is whether patient survival in the first three months from transplantation is affected by the use of lymphocyte-depleting versus non-depleting agents for induction therapy in OLT. The secondary outcomes include three-month post-transplant renal function and complications including infection, acute rejection, readmission, need for dialysis, and discharge destination.

Results/Conclusion: Final results and conclusions are pending and will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Explain the rationale for using immunosuppressive induction therapy in orthotopic liver transplantation.

Describe the benefits and risks when using lymphocyte-depleting versus non-depleting induction therapy strategies.

Self Assessment Questions:

The primary purpose of immunosuppressive induction therapy in orthotopic liver transplantation is to:

A Prevent acute organ rejection
B: Reduce the patient exposure to calcineurin inhibitors
C: Reduce the risk of post-operative infection
D: B and C

The most common cause of end-stage renal disease in orthotopic liver transplatation is:

A Post-transplant hypertension
B Sepsis
C Hepatitis C reactivation
D Calcineurin inhibitor toxicity

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-457 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

PATIENT SATISFACTION WITH A COMMUNITY PHARMACIST INTERVENTION IN AN UNDERSERVED, FEDERALLY FUNDED CLINIC

Sarah K Kwasigroch, PharmD, MBA*, Community Pharmacy Resident, Walgreens Health System Pharmacy at Northwestern Memorial Hospital; Shelia Allen, PharmD, BCPS, Director- Introductory Pharmacy Practice Experiences and Clinical Assistant Professor, University of Illinois at Chicago College of Pharmacy; Judith B. Sommers Hanson, PharmD, FAPhA, Senior Manager Clinical Education and Health Testing Services, Walgreen Co.
University of Illinois at Chicago,175 N Harbor Drive,#3004,Chicago,IL,60601
sarah.kwasigroch@walgreens.com

Purpose: To evaluate patient satisfaction after a patient has an individua counseling session with a community pharmacist at an underserved, federally funded family practice clinic.
Methods: A large community pharmacy chain has provided the services of one of their pharmacist to work with physicians at an underserved, federally funded primary care clinic. This is the first time this clinic has had a pharmacist onsite to assist with medication review and patient education. The pharmacist will focus on improving medication adherence by identifying and addressing barriers, furthering patient education regarding their medication and disease states, and providing answers to patient specific questions on drug therapy. A cross-sectional study using a voluntary, anonymous survey will be administered to English speaking patients 18 years of age or older seen by the pharmacist at the clinic from December 2011 to May 2012. The survey will be handed to the patient in paper copy after their intervention with the pharmacist and each patient will be asked to voluntary complete the survey. The patient will have the option to complete the survey on their own at the clinic, have a volunteer read them the survey questions at the clinic, or take the survey home and mail it back once it is complete. No follow up calls or reminders were issued to encourage survey completion, in order to maintain patient animosity. The survey results will help determine if this pilot should be expanded to other clinic sites and if patients are receptive to the new role of pharmacists within the healthcare system. Statistical analysis will be applied to the collected data to assess patient satisfaction and personal impact of pharmacist intervention.
Results: NA (research in progress)
Conclusions: NA (results pending)

Learning Objectives:

List the main reasons why patients are non-adherent to their medication regimens.

Define the goals of medication therapy management (MTM).

Self Assessment Questions:

What do patients cite as the most common reason for being non-adherent to their medications?

A They experience side effects
B: Financial barriers
C: Forgetfulness
D: Lack of access

The goal of medication therapy management in the community setting is to:

A Optimize medication regimen effectiveness
B Reduce overall healthcare costs
C Force physicians and nurses to adhere to the pharmacists' recomn
D Both A and B

Q1 Answer: C Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-458 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EXTENDED STABILITY OF INTRAVENOUS ACETAMINOPHEN IN SYRINGES AND OPENED GLASS BOTTLES

Jennifer L. Kwiatkowski, Pharm.D.,* Pediatric Pharmacy Resident. Cary E. Johnson, Pharm.D., FASHP, Professor of Pharmacy, Department of Clinical Sciences, College of Pharmacy, UM. Deborah S. Wagner, Pharm.D., FASHP, Clinical Associate Professor of Pharmacy, College of Pharmacy, UM, and Clinical Pharmacist, Department of Anesthesiology, UM.

University of Michigan Health System,1500 E. Medical Center Dr. SPC 5008,UH B2 D301,Ann Arbor,MI,48109

jlunger@umich.edu

Purpose. The stability of intravenous acetaminophen was evaluated.

Methods. Intravenous acetaminophen (10 mg/mL) was obtained. Three identical samples of 100 mg (10 mL in 10 mL syringe), 250 mg (25 mL in 30 mL syringe), 500 mg (50 mL in 60 mL syringe), 250 mg (25 mL in original bottle), and 900 mg (90 mL in original bottle) were prepared. A 0.5 mL volume was withdrawn from each sample, diluted with mobile phase to an expected concentration of 50 mcg/mL, and assayed in duplicate by injecting 5 mcL into the high-performance liquid chromatography system immediately after preparation and at 24, 48, 72, and 84 hours. The samples were examined for any change in color and pH was assessed at each time of analysis. The stability of the solutions was determined by calculating the percentage of the initial acetaminophen concentration remaining at each test hour. Stability was defined as the retention of at least 90% of the initial acetaminophen concentration.

Results. At least 99% of the initial concentration of acetaminophen remained in the original bottles and polypropylene syringes throughout the 84-hour study period. There was no detectable change in color, pH, visible microbial growth, or visible drug precipitation.

Conclusion. Intravenous acetaminophen (10 mg/mL) is physically and chemically stable for up to 84 hours in the opened bottles and in polypropylene syringes at room temperature.

Learning Objectives:

Explain limitations of the current 6-hour usage guideline for intravenous acetaminophen.

Describe key components of conducting a stability experiment according to ASHP guidelines.

Self Assessment Questions:

Which of the following is a limitation of the current 6-hour usage guideline for intravenous acetaminophen?

A Potential for product waste for pediatric patients who require only a
B: Potential for infusion related reactions due to administration guideli
C: Potential for dosing errors when dispensing the 1000 mg bottle of i
D: Potential for increased cost in adult patients receiving a 1000 mg d

According to ASHP guidelines for conducting a drug stability experiment, drug samples must be assayed how many times?

A Once
B Twice
C Three times
D Four times

Q1 Answer: A Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-717 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

IMPACT OF HIGH-DOSE NITROGLYCERIN ADMINISTERED IN THE EMERGENCY DEPARTMENT FOR ACUTE DECOMPENSATED HEART FAILURE

Gregory M. Kwiatkowski, PharmD*, Suprat Saely, PharmD, BCPS, Phillip Levy, MD, MPH, FACEP

Detroit Receiving Hospital,4201 St. Antoine Blvd.,Detroit,MI,48201

gkwiatko@dmc.org

BACKGROUND

Acute decompensated heart failure (ADHF) is a serious exacerbation of pre-existing heart failure and can be precipitated by multiple causes, including medication non-compliance, acute ischemia, arrhythmias, or concurrent infection. ADHF carries significant morbidity, with an estimated 50% rate of hospital re-admission in 6 months after an initial case, and an estimated mortality of approximately 4%. Therapy is guided by presentation and includes the use of loop diuretics and vasodilators for patients presenting with volume overload. At normal doses, nitroglycerin acts as a venodilator and can decrease cardiac preload. At higher doses, it can act also dilate arteries and reduce cardiac afterload, potentially improving cardiac output. In 2007, a pilot study showed a reduction in rates of ICU admission, bilevel positive airway pressure (BiPAP), and endotracheal intubation in patients receiving high-dose intravenous nitroglycerin. The present study analyzed the clinical outcomes of the subsequent cohort of patients who received high-dose nitroglycerin.

METHODS

This study was a retrospective, matched cohort study of patients seen in the Detroit Receiving Hospital Emergency Department (ED) from 1/1/2006 to 7/31/2011. Prospective cohort members were patients receiving high-dose intravenous nitroglycerin (1 mg or greater) for ADHF in the emergency department and age greater than 18 years. Patients were excluded if intravenous nitroglycerin was given for an indication other than ADHF. Cohort patients were matched based on age, gender, and systolic blood pressure on presentation to patients who only received nitroglycerin continuous infusion for ADHF.

OUTCOMES

Data evaluated included admission location, length of hospital stay, rate of endotracheal intubation and BiPAP, and cumulative doses of both intravenous nitroglycerin and loop diuretics. Outcomes included disposition on hospital discharge and up to 30 days after discharge.

RESULTS TO BE PRESENTED

Learning Objectives:

Review the pathophysiology of acute decompensated heart failure and the potential role of high-dose nitroglycerin

Report clinical outcomes in patients receiving high-dose nitroglycerin for acute decompensated heart failure in the emergency department

Self Assessment Questions:

High-dose nitroglycerin is thought to benefit ADHF patients by which of the following mechanisms?

A Reduction of cardiac preload
B: Reduction of cardiac afterload
C: Diuresis and removal of fluid
D: A & b

In a 2007 pilot study, patients who received high-dose nitroglycerin saw a benefit in all of the following metrics EXCEPT:

A Endotracheal Intubation
B 30-Day ED Return Visits
C ICU Admission
D BiPAP

Q1 Answer: D Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-459 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

CLINICAL PRESENTATION AND MANAGEMENT OF HYPERTENSIVE CRISIS IN AN URBAN ACADEMIC MEDICAL CENTER

Yana A. Labinov, PharmD; Robert J. DiDomenico, PharmD; Thomas D. Stamos, MD

University of Illinois at Chicago,833 South Wood St.,Chicago,IL,60612

blekhman@uic.edu

Purpose: Hypertensive crises are characterized by severe elevations in blood pressure (e.g., > 180/120 mmHg) and further classified as either urgency or emergency based on presence of acute end-organ damage. Patients with a hypertensive urgency are often over-treated with intravenous antihypertensive medications and are frequently hospitalized for further monitoring, exposing patients to nosocomial or iatrogenic complications and increasing healthcare costs. Data are lacking that distinguishes the risk factors for a hypertensive crisis and those that predict hospital admission for its management.

Methods: The primary objectives of this study are to characterize the clinical presentation of patients and identify if specific clinical factors influence antihypertensive treatment strategies. The secondary objective is to evaluate short-term and long-term outcomes in patients treated for hypertensive crisis at the University of Illinois Medical Center. Prior to commencement, this study was submitted to the Institutional Review Board for approval. Patients who had presented with hypertensive crisis to the University of Illinois Medical Center emergency department (ED) between 7/1/2008 and 6/30/2011 will be included. Hypertensive crisis will be identified using International Statistical Classification of Diseases and Related Health Problems 9th Edition (ICD-9) codes. Patients will be excluded if < 18 years of age and if therapy was delayed for 24 hours or more after presentation to the ED. The following data will be collected: baselines demographics, current medications, history of non-adherence, presenting signs and symptoms, diagnostic procedures, initial laboratory parameters, therapeutic interventions, blood pressure at various time points and adverse clinical events. Resource utilization data, including admission to intensive care unit (ICU), length of stay in ICU and length of stay as an inpatient, will be collected. Descriptive statistics will be performed for all of the above data points.

Results/Conclusion: Data collection is ongoing and results will be presented at the 2012 Great Lakes Pharmacy Residents Conference.

Learning Objectives:

Define hypertensive emergency and urgency

Explain the importance of appropriate diagnosis and treatment of hypertensive crisis

Self Assessment Questions:

Patient diagnosed with hypertensive urgency

A should be admitted and treated with intravenous antihypertensive r
B: will have no evidence of acute end organ damage and administrati
C: will have evidence of acute end organ damage, such as acute kidn
D: should have their mean arterial pressure [MAP] reduced by 20% to

Appropriate diagnosis and/or treatment of hypertensive crisis

A does not include clinical differentiation between urgency or emerge
B are characterized by severe elevations in blood pressure, > 160/10
C includes the use of short-acting intravenous antihypertensive agen
D is vital to avoid over-treatment with intravenous antihypertensive m

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-460 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

THE PREVALENCE OF ACUTE KIDNEY INJURY IN PEDIATRIC PATIENTS RECEIVING AMINOGLYCOSIDE THERAPY ALONE OR IN COMBINATION WITH VANCOMYCIN

Dennis P LaChance*, BS PharmD, Cynthia Barclay, PharmD, Joshua Courter, PharmD, Stuart Goldstein, MD

Cincinnati Children's Hospital Medical Center,3333 Burnet Avenue,MLC 15010,Cincinnati,OH,452293026

dennis.lachance@cchmc.org

Purpose: The purpose of this study is to determine the association between aminoglycosides (AGs) and the incidence of acute kidney injury (AKI) in pediatric patients with or without concurrent vancomycin therapy.

Methods: A retrospective chart review of non-critically ill pediatric patients at Cincinnati Childrens Hospital Medical Center (CCHMC) who received greater than or equal to 3 days of aminoglycoside therapy was completed. Patients with a history of dialysis or current documented urinary tract infection (UTI) were excluded. Data collected includes: demographic data, AG measures (indication, type received, therapy dates, dosing frequency, timing, peak/trough levels), diagnosis, service, concurrent nephrotoxic medications, and serum creatinine (sCr) values. A modified pediatric Risk, Injury, Failure, and End-stage Kidney (pRIFLE) classification was calculated from the collected data and used to determine RIFLE class max.

Preliminary Results/Conclusions: A total of 141 patients received at least 3 days of AG therapy for a total of 176 courses. Of these courses, 86 courses received concurrent administration of vancomycin (49%) and 90 courses received AG therapy alone (51%). Of those receiving concurrent vancomycin and AG therapy, AKI occurred in 24 courses (28%). Of those receiving AG alone, AKI occurred in 34 courses (38%). Additional results and conclusions will be presented at the 27th Annual Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Define and discuss acute kidney injury (AKI) as it pertains to the pediatric population

Review the role of aminoglycosides, vancomycin and other potentially nephrotoxic medications in their contribution to AKI in pediatric patients

Self Assessment Questions:

Which of the following statements is correct regarding the RIFLE Criteria for classifying acute kidney injury (AKI)?

A The I in RIFLE stands for 'Ischemia'
B: RIFLE criteria has not been used to validate any AKI biomarkers
C: A pediatric modified version of the RIFLE criteria is available
D: The RIFLE system focuses on changes in serum creatinine and ur

Which of the following drugs has been identified in literature as a co-contributor to kidney injury when taken concomitantly with aminoglycosides?

A Acetaminophen
B Rifampin
C Azithromycin
D Cisplatin

Q1 Answer: C Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-461 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

ANALYSIS AND IMPLEMENTATION OF POINT-OF-CARE MONITORING OF INTERNATIONAL NORMALIZED RATIOS (INRS) IN HOME BASED SPINAL CORD INJURY AND PRIMARY CARE PATIENTS TREATED WITH WARFARIN AT THE CLEMENT J. ZAB

Lindsey M Ladell*, Angela C Paniagua, Sandra J Fetzer, Mirella F DeRango, Jody A Hersh, Lynn A Fredrickson

Clement J. Zablocki Medical Center,2036 N Prospect Avenue,Apartment 307,Milwaukee,WI,53202

lindsey.ladell@va.gov

Objective:

Current literature suggests that point-of-care monitoring of International Normalized Ratios (INRs) in home based patients is a safe and cost effective alternative to standard laboratory-based monitoring. The purpose of this project is to analyze the economic impact of point-of-care monitoring of INRs in home based spinal cord injury and home based primary care patients being treated with warfarin. The data derived from this project will then be used to justify the implementation of point-of-care monitoring of INRs in this patient population.

Methodology:

This study will include both retrospective and prospective chart reviews conducted on home based spinal cord injury and primary care patients treated with warfarin within a six month period. The prospective chart review will begin after point-of-care testing is implemented. The following information will be evaluated through the chart reviews: mileage from patients homes to the Home Care base site, total number of INRs, number of INRs requiring dosage adjustment, and the number of INRs 4 or above. A confidential spread sheet will be used to document the information gathered from both of the chart reviews. The primary outcome includes the average mileage traveled by nursing staff per month for the purpose of anticoagulation monitoring prior to point-of-care initiation compared to mileage after point-of-care initiation. Secondary outcomes will also compare data prior to point-of-care initiation to after initiation and include: total number of INRs, number of INRs out of the therapeutic range requiring warfarin dose adjustment and the number of INRs with values of 4 or above requiring nursing staff to complete a venous draw. A protocol will be created prior to the implementation of point-of-care and will include the shift from primary care pharmacist management of these patients warfarin therapy to home based primary care and spinal cord injury pharmacists managing the warfarin therapy in these patients.

Learning Objectives:

Describe the economic impact of using point-of-care INR testing in home based patients.

Discuss the efficacy of point-of-care monitoring of INRs when compared to standard venous draws.

Self Assessment Questions:

What does current literature suggest regarding the economic impact of point-of-care INR testing in home care patients compared to standard laboratory monitoring?

A INR Point-of-care testing is more costly in home care patients.

B: INR Point-of-care testing is cost neutral in home care patients.

C: INR Point-of-care testing is less expensive in home care patients.

D: There is no current literature on point-of-care testing in home care

When compared to venous lab draw, how do point-of-care INR results tend to trend?

A Point-of-care results trend lower than venous lab draws.

B Point-of-care results trend higher than venous lab draws.

C Point-of-care results are similar to results from venous lab draws.

D Point-of-care results have not been compared to venous lab draws

Q1 Answer: C Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-462 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

DEVELOPMENT AND IMPLEMENTATION OF SYSTEMS TO IMPROVE STAT MEDICATION USE SYSTEMS BY AN INTERDISCIPLINARY TEAM

Korby Lathrop, PharmD*; Jessica Mahoney, PharmD, MS; Aaron Steffenhagen, PharmD, BCPS; Steve Rough, MS, RPh

University of Wisconsin Hospital and Clinics,2121 University Ave,Apt 27,Madison,WI,53726

klathrop@uwhealth.org

Purpose:
The purpose of this project is to improve stat medication use system responsiveness at the University of Wisconsin Hospital and Clinics (UWHC).

Methods:
A literature review was conducted to assess existing standards and guidelines for stat medication delivery and turn-around time. An interdisciplinary workgroup was formed to assess the current stat medication process and system responsiveness at UWHC, and identify areas for improvement. Using the Find, Organize, Clarify, Understand, Select - Plan, Do, Check, Act (FOCUS-PDCA) method, this group was charged with defining situations that make a medication "stat", developing reasonable standards for stat medication turn-around time, outlining roles and responsibilities for all parties within the stat medication use system, implementing ongoing systems to monitor system responsiveness versus established standards and creating a policy and procedures for stat medication communication, delivery and administration,. A pre-post analysis of stat medication turnaround time data and staff perceptions was conducted.

Results:
Results to be presented.

Conclusions:
Conclusions to be presented.

Learning Objectives:

Discuss challenges around standardizing stat medication turn-around time expectations across disciplines

Recognize the importance of an interdisciplinary team when working to improve a complex system

Self Assessment Questions:

What is the nationally accepted definition of medication turn-around time?

A From receipt of a medication order in the pharmacy to medication d

B: From provider ordering the medication to medication dispensing

C: There is no uniform definition of medication turn-around time

D: From provider ordering the medication to administration to the pati

A group focused on improving the stat medication use system should include representatives from:

A Pharmacy

B Nursing, pharmacy, risk, quality, and hospital leadership

C Nursing and plant engineering

D Nursing and pharmacy

Q1 Answer: C Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-814 -L05-P

Activity Type: Knowledge-based Contact Hours: 0.5

APPROPRIATE INITIATION AND UTILIZATION OF AN ALCOHOL WITHDRAWAL PROTOCOL IN A COMMUNITY TEACHING HOSPITAL USING THE REVISED CLINICAL INSTITUTE WITHDRAWAL ASSESSMENT FOR ALCOHOL (CIWA-AR) SCALE

Edward K. Lau, Pharm.D.*, Michelle R. Meyer, Pharm.D., BCPS, Karen L. Burke, BSN, RN, CNSN, Karen E. Lynch, BSN, RN, Krisanna L. Deppen, MD, James J. Jenkins II, Ph.D

Grant Medical Center,111 South Grant Avenue,Department of Pharmacy,Columbus,OH,43215

elau2@ohiohealth.com

Purpose: Patients at risk for alcohol withdrawal syndrome (AWS) admitted to Grant Medical Center (GMC) are often placed on an alcohol withdrawal protocol utilizing the revised Clinical Institute Withdrawal Assessment for Alcohol (CIWA-Ar) scale. The CIWA-Ar scale is used to assess the need for treatment and to guide medication dosing utilizing symptom-triggered management. Previous inappropriate use of symptom-triggered therapy for alcohol withdrawal has been documented in the literature, showing that patients can sometimes be put on an alcohol withdrawal protocol despite a lack of documentation regarding the patients risk for AWS. The objective of this study is to review the incidence of documented indication for alcohol withdrawal and the ability to answer questions on the CIWA-Ar scale for patients placed on the alcohol withdrawal protocol at GMC. Appropriate utilization of this protocol based on hospital guidelines will also be evaluated.

Methods: A retrospective review will be performed on patients that had a CIWA Symptom-Triggered Alcohol Detoxification Protocol ordered during their admission from August 1 to October 31, 2011 at GMC. Exclusion criteria include patients < 18 years old. The following data will be collected: patient age, gender, ethnicity, provider diagnosis, apparent indication for CIWA-protocol initiation, past medical history, social history, blood alcohol level upon admission (if available), type of benzodiazepine ordered per protocol, benzodiazepine dosage administered per protocol, patients ability to answer questions on CIWA-Ar scale, number of days on protocol, number of hours on protocol with CIWA score >= 8, number of days on protocol with CIWA Score < 8 for at least 24 hours (not including initial 24-hour period of CIWA score < 8), concurrent use of CIWA-protocol while on IV infusion of benzodiazepine/dexmedetomidine/ or propofol, and documented over-sedation while on protocol.

Results/Conclusions: Data collection/analysis is ongoing and will be presented at the Great Lakes Pharmacy Resident Conference

Learning Objectives:

Review the current pharmacological options for the prevention of alcohol withdrawal

Identify consequences related to inappropriate utilization of an alcohol withdrawal protocol using the CIWA-Ar scale

Self Assessment Questions:

Which type of medication has been shown in the literature to improve symptoms of alcohol withdrawal as well as reduce the frequency of delirium tremens and seizures as monotherapy?

A Neuromuscular Blockers (e.g. succinylcholine)
B: Tricyclic Antidepressants (e.g. amitriptyline)
C: Benzodiazepines (e.g. chlordiazepoxide)
D: Opioid Antagonists (e.g. naloxone)

Which of the following statements is correct in regards to the revised Clinical Institute Withdrawal Assessment for Alcohol (CIWA-Ar) scale?

A The CIWA-Ar scale, although not validated, is 98% effective in dete
B The CIWA-Ar scale consists of 10 items that measure alcohol with
C The CIWA-Ar scale, developed in the 1920's, no longer has a role
D The CIWA-Ar scale has been validated to be used in determining t

Q1 Answer: C Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-463 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

ASPIRUS PHARMACY SCORECARD

Thao T Le, Pharm.D., MBA*

Aspirus Wausau Hospital,333 Pine Ridege Blvd,Wausau,WI,54401

thao.t.le@gmail.com

Purpose: The Aspirus Wausau Hospital pharmacy department consists of an inpatient pharmacy, a clinic pharmacy, and a cancer center pharmacy. Pharmacy plays a complex role in the management of medication. The current productivity measure for budgeting is based on new orders or prescriptions filled per productive hour. Productivity measures do not account for clinical and other pharmacy services. Therefore, we will develop and implement a pharmacy scorecard to identify and report goals for employee and provider satisfaction, clinical service and management of costs.

Methods: We will establish key performance indicators that are aligned with Aspirus organizational strategic goals and base goals for each measurement on historical internal trends. Measurements of key performance indicators will emphasize employee and customer satisfaction, clinical services, and financial performance. Pharmacy services data will be extracted from the electronic medical record system, Epic Willow, using Structured Query Language. Financial and productive hours worked and operating cost data will be collected from monthly reports generated by the fiscal department. The Aspirus Wausau Hospital's Institutional Review Board approval is pending.

Summary: This study is in progress at this time.

Conclusion: This study is in progress at this time.

Learning Objectives:

Discuss the benefits of having a pharmacy scorecard

Identify the common elements of a pharmacy scorecard

Self Assessment Questions:

What are the benefits of having a pharmacy scorecard?

A Creates more effective monitoring of operational performance
B: Helps identify opportunities for cost reduction
C: Helps identify opportunities for improvements in quality and efficier
D: All of the above

What are the common elements of a pharmacy scorecard?

A Employee satisfaction
B Medication events
C Productivity index
D All of the above

Q1 Answer: D Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-718 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

EFFECT OF RAPID STEROID WITHDRAWAL IN HEPATITIS C INFECTED PATIENTS UNDERGOING RENAL TRANSPLANTATION

Yun Jeong Lee*, PharmD; James J Thielke, PharmD; Patricia M West-Thielke, PharmD; Hoonbae Jeon, MD

University of Illinois at Chicago,901 S Ashland Ave Apt 816,Chicago,IL,60607

yunlee@uic.edu

Purpose:
Hepatitis C (HCV) infection is highly prevalent in patients with end-stage renal disease (ESRD) and renal transplantation provides significant survival advantage in these patients over remaining on dialysis. Corticosteroids, a routine immunosuppressive regimen used in renal transplantation, are effective in reducing the incidence of acute rejection; however, they are associated with long-term complications when used as a maintenance therapy. Steroid avoidance or steroid withdrawal (SW) protocols have been investigated with some data showing increased risk of acute rejection and decreased graft function in the steroid avoidance or withdrawal group, but with reductions in the long-term complications of corticosteroids such as hypertension, new-onset diabetes and hypercholesterolemia. Long-term outcomes data and HCV progression in the African American patient population are lacking in HCV-positive patients who have undergone rapid SW renal transplant. Our center has implemented the rapid SW protocol in renal transplant since 2001. We are investigating the long-term outcome data of HCV-positive patients in rapid SW renal transplantation. Additionally, further breakdown of outcomes based on racial differences will be evaluated.

Methods:
This is a retrospective chart review study and has been approved by the IRB. Patients who have undergone renal transplant between 2001 and 2011 with HCV-positive status at our institution are screened for eligibility. Patients who have received renal transplant under rapid steroid withdrawal at our institution and presence of HCV antibody are included. Patients co-infected with hepatitis B virus or HIV, combined organ transplant, or those who are under 18 years of age are excluded. Eligible patients baseline demographics, immunosuppression regimen and patient outcomes are collected for up to 5 years. Endpoints of this study are patient and graft survival, acute rejection, graft function, and liver disease progression.

Results and Conclusions:
Data collection/analysis is ongoing and will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Describe the advantages and disadvantages associated with rapid steroid withdrawal in renal transplant,

Discuss the implication of steroid withdrawal in hepatitis C positive patients undergoing renal transplant.

Self Assessment Questions:

Which of the following statements best describes corticosteroid therapy in renal transplant patients?

A Steroid withdrawal in renal transplant patients has shown to reduce
B: Rapid steroid withdrawal for renal transplant has been the standard
C: Cardiovascular disease is the most common cause of death in pati
D: Maintenance steroid therapy has not been associated with long-ter

Which of the following statements is TRUE regarding end-stage renal disease (ESRD) patients with hepatitis C (HCV) and renal transplantation?

A Incidence of HCV is significantly less in patients with ESRD compa
B In HCV-infected patients with ESRD, no surival advantage has bee
C Increased mortality in HCV-positive patients compared to HCV-neg
D HCV therapy (ex. interferons) post renal transplant for HCV patient

Q1 Answer: C Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-464 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

TRANEXAMIC ACID USE IN A SINGLE, LEVEL-ONE TRAUMA CENTER: COMPARISON TO THE CRASH-2 TRIAL

Ashley M. Leece PharmD.*, Curtis L. Smith PharmD.

Sparrow Health System,16440 Ridgeview Ct.,Holly,MI,48442

ashleymleece@gmail.com

Purpose:
Tranexamic acid (TXA) inhibits fibrinolysis by blocking lysine binding sites on plasminogen. The CRASH-2 trial assessed the effect of early administration of TXA on death, vasoocclusive events, and receipt of blood transfusion in trauma patients. This multicenter trial analyzed 20,127 patients showing that TXA significantly reduced all cause mortality (RR of death in TXA group 0.91; p = 0.0035), with a mortality rate of 14.5% versus 16.0% for placebo. Death due to bleeding was significantly reduced with TXA administration (RR 0.80; p = 0.0036). This study aimed to compare the use of TXA in a single level-one trauma center to the CRASH-2 results and local historic controls.

Methods:
Patient information was gathered using the Trauma Registry and local electronic chart system. Demographic data, type of injury, Glasgow Coma Scale (GCS), injury severity score, TXA administration times, admission location, length of stay in the intensive care unit (ICU), and hospital length of stay were collected. Historic controls were matched by injury severity score, type of injury, gender, and age.

Summary of Preliminary Results:
59 patients received TXA over a one-year period. 40 (65.6%) were male (83.6% in CRASH-2) with an average age of 48.9 years (34.6 years in CRASH-2). 52 patients (85.3%) were admitted to the ICU. Average ICU length of stay was 7.8 days. Average hospital length of stay was 13.0 days. 28.8% of patients in this study had a GCS of severe (3 - 8) versus 17.8% in CRASH-2. One vasoocclusive event (1.7% vs. 0.3% in CRASH-2) and eight deaths (13.6%) within four-weeks of hospital admission occurred.

Conclusion:
Patients appeared to be admitted with lower GCS in this study than patients in CRASH-2. The rate of death from any cause, however, was 13.6% compared to 14.5% respectively. Comparison to historic controls is ongoing and complete results are pending.

Learning Objectives:

Discuss the results of the CRASH-2 trial.

Review data on tranexamic acid use in a single, level-one trauma center

Self Assessment Questions:

The use of tranexamic acid in trauma patients in the CRASH-2 trial showed a significant reduction in which of the following?

A Blood transfusions
B: All-cause mortality
C: Death from vascular occlusion
D: Death from multiorgan failure

Which of the following describes the mortality following the use of tranexamic acid in a single, level-one trauma center compared to the CRASH-2 trial?

A 50% higher than CRASH-2
B 50% lower than CRASH-2
C Similar to CRASH-2
D Unable to determine due to no deaths in the single trauma center

Q1 Answer: B Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-465 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

IMPACT OF A PHARMACY-LED TRANSITION OF CARE BUNDLE CHECKLIST: A RANDOMIZED, CONTROLLED TRIAL

Jona Lekura MT(ASCP), PharmD*, Carol Moore PharmD, BCPS, Nadia Haque PharmD, BCPS, Nancy C MacDonald PharmD. BCPS, Carrie Nemerovski PharmD. BCPS

Henry Ford Health System,2799 W. Grand Blvd,Detroit,MI,48202

jlekura1@hfhs.org

Purpose:
Heart failure (HF) and pneumonia (PNA) are the leading causes of hospital admissions and readmissions. Pharmacists can play a significant role in both optimizing the treatment of these conditions and smoothing the transition to and from the hospital setting. This study is being conducted to determine the impact of a pharmacy led Transition of Care (TOC) bundle checklist on patients admitted to Henry Ford Hospital with HF exacerbation or PNA.

Methods:
Patients admitted for HF or PNA will be screened by using an automated alert in the clinical pharmacy system and medical record review by the PI. Patients eligible for inclusion will be enrolled into either the control (Standard of Care) or intervention (TOC Bundle Checklist) arm in a randomized, controlled fashion using a randomization generator in a 1:1 ratio. Patients randomized to the TOC Bundle will be flagged in the clinical pharmacy system.
The TOC bundle checklist consists of several components upon hospital admission, throughout the hospital stay, and prior to discharge. These consist of medication reconciliation by pharmacy (to verify accuracy of the physician conducted medication reconciliation) and resolution of identified discrepancies with the medical team, DVT prophylaxis where indicated, ordering a hemoglobin A1C in patients when indicated, ensuring appropriate empiric and definitive treatment for pneumonia, evaluating and optimizing heart failure medications, educating patients on their HF medications and ensuring the outpatient treatment plan for PNA is clear at discharge (medications, duration of treatment, outpatient monitoring). The primary outcome is 30-day all-cause hospital readmission. Secondary outcomes will include medication optimization, appropriate communication of post-discharge antibiotic treatment plan, and delivery of HF and diabetes education.

Results:
Preliminary findings will be presented at the Great Lakes Conference.

Conclusion:
Not available

Learning Objectives:

Describe the components of a pharmacy led Transition of Care (TOC) bundle checklist.

Discuss components of the bundle checklist that have an impact on re-admission rates.

Self Assessment Questions:

1.What component of the bundle checklist are pharmacists responsible for during the admission phase of the TOC bundle?

A Patient education
B: Optimizing heart failure medications
C: Optimizing antibiotics
D: Medication reconciliation

What component of the bundle checklist can improve health care outcomes?

A Patient education
B Optimizing heart failure medications and antibiotics
C Medication reconciliation
D All of the above

Q1 Answer: D Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-466 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

RETROSPECTIVE EVALUATION OF THE IMPACT OF AN ANTIMICROBIAL STEWARDSHIP PROGRAM ON CLINICAL AND ECONOMIC OUTCOMES

Desirae Lenzer*, PharmD, Tamara Trienski, PharmD, Timothy Pasquale PharmD, Joseph Myers, MD, Michael Tan, MD, Dorcas Letting-Mangira, PharmD, Thomas File, MD

Summa Health System,525 East Market St.,PO Box 2090,Akron,OH,443041619

lenzerd@summahealth.org

Purpose:
As antimicrobial resistance continues to increase, national guidelines and recommendations have been published for the development of Antimicrobial Stewardship Programs. The primary goal of an Antimicrobial Stewardship Program (ASP) is to improve patient care and outcomes. The ASP works to fulfill this goal by limiting inappropriate use of antimicrobials, and optimizing antimicrobial selection, dosing, route and duration of therapy. Currently there are few publications that have studied the impact of an ASP on clinical patient outcomes. In an effort to provide optimal patient care and improve outcomes, Summa Health System (Akron City Hospital) initiated a prospective, comprehensive ASP in September 2010. The purpose of this study is to evaluate the impact of the ASP on clinical patient outcomes and cost of antimicrobials.

Methods:
This is a matched, retrospective chart review to compare the clinical outcomes and cost of antimicrobials in patients for whom an ASP recommendation was accepted versus patients for whom an ASP recommendation was not accepted. Inclusion criteria consist of patients 18 years and older admitted to Summa Health System, Akron City Hospital for whom the ASP made a recommendation from January 1, 2011 to August 31, 2011. Patients will be excluded if they were treated with an investigational antimicrobial agent, had a hospital stay of less than 48 hours or were discharged within 24 hours after a recommendation was made. The outcome measures include, but are not limited to, total length of stay (LOS), ICU LOS, mortality in-hospital, mortality at 30 days, readmission at 30 days, duration of antimicrobial therapy, and cost of post-recommendation antibiotic regimen compared to pre-recommendation regimen.

Results / Conclusion:
To be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Identify the purpose and goals of an antimicrobial stewardship program.

Recall core strategies utilized by antimicrobial stewardship programs in order to achieve goals

Self Assessment Questions:

The primary purpose of an antimicrobial stewardship program is to:

A Decrease cost of antimicrobial therapy
B: Prevent antimicrobial-related toxicity
C: Attenuate or reverse antimicrobial resistance
D: Improve patient care and outcomes

Of the following, which is a core strategy of an antimicrobial stewardship program?

A Dose optimization of select antimicrobials
B Formulary restriction with preauthorization
C Extended infusion of beta-lactam antibiotics
D Guidelines and clinical pathways

Q1 Answer: D Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-467 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EFFECT OF VACCINATION CARDS AND TELEPHONE OUTREACH ON VACCINATION COMPLIANCE IN ADULT HEMATOPOIETIC STEM CELL TRANSPLANT (HSCT) PATIENTS

Sarah M. Lerchenfeldt, PharmD, BCPS* and Simon Cronin, MS, PharmD, BCOP

Karmanos Cancer Center,4100 John R,Mailcode: WE01PH,Detroit,MI,48201

lerchens@karmanos.org

Background: Patients are at high risk for infection following a hematopoietic stem cell transplant (HSCT) for several reasons, including immune system dysfunction, graft-versus-host disease, use of immunosuppressive agents, and the chemotherapy and/or radiation administered prior to the transplant. Conditioning regimens used to treat underlying disease prior to HSCT lead to the loss of immune memory that had been accumulated through a lifetime. The Karmanos Cancer Center (KCC) Bone Marrow Transplant (BMT) Clinic updated the vaccination protocol for transplant patients based on joint guidelines recently published by the European Group of Blood and Marrow Transplantation, Centers for Disease Control, the Infectious Disease Society of America, and the American Society for Blood and Marrow Transplantation. The recommended vaccination schedule includes vaccinations at 6, 8, 10, 12, and 14 months post-transplant for allogeneic patients and 6, 8, 10, and 12 months post-transplant for autologous patients. Due to a rigorous vaccination schedule required, compliance is a very important matter in preventing infections among HSCT recipients.

Methods: Retrospective chart review was conducted using electronic medical records. The retrospective analysis consisted of autologous and allogeneic HSCT patients at the KCC BMT Clinic who received vaccinations based on the updated guidelines. Compliance was evaluated based on percentage of vaccines missed over the vaccination period. An evaluation was performed to establish periods with the most and least vaccination compliance. Differences in compliance based on patient age, gender, race, and type of transplant were also evaluated, as well as reasons for missed vaccines. The objectives of this study were to determine the effect of vaccination cards with telephone outreach on vaccine compliance and to determine the reasons for missed or delayed vaccinations.

Results/Conclusions:
Results and analysis will be presented at the 2012 Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Review reasons why hematopoietic cell transplant recipients are at high risk for infection, including vaccine-preventable diseases

Discuss the new recommendations for vaccinations in hematopoietic cell transplant recipients based on joint guidelines recently published by the European Group of Blood and Marrow Transplantation (EBMT), Centers for Disease Control (CDC), the Infectious Disease Society of America (IDSA), and the American Society for Blood and Marrow Transplantation (ASBMT)

Self Assessment Questions:

Reasons why patients are at high risk for infection following a hematopoietic stem cell transplant (HSCT) include:

A Use of immunomodulating agents for months after engraftment

B: Use of conditioning regimens that destroy normal hematopoiesis

C: Rapid gain of all B and T lymphocytes after chemotherapy

D: Use of colony stimulating growth factor during transplant admissior

Which of the following is a recommended vaccination for use after hematopoietic stem cell transplant?

A Intranasal influenza vaccine

B Bacillus Calmette-Gue´rin

C Rotavirus

D Pneumococcal conjugate (PCV)

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-468 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

SAFETY ANALYSIS OF PERI-PROCEDURE INTRAVENOUS AMIODARONE FOR DIRECT-CURRENT CARDIOVERSION (DCCV)

Beth Leung*, PharmD, BCPS; Scott Benken, PharmD, BCPS; Nichole Cool, PharmD; Charles Shayan, MD; Amy Wilson, PharmD.

Midwestern University,225 N Columbus Drive,Chicago,IL,60601

eleung@nmh.org

Background:
Atrial fibrillation (AFib) is one of the most common arrhythmias requiring treatment. Restoration of normal sinus rhythm (NSR) may be achieved by pharmacological methods (chemical cardioversion), or by direct-current cardioversion (DCCV). Cardioversion success rates are variable with the majority of relapses occurring 3 months after DCCV of a first episode of Afib. Literature in outpatients has reported that anti-arrhythmic agents such as oral amiodarone may be used as prophylaxis prior to DCCV to reduce relapse rate in chronic AFib. However, there is little evidence supporting the use of intravenous amiodarone for unplanned DCCV in an inpatient, intensive care unit (ICU) setting. Inevitably, some patients may require long-term anti-arrhythmic therapy to maintain NSR. Therefore both long and short-term use of anti-arrhythmics must be balanced with their associated undesirable adverse effects.
Purpose:
The aim of this retrospective, observational study will be to evaluate the current utilization of amiodarone in the cardiothoracic intensive care unit (CTICU) of a large academic medical centre.
Methods:
This retrospective study will evaluate adherence to recommended baseline testing and safety monitoring guidelines for all CTICU patients receiving intravenous amiodarone prior to unplanned DCCV. Patients wil be excluded if they are under 18 years old, pregnant or incarcerated. Data collected to assess the primary endpoint of adherence to recommended baseline monitoring parameters will include pulmonary function tests, thyroid function tests, AST/ALT, electrocardiogram, and neurologic, dermatologic and ophthalmologic exams. Patient demographic information, cardiac risk factors, and concomitant medications will also be documented. Efficacy of this practice will be evaluated by observing the percentage of patients who maintain NSR at defined time-points after DCCV.
Results and analysis of data will be presented.

Learning Objectives:

Identify recommended safety monitoring parameters for amiodarone.

Describe the benefits and risks of utilizing anti-arryhthmics, including intravenous amiodarone, prior to direct-current cardioversion (DCCV).

Self Assessment Questions:

Which of the following answers is most representative of the recommended safety monitoring parameters for amiodarone?

A Dermatologic testing, serum creatinine and thyroid function tests

B: AST/ALT, electrocardiogram, and pulmonary function tests

C: Ophthalmologic and neurologic exams

D: Only B and C

Which of the following answers best describes the literature supporting the use of anti-arrhythmics as prophylaxis prior to direct-current cardioversion (DCCV)?

A Intravenous amiodarone is recommended as anti-arrhythmic proph

B A variety of anti-arrhythmics can be utilized as prophylaxis prior to

C Anti-arrhythmic agents should never be used as prophylaxis prior t

D None of the above answers are a correct statement.

Q1 Answer: D Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-469 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

IMPACT ON COMPLIANCE WITH TESTING AND RESULTS OF THE USE OF TUBERCULIN SKIN TEST (TST) COMPARED TO QUANTIFERON-TB GOLD IN-TUBE ASSAY (QFT-IT) IN HIV-POSITIVE INDIVIDUALS

Julie J. Lewandowski1*, PharmD, Jean C. Lee2, PharmD, BCPS, AAHIVE, G. Robert DeYoung1,3, PharmD, BCPS, Nnaemeka E. Egwuatu2, MD, MPH, Minerva A. Galang2, MD 1Pharmaceutical Services, 2Special Immunology Services, 3 Advantage Health Physician Network

St. Mary's Health Care,200 Jefferson SE,Grand Rapids,MI,49503

lewanjuj@trinity-health.org

Purpose: One of the core clinical performance measures for adults and adolescents cared for in federally-funded HIV clinics is annual TB screening. At Saint Marys Special Immunology Services, which provides care to HIV-positive patients throughout western Michigan, TB screening had previously been conducted using TST. Often times the administration is completed, however patients do not return within 48 to 72 hours to determine results. Beginning in January 2011, the clinic implemented the use of the QFT-IT in place of TST. This study compares the conventional TST with the QuantiFERON-TB Gold In-Tube (QFT-IT) assay to determine whether an increase in compliance with testing as well as a change in the percentage of positive test results can be demonstrated. In addition, a cost comparison of these tests will be performed.

Methods: A retrospective cohort study was conducted to review approximately 850 adult HIV-positive patients that had a TB test performed between January 2010 and December 2011. Patients who received a TST in 2010 will be compared to patients who received QFT-IT in 2011. A total cost comparison of administration of the TST and QFT-IT will also be conducted. The primary outcome of achieving an interpretable test result, as well as the outcome of percent positive test results, will be evaluated using the Chi-square test. Patient demographics will be evaluated using the Chi-square test or student t-test as indicated by the level of measurement of the data. Total costs associated with administration of either test, will be compared using a student t-test.

Results: Data collection and analysis is currently in progress.

Conclusions: To be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Identify the advantages of utilizing QFT-IT compared to the TST for TB screening.

Recognize the difference in cost of administration of the TST and QFT-IT method of TB screening.

Self Assessment Questions:

TST is the most commonly used method for TB screening. Which of the following hinder the use of this TB screening method?

A False positive in patients with history of BCG vaccine

B: Requires follow-up visit

C: Subjective interpretation of test results

D: All of the above

When comparing the cost of administration of various TB tests, which of the following is true

A Administration of TST costs more than QFT-IT

B Administration of QFT-IT costs more than TST

C Administration of TST costs the same as QFT-IT

D None of the above

Q1 Answer: D Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-646 -L02-P

Activity Type: Knowledge-based Contact Hours: 0.5

IMPLEMENTATION OF A POINT OF CARE MODEL FOR WARFARIN MANAGEMENT IN PRIMARY CARE CLINICS

Siyun Liao*, Pharm.D,Ph.D, Michelle M Thoma, Pharm.D, BCPS, Anne Rose, Pharm.D

University of Wisconsin Hospital and Clinics,600 Highland Ave,F6/133-1530,Madison,WI,53792

sliao@uwhealth.org

Purpose: Primary care clinics traditionally manage warfarin with a workflow that includes venipuncture INR testing and telephone follow up. Point of care (POC) INR testing utilizes blood from a finger-stick and has demonstrated accuracy in long-term warfarin patients. POC testing has the potential to save time by increasing procedural efficiency, increasing patient comfort, reducing handling errors and providing cost savings. The objective of the study is to develop a protocol for primary care clinics that transitions warfarin management from venipuncture INR and telephone follow up to POC INR and face to face visits with nursing staff to create a more efficient work flow, improve communication between patients and nurses, and to evaluate patient and nurse satisfaction with the POC model.

Methods: This study was approved by UW Health Anticoagulation Committee and Institutional Review Board and will be conducted from November 2011 through May 2012. A multidisciplinary work group was assembled to design the work flow supporting POC INR testing, face to face visits for INR management, associated training materials for nurses, and to identify pilot clinic sites. Each pilot clinic underwent training to teach laboratory staff on POC meter use and nursing staff with the new POC work flow prior to implementation. Patients were notified of the transition through a letter either mailed to their home or provided at a clinic visit. Start dates were determined by each pilot clinic based on the completion of meter validation and precision testing.

Data will be collected through time studies and satisfaction surveys. Total time spent on warfarin management by telephone and face to face encounters will be compared. Surveys will be distributed to patients and nurses pre and post-implementation of POC INR workflow to assess satisfaction of new model of care.

Results/Conclusion: To be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Describe the potential benefit for utilizing POC INR to assist with warfarin management

Identify patients that are not candidates for POC INR collection methods

Self Assessment Questions:

Which of the following are potential benefits for utilizing POC INR:

A Quick INR results

B: Increases procedural efficiency

C: Reduces handling errors

D: All of the above

Point of care INR testing is the preferred method for?

A A patient just starting warfarin

B A patient who is using both low molecular weight heparin and warfa

C A patient who has been on the same warfarin dose for the past 3 m

D A patient with an INR > 5.0

Q1 Answer: D Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-719 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

DEVELOPMENT, IMPLEMENTATION, AND EVALUATION OF AN EMERGENCY DEPARTMENT ANTIBIOGRAM FOR DISCHARGED PATIENTS WITH SKIN AND SOFT TISSUE INFECTIONS

Tyler K Liebenstein, PharmD*; Aaron L Steffenhagen, PharmD, BCPS; Lucas T Schulz, PharmD, BCPS; Joe J Halfpap, PharmD, BCPS

University of Wisconsin Hospital and Clinics,600 Highland Ave,Madison,WI,53792

TLiebenstein@uwhealth.org

Purpose:
Skin and soft tissue infections (SSTIs) account for approximately 14.2 million outpatient visits in the United States each year. Increasing rates of antimicrobial resistance in these infections have made proper empiric prescribing of antibiotics difficult. Resistance rates for the common infecting pathogens in SSTIs vary widely between different institutions. Many clinicians in the Emergency Department (ED) initiate treatment decisions based on inpatient antibiograms which use hospitalized patien data. Since ED antibiograms may differ significantly, patients are at risk for ineffective therapy. At the University of Wisconsin Hospital and Clinics (UWHC) ED, a dedicated nurse reviews wound cultures for discharged patients. Anecdotally, many patients are discharged from the UWHC ED with ineffective antibiotics for SSTIs. Due to ineffective therapy, these patients show continued infection and often require clinician revisits. Clinicians need a resource to guide antibiotic prescribing in the ED setting for SSTIs. It is hypothesized that an ED-specific antibiogram for SSTIs will improve antibiotic prescribing and drug utilization, resulting in reduced clinician revisits.

Methods:
Adult patients with wound cultures in the UWHC ED discharged between January 1, 2010 and December 31, 2010 were included. Retrospective chart review was conducted to create an ED-specific antibiogram for SSTIs. Statistical analysis was performed to compare the ED-specific antibiogram to the inpatient antibiogram during the same time period and identify areas of difference. To assess the impact of the ED-specific antibiogram, a panel of ED physicians and pharmacists was presented with each case of ineffective therapy discovered during the chart review. Practitioners were blinded to the previous treatment and the newly-created ED-specific antibiogram was utilized for treatment recommendations. Changes in prescribing and potentially avoidable clinical outcomes were tabulated with cost assessment included. An oral presentation and pocket card were developed to educate ED prescribers and pharmacists.

Results/Conclusions:
To be presented at Great Lakes Pharmacy Resident Conference.

Learning Objectives:

List potential benefits of creating ED-specific antibiograms at individual institutions

Identify common microorganisms associated with SSTIs at risk of ineffective therapy

Self Assessment Questions:

Potential benefits of creating ED-specific antibiograms at individual institutions include:

A Improved empiric antibiotic prescribing
B: Reduced avoidable clinician revisits
C: Improved drug utilization
D: All of the above

Which of the following bacterial species is least commonly associated with SSTIs in otherwise healthy patients presenting to the ED?

A Proteus
B Streptococcus
C Staphylococcus
D Pseudomonas

Q1 Answer: D Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-720 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

TIME IN THERAPEUTIC RANGE: A COMPARISON OF USUAL CARE VERSUS A PHARMACIST-MANAGED ANTICOAGULATION CLINIC

Danielle M Liegel, PharmD*; Vicki Coffey, RN, BSN, Joshua M Welch, PharmD Candidate; Julie C Bartell, PharmD, CACP, BCACP

Monroe Clinic,515 22nd Avenue,Monroe,WI,53566

danielle.liegel@monroeclinic.org

Purpose:
Time in therapeutic range (TTR) has been linked to clinical outcomes such as stroke, venous thromboembolism and major hemorrhage. In 2008, patients on chronic warfarin therapy (n=76) in the Pharmacotherapy Clinic (PC) at the Monroe Clinic spent 64.2% of time in the therapeutic range (according to fraction of international normalized ratios (INRs)). The PC has now grown to over 200 patients. The purpose of this retrospective chart review was to determine the TTR for patients managed by pharmacists in the PC versus those managed by primary care providers in usual care (UC).

Methods:
The electronic health record was queried for patients who received a prescription for warfarin from July 1, 2010 through July 31, 2011. Patients over the age of 18 who had received warfarin for at least three months with a goal INR of 2-3, 2.5-3.5 or 1.8-2.4 were included. Patients were excluded if more than 56 days had elapsed between INR draws or if they were eligible for both PC and UC during the trial period. The TTR for each group was determined by a linear interpolation method based on the Rosendaal Method. INR results were excluded during hospitalizations, the first two weeks of warfarin initiation, and one week prior to and two weeks after any procedure requiring warfarin interruption. Number of health conditions and medications, presence of mental health conditions, indication for warfarin therapy and goal INR, if documented, were collected. The provision of specific dosage instructions within 24 hours of an INR result, as well as the percentage of patients with INRs obtained at least every five weeks was determined. The Pharmacy and Therapeutics and Ethics Committees within the Monroe Clinic have approved this study.

Results/Conclusions:
Results and conclusions will be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Review important aspects of anticoagulation monitoring as outlined in the American College of Chest Physician guidelines

Describe possible benefits of a pharmacist-managed anticoagulation clinic

Self Assessment Questions:

According to the American College of Chest Physician guidelines, how often should patients on warfarin have an INR monitored?

A At least every 2 weeks
B: At least every 4 weeks
C: At least every 6 weeks
D: At least every 8 weeks

Possible benefits of a pharmacist-managed anticoagulation clinic include which of the following?

A Reduction in the number of primary care physician office visits
B Decreased co-payments for prescription medications
C Greater access and ability for patients to use home INR monitoring
D Improved documentation of indication, goal INR and dosing instruc

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-470 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

AN ASSESSMENT OF THE USE OF U-500 INSULIN IN A VETERAN POPULATION

*Alice Lim, Pharm.D., Deanna S. Kania, Pharm.D., BCPS, Lindsey Healey, Pharm.D., CDE

Richard L. Roudebush Veterans Affairs Medical Center,1481 West 10th Street,Indianapolis,IN,46202

alice.lim2@va.gov

Purpose: Despite high doses of insulin therapy, patients with severe insulin resistance rarely achieve glycemic goals. Limited data exist analyzing the cost-effectiveness of U-500 insulin in this patient population. This study aims to analyze the use and financial implications of U-500 insulin, adding to the limited knowledge of the use of U-500 therapy in insulin-resistant patients.

Methods: This retrospective study was approved by the Institutional Review Board for Indiana University Purdue University of Indianapolis and the VA Research and Development Committee. The computerized patient record system was used to identify all patients prescribed U-500 insulin between January 1, 2007 and August 31, 2011 at the Richard L. Roudebush VA Medical Center. Patients younger than 18 years of age, patients who have not been enrolled within the VA for at least 12 months prior to starting U-500 insulin, patients without a glycosylated hemoglobin (HbA1c) level since starting U-500 insulin and/or without a baseline HbA1c within 6 months before starting U-500 insulin were excluded from this study. The primary endpoints are the mean change in HbA1c from baseline to the end of the study period or time of medication discontinuation and the mean annual cost of U-500 insulin therapy versus baseline insulin therapy. Secondary endpoints include proportion of patients achieving HbA1c <7.0%, change in total daily insulin dose, weight, and lipid parameters, and number of episodes of diabetes complications.

Results/Conclusion: The study is in the data collection phase. Final results with conclusions will be presented at the Great Lakes Pharmacy Conference.

Learning Objectives:

Discuss possible benefits of using U-500 insulin instead of U-100 insulin in patients with severe insulin resistance.

List concerns and risks associated with the use of U-500 insulin.

Self Assessment Questions:

Which of the following is a reason why U-500 insulin may be more effective than U-100 insulin in achieving glycemic control in insulin-resistant patients?

A U-500 insulin requires a smaller volume injection which may lead t
B: U-500 insulin is less likely to cause hypoglycemia
C: U-500 insulin can be given safely regardless of mealtimes and carl
D: U-500 insulin may increase compliance since it is given once daily

Which of the following are reasons why clinicians may be hesitant to use U-500 insulin?

A The cost per unit is more expensive than all other types of insulin
B The concentrated formula requires a non-insulin syringe that may c
C Weight loss is a common side effect of U-500 insulin
D U-500 insulin cannot be safely used in an insulin pump

Q1 Answer: A Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-471 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

PATIENT AND HEALTHCARE LEVEL OUTCOMES OF A PHARMACIST DIRECTED MEDICATION ADHERENCE CLINIC

Melissa Lipari PharmD*, Jennifer Johnson PharmD, Candice Garwood PharmD, BCPS, Lynette Moser PharmD

Harper University Hospital,3990 John R,Detroit,MI,48201

mlipari@dmc.org

Purpose: The Medication Adherence Clinic provides intensive medication counselling, identification of barriers to adherence, identification and resolution of drug related problems, education about self monitoring for patients with heart failure. Patients are scheduled for two clinic visits, one within a week of discharge and the next within a month. The purpose of this study is to describe patient and health care outcomes related to the pharmacists activities in a medication adherence clinic.

Methods: This is a prospective, controlled trial evaluating patient outcomes, defined as adherence and heart failure knowledge, using baseline surveys and surveys at least 30 days post discharge of patients who are eligible to attend the Medication Adherence Clinic. Health care outcomes are evaluated retrospectively by comparing readmission rates of the clinic patients to historical institutional data. Patients are eligible for referral to the Medication Adherence Clinic during a hospitalization if they: have a verified diagnosis of heart failure and are receiving ≥ 4 medications. Patients are excluded for the following reasons: < 18 years of age, resident of a long-term care facility, admitted for hospice care, impaired hearing, no telephone access, inability to communicate in English, or severe mental illness (psychosis/ bipolar/ severe dementia). Informed consent will be obtained for all surveyed in the study. Patients will complete a Morisky Score, Kansas City Cardiomyopathy Questionnaire, and the Atlanta Heart Failure Questionnaire-Version 2 to assess adherence, quality of life, and knowledge of heart failure in the hospital by a pharmacist at baseline and via telephone at least 30 days post discharge. The desired number of study patients is 30 with matched controls in a ratio of 2:1. Survey results of patients attending the clinic and patients not attending the clinic will be compared at baseline and 1 month post discharge

Results/Conclusions: To be presented at the 2012 Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Describe the effects of poor adherence in CHF patients on patient and health care outcomes.

Discuss the impact of a pharmacist driven heart failure medication adherence clinic on patient and health care outcomes.

Self Assessment Questions:

Which of the following are outcomes of poor adherence in heart failure patients?

A Decreased ED visits
B: Decreased health care costs
C: Greater adherence to diet recommendations
D: Increased hospitalizations

Which of the following are reasons for nonadherence?

A Good relationship between provider and patient
B Failure of healthcare provider to describe benefits and side effects
C Dosing regimen is consistent with lifestyle
D Low cost of medications

Q1 Answer: D Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-472 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

COMPARISON OF THREE PERI-PROCEDURAL ANTICOAGULATION STRATEGIES IN VA PATIENTS UNDERGOING POLYPECTOMY

*Victoria C Liu, PharmD; Petra Flanagan, PharmD; Jessica O'Neill, PharmD, BCACP, CLS; Charles Alday, PharmD.

VA Ann Arbor Healthcare System,2215 Fuller Road,An Arbor,MI,48105

victoria.c.liu@gmail.com

Purpose: Current guidelines for management of peri-procedure anticoagulation for colonoscopy with polyp removal (polypectomy) are based largely on expert opinion. Because polypectomy has a high bleeding risk, warfarin therapy is usually interrupted for the procedure. To decrease the risk of thromboembolism during this interruption, low molecular weight heparin (LMWH) agents can be used to bridge therapy. However, there is limited evidence on outcomes with the use of peri-procedural LMWH bridging and no consensus on the optimal timing of re initiation of anticoagulant therapy after the procedure. This study will evaluate the safety and efficacy of peri-procedural anticoagulation management at the VA Ann Arbor Healthcare System (VAAAHS) and may provide insight for improvement of patient care.
Methods: This retrospective, descriptive analysis includes male patients who were on chronic warfarin anticoagulation therapy and underwent a screening polypectomy procedure between May 1, 2006 and May 1, 2011 at the VAAAHS. Data collected includes demographics, comorbidities, procedural techniques, bridging therapy and other factors that contribute to the primary endpoints. The study outcomes are major and minor bleeds and thromboembolic events. Descriptive statistics will be reported and in cases where the incidences of bleeding or thromboembolic events are sufficient to show statistical significance, Pearsons chi square statistical test or Fischers exact test will be used.
Results/Conclusion: Results and conclusions will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Discuss the use of peri-procedural low molecular heparin bridging therapy.

Describe the impact that the time to resuming warfarin therapy has on patient outcomes.

Self Assessment Questions:

Which technique of polyp removal is associated with the highest risk for delayed bleeding post polypectomy procedure?

A Forceps

B: Cold snare

C: Hot cauterization

D: None of the above are associated with risk for delayed bleeding

Which of the following indications for warfarin has the lowest thromboembolic risk?

A Atrial fibrillation with no history of prior CVA or TIAs

B DVT that occurred 2 months prior to interruption

C Atrial fibrillation with history of prior stroke

D PE that occurred 1 month prior to interruption

Q1 Answer: C Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-473 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

SAFETY OF EXTENDED-INFUSION EPTIFIBATIDE WHEN USED FOR OFF-LABEL INDICATIONS

Bryan D Lizza, PharmD*, Scott T Benken, PharmD, BCPS, Amy M Wilson, PharmD, Nichole K Cool, PharmD

Northwestern Memorial Hospital,251 E Huron Ave,Feinberg Pavilion, LC 700,Chicago,IL,60657

blizza@nmh.org

Purpose
Eptifibatide is a glycoprotein IIb/IIIa (GP IIb/IIIa) inhibitor that is indicated for the management of acute coronary syndromes (ACS) to reduce the incidence of death or prevent new myocardial infarction (MI) with or without percutaneous coronary intervention (PCI). Eptifibatide is FDA-approved for up to 72 hours. Use beyond this time frame has not been studied extensively. Extended-infusion eptifibatide has been described only in case reports where dual antiplatelet therapy with a thienopyridine and aspirin is indicated. Patients in these reports required antiplatelet therapy but were unable to receive an oral thienopyridine and aspirin due to anticipated surgery. As described by the authors, these patients experienced significant bleeding and complications as a result of therapy. The primary objective of this study was to evaluate the safety of extended-infusion eptifibatide when used for off-label indications at a tertiary, academic medical center.

Methods
This was a retrospective cohort study of patients who received eptifibatide for greater than 72 hours regardless of indication at Northwestern Memorial Hospital. The incidence of bleeding in patients who received eptifibatide for greater than 72 hours was subsequently compared to a group of historical controls who received eptifibatide for less than 72 hours. The primary safety endpoint is the incidence and severity of bleeding defined according to the Thrombolysis in Myocardial Infarction (TIMI) and the Global Use of Strategies to Open Occluded Coronary Arteries (GUSTO) criterion. Secondary endpoints included transfusion requirements and the incidence of thrombocytopenia during study treatment. Baseline demographics including age, sex, comorbid conditions, smoking status and other anticoagulant medications were also collected for analysis. Data collection was continued for 72 hours after discontinuation of eptifibatide. Statistical measures included Students T-test for continuous data and Chi-squared tests where appropriate for categorical variables.

Results
To be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Recognize the FDA-approved indications of eptifibatide and the incidence of adverse events associated with approved dosing

Classify patients who experienced a bleeding event according to TIMI and GUSTO criteria

Self Assessment Questions:

Which of the following represents an off-label use of eptifibatide?

A A 68 year old male with ST-elevation MI undergoing PCI who recei

B: A 42 year old female with non-ST-elevation MI being managed me

C: A 77 year old female with a recent drug-eluting stent who is being e

D: A 52 year old male with non-ST-elevation MI and no previous cardi

A patient experiences a hemorrhage related to eptifibatide and has a decrease in hemoglobin of 6 g/dL over 12 hours. How is this classified according to TIMI criteria?

A TIMI Major bleeding

B TIMI Minor bleeding

C TIMI Minimal bleeding

D GUSTO severe bleeding

Q1 Answer: C Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-474 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF SEDATION PRACTICES IN THE PEDIATRIC INTENSIVE CARE UNIT

*Katie E. Long, PharmD; Danielle N=M. Brown, PharmD, BCPS

Indiana University Health,1701 N. Senate Blvd,AG 401,Indianapolis,IN,46206

klong8@iuhealth.org

Purpose: Sedating and analgesic agents are routinely given in the Pediatric Intensive Care Unit (PICU). IV opioids and benzodiazepines are two commonly used classes of sedating/analgesic agents ordered for mechanically ventilated patients in the PICU. These medications are generally titrated to effect, oftentimes based on the COMFORT-B Scale. The COMFORT-B Scale is a 30-point scale that measures alertness, calmness/agitation, respiratory response, physical movement, muscle tone, and facial tension.
This institution does not currently have a standardized sedation protocol, which leaves titration to the discretion of the prescriber and/or direct patient care providers. The objective of this study was to identify how often the COMFORT-B score is charted for mechanically ventilated patients with orders for fentanyl and midazolam. The study compared documented COMFORT-B score with number of PRN doses and total daily dose of fentanyl and midazolam charted.

Methods: All patients admitted to the PICU at Riley Hospital for Children between June 1, 2011 to August 31, 2011 who were mechanically ventilated and received IV sedation with fentanyl and/or midazolam were eligible for this study. Patients receiving neuromuscular blockers were excluded because COMFORT B score cannot be used to evaluate these patients. The following data parameters were collected: patient demographics, indication for intubation, sedation medications, number of COMFORT-B scores charted and median COMFORT-B score per ventilator day, total daily dose and number of PRN doses of both fentanyl and midazolam, and total ventilator days.

Results: Data was gathered from the 22 patients who fit the inclusion and exclusion criteria. Preliminary results show patients with longer duration of mechanical ventilation were more likely to have COMFORT B scores recorded than those who were extubated within 48 hours. Final results and conclusions will be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Describe the role of the COMFORT-B Scale in patient assessment.

Identify common rates of fentanyl and midazolam continuous infusion for mechanically ventilated patients

Self Assessment Questions:

An appropriately sedated patient would have a COMFORT-B Score between:

A 0-6

B: 6-10

C: 11-22

D: 23-30

Which of the following is an appropriate rate for fentanyl infusion in a mechanically ventilated pediatric patient?

A 0.5 mCg/kg/h

B 5mCg/kg/h

C 5mCg/kg/min

D 5mg/kg/h

Q1 Answer: C Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-475 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

PHARMACOKINETIC ASSESSMENT OF CEFTAZIDIME IN INTERMITTENT HEMODIALYSIS PATIENTS

Angela S. Loo, PharmD, BCPS*; Evan J. Anderson, MD; Cybele Ghossein, MD; Milena M. Griffith, PharmD, BCPS; Marc H. Scheetz, PharmD, MSc, BCPS

Midwestern University,333 East Ontario,Apt 1406B,Chicago,IL,60611

aloo@nmh.org

Purpose
Ceftazidime is a broad spectrum cephalosporin with high activity against a variety of Gram-negative pathogens, including Pseudomonas aeruginosa. Increasing ceftazidime resistance can negatively impact achievement of goal pharmacodynamic parameters, causing worsened outcomes and increased mortality. Changes in dosing strategies have been made for patients with normal or moderately impaired renal function; however, adjusting ceftazidime dosing to compensate for increased minimum inhibitory concentrations (MIC) has not been studied in intermittent hemodialysis (IHD) patients. The objective of this study is to determine the optimal dosing regimen for ceftazidime in IHD patients.

Methods
This IRB-approved, prospective, open-label study will include adults ≥18 years with an expected hospital stay of at least 48 hours, who have end-stage renal disease and have received IHD for ≥90 days. Patients will be excluded if they receive only one dose of ceftazidime in total or if they have potentially altered pharmacokinetic parameters (pregnancy, burn, morbid obesity (BMI ≥ 40 kg/m2)).

After informed consent, patients will receive ceftazidime 1 or 2 grams intravenously as a 30-minute infusion immediately after the end of dialysis. A minimum of four serial serum concentrations will be measured. The serum will be analyzed for ceftazidime concentrations using high performance liquid chromatography with tandem mass spectrometry (LC-MS/MS). The ceftazidime concentration time profile and clearance will then be characterized using traditional pharmacokinetic equations. Standard patient demographic information (gender, race, weight, height, urine output) and variables such as infection site, number of doses prior to serum sampling, filter, blood flow, and dialysate rate will be documented. Nonlinear regression will be performed to develop a first order equation, allowing the evaluation of ceftazidime concentrations against clinically relevant MIC values. The model will then be utilized to determine the dosing regimen necessary for hemodialysis patients to achieve adequate goal pharmacodynamic parameters.

Results/Conclusions
Preliminary results to be presented.

Learning Objectives:

State the goal pharmacodynamic parameters for ceftazidime

List two reasons for studying the pharmacokinetics of ceftazidime in hemodialysis patients

Self Assessment Questions:

Which of the following best describes goal pharmacodynamic parameters for ceftazidime?

A Auc: Mic > 400

B: Cmax: MIC> 10

C: %t>mic > 60%

D: T>MIC > 3 hours

Which of the following are reasons for studying the pharmacokinetics of ceftazidime in hemodialysis patients?

A Increased resistance and minimum inhibitory concentrations

B Ceftazidime has never been studied before in hemodialysis patient

C Present-day use of high-flux hemodialysis

D A and C

Q1 Answer: C Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-476 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

PROLONGED ANTIBIOTIC PROPHYLAXIS AFTER CARDIOVASCULAR IMPLANTABLE ELECTRONIC DEVICE IMPLANTATION AND ITS EFFECT ON DEVICE-RELATED INFECTIONS

Natasha D. Lopez, PharmD, BCPS*; Payal K. Gurnani, PharmD, BCPS

Rush University Medical Center,1653 W. Congress Parkway,Chicago,IL,60612

natasha_lopez@rush.edu

Background/Purpose:
Cardiovascular implantable electronic devices (CIED) have demonstrated the ability to reduce both morbidity and mortality in patients. Despite their benefit, cardiovascular electronic device therapy is associated with various complications, including device-related infections. To prevent these complications the 2010 American Heart Association guidelines for cardiovascular device infections recommend preoperative antibiotic prophylaxis before device implantation, but due to the lack of evidence postoperative antibiotic prophylaxis is not recommended. It remains undefined if administering postoperative antibiotics decreases the incidence of device-related infections.
At Rush University Medical Center, the current practice after CIED implantation is to administer postoperative antibiotics with cephalexin for 72 hours. The primary objective is to determine if there is a difference in the incidence of device-related infections when comparing postoperative antibiotic prophylaxis versus no postoperative antibiotic prophylaxis therapy. The secondary objectives include comparing the time to infection and differences in infection characteristics, organisms and susceptibilities.

Methods:
The current study is an IRB approved retrospective cohort of patients who received a new CIED from April 2007- October 2011. Patients were identified for inclusion using ICD-9 diagnosis codes and screened for final inclusion via retrospective chart review. Patients were excluded if they were less than 18 and greater than 89 years of age, pregnant, had a documented penicillin and/or cephalosporin allergy, cefazolin was not administered preoperatively prior to implantation, and if they received antibiotics for another indication during the admission of device placement. The study population will be divided into 2 study groups based on the duration of postoperative antibiotic administration, prolonged and no postoperative prophylaxis, then evaluated 1 year after implantation to determine the rate of device-related infection.

Results:
Data collection and analysis are currently in progress and will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Review the American Heart Association 2010 guideline recommendations for antibiotic prophylaxis at CIED implantation to prevent to device related infections.

List the most common organisms responsible for causing CIED infections.

Self Assessment Questions:

Which of the following is recommended by the 2010 American Heart Association guidelines to prevent CIED device infections at time of device implantation?

A Preoperative antibiotic prophylaxis
B: Preoperative and 72 hour postoperative antibiotic prophylaxis
C: 72 hour postoperative antibiotic prophylaxis
D: No antibiotic prophylaxis

Common organisms responsible for CIED infection include all of the following, EXCEPT?

A Coagulase-negative Staphylococcus
B Methicillin resistant Staphylococcus aureus
C Methicillin sensitive Staphylococcus aureus
D Candida species

Q1 Answer: A Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-477 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

RETROSPECTIVE, CROSS-SECTIONAL ANALYSIS COMPARING HOSPITAL OUTCOMES WITH BOARD OF PHARMACY SPECIALTIES ADDED QUALIFICATIONS IN CARDIOLOGY CERTIFIED PHARMACISTS TO HOSPITALS WITHOUT PHARMACISTS WITH THIS DISTINCTION

Jennifer M. Lose, PharmD, BCPS*; Michael Dorsch, PharmD, MS, BCPS (AQ CV); Robert DiDomenico, PharmD

University of Michigan Health System,1500 E. Medical Center Dr.,Ann Arbor,MI,48109

jlose@med.umich.edu

Professional credentialing is associated with significant expense and has been heavily emphasized by the pharmacy profession; however, there is little to no evidence available on how the Board of Pharmacy Specialties Added Qualifications in Cardiology (AQ/CV) distinction impacts patient outcomes. The purpose of this study is to determine if hospitals with AQ/CV pharmacists have lower 30-day readmission rates for heart failure (HF) and myocardial infarction (MI) compared to hospitals that do not have pharmacists with this distinction.

This is a retrospective, case-control study. Hospitals in the United States with a AQ/CV pharmacist will be compared to hospitals without a AQ/CV pharmacist matched by region, number of cardiovascular discharges, and type of hospital (i.e. teaching versus community) in a 1 to 3 ratio (study to control population). The website www.hospitalcompare.hhs.gov and US News Best Hospitals were used to match hospitals. Exclusion criteria include AQ/CV pharmacists that do not practice direct patient care, or work in the outpatient setting or Veterans Affairs system.

The primary outcome is 30-day readmission rates for HF and MI combined based on Centers for Medicare and Medicaid Services (CMS) data. Secondary endpoints include HF and MI 30-day mortality rates as well as CMS MI and HF Process of Care Measures. An online survey wil be sent to all participants to assess additional secondary endpoints: pharmacist reasons for having or not having AQ/CV, current practices of AQ/CV pharmacists and whether this meets the goals and objectives of AQ/CV certification, and level of pharmacist involvement in the cardiovascular area. Consent will be obtained from participants via submission of a completed survey. Descriptive statistics will be used to report baseline characteristics. T-test will be utilized for continuous variables and chi-square or Fischers exact test for categorical variables.

Results and conclusions will be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Discuss pharmacist credentialing with an emphasis on how to obtain added qualifications in cardiology (AQ CV)

Describe the various outcome of care measures and process of care measures utilized by the Centers for Medicare & Medicaid Services (CMS) to rate hospital performance

Self Assessment Questions:

Which of the following disease states is currently assessed by the Centers for Medicare & Medicaid Services (CMS) for 30-day mortality and 30-day readmission rates?

A Diabetes mellitus
B: Myocardial infarction
C: Hypertension
D: Copd

Which of the following is currently a process of care measure for heart failure?

A Aspirin at arrival
B Aspirin at discharge
C Angiotensin converting enzyme inhibitor or angiotensin receptor bl
D Beta blocker at discharge

Q1 Answer: B Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-721 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

IMPLEMENTATION OF A HYBRID BATCHING/JUST-IN-TIME DELIVERY SYSTEM FOR INTRAVENOUS ADMIXTURES, AND THE EFFECT ON WASTED INVENTORY

*Drew Luder PharmD, Michele Holley MS PharmD
Riverside Methodist Hospital,3535 Olentangy River Rd,Columbus,OH,43214
Dluder2@ohiohealth.com

Purpose: Based on internal data, the proportion of intravenous medications wasted through missing, extra, and returned doses, is sub-optimal, and has been traced back through apparent cause analysis to delivery processes. An internal study performed in Autumn of 2011 revealed that 8% of intravenous medications filled from the central pharmacy are ultimately unused and are never returned to circulation for reuse. Additionally, nearly 10% of all scheduled doses have multiple products delivered for each dose. A just-in-time inventory delivery system has been shown to reduce these outcomes in areas outside of pharmacy by allowing for last-minute adjustments to items that are cancelled, rescheduled, or relocated. However, in the pharmacy setting, the batching method has become the choice method of inventory and delivery due to the process efficiencies granted by compounding all like-admixtures at the same time. In this study, a hybrid of the two models was created and studied for effects on wasted inventory.

Methods: The current system utilized at this tertiary care hospital was the batching method. This system was kept intact to maintain the benefits of batching. Additionally, an organizational system was created that categorized each batched product into a scheduled delivery time 2 hours before the administration time. In order to test the results of this implementation, intravenous admixture doses will be randomly selected throughout the month of February. Inclusion criteria for these admixtures consist of intravenous medications that were ordered on a scheduled basis and were filled from the central pharmacy. Exclusion criteria include one-time doses, PRN medications, and medications dispensed to ancillary locations. These doses will be analyzed using an internal tracking system and electronic medical record to measure doses that were sent and unused, additional doses sent, and doses returned.

Results: Results and conclusions will be presented at Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Identify the benefits of a just-in-time delivery system

Review the benefits of maintaining a batching system for intravenous admixtures

Self Assessment Questions:

What is one benefit of a just-in-time delivery system as it applies to intravenous admixture deliveries?

A Large volumes of compounded products are maintained in the nurs
B: Orders can be adjusted until the last minute
C: Deliveries can be consolidated into a few trips per day
D: Delivery times can be adjusted to accommodate peaks in workloac

What is one benefit of creating batches of intravenous admixtures for compounding?

A Orders can be adjusted until the last minute
B Batch times can be quickly adjusted to accommodate busy days
C Discontinued orders can be instantly recovered and reused to max
D Similar products can be compounded at the same time to maximiz

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-722 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

DRUG SHORTAGES: MANAGEMENT AND RESPONSE IN HEALTH-SYSTEM PHARMACY

Deron T. Lundy, PharmD*, Jennifer L. Rodis, PharmD, BCPS, Rodney G. Wirsching, PharmD, FASHP, Milap C. Nahata, MS, PharmD
Grant Medical Center,111 S. Grant Ave,Columbus,OH,43123
dlundy2@ohiohealth.com

Purpose:
The importance of managing drug shortages has increased over the pas decade as the number of drug shortages has also increased. As a result, there is an increased burden on health-systems, and changes to clinical practice and inventory management have been necessary. The purpose of this study is to evaluate the level of multidisciplinary and executive involvement in drug shortage management, adherence to shortage management guidelines, and hospitals perceived success at managing shortages.

Methods:
Prior to commencement, this study will be approved by the OhioHealth and the Ohio State University Institutional Review Boards. A survey was developed and will be sent electronically to directors of pharmacy at health-systems identified in the publicly available American Society of Health-System Pharmacists (ASHP) online residency directory. This surveys primary focus will be on the level of multi-disciplinary and executive involvement in shortage mitigation, adherence to ASHP guidelines on drug shortage management, and an assessment of perceived success of institutions ability to manage drug shortages. Additionally, demographic information will be collected about type of medical center, number of staffed beds, pharmacist and technician FTEs, whether the site is part of a larger health-system, geographic region, and position of respondent to survey.

Results:
Pending study completion.

Learning Objectives:

Describe the institutional factors that relate to drug shortage management.

Discuss the methods and factors that are related to perceived success at shortage management.

Self Assessment Questions:

Which of the following statements is correct?

A Health-systems do not consider shortage management important.
B: Health-systems have not invested significant resources to manage
C: ASHP has developed shortage management guidelines for health-
D: Pharmacy departments should manage drug shortages without the

Which of the following statements is correct?

A All institutions use the same methods to manage drug shortages.
B Institutions involve health-system executives and other professiona
C Measuring shortage management success is not important as all s
D Drug shortage management resources cannot be assessed.

Q1 Answer: C Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-723 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

A RETROSPECTIVE EVALUATION OF PHARMACIST MANAGED VANCOMYCIN DOSING AND MONITORING

Jennifer Luxenburg PharmD*, Sharanie Sims PharmD, BCPS, Mandy Roesel PharmD, BCPS, Amy Hirsch PharmD, BCPS, Chris Lacey PharmD, BCPS, Usha Stiefel MD

Louis Stokes Cleveland VAMC,10701 East Blvd.,Cleveland,oh,44106

jennifer.luxenburg@va.gov

Purpose: Vancomycin requires patient specific dosing and monitoring. Doses are frequently determined incorrectly and monitoring is performed inappropriately leading to misinterpretation of levels. The dosing of vancomycin should be based on the patients actual body weight with a dosing frequency based on renal function. Appropriate monitoring of trough concentrations should be individualized to the patient, infection, and co-morbidities. Research has shown that pharmacist run therapeutic drug monitoring has lead to more accurate dosing and better outcomes. Dosing and monitoring guidelines have been developed at the Louis Stokes Cleveland Veterans Affairs Medical Center. These new guidelines are utilized by a newly implemented pharmacist managed vancomycin consult service.

Objective: To evaluate a newly implemented pharmacist managed vancomycin dosing and monitoring service.

Methodology: A retrospective chart review will evaluate vancomycin therapy managed by pharmacy (post - protocol group) compared to patients who received vancomycin prior to implementation of the pharmacy vancomycin service (pre - protocol group). The primary endpoint is percent of appropriately collected levels within goal range. Secondary endpoints include number of levels drawn, number of inappropriate levels, inappropriately held doses, dosage changes, critica trough values, out of range trough values, and cost associated with levels. Included patients must have received at least three days of vancomycin therapy and at least one trough level with therapy managed on the medicine wards. Patients were excluded if on hemodialysis, had infectious diseases consults, or pharmacy note in their charts addressing therapy for patients in the pre - protocol group. Patients in the pre - protocol group received therapy from October 3, 2010 though Februrary 28, 2011, and post - protocol group from October 3, 2011 through February 28, 2012.

Results/conclusions: Results pending, will be presented at Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Review vancomycin pharmacokinetics and pharmacodynamics (PK/PD) and current dosing recommendations

Discuss advantages of pharmacist involvement in vancomycin dosing and monitoring

Self Assessment Questions:

Which pharmacokinetic parameter is the best predictor of vancomycin efficacy?

A Concentration above MIC
B: Time above MIC
C: Auc
D: Auc/mic

Dosing of vancomycin should be based on which of the following?

A Renal function and actual body weight
B Renal function alone
C Renal function and adjusted body weight
D Renal function and ideal body weight

Q1 Answer: D Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-478 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION & OPTIMIZATION OF OBSERVATION PATIENT MEDICATION PRACTICES AT AURORA ST. LUKES MEDICAL CENTER

Erin M. Lydon, Pharm.D.*

Aurora Health Care,626 E. State Street #308,Milwaukee,WI,53202

erin.lydon@aurora.org

Background: Currently at Aurora St. Lukes Medical Center, patients who are deemed to be in observation status account for approximately 22% of the average hospital census. Depending on insurance, some observation patients may not have their medication expenses reimbursed while being treated at the hospital. For this reason, Aurora Health Cares policy permits observation patients to use their home medications if available. However, use of medications from home in hospital is associated with reduced utilization of medication safety technology, challenging medication charting for nurses and compromised pharmacist productivity.

Objective: To evaluate and optimize the process for dispensing medications to observation patients at Aurora St. Lukes Medical Center.

Methods: A retrospective chart review of 50 observation patients in Cerner and Epic (medical record software) was performed using a survey tool to evaluate the state of home medication verification, charting and administration prior to optimization. In addition, six months of medication incident reports from the hospitals incident reporting system were reviewed to identify adverse events related to the use of home medications in the hospital. Feedback from pharmacists and clinical nurse specialists about the current observation patient home medication process was collected to confirm the current workflow for verifying, charting and administering of home medications. An ideal workflow for these processes was formulated in an effort to determine where improvements could be made.

Results: Two significant issues found with the current observation patien home medication workflow were an inefficient verification/order entry process for pharmacists and confusion among nurses regarding charting of home medications. Changes are being made to the current medical record software to allow for more efficient entry and verification of home medications for pharmacists. Additionally, nursing education will be provided to review correct charting procedures for observation patient home medications.

Conclusion: Conclusions from this project are pending.

Learning Objectives:

Describe what observation status means for a patient, especially regarding the use of medications in the hospital.

Recognize some of the barriers to medication safety and pharmacist productivity associated with the use of home medications by observation patients.

Self Assessment Questions:

In the future, the number of patients in observation status is expected to:

A Decrease
B: Observation status likely will not exist in the near future
C: Increase
D: Stay the same

Potential barriers to using medications from home in the hospital include

A Reduced capability to utilize medication safety technology (ie- barc
B Challenges for nursing on how to correctly chart home medications
C Time-consuming entry and verification of home medications for pha
D All of the above

Q1 Answer: C Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-724 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

THE IMPACT OF A GROCERY STORE PHARMACY-BASED FITNESS NUTRITION, AND WEIGHT MANAGEMENT PROGRAM ON PATIENT-CENTERED OUTCOMES

Nicholas R Madison, PharmD*; Leslie M Ray, PharmD; Dustin M Roberts, PharmD; Margie E Snyder, PharmD, MPH

Purdue University/Kroger Pharmacy,2550 Lake Circle Dr,Indianapolis,IN,46268

nicholas.madison@stores.kroger.com

Objectives:
To assess disease knowledge and quality of life in patients who participated in a pharmacist-provided
fitness, nutrition, and weight management program based in grocery store pharmacies.
Methods:
In this retrospective chart review, data will be collected for patients who participated in a fitness, nutrition, and weight management program provided by pharmacists practicing in a national grocery store chain pharmacy setting. Data from patients who participated in the program in Illinois, Indiana, Tennessee, Kentucky, Ohio, Oregon, Washington, Idaho, and Alaska will be included. Data for adult patients over 18 years of age was used if the patient enrolled in the program between April 1, 2008 and December 31, 2010. The program consisted of thirteen individualized appointments with a pharmacist, two of which were facilitated by a dietician. The appointments focused on educating patients about healthy diet and exercise, showing patients how those tools can be used to lose weight and maintain weight loss, and assisting patients in setting both short and long-term goals that are appropriate for their current health statuses. Standard clinical measures including weight, body fat percent, and waist circumference were obtained at each appointment. At the first and final appointments, patients completed a fitness and nutrition knowledge assessment and the SF-36 quality of life assessment. After the final appointment, a patient satisfaction survey was either administered on site or mailed to the patient. Previous studies have assessed the impact of this program on weight. The present study will examine patient-centered outcomes, including differences in disease knowledge and SF-36 scores. Non-parametric statistical analysis will be used to evaluate potential differences between baseline knowledge and SF-36 scores.
Preliminary Results:
Results will be presented at the 2012 APhA annual meeting.

Learning Objectives:

Define overweight and obese.

Describe the primary treatment of overweight and obesity.

Self Assessment Questions:

An individual is considered overweight or obese if he or she has a body mass index of greater than or equal to

A 20 and 25 kg/m^2 respectively.

B: 25 and 30 kg/m^2 respectively.

C: 30 and 35 kg/m^2 respectively.

D: 35 and 40 kg/m^2 respectively.

The initial methods for achieving healthy weight loss in overweight and obese patients include

A diet modification and weight loss supplements.

B prescription weight loss medications and diet modification.

C physical activity and diet modification.

D physical activity and prescription weight loss medications.

Q1 Answer: B Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-479 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

DESCRIPTIVE EVALUATION OF THE EFFECT OF RIFAMPICIN IN PATIENTS ON CONCURRENT WARFARIN THERAPY IN WESTERN KENYA: A CASE SERIES

Mercy W. Maina*,Bpharm, Sonak D.Pastakia, PHARMD, MPH, BCPS Rakhi Karwa, PHARMD, BCPS, Imran N. Manji, BPharm, Nicholas K. Kirui, MBChB

Purdue University College of Pharmacy/Moi Teaching and Referral Hospital,c/o Monica Miller 1001 W 10th Street, Myers Building W7555,Indianapolis,IN,46208

mwmercy@gmail.com

Purpose
The objective of this case series is to report the effects of rifampicin in patients on concomitant warfarin therapy with the aim of providing a reference to clinicians managing such patients.
Methods
The study is a retrospective chart review of patients attending a pharmacist managed anti-coagulation clinic in western Kenya from May 2009 to June 2011. Patients with a history of concurrent rifampicin and warfarin therapy and a minimum follow up duration of 2 months were included. Patients on antiretroviral therapy were excluded. The following data was collected: demographics, indication, therapy duration, HIV status, history of tuberculosis, weekly warfarin dose, international normalized ratio (INR), time in therapeutic range (TTR) and all concurrent therapy. The percentage increase in weekly warfarin dose was calculated from the data. Descriptive statistics were used to characterize this population.
Results
Of the 350 charts reviewed, 11 met the inclusion criteria. Nineteen were excluded due to concomitant ART. The majority of patients were female (63.6%). Their ages ranged from 9 to 71 years with a mean of 35 years. The main indication for anti-coagulation was venous thromboembolism (81.8%). The average percentage increase of weekly warfarin dose was 92.9%. Patients in this analysis had a mean TTR of 45.5% which was lower compared to the clinics average TTR of 64.6%. Parameters associated with variations in weekly warfarin dose included age, comorbidities, concomitant drugs and level of adherence.
Conclusions
This large case series illustrates significant inter-patient variability in individuals on concomitant rifampicin and warfarin therapy, a common scenario in resource limited settings, such as Kenya, where there is a higher prevalence of TB. We recommend patients be rigorously monitored with regular INR checks and warfarin dose adjustments.

Learning Objectives:

Recognize the importance of INR monitoring in patients on concomitant rifampicin and warfarin therapy and the potential circumstances that would result in an INR change.

List the cytochrome P450 (CYP 450) enzymes are involved in the drug-drug interaction between rifampicin and warfarin.

Self Assessment Questions:

Which cytochrome P450 (CYP 450) enzyme that metabolizes warfarin is induced by rifampicin?

A Cyp5a1

B: Cyp2e1

C: Cyp1a1

D: Cyp2c9

In which situation would you expect an increase in the INR of a patient utilizing warfarin therapy for treatment of a deep venous thrombosis?

A Use of rifampicin to treat tuberculosis

B Increased vitamin K intake in diet

C Treatment of a urinary tract infection using sulfamethoxazole- trime

D Treatment of hypertension using enalapril

Q1 Answer: D Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-480 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

AN EVALUATION OF INTRAVENOUS IMMUNOGLOBULIN IN RENAL TRANSPLANTATION

Marissa L. Mako, Pharm.D.*, Nicole R. Alvey, Pharm.D., BCPS, Christopher W. Crank, Pharm.D., BCPS, MS, AQ-ID, Debra A. DiMartino, PA-C, Edward F. Hollinger, M.D., PhD

Rush University Medical Center,1502 N. Sedgwick Street, #3S,Chicago,IL,60610

marissa_mako@rush.edu

Purpose: Over the past several years, the solid organ transplantation service at Rush University Medical Center (RUMC) has utilized numerous different IVIG desensitization protocols. Past high-dose protocols have ranged in total dose from 3.5 g/kg (2008) up to 7 g/kg (2010). A practice improvement initiative evaluating current literature, cost, and IVIG use in other transplant centers, led to a new IVIG protocol implementation. In early 2011, RUMC adopted a new, lower-dose regimen for IVIG use in desensitization and AMR, consisting of a total dose of 1 g/kg. This study aims to compare the efficacy and safety of past high-dose IVIG regimens with the current protocol. A cost analysis of each year will also be evaluated. Our hypothesis is that efficacy outcomes between regimens will be parallel, with the newly implemented low-dose protocol having an improved safety profile.

Methods: This is a retrospective, chart review study evaluating IVIG use in renal transplant patients at our institution. Patients will be evaluated based on IVIG treatment protocol. A total of 150 patients will be reviewed for study inclusion, of which 30 (15 from each the past and current IVIG protocols) will be randomized into each study group. The primary outcome measured will be change in glomerular filtration rate at one, three, six, nine, and twelve months post-transplant. Secondary outcomes measured include graft and patient survival, incidence of acute rejection (cellular and humoral), length of stay, and infectious complications. A descriptive cost analysis over three years will also be completed. Data will be maintained via an electronic data collection sheet utilizing Microsoft Excel. Continuous data will be analyzed using the dependent t-test. Survival will be evaluated using Kaplan-Meier proportion, and a yearly cost effect analysis will be completed with descriptive statistics, where appropriate.

Results/Conclusions: Data collection and analysis are in progress and will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Discuss the efficacy and safety associated with the use of intravenous immunoglobulin (IVIG) in renal transplant patients.

Explain the recommendation at Rush University Medical Center for intravenous immunoglobulin dosing in renal allograft desensitization.

Self Assessment Questions:

A positive crossmatch is

A caused by recipient-specific antibodies to HLA in the blood of the d
B: caused by donor-specific antibodies to HLA in the blood of the reci
C: often associated with a decreased rate of graft loss
D: always desired in renal allograft transplantation

Which of the following most closely describes the mechanism by which Intravenous Immunoglobulin (IVIG) functions in renal allograft desensitization

A Increasing lymphocyte production and proliferation
B Destruction of donor killer T-cells
C Removal of blood plasma from circulation
D Inhibition of lymphocyte activation and proliferation, along with neu

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-481 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF THE EFFECTIVENESS OF PHARMACISTS INTERVENTIONS IN REGARDS TO EMERGENCY DEPARTMENT VISITATION RATES

Jon Manocchio*, Pharm D, Michael Leifheit, Pharm D, BCPS

Blanchard Valley Hospital,1900 S. Main St.,Findlay,OH,45840

jmanocchio@bvhealthsystem.org

Background

Current trends in the healthcare profession encourage the pharmacist to play a more influential role in the direct care of patients. As such, pharmacists are becoming more visible in the outpatient clinic setting in order to answer questions in regards to medication therapy. By having a pharmacist present to discuss appropriate medication use, administration, and compliance, exacerbations of disease states would be limited and thereby reducing emergency department visits. Other studies have noted that pharmacists interventions improved symptom management as well as reduced healthcare costs in the outpatient clinic setting. This study will be beneficial in that it will evaluate the direct correlation between pharmacists interventions and resultant number of emergency department visits.

Objective

To provide thorough patient counseling in regards to medication type, medication administration, and medication compliance to a low income population as part of an existing structured MTM program at an outpatient clinic to reduce visits to the emergency department that are directly related to medication misuse

Methods

Initially, a low income population who receive some form of a structured MTM at an outpatient clinic will be evaluated for previous emergency department visits prior to intensive pharmacist interventions. Then, within this same population, the pharmacist will perform more thorough direct patient counseling in a variety of ways, such as: patient discussion, visual aids for medication administration, follow-up discussions, and evaluations for compliance. After the intervention period, emergency department visits will be evaluated again to determine if any of these visits were a direct cause of medication mismanagement or lack of compliance. The pre-intervention rates will then be compared to post-intervention rates, with a hypothesis anticipating the post-intervention rates to be significantly less than pre-intervention rates. IRB approval will be obtained from both Blanchard Valley Hospital and the University of Findlay.

Results

In progress

Learning Objectives:

Review issues that can lead to poor medication compliance

Identify the benefits of more thorough patient counseling in the outpatient setting

Self Assessment Questions:

Approximately, how many patients take their medications as prescribed?

A 25%
B: 50%
C: 75%
D: 100%

What are the two most common preventable reasons that patients visit the emergency room?

A Lack of counseling and noncompliance
B Inappropriate prescribing and dispensing errors
C Noncompliance and inappropriate prescribing
D Lack of counseling and dispensing errors

Q1 Answer: B Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-815 -L05-P

Activity Type: Knowledge-based Contact Hours: 0.5

METABOLIC EFFECTS OF OLANZAPINE IN HIV-INFECTED PATIENTS IN WESTERN KENYA

Simon M. Manyara, BPharm.,*, Sonak D. Pastakia, Pharm.D., BCPS, Ellen. M. Schellhase, Pharm.D.

Purdue University College of Pharmacy/Moi Teaching and Referral Hospital,1001 W 10th Street, Myers Building W7555, Indianapolis IN 46208,Indianapolis,IN,46208

simonmanyara@gmail.com

Purpose

The metabolic side effects of olanzapine have been well described in resource-rich settings. Routine metabolic monitoring is recommended whenever using this medication. However, due to resource constraints, these metabolic side effects have not been described or assessed in resource-poor settings. The objective of this study is to characterize the metabolic side effects of olanzapine in HIV-infected patients receiving care at Academic Model Providing Access to Healthcare (AMPATH) psychiatric clinic.

Methods

This study is a retrospective review of patients receiving olanzapine and being treated at the AMPATH psychiatry clinic. The clinic recently implemented metabolic monitoring, including a lipid profile, for all patients utilizing olanzapine. Patients will be excluded if they are not HIV infected. The data collected will include patient demographics, food security, nutrition status, presence of diagnostic criteria, olanzapine starting dose, maintenance dose, duration of use, concomitant medications used, number of physician office visits, blood glucose, weight, height, waist circumference, blood pressure readings, and lipid profile. Descriptive statistics will be performed to establish whether HIV-infected patients on olanzapine in a resource-constrained setting experience metabolic side effects of this drug.

Results/ Conclusion

IRB approval recently received. Data collection is still on going.

Learning Objectives:

Review the side effects associated with the use of olanzapine

Outline the variables involved during metabolic monitoring for HIV-infected patients using olanzapine in a resource-constrained setting

Self Assessment Questions:

Which is a side effect associated with the use of olanzapine?

A Hypotension

B: Hypoglycemia

C: Hyperkalemia

D: Hyperlipidemia

Which factor is considered when monitoring for metabolic side effects of olanzapine in patients who are HIV-infected?

A Strain of HIV that the patient is infected with

B Use of oral contraceptives

C Education level of the patient

D Number of sexual partners

Q1 Answer: D Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-647 -L02-P

Activity Type: Knowledge-based Contact Hours: 0.5

TIME TO FIRST DOSE OF APPROPRIATE ANTIFUNGAL THERAPY FOR INVASIVE CANDIDIASIS

E. Claire Markway, PharmD*; P. Shane Winstead, PharmD; Craig A. Martin, PharmD, BCPS (AQ-Infectious Disease)

University of Kentucky HealthCare,Department of Pharmacy Services,800 Rose Street, H110,Lexington,KY,40536

ema236@uky.edu

Purpose: Invasive candidiasis (IC) is the fourth most common cause of nosocomial infection and most common cause of invasive fungal infection. It causes significant morbidity and mortality of up to 47% of cases. The current diagnostic standard is blood culture despite limitations in sensitivity and delays to final results. There is significant clinical impact of this delay to diagnosis and treatment as time to appropriate antifungal therapy has been shown to be an independent predictor of mortality. To address this concern, a university-affiliated, academic medical center implemented guidelines for the empiric use of antifungal therapy in non-neutropenic, critically ill patients. These guidelines incorporated the Candida score, a bedside risk stratification tool, to identify high risk patients for empiric antifungal therapy. The purpose of this study is to determine the time to order entry of appropriate antifungal therapy before and after the implementation of guidelines.

Methods: A retrospective analysis of non-neutropenic, adult patients with documented positive Candida blood cultures hospitalized at the study institution from June 2006 to August 2011 was conducted. A total of 352 patients were identified with 262 patients meeting inclusion criteria. Patients were excluded from January 2009 to May 2009 to allow for implementation of the guidelines. The primary outcome analyzed was time from the first positive blood culture to order entry of appropriate antifungal therapy. Secondary outcomes included all-cause mortality, risk factors for IC and length of stay including total hospital, ICU-related and infection-related.

Results/Conclusions: One hundred thirty four patients were in the pre-implementation and 128 were in the post-implementation group. Patients were evenly distributed with regard to gender and the majority were >50 years old. The most common fungal isolates identified were C. albicans and C. glabrata. Data collection and analysis are in progress and will be presented.

Learning Objectives:

Describe the significant morbidity and mortality impact of Invasive candidiasis particularly in terms of delays to appropriate anti-fungal therapy.

Identify the advantages of bedside risk-stratification tools to differentiate and optimally treat high-risk patients for Invasive candidiasis.

Self Assessment Questions:

All of the following are considered frequently implicated risk factors for invasive fungal infection except:

A Enteral nutrition

B: Immunosuppression

C: Indwelling catheters

D: Recent surgery

Select the intravenous agent most consistent with IDSA recommendations for empiric therapy of candidemia in a critically ill patient:

A Fluconazole 200 mg every 24 hours

B Liposomal Amphotericin B 1 mg/kg every 24 hours

C Micafungin 100 mg every 24 hours

D Voriconazole 6 mg/kg every 12 hours

Q1 Answer: A Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-482 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

COMPARISON OF OUTCOMES IN NAP-1 AND NON-NAP-1 CLOSTRIDIUM DIFFICILE INFECTIONS IN HOSPITALIZED PATIENTS

Scott A Marshall*, Crystal C Owens, Allen T Griffin

Louisville VA Medical Center,2111 eastern pkwy,Apartment #8,Lousiville,ky,40204

scott.marshall@va.gov

Purpose: The United States has seen a 3-fold increase in the rates of Clostridium difficile infections from 2000-2005. The increase in incidence and severity of these infections is thought to be partly due to the emergence of the ribotype 27, North American pulsed-field gel electrophoresis type-1 (NAP-1) strain. Treatment guidelines for patients diagnosed with Clostridium difficile infections do not currently base recommendations upon Clostridium difficile strain designations. Practice guidelines released by the Infectious Disease Society of America (IDSA) for the treatment of Clostridium difficile recommends management based on disease severity and complications. Conflicting data currently exists regarding the outcomes of NAP-1 Clostridium difficile. The purpose of this research is to compare the clinical course and outcomes of hospitalized patients diagnosed with NAP-1 clostridium difficile and patients diagnosed with other strains of Clostridium difficile.

Methods: Patients included in this review received a Clostridium difficile infection diagnosis between October 2009 and August 2011 at the Robley Rex Veterans Affairs Medical Center. Patients diagnosed with NAP-1 Clostridium difficile by the Cepheid Gene Xpert Clostridium difficile EPI assay are included in the NAP-1 group and patients with a positive toxin PCR but negative Cepheid Gene Xpert Clostridium difficile EPI are included in the non-NAP-1 Clostridium difficile group. Data collected for this review include demographics, prior medication use, laboratory data, vital signs, treatment regimens, length of hospital stay and treatment outcomes. The primary endpoint of this study is the identification of differences in treatment outcomes based on cure, failure, recurrence, and death between NAP-1 Clostridium difficile infections and those caused by non- NAP-1 strains of Clostridium difficile.

Results and Conclusion: Results and conclusions will be presented at the Great Lakes Residency Conference.

This material is the result of work supported with resources and the use of facilities at the Robley Rex VAMC

Learning Objectives:

Describe the differences between NAP-1 Clostridium difficile infections and infections caused by non-NAP-1 Clostridium difficile.

Define the Infectious Disease Society of America (IDSA) treatment guidelines for Clostridium difficile infections

Self Assessment Questions:

If a Clostridium difficile infection is found to be due to the NAP-1 strain, what modifications should be made to therapy?

A Patient will require a colectomy

B: Length of therapy should be increased

C: Patient will require oral vancomycin and IV metronidazole

D: Not enough evidence exists to make any recommendations

According to the IDSA guidelines, choice of initial therapy for Clostridium difficile infections should be based on

A White blood cell count

B Serum creatinine and white blood cell count

C Serum creatinine, white blood cell count and complications

D Serum creatinine, white blood cell count, complications and strain

Q1 Answer: D Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-483 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

MAXIMIZING GENERIC PRESCRIBING IN AN INTEGRATED DELIVERY NETWORK: IMPACT OF THE PHARMACIST

*Susan H. Martin, PharmD; T. Christopher Little, PharmD, BCPS; Maggie L. Mangino, PharmD, BCACP

Norton Healthcare,231 E. Chestnut Street,Louisville,KY,40202

Susan.Martin@nortonhealthcare.org

Purpose:
Generic medications enable prescribers to individualize drug therapies and optimize therapeutic outcomes at a reduced cost. This decreased financial burden is realized by both the patients and the associated managed care organizations that administer their health insurance. As a pilot Accountable Care Organization, Norton Healthcare has a vision to optimize thedelivery of its services, so that patients can receive high quality medical care without the burden ofexcess expenditures. By promoting the use of effective medications that are available generically, cost reduction can be achieved while maintaining a high standard of care for all patients. The purpose of this study is to evaluate the effect of pharmacist-led education and provision of generic samples on the generic dispensing ratio of outpatient prescribers.

Methods:
A two-part intervention was initiated at a Norton Healthcare-owned primary care pilot site. Three drug classes were identified from current prescribing patterns as having the highest potential for cost avoidance. This included statins, angiotensin receptor blockers, and proton pump inhibitors. The first part involved the creation and delivery of drug class reviews that examined the efficacy and safety of drugs within each class and the potential cost avoidance when generic medications are utilized. These reviews were provided to prescribers to serve as an educational tool and to assist in therapeutic drug selection. In the second part, generic medication samples within the three drug classes were provided to prescribers as an incentive to utilize genetic products. A log was maintained to track each samples dispensed and to collect data pertinent to this study. Prescribing data was compared pre- and post-implementation to assess the overall impact on the generic dispensing ratio.

Results:
Results and conclusions are pending and will be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Identify drug classes in which there are potential cost savings through the use of generic medications

Describe methods a pharmacist can use to impact the generic dispensing ratio

Self Assessment Questions:

In which of the following drug classes are generic medications currently available?

A Angiotensin receptor blockers

B: Fusion inhibitors

C: Integrase inhibitors

D: PDE5 Inhibitors

Which of the following actions can a pharmacist take to increase the generic dispensing ratio?

A Refuse to fill prescriptions for brand name medications

B Provide education around certain drug classes that have a high po

C Organize a generic sampling program for medications that offer re

D B and C

Q1 Answer: A Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-484 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

AUTOMATION REFRESH: IMPLEMENTATION AND EVALUATION OF AN AUTOMATED DISPENSING CABINET AND NARCOTIC STATION REFRESH PROGRAM

Kelly Martin, PharmD*; Brad Ludwig, MS, RPh; Jessica Mahoney, PharmD, MS; Jack Temple, PharmD, MS

University of Wisconsin Hospital and Clinics,600 Highland Avenue,F6/133-1530,Madison,WI,53792

kmartin3@uwhealth.org

Purpose

The purpose of this investigation is to evaluate the impact of the implementation of new automation at the University of Wisconsin Hospital and Clinics (UWHC). The "Automation Refresh" program at UWHC included the implementation of forty replacement automated dispensing cabinets (ADCs) in October, November, and December 2011 throughout UWHC. Four narcotic towers will be added in 2012 in conjunction with a redesigned controlled substances dispensing system. The scope and operations of pharmacy practice have grown exponentially since previous technology was adopted at UWHC and new automation has been developed that can further elevate pharmacy practice. The aim of this research project is to coordinate all steps of the implementation of ADCs and narcotic towers, taking into consideration historic medication use data, cost, and projected needs based on operational changes within the institution while maintaining appropriate medication availability to provide optimal patient care.

Methods

A gap analysis was conducted to compare current automation practices at UWHC with best practice standards. A multidisciplinary workgroup was developed to determine the staging and implementation processes to replace the ADCs. The electronic medical record (EMR) was used to analyze current medication dispensing trends and electronic automation decision support tools were used to analyze current inventory trends for ADCs over one year to determine appropriate inventory levels. Current workflows with the narcotic towers will be analyzed through direct observation. Based on these analyses, ADC and narcotic tower configurations and systems will maximize the benefits of pharmacy automation in medication use practices at UWHC. Post-implementation, drug cost, inventory turns, and time requirements for various steps of the medication use process will be compared to pre-implementation data. Analyses of these changes will be used to determine areas for continual assessment and improvement post-implementation.

Results/Conclusions

Results and conclusions will be presented at the Great Lakes Residency Conference.

Learning Objectives:

Describe the process for implementation of new automated dispensing cabinets

Recognize the financial and operational impact of the implementation of new automation within an academic medical center

Self Assessment Questions:

The first step for the successful implementation of new automation is to:

A Eliminate the use of old technology in preparation for implementati
B: Develop a project plan and checklist to thoroughly organize the pro
C: Compare data from pre-implementation to projected post-impleme
D: Determine all automation configurations and inventory levels

Which of the following is an important consideration when determining inventory levels for new automation:

A Validation of data used for inventory projections
B Input from all staff about what they feel would be appropriate inven
C Replication of all current configurations and inventory levels
D Elimination of locked drawers to allow entry into all pockets

Q1 Answer: B Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-725 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF POST-OPERATIVE PAIN MANAGEMENT IN A COMMUNITY HOSPITAL

Marco Martino, PharmD*, Sun Lee-Such, PharmD, MBA, BCPS, Alison Harber, BS Pharm

St. Margaret Mercy Healthcare Centers,17141 Briar Dr.,Tinley Park,IL,60487

marco.martino@franciscanalliance.org

Background:

Appropriate post-operative pain management continues to be a challenge facing most hospitals today. Successful pain management will result in faster recovery, decreased length of stay (LOS), and increased patient satisfaction.

Purpose:

This study will evaluate prescribed post-operative analgesia regimens fo appropriate drug selection, dosing, timely pain scale assessment, and prompt medication administration at Franciscan St. Margaret Health (FSMH).

Methods:

This study was IRB approved. A baseline retrospective chart review was performed. Patients over the age of 18 who underwent surgery from December 2010 to June 2011 were included. Data collected included demographics, post-operative LOS, home analgesic and benzodiazepine use, post-operative analgesia, pain assessment, and timely administration of analgesic agents. Successful pain management was defined as pain reduction score by 50% within the first 24 hours after surgery.

Baseline Results:

Of the one hundred patients reviewed, 52%were female with an average age was 52 years (range 18 to 97). The average post-operative LOS after surgery was 3.5 days (range 1 to 12). Home use of analgesia and benzodiazepines were 25% and 13% of patients, respectively. Multimodal regimens were prescribed in 78% of patients. Analgesic regimens were prescribed as needed in 94% of patients. Within 24 hours after surgery, 34% of patients experienced pain score reduction of 50% or greater. The nursing pain assessments performed after administration of analgesic medication were 41% at 1-hour and 73% at 4 hours. The analgesic medications were not administered timely as prescribed in 49%.

Conclusion:

Final results and conclusion will be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Review the current Joint Commission recommendations for post-operative pain management in hospitalized patients

Discuss barriers to achieving 50% pain score reduction in hospitalized patients

Self Assessment Questions:

Which of the following is a multimodal analgesic regimen?

A oral acetaminophen
B: intravenous bupivucaine
C: intravenous ketorolac
D: intravenous morphine + oral acetaminophen

Choose the best choice that represents the barriers to achieving 50% pain score reduction?

A analgesic regimens
B analgesic regimens and analgesic dosages
C analgesic regimens, analgesic dosages, and timely nursing assess
D analgesic regimens, analgesic dosages, timely nursing assessmer

Q1 Answer: D Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-486 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF INITIAL HEPARIN DOSING FOR INFANTS ON EXTRACORPOREAL MEMBRANE OXYGENATION (ECMO)

Jessica L. Martino*, PharmD, Morgan R. Cole, PharmD, BCPS, Douglas A. Campbell, RRT

Spectrum Health,100 Michigan Street NE,Grand Rapids,MI,49503

jessica.martino@spectrumhealth.org

PURPOSE: Extracorporeal membrane oxygenation (ECMO) is a supportive therapy for patients with respiratory and/or cardiac failure. Anticoagulation during ECMO at Helen DeVos Childrens Hospital is achieved by titrating heparin to achieve a goal activated clotting time (ACT) of 170-190 seconds. Achieving initial therapeutic anticoagulation during ECMO procedures has been difficult using the current protocol at our institution. The objective of this study is to identify the percentage of infants on ECMO who achieve an ACT of 170-190 seconds within 6 hours after the initiation of ECMO. Secondary objectives are to identify the percentage of patients in goal ACT range at hour 2, 4, 12, and 24. It is hypothesized that the current protocol does not achieve 90% of ECMO patients in therapeutic range by hour 6.

METHODS: A retrospective chart review of infants less than one year of age who underwent ECMO from May 2006 through June 2011 was performed. Patients included were infants ≥ 2 kg and < 10 kg, ECMO duration ≥ 6 hours, and gestational age ≥ 34 weeks. Patients were excluded if they were in renal failure. Heparin dosing information was collected, as well as hourly ACT measurements through the first 24 hours on ECMO.

RESULTS: An interim analysis was performed on 16 patients. At hour 6, 31.3% (n=5) of patients were in goal ACT range, 37.5% (n=6) of patients were out of range at hour 6, and 31.3% (n=5) of patients had reached goal ACT between hour 0 and 6, but were out of range at hour 6. The mean percentage of time patients were in goal ACT range in the first 24 hours was 40.8% (10 hours), whereas the median was 44.0% (11 hours).

CONCLUSION: Preliminary results indicate patients are not adequately anticoagulated at hour 6 or during their first 24 hours on ECMO.

Learning Objectives:

Explain the challenges of anticoagulation during ECMO

Describe the mechanism of clotting during ECMO and the proposed tests for monitoring anticoagulation

Self Assessment Questions:

Which of the following are potential complications from anticoagulation management during ECMO?

A Clotting in the ECMO circuit

B: Intracranial bleeding

C: Thrombotic event

D: All of the above

Which of the following are proposed tests for monitoring anticoagulation during ECMO?

A Act

B Antithrombin III

C aPTT

D All of the above

Q1 Answer: D Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-485 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

ASTHMA MANAGEMENT IN A CHILDRENS HOSPITAL EMERGENCY DEPARTMENT (ED): IMPACT OF CLINICAL PHARMACY SERVICES ON RECURRENCE OF EXACERBATIONS

*Jenny M. Mason, PharmD, Kimberly J. Novak, PharmD, BCPS

Nationwide Children's Hospital,2306 Waterpointe Ct.,Columbus,OH,43209

jenny.mason@nationwidechildrens.org

Purpose: Asthma is the most prevalent chronic condition affecting children, one of the most common reasons for hospitalization, and accounts for 1.5 to 2 million ED visits yearly. Up to 20% result in hospitalization and up to 30% of patients will relapse within several weeks. During 2010 there were 2550 ED asthma visits, 25% resulting in hospital admission at our institution.

The 2007 National Heart, Lung, and Blood Institute asthma guidelines recommend asthma education and controller medications for all patients with persistent asthma including those discharged from the ED. Inhaled corticosteroids (ICS) are the most effective controller medication; however, they are underprescribed in the ED setting. Initiating maintenance therapy during an ED visit can prevent treatment delay and reduce exacerbations. Clinical pharmacists can have an impact in ED asthma care by recommending controller medications and providing asthma education. This study aims to evaluate the 60-day recurrence rate of asthma exacerbations after patients have received clinical pharmacy services during an ED visit.

Methods: A quality improvement project will be conducted with patients 2 to 18 years of age with a primary diagnosis of asthma during an ED visit. A clinical pharmacist will assess asthma severity and provide recommendations for ICS and asthma education. Implementation of recommendations will be at the discretion of the physician. Following this project, a retrospective chart review will be conducted. Patient demographics, asthma severity, previous asthma regimen, ED visit prescribed asthma regimen, number of asthma exacerbations in the previous 12 months, and 60-day asthma readmission rate will be collected. Follow-up appointments, prescriber adherence to the guidelines, and primary care use will also be documented. A comparative group of asthma patients not receiving clinical pharmacy services will be evaluated similarly.

Results: Results will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Describe the prevalence of asthma-related ED visits

Explain the impact pharmacists can have on asthma-related care during an ED visit

Self Assessment Questions:

What is the most effective controller medication for asthma management?

A Albuterol MDI

B: Nebulized albuterol

C: Inhaled corticosteroid

D: Ipratropium

Which has been shown to reduce further hospitalizations?

A Monthly follow-up visits to a primary care provider

B Asthma education regarding risk factors and inhaler technique

C Adjusting therapy by increasing two-steps in the asthma guidelines

D Adding daily ipratropium therapy

Q1 Answer: C Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-726 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATING THE IMPACT OF PHARMACIST-DEVELOPED INTERACTIVE TECHNOLOGY ON HEALTH CARE WORKERS KNOWLEDGE OF SEASONAL INFLUENZA

Lindsay R Massey, PharmD*; Trisha A Jordan, PharmD, MS; Kristin B Casper, PharmD; Milap C Nahata, MS, PharmD

The Ohio State University Medical Center,368 Doan Hall,410 W 10th Avenue,Columbus,OH,43210

Lindsay.Massey@osumc.edu

Purpose: Influenza vaccination rates among healthcare workers remain low for various reasons including lack of knowledge regarding the benefits of annual vaccination. Pharmacists play a significant role in meeting public health needs for seasonal influenza vaccination by acting as vaccine educators, advocates, and immunizers.

This study is an expansion of an existing Pharmacy-Based Influenza Vaccination Program with the addition of pharmacist-developed interactive technology (i.e. iPad application) to augment traditional educational efforts. Traditional educational efforts are defined as paper handouts and verbal communication. In a fast-paced environment, healthcare workers are reluctant to engage in traditional educational efforts making them less effective. It is hypothesized that an interactive seasonal influenza iPad application will improve healthcare workers knowledge to a greater extent than traditional pharmacist educational efforts alone. The primary objective of this study is to evaluate the impact of a pharmacist-developed iPad application on healthcare workers knowledge of seasonal influenza. Secondary objectives include an evaluation of the impact of a seasonal influenza iPad application on vaccination, exemption, and compliance rates.

Methods: Pharmacist immunizers provided on-site influenza vaccinations during scheduled "Flu Blitzes" in target departments within The Ohio State University Medical Center. During Flu Blitzes, healthcare workers had the opportunity to interact with a pharmacist-developed seasonal influenza iPad application. Two control departments that did not receive interactive education served as comparator groups. An electronic survey measured healthcare workers knowledge of seasonal influenza in target and control departments at baseline and post-intervention. Mean knowledge scores will be calculated and vaccination, exemption, and compliance rates will be compared between target and control departments.

Results: Results and conclusions are pending and will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Identify the factors to consider when developing an educational iPad application.

Recognize the benefits of using interactive technology to educate healthcare workers.

Self Assessment Questions:

Approximately how long does it take to build up protection to influenza after receiving the seasonal influenza vaccine?

A 24 – 48 hours

B: 1 week

C: 2 weeks

D: 4 weeks

What factors should be considered when selecting departments for implementation of pharmacy-based vaccination services?

A Previous vaccination and compliance rates

B Distance from Employee Health Department “flu blitzes”

C Previous exemption rates

D All of the above

Q1 Answer: C Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-727 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF THE EFFICACY AND SAFETY OF A HYDROCHLOROTHIAZIDE TO CHLORTHALIDONE MEDICATION CHANGE IN HYPERTENSIVE VETERANS

Kathleen A. Matthews*, PharmD, Michael Brenner, PharmD, BCPS, and Allison Brenner, PharmD

VA Ann Arbor Healthcare System,2215 Fuller Road,119,Ann Arbor,MI,48105

Kathleen.Matthews4@va.gov

Purpose: The primary objective of this study is to compare mean baseline and follow-up clinic blood pressure readings for hypertensive patients switched from hydrochlorothiazide to chlorthalidone at the VA Ann Arbor Healthcare System. Secondary objectives include comparing baseline and follow-up home blood pressure readings, serum creatinine & BUN, potassium, sodium, and calcium. The study also aims to examine the impact of dosing strategy on the outcomes of interest by examining subgroups of patients switched to approximately equivalent doses, mg-for-mg doses, and greater than mg-for-mg doses of chlorthalidone.

Methods: Hypertensive patients switched from hydrochlorothiazide to chlorthalidone between January 1, 2006 and November 30, 2011, who have at least one follow-up clinic blood pressure reading recorded between 2 and 8 weeks from the date of the medication change will be evaluated for inclusion in the study. Data collected will include: demographic information; hydrochlorothiazide and chlorthalidone dose a time of medication change; use of potassium & calcium supplements; baseline and follow-up values for: clinic & home blood pressures, serum creatinine & BUN, serum potassium, sodium, and calcium; timing of values relative to index date; and other agents in antihypertensive regimen.

A two-tailed, paired t-test with a significance level (alpha) of 0.05 will be used to assess the primary objective by comparing mean clinic blood pressure readings before and after the medication change. Secondary objectives will be assessed with the same statistical test, using the Holm Bonferroni method to adjust for multiple comparisons. Descriptive statistics will be used to report demographic information. Subgroup analysis based on dosing strategy comparing outcomes of interest for patients within groups will be conducted. Between group comparisons using ANCOVA procedure will be done if sample size allows.

Results/Conclusions: To be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Identify the relative potencies of chlorthalidone and hydrochlorothiazide.

Discuss the VA prescribing patterns of chlorthalidone in the previously identified medical literature.

Self Assessment Questions:

Identify the correct statement regarding the relative potency of chlorthalidone to hydrochlorothiazide (HCTZ):

A Chlorthalidone is 1 – 2 times less potent than HCTZ

B: Chlorthalidone and HCTZ are equipotent

C: Chlorthalidone is 1.5 – 2 times more potent than HCTZ

D: Chlorthalidone is 5 times more potent than HCTZ

According to a review of national VA outpatient prescription data from 2003 to 2008:

A Chlorthalidone use more than doubled during this time

B Approximately 1/3 of new chlorthalidone users were switched from

C Chlorthalidone was more likely to be added to an existing regimen

D All of the above

Q1 Answer: C Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-487 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

INHALED EPOPROSTENOL AS AN ALTERNATIVE TREATMENT OPTION IN PEDIATRIC PATIENTS SUFFERING FROM SECONDARY PULMONARY HYPERTENSION

Kyle R. Mays, PharmD*, Margaret Heger, PharmD, BCPS
OSF Saint Francis Medical Center,530 Northeast Glen Oak Avenue,Peoria,IL,61637
kyle.r.mays@osfhealthcare.org

Background:
Pulmonary hypertension is a life-threatening complication in many pediatric patients with congenital heart disease. One of the primary treatment options for pulmonary hypertension is inhaled nitric oxide, which improves pulmonary hemodynamics and gas exchange with minimal systemic effects. However, nitric oxide has several limitations to its use including specialized administration and monitoring equipment, toxic metabolites, and inconsistent therapeutic benefits.

A potential alternative to inhaled nitric oxide is inhaled epoprostenol, which is a synthetic form of prostacyclin. When administered intravenously, epoprostenol vasodilates all known vascular beds and subsequently reduces pulmonary artery pressure. However, the administration of intravenous epoprostenol results in a number of adverse effects including tachycardia, headache, nausea, and neuromuscular pain. As a result, the administration of epoprostenol via inhalation is a novel approach to selectively reduce pulmonary artery pressure and improve oxygenation without the adverse effects associated with systemic administration.

Purpose:
Review patient specific data regarding the effects of inhaled epoprostenol on pulmonary and systemic hemodynamic parameters in pediatric patients suffering from pulmonary hypertension due to complications associated with congenital heart disease.

Methods:
In this retrospective chart review, we will identify pediatric patients who received epoprostenol via inhalation from January 1, 2001 to December 31, 2011. Patient data to be collected include patient demographics, data regarding systemic and pulmonary hemodynamics prior to and after epoprostenol administration, and information regarding concomitant therapy.

Results/Conclusion:
Results and conclusions will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Describe the mechanism by which inhaled epoprostenol decreases pulmonary artery pressure.

Describe the potential advantages and disadvantages of inhaled epoprostenol for the treatment of pulmonary hypertension.

Self Assessment Questions:

What is the proposed mechanism by which inhaled epoprostenol decreases pulmonary artery pressure?

A Phosphodiesterase Type-5 Inhibitor
B: Direct dilation of pulmonary arteries
C: Endothelin receptor blockade
D: Calcium channel blockade

Which of the following is a potential advantage of inhaled epoprostenol over inhaled nitric oxide?

A A short half-life
B Localized area of action
C Inconsistent therapeutic benefits
D A lack of toxic metabolites

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-488 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF THE IMPACT OF RESTRICTING PIOGLITAZONE TO NON-FORMULARY USE ON GLYCEMIC CONTROL

Kelly M McCormick, PharmD*; Suzanna W Shieh, PharmD, CACP; Thomas Grubaugh, RPh, CACP
Chalmers P. Wylie VAOPC,420 North James Road,Columbus,OH,43219
kelly.mccormick4@va.gov

Purpose:
The primary objective of this study is to assess the impact of restricting pioglitazone to non-formulary use on glycemic control (HgbA1c) in veterans with type 2 diabetes mellitus. Secondary objectives include evaluation of the prevalence of side effects, overall cost of therapy per patient, and the time to initiation of insulin. Side effects examined include the incidence of microvascular complications (retinopathy, microalbuminuria, increased serum creatinine, and decreased creatinine clearance), macrovascular complications (stroke, myocardial infarction), bladder cancer, bone fractures, hypoglycemia, increased liver function tests, weight gain, edema, and new onset or exacerbation of congestive heart failure.

Methods:
This retrospective review of veterans with type 2 diabetes will be conducted at the Chalmers P. Wylie Veterans Affairs Ambulatory Care Center in Columbus, Ohio. Patients discontinuing use of pioglitazone following a non-formulary request denial during or following July 2010 wil be selected from a pharmacy computer database-generated list of patients. Eligible patients will be 18 years of age or older and will have an active prescription for pioglitazone prior to July 2010 with a denial for continued use via the non-formulary request process during or after July 2010. Patients must also have baseline weight, LFTs, and A1c within six months prior to and one year after the medication request was submitted. Patients will be excluded if they are determined to be non-compliant, based on a medication possession ratio of 0.8 for the six months prior to the non-formulary request, or if they carry a diagnosis of type 1 diabetes.

Results/Conclusions:
Results and conclusions are pending and will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Identify the most common side effects associated with use of pioglitazone.

List the potential complications associated with poorly controlled diabetes mellitus.

Self Assessment Questions:

Pioglitazone is most commonly associated with which of the following side effects?

A Heartburn
B: Dizziness
C: Increased uric acid
D: Peripheral Edema

Identify the complication associated with uncontrolled diabetes from the list below.

A Hypoglycemia
B Blindness
C Gout
D Memory Loss

Q1 Answer: D Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-489 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF TIERED PAIN MANAGEMENT ORDER SET BASED ON OPIOID TOLERANCE LEVELS IN POST-OPERATIVE ORTHOPEDIC PATIENTS

Brian M McCrate, PharmD* and Kellie Knight, PharmD, BCPS
Indiana University Health,2625 North Meridian,Apt 416,Indianapolis,IN,46208
bmccrate@iuhealth.org

Purpose: Pain management is very difficult in post-operative patients with opioid tolerance. A new pain management order set has been instituted at IU health - Methodist Hospital in post-operative orthopedic patients. Patients are stratified into one of three pain tolerance levels based on opioid use prior to admission. The initial pain regimen differs depending on which level patients are placed into, with level one patients receiving the lowest initial doses of medications and level three patients receiving the highest initial doses. The purpose of this study is to evaluate the safety and efficacy of this order set.

Methods: A retrospective chart review conducted on patients who have undergone hip or knee replacement surgery at Indiana University Health - Methodist Hospital. Subjects selected were those who were admitted to the hospital between May 1, 2011 and September 31, 2011 with a principal procedure of knee or hip orthopedic surgery and who received the pain management post-operative order set. The results from these subjects will be compared to patients admitted to IU Health - Methodist Hospital between January 1, 2011 and April 30, 2011, prior to the initiation of the opioid tolerance pain management order set.

Results and Conclusion: Information currently being collected includes assigned opioid tolerance levels, percentage of pain scores at or above patients pain goal, adjuvant medications used, administration of naloxone, and respiratory rate less than or equal to 8 beats per minute.

Learning Objectives:

Define opioid addiction, dependence, and tolerance.

Identify barriers to pain management in the post-operative setting

Self Assessment Questions:

Which term best describes the physiological adaptions to a drug, resulting in a decreased drug effect

A Addiction
B: Dependence
C: Tolerance
D: Side Effect

Which of the following are potential barriers to pain management in the post-operative setting

A Opioid tolerance
B Medication side effects
C Subjectivity of pain
D All of the above

Q1 Answer: C Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-490 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

METHICILLIN-RESISTANT STAPHYLOCOCCUS AUREUS SCREENING RESULTS AS A GUIDE FOR EMPIRIC ANTIBIOTIC SELECTION IN MEDICAL INTENSIVE CARE UNIT PATIENTS

*Amy M. McManness, PharmD, John L. Lock PharmD, BCPS, Sarah D. Hittle, PharmD, BCPS, Jennifer A. McCann, PharmD, BCPS
St. Vincent Hospital and Health Services,2001 West 86th Street,Indianapolis,IN,46260
amcma001@stvincent.org

Purpose: Patients in the intensive care unit (ICU) setting are at a higher risk of developing or acquiring a methicillin-resistant Staphylococcus aureus (MRSA) infection during their hospitalization compared to other inpatient units. Studies of MRSA colonization testing have reported that carriers of MRSA are at an increased risk for subsequent infection and death. Various surveillance programs have been implemented in ICUs to detect patients colonized with MRSA. Despite reports of S. aureus colonizers developing infections with similar susceptibility patterns, there have been mixed results from studies on whether the results of colonization testing can be used to guide empiric antimicrobial therapy in patients who develop infections in the ICU. Primary objectives are 1) determine if screening results for nasal colonization of MRSA are predictive of the development of a MRSA infection during patients ICU hospitalization and 2) assess if screening accurately predicts the need for empiric MRSA coverage if an infection does develop.

Methods: A retrospective chart review of patients admitted to St. Vincent Hospitals medical ICU (MICU) from January 1st 2011 through June 30th 2011 was conducted. Patients included in the study were adult patients hospitalized in the MICU for > 72 hours and had an admission nasal swab obtained. Results of patients nasal swabs upon admission were collected from the medical record along with culture results, antibiotic treatment, and additional risk factors. Based on the data collected, the sensitivity and specificity of the screening results in predicting an MRSA infection was determined.

Results/Conclusions: Final results and conclusions will be presented at the Great Lakes Residency Showcase.

Learning Objectives:

Discuss the current utility of surveillance programs in testing for MRSA colonization in patients.

Identify risk factors for a patient developing an MRSA infection in the ICU.

Self Assessment Questions:

What is the increase in risk of infection of patients colonized with MRSA compared to non-carriers?

A 2 times
B: 3-4 times
C: 5-6 times
D: >6 times

Which is thought to be the most significant risk factor for developing an MRSA infection in the ICU?

A Invasive devices
B Advanced age
C Previous antibiotic treatment
D Mechanical ventilation

Q1 Answer: B Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-491 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

IMPROVING PATIENT CARE: UNDERSTANDING HIV HEALTH LITERACY

Michael L McMillan, Pharm.D.*, John Di Lodovico, RPh; Rachel Chambers, Pharm.D., AQ-ID; Susan L Davis, Pharm.D.

Henry Ford Health System,2799 W GRAND BOULEVARD,DETROIT,MI,48202

MMCMILL6@HFHS.ORG

Background:
HIV is a condition which requires patients to have strict compliance with their medications. Adherence to medication regimen should be between 80-90%. Proper management of the disease requires patients to have an understanding of the treatment measures that are involved. Health literacy refers to a person's ability to both read and understand information about a health condition or to understand health-related numbers. The Rapid Estimate of Adult Literacy in Medicine Short Form (REALM-SF) is a means for healthcare providers to assess patients health literacy.

Purpose:
The objective of this study is to determine if there is a direct correlation with HIV related patient outcomes based on the REALM-SF score in patients enrolled at the Henry Ford Hospital HIV clinic.

Methods:
This prospective cohort study included patients who were >18 years old, HIV positive, actively enrolled in the HIV clinic, documented REALM-SF score, viral load and CD4 count available, seen by HIV pharmacist as follow ups or new starts. Patients were excluded with neurologic dysfunction defined as a diagnosis of Alzheimer or dementia, vision impairment not correctable with eyeglasses, and hearing problems not corrected with a hearing aid.

Results:
The results and conclusion of this study will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Identify the different health literacy scores and how they relate to patient counseling.

Discuss HIV related outcomes in patients and the correlation to the patients health literacy score.

Self Assessment Questions:

Based on their REALM-SF score, which patients will not be able to read most low literacy materials?

A 2
B: 0
C: 4
D: 6

Which health literacy measurement tool is simplified with seven words that the patient must read and say to their healthcare provider?

A Wrat-r
B Tofhla
C Realm
D Realm-sf

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-645 -L02-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF COMPLIANCE AND VALIDATION OF AN INSTITUTION SPECIFIC WEIGHT-BASED HEPARIN NOMOGRAM

Tara R. McMillin, PharmD;* Jaculin L. DeYoung, PharmD; Steven J. Hixon, MS

Spectrum Health,100 Michigan Ave,Grand Rapids,MI,49503

tara.mcmillin@spectrumhealth.org

Purpose: Intravenous heparin therapy can be used for treatment of deep vein thrombosis (DVT) and pulmonary embolism (PE). Research indicates use of a weight-based heparin nomogram is more efficacious than a "standard care" dosing regimen. Nomograms differ per facility, however. The nomogram currently utilized at Spectrum Health differs from the Raschke nomogram in that the infusion is not held or adjusted if a patient has a supratherapeutic activated partial thromboplastin time (aPTT) 6 hours post bolus. The primary purpose of this study is to validate the institutions nomogram by evaluating time to achieving a therapeutic aPTT, percent of patients therapeutic within 24 hours of initiation and bleeding complications associated with this practice. Nursing compliance with nomogram adjustments are evaluated before and after implementation of a redesigned nomogram.

Methods: A retrospective chart review was performed for patients who received intravenous heparin for treatment of DVT or PE. Data collection included: aPTT values for the first 48 hours, initial bolus and infusion rate, time until therapeutic aPTT achieved, and bleeding events within 48 hours of initiation. All infusion adjustments and the time they occurred were documented before and after implementation of the redesigned nomogram to assess compliance.

Results: Data was collected from 50 patients using the previous nomogram. The mean time until a patient achieved a therapeutic aPTT was 24 hours and 36 patients (72%) were therapeutic within 24 hours. All manipulations during the first 24 hours were evaluated and 55% were deemed compliant with the nomogram. One patient had clinically significant bleeding. Data collection after implementation of the redesigned nomogram is in progress.

Conclusion: With 36 patients (72%) obtaining a therapeutic aPTT within 24 hours of initiation and one patient (0.02%) suffering bleeding complications, this nomogram is both efficacious and safe.

Learning Objectives:

Describe the benefit of achieving a therapeutic aPTT within 24 hours of heparin initiation when treating a DVT or PE

Identify revisions to a heparin nomogram to improve compliance

Self Assessment Questions:

Benefits of achieving a therapeutic aPTT within 24 hours of heparin initiation include:

A Decreased bleeding risk
B: More frequent monitoring of aPTT levels
C: Increased treatment duration
D: Improved patient outcomes such as decreased mortality

A revision made to a nomogram to improve compliance was:

A Inclusion of multiple asterisks and superscripts with detailed expla
B Increasing font size making it easier to read
C Locating the decision points across the top instead of down the sid
D Providing ambiguity in the nomogram directions to allow the nurses

Q1 Answer: D Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-816 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

THE RELATIONSHIP BETWEEN LOW VITAMIN D LEVELS AND DEPRESSION

Brian J. McNeeley, PharmD*; Jessica K. Cather, PharmD, BCPS, BCPP
Susan M. Fosnight, RPh, CGP, BCPS; Dorcas Letting-Mangira, Pharm.D
Summa Health System,525 East Market St,Akron,OH,44309
mcneeleyb@summahealth.org

Background
Low vitamin D levels are a widespread problem. It has long been realized that vitamin D plays a role in the regulation of calcium and phosphate metabolism, but vitamin D has recently been shown to be involved in other areas including cardiovascular disease, diabetes, and cancer. Receptors have also been found in the human brain. Results from recent studies have led to the theory that vitamin D plays a part in cognitive function, neuronal development, and mental health. Depression is a leading cause of disability. Not only is it a widespread issue, but high treatment failure rates lead to hospitalizations and readmissions. Although a few studies have shown an association between vitamin D levels and overall mood, many of these only included special populations or excluded many patients at the greatest risk of depression. In addition, these studies have not looked at readmission rates in correlation to vitamin D levels.

Objective
To study the relationship between serum vitamin D levels and depression in hospitalized patients.

Methodology
A retrospective chart review to compare the rates of depression in adult patients with a documented vitamin D level between August 2010 and January 2011. Patients admitted to Akron City or St. Thomas hospitals with a documented vitamin D serum result were included. The primary endpoint of presence of depression was analyzed by factors including admission or transfer to a psychiatric unit for treatment for depression, and by the admission question "are you sad or depressed?" Readmission rates were a secondary endpoint. Vitamin D status was analyzed as categorical data, defined as sufficient (≥30ng/ml), insufficient (29-20 ng/ml), and deficient (<20ng/ml).

Results and Conclusions
Data analysis is ongoing. Results will be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Outline the varying roles of vitamin D in the body.

Discuss the link between low vitamin D levels and acute depression.

Self Assessment Questions:

Vitamin D has been found to play a part in:

A Cardiovascular Disease
B: Mental health
C: Diabetes
D: All of the above

2.What level of serum vitamin D 25-OH is considered sufficient?

A ≥ 20ng/ml
B ≥ 30ng/ml
C 10-20ng/ml
D <10ng/ml

Q1 Answer: D Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-492 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF PAIN MANAGEMENT PRACTICE AT AN ACADEMIC MEDICAL CENTER AND IMPLEMENTATION OF AN INPATIENT OPIOID INITIATION AND TITRATION PROTOCOL AND ORDER SET FOR ADULT PATIENTS WITH CANCER PAIN

Michael Mearis, PharmD *; Joseph Shega, MD; Kristina Dawson, PharmD, BCPS; Randall Knoebel, PharmD, BCOP
University of Chicago Medical Center,5841 South Maryland Avenue,Chicago,IL,60453
michael.mearis@uchospitals.edu

Purpose: Cancer pain is an under recognized cause of patient suffering and dissatisfaction within health care systems. Standards set forth by the Joint Commission and guidelines provided by the National Comprehensive Cancer Network are available to direct pain assessment and management. However, despite these guidelines, pain management remains a significant problem. The purpose of this study is to evaluate current practices of pain assessment and management at an academic medical center and to propose an opioid analgesic protocol and order set to facilitate the initiation of appropriate therapy.

Methods: Proposed methods have been submitted to an Investigational Review Board for approval. An opioid order set and dose initiation and titration protocol will be developed based on pain management guidelines. Patients admitted to a hematology/oncology floor who received an opioid analgesic during admission from April 1, 2011 to October 1, 2011 will be identified and included for analysis. Patients will be divided into subgroups of opioid nave or opioid tolerant. A retrospective chart review will be performed to assess the appropriateness of the pain regimen initiated as compared with our protocol. Regimens will then be classified as either appropriate or not appropriate.

The primary endpoint will be the attainment of adequate analgesia within 24 hours of initial pain assessment. Secondary analysis will include time to analgesia and safety analysis. Safety analysis will be evaluated by the administration of naloxone or the recording of a respiratory rate of less than 12. Other data collected will include patient age, gender, allergies, presence of metastatic disease, as-needed pain medication use, presence of renal or hepatic dysfunction, and frequency at which pain scores are documented. Logistic regression analysis will be performed to identify predictors of the failure to initiate appropriate therapy as defined by our protocol.

Results: To be presented

Conclusion: To be presented

Learning Objectives:

List potential barriers to appropriate pain mangement

Discuss the general principles for titration, and maintenance of opioid therapy

Self Assessment Questions:

Among which of the following groups have barriers to appropriate pain management been identified?

A Health care professionals
B: Patients and caregivers
C: Health care systems
D: All of the above

According to NCCN guidelines, which of the following general principles on opioid analgesia is correct?

A The preferred route for opioid analgesia is IV unless IV access is n
B Around the clock dosing should be avoided to reduce adverse eve
C Doses should be titrated cautiously in patients with risk factors suc
D None of the above

Q1 Answer: D Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-493 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

PREVENTION OF DELIRIUM IN CRITICALLY ILL PATIENTS BY THE USE OF BEDTIME SCHEDULED ZOLPIDEM TARTRATE

Shreya P Mehta*, Pharm.D., Gay Alcenius, Pharm.D., James B Chauncey, MD

Allegiance Health,205 N East Ave,Jackson,MI,49201

shreya.mehta@allegiancehealth.org

Purpose:
The purpose of this prospective, double-blinded, randomized controlled trial is to assess the clinical benefits of bed time scheduled zolpidem tartrate 10 mg (Ambien) for the prevention of delirium as compared to placebo in ICU patients.

Background:
Delirium is defined as an acute, transient alteration in level of consciousness and cognition that fluctuates over time in ICU and non-ICU patients. Studies have concluded that delirium develops in about 60-80% of ICU patients receiving mechanical ventilation and in about 20-50% in less severe ICU patients. Currently, the research on delirium is focused on the treatment and very little information is available for the prevention of delirium in critically ill patients. Hence, the theory of normalizing patients sleep pattern with the use of zolpidem tartrate (Ambien) at bed time along with non-pharmacological interventions would help reduce the incidence of delirium.

Methods:
Every patient in the study would be assigned a random study number (generated through random number generator) from 1- 100 as they are admitted to the ICU. Patients allocated numbers from 1 to 50 would receive at bed time either investigational drug 1 or 2 which is linked to either placebo or zolpidem tartrate and vice versa for patients with numbers 51-100. Both arms would follow a set protocol for non-pharmacological interventions. Initial work-up would start with the baseline neurological assessment for every patient through Confusion Assessment Method (CAM-ICU), Richmond Agitation Sedation Scale (RASS), followed by daily assessments at the end of each shift. Primary end-point of the study is to evaluate delirium free days. Secondary end-point is to evaluate intubation free days between treatment groups. The study interventions would be carried until 10 days of ICU stay or ICU length of stay; whichever is less.

Results:
Results and conclusions to be presented at Great Lakes Residency Conference

Learning Objectives:

Discuss the benefits of minimizing delirium and its impact on patients outcomes in intensive care units

Recognize the prescription and non prescription causes of delirium

Self Assessment Questions:

Diagnosis of delirium in the intensive care units is important because?

A Increases 6 month mortality rates
B: Increases time on vents
C: Increases health care costs
D: All of the above

Which are the non-drug factors associated with delirium?

A Frequent blood draws
B Mechanical ventilation
C Sleep deprivations
D B and C

Q1 Answer: D Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-494 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

MEDICATION EVENT HUDDLES: EFFECT OF AN ELECTRONIC DATABASE ON INTERVENTION FOLLOW-UP IN A PEDIATRIC HOSPITAL

Jenna Merandi*, Pharm.D., Shelly Morvay, Pharm.D., Dorcas Lewe, RN, Barb Stewart, RN, Char Catt, RN, MS, Jay Mirtallo, RPh, MS, Karl Kappeler, RPh, MS,

Nationwide Children's Hospital,87 Park Front Court,Columbus,OH,43215

jenna.merandi@nationwidechildrens.org

Purpose: To determine the impact of an electronic database on the percent of interventions completed following medication event huddles.

Methods: An audit was conducted at a free-standing academic pediatric hospital using retrospective data from the medication event huddle database. Intervention follow-up from medication event huddles was assessed between the time periods of March 1, 2010, through July 1, 2011. Data collection included the original event report summary, names of medications, staff members involved, location of the event, date of occurrence, type of intervention, and the time to completion of each intervention following a medication event huddle. Data were entered into Microsoft Excel spreadsheet to allow for descriptive statistical analysis. An electronic database was created to eliminate the use of multiple systems for huddle management, allow for documentation of medication event huddles, and generate automatic reminders to individuals involved in the huddle/intervention follow-up. The primary outcome assessed was the percent change in completion of intervention follow-up after implementation of an electronic database. Secondary outcomes included categorization of interventions from the medication event huddles.

Results: The baseline results of this study indicate only 31% of interventions from medication event huddles are documented as being completed. The percentage of interventions completed or in progress, but not documented as such is unknown. Process changes, education, and order improvements are the most frequent categories of huddle interventions. Implementation of a user friendly electronic database could facilitate documentation and management of interventions and ultimately increase patient safety. Database build to be complete by March 1, 2012.

Learning Objectives:

Describe a medication event huddle

Identify the benefits of implementing an electronic database to manage medication event huddles

Self Assessment Questions:

Which of the following take(s) place at a medication event huddle?

A Input discussed from front-line staff involved in the error
B: Event simulated with an actual chart, pump, or medication label
C: Opportunities identified to improve processes, equipment and the e
D: All of the above

Which of the following are benefits of implementing an electronic database to manage medication event huddles?

A Generate automatic e-mails to individuals assigned interventions
B Decrease the use of multiple systems into one database
C Increase patient safety through enhancing intervention follow-up
D All of the above

Q1 Answer: D Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-817 -L05-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF COMBINATION THERAPY WITH QUINUPRISTIN-DALFOPRISTIN AND VANCOMYCIN FOR THE TREATMENT OF METHICILLIN-RESISTANT S. AUREUS INFECTIONS.

Kathryn G Merkel, PharmD, BCPS*, David W Smith, PharmD, BCPS, AQ-ID, Matthew F Wack, MD, Dusten T Rose, PharmD

Indiana University Health,1701 North Senate Boulevard,AG401,Indianapolis,IN,46202

kmerkel1@iuhealth.org

Statement of purpose:
Given the risks associated with methicillin-resistant Staphylococcus aureus (MRSA) for increased morbidity, mortality, and treatment failure, clinicians are using different drug classes or a combination of antibiotics for MRSA treatment. There are theoretical advantages of combination therapy, however, its use is controversial due to conflicting in vitro and in vivo data. Quinupristin-dalfopristin (QD) is a novel antimicrobial whose use as MRSA monotherapy is often limited by its adverse effect profile and cost. Its use as combination therapy is limited by the lack of available data describing its benefit. Thus an opportunity exists to further characterize the use of QD and vancomycin as combination therapy for treatment of MRSA infections. The purpose of this study is to evaluate the use of combination therapy with QD and vancomycin for the treatment of culture-proven MRSA infection.

Statement of methods used:
This is a single-center, retrospective, observational, case series analysis assessing the effectiveness of quinupristin-dalfopristin (QD) and vancomycin combination therapy in the treatment of culture-proven methicillin-resistant Staphylococcus aureus (MRSA) infection. This study included adults that received QD and vancomycin intended as combination therapy with at least one isolate of suspected or documented MRSA from a culture of a sterile or non-sterile site obtained prior to initiation of combination therapy. Clinical and microbiologic outcomes will be assessed at the end of QD and vancomycin combination therapy. Clinical outcomes will be identified as cure, improvement, or failure. Microbiologic outcomes will be identified as eradication, presumed eradication, persistence, or presumed persistence. Clinical and microbiologic outcomes will be assessed according to pre-defined criteria that evaluate patient signs and symptoms, additional antimicrobial requirements, and microbiologic data. Safety evaluations will record suspected adverse effects related to QD and vancomycin combination therapy.

Results will be reported with descriptive statistics.

Learning Objectives:

Identify advantages of combination therapy for treatment for methicillin-resistant Staphylococcus aureus infections

Discuss scenarios involving methicillin-resistant Staphylococcus aureus infections that may benefit from combination therapy with quinupristin-dalfopristin and vancomycin

Self Assessment Questions:

What pharmacodynamic property describes quinupristin-dalfopristins activity against methicillin-resistant Staphylococci aureus (MRSA)?

A concentration-dependent, bacteriostatic
B: concentration- independent, bacteriostatic
C: concentration-dependent, bactericidal
D: concentration-independent, bactericidal

Which of the following is true regarding quinupristin-dalfopristin?

A a)It is effective when used with vancomycin as combination therap
B b)A complete metabolic panel (CMP) should be monitored in patie
C c)It should not be used in patients receiving hemodialysis.
D d)It is FDA-approved for use in the treatment of endocarditis.

Q1 Answer: D Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-495 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

ACUTE ASTHMA EXACERBATIONS IN HOSPITALIZED PEDIATRIC PATIENTS: COMPARABLE EFFICACY OF METER DOSE INHALERS TO NEBULIZED ALBUTEROL AND THE PHARMACISTS ROLE IN DISCHARGE TEACHING

Melissa J Meuler, PharmD

Children's Hospital of Wisconsin,MS 730,PO Box 1997,Milwaukee,WI,532011997

mmeuler@chw.org

Purpose: The purpose of this quality improvement project is to conduct a medication utilization evaluation of the comparable efficacy of nebulized albuterol versus albuterol delivered via meter dose inhaler (MDI) for acute asthma exacerbations. Furthermore, pharmacy group asthma teaching sessions will be conducted to increase patient/family competencies.

Methods: This retrospective chart review and medication utilization evaluation with pharmacist teaching will be conducted. All pediatric patients greater than 1 year of age under the respiratory care services asthma protocol for each asthma season, spring (April 1st through June 15th) 2010 and 2011 as well as the fall (August 15th through November 15th) of 2009, 2010 and 2011, will be included. Retrospective data will be gathered from patients comprehensive electronic medical records. Data collected will include: patient demographics, number of treatments administered, and dosing interval regression. A subset of asthma protocol patients starting in 2012 will be eligible for pharmacist-led group teaching of asthma medications. Group sessions will offer patients and families the opportunity to learn more about asthma and its pharmacotherapy. Teaching will include proper use and technique of inhalers, possible adverse drug reactions, and a review of asthma action plans. Teaching will be documented on the interdisciplinary teaching sheet and correlated to discharge teaching scores to assess patient/parent knowledge.

Preliminary results: Data collection is ongoing. Preliminary data includes: in the spring 2011 season, 142 patients received 1035 administrations of albuterol via MDI inhaler. Patients averaged 7.3 administrations per visit and 16 (11%) patients experienced 18 instances of interval regression. Thirty-three patients averaged 9.8 administrations of nebulized albuterol and 7 patients (21%) experienced 9 instances of interval regression.

Conclusions: Conclusions will be based on the comparable efficacy of MDI albuterol versus nebulized administration and impact of group teaching sessions on discharge competencies.

Learning Objectives:

Discuss the utility of MDI administration of albuterol during acute asthma exacerbation in pediatric patients.

Identify the need for pharmacist teaching in asthma education.

Self Assessment Questions:

Which of the following is true?

A Children less than 4 years of age do NOT have adequate lung dep
B: MDIs are more cost effective than nebulizers in the EDTC setting.
C: Patients/parents prefer nebulizer treatments.
D: Dosing for all asthma patients regardless of weight/size is the sam

Which of the following is true regarding pharmacist asthma education?

A Pharmacist education improves inhaler technique but NOT asthma
B Poor inhaler technique is infrequent in asthma patients and therefo
C Inhaler technique is associated with adherence and influences asth
D Pharmacist education requires >10 minute sessions to improve inh

Q1 Answer: B Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-496 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

ASSESSMENT OF EMPIRIC VANCOMYCIN DOSING REGIMENS IN CHILDREN AND ADOLESCENTS

Carly N Meyer, Pharm.D.*, Leah M Steinke, Pharm.D., Victoria Tutag-Lehr, R.Ph, Pharm.D., Krishna P Sharma, PhD

Children's Hospital of Michigan-Detroit Medical Center,3901 Beaubien Blvd,Detroit,MI,482012119

cmeyer2@dmc.org

Background:
Vancomycin remains the standard treatment for methicillin-resistant Staphylococcus aureus (MRSA) infections. Infectious Disease Society of America 2011 guidelines for treatment of MRSA infections recommended empiric vancomycin doses of 15 mg/kg IV every 6 hours to attain serum trough concentration (STC) of 15-20 g/mL for children with severe or invasive disease. In response to national guidelines and a growing body of evidence suggesting inadequate trough attainment with previously recommended dosing, Childrens Hospital of Michigan empiric vancomycin dosing recommendations were changed from 10 mg/kg every 6 hours to 15 mg/kg every 6 hours.

Purpose:
To evaluate effectiveness of the institutional change in empiric vancomycin regimens as determined by initial STC, clinical efficacy, and toxicity.

Methods:
This retrospective cohort analysis evaluated inpatients 1 to 17 years receiving at least 72 hours of IV vancomycin between January and November 2011. All patients had normal renal function and a STC at steady state. Pre protocol change patients, group 1, received 9-11 mg/kg every 6 hours and post protocol change patients, group 2, received 14-16 mg/kg every 6 hours.

Results:
38 patients were enrolled, 19 in each group. The mean age and duration of vancomycin treatment was 5.5 years and 6.7 days, respectively. Mear STCs in group 1 and group 2 were 5.47 g/mL and 9.21 g/mL (p=0.003). A greater number of patients achieved STCs >10 g/mL in group 2. No difference in 30 day follow up was found between patients with STCs <10 g/mL and >10 g/mL (p=0.743). One patient in group 2 experienced increased serum creatinine.

Conclusion: 60mg/kg/day provided higher STC trough levels than 40mg/kg/day however clinical efficacy did not differ between the groups. Studies are needed to determine the most appropriate goal STC and dosing regimen that will achieve clinical efficacy while avoiding adverse reactions of vancomycin.

Learning Objectives:

Discuss updates in the Infectious Disease Society of America (IDSA) guidelines and their impact on clinical practice

Review the current literature with regards to vancomycin dosing in pediatric patients

Self Assessment Questions:

What is the pharmacodynamic index most closely associated with improved clinical outcomes for vancomycin?

A Peak concentration

B: Trough concentration

C: Auc: Mic

D: Clearance

What is the target vancomycin STC range stated by 2011 IDSA Guidelines for serious or invasive MRSA infection in the pediatric population?

A 5-15 µg/mL

B 5-20 µg/mL

C 10-20 µg/mL

D 15-20 µg/mL

Q1 Answer: C Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-497 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATING INTENSIVE CARE UNIT NURSES AND RESPIRATORY THERAPISTS KNOWLEDGE AND PERCEPTIONS CONCERNING SEDATION INTERRUPTION IN MECHANICALLY VENTILATED PATIENTS BEFORE AND AFTER PHARMACIST-LED EDUCATION

Britney M. Mikula, Pharm.D.*, Marcia J. Curran, Pharm.D., BCPS, Leslie A. Propst, Pharm.D., BCPS

Union Hospital,1606 N. 7th Street,Terre Haute,IN,47804

bmikula@uhhg.org

Purpose:
Patients in the intensive care unit (ICU) often need mechanical ventilation due to their critical illness and need for respiratory support. Previous studies support daily spontaneous awakening trials (SATs) and spontaneous breathing trials (SBTs) in mechanically ventilated patients. Documented benefits of this practice have been shown to decrease the length of stay in the ICU, total number of ventilator days, as well as the incidence of complications. Despite the literature documentation, not all ICUs have adopted this process into daily practice. Union Hospital has an approved, evidence-based protocol, which includes a sedation and analgesia algorithm, as well as a specific algorithm for SATs and SBTs. The aim of this study is to evaluate knowledge, acceptance and perceived barriers regarding SATs and SBTs in critically ill, mechanically ventilated patients before and after pharmacist-led education.

Methods:
The ICU at Union Hospital is a thirty-six bed medical, surgical and cardiovascular unit. In this study, a twenty-question survey was provided to all respiratory therapists (RTs) and nurses prior to education. Each questionnaire evaluated knowledge, acceptance, and perceived barriers regarding SATs and SBTs. Following survey administration, pharmacist-led instruction was provided to all RTs and nurses which included written and verbal education on the benefits of this practice, as well as implementation techniques for the ICU. The education was tailored to the initial survey responses and reported barriers. Re-evaluation with the same survey will follow pharmacist-led education. Primary outcome and data analysis will measure the change from baseline of knowledge and acceptance of this practice in the ICU. This research project was approved by the Patient Safety Committee, the appropriate review board at this institution.

Results:
Data collection has been completed and analysis is in progress. Results and conclusions are to be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

List the benefits of daily awakening and breathing trials in mechanically ventilated patients

State the exclusion criteria for daily awakening and breathing trials in an ICU patient

Self Assessment Questions:

Which of the following would be a benefit of performing spontaneous awakening and breathing trials in mechanically ventilated patients?

A Accumulation of sedatives and analgesics

B: Decrease need for monitoring of patient

C: Higher rates of ventilator-associated pneumonia

D: Decreased number of days on the ventilator

Which of the following patients would be excluded from daily awakening and breathing trials?

A A patient who has been on the ventilator for 3 days

B A patient on cisatracurium

C A patient on diprivan

D A patient on midazolam

Q1 Answer: D Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-498 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

TRANSITION CLINIC: ROLE OF PHARMACIST IN PREVENTING READMISSIONS

Emily B. Milewski, PharmD*; Megan Dorrell, PharmD, BCPS, Julie Williams, PharmD, BCPS

Indiana University Health,1701 N Senate Blvd,AG 401,Indianapolis,IN,46202

emilewsk@iuhealth.org

Purpose: Medicare data from 2009 revealed 21% of Medicare beneficiaries were readmitted to the hospital within 30 days of discharge from 2003 to 2004. Fifty-eight percent of readmissions were due to reasons not included in the top 10 disease states responsible for index admission suggesting programs are needed which target all patients at risk regardless of disease state. The Transition Clinic, run by a nurse practitioner and pharmacist, was developed to provide early outpatient follow up for patients a) determined to be at high risk for readmission by discharging hospitalist and b) without timely access to a primary care physician. The objective of this study is to evaluate the impact of early follow up with a medical provider on 30-day hospital readmission rates, focusing on the role of the pharmacist. The pharmacists role includes, but is not limited to, identifying medication related discrepancies post hospital discharge, medication reconciliation, medication and disease state education, medication therapy management, anticoagulation management, reviewing medication list to ensure affordability, and interviewing patients to improve adherence.
Methods: This is a retrospective review of patients referred to the transition clinic. The primary objective is to determine the impact of the transition clinic on patient readmissions. This data will be obtained from a member of the IU Health Decision Support Team. The secondary objective is to assess the role of a pharmacist in the transition clinic. The number and types of interventions will be collected which includes but is not limited to, medication discrepancies identified by the pharmacist, corresponding actions, medication therapy recommendations and education provided.
Results and Conclusions: Preliminary results in 4 months:
Number of patient visits with pharmacist: 71
Total number of interventions: 362
Average number of interventions per patient visit: 5.09
Final results and conclusions will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Describe the chart review process the pharmacist completes prior to seeing patients in clinic.

List the possible interventions competed by the pharmacist during office visit.

Self Assessment Questions:

Which of the following phrases completes the following statement correctly? Prior to seeing the patient the pharmacist should____

A Call all pharmacies in town to find out if patient filled medications.
B: Reviews hospital course, determine if patient received financial ass
C: Review hospital course and assume all patients referred to clinic h
D: Directly contact the discharge physician to discuss all patient case

Which of the following is a function the pharmacist performs in the Transition Clinic to help prevent hospital readmission?

A Educate patient on indication/possible side effects/dosing administ
B Tell the patient to go to a different hospital if they begin to feel ill
C Recommend therapy for new conditions without patient seeing a pl
D Promise patient medications will be covered through assistance pr

Q1 Answer: B Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-499 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

PHARMACOKINETICS AND PHARMACODYNAMICS OF AN EXTENDED-INFUSION PIPERACILLIN-TAZOBACTAM DOSING REGIMEN IN PEDIATRIC INTENSIVE CARE PATIENTS

Lauren E. Miller, PharmD, BCPS, PGY2 Pediatric Pharmacy Resident*, Kristen R. Nichols, PharmD, BCPS, Assistant Professor of Pharmacy Practice, Butler University College of Pharmacy and Health Sciences, Chad A. Knoderer, PharmD, Assistant Professor of Pharmacy Practice, Butler University College of Pharmacy and Health Sciences, Michael B. Kays, PharmD, FCCP, Associate Professor of Pharmacy Practice, Purdue University College of Pharmacy

Indiana University Health,705 Riley Hospital Drive,Indianapolis,IN,46202

lmille21@iuhealth.org

Background and Purpose: Infections in critically ill patients can result in serious morbidity and mortality. Antibacterial resistance is increasing in hospitals caring for children. Without an increase in the development of novel antibacterial agents and fewer alternative antibacterials available in children to treat infections due to multi-drug resistant bacteria, it is important to maximize the pharmacokinetic and pharmacodynamic parameters of existing antibacterials. An extended-infusion piperacillin-tazobactam regimen has been shown to increase the probability of obtaining optimal bactericidal activity in adults. Evidence supporting this approach in children is limited to only computer-simulated pharmacodynamic models. The objective of this study is to evaluate the steady-state pharmacokinetic and pharmacodynamic profile of an extended-infusion piperacillin/tazobactam dosing regimen in a pediatric intensive care patient population.

Methods: Twelve patients between 9 months and 12 years of age receiving piperacillin/tazobactam therapy will be enrolled. Steady-state serum samples will be collected prior to the start of the infusion and at 2, 4 (end of infusion), 5, 6, and 8 hours after the start of the infusion. Piperacillin and tazobactam concentrations will be analyzed by high-performance liquid chromatography, and pharmacokinetic parameters for both drugs will be estimated. Pharmacodynamic modeling will be performed using Monte Carlo simulations. Using these data, the probability of achieving at least 50% free time above the MIC will be calculated for MICs ranging from 1-64 mCg/ml and the cumulative fraction of response will be calculated for bacterial pathogens commonly encountered in pediatric patients.

Results and Conclusion: Results from this study will provide pharmacokinetic parameters and information for pharmacodynamic dose optimization for extended-infusion piperacillin-tazobactam in critically ill children. Results and conclusion will be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Explain the pharmacodynamics of piperacillin/tazobactams bactericidal activity.

Describe the benefits of an extended-infusion piperacillin/tazobactam dosing regimen.

Self Assessment Questions:

What is the pharmacodynamics of piperacillin/tazobactams bactericidal activity?

A Peak free drug concentration compared to the minimum inhibitory c
B: Area under the free drug concentration vs. time curve compared to
C: Fraction of time that the free drug concentration is below the minim
D: Fraction of time that the free drug concentration is above the minim

Which of the following is a benefit of an extended-infusion piperacillin/tazobactam dosing regimen?

A Minimizing the line time required for piperacillin/tazobactam infusio
B Maximizing the pharmacodynamic parameters of piperacillin/tazoba
C Increasing the fraction of time that the free drug concentration is ab
D Comparable clinical and microbiological cure rates to other piperac

Q1 Answer: D Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-500 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

IDENTIFICATION AND EVALUATION OF PHARMACY RESIDENCY PRECEPTOR DEVELOPMENT PRACTICES

Richard A. Mioni, Pharm.D.*, Dina L. Porro, Pharm.D.

Provena Saint Joseph Medical Center,333 N. Madison Street,Joliet,IL,60435

Richard.Mioni@provena.org

Purpose

The American Society of Health System Pharmacists (ASHP) requires that accredited pharmacy residency programs have a plan for assessing and improving the quality of preceptor instruction of residents. This includes strategies for initial selection of a preceptor as well as continuous quality improvement and development of existing preceptors. Currently, there is no guidance on the optimal way to evaluate the quality of the preceptor or measure changes in preceptor performance. The purpose of this study is to identify how residency programs across the country are implementing preceptor development programs at their institution. Identifying a variety of methods to achieve this goal may help individual institutions develop their own strategy and may aid in standardization of preceptor development programs.

Methods

An anonymous electronic survey was devised utilizing SurveyMonkey and e-mailed out to the 1340 ASHP- accredited, accreditation-pending, and pre-candidate status residency program directors listed on the ASHP website as of December 1, 2011. The survey consists of thirty multiple choice and free response questions regarding pharmacy residency preceptor development. In addition to demographic information, survey questions ask respondents to report current preceptor development practices used in their residency program(s) as well as list preceptor development barriers and personal opinions on how processes may be improved. Completion of the survey implies consent to participate in the study. Once the surveys are completed, responses will be summarized and analyzed to determine if preceptor development requirements and practices differ by institution type.

Results/ Conclusions

Data collection is ongoing. Results and conclusions will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Describe ASHPs role in residency preceptor development.

Identify barriers that pharmacy residency preceptors may encounter that hinder preceptor development.

Self Assessment Questions:

Which of the following statements about ASHP's role in preceptor development is true?

A ASHP requires programs to have a plan to assess and track prece
B: ASHP provides a policy outlining how to evaluate preceptor develo
C: ASHP requires programs to have a plan to assess and track prece
D: ASHP has no current recommendations on residency preceptor de

What is viewed as the most common barrier that impedes successful preceptor development?

A Preceptor interest
B Time availability
C Lack of qualified preceptors
D Lack of preceptor compensation

Q1 Answer: A Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-728 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

PHARMACIST CONSULT SERVICE TO IMPROVE PATIENTS MEDICATION KNOWLEDGE AND OPTIMIZE MEDICATION USE IN HEART FAILURE PATIENTS

Sneh Mody, PharmD* and Hina Patel, PharmD, BCPS

NorthShore University HealthSystem,2650 Ridge Ave,Evanston,IL,60201

smody@northshore.org

Purpose:

Heart failure (HF) is a progressive chronic disease that is a growing burden to the healthcare system as a result of high mortality rates, frequent hospital admissions and significant associated healthcare costs. Heart failure readmissions due to disease progression may not be preventable; however, readmissions associated with medication non-adherence and suboptimal medication prescribing are preventable The objective of this project is to evaluate the effectiveness of a pharmacist-based intervention on educating patients regarding their heart failure medications in an effort to reduce readmission rates.

Methods:

A heart failure medication education service in which pharmacists can be consulted by nurses, physicians or pharmacists to provide medication education to patients will be evaluated on four pilot units at NorthShore University HealthSystem. A taskforce has been implemented to assist with the consults; a pharmacist from the taskforce will receive the consult and assess patient knowledge regarding heart failure medications by administering a preliminary questionnaire to the patient. The pharmacist will then educate the patient regarding their heart failure medication regimen and re-visit the patient within 24-48 hours to re-administer the questionnaire in a post-education analysis. The pre- and post-assessment surveys will be reviewed for each patient to determine the change in each individual patients responses.

Results/Conclusion:

Analysis of results is ongoing. Results and conclusions will be presented at the Great Lakes Residency Conference.

Learning Objectives:

Describe the common causes of heart failure readmissions in hospitalized patients.

Review the medication knowledge of patients regarding heart failure medications to determine if a pharmacist based intervention can help increase knowledge.

Self Assessment Questions:

Based on published literature, what is the most common cause of heart failure readmissions to the hospital?

A Co-morbid conditions exacerbating heart failure
B: Non-adherence to medication therapy
C: Rapidly progressive disease state
D: Adverse events related to medications

Which of the following medications is included in the recommendations for treatment of heart failure?

A Enalapril
B Hydralazine monotherapy
C Metoprolol tartrate
D Aspirin

Q1 Answer: B Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-501 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF OPTIMAL ANTIMICROBIAL DOSING IN PATIENTS RECEIVING CONTINUOUS RENAL REPLACEMENT THERAPY IN THE INTENSIVE CARE UNIT

Rahim Mohammadali, PharmD*; Elena Santayana, PharmD, BCPS; Benjamin Brielmaier, PharmD, BCPS; Hailey Anderson, PharmD; Jay Koyner, MD; Ishaq Lat, PharmD, BCPS, FCCM

University of Chicago Medical Center,5841 S Maryland Ave,Chicago,IL,60637

rahim.mohammadali@uchospitals.edu

Purpose: Inadequate treatment with antimicrobials has been shown to be a risk factor for poor clinical outcomes in critically ill patients. Appropriately dosing antimicrobials in critically ill patients is complicated by pharmacokinetic alterations, which can affect drug-protein binding, volume of distribution, and drug clearance. These alterations in pharmacokinetic properties may be further amplified in the setting of acute kidney injury. Approximately 5% of patients in the intensive care unit (ICU) will require renal replacement therapy (RRT) at some point during their ICU stay. The purpose of this study is to determine if notification of a clinical pharmacist upon initiation of continuous renal replacement therapy (CRRT) leads to an improvement in optimal dosing. The primary endpoint is to evaluate the proportion of patients suboptimally dosed with intravenous (IV) antibiotics while receiving CRRT before and after implementation of a pharmacist-managed process. Our secondary endpoint evaluates the proportion of patients optimally dosed within one dosing interval after CRRT initiation.

Methods: This is a concurrent cohort analysis of the proportion of patients optimally dosed within 24 hours after CRRT initiation compared to a historical cohort. Adult patients receiving IV antimicrobials and CRRT during hospitalization at the University of Chicago Medical Center will be included. First, a process to require notification of the clinical pharmacist upon CRRT initiation will be implemented. The clinical pharmacist will assess the patient and antimicrobial dosing. Doses will be adjusted per established, institution-specific dosing recommendations. Data will be collected through review of medication profiles via electronic medical records. Assuming that 38.4% of patients will receive suboptimal dosing of antimicrobials based on the historical cohort, 89 patients are required to detect a 20% difference in the primary endpoint with 80% power using a two-sided a priori alpha of 0.05.

Results/Conclusions: To be presented.

Learning Objectives:

Describe how the different modalities of CRRT affect antimicrobial dosing in critically ill patients.

Discuss the role of a pharmacist in accurately and efficiently adjusting antimicobials on a patient that is on CRRT

Self Assessment Questions:

List the different pharmacokinetic properties/parameters of a drug that affect its clearance with CRRT

A Protein binding

B: Molecular weight

C: Degree of Lipophilicity

D: All of the above

When evaluating the antimicrobials of a patient transitioning from intermittent hemodialysis (IHD) to CRRT, a pharmacist should:

A Increase the dosing frequency of most renally-adjusted antimicrobi

B Decrease the dosing frequency of most renally-adjusted antimicrob

C Not change the dosing frequency of most renally-adjusted antimicr

D Decrease the dose of most renally-adjusted antmicrobials

Q1 Answer: D Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-502 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

SURVEY OF BRONCHODILATOR UTILIZATION IN MECHANICALLY VENTILATED ADULT PATIENTS

*Tyler S. Mohr, PharmD James R. McCormick, MD Barbara Atkins, RRT Sara Brouse, PharmD Shane Winstead, PharmD

University of Kentucky HealthCare,800 Rose Street,H-110,Lexington,KY,40536

tyler.mohr@uky.edu

Purpose: The use of bronchodilators in patients with respiratory failure who require invasive mechanical ventilation is common practice. Metered Dose Inhalers (MDIs) have recently been called into favor versus nebulizers. MDIs offer the advantage of ease of administration, decreased cost, and freedom from contamination. The main caveat to MDIs being more effective than nebulizers is that proper technique must be used. There is also no clear dosage recommendation for administering MDIs into the ventilator circuit and the amount actually reaching the patients is ill-defined. Currently at the University of Kentucky Healthcare there is not formalized protocol for respiratory therapists to manage these patients. The purpose of this study was to survey respiratory therapists to characterize the variability in their administration of MDIs to patients requiring invasive mechanical ventilation.

Methods: Respiratory therapists from our two hospital health-system (one academic medical center and one community hospital) were asked to complete a survey. The intent of the case-based survey was to evaluate their typical practice in dosing, administration, and monitoring parameters in administration of MDIs in patients requiring mechanical ventilation. The survey was open for a total of 6 weeks. The data was then statistically analyzed using the Cohens criteria to look for variability among respiratory therapists.

Results/Conclusion: Data collection is ongoing. There are currently 25 surveys submitted. Preliminary results show a trend towards variability among respiratory therapists in bronchodilator dosing and administration. Final results will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Describe the advantages and disadvantages to both pressurized metered dose inhalers and nebulizer administration of bronchodilator therapy.

Describe the importance of each step in the proper administration of bronchodilators via pressurized metered dose inhalers.

Self Assessment Questions:

Which of the following is an example of a clear advantage with pressurized metered dose inhalers versus nebulizers in the administration of inhaled bronchodilators?

A There has been a proven efficacy advantage

B: The administration is technique dependent

C: The circuit does not need to be interrupted

D: There is less reliable dosing

Which of the following is paired correctly with the corresponding reason for importance?

A Actuation during expiration- increased efficacy approximately 30%

B Spacer usage- Doubled drug delivery

C Shaking the canister- Increases the total dose by as much as 25%

D None of the above.

Q1 Answer: C Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-503 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

IMPACT OF THE TIMING OF ANTIBIOTIC ADMINISTRATION ON CLINICAL OUTCOMES IN PRETERM INFANTS WITH LATE ONSET BLOOD STREAM INFECTION

Lea M Monday PharmD*, Mirjana Lulic-Botica RPh BCPS, Vaneet Kumar Kalra MD, Terry Scheer PharmD, Jing Zhao PharmD

Harper University Hospital,3990 John R,Detroit,MI,482012018

lmonday@dmc.org

Purpose: Early administration of antibiotic therapy is a determinant of morbidity and mortality in adults with life threatening infections such as meningitis, sepsis, and septic shock. The Joint Commission and Center for Medicare and Medicaid Services measure time to administration of antibiotic as a quality care measurement. There is a paucity of data on the impact of antibiotic timing on outcomes in preterm infants with blood stream infections. This study aims to correlate the timing of first antibiotic dose to the clinical outcomes of time to clear blood stream infection and death within 30 days of infection from any cause.
Methods: A retrospective electronic chart review is being performed on infants less than or equal to 32 weeks gestation, admitted to the Neonatal Intensive Care Unit and diagnosed with culture proven blood stream infection at least 72 hours after birth. Infants are excluded if they were greater than 32 weeks old at birth, if sepsis was diagnosed less than 72 hours after birth, or if investigators are unable to obtain records for infants transferred from outside hospitals. Data being collected includes age, gender, ethnicity, method of delivery, concomitant drugs, invasive lines, and laboratory findings. Time of blood culture draw, time of first dose of antibiotic, time of positive blood culture result, time of first negative blood culture, and time of discharge or death is also being collected. Maternal information collected includes delivery method, presence of chorioamnionitis, age, and medication use. Timing of initial antibiotic is determined by the interval between the index blood culture and administration time of antibiotic. Timing is considered optimal if antibiotics were administered within 4 hours of blood culture.
Results: Data has been collected on approximately 50 infants. Results will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Describe early versus late onset sepsis in neonates in terms of onset and risk factors

Discuss common causative organisms of late onset sepsis in the neonatal population

Self Assessment Questions:

Neonatal late onset sepsis is best described by which of the following?

A Occurs in the first days of life and nosocomial risk factors dictate e
B: Occurs after 2-7 days of life and nosocomial risk factors dictate em
C: Occurs in the first days of life and maternal risk factors dictate emp
D: Occurs after 2-7 days of life and maternal risk factors dictate empir

Which of the following are true regarding late onset sepsis in neonates?

A Common causative organisms include Group B Streptococcus and
B Common causative organisms include coagulase negative Staph,
C The incidence of fungal infections is increasing in this population
D Both B and C are correct

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-504 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

UNMET HEALTHCARE NEEDS OF THE SPANISH-SPEAKING COMMUNITY WITH A FOCUS ON PHARMACEUTICAL CARE

*Nicole L Moore, PharmD. Cory Smith, PharmD. Margie E Snyder, PharmD, MPH. Jasmine D Gonzalvo, PharmD, BCPS, BC-ADM, CDE. Christy L Nash, PharmD, CDE.

Mathes Diabetes Center,1621 Charlestown Road,New Albany,IN,47150

nlmoore14@gmail.com

Purpose: To identify the unmet healthcare needs of Spanish-speaking patients in respect to care provided in community pharmacies. Secondary objectives will determine patient satisfaction with community pharmacies and the process by which Spanish-speaking individuals obtain medications.

Methods: The target population will be adults 18 years of age and older residing in a four county area in Indiana who speak Spanish as their primary language. Qualitative semi-structured individual interviews will be utilized for data collection. Per qualitative methodology, the exact number of participants cannot be known a priori; data collection will continue until thematic saturation is reached. From members of the study teams past experience, it is anticipated that this will require approximately 15 - 30 participants. Participants will be recruited after Spanish church services each week for approximately one month. Interviews will be conducted in Spanish by a Spanish-speaking investigator and transcribed/translated verbatim. Qualitative thematic analysis will be used to summarize findings and a minimum of two investigators will be responsible for completing the analysis--first independently, then resolving coding discrepancies as a group--to promote reliability of data interpretation. A survey will also be administered to patients prior to interviews in order to collect demographic and patient satisfaction information; these data will be summarized using descriptive statistics. The study protocol has been granted approval as of January 2012 by the appropriate Institutional Review Board.

Results: Results will be presented at the Great Lakes Pharmacy Residency Conference.

Conclusions: By conducting this research, steps can be taken to address identified needs by implementing an innovative system of community pharmacist outreach unique to this population.

Learning Objectives:

Describe the growth of the Spanish-speaking population in the United States.

Recognize the growing need for outreach to the Spanish-speaking population in the community pharmacy setting to provide safe and effective healthcare.

Self Assessment Questions:

According to the US Census Bureau, which of the following correctly represents the estimated future growth of the Hispanic population in the United States?

A By the year 2050, the Hispanic population is estimated to nearly do
B: By the year 2050, the Hispanic population is estimated to decrease
C: By the year 2050, the Hispanic population is estimated to experien
D: By the year 2050, the Hispanic population is estimated to nearly qu

Which of the following words could lead to a potentially detrimental medication error if read in Spanish when meant to be in English?

A Daily
B Twice
C Once
D Monthly

Q1 Answer: A Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-729 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

EFFECT OF INTRAVENOUS VS. SUBCUTANEOUS PHYTONADIONE IN PATIENTS IN NEED OF EMERGENT WARFARIN REVERSAL

Brandon L. Mottice, Pharm.D., Mate Soric, Pharm.D., BCPS

University Hospitals Geauga Medical Center,13207 Ravenna Rd.,Chardon,OH,44024

brandon.mottice@uhhospitals.org

Background: Current Chest guidelines recommend intravenous phytonadione for the reversal of warfarin in the emergent setting. Compared to subcutaneous administration, delivery of phytonadione via the intravenous route is more predictable, rapid and effective. In addition, higher doses of phytonadione are often required for rapid reversal when administered subcutaneously, possibly leading to extended resistance to subsequent anticoagulation upon restarting warfarin.

Purpose: To compare the length of stay in patients who were treated with intravenous or subcutaneous phytonadione for emergent warfarin reversal with bleeding.

Methods: After Institutional Review Board approval, a retrospective chart review will evaluate hospitalized patients treated with intravenous versus subcutaneous phytonadione for emergent warfarin reversal within the University Hospital Health System. All patients will be 18 years or older and on warfarin therapy. The patient must have an INR between 4.5 and 10 upon admission to the emergency department. The patient must also be restarted on warfarin therapy upon hospital discharge. Exclusion criteria include: patients given IM or oral phytonadione, patients given phytonadione by more than one route, patients given FFP or any other blood products containing clotting factors, patients with active or severe liver disease, and patients on other forms of anticoagulation.
The primary endpoint is length of stay. Secondary endpoints are cumulative dose of phytonadione required to achieve an INR of ≤1.5, time taken to achieve INR of ≤1.5, time from first phytonadione dose to restart of warfarin therapy, and the difference between initial and subsequent INRs measured at <12 hours, 12 to 24 hours, >24 to 36 hours, >36 to 48 hours.

Results: Results and conclusions will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Recognize the different effects of subcutaneous and intravenous phytonadione on warfarin reversal.

Review the current Chest Guidelines for phytonadione administration recommendations for emergent warfarin reversal.

Self Assessment Questions:

Which of the following statements is correct?

A INR lowering effects are the same between different phytonadione
B: Intravenous phytonadione shows faster INR lowering effects than s
C: Intravenous phytonadione shows slower INR lowering effects than
D: INR reduction is less effective with intravenous phytonadione vs. s

Which of the following is the preferred route of phytonadione administration for emergent warfarin reversal?

A Intramuscular phytonadione
B Oral phytonadione
C Subcutaneous phytonadione
D Intravenous phytonadione

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-505 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EFFECT OF THYMOGLOBULIN ON THE DEVELOPMENT OF BK VIRUS VIRURIA AND VIREMIA IN RENAL TRANSPLANT RECIPIENTS: A CASE-CONTROL STUDY

Allison Mruk, PharmD*, Thomas Waid, MD, Carol Broughton, APRN, and Timothy Clifford, PharmD, BCPS

University of Kentucky HealthCare,3901 Rapid Run Drive,Lexington,KY,40515

amr222@uky.edu

Purpose: BK virus infection is an emerging complication in renal transplant recipients. Viruria or viremia can precede BK nephropathy, which can contribute to graft loss. Many studies have described a relationship between immunosuppressive therapy and BK virus reactivation in these patients. The primary objective of this study is to determine the risk factors for the development of BK virus infection (viruria/viremia) in renal transplant recipients over a 12 month period. We hypothesize that larger doses of rabbit anti-thymocyte globulin (greater than or equal to 5mg/kg) will increase the incidence of BK infection in renal transplant patients. Secondary objectives include: determine the incidence of BK nephropathy, determine the incidence of graft loss, and determine the most common practice for treatment of BK viruria/viremia.
Methods: A retrospective, single center, case-controlled study. Through a medical record review, participants were identified using the transplant center database and the electronic medical record. These patients were divided into two groups: those that developed BK viruria/viremia (study group) and those that did not (control group). Patients included were greater than or equal to 18 years, received a renal transplant at our institution from 2007-2010, received rabbit-derived thymoglobulin for induction therapy and had frequent monitoring of BK virus available. Patients who did not receive rabbit anti-thymocyte globulin were excluded. Data to be collected include: immunosuppression regimen and drug concentrations, time to BK virus detection, renal function measurements, type of donor, biopsy results (when available) and method of BK virus treatment. Statistics: To detect a 25% difference in the development of BK virus infection with an alpha of 0.05 and a power of 80%, we will have 43 patients in each group. To analyze the primary outcome we will use logistic regression and to analyze the secondary outcomes we will use Kaplan Meier curves and descriptive analysis.
Results and Conclusions: Will be presented at the Great Lakes Residency Conference.

Learning Objectives:

Review renal transplant induction therapy options

Discuss potential risk factors for the development of BK virus in renal transplant recipients

Self Assessment Questions:

What should be monitored during thymoglobulin therapy?

A white blood cell count
B: platelets
C: hemoglobin/hematocrit
D: A&b

Which of the following antibiotics can be used to prevent BK virus infection?

A Penicillins
B Macrolides
C Fluoroquinolones
D Aminoglycosides

Q1 Answer: D Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-506 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

RETROSPECTIVE ANALYSIS OF ANTIBIOTIC USE IN PATIENTS WITH NEUTROPENIC FEVER

John P. Muchka*, PharmD; Kathy Kovatovic, RPh; Emilie Aschenbrenner, PharmD; Cindy Hennen BS, RPh; Anne Szulczewski, PharmD

Froedtert Hospital,9200 W. Wisconsin Ave,Milwaukee,WI,53226

john.muchka@froedterthealth.org

Background:
Febrile neutropenia is a frequent complication among patients with hematologic malignancies and solid tumors receiving chemotherapy and among patients undergoing bone marrow transplantation. Hospitalizations due to febrile neutropenia are associated with increased morbidity, mortality and cost. Recent University Health system Consortium (UHC) benchmarking data has shown Froedtert Hospital has increased anti-infective resource utilization compared to hospitals with similar demographics.

Purpose:
The purpose of this study is to compare current antibiotic prescribing tendencies in the treatment of febrile neutropenia at Froedtert Hospital with the Infectious Disease Society of America treatment guidelines.

Methods:
This retrospective quality improvement study will evaluate anti-infective use in patients with neutropenic fever. Patients admitted to Froedtert Hospital between January 2010 and December 2010 with ICD-9 diagnosis codes for neutropenia and fever were identified using the UHC Clinical Database. The aforementioned data was subdivided into hematology, solid tumor and bone marrow transplant service lines. Fifty patients in each service line were randomly selected by a random number generator and chart reviews were completed. Individual chart reviews were completed to identify febrile neutropenia, primary malignancy, chemotherapy regimen, antibiotic selection, duration of treatment, daily absolute neutrophil count and temperatures. Furthermore, adherence with nationally recognized treatment guidelines was assessed.

Results/Conclusions:
Data collection and analysis is currently taking place. Results and conclusions will be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Review IDSA treatment guidelines for febrile neutropenia

Discuss data on current prescribing tendencies for neutropenic fever at Froedtert Hospital and adherence to current IDSA guidelines

Self Assessment Questions:

Which of the following is an appropriate choice for initial broad spectrum antibiotic coverage?

A Ceftriaxone
B: Ertapenem
C: Vancomycin
D: Cefepime

True or False: According to IDSA guidelines neutropenia is defined as an ANC ≤1000.

A True
B False
C _
D _

Q1 Answer: D Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-507 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

COMPARISON OF SENSITIVITY AND SPECIFICITY OF PRETEST CLINICAL SCORE VERSUS CONVENTIONAL METHOD FOR DIAGNOSIS OF HEPARIN-INDUCED THROMBOCYTOPENIA

Nicole C. Mueller, PharmD*; Keri S. Kim, PharmD, MS CTS, BCPS

University of Illinois at Chicago,Dept of Pharmacy Practice (M/C 886),833 S. Wood St.,Chicago,IL,606127230

nmuelle@uic.edu

Purpose:
Heparin-induced thrombocytopenia (HIT) is a serious complication of heparin therapy that results in antibody-mediated platelet activation, leading to thrombosis and mortality. A diagnosis of HIT is confirmed using a series of laboratory tests. The enzyme immunoassay (EIA), readily available in most laboratories, is highly sensitive but poorly specific. The serotonin release assay (SRA) has high sensitivity and specificity, and therefore is associated with a high likelihood of HIT. SRA results, however, may take days to weeks. The 4Ts score is a clinical pretest score to assess the pretest probability of HIT. The primary objective of this study was to compare the probability of SRA positive HIT with the use of the 4Ts score versus the conventional method of the EIA test. Secondary objectives included use of direct thrombin inhibitors (DTI) and incidence of HIT with thrombosis.

Methods:
This retrospective chart review included patients at least 18 years of age admitted directly to the University of Illinois Hospital or transferred within 48 hours between January 1, 2008 and October 31, 2011. Patients were identified through a computer generated list of ordered SRA tests. Patients were evaluated using the 4Ts and stratified into low, intermediate, or high risk of clinically significant HIT. The 4Ts score was then compared to the laboratory results of the EIA and SRA tests. A positive SRA result was considered a definitive diagnosis of HIT.

Results:
Preliminary results have been collected for patients admitted from January 1, 2011 to October 31, 2011. Thirty-seven patients were screened and 28 included. A positive EIA occurred in 64% of patients, while only 7% had a positive SRA. The 4Ts score was high in 14% of patients, intermediate in 21%, and low in 64%. Thrombosis occurred in 39% of patients. Suspicion for HIT resulted in DTI therapy in 54% of patients.

Learning Objectives:

Identify components of the 4Ts scoring system.

Discuss the implications of a delay in diagnosis of HIT

Self Assessment Questions:

Which of the following would make HIT a less likely diagnosis according to the 4Ts score?

A Platelet decrease > 50% from baseline
B: Platelet fall < 5 days after start of heparin
C: Thrombosis identified by ultrasound
D: No recent surgery

Which laboratory test is considered the current gold standard for confirming diagnosis of HIT?

A Positive Enzyme Immunoassay (EIA)
B Decrease in platelets > 50% from baseline
C Platelet nadir < 20
D Positive Serotonin Release Assay (SRA)

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-508 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

COMPARISON OF LINEZOLID AND DAPTOMYCIN FOR THE TREATMENT OF VANCOMYCIN-RESISTANT ENTEROCOCCUS BLOODSTREAM INFECTION: A RETROSPECTIVE COHORT STUDY

Justin A. Muir, Pharm.D.*; Eric W. Mueller, Pharm.D.; Neil E. Ernst, Pharm.D.

UC Health-University Hospital,234 Goodman St. ML 0791,Cincinnati,OH,45219

justin.muir@uchealth.com

Background/Purpose:
Enterococci are common causes of nosocomial infections in the United States, especially in critically ill patients. Limited options are available for the treatment of vancomycin-resistant enterococci (VRE), but linezolid and daptomycin are commonly used. These agents have different pharmacokinetic and pharmacodynamic properties that may be relevant when treating bacteremia in critically ill patients with sepsis and organ dysfunction. The purpose of this study is to compare clinical outcomes between linezolid and daptomycin for the treatment of VRE bacteremia in critically ill patients.

Methods:
This is a single-center, retrospective, cohort study which will enroll critically ill patients aged 18 years and older with a positive blood culture for VRE who were treated with linezolid or daptomycin. The primary outcome will be median time to resolution of bacteremia, defined as the time (in hours) from initiation of appropriate antibiotic therapy to first negative blood culture. Other clinical outcomes associated with therapy will be compared, including mortality rate, proportion of patients with clinical and microbiological cure, and median time to resolution of sepsis and shock.

Other aims of the study are to identify risk factors for persistent bacteremia, to analyze outcomes associated with non-FDA-approved doses of daptomycin, and to report adverse events associated with VRE therapy. Variables that will be included in the univariate analysis include age, sex, body weight, positive fluid balance, VRE species, kidney disease, hypoalbuminemia, shock, mechanical ventilation, polymicrobial bloodstream infection, endocarditis, and catheter-related infection.

A sample size of 64 was calculated to provide a power of 80% at an alpha of 0.05 to detect a difference in median duration of bacteremia of 12 h (with a SD of 24 h) or 36 h (with a SD of 72 h). We plan to include up to 200 patients.

Results/Conclusions:
Results and conclusions to be presented at the Great Lakes Residency Conference.

Learning Objectives:

List treatment options for serious vancomycin-resistant enteroccal infections

Describe alterations in pharmacokinetic parameters commonly seen in critically ill patients

Self Assessment Questions:

What class of antibiotics do enterococci carry innate resistance to?

A Fluoroquinolones
B: Cephalosporins
C: Tetracyclines
D: Glycopeptides

Which of the following describe the pharmacokinetics of daptomycin?

A High protein binding, small volume of distribution
B High protein binding, large volume of distribution
C Low protein binding, small volume of distribution
D Low protein binding, large volume of distribution

Q1 Answer: B Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-509 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF CLINICAL DECISION SUPPORT ALERTS FOR ATYPICAL ORDERS

David P. Mulherin*, PharmD, BCPS; Allen J. Flynn, PharmD, CPHIMS, CHS; Christopher R. Zimmerman, PharmD, BCPS; Bruce W. Chaffee PharmD; James G. Stevenson, PharmD, FASHP

University of Michigan Health System,1500 E. Medical Center Dr.,SPC 50008,Ann Arbor,MI,48109

dmulheri@umich.edu

PURPOSE:
Clinical decision support (CDS) in computerized physician order entry (CPOE) systems has the potential to improve patient safety by alerting providers to inappropriate medication orders. Current methods of CDS alerts for medication dose-check alerts have notable limitations. Dose limit alerts may also fail to detect inappropriately low doses or administration frequencies more often than recommended. Previous research has shown that institutional metadata can be utilized to identify variability in medication order sentence patterns. Historical patterns for low variability medications could be used to create CDS alerts calling prescribers attention to medications ordered in very uncommon ways. The objective of this research is to develop and evaluate a new type of CDS alert for unusual or atypical medication orders.

METHODS:
In this IRB approved single center, before and after study, all adult inpatient CPOE orders will be evaluated during a three month period following implementation of a new CDS alert for "atypical" orders in five medication plus route combinations. Preliminary data was utilized to select frequently ordered medication-route combinations with low variability which were also consider to be clinically relevant for this type of alert. When ordering a studied medication, a prescriber will receive an alert if the medication order is considered atypical, i.e. it does not match one of the predetermined order sentences encompassing 99% of orders for that medication-route combination in preliminary data. The prescriber will have the option to continue the current order after selecting an override reason. Medication orders will be evaluated for frequency of dose sentences, atypical order alerts received, alert override rates and the responses to the alerts. Rates of atypical medication orders will be compared between pre-alert and post-alert study periods.

RESULTS:
Data collection and analysis is currently ongoing. Results and conclusions will be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Identify inadequacies in current clinical decision support methods.

Classify medication order sentences based on order pattern variability.

Self Assessment Questions:

Which of the following are weaknesses of currently used clinical decision support methods?

A Dose limits may not detect inappropriately low doses
B: Daily dose limits do not detect administration frequencies that are
C: A & b
D: None of the above

Assuming all orders below occurred during the same time period, which medication best represents low variability ordering patterns?

A Medication A with 10 total orders, 5 unique order sentences, 2 orde
B Medication B with 1000 total orders, 15 unique order sentences, 3
C Medication C with 1000 total orders, 15 unique order sentences, 1
D Medication D with 1000 total orders, 45 unique order sentences, 4

Q1 Answer: C Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-818 -L05-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF CUSTOMIZED MEDICATION ALERTS FOR WARFARIN ON PRESCRIBER ACTIONS IN A PEDIATRIC INSTITUTION

Kyle M Mulloy, PharmD.*, Stacy M Ramga, PharmD., Karl H Kappeler, RPh, MS, FASHP

Nationwide Children's Hospital,514 Northview Drive,Bexley,OH,43209

kyle.mulloy@nationwidechildrens.org

Purpose: Many computerized physician order entry (CPOE) programs include clinical decision support (CDS) components designed to help prescribers choose the correct dose for patient care needs. CDS has the ability to reduce medication errors and improve patient safety. Medication dosing alerts are a common method of notifying prescribers of potential errors during the order entry process. The intent of dosing alerts is to improve patient safety and outcomes. However, an extremely high number of alerts can lead to alert fatigue, causing prescribers to override alerts before evaluating them. Dosing alerts are overridden by clinicians in teaching hospitals and primary care clinics the majority of the time. CDS programs often use standard safety alerts, but these may not be appropriate for use in specialized populations. The objective of this study is to evaluate if prescribing practices are altered after warfarin safety alerts are customized for a pediatric population. Based on these results, it will be determined if the customized alerts are more appropriate than the standard alerts installed in the CPOE program. Developing customized alerts should lead to decreased number of alerts and increased number of useful alerts. An appropriate alerting system should enhance prescribing practices, leading to reduced medication errors and improved patient outcomes.

Methods: All warfarin doses at a pediatric institution will be reviewed during the months of December through February for three consecutive years. During the three year period, standard warfarin medication alerts were customized for a pediatric population. Warfarin dose alerts will be tallied and all prescriber actions after the alerts fired will be analyzed. Clinician response to alerts (ie. discontinuing an order, overriding an alert, etc.) will also be reviewed for trends.

Results: To be presented
Conclusions: To be presented

Learning Objectives:

Describe the negative effects that result from alert fatigue.

Review a customized medication dosing alert change and its effects on prescriber actions.

Self Assessment Questions:

Too many medication safety alerts can result in which of the following?

A Low override rate, which may indirectly cause patient harm
B: Prescribers will act on all alerts, regardless of importance
C: A decision to turn off a group of alerts because of distrust in the ale
D: Increased vigilance with regards to dosing per hospital protocol

Improving the alerting system can be done in which of the following ways?

A Assuring the alerting system disrupts the workflow of the prescribe
B Reducing the number of appropriate alerts
C Turning off all standard dosing alerts to avoid firing any inappropria
D Tailoring alerts to specific patients based on age, gender, body we

Q1 Answer: C Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-819 -L05-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF GLYCEMIC CONTROL FOLLOWING METFORMIN DISCONTINUATION IN PATIENTS WITH TYPE II DIABETES MELLITUS AND DECLINING RENAL FUNCTION

Heather M. Munch, PharmD*, Arthur A. Schuna, RPh, MS

William S. Middleton VA Hospital,2500 Overlook Terrace,Madison,WI,53705

heather.munch@va.gov

PURPOSE:
Diabetes mellitus is a chronic disease state that affects a large proportion of the population, resulting in significant morbidity and mortality if not appropriately controlled. Metformin is considered the first line agent for treatment in patients with type II diabetes mellitus and is the only antidiabetic agent with evidence for reduced cardiovascular morbidity and mortality. Additional benefits of metformin include weight-neutrality and minimal risk of hypoglycemia when used as monotherapy, compared to sulfonylureas, thiazolidinediones and insulin. Due to the risk of lactic acidosis, current prescribing guidelines contraindicate metformin use in men and women with serum creatinine concentrations ≥1.5 mg/dL and ≥1.4mg/dL, respectively. Since clinical outcomes in this patient population are not known, the purpose of this review is to determine glycemic outcomes achieved in patients who discontinued metformin due to worsening serum creatinine in order to help establish optimal treatment for this patient population.

METHODS:
A retrospective chart review will be completed for up to 250 veteran patients who required metformin discontinuation due to renal insufficiency prior to January 1, 2011. A list of patients who had active metformin prescriptions and serum creatinine of greater than or equal to 1.5 mg/dL for men or greater than or equal to 1.4 mg/dL for women, will be generated. Computer generated random numbers will be used to select which patients to review the records of. Data to be abstracted will include, age, sex, serum creatinine, hemoglobin A1c, weight, concurrent use of other antidiabetic medications, antidiabetic medications switched to following metformin discontinuation, documented episodes of hypoglycemia or significant hyperglycemia, documented adverse drug reactions to new antidiabetic medications, and documentation of cardiovascular outcomes, including MI, CVA or TIA during the period following metformin discontinuation.

RESULTS/CONCLUSION:
The results and conclusion are pending.

Learning Objectives:

Recognize the impact of metformin discontinuation on glycemic and cardiovascular outcomes in patients with type II diabetes mellitus.

Identify the incidence of adverse drug events associated with switching patients from metformin to other hypoglycemic medications.

Self Assessment Questions:

Which of the following statements about metformin use in type II diabetes mellitus is true?

A Metformin has been shown to reduce the rate of microvascular cor
B: Metformin has been shown to reduce the rate of macrovascular co
C: Metformin has been shown to reduce the rate of microvascular and
D: Metformin has not been shown to reduce the rate of complications

Which of the following best describes the mechanism of action of metformin?

A Decreases hepatic glucose production and reduces intestinal abso
B Slows the absorption of glucose after meals by inhibiting the gastro
C Stimulates insulin secretion from pancreatic beta cells in response
D Increases insulin sensitivity in muscles, adipose tissue and liver

Q1 Answer: C Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-510 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

MATCHED CASE-CONTROL STUDY OF VANCOMYCIN VERSUS DAPTOMYCIN FOR METHICILLIN-RESISTANT STAPHYLOCOCCUS AUREUS BACTEREMIA

Kyle P Murray, PharmD*; Michael J Rybak, PharmD, MPH; Keith S Kaye, MD, MPH; Jing J Zhao, PharmD

Harper University Hospital,Phamacy Administration,3990 John R,Detroit,MI,48201

kmurray2@dmc.org

Purpose: Recently published IDSA guidelines recommend vancomycin or daptomycin for the treatment of methicillin-resistant Staphylococcus aureus (MRSA) bacteremia; however, comparative clinical data to determine the optimal first-line agent is limited. The objective of this study is to compare the effectiveness of vancomycin and daptomycin for MRSA bacteremia among patients matched based on source of bacteremia, severity of illness, and age.
Methods: This retrospective study has been approved by the institutional review board. Patients with MRSA bacteremia who received either vancomycin or daptomycin therapy over a 4-year period at the Detroit Medical Center were identified via the electronic medical record. Patients meeting the following inclusion criteria were eligible for matching: age 18 to 89 years; MRSA susceptible to the study agent; use of study agent for greater than 72 hours; and known source of MRSA bacteremia. Patients were excluded from the match if an intravenous catheter is the source of bacteremia, and/or the patient requires renal replacement therapy. Eligible patients in each treatment group were matched one to one with respect to source of bacteremia, Pitt bacteremia score, and age (within 5 years).
Baseline characteristics collected include concomitant disease states, presence of prosthetic device(s), source of MRSA bacteremia, microbiologic information, and antimicrobial regimen. Any recent history of documented S. aureus infection (within 1 year) and/or antimicrobial therapy will be documented.
The primary outcome is clinical success rate, defined as resolution of clinical and microbiological signs and symptoms of infection. Secondary outcomes include duration of bacteremia, duration of hospital admission, 30-day readmission rate, 30-day mortality, overall cost analysis, and adverse effects attributable to study agents.
Results: To date, 83 of 331 patients receiving treatment between 1/1/2008 and 12/31/2010 have been included for matching.
Conclusions: Final results and conclusions to be presented at the 2012 Great Lakes Pharmacy Residency Conference.

Learning Objectives:

List acceptable antimicrobial agents for treatment of methicillin-resistant Staphylococcus aureus bacteremia according to established guidelines

Explain mechanisms of non-susceptibility to vancomycin in Staphylococcus aureus

Self Assessment Questions:

Which of the following antimicrobial regimens is appropriate for treatment of methicillin-resistant Staphylococcus aureus bacteremia?

A Vancomycin, with target serum trough levels 10-15
B: Daptomycin 4mg/kg once daily
C: Vancomycin, with target serum trough levels 15-20
D: Rifampin 300mg IV or PO TID

Which of the following mechanisms is thought to be involved in intermediate susceptibility to vancomycin among Staphylococcus aureus?

A Acquisition of the vanA gene, leading to altered vancomycin bindin
B Acquisition of the mecA gene, leading to altered penicillin binding p
C Active efflux of vancomycin via efflux pumps on the bacterial cell w
D Thickening of the bacterial cell wall, which prevents vancomycin fro

Q1 Answer: C Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-511 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

INFECTION OUTCOMES AFTER NARROWING PROPHYLACTIC POST-OPERATIVE ANTIBIOTICS IN PEDIATRIC CARDIAC SURGERY

Tristan D. Murray, PharmD*; Christopher A. Thomas, PharmD; Elaine G. Cox, MD

Indiana University Health,1701 North Senate Boulevard AG401,Indianapolis,IN,46202

tmurray2@iuhealth.org

Purpose: Surgical site infections (SSI) continue to be a substantial cause of morbidity, mortality, prolonged hospital stay, and increased healthcare costs. Patients with congenital heart defects are among those most prone to SSI due to the complexity of the surgical procedure, invasive monitoring, and aggressive management each undergoes during postoperative care. Currently no guidelines exist for post-operative prophylactic antibiotic use in pediatric cardiothoracic surgery. As a result, the combination of extended duration antibiotic prophylaxis and inappropriate antimicrobial selection has facilitated the perfect breeding environment for multidrug-resistant bacteria. On April 15, 2011 changes were made to the standing post-operative antibiotic prophylaxis protocol for pediatric cardiovascular surgery patients at Riley Hospital for Children by narrowing antimicrobial therapy. The purpose of this study was to examine the effects of these changes on infection outcomes.

Methods: All patients that underwent cardiovascular surgery at our institution between April 15, 2010 and October 15, 2011 were eligible for study inclusion. Patients were excluded if they did not follow the new protocol after the transition date. SSI was defined by our Infection Control Team using Centers for Disease Control (CDC) criterion and was limited to occurrence within 5 days from the last procedure. Data collected included patient demographics, post-operative antibiotic regimen, number of broadened antibiotic regimens, duration of therapy, microbiologic data, location of lines, line days, and urinary catheter days.

Results/Conclusion:
In the process of collecting and analyzing data.

Learning Objectives:

State the evidence surrounding post-operative prophylactic antibiotic use in pediatric cardiothoracic surgery.

Recall how lack of post-operative prophylactic antibiotic guidelines in pediatric cardiothoracic surgery patients leads to multidrug-resistant bacteria.

Self Assessment Questions:

What is the CDC recommendation for post-operative prophylactic antibiotic selection in pediatric cardiothoracic surgery?

A Abide by pediatric abdominal surgery guidelines
B: Adhere to most recent adult guidelines
C: Intravenous clindamycin
D: CDC does not make specific recommendations for pediatric patien

How does a lack of post-operative prophylactic antibiotic guidelines specific to pediatric cardiothoracic surgery lead to the emergence of multidrug-resistant bacteria?

A Extended duration of antibiotic use and inappropriate antibiotic sele
B Narrow range of antibiotic coverage inadequately prevents patient
C Institutional protocols will not require antibiotic prophylaxis in this p
D Lack of post-operative prophylactic antibiotic guidelines will not lea

Q1 Answer: B Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-512 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

OPTIMIZATION OF EMPIRIC TREATMENT OF OBSTETRICS AND GYNECOLOGIC (OB-GYNE) INFECTIONS

Jonathan M. Murray* PharmD; Karen E. Trenkler Pharm D, BCPS; Justin L. Schneider PharmD

Sinai Health System,California Ave at 15th Street,Chicago,IL,606081797

jonathan.murray@sinai.org

Purpose:
A review of antibiotic use at this institution identified routine use of ampicillin, gentamicin and clindamycin in empiric treatment of Ob-Gyne infections as an area of opportunity for improvement. Reliance on this established, historical practice is not unique, as other institutions continue to use this approach. The use is evidence-based, as this triple antibiotic combination is cited in several review articles. This regimen however is costly and time-ineffective. In addition to direct costs, there are a number of indirect costs incurred by pharmacy, nursing, and the patient. This effort evaluates the use of ampicillin, gentamicin and clindamycin in empiric management of Ob-Gyne infections, focusing on appropriateness of therapy, in conjunction with costs, time-efficiency and operational considerations.

Methods:
To ascertain viable antibiotic alternatives, a literature review was conducted, focusing on targeted spectrums, antibiotic safety, efficacy, and pharmacokinetics, in addition to considerations for pregnancy and lactation. Lastly, costs, both direct and indirect, were reviewed. Recommendations for regimen alternatives, delineated by specific OB-Gyne target infection, were presented to both the Infectious Diseases and Ob-Gyne sections for consensus in guidelines. Education of staff is ongoing. Tools and electronic resources are in development. Implementation is scheduled for 2/9/12.
This initiative incorporates pre- and post-intervention retrospective reviews in order to measure the impact of this pharmacy-initiated practice change. The inclusion criteria consist of female patients admitted with OB/GYNE infection from January through September 2011 (baseline) and from February 13,2012 for a minimum of 8 weeks follow-up. The indication, dosing, appropriateness of serum antibiotic levels (if any), culture/MIC results, length of treatment and stay, and treatment cost will be recorded for each patient. Subsequent to implementation, usage patterns will be re-evaluated and results analyzed.

Results:
The triple antibiotic regimen was primarily used at baseline, for patients without penicillin allergy. The follow-up data will be compared to baseline.

Learning Objectives:

Describe the current practice of treating OB/GYNE infections at our institution and the areas for improvement.

Discuss the current literature on the treatment of OB/GYNE and the recommendations made at Sinai Health System.

Self Assessment Questions:

When treating for chorioamnionitis, adding ampicillin is adding coverage for which organism?

A E. coli
B: Opportunistic anaerobes
C: Listeria
D: Staph aureus

Which infection is the most common complication of cearean delivery?

A Endmyometritis
B Chroiamnionitis
C Pelvic inflammatory disease
D Surgical site infections

Q1 Answer: C Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-513 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

INCIDENCE AND MANAGEMENT OF CHEMOTHERAPY-INDUCED PERIPHERAL NEUROPATHY (CIPN) IN PATIENTS TREATED WITH DOCETAXEL OR PACLITAXEL AT AN OUTPATIENT ONCOLOGY CLINIC

Amanda Mytkowicz,PharmD*; Douglas Merkel MD; Wendy Hui PharmD, BCOP; Abigail Harper PharmD, BCOP; George Carro RPh, MS, BCOP; Amanda Blankenship PharmD; Shannon Gavin PharmD

NorthShore University HealthSystem,2650 Ridge Ave,Kellogg Pharmacy,Evanston,IL,60201

amytkowicz@northshore.org

Purpose:
Chemotherapy-induced peripheral neuropathy (CIPN) is a common dose limiting and chronic toxicity in patients who receive taxanes such as docetaxel and paclitaxel. It is a significant problem for many patients as it can lead to reduced quality of life, dose reductions, treatment delays, or discontinuation of treatment. No standard therapy has been identified in literature for prevention or treatment of CIPN.1,2 The incidence of CIPN is estimated to be 20-40% (grades 2-3) for paclitaxel and 6-10% (grades 2-3) for docetaxel.3-5

Currently, there is no standard treatment algorithm in place at Kellogg Cancer Centers (KCC), NorthShore University HealthSystem, for the management of CIPN. The objectives of this study are to determine the incidence of taxane-induced peripheral neuropathy at KCC; to evaluate the incidence and management of taxane-induced peripheral neuropathy; and to develop a management algorithm for taxane-induced peripheral neuropathy.

Methods:
Retrospective chart review was conducted of 200 patients treated with docetaxel and 200 patients treated with paclitaxel at KCC. Information collected included age, frequency, cumulative dose, concurrent chemotherapy, grade, and interventions used. A multidisciplinary team including oncology physicians, nurses and pharmacists was convened to develop a standardized treatment algorithm.

Results:
Incidence of grade 2-3 CIPN for both docetaxel (4.7% vs. 6-10% in literature) and paclitaxel (16.3% vs. 20-40% in literature), was found to be lower than that reported in literature. The majority of patients (38.7%) had grade 1 CIPN. Medication intervention was the most common approach to management of CIPN, and acetyl L-carnitine was the most frequently used medication.

Conclusion:
The incidence of CIPN at KCC, for both docetaxel and paclitaxel, was found to be lower than that reported in literature. The lower incidence is potentially due to underreporting. As a result of this retrospective study, a management algorithm and documentation tool was developed and implemented in our electronic health record.

Learning Objectives:

Define CIPN and list risk factors for development of CIPN.

Review literature on the management of CIPN.

Self Assessment Questions:

Which of the following are risk factors for the development of CIPN?

A Dose
B: History of diabetes
C: Duration of infusion
D: All of the above

Which of the following statements regarding CIPN is correct?

A CIPN is an uncommon side effect of taxanes
B CIPN resolves once chemotherapy is discontinued
C Dose reductions are frequently required to reduce the symptoms o
D Gabapentin has been shown to be an effective agent in the manag

Q1 Answer: D Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-514 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

PHARMACISTS ROLE IN TRANSITIONS OF CARE - OUTPATIENT PATRENTERAL ANTIMICROBIAL THERAPY: ASSESSMENT OF NEED, IMPLEMENTATION AND EVALUATION OF AN IMPROVEMENT PROCESS

* Inna Nabokova-Turner, PharmD; Lucas Schulz, PharmD, BCPS; Barry Fox, MD; Erin Hendrick, PharmD, MS, BCPS;

University of Wisconsin Hospital and Clinics,600 Highland Avenue,F6/133-1530,Madison,WI,53792

INabokova-Turner@uwhealth.org

Purpose: As hospitals are presented with incentives to shorten length of stay and prevent nosocomial infections, the use of outpatient parenteral antimicrobial therapy (OPAT) has increased. OPAT provides a safe and effective option for the treatment of many infections; however, due to communication breakdowns related to care coordination, OPAT is associated with avoidable complications. The purpose of this project is to improve the OPAT communication process at the University of Wisconsin Hospital and Clinics (UWHC) across transitions of care from the inpatient to the outpatient setting.
Objectives: Implement and develop new standardized pharmacist-driven discharge instructions, including training material. Assess and evaluate the impact of these instructions on care coordination and patient outcomes.
Methods: A clinical support tool was created to standardize OPAT discharge documentation and assist with care transition. A computer-based training program was created to educate clinical pharmacists about the tool. Education of pharmacists and other stakeholders (nurse practitioners, physician assistants, social workers) occurred for 2 weeks prior to go-live. A retrospective chart review of all patients discharged or OPAT began after a one week washout period. Adult patients discharged 3 months post-implementation from UWHC with prescribed OPAT were included. Post-implementation patients will be matched to randomly selected pre-implementation patients followed by either Chartwell home infusion services or UWHC infusion center. The following baseline data will be collected: age, gender, antibiotic choice, indication of therapy, duration of therapy, follow-up provider, documentation of communication of OPAT plan to the follow-up provider before the discharge and completion of patient education. OPAT follow-up communication effectiveness, completion of patient education, and adherence to monitoring recommendations will be compared before and after process implementation.
Results: All pharmacists have completed OPAT training program and passed a competency exam. Data collection and evaluation are ongoing and will be presented.

Learning Objectives:

Describe communication problems that can lead to OPAT complications.

Recognize barriers and areas of improvement for the new OPAT discharge process.

Self Assessment Questions:

1. Pharmacist must ensure the following information is entered in the OPAT discharge instructions as soon as this information is available:

A Indication
B: Current dose
C: Follow-up provider
D: All of the above

Which of the following statements is correct?

A More than 50 % of OPAT processes failures are due to communica
B OPAT complications can be avoided if therapy is appropriately mo
C Lack of universal acceptance of the standardized OPAT discharge
D All of the above

Q1 Answer: D Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-820 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF OPIOID ANALGESIC USAGE IN POSTOPERATIVE CORONARY ARTERY BYPASS GRAFT SURGERY PATIENTS PRE AND POST IMPLEMENTATION OF COMPUTERIZED PHYSICIAN ORDER ENTRY

Matthew S. Nagar, PharmD*; Frank S. Rigelsky, PharmD, BCPS; Randall J. Voytilla, PharmD, Ph.D, BCPS; Mary E. Temple, B.S., PharmD, BCPS

Hillcrest Hospital- A Cleveland Clinic Hospital,6780 Mayfield Rd,Mayfield Heights,OH,44124

nagarm@ccf.org

Background: In the surgical setting, coronary artery bypass grafting (CABG) has become one of the most common cardiothoracic interventions today. Approximately two thirds of patients who have undergone CABG report moderate to severe pain following surgery. In many patients, postoperative pain following surgery remains one of the most feared events during their hospital stay. Appropriately treating postoperative pain in this patient population is of high priority to reduce further complications after surgical intervention. The institution implemented Computerized Physician Order Entry with pre-specified order sets for postoperative pain management in April 2011.

Purpose: To evaluate opioid analgesic usage in postoperative cardiothoracic surgery patients both before and after the implementation of CPOE. The average pre-dose and post-dose pain scores will compared as endpoints as well as the incidence of adverse drug reactions.

Methods: A retrospective chart review was completed for patients who underwent coronary artery bypass graft surgery in the first and third quarter of 2011 in a 500-bed tertiary care medical facility. Patients must have undergone coronary artery bypass graft surgery and received opioid analgesic medications in the postoperative period. The data collection period for each patient began in the postoperative period after the close of surgery and continued for 72 hours. Patients were excluded if the were enrolled in other clinical trials within the institution and intubated for a period of 24 hours or greater after surgery. Nursing documentation of patient reported pain scores before and after analgesic medication administration will serve as the basis for data collection.

Results: Data collection is currently ongoing. Results and conclusions will be presented during the 2012 Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Review the importance of adequate pain management in the postoperative period for Coronary Artery Bypass Graft (CABG) patients.

Identify trends of analgesic usage in postoperative CABG patients, allowing for changes to postoperative pain management order sets.

Self Assessment Questions:

Approximately how many patients who have undergone CABG surgery report moderate to severe pain following surgery?

A 1/2
B: 1/4
C: 2/3
D: All patients

What is the most common type of pain reported after CABG surgery?

A Mild
B Moderate to severe
C None
D Moderate

Q1 Answer: C Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-515 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EFFECTS OF AZITHROMYCIN IN NON-BACTERIAL EXACERBATIONS OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD)

Dina E Nakhleh, PharmD*, Justin M Schmidt, PharmD, BCPS, Todd Lee, PharmD, PhD

Edward Hines, Jr.VA Medical Center,5000 South 5th Ave,Hines,IL,6014

dina.nakhleh@va.gov

Title: Effects of azithromycin in non-bacterial exacerbations of chronic obstructive pulmonary disease (COPD)

Purpose: The primary purpose of this study is to assess the impact of azithromycin in patients hospitalized with a COPD exacerbation presenting without changes in sputum volume or purulence on length of stay and hospital readmission rates

Methods: This retrospective review evaluated patients with a diagnosis of COPD admitted for an exacerbation without change in sputum volume or purulence at a VA Hospital from 09/01/01 to 09/01/2011. A list of patients will be created and randomized. A list of patients with a diagnosis of COPD and receipt of a corticosteroid was generated. From this list, 100 patients who received azithromycin and 100 patients who did not were randomly selected for comparison. Change in sputum purulence and volume were determined from the ED admission or admission History & Physical progress note. If sputum purulence or volume was not mentioned, it was assumed there was no change. Death and intubation during hospital stay were evaluated as secondary outcomes.

Data Analysis: Based on preliminary data, a sample size of 36 in each group would yield 80% power to detect a difference in average length of stay of 1 day with a standard deviation of 1.5 days. However, to account for an increased standard deviation in a larger sample size, 100 patients were included in each group. The primary outcome was be compared using a Kaplan-Meier survival curve, log-rank test, and a $\chi 2$ test. The remaining secondary outcomes were compared using t tests and $\chi 2$ or Fishers Exact Tests.

Preliminary data/conclusions: Pending.

Learning Objectives:

Identify a COPD exacerbation patient who may benefit from the use of antibiotics

Describe the role of macrolide therapy in COPD patients during an exacerbation

Self Assessment Questions:

According to the GOLD guidelines, what are the three cardinal symptoms to evaluate a COPD exacerbation patient for antibiotics?

A Fever, pulmonary infiltrates, and diaphoresis

B: Increase in sputum volume, oxygen requirements, and dyspnea fro

C: Diaphoresis, increase in sputum volume, and purulence from base

D: Increase in sputum volume, sputum purulence and dyspnea from b

Which of the following is a proposed benefit in using azithromycin in COPD exacerbation patients?

A Anti-inflammatory and antisecretory effects in the lungs

B Ototoxicity

C Increased macrolide resistance

D Abdominal pain

Q1 Answer: D Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-516 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

USING AN OLD DRUG TO TREAT NEW BUGS: FOSFOMYCIN FOR THE TREATMENT OF URINARY TRACT INFECTIONS CAUSED BY MULTIDRUG-RESISTANT ORGANISMS

Ryan W. Naseman, PharmD*; Karri A. Bauer, PharmD, BCPS; Mark E. Lustberg, MD, PhD

The Ohio State University Medical Center,368 Doan Hall,410 W. 10th Ave,Columbus,OH,43210

ryan.naseman@osumc.edu

Purpose: In an era of escalating antibiotic resistance and lack of new discovery, emphasis should be given not only to the development of new drugs, but also to the re-evaluation of older and forgotten drugs. Urinary tract infections (UTIs) are the most common hospital-associated infections. Resistance to common organisms associated with UTIs including vancomycin-resistant Enterococcus faecalis and faecium (VRE), extended-spectrum -lactamase (ESBL)- and carbapenemase-producing E. coli and Klebsiella pneumoniae are growing problems. The lack of new antibiotics and increasing resistance presents a treatment challenge. Fosfomycin, an older antibiotic, represents a potential option for the treatment of patients with UTIs caused by multidrug-resistant (MDR) organisms. Fosfomycin was added to The Ohio State University Medical Centers (OSUMC) formulary in July 2011 for the treatment of UTIs caused by VRE, ESBL-and carbapenemase-producing organisms. Fosfomycin is a cell wall synthesis inhibitor that displays broad-spectrum activity. Fosfomycin is available in an oral formulation, obtains adequate urine concentrations and maintains levels 36 hours post dose. The use of fosfomycin avoids intravenous antibiotics and potentially associated infectious and cost complications.
Methods: This is a retrospective study of all adult inpatients with a positive urine culture for VRE, ESBL-or carbapenemase-producing organism who received at least 24 hours of fosfomycin between July 1, 2011 and December 31, 2011. Clinical outcomes to be evaluated include length of stay, relapse, reinfection and hospital mortality.
Results/ Conclusions: Data collection and analysis are currently being conducted; results and conclusions will be presented at the conference.

Learning Objectives:

Describe current limitations associated with the treatment of UTIs caused by MDR organisms.

Identify appropriate utilization of the fosfomcyin for the treatment of UTIs

Self Assessment Questions:

Which of the following is considered an antibiotic of choice for ESBL-producing organisms?

A Amoxicillin

B: Ertapenem

C: Gentamicin

D: Vancomycin

Which of the following is a benefit of fosfomycin use?

A It does not retain activity against multidrug-resistant organisms

B Oral formulation and prolonged half-life results in improved adminis

C Increased bioavailability for a potential option for the treatment of s

D All of the above are benefits associated with fosfomycin.

Q1 Answer: B Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-517 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

STUDENT PHARMACISTS PERSPECTIVES ON E-PROFESSIONALISM

Genevieve Lynn Ness, PharmD*; Amy Heck Sheehan, PharmD; Margie E. Snyder, PharmD, MPH; Jacob P. Gettig, Pharm.D., MPH, BCPS; Joseph Jordan, PharmD, BCPS; and Jean E Cunningham, PharmD, BCPS

Purdue University/Eli Lilly and Company/FDA,8722 Knickerbocker Way,Apt. 2D,Indianapolis,IN,46240

gness2011@gmail.com

Purpose: The purpose of this study is to examine 1) use patterns of social media among pharmacy students completing their advanced pharmacy practice experiences (APPE), 2) students views and opinions of professionalism on popular social media sites, and 3) the potential relationship between behavior on social media sites and seeking employment.

Methods: A previously published survey instrument assessing students attitudes regarding professionalism while utilizing social media was adapted for use in this study. All graduating student pharmacists (n=516) at Purdue University, University of Findlay, Butler University, and Midwestern University were invited to complete the survey instrument during the fall semester of 2011, prior to the American Society of Health-System Pharmacists Midyear Clinical Meeting. Student confidentially was maintained using the Qualtrics Research Suite software and the project received IRB approval with exempt status for human subjects research.

Results: A total of 212 students participated in the survey yielding a 41.08% response rate. Eighty five percent (141/166) of students currently engaging in social media reported their online profile represents who they are as a person; however, only 51% (83/164) felt their profiles represented who they are as a professional. In addition, 74% (120/162) of students felt they should edit their social media profiles prior to applying for a job and 32% (52/162) of students who reported current use of social media planned on editing their social media profiles prior to the ASHP Midyear Clinical Meeting or career fair.

Conclusions: The majority of student pharmacists responding to this survey recognized the importance of maintaining a professional image on social media sites prior to seeking employment. The addition of an educational session informing students of the dangers of using social media and ensuring students are properly utilizing the privacy settings may be beneficial to prepare students to present themselves as a professional on their social media profiles.

Learning Objectives:

Identify the appropriate definition of e-professionalism.

Describe the social media behaviors of student pharmacists in their last year of study.

Self Assessment Questions:

Which of the following best describes the definition of e-professionalism?

A a.The attitudes and behaviors, occurring only in private settings, re

B: b.The attitudes and behaviors, occurring only in public settings, ref

C: c.The attitudes and behaviors, occurring only in professional settin

D: d.The attitudes and behaviors, occurring the public and private set

2.Which of the following best represents the proportion of students who felt it is justified for a residency director or supervisor to research a candidate online and make decisions based on the info

A 1/4

B 1/3

C 1/2

D 3/4

Q1 Answer: D Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-730 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

A RETROSPECTIVE REVIEW OF CLOSTRIDIUM DIFFICILE TREATMENT IN INTESTINAL TRANSPLANT PATIENTS: EXPERIENCE IN A SINGLE HEALTH SYSTEM

Sonia N. Nevrekar, PharmD*. Lindsey A. Pote, PharmD, BCPS. Kathleen A. Doan, PharmD. Ashesh P. Shah, MD. Richard S. Mangus, MD. Rodrigo M. Vianna, MD. A. Joseph Tector, MD. Jonathan Fridell, MD. Shekhar A. Kubal, MD

Indiana University Health,1701 N. Senate Boulevard,Room AG 401,Indianapolis,IN,46202

snevreka@iuhealth.org

Background: Primary and recurrent Clostridium difficile infections (CDI) are an increasing problem in solid organ transplant recipients with the incidence of primary infection estimated to be 3-7%, 9% and 13% in liver, intestinal and multivisceral transplant recipients, respectively. The 2010 Society for Healthcare Epidemiology of America and the Infectious Diseases Society of America clinical practice guidelines for CDI in adults make treatment recommendations for primary and recurrent infections; however, no specific recommendations for intestinal transplant recipients are made. Several novel anti-clostridium medications have recently beer proven as effective treatment options for CDI, but have excluded patients receiving drugs with potential drug-drug interactions such as tacrolimus and cyclosporine.

Purpose: To assess the effectiveness of various anti-Clostridium difficile antibiotic treatments for primary and recurrent CDI in intestinal pediatric and adult transplant recipients in a single health system.

Methods: A list of intestinal transplant recipients (isolated small bowel, modified multivisceral, and multivisceral) from Indiana University Health between 01/2003 and 09/2011 was generated using the Organ Transplant Tracking Record after IRB approval. Retrospective chart reviews are being performed to identify confirmed positive cases of CDI during the post-transplant period. All symptomatic C. diff toxin positive patients who received treatment will be included. Patients with pre-existing conditions causing diarrhea or incomplete medication records will be excluded. Variables such as treatment course, symptoms at onset, time to resolution of symptoms, number of recurrent infections, type of intestinal transplant, immunosuppressive therapy, and recent antibiotic exposure will be evaluated.

Results/Conclusion: A total of 157 patients were identified as receiving one or more intestinal transplants, of which the majority received multivisceral transplants. Data collection and analysis currently in progress and will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Discuss challenges in treating Clostridium difficile infections in intestinal transplant patients.

Review the effectiveness of various anti-infective agents for the treatment of primary and recurrent Clostridium difficile infections.

Self Assessment Questions:

Which of the following agents is a treatment option for Clostridium difficile infections?

A Clindamycin

B: Gentamicin

C: Metronidazole

D: Ciprofloxacin

Which of the following risk factors predisposes intestinal transplant recipients to Clostridium difficile infections?

A Frequent broad-spectrum antimicrobial exposure

B Inadequate immunosuppression

C Increased stool output

D Previous fecal transplant

Q1 Answer: C Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-518 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

COMPARISON OF WARFARIN DOSING BY PHARMACIST AND NON-PHARMACIST PROVIDERS IN INPATIENT SETTING

Candy Ng*, PharmD, Hina Patel, PharmD, BCPS
NorthShore University HealthSystem,9600 Gross Point Road,Skokie,IL,60076
cng@northshore.org

Purpose:
Warfarin is widely used and proven effective in the anticoagulation of a variety of conditions. Close monitoring of warfarin therapy is required due to its narrow therapeutic window, drug interactions, and variable response among patients. Pharmacist managed anticoagulation in the inpatient setting has been less studied than with the outpatient setting but these studies demonstrated pharmacist dosing achieves positive or equivalent outcomes in patients anticoagulation management. At NorthShore University HealthSystem, pharmacist managed warfarin consult service extended from one hospital to all four hospitals in April 2010. This evaluation compared the outcomes of both pharmacist and non-pharmacist dosing to determine whether additional improvements to the pharmacist managed warfarin consult service were warranted. The purpose of this investigation was to evaluate the time to therapeutic international normalized ratio (INR), number of days INR above goal, any documented thrombotic and bleeding events in patients newly started on warfarin managed under pharmacist-to-dose consults as compared to non-pharmacist dosing.

Methods:
An IRB-exempted retrospective chart review of 262 inpatients (131 pharmacist-dosing, 131 non-pharmacist dosing) newly initiated on warfarin at NorthShore University HealthSystem between September 1, 2010 to July 1, 2011 was conducted. Patients with baseline INR higher than 1.2, goal INR range other than 2 to 3, exposure to warfarin within 30 days, and patients prescribed warfarin for a previously treated indication were excluded from the evaluation. Number of patients newly started on warfarin, number of days to first therapeutic INR, number of days between INR 3.5 and 6, number of days INR above 6, and the number of documented thrombotic events and bleeding events were collected and compared between dosing by pharmacists and non-pharmacist providers

Results/ Conclusion:
Data collection is in progress. Results and conclusion will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Describe current published literature on the effects of inpatient pharmacist dosing versus non-pharmacist providers dosing warfarin therapy on average time within therapeutic INR and thrombotic or bleeding events.

Recognize the level of evidence of studies in published literature on pharmacist dosing warfarin therapy.

Self Assessment Questions:

In current published literature, which is true about pharmacist dosing warfarin therapy in the inpatient setting?

A Pharmacist dosing is superior to physician dosing.
B: Physician dosing is superior to pharmacist dosing
C: Pharmacist dosing is always found to be at most equivalent to phys
D: Pharmacist dosing is often found to be equivalent and sometimes s

Which of the following falsely characterizes the published literature on pharmacist dosing of inpatient warfarin therapy?

A There is a limited number of studies conducted investigating pharm
B The studies often consist of large sample size involving multiple ce
C The role of pharmacist dosing inpatient warfarin therapy is not well
D The studies conducted were often short in duration.

Q1 Answer: D Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-520 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF A DECOLONIZATION PROTOCOL IN CARDIOTHORACIC SURGERY PATIENTS

Elaine Ng, PharmD* and Lisa Forsyth, PharmD
William Beaumont Hospital,3601 W 13 Mile Rd,Royal Oak,MI,48073
elaine.ng@beaumont.edu

Background:
Sternal wound infections following cardiac surgery are associated with significant morbidity and economic impact. Staphlococcus aureus is common organism in surgical wound infections. It is found colonizing the nares and patients who are nasal carriers are much more likely to have a S. aureus surgical site infection than non-carriers. The Society of Thoracic Surgeons recommends that antibiotic prophylaxis be initiated in cardiac surgery patients but for no longer than 48 hours in addition to nasal mupriocin in known S. aureus carriers. In April 2007, our institution implemented a decolonization protocol for cardiothoracic surgery patients to prevent deep sternal wound infections (DSWI).

Purpose:
The purpose of this study is to evaluate our decolonization protocol and patient outcomes. The objectives of our study are to 1) evaluate decolonization protocol adherence in DSWI; 2) to evaluate the impact of the decolonization protocol on DSWI; 3) characterize the organisms and their susceptibility patterns in the sternal wound before and after the protocol; 4) identify non-sternal MRSA infections pre and post protocol; 5) evaluate patient outcomes.

Methods:
We conducted a retrospective chart review of adult patients with DSWI in 2005-2006 (pre-protocol) and 2008-2009 (post-protocol). Data collection will include: patient demographics, surgical intervention, duration of surgery, peri- and post-operative blood product use, steroid use, peri- and post-operative antibiotic regimens, protocol adherence, characteristics of sternal and non-sternal wound infections, post-operative duration of mechanical ventilation, length of treatment with vasopressors, length of stay and discharge disposition.

Results/Conclusion:
This study is still under investigation with final results and conclusions to be presented at Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Discuss the purpose of implementing a decolonization protocol in cardiothoracic surgery patients.

Discuss the impact of implementation of a decolonization protocol in cardiothoracic surgery patients.

Self Assessment Questions:

What is the most common organism associated with wound infections?

A E. coli
B: S. epidermidis
C: S. aureus
D: S. pyogenes

How many days are required for surgical prophylaxis in cardiothoracic patients?

A 1 day
B 2 days
C 3 days
D 0 days

Q1 Answer: C Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-519 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

PHARMACIST ASSESSMENT OF POST DISCHARGE MEDICATION RECONCILIATION TO IMPROVE TRANSITIONS OF CARE

Phuong M Nguyen, PharmD*; Margaret A Malovrh, PharmD
Sparrow Health System,1215 E Michigan Ave,Lansing,MI,48912
phuong.nguyen@sparrow.org

Background/Purpose
Project BOOST (Better Outcomes for Older adults through Safe Transitions) is a nationwide effort to refine the hospital discharge process. It aims to reduce 30-day readmissions by improving the continuity of care for patients upon discharge. Sparrow Hospital and the Mid-Michigan Physicians (MMP) organization have collaborated in an attempt to achieve these goals. The purpose of this study is to show the potential roles of pharmacists in the discharge process to improve transitions of care.

Methods
This is a prospective study conducted at Sparrow Hospital in Lansing, M from October 20, 2011 to January 31, 2012. Patients discharged from the 4-Foster and 7-Foster wards of the hospital with a primary care physician (PCP) who is a member of the internal medicine - division two (IM-2) of MMP were eligible for the study. Patients were excluded if they were discharged to hospice or if no discharge medication records were available. Charts of eligible patients were reviewed post discharge. A pharmacist reconciled and compared the admitting medications, medications received while inpatient, and discharge medications for discrepancies. In addition, the appropriateness of the patients therapy was evaluated. Significant medication reconciliation discrepancies and clinical therapeutic recommendations were faxed to the patients PCP at MMP. The faxes were to be received by the PCP prior to the patients first follow-up appointment after discharge. If no appointment was recorded, the recommendations were faxed within seven days of the patient being discharged. The type of recommendations made will be categorized by type. At the completion of the study, a survey will be sent to the IM-2 physicians of MMP regarding the value of the recommendations made and the sustainability of the project.

Results and Conclusions
Data analysis is currently in progress. Results and conclusions will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Identify the goals of project BOOST

Recognize the potential roles and value of including pharmacists in the discharge medication reconciliation and evaluation process to improve transitions of care

Self Assessment Questions:

Which of the following is a primary goal of project BOOST?

A Improve access to quality health-care for low-income patient popul
B: To decrease 30-day hospital readmission rates
C: To advance the pharmacist-physician relationship
D: To provide support and appropriate funding for novel therapy resea

Which of the following can pharmacists be involved in during the discharge process to improve transitions of care?

A Discharge medication reconciliation
B Counseling patients on their discharge medications
C Collaborate with physicians and make appropriate recommendatio
D All of the above

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-732 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

ASSESSMENT OF THE IMPLEMENTATION OF A MASTER DRUG FORMULARY WITHIN A 14-HOSPITAL HEALTHCARE SYSTEM

David Nguyen, PharmD*; Julie John, PharmD, BCPS; Susan Jula, PharmD, BCPS; Sun Lee-Such, PharmD, BCPS, MBA
Franciscan St. Margaret Health,5454 Hohman Avenue,Pharmacy,Hammond,IN,463201999
david.nguyen@franciscanalliance.org

Background:
Implementation and management of a drug formulary is one of the ways a hospital can control prescribing habits and drug expenses. Drugs are added and removed from the formulary based on safety, efficacy, current practice guidelines, and pharmacoeconomic factors. The Franciscan Alliance (FA) is implementing a master drug formulary (MDF) for its 14 hospital healthcare system. Phase 1 was to decrease the variation of drugs, which has been completed. This resulted in streamlining 3321 formulary line items to 1865, with a 32% reduction in number of drugs and a 44% reduction in number of dosage forms. Phase 2 is the implementation of MDF at the local level and implementing a standardized drug review process. The goal is to promote evidence based medicine and enable cost savings.

Purpose:
The purpose of this study was to evaluate the implementation of the MDF and formulary standardization process at FA. Primary outcomes are pharmacy satisfaction, and pharmacy and therapeutic committee (P&T) efficiency and efficacy. Secondary outcomes are formulary decision making process before and after MDF implementation and MDF implementation methods.

Methods:
An online survey tool was sent to pharmacy leadership within the FA. Survey questions focused on pharmacy satisfaction, P&T efficiency and efficacy, formulary decision making process, and implementation of formulary changes.

Results/Conclusions:
Analysis of data is underway, results and conclusions to be presented at the Great Lakes Residency Conference.

Learning Objectives:

Review the rationale behind the utilization of a drug formulary for a healthcare system.

Discuss the potential cost savings and formulary decision making process within the FA.

Self Assessment Questions:

What is the goal of the implementation of a MDF within the FA healthcare system?

A Increase number of drugs and dosage forms
B: Evidence based medicine and cost savings
C: Obtaining drugs from a coordinated central supply system
D: Increase the transit time from distribution to administration of the d

How many formulary line items remained after phase 1 of MDF?

A 3321
B 1865
C 1655
D 3005

Q1 Answer: B Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-731 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

CHARACTERIZING THE EFFECT OF CORTICOSTEROID INDUCED LEUKOCYTOSIS

Tammy T. Nguyen*, PharmD, Adam J. Bursua, PharmD, BCPS, Mathew Thambi, PharmD, BCPS, MPH

University of Illinois at Chicago,833 S. Wood St.,(All mail to M/C 874),Chicago,IL,60612

TammyNguyenT@gmail.com

Purpose: Encountering leukocytosis in a patient receiving corticosteroids is a common clinical scenario. There is, however, limited ability to differentiate leukocytosis due to corticosteroids from that due to an underlying infectious process. The objective of this study is to characterize the leukocytosis associated with the initiation of corticosteroid therapy in patients with infection and those without by identifying time to onset, duration of response, differential of granulocyte elevations/depression, zenith and nadir of leukocytosis, and time to resolution. Study results will also be stratified into pre-specified subgroups in order to determine specific patient and drug characteristics that may modulate this leukocytosis response.

Methods: This study is a single center, retrospective chart review. Patients will be selected from an electronic medical center report that identifies patients with an inpatient order for intravenous, intramuscular, or oral corticosteroid. Data will be retrospectively collected on eligible patients from the day prior to steroid initiation to discharge or up to one month after the initiation of the treatment, whichever period is shorter. Patients will be included if they are ≥ 18 years old, have no history of corticosteroid use in the previous four weeks, have inpatient laboratory values including complete blood cell count with differential, and an inpatient stay of 5 days or longer. Patients will be excluded if they have a diagnosis myeloproliferative disease, are receiving acute chemotherapy and/or growth colony stimulating factors, and have no documented inpatient laboratory results. The following metrics will be collected for each patient: age, gender, weight, body mass index, serum creatinine, albumin, complete blood cell count with differential, corticosteroid indication, name, daily dose, route of administration, presence of infection, type of infection, presence of a surgical procedure, and length of stay.

Results: Results and conclusions will be presented at the Great Lakes Residency Conference.

Learning Objectives:

Describe how corticosteroid initiation may confound interpretation of objective factors used in the diagnosis of infection

Recognize the different patient or corticosteroid characteristics that may influence the magnitude of corticosteroid induced leukocytosis

Self Assessment Questions:

The initiation of corticosteroid treatment is often associated with the following:

A Increase in white blood cell (WBC) count

B: Decrease in WBC count

C: Increase in platelets

D: Decrease in platelets

Which of the following statements is/are true? Corticosteroid induced leukocytosis is due to:

A An increase in the synthesis of polymorphonuclear (PMN) cells

B An increase in the release of PMNs in the bone marrow

C The reduction in the clearance of PMNs from the circulation

D B and C

Q1 Answer: A Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-521 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

A QUALITATIVE REVIEW OF PROVIDER OVERRIDE COMMENTS ASSOCIATED WITH SERIOUS ADVERSE DRUG REACTIONS IN A VETERAN POPULATION

Joseph Nguyen, Pharm.D.*, Judith Toth, Pharm.D., CGP, CDE, Sandra Calenda, Pharm.D., Christine Clark, Pharm.D., MS, James Duvel, Pharm.D.

Jesse Brown VA Medical Center,820 S Damen Ave,Chicago,IL,60612

Joseph.Nguyen3@va.gov

Background:
Adverse drug reactions (ADRs) are responsible for greater than two million hospitalizations and over 100,000 deaths yearly. At Jesse Brown Veteran Affairs Medical Center (JBVAMC), an ADR is considered serious when the patient outcome results in patient expiration, disability or permanent damage, congenital anomaly or birth defect, required intervention to prevent permanent impairment or damage, or requiring/prolonging hospitalization. As pharmacists continue to transition from dispensing to clinical positions, the profession plays a pivotal role in preventing ADRs. Computerized physician order entry (CPOE) systems have improved the quality of care in patients by minimizing the ambiguity of handwritten orders and allowing orders to be processed by clinical support tools. JBVAMCs CPOE system requires providers to enter override comments when a critical drug-drug interaction or patient allergy to the order exists.
Purpose:
The current computer system requires providers to enter comments in order to override alerts classified as a critical order check. The utility of these comments in instances where serious ADRs have occurred has not been evaluated. The purpose is to qualitatively review provider override comments associated with serious adverse drug reactions.

Methods:
This study will be a retrospective, electronic chart review of veterans aged 18 years and older at JBVAMC that have a provider override comment associated with a serious ADR from October 1, 2006 through September 30, 2011. Potential study participants will be identified via electronic search of patients with a documented serious ADR between October 1, 2006 and September 30, 2011. Serious ADRs will be reviewed to determine if a critical order check was utilized for those categorized as an ordering error. If yes, provider override comments will be evaluated for clinical utility.

Results/Conclusions:
Final results and conclusions will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Define serious adverse drug reaction.

Identify instances where provider override comments are necessary.

Self Assessment Questions:

Which of the following ADR outcomes would be considered serious?

A An ADR which resolves upon drug discontinuation

B: An ADR which requires medical intervention for the resolution of sy

C: An ADR which does not require the patient to be hospitalized

D: An ADR which results in the patient's death

In what instance would a provider need to enter an override comment at JBVAMC?

A A critical drug-drug interaction exists with an active medication

B When any drug-drug interaction exists with an active medication

C The patient has no documented adverse drug reaction to the same

D The patient is prescribed a new medication that the patient has nev

Q1 Answer: D Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-821 -L05-P

Activity Type: Knowledge-based Contact Hours: 0.5

RETROSPECTIVE ANALYSIS OF ANTICOAGULATED PATIENTS UNDERGOING PRIMARY PERCUTANEOUS CORONARY INTERVENTION FOR STEMI.

Anna Maria Niedzwiecki, PharmD*; Jill H. Cwik, PharmD; Parag Patel, DO

Advocate Lutheran General Hospital,1775 Dempster St,Park Ridge,IL,60068

anna.niedzwiecki@advocatehealth.com

Background: Managing ST-elevation myocardial infarction (STEMI) with anticoagulant and antiplatelet agents during percutaneous coronary intervention (PCI) carries a significant risk for major bleeding. Patients on chronic warfarin therapy presenting with a STEMI have an increased risk of hemorrhage and mortality. Limited data are available to guide the management of patients undergoing PCI for a STEMI that have a therapeutic or supratherapeutic INR due to warfarin therapy. Purpose: The purpose of this study is to determine bleeding rates associated with different antiplatelet and anticoagulant agents administered during PCI and types of arterial access in the setting of an elevated INR. Methods: A retrospective chart review of subjects who underwent a PCI for a STEMI during January 2006 to December 2011 was performed. The sample size was calculated to detect a 10% bleeding rate difference between the two study groups. In order to detect a significant difference, a minimum of 140 participants are needed in each group. The treatment group consists of subjects 18 years of age or older with a STEMI undergoing PCI. The subjects must be receiving warfarin therapy and have an INR greater than or equal to 2. The control group will include subjects 18 years or older diagnosed with a STEMI undergoing PCI. Subjects in the control group must be diagnosed with atrial fibrillation and not receiving therapeutic anticoagulation. The primary endpoint is hemorrhagic events classified by TIMI major bleeding criteria post-PCI and up to 7 days of hospitalization. The secondary endpoints include: all-cause mortality associated with bleeding complications, re-admission within 30 days of discharge related to TIMI major and/ or minor bleeding, or thrombosis. The results of this research study will be used to devise a treatment protocol to guide management of STEMI patients on chronic warfarin therapy in our cardiac catheterization laboratory. Results/ Conclusions: In progress.

Learning Objectives:

Discuss the risk associated with performing urgent percutaneous coronary intervention on a patient having an elevated INR as it pertains to periprocedural drug management.

List major bleeding criteria used to predict bleeding rates in patients undergoing PCI.

Self Assessment Questions:

Which of the following patient subgroups are at an increased risk for bleeding while undergoing a PCI for a STEMI while being therapeutically anticoagulated?

A Female gender
B: Age 75 or over
C: Past medical history of diabetes mellitus
D: All of the above

Which of the following bleeding criteria are used to predict bleeding rates in patients undergoing PCI?

A Global Use of Strategies to Open Coronary Arteries (GUSTO)
B Thrombolysis in Myocardial Infarction (TIMI)
C Harmonizing Outcomes with RevasculariZatiON and Stents in Acu
D A and B

Q1 Answer: D Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-522 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF HIGH DOSE SIMVASTATIN RELATED MYOPATHY IN CINCINNATI VETERANS AFFAIRS MEDICAL CENTER (CVAMC) POPULATION

Joori C. Noh, PharmD*, Susan C. Drees, PharmD, BCPS

Cincinnati Veteran Affairs Medical Center,3200 Vine Street,Cincinnati,OH,45011

joori.noh@va.gov

Purpose:
Food and Drug Administration (FDA) recently announced new restrictions and dose limitations for simvastatin due to increased risk of myopathy. The recommendations were based on the results of the Study of the Effectiveness of Additional Reductions in Cholesterol and Homocysteine (SEARCH) trial, which showed higher rate of myopathy in patients receiving 80mg of simvastatin compared to patients receiving 20mg. The purpose of this study is to evaluate the significance of the FDA simvastatin recommendations in CVAMC population and to determine if the results of SEARCH trial can be extrapolated to CVAMC patients.

Methods:
This study will be conducted as a retrospective, case control study by performing a chart review of CVAMC patients who were prescribed simvastatin from 1/1/07 to 5/31/11. Patients considered for inclusion are ≥ 18 years of age who were prescribed simvastatin during the period above. Patients will be excluded if they developed adverse drug events other than myopathy. Approximately 150 patients will be included to show a significant difference based on a power analysis (80%). Patients who have documented observed myopathy on simvastatin (with or without concomitant use of interacting medications) will be enrolled as cases. Controls will be randomly identified by using the same cohort of patients that the cases were identified from, but those without myopathy. Controls will be matched to cases based on age, gender, simvastatin dose and interacting medication(s). Each case will be matched with controls at a ratio of 1 to 2 to reach the desired sample size. The primary outcome is the proportion of patients on simvastatin 80mg or simvastatin with interacting medication(s) who developed myopathy. The anticipated benefit is to provide more definitive guidance when prescribing simvastatin to CVAMC population.

Results/Conclusions:
Data collection and analysis is ongoing. Study results and conclusions will be presented at the GLPRC.

Learning Objectives:

Review the FDA dosing limitations and prescribing guidance on simvasatin.

Discuss the impact of simvastatin dosing and drug interactions on patient safety.

Self Assessment Questions:

What is the dose limitation on simvastatin if patient is concomitantly taking amiodarone?

A 5mg
B: 10mg
C: 20mg
D: 40mg

What is the name of the study/trial that resulted in changes to the simvastatin drug labeling?

A Action to Control Cardiovascular Risk in Diabetes (ACCORD) trial
B Study of the Effectiveness of Additional Reductions in Cholesterol
C Prediction of Muscular Risk in Observational Conditions (PRIMO) s
D Aggrastat to Zocor (A to Z) trial

Q1 Answer: C Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-523 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

RETROSPECTIVE SAFETY REVIEW OF PATIENTS RECEIVING THERAPEUTIC DOSES OF ALTEPLASE

K. Michael OConnor, PharmD*; Michele R. Michaels, PharmD; Mary Beth Shirk, PharmD

The Ohio State University Medical Center,410 West Tenth Avenue,368 Doan Hall,Columbus,OH,43210

Michael.O'Connor@osumc.edu

Purpose: Patients receiving therapeutic doses of alteplase are at an increased risk for adverse outcomes. Signals from our local event reporting system prompted a review of the patient care processes associated with this patient population. The objective of this study is to evaluate safety measures taken in patients receiving therapeutic doses of alteplase.

Methods: This is a retrospective analysis of medical records of all patients who received therapeutic doses of alteplase at, or prior to transferring to, our medical center. Patients that received alteplase between July 1, 2010 and September 30, 2011 were included. Patients receiving less than 20 mg of alteplase, incarcerated patients, and patients less than 18 years of age were excluded. Patients were identified using a query of the health systems centralized data repository, the Department of Pharmacys electronic medication order processing system, and the internal event reporting system. Search terms included: discharge ICD-9 codes for stroke (434.91) and acute pulmonary embolism (415.19) (data repository) and alteplase (order processing and event reporting systems). Four different electronic documentation systems were used in various patient care areas during the study period. Handoff and interdisciplinary communication will be evaluated via documentation. Additionally, the following safety measures will be assessed post alteplase administration: provision of patient education, bleeding and fall risk assessment, and the avoidance of concurrent administration of medications which increase the risk for bleeding. Data will be recorded for 72 hours following alteplase administration. Descriptive statistics will be used to analyze and report the results of this study.

Results/Conclusions: Seventy six patients were identified to be screened against inclusion and exclusion criteria. Data collection is ongoing. Results and conclusions will be presented at the Great Lakes Residency Conference.

Learning Objectives:

Describe the importance of communication between providers during handoffs for patients receiving alteplase.

List the patient care activities which should take place after alteplase administration.

Self Assessment Questions:

Communication during handoffs after alteplase administration is important because:

A There is a high risk of anaphylaxis.

B: Patients are at an increased risk of bleeding.

C: Alteplase may interfere with serum potassium levels.

D: Handoff communication is not important.

Which of the following should take place following alteplase administration?

A Immediately order restraints for patients at risk of having a fall.

B Begin rehabilitation with extensive physical therapy.

C Educate the patient on the bleeding risk associated with alteplase.

D Place a nasogastric tube for gastric decompression.

Q1 Answer: B Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-822 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

CREATION OF A DRUG INFORMATION CENTER IN THE RESOURCE CONSTRAINED SETTING OF ELDORET, KENYA: THE AMPATH EXPERIENCE

William O. Ogallo, B.Pharm*, Isabel C. Hagedorn, PharmD, Celia C. Ngetich, B.Pharm, Monica L. Miller, PharmD, Rakhi Karwa, PharmD, BCPS, MS, Sonak D. Pastakia, PharmD, MPH, BCPS

Purdue University College of Pharmacy/Moi Teaching and Referral Hospital,c/o Monica Miller, 1001 W 10th Street, Myers Building W7555,Indianapolis,IN,46208

williamogallo@gmail.com

Purpose:
Drug information centers promote rational medicine use by enabling access to objective, clinically relevant and up-to-date drug information, but are uncommon in less-endowed settings where such services may be more important. This study describes the resources, challenges and outcomes of the creation of a drug information center in a resource-constrained setting.

Methods:
The Academic Model Providing Access To Healthcare (AMPATH) recently created a drug information center to serve the medicine information needs of its operations in the resource-poor catchment area of Western Kenya. This study analyzed the resources used in creating the center. Using records captured by the centers database, the types of clients, types of questions, time taken to respond to questions, references used, methods of communication and client satisfaction shall also be assessed.

Results:
The centers operation started in January 2012. The average cost of setting it up was $1200, with the acquisition of a computer, a smart phone and an electronic database taking up much of the initial costs, while current running costs remain minimal. Reference books were obtained via donations from reputable publishers based in the USA. Upon a special request, a one year online access to Lexicomp was granted at no cost. The centers database was designed by Indiana Universitys Research Electronic Data Capture (Redcap) team. A pharmacist employed by AMPATH was put in charge of the center, with the assistance of four pharmacy residents. Standard Operating Procedures were developed and training of the centers staff was done. Results from the investigations based on the centers database records are pending.

Conclusions:
Challenges including lack of trained pharmacists, inadequate financial resources and limited access to drug information sources were experienced. However, the AMPATH drug information center is operational and this model clearly shows it is possible to create drug information centers in resource-limited settings.

Learning Objectives:

Discuss the challenges faced in setting up and running a drug information center in a resource-constrained setting.

Describe the outcomes of a model resource-constrained setting drug information center.

Self Assessment Questions:

Which of the following is the most important challenge in setting up a drug information center in a resource-constrained setting:

A Lack of technology and computers

B: Lack of properly trained personnel who can run the center

C: Lack of physical Infrastructures such as buildings

D: High operation costs after the center has been set up

Which of the following statements is correct about creating a drug information center in a resource-constrained setting?

A Such ventures are not feasible because of high initial and operatio

B Language barrier presents a great challenge

C Accessibility to reliable drug information resources should be ensu

D Proper record keeping is not mandatory

Q1 Answer: B Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-733 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

INCIDENCE OF VENOUS THROMBOEMBOLISM IN THE SETTING OF A HEMATOPOEITIC CELL TRANSPLANTATION

VJ Daphne OHara*, PharmD; Trent Milller, MD; Rakesh Mehta, MD; Evonne Swartzendruber, RN, Patrick Kiel, PhamD, BCPS, BCOP

Indiana University Health,1701 N.Senate Blvd,Indianapolis,IN,46202

vohara@iuhealth.org

Purpose: Patients with cancer have an incidence of reported thrombotic events that ranges from 4% to 20%. These patients have several unique risk factors for VTEs, such as a hypercoaguable state in the first three to six months after diagnosis. The site of cancer and chemotherapy or hormonal therapy also impact patient risk for VTE.
Patients undergoing hematopoeitic cell transplantation (HCT) have been historically believed to be at low risk for VTE due to the low platelet count from high-dose chemotherapy. There is limited documentation of VTE in HCT and therefore, a lack of knowledge as to whether or not anticoagulation is safe in this patient population. The purpose of this study is to characterize the incidence of VTE in HCT.

Methods: A retrospective chart review of patients from the Stem Cell Transplant Unit treated between January 1, 2008 and May 24, 2011 was conducted. Patients were greater than 18 years old and had undergone hematopoietic cell transplantation. Patients receiving warfarin for atrial fibrillation were excluded.

Demographics included age, sex, cancer diagnosis, type of HCT (autogeneic versus allogeneic), history of VTE (if yes, whether patient had DVT or PE), and whether or not patient was receiving anticoagulation at time of admission for transplant. Patients were assessed for the to the time to development of VTE from admission for HCT, site of VTE, treatment strategy used, and the platelet count at time of VTE.

Endpoints: The primary objective of this study was to analyze the rates of VTE in patients undergoing autogeneic and allogeneic HCTs. Secondary objectives included: assessing the rates of VTE treatment strategies used (warfarin versus heparin versus LMWH) and the time from admission for transplant to development of VTE.

Results/Conclusion: To be discussed upon completion of data collection.

Learning Objectives:

List VTE risk factors specific to patients with cancer.

Discuss available literature concerning anticoagulant use in patients with cancer.

Self Assessment Questions:

Which of the following is a VTE risk factor in patients with cancer?

A Chemotherapy or hormonal therapy
B: Thrombocytopenia
C: Increased mobility
D: Patients with cancer are not at risk for VTE

Which of the following is the preferred medication for prevention of recurrent VTE according to the American Society of Clinical Oncology Guidelines for patients with cancer?

A Warfarin
B Heparin
C Low molecular weight heparin
D Compression stockings

Q1 Answer: A Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-734 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

IMPLEMENTATION OF CLINICAL INTELLIGENCE PLATFORM ALERTS TO PHARMACISTS AND ITS EFFECT ON APTT RESPONSE TIME AND THERAPEUTIC OUTCOMES

Barima K Opong-Owusu Jr., PharmD*; Frankie Julian, PharmD; Jason Pogue, PharmD, BCPS; Heather Somand PharmD

Sinai-Grace Hospital/Detroit Medical Center,44733 Gwinnett Loop,Novi,MI,48377

bopong-o@dmc.org

Purpose: TheraDoc has the potential to improve patients outcomes by decreasing pharmacist response time to sub or supra-therapeutic laboratory values.

Methods: This is a retrospective cohort study. The study period will consist of the dates prior to implementation of TheraDoc from October 1st, 2010 to December 31st, 2011 and compared to after the implementation of TheraDoc from March 1st, 2011 thru May 31st, 2011. Patient data for review will be collected from the EMR of patients admitted to Sinai-Grace Hospital. Patient information that will be collected includes demographics, time to a therapeutic Aptt, time from the lab value to pharmacist action, major and minor rates of bleeding, length of hospital stay, and all-cause mortality.
Standard statistical tests will be utilized to compare variables and outcomes between the two study periods. Fischers exact and/or Chi-square tests will be used to analyze dichotomous variables; and the Students t-test and/or Wilcoxon rank-sum test will be used to analyze continuous variables. Logistic regression will be used to identify independent predictors of dichotomous outcomes such as mortality. Linear regression will be used to identify independent predictors of continuous outcomes, such as time to therapeutic Aptt.

Objectives:
Primary: Determine the difference in pharmacist response time to laboratory values before and after the implementation of TheraDoc

Secondary:
- Asses the affect on various patient specific outcomes: rate of major and minor bleeding, hospital and ICU length of stay, all-cause mortality, and recurrence of VTE
- Compare the amount of time required for a patient to achieve therapeutic levels.
- Percentage of time the patient remains in the therapeutic range

Results and Conclusion: will be presented at the 2012 GLPRC.

Learning Objectives:

Explain the role of TheraDocTM in improving pharmacist response time to aPTT values.

Discuss potential for the alert system to improve patient outcomes while on Heparin.

Self Assessment Questions:

Patients on Heparin are at increased risk for:

A Infection
B: Hypercoagulopathy
C: Bleeding events
D: Leukocytopenia

TheraDoc is an alert system that works by:

A Alerts through email
B Sending a text page
C Alerting on the patient EMR
D Alarming at patient bedside

Q1 Answer: C Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-735 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

PREDICTORS OF ADHERENCE TO ADJUVANT CHEMOTHERAPY AMONG VETERANS WITH COLON CANCER

Anne Ormerod,* Heather Riggs, Kathleen Lane, Susan Rawl, Patrick Loehrer, Michael Weiner

Indiana University Health,550 N University Blvd,Indianapolis,IN,46202

aormerod@iuhealth.org

Purpose: Standard therapy for patients with stage II/III colon cancer is surgery followed by six months of adjuvant chemotherapy (AC) consisting of a fluoropyrimidine with or without oxaliplatin. Receipt of less than five months of therapy is associated with decreased cancer-related death. Whether advanced age, regimen-specific or other clinical and demographic factors are associated with completion of chemotherapy is uncertain. The primary objective of this study was to determine predictors of planned cumulative dose of chemotherapy.

Methods: Retrospective chart review of veterans with stage II/III colon cancer seeking adjuvant chemotherapy at the local VA hospital from 2004 to 2010. Baseline socio-demographic information, travel distance (TD), Adult Co-morbidity Evaluation (ACE-27) score, primary regimen, and laboratory results were evaluated. Chemotherapy delivery was measured as the percentage of planned cumulative dose (PCD) of 5-fluorouracil or capecitabine. Linear regression identified predictors of PCD. Toxicities, hospitalization, and other reasons for discontinuing therapy were recorded. Cox regression models were used for survival analysis.

Results: Fifty patients (98% male, median age 63) initiated AC for stage II (n=6) or III (n=44) disease with median interval from resection to AC of 7.4 weeks. The median PCD was 75%; median treatment duration was 5 months. Lower PCD was associated with older age (p=0.05), lower GFR (p=0.05), higher TD (p=0.02), lower baseline hemoglobin (p=0.10), and receipt of capecitabine (p<0.01). Receipt of capecitabine (p=0.008) and TD (p=0.04) remained significantly associated with PCD in a multiple linear regression model. Toxicity was noted for 78%, and PCD tended to be lower for reported cardiac events (p=0.07). Patients older than 63 had inferior survival (HR=4.17, p=0.03). Patients receiving less than 80% PCD tended toward inferior survival (HR=4.31, p=0.07).

Conclusions: Capecitabine-based AC and travel distance were associated with lower PCD, which may negatively impact survival.

Learning Objectives:

List the common chemotherapy regimens used in patients with stage II and III colon cancer.

Recognize the socio-demographic risk factors for not completing scheduled chemotherapy.

Self Assessment Questions:

Which of the following are not standard adjuvant chemotherapy regimens for stages II/III colon cancer.

A Capecitabine + Oxaliplatin

B: Fluorouracil + Leucovorin

C: Fluorouracil + Leucovorin + Oxaliplatin

D: Bleomycin + Etoposide + Cisplatin

The following characteristic was not associated with lower PCD

A Older age

B Male gender

C Greater travel distance to treatment site

D Capecitabine-based therapy

Q1 Answer: D Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-524 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

WORKFLOW OPTIMIZATION AND REDESIGN FOR A NEW ONCOLOGY CLINIC PHARMACY AREA AT AN ACADEMIC MEDICAL CENTER

Melissa A. Ortega*, PharmD, Jessica Mahoney; PharmD, MS

University of Wisconsin Hospital and Clinics,8570 Greenways Station Apt #207,Madison,wi,53562

mortega@uwhealth.org

Purpose: The University of Wisconsin Carbone Cancer Center (UWCCC) is the only comprehensive cancer center designated by the National Cancer Institute, in Wisconsin. The Ambulatory Oncology Clinic continues to grow with the addition of more providers and treatment areas. Patient volumes and workload for the pharmacy has increased 50% over the last three years and the current pharmacy space is no longer able to support the current patient needs. The purpose of this project is two-fold; first to optimize the current oncology pharmacy workflow to ensure safety and efficiency in the preparation and distribution of chemotherapy and second, to design a new oncology pharmacy area to improve the patient experience and accommodate growth in retail and compounding practices.

Methods: Using clinical microsystems quality improvement method, pharmacy clinic operations were evaluated using the "5Ps" as a guide, purpose, patients, professionals, process and patterns. The core distinguishing characteristics of the microsystem were defined by reviewing current operational standards and best practices such as ASHP recommendations for handling hazardous medications. An interdisciplinary workgroup was assembled to include key members of the microsystem. Process work flows, spaghetti diagrams, and interrelationship diagrams were used to understand the current state of the microsystem. Time standards via direct observation were used to measure medication turn-around-time. Formal staff interviews and work sampling were conducted to analyze the current work environment and to estimate the amount of time each role within the microsystem spent on operational and patient care activities. The workgroup validated the data and prioritize recommendations based on feasibility and impact on patient care services. Recommendations were implemented using Plan, Do, Check, Act (PDCA) model. Microsoft Visio 2010 was used to design an idealized facility incorporating solutions to workflow and functional needs.

Results: Data analysis and conclusion will be presented at the Great Lakes Conference.

Learning Objectives:

Describe the process and Quality Improvements (QI) methods utilized to evaluate the activities and workflows of the pharmacy oncology Microsystem area to improve performance and functionality.

List key components and strategies to consider when developing a design for a new pharmacy area.

Self Assessment Questions:

Name one advantage of using work sampling as a technique to assess multiple activities.

A Work sampling allows you to identify the cause-and-effect relations

B: Work sampling allows you to design the flow of processes and info

C: Work sampling allows you to capture the shows the steps in one p

D: Work sampling allows you to determine the proportion of time spe

A Spaghetti Diagram is a useful tool when assessing, which of the following activities?

A Traffic flow patterns

B Patterns of cause and effect relationships

C Broad issues or themes

D Productivity

Q1 Answer: D Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-736 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

A RETROSPECTIVE ANALYSIS OF GOUT PROPHYLAXIS MANAGEMENT IN VETERANS WHOSE COLCHICINE TREATMENT WAS DISCONTINUED

Jared L Ostroff*, Pharm.D., Brett Geiger, Pharm.D., Milica Jovic, Pharm.D., BCACP, Claudia Rakhman, Pharm.D., BCACP, Erica H. Lin, Pharm.D.

Jesse Brown VA Medical Center,820 South Damen Ave (119),Chicago,IL,60612

jared.ostroff@va.gov

Background:
Chronic tophaceous gout is a consequence of untreated hyperuricemia, which often involves polyarticular attacks, symptoms between attacks, and crystal deposition (tophi) in soft tissues or joints. Allopurinol is one of the most commonly used agents in gout prophylaxis for lowering uric acid. Because colchicine inhibits the inflammatory mediators found in gout, it is commonly used for both the acute management and long term prophylaxis. However, data is limited to support the long term use of colchicine in combination with urate lowering therapy. There is also sparse literature regarding patient outcomes and symptom control after discontinuation of colchicine treatment. According to the VA PBM guidance published in October 2010, treatment of long term gout may include urate lowering therapy plus colchicine for up to 6 months. As a result of the updated dosing guidelines, it was observed that patients were being prescribed colchicine either as monotherapy in combination with allopurinol for long term gout prophylaxis.

Purpose:
The objective of this study is to retrospectively evaluate the effect of discontinuing colchicine therapy in patients previously taking it for gout prophylaxis. A pharmacoeconomic evaluation will also be performed.

Methods:
The study will be a retrospective chart review of patients with a diagnosis of gout and an active prescription for colchicine at any time between July 1, 2010 and August 1, 2011. Patients will be stratified into one of two groups, allopurinol plus colchicine, or colchicine monotherapy. The control of gout symptoms prior to and up to 6 months after discontinuation of colchicine is to be evaluated. Further analysis includes the number of gout flares per month.

Results:
Results will be presented at the Great Lakes Residency Conference.

Learning Objectives:

Identify the consequences of untreated hyperuricemia

Discuss results of current literature available to support colchicine for long term gout prophylaxis

Self Assessment Questions:

Which of the following are potential consequences of untreated hyperuricemia?

A Gout symptoms between attacks
B: Crystal deposition in soft tissues or joints
C: Elevated serum uric acid
D: All of the above are potential consequences

In the CONFIRMS study, the length of time patients were concomitantly on both urate lowering therapy and flare prophylaxis was:

A 2 weeks
B 1 month
C 6 months
D 3 years

Q1 Answer: D Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-525 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

DEVELOPMENT OF A POST GRADUATE YEAR ONE PHARMACY RESIDENCY PROGRAM AT A COMMUNITY HOSPITAL

Ann E Palm, PharmD*; Kristin Hanson, RPh, MS; Terry Audley, RPh; Philip Hsu, RPh, MBA; Diane Marks, RPh; Ann Bachar, RPh

Froedtert Hospital,9200 West Wisconsin Ave,Milwaukee,WI,53226

ann.palm@froedterthealth.org

Purpose: There continues to be a gap in the number of candidates seeking residency training and the number of residency positions available. Expansion of residency programs is necessary in order to meet the American College of Clinical Pharmacy (ACCP) and American Society of Health-System Pharmacy (ASHP) 2020 vision that residency training be a requirement for all pharmacists involved in direct patient care. Currently, only 38% of hospital based residencies are in hospitals with less than 400 beds. Of approximately 950 hospitals with 200 to 400 beds, there are only 188 post graduate year one (PGY1) pharmacy residency programs. Small to medium sized hospitals provide an immense opportunity to contribute to residency expansion. The goal of this project is to develop and implement a PGY1 pharmacy residency program at Community Memorial Hospital (CMH), a 260 bed community hospital located in Menomonee Falls, WI.

Methods: This project is a case study outlining the implementation of a PGY1 pharmacy residency program at CMH. A business case was developed to financially justify the addition of a pharmacy residency program to hospital leadership. CMH is eligible to utilize Centers for Medicare and Medicaid Services (CMS) pass-through reimbursement, and as a part of the staffing model residents will provide approximately 0.35 of a pharmacist full-time equivalent to offset costs associated with the program. To meet ASHP standards for residency preceptors, CMH has a select group of staff that will serve as primary preceptors and assume the majority of the responsibility for teaching residents. A survey was conducted with the pharmacy staff at CMH to assess their perceptions and readiness regarding residency training. The results of this survey will be used to address concerns and generate ideas to optimize the residency program. The aim is for CMH to host its first two residents starting July 2012.

Learning Objectives:

Describe CMS pass-through reimbursement and strategies to financially justify a PGY1 pharmacy residency program.

Identify challenges to implementing a PGY1 pharmacy residency program in a community hospital.

Self Assessment Questions:

CMS reimbursement for PGY1 pharmacy residency programs is based on which of the following:

A Percent of hospital Medicare patient load
B: Percent of pharmacy revenue from hospital Medicare patient load
C: Ratio of PGY1 to PGY2 pharmacy residency programs offered
D: Indirect costs for PGY1 pharmacy residency program

What is the most common concern among pharmacy staff at CMH regarding residency training?

A Time commitment
B Increased workload
C Uncertainty of how it will affect them
D Inability to meet ASHP preceptor requirements

Q1 Answer: B Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-737 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

CHARACTERIZING THE IMPACT OF ATRIAL FIBRILLATION IN THE MEDICAL INTENSIVE CARE UNIT

Mark H. Pangrazzi, PharmD*; Ishaq Lat, PharmD, BCPS, FCCM; John P. Kress, MD

University of Chicago Medical Center,5841 S Maryland,Chicago,IL,60637

mark.pangrazzi@uchospitals.edu

Dysrhythmias in the intensive care unit (ICU) occur due to increased stress, administration of vasoactive drugs, fluids, electrolyte disturbances, and hyperadrenergic output. New-onset atrial fibrillation (AF) has been shown to be common in surgical ICU patients (10-65% incidence in cardiothoracic surgery). In the medical ICU population, new onset AF is seen at a rate of 5-20%.

New-onset AF has been associated with increased morbidity and mortality in both cardiothoracic and non-cardiothoracic surgical populations. Outcomes of patients with new-onset AF in the medical ICU are largely unknown due to the lack of data describing morbidity and mortality in this cohort.

In 2010, investigators at the University of Chicago Medical Center performed a retrospective database review of the incidence of new-onset AF and the associated morbidity and mortality in the medical ICU. Patients who developed new-onset AF were found to have significantly increased in-hospital mortality compared to those who did not (OR = 2.01 95% CI 1.01-3.98). In this retrospective, single-center, cohort study, we hope to characterize morbidity and mortality in patients with new-onset, persistent, and no prior history of AF to better determine the effect of AF in a medical ICU population.

All adults ≥ 18 years old admitted to the medical ICU without recent cardiothoracic or non-cardiothoracic surgery within 3 months of ICU admission from June 1, 2008 to June 30, 2011 were included in the analysis. The primary outcome is whether any incidence of AF is an independent risk factor for in-hospital mortality. Secondary outcomes include 60-day mortality, ICU and hospital length of stay, and total drug and hospital stay charges. Baseline characteristics and nominal data will be analyzed using chi-square and Fischers exact test. Continuous data will be analyzed using students t-test. Primary and secondary outcomes will be examined with a forward, step-wise, multivariate, logistic regression and represented as means with a 95% confidence interval.

Learning Objectives:

Describe the pathophysiology of atrial fibrillation in the medical intensive care unit

Recognize potential triggers for atrial fibrillation in the medical intensive care unit

Self Assessment Questions:

All of the these are risk factors for atrial fibrillation in the ICU except:

A Mechanical ventilation
B: Age > 75
C: Sepsis
D: Elevated serum chloride

Which of the following was an exclusion in the current study design?

A Cardiac, thoracic, and non-cardiothoracic surgery within the 3 mon
B ICU admission > 24 hours
C Age > 18 years old
D Previous history of atrial fibrillation

Q1 Answer: D Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-526 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

SAFETY, EFFICACY, AND COST OF PHARMACODYNAMIC DOSE OPTIMIZATION OF BETA-LACTAM ANTIBIOTICS

*Nicholas J. Panno III, PharmD; Tamara L. Trienski, PharmD; Anthony K. Leung, MD; Dorcas Letting-Mangira, PharmD; Timothy R. Pasquale, PharmD

Summa Health System,525 East Market St.,P.O. Box 2090,Akron,OH,443091619

pannon@summahealth.org

Background: Beta-lactam antibiotics play a prominent role in current infectious disease therapy. However, increasing resistance among gram negative pathogens and slow development of new antimicrobial agents has led to an emphasis on optimizing the use of current agents. Beta-lactam antibiotics exert time dependant antimicrobial properties, which are optimized when administered by extended infusion. Literature has shown outcome benefit of extended infusion of beta-lactams compared with intermittent infusion. In 2007, Summa Health System initiated extended infusion of piperacillin/tazobactam 3.375 g IV over 4 hours every 8 hours and doripenem 500 mg IV over 4 hours every 8 hours as the preferred method of administration in critically ill patients. Summa Heath System then sought to investigate and define optimal use of antimicrobials effective against Pseudomonas areuginosa. In 2010, isolates were collected from within the institution and analyzed through The Center of Anti-Infective Research and Development in Hartford, Connecticut. A pharmacodynamic dose optimization protocol (PDOP) was developed from this data, with the goal of optimizing the dosing of piperacillin/tazobactam, doripenem, and cefepime based on specific organism minimum inhibitory concentration. There are no outcomes data regarding this protocol.

Objective: To determine the efficacy, safety, and cost of the PDOP compared to an empiric extended infusion protocol for piperacillin/tazobactam, cefepime, and doripenem.

Methods: A retrospective cohort analysis of medical records was conducted on patients who received any study antibiotics between October 2009 and October 2011. Patients admitted prior to the start of the PDOP were assigned to the extended infusion group, while patients admitted after the initiation of the PDOP were assigned to the PDOP group.

Results: Data collection is currently ongoing. Results will be presented at the Great Lakes Residency Showcase in April 2012.

Conclusions: Conclusions will be presented at the Great Lakes Residency Showcase in April 2012.

Learning Objectives:

Describe the rationale behind extended infusion beta-lactam antibiotics

Identify the kinetic parameter of beta-lactams that is associated with the success of their pharmacodynamic profile

Self Assessment Questions:

Extended infusion times for beta-lactam antibiotics have been found to produce which of the following outcomes when compared with standard intermediate infusions?

A Decrease adverse effects
B: Decrease mortality in all patients
C: Have no effect on length of stay
D: Have no effect on mortality

What pharmacokinetic parameter should be considered when trying to maximize probability of success with beta-lactam antibiotics?

A Maximize AUC : MIC ratio of free drug concentration
B Maximize time above MIC of free drug concentration
C Maximize Peak : MIC ratio of free drug concentration
D Maximize free drug concentration

Q1 Answer: B Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-527 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

COMPARISON OF PEDIATRIC MENINGITIS TREATMENT IN AN ADULT/PEDIATRIC EMERGENCY DEPARTMENT VS. FREE STANDING CHILDRENS HOSPITAL EMERGENCY DEPARTMENT

Julie E. Pardy, PharmD*; Cynthia A. Pollock, PharmD; BCPS, Karen L. Kovey, PharmD, BCPS

Spectrum Health,100 Michigan St NE,MC001,Grand Rapids,MI,49503

julie.pardy@spectrumhealth.org

Purpose: Meningitis is a medical emergency requiring rapid diagnosis and treatment. The primary outcome of this study is to compare time to antibiotic administration for treatment of pediatric meningitis between the Spectrum Health Butterworth Emergency Department (BW-ED) and Helen DeVos Childrens Hospital Emergency Department (HDVCH-ED). Secondary outcomes include obtainment of cerebrospinal fluid cultures and/or viral studies, utilization of dexamethasone, appropriate selection and dosing of empiric antibiotics for age and weight, and length of hospital stay.

Methods: This study is a retrospective cohort analysis. Charts were accessed via electronic medical records (EMR). Pediatric patients (age 0-17 years) with a primary diagnosis of meningitis admitted to BW-ED or HDVCH-ED were identified using ICD-9 codes. Exclusion criteria includes: ≥18 years old, pregnancy, transfer from another institution, insufficient EMR data, patients with intracranial shunts and patients that did not receive antibiotics or antivirals. Time to antibiotic administration was defined as time from patient ED registration to antibiotic administration time on EMR. Appropriateness of antibiotic selection and dose was assessed according to Infectious Diseases Society of America Practice Guidelines for Management of Bacterial Meningitis and expert consultation.

Results: A total of 100 patients were included (82 patients from BW-ED and 18 patients from HDVCH-ED). Age of the population was distributed as follows: 34% neonates (0-4 weeks for full-term newborn; 42-46 weeks post-conception for premature newborn), 33% infants (>4 weeks to 1 year), 24% children (>1 year-12 years), and 9% adolescents (13-17 years). Sixty-two percent were male. Average time to antibiotic administration was 130 minutes for BW-ED and 122 minutes for HDVCH ED (p=0.763). There were no statistically significant differences in secondary endpoints.

Conclusion: There is no difference in time to antibiotic administration, utilization of diagnostic studies, dexamethasone utilization or empiric antibiotic prescribing for the treatment of pediatric meningitis between BW-ED and HDVCH-ED.

Learning Objectives:

Identify an appropriate empiric antibiotic regimen for a pediatric patient with suspected meningitis.

Discuss appropriate laboratory studies and supportive medications with respect to antibiotic administration for a pediatric patient with suspected meningitis.

Self Assessment Questions:

What is the correct empiric treatment for bacterial meningitis in neonates?

A Ampicillin + 3rd generation cephalosporin

B: Vancomycin (15 mg/kg) + 3rd generation cephalosporin

C: Vancomycin (20 mg/kg) + 3rd generation cephalosporin

D: Ampicillin + Anti-pseudomonal β-lactam

2.How should steroids be utilized in treatment of pediatric bacterial meningitis according to the IDSA Guidelines for Management of Bacterial Meningitis?

A Dexamethasone 0.15 mg/kg IV administered after antibiotics

B Methylprednisone 0.15 mg/kg IV administered after antibiotics

C Dexamethasone 0.15 mg/kg IV administered 10-20 minutes before

D Methylprednisone 0.15 mg/kg IV administered 10-20 minutes befo

Q1 Answer: A Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-528 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

RISK OF VENOUS THROMBOEMBOLISM IN WOMEN USING HORMONAL CONTRACEPTIVES

Ashley M Parrott,* PharmD; Steven R Smith, MS, RPh, BCACP; Allison L. Dollman, MD; Jennifer J. Weber, MD

Toledo Hospital/Toledo Children's Hospital,2051 West Central Ave,Toledo,OH,43606

ashley.parrott@promedica.org

Purpose:
This retrospective data review was designed to determine whether contraceptives, particularly combination contraceptives containing drospirenone, are associated with an increased risk of developing a venous thromboembolism.
Methods:
Information was collected from medical and prescription claims at Paramount Health Care. Females with Paramount commercial or managed Medicaid insurance in Ohio and Michigan who received a contraceptive between July 1, 2008 and June 30, 2011 were identified. Contraceptives evaluated included oral, patch, and ring formulations as well as the medroxyprogesterone depot injection. Women with a history of cancer, a known hypercoagulable state, or systemic lupus erythematous were excluded. Women without a history of venous thromboembolism (VTE) or a hypercoaguable state receiving a prescription for enoxaparin or warfarin were excluded. The primary outcome was the occurrence of venous thromboembolism. This study will attempt to quantify the differences in the incidence of VTE between various contraceptives. Descriptive statistics, including raw proportions and contingency tables will be used to identify associations. Odds of developing VTE will be computed for each contraceptive and odds ratios will be used to compare different contraceptives.
Conclusions:
There are no preliminary conclusions at this time. Study results and conclusions will be presented at the Great Lakes Pharmacy Resident Conference regional meeting in April 2012.

Learning Objectives:

Describe the controversy associated with third-generation progestins.

Discuss the recent FDA released information regarding drospirenone-containing contraceptives.

Self Assessment Questions:

Traditionally third-generation progestins have been recognized as:

A More thrombogenic than other progestins

B: Less thrombogenic than other progestins

C: No difference in thrombogenicity when compared to other progesti

D: I'm not sure what a third-generation progestin is.

The FDA recently reviewed drospirenone-containing contraceptives. Which of the following is true:

A Drospirenone-containing contraceptives should no longer be presc

B Drospirenone-containing contraceptives now require updated label

C The benefit of using drospirenone-containing contraceptives outwe

D B and C

Q1 Answer: A Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-529 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

COMPARISON OF HIGH-DOSE AND STANDARD DOSE AMPICILLIN/SULBACTAM OR MEROPENEM FOR THE TREATMENT OF BLOODSTREAM INFECTIONS DUE TO A.BAUMANNII

Sonal Patel, PharmD*; Keith S. Kaye, MD, MPH; Dror Marchaim, MD; Ryan Mynatt, PharmD; Teena Chopra MD; Jason M. Pogue, PharmD, BCPS

Sinai-Grace Hospital/Detroit Medical Center,6071 W. Outer Drive,Detroit,MI,48235

spatel34@dmc.org

Purpose:
At the Detroit Medical Center, there has been increasing rates of resistance in Acinetobacter baumannii to ampicillin-sulbactam and meropenem. In April 2009, our antimicrobial subcommittee recommended employing higher doses of ampicillin-sulbactam and meropenem in the treatment of A. baumannii bacteremia. The objective of this study is to determine if utilization of high dose ampicillin-sulbactam or meropenem is associated with improved outcomes when compared with standard doses of these agents for the treatment of A.baumannii bacteremia.

Methods:
This study is a retrospective case control of patients with Acinetobacter baumannii bloodstream infections. The case group consists of patients treated with high dose ampicillin-sulbactam (3 grams IV every 4 hours) or meropenem (1000 milligrams every 6 hours). The control group consists of patients treated with traditional doses of ampicillin-sulbactam (3 grams IV every 6 hours) or meropenem (500 milligrams every 6 hours). Patients were identified via a query of the microbiological database for all patients with A. baumannii bacteremias susceptible to meropenem or ampicillin-sulbactam between the years of 2006 - 2011. From this list of patients, their clinical and microbiological outcomes were assessed as a function of dose received.

Data collected included patient demographics, comorbidities, present location, Pitt Bacteremia score, Charlson score, McCabe and Jackson score, degree of sepsis, source of infection, antibiotic regimen, time to effective therapy, kidney function via serum creatinine and creatinine clearance, length of stay and length of stay in the ICU, clinical outcomes (i.e. mortality, days of fever, and days of leukocytosis) and microbiological outcomes (i.e. clearance of infection from blood, duration of bacteremia), and isolation of resistant pathogens post-treatment.

Results:
Data analysis will be completed in February and will be compiled for presentation at the 2012 Great Lakes Pharmacy Resident Conference.

Conclusions:
To be presented at the 2012 Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Describe the role of ampicillin-sulbactam and meropenem in the treatment of Acinetobacter baumannii bacteremias.

Explain the efficacy of using high-dose ampicillin-sulbactam and meropenem in the treatment of Acinetobacter baumannii bacteremias.

Self Assessment Questions:

Which of the following cannot be used to treat A.baumannii bacteremia?

A Colistin
B: Tobramycin
C: Tigecycline
D: Meropenem

What is the predictor of bactericidal activity of the beta-lactam antibiotics?

A Auc/mic
B T>mic
C Peak/MIC
D Auc/mbc

Q1 Answer: C Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-530 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

RETROSPECTIVE EVALUATION OF OUTCOMES FOLLOWING DESENSITIZATION IN POSITIVE CROSSMATCH KIDNEY TRANSPLANTATION AT UNIVERSITY OF ILLINOIS HOSPITAL & HEALTH SCIENCES SYSTEM (UIH)

Shree H. Patel, PharmD*; Jamie Joseph, PharmD; Sanjeev Akkina, MD; Patricia M. West-Thielke, PharmD; James J. Thielke, PharmD; Maya Campara, PharmD; Jose Oberholzer, MD; Enrico Benedetti, MD

University of Illinois at Chicago,Dept. of Pharmacy Practice (M/C 886),833 South Wood Street, Rm 164 PHARM,Chicago,IL,606127230

spatel64@uic.edu

Purpose:
At UIH desensitization allows successful transplantation of patients with positive crossmatch (+XM) against their living donor. Limited data exists regarding predictors of successful or unsuccessful outcomes following desensitization. The purpose of this investigation is to identify variables correlated with positive or negative outcomes in patients receiving desensitization for +XM renal transplantation.

Methods:
UIH records were reviewed to identify subjects that underwent desensitization for a +XM renal transplant between 1/1/00 and 11/1/11. Patients who failed to convert to negative XM after desensitization were identified as the non-converted subgroup. Patients who converted to negative flow cytometry and standard XM after desensitization were identified as the converted control group. Demographics and the following baseline data were collected for each subject: previous transplants, immunosuppression, and standard and flow XM data. Outcome measures include graft function, patient and graft survival, and episodes of rejection. The primary endpoint is GFR at 12, and 36 months post-transplant.

Results:
The following describes preliminary results as research is still on-going. 107 patients were identified as having received a +XM renal transplant. 42 were non-converted, and 36 that converted were randomly selected as a control group. Twelve and 36 month GRF was 47.3 and 65.2 mL/min within the non-converted arm compared to 53.3 and 72.9 mL/min within the converted arm (p=0.3153 and p=0.6323, respectively). GFR<30 ml/min at 12 and 36 months was 23% and 14% within the non-converted arm compared to 5% and 0% within the converted arm (p=0.1343 and p=1, respectively). Despite 45% biopsy proven rejection and 38% empiric rejection rates at 12 months in the non-converted arm, graft survival was 97.6%.

Conclusions:
GFR was comparable between the non-converted and converted groups Although not statistically significant, a higher percentage of the non-converted group had a GFR<30 mL/min at all time points, which may be a clinically significant finding.

Learning Objectives:

Describe the process of desensitization and its role in overcoming the barrier of sensitization

Identify potential predictors, if any, of outcome following desensitization in +XM renal transplant

Self Assessment Questions:

The following best describes the goal of desensitization:

A Prevent long-term or chronic allograft rejection
B: Reduce donor-specific antibodies to decrease the risk of hyperacut
C: Suppress T cells in order to induce allograft acceptance
D: Serve as a bridge to maintenance immunosuppression

During desensitization, plasmapheresis:

A Neutralizes circulating donor-specific antibodies
B Reduces antibody production
C Serves as immune replacement therapy
D Mechanically removes antibodies

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-532 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

ASSESSMENT OF PATIENT-CONTROLLED ANALGESIA DOCUMENTATION ON AN ONCOLOGY UNIT

Tejal N. Patel, PharmD*; Zahra Khudeira, PharmD, MA; Anna Liza Rodriguez, MSN,MHA, RN, OCN

Sinai Health System,California Avenue at 15th Street,Room NR111A,Chicago,Il,60608

tejal.patel@sinai.org

Purpose and Objectives:

Appropriate management of pain is a key focus in hospitalized patients. Patient-controlled analgesia (PCA) provides several benefits including quicker patient access to pain relief. Successful pain management can also help optimize the quality of care and reduce length of hospital stay. The objective of this process improvement initiative is to increase the documentation of pain assessments (for patients receiving PCA) by implementing new documentation screens for nurses.

Methods:

Prior to commencement, this study was submitted to the Institutional Review Board for approval. The health system's electronic medical record was used to identify patients who, over a six-month period of time, received PCAs on the oncology unit. Baseline data was collected to identify the number of patients treated with PCA pumps, appropriate pain assessments by nurses, occurrence of adverse events, and the use of ancillary medications for the treatment of adverse events. The compliance with documentation of the current PCA order set was analyzed by category. In conjunction with nursing, the existing documentation process was reviewed; areas for improvements in the on-line documentation system were identified. Hard-wired screen improvements were implemented and are currently in the staff education phase. After implementation of the new documentation screens and education, a retrospective chart review will be conducted to evaluate the compliance with appropriate documentation.

Results:

A total of 33 patients who received PCA were identified in the baseline evaluation. Data revealed only a 45% documentation rate of pain scores for patients prior to the initiation of the PCAs. After initiation of PCA, baseline data shows no documentation of pain score, vital sign, and sedation level at the specified times per existing protocol. Subsequent to implementation of hard-wired screen enhancements and education, a review of documentation rates will be conducted and the results will be compared to baseline for adequate improvement.

Learning Objectives:

Discuss factors that lead to improper documentation of pain assessments by nurses.

Identify the benefits of accurate pain documentation to patients and other medical professionals.

Self Assessment Questions:

What factors can lead to improper documentation of pain assessments?

A Computer physician order entry

B: Lack of knowledge of the PCA order set, policy, and documentatio

C: Appropriate documentation reminders for nurses

D: Use of pump data to determine appropriate times of administration

What are the benefits of accurate pain documentation?

A Assure adequate pain analgesia

B Allows patient to self administer medications

C Does not allow for rapid recovery and discharge

D Provides the patient quicker pain relief

Q1 Answer: B Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-823 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

COMPARING CHANGE IN HGBA1C OF PATIENTS IN PHARMACIST MANAGED TELEHEALTH CLINIC VERSUS IN-PERSON CLINIC

Khyati Patel*, Pharm.D., Danielle Alsip, Pharm.D., BCPS, Roshani Raval, Pharm.D., Todd Lee, Pharm.D./PhD.

Edward Hines, Jr.VA Medical Center,5000 South 5th Ave.,Pharmacy-119,Hines,IL,60141

khyati.patel@va.gov

BACKGROUND: Telemedicine improves health care access and reduces travel related costs; however, the effectiveness of such programs requires additional evidence. The rationale for utilizing telemedicine to provide diabetes care is imperative given the diseases high prevalence, associated morbidity and mortality as well as costs.

PURPOSE: The primary objective of the study is to assess the effectiveness of a telehealth program by comparing changes in HbgA1c over 6 months 3 months of patients in pharmacist managed telehealth clinic versus in-person clinic. Secondary endpoints include change in HgbA1c over 12 months 3 months, change in weight, enrollment into the MOVE! program, diabetes medications changes, compliance to clinic appointments, and adverse events related to diabetes medications The study also evaluates patient responses to an ease of telehealth use survey.

METHODS: This is a retrospective chart review of patients receiving diabetes care by a pharmacist via in-person and telemedicine modalities from January 2010 to December 2011 at one of the outpatient clinics at the Edward Hines Jr. VA Hospital. Patients who are lost to follow-up after initial visit and patients managed via in-person clinic prior to enrollment into telehealth clinic are excluded from this study. Patient data collected include clinic location, age, gender, co-morbid diseases, diabetes management via other healthcare professionals, HgbA1c, weight, diabetic medications, and status of enrollment into MOVE! program, and adverse events of diabetes medications at baseline 2 months, 6 months 3 months, and 12 months 3 months. An ease of telehealth use survey consisting of 10 multiple choice questions is conducted to assess whether patients perceive any barriers to the telehealth use and find it an appropriate method for diabetes management.

RESULTS/CONCLUSION: Data collection and analysis are in progress. Final results and conclusions will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Review the major findings of current studies describing the impact of telemedicine on diabetes care.

Describe the components of the ease of telehealth use survey.

Self Assessment Questions:

The prospective study by Shea et al. showed significant results for which of the following measures when telemedicine was used for diabetes care?

A HgbA1c, weight, and BP

B: LDL, fasting glucose, and mortality

C: HgbA1c , LDL, and BP

D: Mortality, HgbA1c, and LDL

The ease of telehealth use survey included which of the following aspects of patient perception?

A Privacy maintenance, ease of technology use, usefulness in mana

B Communication with pharmacist, improvement in diabetes, recomn

C Ergonomics of telehealth technology, access to healthcare provide

D Pharmacist as a healthcare provider, technology use in healthcare

Q1 Answer: C Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-531 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

ASSESSMENT OF PRACTITIONER ATTITUDES AND SERVICE GROWTH OPPORTUNITIES IN A NEWLY DEVELOPED EMERGENCY DEPARTMENT PHARMACY SERVICE IN A COMMUNITY HOSPITAL

Sumit U. Patel, PharmD*; Brian N. Peters, PharmD, MS
Community Health Network,7250 Clearvista Drive Suite 360,Indianapolis,IN,46256
spatel4@ecommunity.com

Purpose:
The primary purpose of the study is to determine emergency department (ED) medical and nursing staff perceptions of the value of emergency pharmacy services at Community North Hospital. The second aim of the study is to assess ED pharmacist intervention types within the first year of program implementation. Data collected will be analyzed to evaluate future directions for pharmacy services in the ED, as well as to identify practices to further improve patient care and medication safety

Methods:
This study has been submitted to the Institutional Review Board for approval prior to commencement. Community North Emergency Department physicians, physician assistants, nurse practitioners, and nurses will receive a survey aimed to assess staff perceptions regarding the role of the ED pharmacist. The first survey will be distributed approximately one month after the implementation of emergency pharmacy services. The same survey will be distributed approximately three months after the completion date of the first survey to evaluate changes in perceptions. ED staff willing to participate in the study will be kept anonymous, and the responses will be strictly confidential and voluntary.

Daily interventions performed in the ED by the ED pharmacist will be self recorded into an electronic intervention documentation form over several weeks within the first year of the implementation of emergency pharmacy services. The information will be evaluated to determine the type and number of interventions made. Types of interventions analyzed will include the following: medication reconciliation, code/resuscitation response, modification of medication regimen, ED medication distribution, practitioner education/consultation, and patient education. Descriptive statistics will be employed primarily to analyze the data collected.

Results/Conclusion:
Data collection is ongoing. Results and analysis will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Recognize the need for emergency pharmacy services in a non-academic, non-trauma community hospital.

Identify areas in the emergency department where emergency pharmacists can provide pharmaceutical care in a non-academic, non-trauma community hospital.

Self Assessment Questions:

According to the 2011 ASHP Guidelines on Emergency Medicine Pharmacist Services, ED pharmacists should document interventions to:

A Measure improvement in patient outcomes and potential cost avoi
B: Compare the number of interventions made between ED pharmaci
C: Gain monetary support from hospital administration for ED pharma
D: Adhere to Joint Commission requirements

Emergency pharmacy services should be:

A Physically present in the ED 24 hours per day, 7 days per week
B Designed to best meet the needs of the institution's emergency an
C Focused solely on providing direct patient care
D Offered to reduce physician/nursing workload

Q1 Answer: A Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-740 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

STUDENT PHARMACISTS PERCEPTIONS OF THE PHARMACY JOB MARKET AND WILLINGNESS TO CONSIDER A CAREER IN COMMUNITY PHARMACY

Davin S. Patel, Pharm.D.*; Susan R. Winkler, Pharm.D., BCPS; Elizabeth Gozdziak, Pharm.D.; Bessie Berdusis, Pharm.D.
SUPERVALU, Inc.,1177 S. Main Street,Lombard,IL,60148
patel.davin@gmail.com

Purpose: The Aggregate Demand Index for pharmacists has declined each year from 4.07 in January 2008, to 3.79 in January 2009, to 3.44 in January 2010, and to 3.41 in January 2011. An ADI of 1 indicates that the supply of pharmacists exceeds demand to a great extent, while an ADI of 5 indicates that there is high difficulty in filling open pharmacist positions. The 2009 National Pharmacist Workforce Survey and the recent American Association of Colleges of Pharmacy graduating student survey have shown results consistent with an economic downturn. The primary objective of this study is to assess if personal characteristics of student pharmacists and their perceptions of the current job market affect willingness to consider a career in community pharmacy.

Methods: This study utilizes an electronic survey for data collection. The Experiential Education Directors (EED) at all fully accredited colleges of pharmacy in the United States were contacted to determine willingness to assist in recruiting. An electronic link to the survey was sent to EEDs expressing willingness to assist, and the EED was asked to forward the electronic survey link to all student pharmacists graduating in the year 2012. One additional reminder was sent approximately three weeks later. Part I of this electronic survey was completed by all student pharmacists graduating in 2012, and Part II was completed only by those student pharmacists who would consider a career in community pharmacy upon graduation. The survey consisted of multiple choice questions and items to rate on a four-point Likert scale.

Results/Conclusions: Data collection is currently in progress. Results and conclusions will be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Classify the current demand for pharmacists according to the Aggregate Demand Index published by the Pharmacy Manpower Project.

Explain the recommendations for pharmacy practice managers published in the 2007 report of the American Society of Health-System Pharmacists (ASHP) Task Force on Pharmacys Changing Demographics to recruit and retain individuals from the millennial generation and new pharmacy graduates.

Self Assessment Questions:

According to the Aggregate Demand Index published by the Pharmacy Manpower Project, the demand for pharmacists today can be best classified as which one of the following:

A Moderate demand, some difficulty filling open positions
B: Demand in balance with supply
C: Demand is less than the pharmacist supply available
D: Demand is much less than the pharmacist supply available

In the 2007 report of the ASHP Task Force on Pharmacys Changing Demographic, it was recommended that pharmacy practice managers do which one of the following to recruit and retain individuals from th

A Make re-entry into the profession difficult
B Develop positions that are strictly clinical or managerial
C Mandate that pharmacists work some undesirable shifts
D Obtain regular feedback from pharmacists on work-life balance

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-739 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

THE EFFECTIVENESS OF A PHARMACIST-RUN PATIENT ALIGNED CARE TEAM (PACT) TELEPHONE CLINIC MANAGING CHRONIC DISEASE STATES AND THERAPEUTIC MONITORING AT A VETERANS AFFAIRS MEDICAL CENTER

Hiral G. Patel, Pharm.D. ; Tania G. John, Pharm.D.; Sindhu A. Abraham Pharm.D., BCPS; Brett Geiger, Pharm.D.; Helen J. Kasimatis, Pharm.D.; Judith Toth, Pharm.D., CGP, CDE

Jesse Brown VA Medical Center,820 South Damen Ave,Chicago,IL,60612

hiral.patel@va.gov

Purpose: The role of a pharmacist in patient care has expanded from the traditional tasks of dispensing medications to working directly with other healthcare professionals and patients in disease state management. In the fall of 2010, Jesse Brown VA Medical Center (JBVAMC) implemented a nationwide approach to redesign the VA healthcare delivery through increasing access, coordination, communication, and continuity of care by creating PACT.

Telephone appointments have led to an increase in treatment adherence and decrease in relapse.
Many studies support clinical pharmacists as a crucial part of a patients team to provide a unique set of knowledge and skills. However, there are limited studies highlighting the results of a pharmacist-run telephone clinic managing different disease states. The purpose of this study is to evaluate the effect of pharmacist-run PACT telephone clinic managing type 2 DM, hyperlipidemia, and/or monitoring of hypothyroidism.

Methods: This study was an Institutional Review Board and VA Research and Development Committee approved retrospective, electronic chart review of patients who were referred to the telephone clinic for type 2 DM, hyperlipidemia, and/or hypothyroidism at any time between November 1, 2010 and July 1, 2011. Patients enrolled in the telephone clinic aged 18 years and older, diagnosed with the aforementioned disease states, who have had more than 50% interventions by a pharmacist via telephone were included. Additionally, study participants who have had 50% or less telephone interventions by pharmacists, who have been followed previously by the telephone clinic for the same reason, whose follow-up labs were not available, or whose care was ongoing, were excluded. Patients were followed through September 30, 2011, and each subject served as their own control.

Results/Conclusion: Data collection and analysis will be completed by April 2012. Final results with conclusion will be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Identify potential areas where pharmacists can enhance disease state management.

List disease states which may be affected by a pharmacist-run telephone clinic.

Self Assessment Questions:

Which of the following is true regarding the impact of pharmacist-run PACT telephone clinic in managing type 2 DM, hyperlipidemia, and/or monitoring of hypothyroidism?

A Pharmacists may not intervene through telephone appointments.
B: Patients respond better to physician-driven interventions compared
C: Pharmacists may improve disease states management through tel
D: Pharmacists do not affect patient efficacy by close monitoring.

According to American Diabetes Association, what is the hemoglobin A1c goal for a diabetic patient?

A <6%
B <7%
C <8%
D <9%

Q1 Answer: C Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-738 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATING APPROPRIATENESS AND COST JUSTIFICATION OF ANTIBIOTIC RENAL ADJUSTMENTS

*Jagruti R. Patel PharmD, Chris Herndon, PharmD, BCPS, CPE, Julia Schimmelpfennig, PharmD, BCPS, CDE

St. Elizabeth's Hospital,211 South 3rd St,Belleville,IL,62220

jrpatel@sebh.org

Purpose: Inappropriate antibiotic dosing leads to undesirable outcomes including medication toxicities and drug resistance. These may ultimately lead to an increase in health care costs. Currently at St. Elizabeths Hospital per renal dosing adjustment policy, pharmacists adjust antibiotic dosing based on renal function. The purpose of this study is to assess the appropriateness of antibiotic renal adjustments (pharmacist initiated interventions as a part of the antimicrobial stewardship program) using computerized monitoring. This study will also aid in making financial justifications for antibiotic renal adjustments.

Methods: This is a retrospective, single center, quality improvement study evaluating appropriateness of antibiotic renal dose adjustments before and after implementation of computerized monitoring. Patients > 18 years of age, who received one of the following intravenous antibiotics: levofloxacin, piperacillin/tazobactam, cefazolin, ceftazidime, meropenem and aztreonam for greater than 24 hours between October 2010 to June 2011 will be included in this study. A sample size of 25 patients requiring renal adjustments for each antibiotic will be collected. Evaluation of appropriate antibiotic renal dose adjustment before and after computerized monitoring is the primary outcome. This includes the initial dose adjustment and any subsequent modifications based on clinical parameters. Secondary outcomes include days of therapy and length of stay as a surrogate for clinical improvement. Cost savings will also be evaluated by comparing before and after computerized monitoring.

Results/Conclusions: Data collection is currently being conducted and results will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

List antibiotics that require renal dose adjustments.

Discuss steps used in implementing and improving an Antimicrobial Stewardship Program.

Self Assessment Questions:

Which of the following antibiotic requires renal dose adjustment?

A Ceftriaxone
B: Ceftazidime
C: Clindamycin
D: Azithromycin

Which of the following promote the first step in Antimicrobial Stewardship?

A Ensure all orders have appropriate dose and indications
B Reassess antibiotics after 4 -5 days
C Cultures do not need to be obtained before initiating antibiotics
D Reduce cost of antimicrobials

Q1 Answer: B Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-741 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

IDENTIFYING TRENDS IN PATIENT CHARACTERISTICS ASSOCIATED WITH ENROLLMENT IN A COMMUNITY PHARMACIST LED DIABETES EDUCATION PROGRAM

Chandni Patel, PharmD*; Megan Wagner, PharmD; Nancy L. Shapiro, PharmD

SUPERVALU, Inc.,3030 Cullerton St.,Franklin Park,IL,60131

chandni.patel2@supervalu.com

Purpose: Patients have demonstrated improvements in important clinical, humanistic, and economic outcomes by participating in pharmacist-led diabetes education programs. Numerous studies have validated the role of pharmacists as educators or coaches for patients with diabetes; however, there is limited research evaluating the role patient-specific factors may play in individuals decisions to enroll in community pharmacist-led diabetes education programs. The primary objective of this study is to evaluate the role of individuals baseline A1C level, age, and duration of diabetes diagnosis on enrollment in a community pharmacist-led diabetes education program. The secondary objective of this study is to identify which additional patient characteristics are associated with enrollment in a community pharmacist-led diabetes education program.

Methods: This research is a retrospective chart review of patients who enrolled in a pharmacist-led diabetes education program in a supermarket pharmacy chain between August 2009 and February 2011. Baseline A1C levels, age, race/ethnicity, and gender data will be collected. A prospective telephone survey of this patient group is planned to evaluate additional characteristics, including duration of diabetes diagnosis, reason for enrollment, past participation in other diabetes education programs, and reason for not completing a follow-up visit, if applicable. Data analysis will include descriptive and comparative statistics using SPSS software.

Results/Preliminary Results: Data collection in progress.

Implications/Conclusions: It is anticipated that results of this research will serve to identify individuals more apt to enroll in community pharmacist-led diabetes education programs, which will assist pharmacist educators in reaching out to those groups to further grow services. Further, this information will be invaluable in determining which characteristics are less likely to result in program participation, allowing educators to develop novel methods for bringing education to these individuals.

Learning Objectives:

Identify patient-specific factors that may play a role in individuals decision to enroll in community pharmacist-led diabetes education programs.

Discuss patients reasons for enrolling in community pharmacist-led diabetes education programs.

Self Assessment Questions:

Which of the following patient-specific factors may impact an individuals decision to enroll in a community pharmacist-led diabetes education program?

A Age
B: Duration of diabetes
C: Baseline A1C
D: All of the above

Which of the following statements is correct?

A Identifying the reasons patients enroll in community pharmacist-lec
B Only patients newly diagnosed with diabetes require education.
C Studies have not validated the role of pharmacists in diabetes edu
D All of the above

Q1 Answer: D Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-742 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

IMPLEMENTING A PHARMACIST-DRIVEN ANTIMICROBIAL STEWARDSHIP PROGRAM AT A TERTIARY TEACHING HOSPITAL

Kathleen M. Patton, Pharm.D.*, Tara L. Fisher, Pharm.D., Erin L. Meilton, Pharm.D., Abby M. Tyson, Pharm.D.

Riverside Methodist Hospital,4380 Ridgepath Drive,Dayton,OH,45424

k-meara@onu.edu

Purpose
Studies have demonstrated that Antimicrobial Stewardship Programs (ASPs) have been shown to decrease antibiotic resistance, medication errors, and costs while optimizing therapeutic outcomes. In January 2007, the Infectious Disease Society of America (IDSA) published guidelines on Antimicrobial Stewardship that recommend a team that includes an infectious disease physician and pharmacist. Antimicrobial stewardship includes ensuring the appropriate selection, dosing, route, and duration of therapy. Riverside Methodist hospital is a 1,054-bed community teaching hospital that has an Antimicrobial Stewardship Program but currently has no dedicated infectious disease pharmacist. The purpose of this study is to quantify the impact of the addition of a pharmacist to the ASP on inappropriate antimicrobial use, timeliness of administration, number of Clostridium difficile associated diarrhea infections and cost.

Methods
This study is a prospective evaluation of patients, age 18 years or older, who receive antibiotics during the month of February 2012. Exclusion criteria include patients with active infectious disease consults, labor and delivery patients, neonates and the inpatient behavioral health unit. Information to be collected includes: appropriate initial antimicrobial selection, compliance with IDSA treatment guidelines, total antibiotic days of therapy, number of hospital-acquired Clostridium difficile infections, total antimicrobial cost, types of antimicrobial agents used and number of pharmacy recommendations made and accepted.

Results from the prospective analysis will be compared to a retrospective chart review of patients from the daily antimicrobial stewardship report during January 2012. Statistical analysis will be performed to evaluate the data collected.

Results/Conclusions:
Results and conclusions will be presented at the conference.

Learning Objectives:

Describe the beneficial impact of infectious disease pharmacy interventions at a tertiary teaching hospital

Discuss the role of an infectious disease pharmacist on clinical and financial outcomes

Self Assessment Questions:

Based on studies, what percentage of antibiotic use in hospitals is inappropriate?

A 25
B: 50
C: 75
D: 100

Implementation of a pharmacist in an established antimicrobial stewardship program can lead to:

A Decreasing unnecessary drug exposures
B Increasing resistant bacterial strains
C Decreasing hospital costs
D Both A and C

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-743 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

IDENTIFICATION OF RISK FACTORS ASSOCIATED WITH THE DEVELOPMENT OF DAPTOMYCIN NONSUSCEPTIBLE ENTEROCOCCUS

*Amy M Pavell, PharmD, BCPS, Christopher W Crank, PharmD, BCPS AQ-ID, Kamaljit S. Singh, MD

Rush University Medical Center,1653 W. Congress Parkway,Chicago,IL,60612

Amy_Pavell@rush.edu

Background: Daptomycin is a common therapy for the treatment of vancomycin resistant Enterococcus (VRE) infections. Studies have reported a < 1% incidence of daptomycin nonsusceptible Enterococcus (DNSE). Literature characterizing DNSE isolates describes the majority of patients having recent surgery, hospitalization for > 30 days and > 30 days of daptomycin administration prior to DNSE isolation. One study showed 58% of DNSE cases had recent daptomycin exposure. There is currently no published case-control study identifying risk factors for development of DNSE.

Purpose: The primary outcome is to identify risk factors for the development of DNSE. This knowledge may help in empiric antimicrobial selection. This study may also better define the association between daptomycin exposure and the emergence of DNSE.

Methods: A retrospective, case-control study conducted in a large, academic medical center from 2009 - 2011 has been IRB approved. 15 cases of daptomycin nonsusceptible VRE were matched 1:4 to 60 controls of daptomycin susceptible VRE by age (10 years), site of infection, and date of Enterococcus isolation (30 days). The EMR was used to collect data on basic demographics, recent hospitalization, comorbidities, concomitant immunosuppressant medications, recent surgery, invasive procedures, recent antibiotic exposure, daptomycin dosing, site of infection and mortality. Data collection forms without patient identifiers were utilized and maintained confidentially.

Results: Of the 15 DNSE cases, average age was 51 years. Nine case patients (60%) had been hospitalized within 30 days of admission. Within 90 days of DNSE isolation, 7 case patients (47%) received antibiotics and 12 (80%) had a surgical procedure. Wound was the DNSE culture site for 8 patients (54%), urine for 5 patients (33%), and blood for 2 patients (13%). Eleven patients (73%) received daptomycin within 90 days of DNSE isolation. The average daptomycin exposure was 26 days and average daptomycin dose was 7.8mg/kg. Case patient mortality rate was 47%.

Learning Objectives:

Recognize patient characteristics that can be considered a risk factor for the development of DNSE.

Discuss how daptomycin exposure can influence the incidence of DNSE over time.

Self Assessment Questions:

Which of the following statements is correct?

A Clinical Laboratory Standards Institute considers Enterococcus iso
B: Developing DNSE may result from reduced daptomycin diffusion ir
C: The incidence of DNSE in North America was reported at 2%.
D: The incidence of DNSE in Europe and Asia was reported <10%.

Studies have shown which of the following characteristics associated with developing decreased daptomycin susceptibility?

A High-inoculum infections
B Surgery within 90 days
C Daptomycin exposure within 90 days
D All of the above

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-533 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF ACCURACY AND CLINICAL IMPACT OF WEIGHT ESTIMATION FOR ANTITHROMBOTIC DOSING IN THE EMERGENCY CENTER

Tania S. Paydawy, PharmD*; Trupti P. Mehta, PharmD, BCPS; Michael Vasovski, PharmD, BCPS

William Beaumont Hospital,3601 W. 13 Mile Road,Royal Oak,MI,48073

tania.paydawy@beaumont.edu

Background:
Antithrombotic agents such as alteplase, eptifibatide, and enoxaparin are non-titratable, weight-based medications used for the prevention or treatment of acute ischemic stroke, acute coronary syndrome, or venous thromboembolism, respectively. Accurate dosing for antithrombotic therapy is very important to ensure efficacy and prevent bleeding complications. An accurate weight is difficult to obtain in the Emergency Center (EC). A patients weight is often estimated by a family member or through visual estimation by physician, nurse, or pharmacist. These estimation methods have been shown to be inaccurate in the literature.

Purpose:
The purpose of this study was to evaluate the accuracy of weight estimation and the incidence of thrombosis or bleeding associated with underdosing or overdosing of weight-based antithrombotics in the EC.

Methods:
This was a retrospective chart review approved by our institutional review board. The study was divided into two phases: phase 1, to determine the weight estimation error rate and phase 2, to evaluate the clinical impact of using estimated weights. In phase 1, the weight estimation error rate was determined by evaluating the first 100 patients in the EC that received a weight-based dose of alteplase, eptifibatide, or enoxaparin from February 2011 through November 2011. In phase 2, patients receiving weight-based doses of alteplase, eptifibatide or enoxaparin from November 2009 through November 2011 were screened for inclusion. Patients with weights that were underestimated or overestimated by more than 10% were evaluated for thrombosis or bleeding associated with underdosing or overdosing, respectively.

Results/Conclusions:
This study is still under investigation. Results and conclusions will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Identify limitations to obtaining patient weights in the EC.

Discuss the clinical impact associated with underdosing or overdosing of antithrombotic agents.

Self Assessment Questions:

Which of the following is a limitation to obtaining patient weights in the EC?

A Patients are unable to communicate
B: Patients are physically stable and mobile
C: Bed scales are not available
D: A and C

Which of the following is a potential complication associated with underdosing antithrombotic agents?

A Hypertension
B Renal impairment
C Recurrent venous thromboembolism
D Hepatic impairment

Q1 Answer: D Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-534 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF ANTIBIOTIC PRESCRIBING IN THE EMERGENCY DEPARTMENT

*Eric Pelletier, Pharm.D., Meghan Estill, Pharm.D., Susan Jula, Pharm.D., BCPS, Glenn Allen, Pharm.D., BCPS, Chuck Harville, Pharm.D.

Franciscan St. Margaret Health,5454 Hohman Ave,Hammond,IN,463201999

Eric.Pelletier@franciscanalliance.org

Background:
The Centers for Disease Control and Prevention recommend an antimicrobial stewardship program (ASP) in healthcare facilities to ensure hospitalized patients receive the right antibiotic, at the right dose, at the right time, and for the right duration. The primary goal of an ASP, as defined by the Infectious Disease Society of America, is to optimize clinical outcomes while minimizing unintended consequences of antimicrobial use. Currently Franciscan St. Margaret Health (FSMH) has an ASP in the inpatient setting as well as a program established in the emergency department (ED) with pharmacists assisting with medication reconciliation.

Purpose:
Assess empiric antibiotic prescribing in the ED at FSMH and to find opportunities for improvement.

Methods:
A baseline retrospective chart review was conducted. A standardized data collection form was used. Primary endpoints included adherence with established evidence based order sets (EBOS) and FSMH empiric guidelines. Secondary endpoints were to assess appropriateness of empiric antibiotic choice as related to final culture results and sensitivities. Patients were included if they were > 18 years of age and seen in the ED then admitted with a diagnosis of pneumonia, urinary tract infection, cellulitis, or sepsis.

Baseline Results:
This study was IRB approved. Seventy five patients were included for analysis with a total of 134 antibiotics prescribed. Patients received antibiotics consistent with the EBOS and FSMH empiric guidelines 68 percent of the time for UTI, 93 percent for pneumonia, 94 percent for cellulitis, and 67 percent for sepsis. Cultures obtained in the ED were positive in 30 patients with three cultures being resistant to empiric therapy. If EBOS or FSMH empiric guidelines were followed, these patients would have received appropriate empiric therapy.

Conclusion:
Analysis and further data collection are in progress and will be presentec at the GLPRC.

Learning Objectives:

Review the importance of starting correct empiric antibiotic therapy.

List opportunities for pharmacist involvement in antibiotic prescribing in the ED.

Self Assessment Questions:

Initiating the correct empiric antibiotic therapy in the ED is important because it can:

A Reduce mortality
B: Reduce overall antimicrobial resistance within the facility
C: Reduce length of hospital stays
D: All of the above

Pharmacist can impact antibiotic prescribing by:

A Selecting appropriate empiric antibiotic therapy based on guideline
B Initiating weight based dosing or selecting appropriate doses
C Clarifying patient allergies so that therapy is not limited
D All of the above

Q1 Answer: D Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-535 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

PATIENT-CENTERED CARE AT A GENERAL INTERNAL MEDICINE PATIENT-CENTERED MEDICAL HOME

*Shannon D. Peter, PharmD; Kyle Porter, MAS; Stuart J. Beatty, PharmD, BCPS

The Ohio State University College of Pharmacy,500 W 12th Ave,Columbus,OH,432101291

Shannon.Peter@osumc.edu

Purpose: To 1) Determine patient perceptions of the degree of patient-centeredness of visits with a pharmacist, internal medicine resident, attending physician, nurse practitioner, social worker, or any combinatior of the above at a tier 3 General Internal Medicine (GIM) Patient-Centered Medical Home (PCMH) and 2) Examine potential differences o patient-centeredness perceptions based on healthcare provider(s) providing care during each visit.

Methods: A convenience sample will be used to recruit GIM patients age 18 years and older. Data will be collected via a one-time electronic 21-item Consultation Care Measure (CCM) questionnaire at the end of a GIM visit with one or more of the specified healthcare practitioners. Reported data will include a total CCM patient-centeredness score, as well as scores on each of 5 CCM patient-centeredness subscales. Demographics, the amount of time subjects spent with healthcare providers, the amount of time spent waiting, and the length of time each subject has been followed at the PCMH will also be collected. Comparison data analysis will take place to examine correlations between the above items and subject perceptions.

Results: With at least 50 responses in the pharmacist, attending physician, and diabetes clinic practitioner groups, the study will have 80% power to detect a 10% difference in CCM scores between provider types. At the time of abstract submission, a total of 85 questionnaire responses have been collected.

Conclusions: We postulate that results will be used to guide future initiatives implemented to improve patient-centered care, and will support new team-based healthcare models.

Learning Objectives:

Discuss positive health outcomes related to physicians taking a patient-centered approach to patient communication.

Describe methods by which healthcare practitioners can successfully measure perceptions of patient-centered care.

Self Assessment Questions:

Which of the following outcomes have been shown to be related to physicians taking a patient-centered approach to patient communication?

A Fewer laboratory and diagnostic tests
B: Increased number of referrals
C: Increased total medical charges
D: Decreased patient satisfaction and enablement

To date, what method has been most successful at measuring perceptions of patient-centered care?

A Direct observation
B Nurse questionnaires
C Patient questionnaires
D Physician questionnaires

Q1 Answer: A Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-744 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

ANALYSIS OF TYPE 2 DIABETIC PATIENT PERCEIVED BARRIERS TO MEDICATION ADHERENCE: A PATIENT SURVEY

Erin A Petersen PharmD*; Mary Ann Tucker PharmD, BCPS; M. Nicole Komara Brown PharmD; Karen L Kier PhD, MSc, BCPS

Blanchard Valley Medical Association/Ohio Northern University,200 W. Pearl Street,Findlay,OH,45840

e-rhodes@onu.edu

Purpose: Over twenty-five million people are currently living with diabetes mellitus, and it is the seventh leading cause of death in the United States. Studies have found that 15-35% of diabetic patients are nonadherent with their antihyperglycemics. Nonadherence has been found to increase hemoglobin A1C, all cause hospitalizations, and mortality in diabetic patients. This study hopes to discover the greatest patient perceived barrier to taking each class of antihyperglycemics so health care professionals can help patients overcome barriers.

Methods: This study was approved by the Ohio Northern University Institutional Review Board. English speaking Type 2 Diabetic patients 18 years and older, who presented to Blanchard Valley Medical Associates, were asked to complete a voluntary survey from November 1- December 31, 2011. Once informed consent was obtained, the written survey was administered to the patients or caregivers. The survey contained the modified Morisky scale, a validated scale for patient adherence, followed by a questionnaire regarding diabetic medications by class and patient perceived hindrances to taking that medication class daily. Adherence barriers were divided into adverse effects, cost, complexity of regimen, difficulty with injections, and "other". Patient A1C, gender, age, physician, and years with diabetes were also collected. 120 patients needed to complete this survey to reach a power of 80% with an alpha of 0.05. The data will be statistically analyzed to determine if there is a prevalent hindrance for each medication class as well as adherence barriers related to patient demographics.

Results: 295 patients successfully completed the survey. Statistical analysis is still underway with final results and conclusions to be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Identify the reasons for diabetic patient medication nonadherence.

Review specific patient perceived adherence hindrances for each class of antihyperglycemics.

Self Assessment Questions:

Which of the following was found to be the largest barrier to medication adherence overall?

A Remembering medication doses
B: Adverse Effects
C: Cost
D: Using injections correctly

Which of the following was found to be the largest adherence barrier for metformin?

A Remembering medication doses
B Cost
C Headache
D Gastrointestinal adverse effects

Q1 Answer: B Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-536 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF AN UPDATED WEIGHT-BASED HEPARIN DOSING PROTOCOL

Brad R Petersen PharmD*, David M Robinson PharmD, Jay M Lynch PharmD, & Natalie A Gardner PharmD

Grant Medical Center,111 South Grant Avenue,Columbus,OH,43215

BPETERS2@ohiohealth.com

Purpose: Heparin is a high risk medication that is often used to prevent and treat venous thromboemboli. The objective of this study is to compare the effectiveness of an updated weight-based heparin dosing protocol at achieving goal aPTTs efficiently.

Methods: At a 640 licensed-bed community hospital, eight months of weight-based heparin infusion patients will be evaluated to determine the effectiveness of updating an institutional weight-based heparin dosing protocol. Protocol updates include more weight precise bolus dosing, more aggressive initial bolus doses, reduced infusion hold times for supratherapeutic aPTTs and more frequent aPTT monitoring for heparin initiation/rate adjustment. Protocol efficiency will be evaluated based on time to therapeutic aPTT as well as quantity of aPTTs until patient is within therapeutic range. Compliance to the heparin protocol as well as average number of aPTTs per day will also be assessed. Four full months of patients on a weight-based heparin protocol will be compared to four full months of patients on a revised protocol. Approximately two months will elapse between patient populations to allow for health care practitioners to adjust to protocol changes. Prior to data collection, approval from the Grant Medical Center/Doctors Hospital Institutional Review Board will be attained. During data collection all patient identifiers will be removed to protect patient privacy. Inclusion criteria wil be all Grant Medical Center patients initiated on a heparin drip using the corresponding weight-based heparin protocol. Patients will be excluded i less than 18 years old, admitted for less than 24 hours, or started on a heparin drip for stroke or chronic renal replacement therapy. Patients diagnosis/indication, actual body weight, age, initial/final infusion rate, platelet counts, aPTTs, possible interacting medications, and adverse events (clot formation/embolization, bleeding, and heparin induced thrombocytopenia) will be collected.

Learning Objectives:

Discuss heparin infusions and clinical repercussions associated with incorrectly dosing patients

Report outcomes associated with a change in an institutions heparin weight-based dosing protocol

Self Assessment Questions:

What is the average half-life of heparin?

A 24 hours
B: 1-2 hours
C: 12 hours
D: 6 hours

Which of the following combinations are most important for determining a patients heparin dose?

A Size of embolism and patient’s actual body weight
B Location of embolism and patient’s actual body weight
C Size of embolism and location of embolism
D Patient’s actual body weight and indication for heparin infusion

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-537 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

HEALTH SYSTEM APPROACH TO TARGET APPROPRIATE ANTIMICROBIAL USE IN PATIENTS DIAGNOSED WITH CELLULITIS

Codee M Peterson* PharmD; Vanessa L Freitag, PharmD; Michelle L Brenner, PharmD, BCPS; Rana M Nasser, MD, FACP; Lisa L Wolf, CPA

Ministry Health - St. Joseph's Hospital - WI,611 St. Joseph's Avenue,Marshfield,WI,54449

codee.peterson@ministryhealth.org

Purpose: Antimicrobial stewardship continues to be a focus in many facilities nationwide and is a health system strategic initiative for fiscal year 2012 at Ministry Health Care (MHC). Pharmacy leaders at the fifteen MHC hospitals have agreed to pursue a targeted initiative focusing on antimicrobial utilization for cellulitis, based on suspected practice variation across the system. The primary objective is to improve antibiotic utilization by implementing a strategy to optimize antibiotic use in cellulitis across MHC. Secondary objectives include assessing and improving frequency and time of de-escalation events, assessing Clostridium difficile occurrence rates before and after intervention implementation, and analyzing cost impact of appropriate antibiotic utilization on length of stay and overall drug cost.

Methods: Prior to initiation, the study was submitted to the Institutional Review Board for exemption. The study included a retrospective chart analysis from calendar year 2010 for patients discharged from select MHC facilities with a diagnosis of cellulitis infection with or without complications based on Diagnosis Related Group (DRG) codes 602 and 603, respectively. Patients less than 19 years of age, pregnant, or immunocompromised (defined as an absolute neutrophil count of <500 103/L) were excluded.

Results: Patients with a diagnosis of cellulitis with multiple comorbid complications (n=19) had 229.4 total days of antimicrobial therapy and an average length of stay equal to 12.1 days per patient. Thirty percent of these patients received vancomycin. Patients with a diagnosis of cellulitis without comorbid complications (n=37) had 170.9 total days of antimicrobial therapy and an average length of stay equal to 4.6 days per patient. Twenty-eight percent of treatment courses included vancomycin. Ongoing data is being collected and analyzed. Final results and conclusions will be presented at the Great Lakes Pharmacy Conference.

Learning Objectives:

Explain the importance of antimicrobial stewardship strategies in the inpatient setting.

Identify potential improvements to current practice of treatment for cellulitis at Ministry Health Care.

Self Assessment Questions:

A successful antimicrobial stewardship program has the potential to do which of the following?

A Decrease Clostridium difficile rates

B: Decrease overall drug cost

C: Decrease resistance rates

D: All of the above

Which of the following is a strategy used to improve antimicrobial stewardship?

A Keeping patients on broad spectrum antibiotics for an extended ler

B Order sets for antibiotic selection targeting disease-based treatmer

C Collaboration with local microbiology lab to provide specific culture

D B and C

Q1 Answer: D Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-538 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

USE OF INTRAVENOUS ACETAMINOPHEN AT A LARGE ACADEMIC MEDICAL CENTER

*Benjamin B. Philip, PharmD; Bruce A. Doepker, PharmD, BCPS; Kristin I. Brower, PharmD, BCPS; Ellen A. Keating, PharmD, MS; Julianna V.F. Roddy, PharmD, BCOP

The Ohio State University Medical Center,Room 368 Doan Hall,410 W. 10th Avenue,Columbus,OH,43210

benjamin.philip@osumc.edu

Background:
Acetaminophen is a centrally acting non-opioid analgesic and antipyretic Although acetaminophen has been available in the US since the early 1950s, it is only within the past decade that an intravenous formulation has been available. Originally marketed in the United Kingdom, intravenous acetaminophen (APAP IV) was FDA approved in the United States in November 2011 for the management of mild to moderate pain, management of moderate to severe pain in combination with opiates, and fever reduction. The Ohio State University Medical Center (OSUMC) Pharmacy and Therapeutics Committee (PTC) approved APAP IV for addition to the Formulary in July 2011. Due to the significantly increased cost of the IV formulation, APAP IV is restricted at OSUMC to patients that are NPO or unable to tolerate enteral administration with an automatic stop after 48 hours to prompt reassessment for the continued need for therapy.

Purpose:
The purpose of this study is to evaluate the use of APAP IV to determine usage patterns and identify compliance with the PTC restrictions.

Methods:
This is a single-center, retrospective, cohort study evaluating the use of APAP IV. The sample population includes all patients admitted to the OSUMC between July 1, 2011 and December 31, 2011 who were prescribed and administered APAP IV. Data collected includes treatment indication, doses administered, total daily dose of acetaminophen from all sources, concurrent pain medications, baseline hepatic and renal function, contraindications, history of ethanol use, and hepatic impairment or chronic liver disease. The study evaluates whether the patient was NPO or unable to tolerate enteral administration. Concurrent pain medications were recorded to evaluate potential opiate sparing properties.

Results/Conclusion:
Preliminary results have shown an increased utilization of APAP IV over the course of the study period with pre/post-operative pain management as the primary indication for use.

Learning Objectives:

Discuss the role of APAP IV in the inpatient hospital setting and the need for restrictions.

Identify adherence to PTC established restrictions at OSUMC.

Self Assessment Questions:

Which of the following is an FDA approved indication for intravenous acetaminophen?

A Management of mucositis

B: Management of neutropenia

C: Management of mild to moderate migraines

D: Management of moderate to severe pain with adjunctive opioid ana

What is the current FDA maximum daily dose of acetaminophen in healthy adults?

A 4250 mg

B 4000 mg

C 3750 mg

D 3500 mg

Q1 Answer: D Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-539 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

JUSTIFICATION OF CLINICAL PHARMACY SERVICES IN THE NEONATAL INTENSIVE CARE UNIT

*Jacqueline S. Pierick Baker, PharmD; Julie Botsford, PharmD

Munson Medical Center,3174 Hammond Rd E. Unit A,Traverse City,MI,49686

jspierick@yahoo.com

Background/Purpose:
Multiple published works have demonstrated that pharmacists reduce medication errors in the neonatal intensive care unit (NICU); however, few studies have established the cost-effectiveness of pharmacy services in the NICU. Currently our NICU staff consists of two neonatologists and four neonatal nurse practitioners. Recently, our institution began utilizing informal clinical pharmacy services during patient rounds in our twenty bed NICU. The purpose of this study is to justify the addition of clinical pharmacy services in the NICU.
Methods:
Pharmacy services in the NICU will be expanded to include daily rounding on patients in an attempt to determine what types of medication related interventions are feasible at our institution. Additionally, the need for different protocols will be evaluated and, if appropriate, incorporated into patient care. These interventions will be implemented to prevent possible medication-related errors and improve outcomes. These interventions will then be assigned an estimated dollar value based on the type of error and the potential for harm.
Results:
To be presented at the Great Lakes Pharmacy Residency Conference.
Conclusions:
To be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

List common errors that occur in the NICU.

Explain why a pharmacist is an essential part of the NICU team.

Self Assessment Questions:

Which of the following is a correct statement?

A A common dosing error observed in the NICU setting is a ten-fold
B: Product selection is not an issue for pharmacists treating NICU pat
C: Dosing is similar for all pediatric patient populations, including pret
D: Most medications have been extensively studied in the neonatal po

Which of the following is an established way to decrease medication errors in the NICU?

A Dosing estimations, such as the rule of six.
B Have the ordering practitioner indicate both the total dose and weig
C Preparation of medications by nursing staff on the unit.
D Decrease support staff hours on the unit.

Q1 Answer: A Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-745 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

IMPACT OF PHARMACIST INTERVENTION ON QUALITY INDICATORS OF ANTIBIOTIC USE

*Anne C Polzin, PharmD, Gerald J Dorff, MD, FACP, FSHEA, Karen A Bergmann, PharmD, MBA, Andrew J Ticcioni, PharmD, Natalie M Carleton, PharmD

St. Joseph's Hospital,5000 W Chambers Street,Milwaukee,WI,53210

anne.polzin@wfhc.org

Purpose: Numerous studies have shown that active antimicrobial stewardship leads to decreased antibiotic resistance rates, lower healthcare costs, and improved outcomes for hospitalized patients. The IDSA-SHEA has defined quality indicators for antibiotic use which, when implemented, improve patient outcomes. The objective of this study was to determine if pharmacist intervention can improve compliance with selected antibiotic quality indicators. Methods: The health systems electronic medical record system was used to identify patients on the internal medicine floor receiving selected antibiotics. The presence or absence of each of the following quality indicators was recorded for each patient: (1) Documented indication for antibiotic therapy (2) Documented expected duration of antibiotic therapy (3) Appropriate empiric therapy, as defined by institutional and national guidelines and (4) Appropriate de escalation of antibiotics, as defined by institutional and national guidelines. Part I of the study involved a retrospective review of 100 patient charts. Part II of the study involved review of the charts of 100 consecutive patients currently on the medicine floor, looking for opportunities to improve empiric therapy, dose, and de-escalation of antibiotic therapy. Recommendations for changes were discussed with a consultant ID physician during rounds twice weekly. When appropriate, recommendations and requests for additional information were made. The primary outcome evaluated was the change in level of compliance with the quality indicators for antibiotic use as a result of pharmacist intervention. Summary of preliminary results: In preliminary analysis, the greatest impact of pharmacist intervention was on de-escalation of antibiotic therapy. Rate of a documented indication for antibiotics was high for both study groups. Rate of a documented duration of antibiotic therapy was low for both study groups. Appropriateness of selected empiric antibiotic therapy was similar for both groups. Conclusions: For the quality indicators studies, pharmacist interventions can have the greatest impact on de-escalation of antibiotic therapy.

Learning Objectives:

Explain the benefits of active antimicrobial stewardship.

List four (4) quality indicators associated with antimicrobial stewardship.

Self Assessment Questions:

Antimicrobial stewardship can have which of the following benefits?

A Improved patient compliance with discharge therapy
B: Reduced rates of adverse events
C: More opportunities for poly-pharmacy
D: Decreased antimicrobial resistance rates

Which of the following is a quality indicator associated with antimicrobial stewardship?

A Rate of patient susceptibility to infection
B Documented indication for therapy
C Adverse reactions associated with antibiotics
D Days until effervescence

Q1 Answer: D Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-746 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

IMPACT OF A PHARMACIST-LED INITIATIVE AT A PREOPERATIVE ORTHOPEDIC SURGERY CLINIC

Taylor Post, Pharm.D.*, Dina Porro, Pharm.D., Se Choi, Pharm.D., Kimberly Janicek, Pharm.D., Mark Deaton, Pharm.D.

Provena Saint Joseph Medical Center,333 North Madison Street,Joliet,IL,60435

taylor.post@provena.org

Purpose

Under the National Patient Safety Goal set forth by Joint Commission, pharmacists are striving to improve the accuracy of patient medication information and communicating that information to all caregivers. The purpose of this current study is to improve the medication use process in post-operative patients by reducing medication discrepancies and increasing patient education on the medications they are receiving.

Methods

This study was approved by the Institutional Review Board of Provena Saint Joseph Medical Center. A pharmacist will be performing a thorough home medication reconciliation, collecting patient specific information, and providing medication education to each participant in the preoperative orthopedic surgery clinic. During the home medication reconciliation, the pharmacist will verify all listed home medications from the patients electronic medical record. Medication discrepancies related to the home medications will be clarified by the pharmacist and documented in the medical record. All interventions performed will be documented into the medical centers order entry system. The following variables will be collected: patient age, gender, type of surgery, number and type of therapeutic interventions performed by the pharmacist, number of home medication discrepancies during admission, length of stay, and any reported adverse drug reactions. A retrospective data collection via chart review will occur to acquire baseline statistics for the standard of care being provided prior to the pharmacy-led initiative. Post-intervention data will be prospectively collected. Pre- and post-intervention study groups will be compared to determine the effect of the pharmacist-led initiative. Outcomes being sought are a decrease in the number of home medication discrepancies during admission, an increase in pharmacists therapeutic interventions, and a decrease in preventable adverse drug reactions.

Results/Conclusions

Data collection for this research is currently ongoing. Results and conclusions will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Explain an implementation strategy for pharmacy-led medication reconciliation

Discuss measurable outcomes related to pharmacy-led medication reconciliation

Self Assessment Questions:

When implementing pharmacy-led medication reconciliation, an appropriate approach would be to:

A Implement house-wide, to all units, on the same day

B: Perform medication reconciliation on all admission, discharges, an

C: Start with one clinical area or service

D: Choose an area with low-risk patient population

Where is a good source to detect nonbiased data regarding the amount of patient education being delivered about new medications to patients ir the hospital per month?

A HCAHPS compliance tracker

B Mail-out survey

C JCAHO survey results

D Direct patient interview

Q1 Answer: C Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-824 -L05-P

Activity Type: Knowledge-based Contact Hours: 0.5

WARFARIN DISCHARGE COUNSELING PILOT EVALUATION

Anna Powichrowski, Pharm.D*.; Katie Greenlee, Pharm.D., BCPS; Jeff Ketz, Pharm.D., BCPS; Cari Cristiani, Pharm.D., BCPS; Christine Ahrens, Pharm.D., BCPS; Mike Militello, Pharm.D., BCPS

Cleveland Clinic Foundation,2111 Acacia Park Dr. Apt 311N,Lyndhurst,OH,44124

powicha@ccf.org

Background: The National Quality Forum in response to National Patient Safety Goals (NPSG) regarding anticoagulation therapy has mandated an implementation of a formalized anticoagulation management program to reduce potential for patient harm with the use of anticoagulation therapy. The 2011 NPSG guidelines described patient education as a "vital component" and required that organizations provide education to staff, patients and families. The guidelines also recommend that patient/family education includes importance of follow-up in order to monitor patients. To evaluate potential means to meet these goals the Cleveland Clinic Department of Pharmacy has implemented a warfarin discharge counseling pilot.

Methodology: It is a descriptive concurrent study using a phone follow-up survey and quality assurance survey. The primary objective is to determine the percentage of patients attending a post discharge follow-up appointment to monitor warfarin therapy using a phone follow-up survey. The secondary objective is to determine patients level of warfarin understanding after a warfarin counseling session by a pharmacist prior to discharge via a quality assurance survey. All patients 18 years or older discharged to home on warfarin therapy from cardiology floors (J7 - 1, -2, -3) will be included. Exlusion criteria includes patients discharged from cardiology floors (J7 -1, -2, -3) on warfarin therapy to nursing facility and patients who are unable to speak and understand English. Also patients who are unable to be reached by pharmacy practice resident wil be excluded from the primary outcome analysis. The timeframe for the pilot is November 1 - November 30, 2011. Primary and secondary objectives will be analyzed using descriptive statistics. Fishers exact test or Chi-square will be used when appropriate. An alpha level <0.05 will be deemed statistically significant.

Results and conclusions: Data collection for this research is currently ongoing. Results and conclusions will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Review risk factors of anticoagulation with warfarin

Describe the methods of implementing a warfarin discharge counseling program.

Self Assessment Questions:

All of the following are true regarding anticoagulation therapy with warfarin except:

A Used to treat or prevent thromboembolic events

B: High risk drug for adverse events

C: Five fold chance that bleeding will occur in the first month of therap

D: Education is essential to prevent life - threatening complications

All of the steps were included in warfarin discharge counseling process except:

A Warfarin education video or booklet

B Staff physician comes and reviews warfarin information with patien

C Nursing Unit Base Pharmacist or Pharmacy Practice Resident cou

D Documentation of counseling session in the electronic record

Q1 Answer: C Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-747 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

CREATION, IMPLEMENTATION, AND MAINTENANCE OF A PROCESS TO ACHIEVE RISK EVALUATION AND MITIGATION STRATEGY (REMS) KNOWLEDGE AND COMPLIANCE IN A HOSPITAL SYSTEM

Emily C. Prabhu, PharmD*; Jason Stabnik, RPh; Lisa Ribble-Fay, PharmD, BCPS

St. Joseph Regional Medical Center - IN,5215 Holy Cross Parkway,Mishawaka,IN,46545

prabhue@sjrmc.com

Purpose: REMS is a process implemented by the Food and Drug Administration (FDA) that requires patients are provided with appropriate education about any high-risk medications they are prescribed. Currently, no standardized process exists to identify and document the education provided in order to be compliant with REMS requirements. This study will assess knowledge based growth and compliance among health care providers regarding a REMS documentation process in a community hospital setting.

Methods: This study will involve a random sample of health care professionals employed at Saint Joseph Regional Medical Center in Mishawaka, IN, evaluated through plan, do, check methodology. An initial survey will be created and distributed to assess baseline knowledge and compliance with REMS requirements. Education for health care providers and the creation of a standardized process to identify and document medication education will be provided. A follow-up survey will be administered to the same group of health care providers following the intervention. This survey will assess improvements in knowledge of and compliance with the REMS process in addition to an assessment of the efficacy of the intervention provided. All surveys will be distributed via e-mail using Survey Monkey and will be analyzed at the completion of the study to assess for improvement regarding knowledge and compliance with REMS requirements.

Preliminary Results and Conclusions: An initial survey administered to health care providers identified that 50% of respondents found it difficult to identify a REMS medication, and as a result were unable to provide appropriate education. A majority of respondents were unfamiliar (37.5%) or very unfamiliar (37.5%) with the REMS process implemented by the FDA, and all respondents (100%) felt they could benefit from additional education. The initial survey response rate was approximately 59% (16/27). Final results and conclusions will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Explain the purpose of a REMS process and identify different high-risk drugs classified as REMS medications as determined by the FDA.

Discuss the compliance of health care professionals prior to and following an intervention providing education regarding the REMS process.

Self Assessment Questions:

Which of the following accurately represents the acronym REMS?

A Reduction of Expenditures and Maintenance Strategy

B: Risk Evaluation and Mapping Situation

C: Risk Evaluation and Mitigation Strategy

D: Rapid Evolution and Mapping Scenario

Based on preliminary trial data, how many survey respondents felt they would benefit from additional REMS education?

A 100%

B 75%

C 50%

D 25%

Q1 Answer: C Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-825 -L05-P

Activity Type: Knowledge-based Contact Hours: 0.5

DOSE OF SEROTONIN REUPTAKE INHIBITORS AND RISK OF SERIOUS ADVERSE EVENTS IN A VETERAN POPULATION

Cristofer M. Price*, PharmD; Anna G. Lockwood, PharmD, BCPP; Yevgeniya Gokun MS; Matthew T. Lane, PharmD,BCPS

Lexington VA Medical Center,1101 Veterans Drive,Pharmacy Service,Lexington,KY,40501

cristofer.price@va.gov

Purpose:
Serotonin is an important cofactor in hemostasis. It is stored in platelets and released during clot formation. In depression and anxiety disorders, serotonin reuptake inhibitors are used to target the serotonin transporters in the brain, but they can also block the platelet serotonin transporter. This may deplete platelets of serotonin and attenuate platelet aggregation. Because only a tiny amount of serotonin can favor clot formation, near total platelet serotonin transporter blockade may be required to see any increase in adverse events. The blockade is dose related, so we may only see an increase in adverse events at the highest doses. The purpose of this study is to determine if there is an association between the dose of serotonin reuptake inhibitors and serious clot or bleeding related events such as myocardial infarction, stoke, and gastrointestinal bleeding.
Methods:
This is a retrospective cohort study comparing the incidence of serious adverse events between veterans taking a low-dose of serotonin reuptake inhibitors, those taking high-dose of serotonin reuptake inhibitors, and controls. Data from patients greater than 18 years old, with a diagnosis of any depressive or anxiety disorder, who received the same dose of a serotonin reuptake inhibitor for at least 6 months were included. High-dose was defined as daily dose greater than or equal to citalopram 60mg, fluoxetine 40mg, paroxetine 60mg, or sertraline 250mg. Primary outcomes were myocardial infarction, stroke, and gastrointestinal bleeding as identified by ICD-9 codes. Secondary outcomes included all cause mortality and time to event for each outcome. Relative risk ratios were calculated for the association between maintenance dose and all primary outcomes. Cox proportional hazards analysis was used to determine an association between dose and time to events and Kaplan-Meier survival curves were created for all cause mortality.
Results/conclusions to be presented at Great Lakes Residency Conference

Learning Objectives:

Explain the role of platelets and serotonin in homeostasis.

Describe the typical selective serotonin reuptake inhibitor binding curve and its relationship to therapeutic response

Self Assessment Questions:

Which best describes the relationship between platelets and serotonin with respect to hemostasis

A Serotonin is made by platelets from precursors such as tryptophan

B: Serotonin is taken up and stored by platelets and released to prom

C: Serotonin is taken up by platelets and released to inhibit thrombus

D: A and B are correct

Which of the following best describes the dose-response curve of selective serotonin reuptake inhibitors (SSRI)?

A Therapeutic response in depression is typically seen when 80% of

B Therapeutic response in depression is directly proportional to the d

C Higher doses are typically needed for therapeutic response in depr

D There is no relationship between the percent of occupied transport

Q1 Answer: B Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-826 -L05-P

Activity Type: Knowledge-based Contact Hours: 0.5

USE OF ETOMIDATE FOR RAPID-SEQUENCE INTUBATION IN PATIENTS PRESENTING WITH SEVERE SEPSIS OR SEPTIC SHOCK

Kaitlyn M. Priniski, Pharm.D.*, Pharmacy Practice Resident; Shanna K. Cole, Pharm.D., Clinical Pharmacy Specialist- Critical Care

Borgess Medical Center,1521 Gull Road,Kalamazoo,MI,49048

kaitlyn.priniski@borgess.com

Background:
Etomidate is a short-acting hypnotic with gamma-aminobutyric acid properties often used as an induction agent for rapid-sequence intubation (RSI) due to its appealing pharmacokinetic profile. Unlike short-acting benzodiazepines such as midazolam, etomidate does not cause hemodynamic instability.
During septic shock, inflammatory mediators decrease vascular tone, causing a drop in blood pressure. The body counteracts this with the production of endogenous corticosteroids. The enzyme 11-beta hydroxylase is required for increased cortisol production. Etomidate is ar 11-beta hydroxylase inhibitor, blocking the sepsis-induced increase in cortisol production for up to 72 hours. The current literature is unclear as to the effects of this inhibition on patient outcomes.
Purpose:
The purpose of this study is to determine the difference in mortality between patients who received etomidate for RSI and those that did not receive etomidate for RSI.
Methods:
This study was a retrospective chart review that enrolled patients presenting to Borgess Medical Center between the dates of 1 July 2009 and 30 June 2011. Patients were identified for this study by diagnosis code of sepsis or septic shock as well as a diagnosis code of ventilation or intubation. Only patients intubated in the critical care units or emergently on general medical floors were included. Patients were excluded if the intubation did not occur at our facility, occurred in the emergency department, or in the operating room. The two comparator groups were those who received etomidate for RSI and those who did not. Baseline patient characteristics, length of stay (LOS), ICU LOS, ventilator days and mortality data were collected.
Baseline characteristics will be compared using chi-square test and Wilcoxon Rank-sum test. Chi-square test will be used for the primary mortality endpoint. Secondary endpoints, including LOS, ICU LOS and ventilator days will be compared using students t-test.
Results (preliminary):
Results are forthcoming.
Conclusions:
Conclusions are forthcoming.

Learning Objectives:

Identify the mechanism of action by which etomidate interferes with cortisol production.

List two (2) acceptable medications as alternates for etomidate in patients requiring rapid sequence intubation (RSI).

Self Assessment Questions:

By which of the following mechanisms does etomidate interfere with cortisol production?

A 11-beta hydroxylase inhibition
B: CYP 3A4 inhibition
C: Hoffman degradation inhibition
D: Glucuronidation inhibition

Which of the following is an acceptable alternative agent for induction in patients requiring rapid sequence intubation?

A Pancuronium
B Lidocaine
C Propofol
D Rocuronium

Q1 Answer: A Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-748 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

IMPACT OF A SCRIPTED EDUCATIONAL TOOL ON INFLUENZA VACCINATION IN ADULT PATIENTS IN A TERTIARY CARE MEDICAL CENTER

Leesa M. Prunty*, Pharm.D.; Thomas C. Rushton, M.D., FACP, FIDSA, FSHEA; Sharon E. Jones, Pharm.D., BCPS

St. Mary's Medical Center,2900 First Avenue,Huntington,WV,25702

Leesa.Prunty@st-marys.org

Purpose: Influenza results in significant morbidity and mortality each year. The Centers of Disease Control and Prevention (CDC) currently recommend that all people aged 6 months and older receive an annual influenza vaccine if without a contraindication. Also, the Centers for Medicare and Medicaid (CMS) have implemented a new required Immunization Measure which took effect in January 2012. The objective of this study was to determine if utilizing a scripted educational tool can increase influenza vaccination rates in adult inpatients.

Methods: In this prospective study, the medical centers electronic medical record system and vaccination report was used to identify patients on two Medical/Surgical units eligible to receive an influenza vaccine. Inclusion criteria included age 18 years or greater. Exclusion criteria included allergy to eggs, latex, or the influenza vaccine; prior influenza vaccination during current flu season; moderate to severe fever; and patients requiring a surrogate. One unit was the control, and the other was the active intervention. A daily list of all eligible patients was generated. A pharmacy resident reviewed the list and visited each patients room. The control group was offered the vaccine. The intervention group was provided with scripted education regarding the immunization and then offered the vaccine. If the patient was amenable to receiving the vaccine, the appropriate standing orders were activated. If the patient preferred not to receive the vaccine, the reason for decline was documented in the medical record. Patient demographics of age and gender were obtained from the medical record. Patient education demographics were collected by asking the patient. The primary endpoint in this study was the rate of influenza vaccination.

Results: Results and conclusions will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Identify the importance of annual influenza vaccination in indicated populations.

Describe educational strategies to increase patient acceptance of vaccinations in the inpatient setting.

Self Assessment Questions:

According to Healthy People 2020, what is the target percentage of adults 65 years of age and older to be vaccinated against influenza?

A 65%
B: 80%
C: 90%
D: 98%

According to the Centers of Disease Control and Prevention (CDC), which of the following is a contraindication to receiving the influenza vaccine?

A Pregnancy or lactation
B Runny nose without a fever
C Anaphylaxis to penicillin
D Severe allergy to eggs

Q1 Answer: C Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-540 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

RETROSPECTIVE ANALYSIS OF PROTON PUMP INHIBITOR OR HISTAMINE-2 ANTAGONIST PRESCRIBING POST DISCHARGE WITHOUT APPROPRIATE INDICATIONS AT A VA MEDICAL CENTER

Jeremy J. Prunty, Pharm.D.*Marcus Patrick, Pharm.D. Derek L. Grimm, Pharm.D., BCPS

Huntington Veterans Health Administration Medical Center,1540 Spring Valley Drive,Huntington,WV,25705

jeremy.prunty@va.gov

Purpose: Many patients admitted for an inpatient course of therapy receive GI prophylaxis using a proton pump inhibitor (PPI) or a histamine 2 (H2) antagonist. If adequate discharge medication reconciliation is not met, the patient may be prescribed chronic acid suppression therapy without indication. Inappropriate chronic acid suppressive therapy increases costs to the health care system, risk of drug interactions, and risk of adverse effects. Recent studies have started to focus on possible negative effects of chronic gastric acid suppression, including incidence of Clostridium difficile, hypomagnesaemia, and pneumonia. The purpose of this study is to assess the appropriateness of prescribed acid suppression therapy with a PPI or H2 antagonist post discharge in those patients who were not receiving a PPI or H2 antagonist prior to their in-patient course.

Methods: A retrospective chart review of patients prescribed chronic acid suppression therapy with a PPI or H2 antagonist upon discharge that were not on such therapy prior to their inpatient admission will be assessed. The number of patients with appropriate or inappropriate therapy and class of medication used will be determined by assessing the discharge diagnosis for use of PPI or H2. Comparisons between services discharging patients on inappropriate anti-secretory therapy will be assessed. Patients who were prescribed inappropriate therapy will be identified and their primary care provider will be contacted by a pharmacy resident who will coordinate a possible adjustment in therapy.

Results and Conclusions: Data is currently being collected and analyzed Results and conclusions will be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Identify appropriate uses for H2 or PPI therapy for stress ulcer prophylaxis in an in-patient setting.

Discuss appropriate utilization of anti-secretory therapy post discharge.

Self Assessment Questions:

In which patient is stress ulcer prophylaxis with omeprazole recommended?

A a.A 42 year old patient being treated on the floor for community ac
B: A 56 year old patient with acute renal failure in the ICU.
C: An 81 year old patient being treated on the medical ward for deme
D: A 45 year old patient being treated on the medical ward for chest p

What is a possible serious side effect of chronic high dose ranitidine therapy?

A Prostate Cancer
B Gastritis
C Thrombocytopenia
D Hypertension

Q1 Answer: B Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-749 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

ADJUSTED VANCOMYCIN DOSING IN PEDIATRICS

Pavel Prusakov, PharmD* Allyson Gaylor, PharmD

Parkview Health System,2200 Randallia Drive,Fort Wayne,IN,46805

pavel.prusakov@parkview.com

Background:
Antibiotic resistance is a constant concern on the minds of clinicians. It can be very challenging to appropriately dose antibiotics especially in the younger population. Low trough concentrations of vancomycin are associated with treatment failures and increased bacterial resistance. A recent study evaluated a dosing regimen of vancomycin at 60 mg/kg/day in children with MRSA infections. Researchers found that mean trough concentrations were 9 mg/L.
Purpose:
The objective of this study is to determine whether an increased empiric dosing regimen of vancomycin, 25 mg/kg every 8 hours, results in appropriate therapeutic trough concentrations of 10 - 20 mg/L.
Methods:
This is a chart review study, which evaluates an increased empiric vancomycin dosing regimen on trough levels in a pediatric population. Patients will be included if they are 1 month old - 18 year old, admitted to pediatric/teen intensive care unit or pediatric acute care floor with orders for pharmacy to dose and/or monitor vancomycin levels. Patients with the baseline creatinine concentration greater than 0.7mg/dL (1 mo - 1 yr); > 0.9mg/dL (1 - 18yrs); oncology or nephrology patients, pregnant subjects, or patients who received less than three doses of intravenous (IV) vancomycin and/or had no trough level drawn at steady state will be excluded from the study. Patients age, sex, weight, height, creatinine concentration, vancomycin dosage, vancomycin trough level, and time of trough in relation to the previous dose will be collected and analyzed.
Results/Conclusions:
Data is currently being collected and analyzed. Results and conclusions will be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Define current dosing guidelines and their effect on initial trough concentrations

Explain the importance of obtaining therapeutic troughs with first three doses of vancomycin

Self Assessment Questions:

Which of the following is true for the current vancomycin dosing regimen

A Appropriate for patient of all ages
B: Proven to reduce infection mortality rates
C: It is 10-15mg/kg every 6 hours for children over 1 month old
D: Results in therapeutic trough concentrations of vancomycin

A sub-therapeutic vancomycin trough results in

A More frequent treatment failures
B Increased drug toxicity
C Decreased resistance rates
D Decreased hospital length of stay

Q1 Answer: C Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-541 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF AN ELECTROLYTE REPLACEMENT PROTOCOL IN ADULT CRITICALLY ILL PATIENTS AT AN ACADEMIC MEDICAL CENTER

Archariya Puangampai*, Pharm.D., Sacha R. Pollard, Pharm.D., BCPS
University of Chicago Medical Center,5841 S. Maryland Avenue,Chicago,IL,60637
archariya.puangampai@uchospitals.edu

Purpose:
The implementation of an electrolyte replacement protocol (ERP) in intensive care units (ICUs) has been shown to optimize electrolyte repletion and improve standardization of care. At our institution, guidelines for the management of electrolyte deficiencies were introduced to the medical and clinical staff. The guidelines provide recommendations for the repletion of potassium, phosphorus and magnesium. However, the specific replacement strategies have not yet been reviewed and validated. The purpose of this study is to evaluate the efficacy and safety of our institutions ERP in adult critically ill patients.

Methods:
This is a single-center retrospective cohort study of adult (≥ 18 years of age) patients from the
medical, surgical, neurosciences and burn ICU services who received potassium, phosphorus or
magnesium replacement therapy on day 2 of ICU admission during the study period. Exclusion criteria include patients presenting with diabetic ketoacidosis or concurrent renal replacement therapy. The following data will be collected: demographics (age, gender, height, weight), admission diagnosis, nutrition source, serum potassium, phosphorus, and magnesium concentrations on day 1, day 2, and day 3 of ICU admission, daily serum creatinine, daily urine output, variables surrounding the electrolyte repletion strategy (product, dose, route), amount of potassium, phosphorus, and magnesium in intravenous fluids and enteral and parenteral nutrition products, and medications (diuretics, insulin) that affect serum potassium, phosphorus and magnesium concentrations.

Results and Conclusions:
To be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Identify common symptoms of hypokalemia, hypophosphatemia, and hypomagnesemia.

Discuss appropriate administration of intravenous electrolyte replacement products.

Self Assessment Questions:

Which of the following conditions causes impaired diaphragm contractility?

A Hypokalemia
B: Hypophosphatemia
C: Hypomagnesemia
D: All of the above

What is the recommended maximum rate of intravenous potassium chloride through a peripheral line?

A 10 mEq/hr
B 20 mEq/hr
C 30 mEq/hr
D 40 mEq/hr

Q1 Answer: B Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-827 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

DEVELOPMENT AND IMPLEMENTATION OF A HEART FAILURE EDUCATION PROGRAM TO REDUCE READMISSION RATES IN AN INPATIENT COMMUNITY HOSPITAL

Angelina M. Pucci, PharmD*, Michelle L. Schymik, PharmD, BCPS
Deaconess Health System,600 Mary Street,Evansville,IN,47715
angelina.pucci@deaconess.com

Background/Purpose: Hospitals are prioritizing patient education in order to meet new demands of Value-Based Purchasing within Health Care Reform. This law will reduce reimbursement for performance below the standard. Performance is measured using core measures, satisfaction scores, and readmission rates. Several opportunities for Pharmacists to improve heart failure care were identified at Deaconess. Heart failure was the most frequent diagnosis for the primary and secondary admission when analyzing 2010 readmissions. It was determined that the discharge instruction component of the heart failure core measure was met 64.9% of the time and Deaconess must achieve 87.2% for 50th percentile. A pilot was conducted to determine if heart failure education provided by Pharmacists is effective in improving core measure scores and decreasing readmissions in high risk patients.

Methods: A 4-week pilot was conducted from 12/19/2011 to 1/13/2012. Tools were developed to provide education and documentation based upon successful programs at other institutions and American Heart Association. Included patients have a diagnosis of congestive heart failure, cardiomyopathy, or BNP >200 plus are designated as high risk by case management. High risk is defined as 30-day readmit or third readmission within the last 6 months. Patients were excluded during the pilot if admitted from or discharged to a nursing home. A control group was established with the same criteria but did not receive a teaching due to location at an alternate campus. Pharmacists performed heart failure disease state and medication education on day 2 of admission or first day out of ICU. Patients received a follow-up phone call three days after discharge to reinforce the education. Data collected includes the following: length of time for teaching and 14-day readmission rate. The primary endpoints will be: core measure score and readmission data for heart failure.

Results/Conclusions: To be presented at Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Review the main counseling points provided to heart failure patients to increase disease state knowledge.

Review the medications used for management of congestive heart failure and their adverse effects.

Self Assessment Questions:

If a patient has increased shortness of breath and weight gain of 3 pounds in one day, which heart failure zone would be appropriate for classification?

A Green Zone
B: Yellow Zone
C: Red Zone
D: White Zone

Which of the following statements could be used to counsel a patient on digoxin toxicity?

A Nausea/vomiting
B Chest pain
C Muscle aches
D Insomnia

Q1 Answer: B Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-542 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

IMPLEMENTATION OF A MULTIDISCIPLINARY SEPSIS ALERT TEAM IN A COMMUNITY HOSPITAL

Ryan Clark DO, Matthew J. Kauflin PharmD, Christopher McIntosh DO, Emily J. Quinto PharmD*, Brian Torski DO

Grandview Medical Center,405 W. Grand Avenue,Miamisburg,OH,45342

emily.quinto@gmail.com

Purpose/Background: The Surviving Sepsis Campaign, released guidelines in 2008 outlining recommendations for the management of sepsis and septic shock. Identification and diagnosis of the condition, initial and maintenance fluid resuscitation, antibiotic therapy, and other medication used in the treatment of sepsis are some of the topics covered in the guidelines. Early goal-directed therapy has been found to improve mortality in septic patients. However, meta-analyses have uncovered associations between individual improvements with single interventions, but the implementation of all campaign recommendations has not been investigated. The primary objective of this study is to develop, implement and evaluate a sepsis alert team and bundle care plan for septic patients identified at Grandview Medical Center between February to April 2012 in comparison to previous sepsis treatment practices.

Methods: This study is a before-after design evaluating the implementation of a multidisciplinary sepsis alert team at Grandview Medical Center. A bundled care path including a sepsis screening tool, antibiotic guide, inpatient treatment guide, education of medical staff and a response team will be developed by the sepsis alert team. Patients admitted between January 1, 2011 and November 1, 2011 will be retrospectively looked at through chart review for outcomes. Those patients seen after February 1, 2012 will be responded to by the sepsis alert team. Data will be collected that includes mean arterial pressure (MAP), blood pressure, blood glucose and heart rate, time to first antibiotic, appropriateness of antibiotic, use of vasopressors, inotropes, steroids, time to admittance or transfer to ICU, initial time and amount of fluid resuscitation, use of mechanical ventilation, time to culture, need for dialysis, length of stay and mortality.

Results/Conclusions: Data collection is ongoing. Results and conclusions will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Recognize the different classifications used to describe patients with sepsis (systemic inflammatory response syndrome (SIRS), sepsis, severe sepsis, and septic shock).

Recall the Surviving Sepsis Campaign guidelines to determine treatment options and recommendations for sepsis patients

Self Assessment Questions:

1.Which of the following describes a patient with severe sepsis?

A 2-4 SIRS criteria
B: Evidence of infection
C: Need for vasopressor therapy
D: All of the above

Which of the following are indicated in the Surviving Sepsis Campaign Guidelines to yield better survival outcomes?

A Antibiotic therapy within 3 hours of presentation
B Patient specific fluid resuscitation within 6 hours of presentation
C Start narrow spectrum antibiotics
D Goal MAP of < 65 mmHg

Q1 Answer: D Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-543 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

IMPROVING OUTCOMES IN PATIENTS WITH ELEVATED HEMOGLOBIN A1C THROUGH THE ADDITION OF SPECIALIZED DIABETES EDUCATION

Sarah E Raake, PharmD*, Stacy L Rowe, PharmD

Sullivan University College of Pharmacy,2865 W. Bradford Rd. NE,Palmyra,IN,47164

sraake@sullivan.edu

Purpose:
To (1) identify if providing specialized diabetes education to patients with A1c >9% provides beneficial results in the lowering of A1c values and to (2) identify commonalities between the disease states of the patients that did not benefit from the supplemental education.
Methods:
Diabetes education is currently a mainstay in the management of this condition; in the past decade, diabetes education has gained momentum as more and more practitioners see its worth. It is now common practice for a newly diagnosed patient with diabetes to receive education regarding nutrition, medications, and lifestyle changes all in an effort to empower the patient to take control of their own health and manage their disease state. For some patients though, this
training does not prove to be enough and despite the best management practitioners can provide, a patients A1c value continues to remain in the undesirable range. For this subset of patients, it is questionable whether the addition of more tailored diabetes education will prove beneficial. This retrospective, observational cohort study will evaluate patients who were targeted for elevated A1c values and were provided additional, specialized diabetes education by an RN,CDE; the benefits of such education will be measured as a reduction in A1c values. A secondary analysis will be performed using the subset of patients that did not experience A1c reduction in order to identify commonalities between these patients additional disease states.
Patients will be selected for this study based on previous inclusion in the supplemental diabetes education class designed for patients with A1c values >9% at the Joslin Diabetes Center at Floyd Memorial Hospital. All relevant information (such applicable A1c values and additional comorbid conditions) will be collected through retrospective chart reviews of the selected patients. Data will then be evaluated using various descriptive statistical measures.
Results & Conclusions: Pending

Learning Objectives:

Discuss diabetes education & its role in the management of the disease

Identify potential barriers patients may experience related to diabetes education

Self Assessment Questions:

According to the American Diabetes Association Standards of Medical Care in Diabetes (2012), when should patients with diabetes receive diabetes self-management education?

A At diagnosis of diabetes and as needed thereafter
B: Once A1c reaches 9%
C: Once A1c reaches 7%
D: Only in patients diagnosed with diabetes mellitus type 1

Which of the following are potential barriers related to diabetes education?

A Medication costs
B Comorbid conditions
C General psychosocial conditions
D All of the above

Q1 Answer: A Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-544 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

CHARACTERIZATION OF ADVERSE METABOLIC OUTCOMES OF ANDROGEN DEPRIVATION THEARAPY IN PROSTATE CANCER PATIENTS AT METROHEALTH MEDICAL CENTER

Robert D. Raiff, Pharm.D.*, Jan E. Kover, R.Ph., BCOP, Paul F. Hergenroeder, M.D.

MetroHealth Medical Center,2500 MetroHealth Drive,Cleveland,OH,44109

rraiff@metrohealth.org

Background:
Androgen deprivation therapy (ADT) is a management option for locally advanced to metastatic stages of prostate cancer, and can be accomplished medically through the usage of gonadotropin-releasing hormone (GnRH) receptor agonists. Recent studies have associated GnRH agonist therapy with increases in cholesterol, body fat, and triglycerides, while concomitantly decreasing insulin sensitivity. In October 2010, the FDA required manufacturers to include information in the GnRH agonist package inserts warning of increased risk of obesity, diabetes, and adverse cardiovascular outcomes (heart attack, stroke, sudden death). To this point, retrospective and prospective analyses examining the relationship between GnRH agonists and increased risk o adverse metabolic outcomes have produced conflicting results.
Purpose:
The primary objective is to describe the incidence of adverse metabolic outcomes in prostate cancer patients receiving at least six months of GnRH agonist therapy at MetroHealth.
Methods:
This Institutional Review Board-approved retrospective, descriptive chart review will be conducted on all adult men with biopsy-proven prostate cancer who received at least six consecutive months of GnRH agonist therapy from 2001-2010. The patients will be identified through the MetroHealth electronic medical record system (EPIC). Dose and duration of GnRH agonist therapy and demographic data will be collected on each patient. The primary endpoints will be incidence of diabetes and composite incidence of adverse cardiovascular events. Patients with a prior history of diabetes will be excluded from the diabetes incidence endpoint. Changes in metabolic parameters such as HbA1c%, lipid panel, BMI, and blood pressure will be recorded over the duration of GnRH agonist treatment. Descriptive statistics will be used to assess the incidence of adverse metabolic outcomes as compared to literature based reported incidence. Data will be stratified based on patient history of cardiovascular disease and smoking.
Results/Conclusions:
Results and conclusions to be presented at the Great Lakes Residency Conference.

Learning Objectives:

Recognize potential alterations in metabolic laboratory values associatec with GnRH agonist treatment

Indicate the FDA-reported potential risks associated with GnRH agonist treatment ,

Self Assessment Questions:

Which lipid panel component experienced the most significant alteration as a result of GnRH agonist therapy?

A Total Cholesterol
B: Triglycerides
C: Hdl-c
D: Ldl-c

According to the FDA, which of the following adverse events may be associated with GnRH agonist therapy in prostate cancer patients?

A Hypoglycemia
B Secondary malignancy
C Stroke
D Stevens-Johnson Syndrome

Q1 Answer: B Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-545 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

COMPARISON OF DEXMEDETOMIDINE FAILURE FOR VENTILATOR WEANING BEFORE AND AFTER THE IMPLEMENTATION OF A DEXMEDETOMIDINE PROTOCOL IN A MEDICAL/SURGICAL ICU

Deborah Sun Raithel, Pharm.D., PGY1 Pharmacy Practice Resident*, Michael Timothy Johnson, Pharm.D., MSICU Clinical Pharmacist

University of Illinois at Chicago,Department of Pharmacy Practice (MC 886),833 S. Wood St., 164 PHARM,Chicago,IL,606127230

raithel@uic.edu

Purpose: Dexmedetomidine, an α2-receptor agonist, is FDA-approved for the sedation of initially intubated and mechanically ventilated patients during treatment in the intensive care setting. Current studies suggest that dexmedetomidine may improve ventilator weaning and decrease time of mechanical ventilation. However, this benefit must be balanced with the risks of hypotension and bradycardia, as well as undersedation. The objective of this study is to determine if standardization of dexmedetomidine dosing titration will decrease rates of premature discontinuation of dexmedetomidine due to adverse events or undersedation, and therefore potentially increase successful extubation within 24 hours of initiation of dexmedetomidine. This in turn will increase cost-effective use of the medication by decreasing the use of an unsuccessful medication, decrease hospitalization cost from longer intubation times, and decrease potential adverse events which may also prolong hospitalization, require additional treatment, or cause patient harm.

Methods: This study is a single-center, non-randomized study comparing a prospective cohort to a retrospective control group. Patients are divided into groups based on whether they were treated prior to or after the initiation of a dexmedetomidine protocol. Inclusion criteria includes patients ≥ 18 years old in the Medical/Surgical Intensive Care Unit, intubated and on mechanical ventilation for > 48 hours, indication for use of dexmedetomidine is ventilator weaning and extubation, requires intravenous sedation, and deemed acceptable for ventilator weaning and extubation within 24 hours of initiation of dexmedetomidine. The primary endpoint of this study is dexmedetomidine failure (defined as discontinuation of dexmedetomidine prior to extubation due to undersedation and/or adverse events or the addition of another sedative medication while on dexmedetomidine). Secondary endpoints include time to extubation after initiation of dexmedetomidine, adverse events, highest rate of dexmedetomidine infusion, undersedation as evidenced by patient agitation, and wasted drug expenditures.

Results and Conclusion: Data collection is still ongoing.

Learning Objectives:

Describe the major causes of dexmedetomidine failure and strategies for decreasing these risks

Discuss the comparison of dexmedetomidine failure before and after the initiation of a dosing protocol

Self Assessment Questions:

The risk of hypotension and bradycardia with dexmedetomidine is DECREASED when:

A an initial bolus dose is given
B: a daily sedation holiday is performed to avoid accumulation of drug
C: longer titration intervals (i.e. 30 minutes) are utilized
D: current sedatives are stopped immediately upon initiation of dexme

The risk of dexmedetomidine failure due to agitation is INCREASED when:

A current sedatives are overlapped with dexmedetomidine
B dexmedetomidine is discontinued upon extubation
C benzodiazepines are utilized for breakthrough agitation
D current sedatives are decreased at 5-10 minute intervals

Q1 Answer: C Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-546 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

THE EFFECTS OF A PALLIATIVE CARE PROGRAM ON CONTINUING MAINTENANCE MEDICATIONS IN NEAR END-OF-LIFE ONCOLOGY PATIENTS (HEAL STUDY)

Monica L Randolph*, PharmD, Jane M Pruemer, PharmD, BCOP, FASHP, Melissa M Sons, PharmD Candidate

UC Health-University Hospital,234 Goodman Street,Cincinnati,OH,4521

monica.randolph@uchealth.com

Background:
Terminally-ill oncology patients, who are enrolled in a palliative care program versus those who are not enrolled, may have maintenance medications discontinued earlier. Continuation of maintenance medications cannot only be costly, but polypharmacy can decrease adherence to the necessary palliative care medication regimen. Quality of life for both patient and family can be greatly affected by a complex medication regimen. There currently is no guideline for physicians when to discontinue maintenance medications.
Purpose:
Evaluate if terminally-ill oncology patients, who are or are not enrolled in a palliative care program, have maintenance medications discontinued earlier and if that may lead to improved quality of life for the patient at end-of-life.
Methods:
This investigator-initiated, single center, retrospective and prospective observational study is being conducted at UC Health-University Hospital in Cincinnati, OH. Thirty adult oncology patients listed as expired are being retrospectively reviewed and compared to 30 consecutive patients who were seen in the UC Health Palliative Care Clinic. A prospective observational study of 60 terminally ill oncology patients in UC Healths Palliative Care Program will be observed until expiration through May 2012. The primary outcome compares the number medications, both total and maintenance, in oncology patients near end-of-life in a palliative care program to a similar group not in a palliative care program. Secondary outcomes include, hospitalizations, adverse outcomes due to discontinuing maintenance medications, and assessment of the effect of being enrolled in a palliative care program or patient quality of life. We plan to develop a guideline for oncologists/palliative care physicians to promote the discontinuation of various maintenance medications.
Results:
Final results and conclusions to be presented at the Great Lakes Residency Conference. Currently, data has been collected in 10 patients

Learning Objectives:

Classify which medications are maintenance versus supportive care medications used to manage terminally-ill oncology patients at the end of life

Identify when maintenance medications can be appropriately discontinued in terminally-ill oncology patients at end of life

Self Assessment Questions:

CG is a 68 YOF with stage IV metastatic colon cancer s/p three cycles of FOLFOX. His medications include: -aspirin 81mg PO daily -oxycodone SR 40mg PO BID -oxycodone IR 15mg PO Q6H prn breakthrough p

A ondansetron and aspirin
B: simvastatin and albuterol
C: ondansetron and gabapentin
D: simvastatin and aspirin

CG did not respond to therapy and has now been given 3 months left to live and has decided to not continue with further chemotherapy. Which medications could be discontinued in CG?

A simvastatin and aspirin
B gabapentin and aspirin
C ondansetron and albuterol
D aspirin and oxycodone

Q1 Answer: D Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-547 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

RETROSPECTIVE ANALYSIS OF TREATMENT BURDEN AND ADHERENCE IN CHRONIC KIDNEY DISEASE PATIENTS

Monal H. Ray, Pharm.D.*; Catherine M. Lea, RPh, BCACP; Kent H. Gierhart, RPh, MBA

Mayo Clinic Health System-Eau Claire,1221 Whipple Street,PO Box 4105,Eau Claire,WI,547024105

ray.monal@mayo.edu

Background:
Patients with chronic kidney disease (CKD) are often prescribed twelve medications or more on a daily basis. Due to the complexity of regimens in dialysis patients, it is likely that many patients are non-adherent. About 50% of the drug therapy regimen is comprised of phosphate binders. When phosphate binders are not taken, serum phosphate levels can rise significantly and may increase the risk for developing heart disease, bone damage or vitamin D deficiency. Two components of pill burden include the number of tablets to be taken at a given time and the frequency of administration. The primary objective is to assess the treatment burden, especially from phosphate binders, on medication adherence in patients with CKD. The secondary objective is to determine if medication therapy management is a way to improve adherence and patient satisfaction for dialysis patients.

Methods:
A retrospective chart review was done on 170 CKD patients from four dialysis units in Western Wisconsin, covering the time period from July 2011 to December 2011. The number of medications and the total number of pills prescribed to take per day was analyzed to assess pill burden. Patient adherence to phosphate binders was measured by reviewing mean phosphate levels each month for the last six months. Visits to healthcare providers per month were also determined. A survey was given to address medication related concerns, adherence and patient perceived burden from their medications. This study is approved by the MCHS- Eau Claire Hospital IRB.

Results/Conclusions:
To be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Identify the impact of treatment burden on medication adherence in patients undergoing dialysis.

Describe the effect of chronic kidney disease on a patients quality of life.

Self Assessment Questions:

What is the purpose of phosphate binders in patients undergoing dialysis?

A Bind calcium to avoid hypercalcemia
B: Decrease the amount of phosphates absorbed from meals
C: Decrease the production of the parathyroid hormone
D: Replace the need for dialysis as they can significantly reduce phos

What are some interventions pharmacists can make when reviewing a medication regimen for a dialysis patient?

A Phosphate binder adherence
B Remind patients of the role of each medication in their therapy and
C Monitor pill burden and help identify ways to reduce number of pills
D All of the above

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-548 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

A PHARMACY-DIRECTED PAIN MANAGEMENT INITIATIVE FOR INPATIENTS USING FREQUENT AS NEEDED OPIOID PAIN MEDICATIONS

Brett A Read, PharmD*; Daniel J Bestul, PharmD, BCOP, Levi M Hall, PharmD, BCPS

William Beaumont Hospital,3601 W. 13 Mile Road,Royal Oak,MI,48073

brett.read@beaumont.edu

Background:
Pain is a frequent complaint for inpatient acute care. Pain management can include many pharmacologic interventions (opioids, non-opioids, ant inflammatory agents, etc). There is no regular pharmacist intervention for pain management at our institution. Current pharmacist involvement includes rounding with medical services and responding to drug information questions. Studies have shown pharmacist interventions lead to reduced average pain intensity scores and improved satisfaction. The purpose of this study is to determine the effect a pharmacists involvement would have on inpatient pain control and management.

Methods:
This single-center, prospective study assessed inpatient pain management in patients admitted to the hematology/oncology floor during two separate time periods. Patients were identified using a computer report highlighting the number of as needed opioid pain medications used during the previous calendar day. Patients enrolled were at least 18 years old and received frequent (>4) as needed opioid pain medications at the time of enrollment. Exclusion criteria included use of patient-controlled analgesia, neuroaxial analgesia, or being followed by the pain service at the time of identification. At the time of identification, previous pain medication regimens prior to admission were obtained. Patients were either placed in a baseline (Fall 2011) or an intervention group (Spring 2012). Pain scores and pain medications were assessed for a period of at least 72 hours. A verbal survey was administered to both patients and their respective nurses in both the baseline and intervention group at least 72 hours after identification. This verbal survey assessed adequacy of pain management, satisfaction, pharmacist impact, knowledge of pain management and level of communication. A pharmacist recommendation to optimize the pain medication regimen was made to the prescriber in the intervention group, but not in the baseline group.

Results:
Data collection and analysis are ongoing and results will be presented at the Great Lakes Pharmacy Conference.

Learning Objectives:

Recognize the importance of optimal pain management in the inpatient acute setting.

Identify prescriber and patient related barriers to optimal pain management.

Self Assessment Questions:

Which of the following affects more Americans than any other disease?

A Diabetes
B: Heart Disease
C: Cancer
D: Pain

A barrier for obtaining optimal pain management is:

A Frequent reporting of pain
B Fear of disease improving
C Lack of prescriber time
D Lack of side effects

Q1 Answer: D Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-549 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

A RETROSPECTIVE REVIEW OF THE VALUE OF BOLUS FLUOROURACIL PLUS LEUCOVORIN PRIOR TO CONTINUOUS INFUSION FLUOROURACIL IN PATIENTS WITH METASTATIC COLORECTAL CANCER

*Josh Reardon, PharmD; Marlo Blazer, PharmD, BCOP; Amy Lehman, MAS; Niesha Griffith, MS, RPh, FASHP; Tanios Bekaii-Saab, MD

The Ohio State University Medical Center,410 West 10th Avenue,368 Doan Hall,Columbus,OH,43210

joshua.reardon@osumc.edu

Background: FOLFOX and FOLFIRI, with or without the addition of bevacizumab, are the standard of care for first line treatment of metastatic colorectal cancer. The backbone of these regimens includes a bolus dose of fluorouracil (5FU) with leucovorin followed by a 46 hour continuous infusion of 5FU. Toxicities seen with these regimens, such as neutropenia, mucositis, diarrhea, and fatigue have been attributed mainly to the bolus 5FU portion of the regimen. Established dose reductions for these toxicities involve the removal of the bolus 5FU and leucovorin from the regimen.

Purpose: This is a retrospective chart review to evaluate if removal of the bolus 5FU and leucovorin due to toxicities has had any impact on the efficacy of the regimen as a whole. The primary endpoint will compare overall survival (OS) between groups that discontinued the bolus 5FU and leucovorin to those that did not. Secondary endpoints will compare progression-free survival (PFS) between groups that discontinued the bolus 5FU and leucovorin to those that did not, as well as compare toxicity profiles between these populations.

Methods: Retrospective data will be collected on patients diagnosed with metastatic colorectal cancer (mCRC) who received first-line treatment with FOLFOX or FOLFIRI based regimens, with or without bevacizumab. The electronic medical record will be reviewed for toxicities that led to discontinuation of the bolus 5FU and leucovorin portion of the regimen. The OS, PFS and toxicity profiles between groups that discontinued the bolus 5FU and leucovorin to those that did not will be compared.

Results/conclusions: Data collection is in progress. Results and conclusions will be presented at the 2012 Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Discuss median overall survival for metastatic colorectal cancer patients treated with FOLFOX or FOLFIRI chemotherapy regimens based on the published literature.

Identify dose-limiting toxicities commonly seen with both FOLFOX and FOLFIRI regimens used to treat metastatic colorectal cancer that are attributed to the bolus fluorouracil.

Self Assessment Questions:

1) Based on the literature presented, what is the approximate range of median overall survival for metastatic colorectal cancer patients treated with FOLFOX or FOLFIRI in the first-line setting?

A 10-15 months
B: 15-20 months
C: 20-25 months
D: 25-30 months

2)Which set of dose-limiting toxicities seen in metastatic colorectal cancer patients treated with FOLFOX or FOLFIRI can be attributed to the bolus fluorouracil?

A peripheral neuropathy, fatigue, thrombocytopenia, nausea
B peripheral neuropathy, cardiotoxicity, diarrhea, conjunctivitis
C mucositis, pulmonary fibrosis, nausea, conjunctivitis
D mucositis, neutropenia, diarrhea, fatigue

Q1 Answer: C Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-550 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

REDUCTION IN THE USE OF BROAD-SPECTRUM ANTIMICROBIAL THERAPY IN HOSPITALIZED PATIENTS WITH DIABETIC FOOT INFECTIONS FOLLOWING IMPLEMENTATION OF A CULTURE-DIRECTED ALGORITHM FOR SELECTION OF ANTIMICROBIALS

Julio A. Rebolledo, Pharm.D.*; Gail Itokazu; Pharm.D., Robert C. Glowacki, Pharm. D.; David Schwartz, M.D.; Kathy Rezai, M.D.

John H. Stroger Jr. Hospital,1631 W Beach,Chicago,IL,60622

jrebolledo@cookcountyhhs.org

Background: Despite culture and sensitivity results supporting narrower spectrum antimicrobial regimens for hospitalized patients with diabetic foot infection, empiric broad-spectrum antimicrobial therapy with piperacillin/tazobactam plus vancomycin is often continued until the patient is discharged.

Purpose: To develop an institutional algorithm to assist clinicians in the selection of culture-directed antimicrobial therapy. We hypothesize that prospective pharmacist intervention to encourage adherence to the algorithm will reduce the use and expenditures of broad-spectrum antimicrobial therapy.

Methods: JHSH is a 465 bed public teaching hospital with inpatient services including internal medicine, surgery, and critical care. A culture directed algorithm for the selection of antimicrobial therapy for hospitalized adults with diabetic foot infections was developed and approved by the Institutional Review Board, the institutions Anti-Infective and Drug and Formulary Committees; and the Podiatry and Family Medicine Services which oversee the care of these patients. Patients were prospectively identified by reviewing on a daily basis the patient list from the inpatient Podiatry Service. Collected data include: patient demographics, start and stop dates, admission antimicrobial regimens, culture and susceptibility results from deep tissue specimens of infected wounds, pharmacists recommendations to deescalate (streamlining antimicrobials based on culture and sensitivity results, or conversion from an intravenous to an oral regimen) therapy, and date of hospital discharge. Antimicrobial costs were obtained from pharmacy purchasing records. Outcome measures are 1) the proportion of accepted pharmacist recommendations to deescalate therapy, 2) number of broad spectrum antimicrobial days averted because of pharmacist recommendation, and cost-savings attributed to the de-escalation of therapy.

Results and Conclusions: to be presented at the conference, data collection is currently ongoing.

Learning Objectives:

Discuss the treatment algorithm developed for this project

Describe the role of the pharmacist in the treatment of diabetic foot infections

Self Assessment Questions:

Which of the following is an acceptable empiric treatment for a patient admitted with a chronic diabetic foot infection?

A Ciprofloxacin
B: Piperacillin/tazobactam and Vancomycin
C: Doxyclycline
D: Vancomycin

What are some of the roles that a pharmacist as part of a multidisciplinary team can take in the treatment of diabetic foot infections?

A Monitoring culture susceptibility results and recommending narrow
B Obtain tissue cultures after a patient is admitted to the hospital
C If appropriate, recommend conversion from an intravenous to an o
D A and C

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-551 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

RISK FACTORS FOR VENOUS THROMBOEMBOLISM IN PATIENTS WITH SUBARACHNOID OR INTRACEREBRAL HEMORRHAGE: A CASE-CONTROL STUDY

Georgeanna Rechner, PharmD*; Amy E. Green, PharmD, BCPS; Christopher W. Crank, PharmD, MA, BCPS, AQ-ID

Rush University Medical Center,1653 W. Congress Parkway,Atrium 0036,Chicago,IL,60612

georgeanna_rechner@rush.edu

Purpose: Subarachnoid hemorrhage (SAH) and intracerebral hemorrhage (ICH) place patients at an increased risk of venous thromboembolism (VTE). Current literature and CHEST guidelines do not include recommendations for VTE prophylaxis specific to patients with SAH or ICH and do not address risk factors that may predispose certain patients to VTE formation even with pharmacologic prophylaxis. The objective of this study is to identify the risk factors associated with the formation of VTE in patients with SAH or ICH.

Methods: This case-control study included patients admitted to Rush University Medical Center from July 1, 2010 to June 30, 2011 with the primary diagnosis of SAH or ICH. Fourteen cases of hospital acquired VTE in patients admitted for SAH or ICH were identified using the University HealthSystem Consortium (UHC) Clinical Resource Management (CRM) Database. Four control patients were matched to one case patient based on type of hemorrhage and either ICH score or Hunt and Hess score. Time to initiation or re-initiation of pharmacologic VTE prophylaxis, type and dose of pharmacologic VTE prophylaxis, surgical procedures, immobility, body mass index (BMI), history of VTE, central line placement, central line-days, malignancy, thrombogenic medications, and pregnancy status were reviewed. Data was also collected on renal function, INR, aPTT, time to VTE diagnosis, major bleeding events, platelet counts, and additional anticoagulant or antiplatelet therapy.

Results/Conclusions: Data collection and analysis are in progress and will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Describe the current recommendations for venous thromboembolism prophylaxis in neurosurgery patients.

Identify the time to initiation of pharmacologic venous thromboembolism prophylaxis in patients with hemorrhagic stroke.

Self Assessment Questions:

What are the current options for venous thromboembolism prophylaxis in neurosurgery patients in the most recent CHEST guidelines?

A intermittent pneumatic compression devices
B: low dose unfractionated heparin
C: low molecular weight heparin
D: all of the above

What is the ideal time to initiation of pharmacologic venous thromboembolism prophylaxis in patients with hemorrhagic stroke?

A on admission
B within 24 hours
C within 48 hours
D within 14 days

Q1 Answer: D Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-552 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

COST-EFFECTIVENESS OF PLERIXAFOR FOR STEM CELL MOBILIZATION

*Tracy E Reeb, PharmD; Michael J Bradley, PharmD, BCOP

The Jewish Hospital-Mercy Health,4777 E. Galbraith Rd,Cincinnati,OH,45236

TEReeb@health-partners.org

Purpose: Mobilization of hematopoietic stem cells (HSCs) from bone marrow is required in order to collect a sufficient number of cells from peripheral blood for autologous HSC transplant. Chemotherapy plus filgrastim (C+F) and plerixafor plus filgrastim (P+F) are two commonly used regimens. C+F is associated with failure rates up to 30% and chemotherapy associated morbidity. P+F is associated with fewer mobilization failures compared to filgrastim alone, is generally well tolerated but is considerably more expensive. More evidence is needed to determine if P+F provides a more cost-effective approach to stem cell mobilization than C+F. The primary objective is to determine the cost-effectiveness of these two regimens and secondary objectives include subgroup analyses of multiple myeloma (MM) and Non-Hodgkins Lymphoma (NHL) patients.

Methods: This is an Institutional Review Board approved retrospective, observational, single-center chart review. The blood and marrow transplant database was used to identify patients with MM or NHL undergoing stem cell mobilization with C+F or P+F. Only first mobilization attempts were included for evaluation. Patients under 18 years of age and those with previous HSC transplants were excluded. Demographics and indices related to mobilization were extracted. Associated costs (wholesale acquisition cost for drugs, Medicare reimbursement rates for procedures, and diagnosis-related group reimbursement for hospitalizations) will be used to calculate total mobilization costs and cost-effectiveness ratios.

Preliminary Results: Final analyses included 105 patients; P+F, n=52 and C+F, n=53. Baseline characteristics were similar except C+F patients were significantly younger (mean age 55.2 versus 62.1 years, p=0.0015), had more patients in a partial remission (44 versus 29 patients, p=0.0024) and fewer in a complete remission (8 versus 23 patients, p=0.0011). C+F patients collected significantly more HSCs (15.716.4 versus 7.53.8 x 106 HSCs/kg, p=0.0007) in fewer apheresis sessions (21 versus 31 session, p=0.0083). C+F patients required significantly more hospitalizations and transfusions. Failure rates were similar. Pharmacoeconomic analyses are ongoing.

Conclusions: Pending.

Learning Objectives:

Discuss the importance of stem cell mobilization and the drugs used in each mobilization strategy.

Review the economic implications of plerixafor plus filgrastim versus chemotherapy plus filgrastim use.

Self Assessment Questions:

Which of the following medications can be used to mobilize hematopoietic stem cells from bone marrow?

A Epoetin alfa
B: Romiplostim
C: Filgrastim
D: Darbepoetin

What is a major limitation to the use of plerixafor for stem cell mobilization?

A Ineffective in high risk patients
B Effects of stem cells are unpredictable
C Side effects
D Cost

Q1 Answer: C Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-553 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

ADHERENCE TO ATYPICAL ANTIPSYCHOTIC MONITORING RECOMMENDATIONS IN A LOW INCOME FAMILY CLINIC

Katherine A. Reeves, PharmD*; Michael C. Leifheit, PharmD, BCPS

Blanchard Valley Hospital,1900 S. Main Street,Findlay,OH,45840

kreeves@bvhealthsystem.org

Purpose:
Atypical antipsychotic agents have been linked to significant changes in glucose and lipid metabolism. Potential metabolic complications include weight gain, hyperglycemia, hyperlipidemia, and hypertension. A 2004 consensus panel, which included representatives from the American Diabetes Association and the American Psychiatric Association, recommended regular monitoring for these metabolic side effects. Monitoring parameters include personal and family history, waist circumference, weight, blood pressure, fasting blood glucose, and fasting lipid panel. Specific timelines for monitoring were also determined. A limited body of research indicates that many physicians remain unaware of these official monitoring recommendations for atypical antipsychotics, and that multiple barriers to adherence exist among patients and physicians. This study will assess adherence within a community medical clinic, and will provide education and support for health care providers.

Methods:
The study is being conducted at a large family medical clinic with a primarily low-income population. Patient charts will be screened to locate adult patients treated with any second generation antipsychotic. Data to be collected includes monitoring dates hemoglobin AIC in addition to all recommended parameters (personal and family history, waist circumference, weight, blood pressure, fasting blood glucose, and fasting lipid panel). Patient age, indication, antipsychotic dose, and duration of treatment will also be recorded. A physician order sheet for atypical antipsychotics, which includes the consensus panels specific monitoring recommendations, will be provided to physicians. Adherence will be reevaluated following provider education and implementation of the new order sheet. Appropriate statistical analysis will be performed.

Results/Conclusions:
Data collection is in progress. Results and conclusions will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Identify potential metabolic complications of atypical antipsychotics.

Recognize official monitoring parameters for atypical antipsychotics recommended by a 2004 consensus panel.

Self Assessment Questions:

The widely recognized metabolic complications of atypical antipsychotics include:

A Hyperlipidemia
B: Weight loss
C: Hypoglycemia
D: A & c

Based on ADA/APA recommendations, patients on atypical antipsychotics should have their blood pressure checked:

A Once a month
B At baseline and annually
C At baseline, at 12 weeks, and then annually
D At baseline, at 12 weeks, and then every 5 years

Q1 Answer: A Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-554 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF PHARMACIST-DRIVEN WARFARIN PRESCRIBING AT DISCHARGE IN A COMMUNITY-BASED HOSPITAL

Joshua R. Rekoske PharmD*, Ronald W. Baumgart RPh, Randall G. Binning PharmD, James R. Goodsett MD

St. Marys Hospital and Medical Center - WI,700 S. Park Street,Madison,WI,53715

Joshua_Rekoske@ssmhc.com

Purpose:
Warfarin is a high-use medication for the prophylaxis and treatment of thromboembolic disorders and embolic complications arising from atrial fibrillation or cardiac valve replacement. Due to its pharmacokinetic profile, many drug and food interactions, and adverse drug effects, warfarin is required to be closely managed. The purpose of this study is to position pharmacists in the prescribing of warfarin at discharge to improve the consistency of prescribing and to reduce the number of warfarin-related readmissions. In addition to the education on warfarin received by nursing staff, pharmacists will provide patients with important information about their dosing regimen and follow-up period after discharge.

Methods:
This prospective study includes adult patients admitted to the general medicine/pulmonary unit of St. Marys Hospital. The inclusion criteria are age 18 years or older, admitted to the Hospitalist service, outpatient anticoagulation managed by Dean Clinic, and have inpatient orders for warfarin managed per pharmacy. Patients will be excluded from the results if they are not seen by the outpatient anticoagulation clinic. The pharmacist will evaluate the dosing of warfarin throughout the hospital stay, prescribe a dosing regimen, and recommend a follow-up date. Outcome measures include the number of warfarin-related readmissions (e.g. active bleeding or blood clots) and the number of patients within goal INR range at the first follow-up visit. Other data collected include INR at discharge, goal INR, and indication for warfarin. A retrospective review between January 2011 and September 2011 was completed comparing the ratio of patients started on warfarin to the number of warfarin-related readmissions occurring within 30 days from the previous admission. This ratio will be compared to the 30-day interventional periods results.

Results:
Data collection is currently underway. Results and conclusions will be presented at the Great Lakes Residency Conference.

Learning Objectives:

Describe the steps of implementing a pharmacist-driven warfarin discharge process.

Identify the criteria that pharmacists should consider when prescribing warfarin at discharge.

Self Assessment Questions:

Which of the following are potential implications of pharmacist involvement in the process of prescribing warfarin at discharge?

A Reduction in readmission rates
B: Increase in consistency of prescribing
C: Higher percentage of INR values within goal at first clinic visit
D: All of the above

Which of the following parameters should pharmacists consider when selecting a dose of warfarin for a patient to be discharged with?

A Concurrent use of lisinopril 5 mg by mouth daily
B Time until next INR follow-up
C Consistent vitamin C intake in diet
D All of the above

Q1 Answer: D Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-555 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

COHORT RESEARCH STUDY OF THE CLINICAL AND ECONOMIC OUTCOMES OF IMPLEMENTING A CLINICAL PHARMACIST POSITION IN THE EMERGENCY DEPARTMENT

Paul M. Reynolds, Pharm.D.*; Jillian M. Szczesiul, Pharm.D.; Kevin Colgan, RPh, MA, FASHP; Gourang Patel, Pharm.D., BCPS.

Rush University Medical Center,1653 West Congress Parkway,Chicago,IL,60612

paul_reynolds@rush.edu

Background: The Emergency Department (ED) provides a fast-paced work environment where physicians and nurses follow multiple patients with frequent interruptions. It has been shown in previous studies that an ED pharmacist can prevent 90% of potential medication errors, which occur most commonly in the prescribing and administration phases. However, studies have not yet investigated both the clinical and economic benefits of an ED pharmacist using a control group.
Purpose: The purpose of this study is to examine if the addition of an ED clinical pharmacist to a academic medical center will provide cost-savings and improved health outcomes.
Methods: The study is a prospective cohort study with a historical control group from the year prior to the initiation of ED clinical pharmacy services. Patients are included in the intervention group if they receive a medication, test or procedure that involved a pharmacists recommendation while in the ED. Recommendations are documented by the ED pharmacist in the electronic medical record along with an accompanying outcome. Recommendations made by the pharmacist are evaluated by two independent evaluators: a clinical pharmacist and an ED physician. The control group consists of a random sample of patients who received one or more medications in the ED the year prior to the ED pharmacist position and are matched to eliminate seasonal variations. The cost benefit of the ED pharmacists recommendations are determined through identification of healthcare resources that would have been required if the recommendation had not been made. Total ED charges and patient disposition status are compared between the groups to validate the economic model. A subgroup analysis is being conducted to determine if patients that are considered high risk or that receive high risk medications have greater cost and safety benefits. Results will presented at the Great Lakes Residency Conference

Learning Objectives:

Identify aspects of pharmacist interventions in the emergency department that provide safety, efficacy, and cost benefits.

Recognize research methodology that is used to measure the clinical and financial impact of clinical pharmacy in a variety of practice settings.

Self Assessment Questions:

Medication errors in the emergency department are typically prevented by ED pharmacists in what phase of the medication process?

A Prescribing
B: Administration
C: Dispensing
D: A and B

Which of the following are aspects of a quality economic analysis of a clinical pharmacy service?

A Exclusion of indirect costs
B Incorporation of comparator group
C Outcome measures that extend beyond drug costs avoided
D B and C

Q1 Answer: D Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-750 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

EFFICACY, TOLERABILITY AND ADHERENCE RATE FOR ZOLEDRONIC ACID, DENOSUMAB AND TERIPARATIDE IN THE TREATMENT OF OSTEOPOROSIS IN VETERAN PATIENTS AGE 50 AND OLDER AT A SINGLE VA MEDICAL CENTER

Oxana Reznik*, Paul F. Lata, Mary Beth Elliott

William S. Middleton VA Hospital,2500 Overlook terrace,Madison,WI,537052254

oxana.reznik@va.gov

Purpose: Osteoporosis is the most common bone disease characterized by low bone mineral density and microarchitectural deterioration that can lead to an increased risk of bone fracture. Osteoporotic fractures may, in turn, lead to an increased risk of morbidity and mortality. While oral bisphosphonates are the first-line treatment for osteoporosis, some patients cannot tolerate oral bisphosphonates due to adverse events or other contraindications. Moreover, patients can continue to lose significant bone density while receiving oral bisphosphonates. Alternative therapies such as zoledronic acid, denosumab and teriparatide are available; however, there is insufficient data about bone density response, tolerability and adherence to these agents in the real-world clinical setting. This study was designed to evaluate the efficacy, tolerability and adherence of the alternative agents in patients at a single VA center.

Methods: A retrospective chart review from 1/1/2005 to 11/15/2011 will evaluate the use of zoledronic acid, denosumab and teriparatide for treatment of osteoporosis in patients age 50 and older. Efficacy will be assessed by evaluating changes in the bone mineral density (BMD) measured by dual-energy X-ray test, changes in the bone turnover marker C-telopeptide as well as occurrence of bone fractures. Tolerability will be determined by evaluating the side effects and the reasons for therapy discontinuation as recorded by providers. Adherence to the therapy will be calculated by the percentage of the prescribed injections received for zolendronic acid and denosumab and by medication possession ratio (the number of actual fills divided by the number of potential fills over the study interval) for teriparatide.

Results/Conclusion: The results and conclusion are pending.

Learning Objectives:

Recognize the appropriate use of zoledronic acid, denosumab and teriparatide in patients who cannot tolerate oral bisphosphonates

Describe the use of BMD and biomarkers of bone turnover for monitoring the treatment efficacy

Self Assessment Questions:

Which of the following therapies will be appropriate to initiate in patients with CrCl < 30 ml/min?

A Zoledronic acid

B: Denosumab

C: Ibandronate

D: Alendronate

Which of the following is an appropriate treatment response to an osteoporosis therapy

A New vertebral compression fracture

B Increase in BMD

C Increase in C-telopeptide

D Decrease in BMD

Q1 Answer: B Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-556 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

DRONEDARONE ON- AND OFF-LABEL USE AND THE RISK OF RENAL AND HEPATIC INJURY

Nathaniel J. Rhodes, Pharm.D.*, Milena M. Griffith, Pharm.D., BCPS, Michael A. Fotis, B.S.Pharm.

Northwestern Memorial Hospital,251 E. Huron St. LC 700,Pharmacy Department,Chicago,IL,60611

nrhodes@nmh.org

Purpose: Dronedarone was approved by the FDA to reduce the risk of hospitalization for atrial fibrillation (AF) among patients with paroxysmal or persistent AF who are maintained in normal sinus rhythm. Both the FDA and EMA have issued warnings related to dronedarones safety, and the FDA recently revised dronedarones labeling based on post-marketing experience. Evidence indicating an increased risk of adverse cardiovascular outcomes associated with dronedarone use has come from large clinical trials. However, the renal and hepatic toxicity profiles of dronedarone are less well defined and are based on case report data. The aims of this study are to (1) compare on- and off-label use of dronedarone to assess differences in the risk for dronedarone induced renal and hepatic toxicity (2) and to identify whether off-label use negatively influences global patient outcomes.

Materials and methods: The pharmacy database was searched to identify a retrospective cohort of patients with dronedarone orders admitted to Northwestern Memorial Hospital between January 1 and December 31, 2011. Patients were excluded from the analysis if they never received the drug or never had laboratory results documented in the medical record. Patients were also excluded if they were only admitted for an ablation procedure. On-label use was defined by dronedarone use that adhered to the FDA approved labeling for dose, indication, and contraindications. Off-label use was defined as all other dronedarone use. Component and composite RIFLE Criteria and Common Toxicity Criteria data were used to assess the primary outcome of renal and hepatic toxicity. Secondary outcomes included time to event, all-cause mortality and mortality attributed to renal or hepatic toxicity in the medical record, new requirement for dialysis, and listing for liver and/or kidney transplant.

Results and Conclusions: Data collection will begin after IRB approval. Results will be presented at the Great Lakes Residency Conference.

Learning Objectives:

Define specific risk factors for dronedarone induced renal and hepatic toxicity.

Identify the effect of off-label use of dronedarone on patient outcomes.

Self Assessment Questions:

Changes to dronedarones FDA approved labeling are due to which of the following:

A Results from the PALLAS study showing increased efficacy among

B: Post-marketing reports of severe hyponatremia associated with dro

C: An increased incidence of bone mineral density loss among elderly

D: None of the above.

Dronedarone and amiodarone both exhibit which of the following toxicities

A Pulmonary

B Hepatic

C Renal

D All of the above

Q1 Answer: D Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-828 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EFFECTIVENESS OF A MEDICATION SAFETY INTERVENTION TO REDUCE MEDICATION ERRORS IN A COMMUNITY PHARMACY

Lisa A. Ribecky, PharmD*; Richard W. Dettloff, PharmD, BCPS; Jacqueline A. Morse, PharmD, BCPS; Susan A. DeVuyst-Miller, PharmD; Mary E. Burkhardt, MS, RPh, FASHP

Meijer Pharmacy, Ferris State University, & Pfizer,1520 Annie Ave NW,Grand Rapids,MI,49504

lisa.ribecky@meijer.com

Objective: To assess whether medication safety-related educational awareness reduces common medication errors.

Methods: A baseline survey on perceptions of medication safety was electronically distributed company-wide to pharmacists and technicians at a regional grocery store chain during a two week period in July 2011. Based on feedback given in this survey, additional education on medication safety and errors was desired by employees. Baseline data including number and common types of medication errors was electronically gathered from an internal report over an eight week period. An educational webinar was developed and presented to pharmacists and pharmacy technicians on how to decrease errors in the pharmacy. The webinar was completed company-wide by January 31, 2012. The same pharmacy staff were also asked to complete a survey after the webinar to address perceptions of the training. Follow-up repor data over an eight week period was analyzed to see if the number of medication errors decreased.

Results: A total of 525 medication safety surveys were completed in July 2011. The main areas identified for improvement included communication, education, and work pace. Baseline report data showec that the most common occurring errors included, but were not limited to, a patient receiving another patients medication (26%) followed by wrong directions (22%), wrong strength (19%), and wrong drug (17%). A total of 2,153 pharmacists and pharmacy technicians (92%) completed the medication safety webinar and 35% completed the post-webinar survey.

Conclusion: The impact of medication safety-related education on rate of medication errors will be assessed.

Learning Objectives:

Discuss the importance of a root cause analysis and how it can help improve patient safety in community pharmacies.

Outline how to implement education on patient safety in the community pharmacy setting.

Self Assessment Questions:

Which of the following is not a goal of a root cause analysis with regards to medication errors?

A To determine what happened

B: To determine why the error happened

C: To place blame on an individual who caused the error

D: To identify mechanisms to prevent the error from happening again

Which of the following is an example of a judgmental error?

A The wrong drug was dispensed

B The patient received another patient's medication

C The wrong strength was dispensed

D The pharmacist did not provide patient counseling when requested

Q1 Answer: C Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-829 -L05-P

Activity Type: Knowledge-based Contact Hours: 0.5

ASSOCIATION BETWEEN GENERIC TACROLIMUS TROUGH CONCENTRATION AT DISCHARGE AND RATE OF BIOPSY PROVEN ACUTE REJECTION IN SENSITIZED RENAL TRANSPLANT RECIPIENTS

Katelyn R Richards, Pharm.D.*; David Hager, Pharm.D., CNSC; Brenda Muth, RN, MS, ACNP; Brad Astor, Ph.D.; Dixon Kaufman, MD, Ph.D., FACS

University of Wisconsin Hospital and Clinics,600 Highland Ave,Madison,WI,53792

krichards2@uwhealth.org

Background:
The role for generic tacrolimus in sensitized renal transplant recipients has yet to be defined, and a target discharge tacrolimus level in sensitized patients has not been established. We evaluated the effect of discharge generic tacrolimus trough concentration on the incidence of biopsy proven acute rejection (BPAR) in sensitized renal transplant recipients.

Methods:
A total of 219 patients enrolled in a desensitization protocol (pre-transplant Luminex MFI >500) between February 2009 and November 2011 were retrospectively divided into groups based on discharge generic tacrolimus trough concentrations (< 8 ng/mL [n = 121] or ≥ 8 ng/mL [n = 98]) and followed for a median of 10 months.

Results:
Baseline characteristics were similar between the groups except polycystic kidney disease was more commonly observed with discharge generic tacrolimus trough concentrations < 8 ng/mL (p = 0.02). Twenty-seven (22%) of the 121 patients with a concentration < 8 ng/ml and 13 (13%) of the 98 patients with concentrations ≥ 8 ng/ml experienced BPAR. Discharge generic tacrolimus trough concentration < 8 ng/mL was associated with a higher risk of BPAR (Relative hazard = 1.95 [95% CI: 1.01 - 3.79]; p = 0.05). There was no significant difference in serum creatinine at 3 months between the two groups.

Conclusion:
In a patient population predisposed to acute rejection, discharge generic tacrolimus trough concentration ≥ 8 ng/mL is associated with a lower incidence of BPAR.

Learning Objectives:

Describe magnetic assay material technology

Define the role for generic tacrolimus in sensitized patients and trough concentration goals

Self Assessment Questions:

Luminex immunologic technology is described as:

A Solid-phase flow cytometry

B: Single-antigen class I and II bead cytometry

C: Complement dependent cytotoxicity test

D: Elisa

Which of the following should be considered when defining a patient-specific goal tacrolimus trough concentration:

A Recipient level of sensitization

B Gender of donor

C History of hypercalcemia

D Body mass index

Q1 Answer: B Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-557 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF A THERAPEUTIC INTERCHANGE OF FONDAPARINUX FOR ENOXAPARIN IN THE TREATMENT OF VENOUS THROMBOEMBOLISM AT A UNIVERSITY MEDICAL CENTER

Lauren K. Riley, Pharm.D.*, Justine S. Gortney, Pharm.D., BCPS, Joshua N. Raub, Pharm.D.

Detroit Receiving Hospital,4201 St. Antoine,Detroit,MI,48201

LRiley2@dmc.org

Purpose:
In 2009, Detroit Medical Centers (DMC) pharmacy and therapeutics committee altered their VTE treatment protocol replacing enoxaparin with fondaparinux as a first line option. As there are currently no published studies directly comparing fondaparinux and enoxaparin in medical patients being treated for deep vein thrombosis (DVT) and/or pulmonary embolism (PE) at a university medical center, the purpose of this study is to examine the safety and efficacy of fondaparinux and enoxaparin in VTE treatment.

Methods:
IRB approval was obtained, and a retrospective review will be performed on patients who received enoxaparin or fondaparinux for the treatment o an acute VTE between March of 2007 to 2011. Patients included in the study are between 18 and 89 years old, initiating anticoagulation for VTE treatment, and did not have surgery within 48 hours of anticoagulation initiation. Data to be evaluated includes: patient demographics and PMH, anticoagulant use and duration, bleeding, and readmission within three months for new or recurrent VTE. Endpoints of the study included clinically relevant bleeding, recurrent VTE, and medication use data. Data collection has started.

Results:
To date, data has been collected on 30 patients: five patients on enoxaparin and 25 patients on fondaparinux. Clinically relevant bleeding has occurred in one enoxaparin (hematoma) and five fondaparinux patients. No patients had recurrent VTE. Enoxaparin doses administered ranged from 50-120mg and fondaparinux 5-10mg/day.

Conclusions:
Will be presented at 2012 Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Identify risk factors for bleeding associated with low molecular weight heparin and factor Xa inhibitors during VTE treatment.

Discuss the efficacy of VTE treatment with low molecular weight heparin and factor Xa inhibitors.

Self Assessment Questions:

Patients with VTE should be treated with:

A Unfractionated Heparin
B: Low molecular weight heparin
C: Factor Xa inhibitor
D: Any of the above

Risk factors which increase the risk of bleeding with injectable anticoagulants are:

A Less than 70 kg
B Greater than 89 years old
C Recent surgery within 48 hours
D Hormone therapy for at least 6 months

Q1 Answer: D Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-558 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

THINKING OUTSIDE THE PILLBOX: IMPROVING PATIENT ADHERENCE THROUGH CUSTOMIZED-MEDICATION PACKAGING

Patrick Tim Rocafort, PharmD*; Jennifer Chan-Marcelo,PharmD; Sonali G. Kshatriya, PharmD, CDM; Kristen Goliak, PharmD; Daniel Touchette, PharmD

Dominick's Pharmacy,2851 South King Drive,Apartment 1608,Chicago,IL,60616

ptimrocafort@gmail.com

Adherence to prescription medication is increasingly becoming a primary concern in todays approach to better healthcare. It has been identified in recent studies that patient nonadherence brings about suboptimal patient health outcomes, significant disease progression, and unnecessary healthcare spending. Community pharmacists are in an ideal position to improve patient adherence by innovating pharmacy dispensing to promote higher quality patient care.

Purpose:
The primary objective of this study is to analyze whether providing customized-medication packaging can improve self-reported patient adherence. The secondary objective is to assess which patient-specific factors potentially affect medication adherence with the use of customized-medication packaging.

Methods:
This is a multisite, prospective survey-based study that will evaluate whether the added convenience of customized-medication packaging can impact patient adherence in a grocery chain pharmacy setting. The application of nontraditional drug packaging, such as blister packs, to current pharmacy dispensing will be investigated for 1 month. Patients ≥18 years old with ≥4 medications will be included in this study, using the pharmacy computer database. Each medication must be in a tablet, capsule, or softgel form, prescribed for a chronic condition as oral maintenance therapy. Upon enrollment, subjects will be provided a study information form and will receive their subsequent refills in their customized-medication packaging. A survey will be administered by the principal investigator at the completion of the study to evaluate adherence before and after the study, using the Modified Morisky Medication Adherence Scale-8 score (MMAS-8). The data gathered from the survey will also be utilized to determine the new services feasibility to existing pharmacy practice as well as patient satisfaction.

Results & Conclusion:
Research is in the data collection phase and will be analyzed using SPSS.

Learning Objectives:

Identify the effects of patient nonadherence to their prescription medications to overall healthcare

Review possible measures a community pharmacist can implement to improve patient adherence

Self Assessment Questions:

What would be the most likely effect of increased patient adherence?

A Increased hospitalizations
B: Healthcare cost decrease
C: Poor disease state management
D: More adverse drug reactions

Which of the following measures can a pharmacist utilize to improve patient adherence?

A Utilizing customized-medication packaging in patients with several
B Having limited patient counseling sessions at the pharmacy
C Including all possible side effects of a medication on the prescriptic
D Referring patients to online resources when patients have health a

Q1 Answer: B Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-751 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

IMPACT OF MEDICATION RECONCILIATION ON READMISSION RATES AT NORTHSHORE UNIVERSITY HEALTHSYSTEM

Molly L. Rockstad, Pharm.D.*, Peter T. Mui, Pharm.D., M.S.

NorthShore University HealthSystem,777 Park Ave West,Highland Park,IL,60035

mrockstad@northshore.org

Background:
The transition of care that occurs during hospital admission and discharge introduces significant risk for avoidable medication errors with the potential to harm patients. The Joint Commission has responded to this danger by requiring medication reconciliation. Pharmacists, as medication experts, are uniquely equipped to greatly improve the quality of this process. One common indicator of patient outcomes following implementation of a medication reconciliation program is a reduction in 30-day readmission rates. While not all readmissions are preventable, medication discrepancies on discharge are responsible for many that are preventable; in one study, patients with medication discrepancies were more than twice as likely to be re-hospitalized within 30 days. Other proposed indicators of patient outcomes include patient satisfaction scores and increased reporting of potential medication errors. The purpose of this study is to evaluate the impact of a newly implemented pharmacist assisted medication reconciliation program on patient outcomes at NorthShore University HealthSystem.

Methodology:
This is a retrospective study of patients admitted to any of the four NorthShore University HealthSystem hospitals between June 1st, 2011 and December 31st, 2011. A report of 30-day readmissions will be generated, including the DRG codes for each admission. Readmission rates following implementation of pharmacist assisted medication reconciliation on September 7, 2011 will be compared to rates prior to implementation, when reconciliation was led exclusively by physicians. A thorough chart review will be performed for patients readmitted during November 2011. Charts will be peer reviewed for the presence of medication discrepancies on first discharge for two distinct groups: those with documented pharmacist intervention on admission and/or discharge, and those with reconciliation performed by a physician/physician designee. HCAHPS scores and reported medication errors will be analyzed as secondary objectives during the same timeframe.

Results/ Conclusions:
To be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Describe the benefits of involving a pharmacist in medication reconciliation.

Discuss the relevance of 30-day readmission rates as an indicator of patient outcomes.

Self Assessment Questions:

According to current literature, approximately what percent of adverse reactions following discharge are related to medication?

A 5%
B: 25%
C: 75%
D: 100%

The following examples are all benefits that pharmacists typically contribute to the discharge planning team except:

A Comparing discharge medication lists to prior-to-admission medica
B Evaluating discharge medication lists for interacting, inappropriate,
C Counseling patients on changes to their medication regimen
D Arranging transportation from the hospital for the patient

Q1 Answer: C Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-830 -L05-P

Activity Type: Knowledge-based Contact Hours: 0.5

INCIDENCE OF AND RISK FACTORS ASSOCIATED WITH DELIRIUM IN A BURN ICU

Brittany Romine, PharmD, BCPS*; Todd A. Walroth, PharmD, BCPS; Noll L. Campbell, PharmD, CGP FASCP, BCPP; David R. Foster, PharmD, FCCP

Wishard Health Services,1001 W. 10th Street,Indianapolis,IN,46202

bromine7@gmail.com

PURPOSE
Delirium is defined as a disturbance of consciousness with inattention accompanied by a change in cognition or perceptual disturbance that develops over a short period and fluctuates over time. Delirium is a common occurrence in the hospital and is associated with increased health care costs due to increases in length of stay, ventilator days, and higher mortality rates.

The incidence of delirium is under-recognized in routine clinical practice. Recently, the Confusion Assessment Method for the ICU (CAM-ICU) screening tool has been initiated as part of routine care and assessment of patients in the Burn Unit at Wishard Health Services (WHS). The objective of this IRB approved prospective, observational study is to quantify the incidence of and factors related to delirium in burn patients for the purpose of developing a treatment protocol.

METHODS
WHS is the county hospital providing care to the indigent population of Marion County. The Richard M. Fairbanks Burn Unit is certified by the American College of Surgeons and the American Burn Association and consists of 11 intensive care patient rooms. Patients eligible for delirium screening [Richmond Agitation and Sedation Scale (RASS) greater than or equal to -3, age greater than or equal to 18] are assessed for delirium by completing a CAM-ICU. Delirium screenings are performed once per a 12 hour shift to assess for the primary endpoint of delirium incidence in both ventilated and non-ventilated patients. Secondary endpoints include: use of antipsychotics, benzodiazepines, and anticholinergic drugs as well as cumulative doses of each of these medications within 24 hours of screening; recognition of hospital-acquired complications (e.g. mechanical ventilation, catheters, central lines, and restraints); and any pharmacological treatment initiated in patients determined to be delirious using the CAM-ICU. This data will be used to develop a delirium treatment protocol for use in the WHS Burn Unit.

RESULTS
Pending.

Learning Objectives:

Recognize the risk factors associated with delirium.

Recall the four aspects that the CAM-ICU uses to assess for delirium

Self Assessment Questions:

Which of the following is a risk factor for delirium?

A vitamins
B: physical therapy
C: sunshine
D: central lines

Which of the following correctly lists the four aspects the CAM-ICU screens for:

A inattention, altered consciousness, slurred speech, & disorganized
B disorganized thinking, chest pain, inattention, & altered consciousn
C acute fluctuation in mental status, inattention, disorganized thinkin
D underlying dementia, disorganized thinking, inattention, & altered c

Q1 Answer: D Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-559 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

COMPARISON OF PHENYTOIN, LEVETIRACETAM, AND LACOSAMIDE FOLLOWING BENZODIAZEPINE ADMINISTRATION IN THE MANAGEMENT OF STATUS EPILEPTICUS

Tessa L. Ruble, Christine L. Ahrens, Norman K. So, Mohamed Hegazy, Seth R. Bauer, Simon W. Lam

Cleveland Clinic Foundation,9500 Euclid Ave,JJN1-442,Cleveland,OH,44195

overmat@ccf.org

Background:
Status epilepticus is a medical emergency which can result in neurologic injury after 30 minutes of seizure activity and is associated with significant morbidity and mortality. Benzodiazepines have established efficacy as first-line therapy in status epilepticus, however, are only successful in 55-65% of patients. Patients who fail benzodiazepine therapy will require additional therapies, for which there is limited information regarding the appropriate selection of a second-line agent.1-4 Evaluation of phenytoin, levetiracetam, and lacosamide use in status epilepticus at the Cleveland Clinic will help identify appropriate second-line therapy.

Methodology:
A non-interventional, retrospective chart review to compare the efficacy of phenytoin, levetiracetam, and lacosamide in terminating seizures within 48 hours of administration. Secondary endpoints include evaluation of time to seizure termination, functional status at discharge and overall survival. All patients of at least 16 years of age with status epilepticus and a definitive time of seizure onset who received a benzodiazepine followed by phenytoin, levetiracetam, or lacosamide were included. Patients who were transferred from an outside facility for which information regarding initial management is unavailable were excluded. Data describing patient demographics, prior seizure history and therapy, presentation and treatment of status epilepticus, and patient outcomes will be collected. Data will be analyzed with descriptive statistics.

Results:
Results and conclusions to be presented at the Great Lakes Residency Conference.

Learning Objectives:

Recognize the risk factors for poor prognosis in status epilepticus.

Recall the rate of benzodiazepine failure as first-line therapy for status epilepticus.

Self Assessment Questions:

Benzodiazepines fail as first line treatment for status epilepticus in what percent of patients?

A 20-30%
B: 35-45%
C: 55-65%
D: 65-75%

Which of the following is a risk factor for poor prognosis in status epilepticus:

A Renal dysfunction
B Gender
C Younger age
D Delay in time to treatment initiation

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-560 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

IMPACT OF AN EDUCATIONAL PROGRAM TO IMPROVE STAFF PERCEPTION AND MAXIMIZE PROVISION OF PHARMACEUTICAL CARE SERVICES (PCS) WITHIN COMMUNITY PHARMACIES IN AN ACADEMIC MEDICAL CENTER

Kevin S. Ruedinger, Pharm.D., Community Pharmacy Practice Resident* Kristina L. Yokes, Pharm.D., Residency Preceptor Sean D. Gehrke, Pharm.D., Community Pharmacy Residency Director Katherine J. Hartkopf, Pharm.D., Pharmacy Supervisor

University of Wisconsin Hospital and Clinics,600 Highland Ave,F6/133-1530,Madison,WI,53792

kruedinger@uwhealth.org

Purpose: PCS are provided by pharmacists as a standard of practice to improve patient care at UW Health. Pharmacists within this organization have the opportunity to receive compensation from payors for providing PCS interventions. PCS interventions include asthma and nasal inhaler device instruction, formulary and therapeutic interchanges, and patient adherence interventions. Pharmacists are providing PCS on a daily basis but are not maximizing reimbursement associated with services provided. The purpose of this study is to 1) evaluate staff perceptions of PCS and identify perceived staff barriers to the provision of PCS, 2) develop a standardized educational intervention for pharmacy staff members about PCS, and 3) determine the impact of the educational intervention on the provision of PCS.

Methods: This is a pre and post implementation study occurring in 12 community pharmacies within the same academic medical center. A pre and post implementation survey of staff perspectives regarding knowledge and comfort level with performing PCS will be completed by staff members. A standardized educational presentation will be developed and presented to staff. Educational training shall include: definitions of PCS opportunities, methods to identify PCS opportunities, required documentation, and proper claim submission. A retrospective review of two months of PCS data from all 12 pharmacy locations will occur. Pre and post implementation data collection will include: 1) staff perspectives regarding PCS, 2) number of PCS interventions completed, 3) type of PCS interventions completed, and 4) total compensation for billable PCS. Data analysis will identify changes in PCS submission rates among the 12 community pharmacy locations and staff perspectives of PCS following the standardized educational intervention.

Preliminary results/conclusions: Implementation of educational interventions and data collection is ongoing. Formal results and conclusions will be presented at the Great Lakes Residency Conference

Learning Objectives:

Describe perceived barriers to performing PCS in a community pharmacy and practices for overcoming these barriers.

Recognize daily pharmacy activities that may be reimbursable PCS for pharmacists.

Self Assessment Questions:

What is the most common perceived barrier for performance of PCS cited by pharmacists at UW Health Pharmacy Services?

A Patients are not willing to participate
B: Lack of time
C: Lack of pharmacist's desire
D: Lack of billing opportunities

Which of the following daily pharmacy activities may be a reimbursable PCS?

A Obtaining a prior authorization for a prescription medication
B Recommending an over-the-counter cough product to a patient
C Contacting a prescriber to recommend a dose decrease after perfo
D Contacting a prescriber for a refill request

Q1 Answer: B Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-752 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

INTEGRATION OF COMMUNITY PHARMACY RESIDENTS INTO PRIMARY CARE CLINICS USING MEDICAL HOME MODEL TOOLS

Rachel Rypel, PharmD*; Erika Smith, PharmD; Deborah Gillard, PharmD; Jennifer Hardman, PharmD; Ryan Fleming, PharmD; and Binita Patel, PharmD

Froedtert Hospital,9200 W. Wisconsin Ave,Milwaukee,WI,532263596

rachel.rypel@froedterthealth.org

Purpose:
Pharmacists are valuable resources in primary care clinics, and studies show their involvement improves disease management, and may decrease hospital readmission rates. At Froedtert Hospital, pharmacists are involved in many outpatient clinics within the hospital, and have recently been involved in primary care clinics located off campus. Currently, four of the eight off-site clinics have a pharmacist in clinic for to 1 day weekly. All clinics have access to a clinical pharmacist via pager. No clinic currently has a retail pharmacy on-site.

Methods:
The goal of this project is to integrate community pharmacy residents into primary care clinics to increase pharmacy services at these sites. To achieve this, various primary care and medical home models were evaluated to determine the most appropriate integration design. In order to develop a sustainable program, different funding and staffing options were examined.

Preliminary Results:
One way to justify pharmacy services is to off-set salary through prescription capture. Based on the revenue garnered from one captured prescription, it would take four prescriptions per day for a resident, and eight prescriptions for a pharmacist, to off-set their respective salaries. Data collection on the number of prescriptions written per clinic and location of prescription pick-up found that 5.2% of prescriptions are filled at a Froedtert Hospital pharmacy, thus providing an opportunity for revenue generation.

Since fostering a quality learning experience for residents is also a primary goal of this project, the most appropriate model of resident integration is vital. The models examined include longitudinal and block rotation cycles, which are currently being reviewed by the primary care clinic team leaders.

Conclusions:
Implementation of this project will provide greater pharmacist access for the primary care clinics, as well as give future pharmacy residents opportunities for direct patient contact and experience in a collaborative practice setting.

Learning Objectives:

Discuss the various payment models that may be used for pharmacy services in a primary care clinic.

Review the benefits pharmacists can have on patient care in a patient centered medical home.

Self Assessment Questions:

Would using an "incident-to" service charge be the best way to bill for reimbursement?

A Yes – it provides the most revenue per service
B: Yes – it allows pharmacists to charge for each intervention made
C: No – it is the lowest form of reimbursement
D: No – it is not allowed at primary care clinics due to their distance fr

Which of the following is a principle of the patient centered medical home model?

A Disease State Orientation
B Coordinated and Integrated Care
C Nurse Directed Clinical Practice
D Segregated Care

Q1 Answer: C Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-753 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

THE EVALUATION AND IMPROVEMENT OF THE ALLERGY DOCUMENTATION PROCESS

Kelly Sackerson, PharmD*; Carol Heunisch, PharmD, BCPS

NorthShore University HealthSystem,9600 Gross Point Rd.,Skokie,IL,60076

ksackerson@northshore.org

Purpose:
Allergies are significant factors to consider when determining appropriate drug therapy for patients. It is important that allergy information is recorded correctly for patients with true allergies to avoid use of medications likely to evoke an allergic reaction. On the other hand, allergies that are incorrectly recorded could prevent patients from receiving optimal care, expose patients to less effective alternatives, increase the risk of adverse effects, and increase the cost of healthcare.

The functionality of the electronic medical record allows for standardization in the way allergies are recorded, what information is required, and how this information is used after documentation. The percentage of allergy reaction fields that were coded from January 1st, 2010 through September 1st, 2011 was evaluated and 42.4% of patients had an allergy listed with a blank reaction field and 10.8% had an allergy listed with "other" as the reaction. Through this project, we will suggest requiring clinicians to document a patients reaction to an allergen and sending a message to pharmacists when a new allergy is documented with an interacting medication on the profile. Additionally, a list of all allergens in the database was reviewed and we will suggest separating common allergens from the entire database to make searching for these common allergies easier for clinicians. After implementing approved changes, data will be compared pre- and post-implementation to analyze benefits and disadvantages to the upgraded allergy documentation process.

Methods:
Recommended changes in allergy documentation are in the process of receiving approval from stakeholders. After implementation of approved upgrades, data pre- and post-implementation will be compared to evaluate the impact. Additionally, surveys will be distributed to assess the impact of certain upgrades in the electronic medical record.

Results/Conclusion:
Analysis is ongoing. Available results and conclusion will be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Review the quality of allergy documentation prior to the implementation of upgrades.

Identify benefits and disadvantages of the updated allergy documentation process post-implementation.

Self Assessment Questions:

All of the following are suggested changes in the allergy documentation process except

A Making common allergies easy to find
B: Requiring the reaction be recorded
C: Requiring the comments section be filled out
D: Sending an in-basket message to providers when a new allergy is

Disadvantages to implementing the proposed changes may include

A Obtaining incorrect documentation by requiring the reaction field be
B More options will populate when searching for common allergies
C In-basket messages will not be automatically created when a new a
D The type of contraindication must be recorded

Q1 Answer: C Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-754 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

COST ANALYSIS OF SUSPECTED HEPARIN INDUCED THROMBOCYTOPENIA

Ziad G. Sadik, PharmD*, Carrie W. Nemerovski, PharmD, BCPS, Douglas L. Jennings, PharmD, BCPS (AQ-Cardiology), James S. Kalus, PharmD, BCPS (AQ-Cardiology)

Henry Ford Health System,2799 West Grand Boulevard,Detroit,MI,4820

zsadik1@hfhs.org

Purpose: Heparin induced thrombocytopenia (HIT) is a rare but fatal complication of heparin products. Confirmed HIT leads to around $14,000 additional cost per patient. ELISA testing for antibodies against heparin is the most commonly used diagnostic for suspected HIT given its high degree of sensitivity. However, antibody testing has relatively low specificity, which can potentially lead to unnecessary treatment with alternative anticoagulants. Functional tests such as the serotonin release assay (SRA) have a much higher specificity, and can aid in confirming the diagnosis. However, this test is not available on site at the majority of hospitals. This delay may lead to prolonged hospitalization and increased treatment costs. The objective of this study is to determine the cost effectiveness of various diagnostic strategies for suspected HIT.

Methods: This study was submitted and approved by the investigational review board. Subjects included are adult patients with suspected HIT, defined as thrombocytopenia leading to heparin discontinuation, positive ELISA and treatment with a direct thrombin inhibitor (DTI). Subjects were excluded if they had a history of HIT, were not empirically treated for HIT or stopped treatment prior to ELISA results. This data will be used to calculate the overall cost of illness associated with suspected HIT from a health system perspective. Costs included in this model are total hospitalization related to HIT, as well as the overall costs of management (i.e. cost of diagnosis, management and complications). These costs would be estimated by applying a cost-to-charge ratio to Henry Ford Hospital charges, and using national data when such information is not available. Effectiveness will be defined as patient being discharged from the hospital without a major bleeding, defined by the ISTH criteria. Sensitivity analysis would be utilized to account for variability in costs definition and in the time for the SRA results to be reported.

Learning Objectives:

List the different costs associated with suspected heparin induced thrombocytopenia

Discuss how the use of functional tests would affect the cost of heparin induced thrombocytopenia

Self Assessment Questions:

Which one of the following statements is true?

A ELISA testing has a high specificity and sensitivity

B: ELISA testing leads to a relatively high rate of false positives

C: SRA has a high sensitivity but a low specificity

D: SRA testing leads to a relatively high rate of false positives

Beside prolonged hospitalization, which of the following is associated with the largest impact on the overall costs of false positive HIT?

A The use of unnecessary diagnostic tests

B The use of unnecessary imaging

C The use of unnecessary alternative anticoagulants

D Time spent by health care professional to diagnose and manage H

Q1 Answer: B Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-561 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EFFECT OF INSULIN-INDUCED VERSUS SPONTANEOUS HYPOGLYCEMIA ON HOSPITAL MORTALITY IN CRITICALLY ILL PATIENTS

Lina Saliba, PharmD*; Charles H. Cook, MD, FACS, FCCM; Kathleen Dungan, MD; Anthony T. Gerlach, PharmD, BCPS, FCCM; Bruce Doepker, PharmD, BCPS; Kyle Porter, MS; and Claire V. Murphy, PharmD, BCPS

The Ohio State University Medical Center,410 West 10th Avenue,368 Doan Hall,Columbus,OH,43210

lina.saliba@osumc.edu

Based on current evidence, there is no standard target blood glucose (BG) range for glycemic control in the critically ill. However, in order to identify an effective target BG range that optimizes outcomes and can be achieved safely, it must first be determined whether insulin-induced hypoglycemia carries the same risk as spontaneous hypoglycemia. This study aims to determine whether insulin-induced and spontaneous hypoglycemia have a different impact on hospital mortality in the critically ill.

This is a single-center, retrospective cohort study including adult patients admitted to The Ohio State University Medical Center medical or surgica intensive care unit (ICU) between December 1, 2010 and August 31, 2011. Patients were then categorized as either insulin-induced hypoglycemia, spontaneous hypoglycemia, or euglycemia. Hypoglycemia occurring as a consequence of glucose-lowering therapy was considered insulin-induced while all other causes such as hypoglycemia as a manifestation of carbohydrate metabolism abnormalities were characterized as spontaneous. Mild, moderate, and severe hypoglycemia are defined as BG 55-69, 40-55, and <40 mg/dL, respectively. Patients were categorized as euglycemic if they maintained all blood glucose measurements greater than or equal to 70 mg/dL.

The primary analysis will compare the insulin-induced and spontaneous hypoglycemia groups with the primary endpoint of hospital mortality. Multivariate logistic regression analysis will be used to compare the primary endpoint while controlling for other mortality risk factors by adjusting for age, sex, APACHE II score less the age component, admission location and type, and glycemic variability. Secondary analyses of the data will include comparisons of hospital mortality, ICU mortality, ICU and hospital length of stay, and newly initiated dialysis in euglycemic patients compared to each of the two other arms in the study. Hospital mortality between the insulin-induced and spontaneous groups will also be compared with the addition of severity of hypoglycemia as a confounding variable.

Data collection and evaluation are in progress.

Learning Objectives:

Describe the hyperglycemic physiologic stress response in the critically il

Discuss outcome studies examining hypoglycemia in the critically ill

Self Assessment Questions:

Which of the following is a consequence of hypoglycemia?

A Polyneuropathy

B: Seizures

C: Renal failure

D: Platelet activation

In critical illness, there is a downregulation of which of the following?

A Glut1

B Glut3

C Glut4

D Tnf-α

Q1 Answer: B Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-755 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

IMPACT OF PHARMACIST ADDITION TO TRADITIONAL DIABETES EDUCATION TEAM IN A COMMUNITY DIABETES CLINIC

Amy J. Sanchez, PharmD*; Teresa K. Hoffmann, PharmD, BCPS, BCACP, CDE, CLS; Suzanne M. Marques, PharmD, BCPS, CACP

St. Rita's Medical Center,770 W. High St. Ste 450,Lima,OH,45801

ajsanchez@health-partners.org

Most current American Diabetes Association (ADA) clinic models include a nurse educator, dietician and medical director. However, the role of a pharmacist as part of this health care team is becoming more definitive and the ability to provide more direct patient care and clinical activities is expanding. The purpose of this study is to assess the impact of pharmacist medication interventions, in addition to standard care, in patients enrolled in an ADA recognized diabetes education clinic.

This study was approved by the Institutional Review Board. Patients enrolled in the diabetes education program of The Health Management Group at St. Ritas Medical Center who meet specific inclusion/exclusion criteria will have clinic visits with the pharmacist to manage their disease state and drug therapy. Patients will be identified based upon inclusion/exclusion criteria by Diabetes Clinic reports. Identified patients will be scheduled for a follow up appointment with a pharmacist. The records and privacy of the patients will be ensured for the patients by HIPAA. Services provided by the pharmacist will range from education and counseling to managing the pharmacotherapy related to diabetes. The study will evaluate obtainment of ADA treatment goals for patients enrolled in an ADA recognized diabetes education clinic. Each patient will serve as their own control. This data will be compared to that of the current clinic model and the results will be analyzed using a paired t-test. Patient satisfaction will also be measured after the appointment with a pharmacist utilizing a patient satisfaction survey which will serve only as descriptive data.

At this time, data collection is not complete and preliminary results and conclusions are not available.

Learning Objectives:

Define the impact of pharmacist-led appointments, in addition to standard care, in patients enrolled in an ADA recognized diabetes education clinic by evaluating the obtainment of ADA treatment goals.

Report patient satisfaction after involvement with pharmacy clinic

Self Assessment Questions:

What does the most current ADA clinic model consist of?

A Nurse educator and dietitian

B: Nurse educator, dietitian, and medical director

C: Nurse educator, dietitian, and pharmacist

D: Nurse educator, dietitian, pharmacist, and medical director

What are the ADA recommended treatment goals?

A Hemoglobin A1C, preprandial BG, postprandial BG

B Hemoglobin A1C, BP, LDL, HDL, Triglycerides

C Hemoglobin A1C, preprandial BG, postprandial BG, BP, LDL, HDL

D Hemoglobin A1C, preprandial BG, BP, LDL, HDL, Triglycerides

Q1 Answer: B Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-562 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

COMPARISON OF COMBINATION THERAPY VERSUS MONOTHERAPY AMONG AT RISK PATIENTS WITH COMMUNITY ACQUIRED PNEUMONIA IN AN OUTPATIENT SETTING

Jessica L. Sawyers*, Pharm.D., Elizabeth Ratti, Pharm.D., BCPS, Jeanne M. Chattaway, Pharm.D., BCPS, Terrence B. Baugh, Pharm.D., BCPS

Battle Creek VA Medical Center,5500 Armstrong Road,Battle Creek,MI,49037

jessica.sawyers@va.gov

Purpose:
Eighty percent of community acquired pneumonia (CAP) cases are treated in the outpatient setting. For patients presenting with CAP, prompt initiation of an appropriate antibiotic regimen is critical in achieving improved clinical outcomes and may avert treatment failure. Currently, the Infectious Disease Society of America (IDSA) guidelines for empiric outpatient therapy in at risk patients do not differentiate between monotherapy with a respiratory fluoroquinolone or the use of combination therapy with a beta-lactam and a macrolide antibiotic. The purpose of this study is to assess outpatient treatment failure rates within a 30 day follow up period between fluoroquinolone monotherapy and beta-lactam plus macrolide combination therapy in the outpatient treatment of CAP.

Methods:
This is a single-center, retrospective chart review. Electronic medical records were used to identify patients diagnosed with CAP using ICD-9 codes. Patients were eligible if they received initial outpatient treatment with either fluoroquinolone monotherapy or combination therapy with a beta-lacatam plus a macrolide. The chart review was used to determine if treatment failure, defined as a renewal/extension of the original antibiotic, a new prescription for a different antibiotic, or a hospital admission with the primary or secondary diagnosis of CAP, occurred during the follow up period.

Preliminary Results:
Initial review found 61 patients treated as outpatients for CAP. Excluded from the analysis were sixteen patients who received an injection of ceftriaxone and thirteen patients who received azithromycin monotherapy. Final analysis thus far includes thirty patients in the monotherapy group and two patients in the combination therapy group. Final results will be presented at Great Lakes Pharmacy Resident Conference.

Preliminary Conclusions:
No difference was identified between monotherapy versus combination therapy in the outpatient treatment of CAP. However, no significant comparison could be made due to the small number of patients included in both treatment groups, largely due to non-adherence to current IDSA treatment guidelines.

Learning Objectives:

Identify characteristics that place a patient at risk for a complicated disease course in community-acquired pneumonia.

Select the proper site of care for treatment of community-acquired pneumonia based on disease severity.

Self Assessment Questions:

Which of the following characteristics puts a patient at risk for having a complicated disease course in community-acquired pneumonia?

A Male gender

B: > 40 years of age

C: Diabetes mellitus

D: Seasonal allergies

Which of the following organisms most commonly cause community-acquired pneumonia in the outpatient setting?

A Haemophilus influenza, legionalle species, m. tuberculosis

B Legionalle species, streptococcus pneumonia, haemophilus influer

C Streptococcus pneumonia, mycoplasma pneumonia, legionalle spe

D Mycoplasma pneumonia, streptococcus pneumonia, haemophilus

Q1 Answer: C Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-563 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

A SURVEY OF PGY-2 PHARMACY RESIDENCY PROGRAM DIRECTORS TO ASSESS PROCESSES IN INTERVIEWING CANDIDATES

Laura A. Schalliol, PharmD* and Ryan J. Bickel, PharmD, BCPS
Borgess Medical Center,1521 Gull Road,Kalamazoo,MI,49048
Laura.Schalliol@borgess.com

Background:
Two surveys have been published to date assessing techniques in interviewing post-graduate year one (PGY-1) pharmacy residency candidates. Results from a 2003 survey by Mancusa and Paloucek indicated similar interviewing techniques among many PGY-1 residency programs. More recently a study by Mersfelder and Bickel also revealed similar results among programs; however, a universal interviewing process was not identified. Currently there are no published studies evaluating the interviewing processes of post-graduate year two (PGY-2) pharmacy residency programs.

Purpose:
The primary purpose of this study is to assess interviewing processes ofPGY-2 pharmacy residency programs. A secondary objective is to compare the results to those of the Mersfelder and Bickel study.

Methods:
Approximately 450 American Society of Health-System Pharmacists (ASHP) PGY-2 pharmacy residency program directors were given the opportunity to respond to an email survey via an online tool that was available for one month. Data assessing PGY-2 interviewing techniques were collected and compared to the results of Mersfelder and Bickel.

Results/Conclusion:
Results and conclusions will be presented at Great Lakes Pharmacy Resident Conference.

Learning Objectives:

List similarities between interviewing processes among PGY-1 pharmacy residency programs identified in Mersfelder and Bickels survey

Recognize limitations to conducting an e-mail survey of PGY-2 pharmacy residency program directors

Self Assessment Questions:

What did over 90% of PGY-1 pharmacy programs rank as the most important area of focus during an interview?

A Time management
B: Extracurricular activities
C: Clinical knowledge
D: Presentation skills

Which of the following is a limitation to conducting an e-mail survey of PGY-2 pharmacy residency program directors?

A Out of date e-mail address listed on ASHP's website
B Multiple PGY-2 programs at a single institution
C E-mail survey filtered to junk mail
D All of the above

Q1 Answer: A Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-756 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

OUTCOMES OF AN EXTENDED-INFUSION PIPERACILLIN-TAZOBACTAM PROTOCOL IMPLEMENTATION IN A COMMUNITY TEACHING HOSPITAL INTENSIVE CARE UNIT

Patrick M. Schmees*, Pharm.D.; Scott J. Bergman, Pharm.D., BCPS; Brandi D. Strader, Pharm.D.; Megan E. Metzke, Pharm.D.; Sarah Pointer, Pharm.D.; Kristine M. Valenti, Pharm.D.
St. John's Hospital,800 East Carpenter Street,Springfield,IL,62769
patrick.schmees@st-johns.org

Background:
Traditional dosing of piperacillin-tazobactam routinely utilizes an infusion over 30 minutes every 6 hours. Several studies evaluating the utility of extending the infusion time to 4 hours and administering the antibiotic every 8 hours have suggested that this strategy can improve pharmacodynamics and improve patient outcomes. It has been identified that critically ill patients would likely benefit the most from utilization of extended infusion dosing but further evidence is needed in these populations.

Purpose:
The purpose of this study is to evaluate the outcome differences between patients receiving piperacillin-tazobactam pre- and post-implementation of an extended infusion dosing protocol at St. Johns Hospital.

Methods:
On December 19th, 2011, extended infusion dosing of piperacillin-tazobactam was implemented at St. Johns Hospitals intensive and cardiac care units (ICU/CCU) following IRB-approval. This is a historical case-control cohort study involving review of electronic medical charts of patients who received traditional or extended infusion therapy. Data is being collected for patients that received piperacillin-tazobactam in the ICU/CCU from December 19th, 2010 through March 19th, 2011 for traditional infusion and from December 19th, 2011 through March 19th, 2011 for extended infusion. Primary endpoints are mortality at discharge from ICU/CCU and length of stay in the ICU/CCU. The secondary endpoints evaluated are the mortality at hospital discharge, hospital length of stay, adverse drug effects, cost of therapies, length of therapies, indications, and microbiology results.

Results/Conclusions:
Data collection and analysis are ongoing. Final results with conclusions will be presented at the Great Lakes Residency Pharmacy Conference.

Learning Objectives:

Describe the pharmacokinetic and pharmacodynamic rationale behind extended infusion of piperacillin-tazobactam

Describe the clinical implications of utilizing extended infusion beta-lactam dosing strategies

Self Assessment Questions:

What type of antibacterial effect does piperacillin-tazobactam possess?

A Time-dependent
B: Area under the curve to minimum inhibitory concentration
C: Post-antibiotic effect
D: Concentration-dependent

Which of the following statements describes the current evidence supporting the utilization of extended infusion piperacillin-tazobactam?

A Extended infusion therapy increases the cost of therapy compared
B Extended infusion therapy increases the adverse effects compared
C Extended infusion therapy may be associated with a decrease in m
D Extended infusion therapy increases the length of stay compared t

Q1 Answer: A Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-564 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

ANALYSIS OF DE-ESCALATION TARGETED AT SELECT ANTIMICROBIALS IN A COMMUNITY BASED HOSPITAL IN THE ABSENCE OF A FORMAL ANTIMICROBIAL STEWARDSHIP PROGRAM

Elizabeth G Schmidt*, Brian Host

Central Baptist Hospital,1720 Nicholasville Road,Lexington,KY,40503

elizabeth.schmidt@bhsi.com

Purpose: According the Infectious Disease Society of America (ISDA), the primary goal of antimicrobial stewardship is to optimize clinical outcomes while minimizing unintended consequences of antimicrobial use by ensuring the appropriate selection, dosing, route, and duration of antimicrobial therapy. The objective of this study is to review three subjectively-defined over-used antimicrobials in a specific community hospital to prospectively to evaluate the impact of regular pharmacist intervention.

Methods: The project was conducted in two parts. In an initial retrospective review, data was collected from the electronic medical record system on patients who received at least 48 continuous hours of daptomycin, ceftriaxone, or meropenem from January 1 to August 1, 2011. Antimicrobial indication and dosing regimen were compared to guidelines by the ISDA or labeling in the package insert. Any discrepancies were reviewed for trends by the authors. Part two is a prospective pharmacist review evaluating appropriate de-escalation from IV to oral therapy for ceftriaxone, appropriate renal dosing of meropenem and daptomycin, and appropriate indication for daptomycin.

Preliminary Results: A total of 50 cases were retrospectively reviewed for each of the selected antimicrobials. In the meropenem group 21% were over-dosed and 10% under-dosed based on renal function. In the ceftriaxone group, 50% of the patients were not changed to oral therapy when conversion criteria were met. Lastly, 36% of the daptomycin cases were identified as appropriate based on culture results, previous vancomycin failure, or vancomycin allergy. Additionally in the daptomycin group, 39% of the regimens were over-dosed and 13.5% were under-dosed according to weight or renal function. Prospective interventions in these identified areas were conducted to examine if pharmacist interventions had an impact.

Conclusions: Results will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Recall the goal and the components of antimicrobial stewardship

Explain areas that benefit from antimicrobial stewardship programs (ASPs)

Self Assessment Questions:

Evidence shows that antimicrobial stewardship programs (ASP)

A Do not effect the rate of Clostridium difficile infections
B: Reduce length of hospital stay
C: Increase use of antimicrobial and related costs
D: Do not affect inappropriate prescribing practice

Which of the following is a criteria for selecting cases for ASP review

A Double coverage of organisms
B Low risk for adverse effects
C Narrow spectrum antibiotics
D Low-use agents

Q1 Answer: B Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-757 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

ASSESSMENT OF OPIOID USE IN POST ABDOMINAL AND ORTHOPEDIC SURGERY PATIENTS RECEIVING SCHEDULED INTRAVENOUS ACETAMINOPHEN

Emily L. Schrey, PharmD*, Tina Keller, PharmD, William Malloy, MS, PharmD, BCPS

Community Health Network,1500 North Ritter Avenue,Pharmacy Department,Indianapolis,IN,46219

eschrey2@ecommunity.com

Background/Purpose: The management of pain following a major surgery typically involves intravenous (IV) opioid analgesics used in combination with non-opioid medications. This approach is believed to reduce the common opioid-related side effects including sedation, nausea, vomiting and respiratory depression by decreasing the opioid dose. The primary objective of this study is to determine if scheduled IV acetaminophen for the first 24 hours post-operatively reduces the total opioid use in patients who have received abdominal or orthopedic surgery compared to a historical control group.

Methods: A retrospective, observational study will be performed at Community Health Network, Indianapolis IN. Data collection will be done by using the electronic medical record systems, pharmacy order entry system, and surgical department database. Patients included will be 18-89 years of age, who had abdominal or orthopedic surgery at Community Hospital North, East and South. Patients will then be divided into those who received scheduled IV acetaminophen during the time of May 3, 2011-September 15, 2011 and those who did not receive IV acetaminophen from May 1, 2010-April 30, 2011. Patients excluded are those less than 18 or greater than 89 years of age, pregnant patients and prisoners. The two divided groups will be matched based on age, sex, surgical procedure and surgeon. A comparison of these two groups will be conducted using the following parameters: baseline demographics, surgical procedure, surgeon, dose and frequency of IV acetaminophen, total IV acetaminophen received, total acetaminophen received by all routes, total opioid use (reported as equivalent morphine doses in mg), prescribing physician, pain scores and antiemetic use.

Results/Conclusions: Data collection is currently ongoing. Results and conclusions will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Review the indications, dosing and routes of administration for acetaminophen

Review the medications and doses used in post-operative pain management regimens

Self Assessment Questions:

According to the manufacturer of intravenous acetaminophen (Ofirmev), what is the maximum dose (in grams) of acetaminophen for adults and children weighing at least 50 kg?

A 3 grams
B: 3.5 grams
C: 4 grams
D: 2 grams

Which one of the following adverse effects is most associated with acetaminophen use?

A Constipation
B Sedation
C Respiratory depression
D Hepatotoxicity

Q1 Answer: C Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-565 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

TIME TO FIRST DOSE OF ENOXAPARIN AFTER MAJOR KNEE OR HIP SURGERY

Nick A. Sciacca*, PharmD; Dane L. Shiltz, PharmD, BCPS; John Mulvaney, MHA

Indiana University Health,6130 Lourdes Ct.,Apt. 38,Indianapolis,IN,4662

nsciacca@iuhealth.org

Purpose:
Patients undergoing major orthopedic surgery (total hip replacement, total knee replacement, or hip fracture surgery) are at an increased risk for venous thromboembolism (VTE). Currently, the published guideline by the American College of Chest Physicians recommends several different options for the prevention of VTE in these patients. Among these is a recommendation to initiate a low molecular weight heparin (e.g. enoxaparin) 12-24 hours after surgery. Despite these recommendations, the optimal timing of this first dose of enoxaparin after major orthopedic surgery remains a controversial subject among practitioners. In our current study, we aim to determine if the frequency of venous thromboembolism after major orthopedic surgery differs between patients who receive the first dose of enoxaparin less than 12 hours after surgery and those who receive this first dose greater than 12 hours after surgery.

Methods:
Data was collected retrospectively from six hospitals in the Indiana University Health system. Patients aged 18 years or older admitted to these hospitals were included in the study if they underwent a total or partial hip or knee replacement or revision and had received at least one dose of enoxaparin during the index surgical encounter. Patients will be excluded if they had a condition requiring chronic anticoagulation, active malignancy, sickle-cell disease, had received another anticoagulant prio to enoxaparin after surgery, or were receiving erythropoetin-stimulating agents or an estrogen or selective estrogen receptor modulator prior to surgery. Cases of VTE were identified by ICD-9 codes during index surgical admission or readmission for VTE within 60 days of the index surgical encounter. Baseline data, including age, gender, BMI, and other risk factors for VTE were collected on all patients. The primary outcome was incidence of venous thromboembolism. Secondary outcomes were major bleeding events.

Results/Conclusions:
Results and conclusions are still preliminary.

Learning Objectives:

State the incidence of venous thromboembolism in patients undergoing major orthopedic surgery without thromboprophylaxis

Review current ACCP Guidelines regarding initiation of enoxaparin postoperatively in patients undergoing major orthopedic surgery

Self Assessment Questions:

The incidence of venous thromboembolism in patients undergoing total hip replacement surgery without thromboprophylaxis is

A 60-80%
B: 40-60%
C: 20-40%
D: 0-20%

An orthopedic surgeon has decided to initiate enoxaparin 30 mg every 12 hours after a total knee replacement surgery. According to current ACCP guidelines, when should this be initiated after surgery

A < 6 hours
B 6-12 hours
C 12-24 hours
D > 24 hours

Q1 Answer: B Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-566 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

ASSESSING THE CURRENT PROCESS OF IDENTIFYING PATIENTS IN NEED OF EVALUATION AND INTERVENTIONS BY PHARMACISTS TO IMPROVE PATIENT SATISFACTION WITH INPATIENT PAIN MANAGEMENT

Adam G Servi, PharmD*; Michelle L Brenner, PharmD, BCPS; Karen S Smith, RPh; Peggy S Lutz, RN

Ministry Health - St. Joseph's Hospital - WI,611 Saint Joseph Ave.,Marshfield,WI,54449

adam.servi@ministryhealth.org

Pain management satisfaction reported by patients at Ministry Saint Josephs Hospital (MSJH) has compared unfavorably to other hospitals nationwide, so improvement is a priority for hospital caregivers. Currently, pharmacists receive daily reports of charted pain scores for patients who reported pain as severe or at least seven out of ten as assessed numerically. The report is intended to guide pharmacists to review patient profiles for potential interventions to improve pain management. Following profile evaluation, the pharmacist then makes recommendations to the nurse care coordinator or prescriber. With this current process documented pain intervention rates remain low. The objective of this project is to identify the effectiveness of the current pharmacy process and to implement potential improvements to further drive patient satisfaction with pain management. Initially, demographics for patients on the pain report were collected and analyzed. Clinical staf pharmacists were anonymously surveyed to both determine their perception of current process effectiveness and ideas for improvements. Procedural effectiveness was also determined via quantifying the documented pharmacist pain intervention rate at baseline. Areas of low effectiveness were targeted for improvement strategies to increase patient satisfaction. Based on data analyzed, tools and resources will be identified and education will be utilized to drive potential improvements to the process and increased intervention rates. After education and implementation of the improved tools and resources are complete, pharmacists will once again be surveyed and documented pain intervention rates will be quantified. The baseline average pharmacist pain intervention rate was 1.8 interventions per week. The most significant overall pharmacist-identified barrier to making interventions was comfort level with pain treatment interventions. A majority of pharmacists also thought it would be beneficial to receive more specific and direct requests for pain management assistance. Final results will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

List the pharmacist-identified barriers to making pain interventions at MSJH with the current process.

Discuss two potential process improvements to help facilitate pharmacist pain interventions at MSJH.

Self Assessment Questions:

What is a leading reason pharmacists at MSJH feel the current process of making pain interventions is not ideal?

A It is difficult to do a patient profile review of current pain treatment i
B: A suboptimal comfort level with making pain treatment intervention
C: Pharmacists currently receive too specific and direct requests for p
D: It is too difficult or time consuming to contact the nurse care coordi

Based on information collected, what is the best way in which the process of pharmacists making pain interventions at MSJH could be improved?

A Pharmacists could receive more specific and direct requests for pa
B Pharmacists could receive requests for pain management via face
C Pharmacists could receive requests for pain management via the p
D Reinforcing with pharmacists that they should continue to use what

Q1 Answer: B Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-758 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

IMPACT OF THE IMPLEMENTATION OF A BETA-LACTAM ALLERGY ASSESSMENT TOOL IN AMBULATORY SURGERY PATIENTS

Punit J. Shah* PharmD, Mira Suseno PharmD, BCPS-ID

NorthShore University HealthSystem,2650 ridge ave,evanston,il,60201

pshah4@northshore.org

Background:
Previous studies show that one in four patients claim that they are allergic to at least one antimicrobial agent. However, more than half of these reported allergies may not be true allergies, but rather an adverse reaction to the antimicrobial. These results are concerning since the presence of an antimicrobial allergy label has been associated with use of broader spectrum antimicrobials, higher healthcare costs, longer hospital stay, and worse clinical outcomes. In an attempt to delineate patients allergy better, one study used an allergy assessment questionnaire whereby guardians of pediatric patients were interviewed to evaluate allergic reactions. This study showed that forty-two percent of the reported allergies were not immunologically mediated.

Purpose:
To determine the impact of a beta-lactam allergy assessment tool on pre operative and post-operative antibiotics that are subsequently being prescribed during the current encounter

Methods:
A prospective observational study will be conducted. A standardized tool that accurately evaluates a patients allergy to beta-lactams will be employed. Drug reactions will be classified as either an adverse reaction or a true allergy. Patients electronic medical record will be reviewed to ensure that the patient has no history of receipt of a beta-lactam antimicrobial. Additionally, if no information is available in the patients chart, the investigator will use the above tool to carry-out a thorough assessment of the patients beta-lactam allergy either through a phone conversation or a face-to-face interview with the patient. For each patien interviewed, a progress note will be written and the allergies field will be updated as necessary. Data that will be collected is results from the assessment tool, and type of antibiotics that are subsequently prescribed during the encounter.

Results:
Results and conclusions to be presented at Great Lakes Residency Conference.

Learning Objectives:

Discuss the impact of beta lactam allergy assessment tool on subsequent antibiotic prescription

Identify potential advantages of a thorough assessment of a patients beta-lactam allergy

Self Assessment Questions:

What percentage of patients admitted to a hospital claim that they are allergic to penicillin?

A 10-20%
B: 20-25%
C: 0-10%
D: 25-30%

What is a potential benefit of removing an allergy label from a patients chart?

A Decreasing drug resistance
B Higher costs
C Increasing use of broader spectrum antimicrobials
D Increasing length of stay

Q1 Answer: A Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-759 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

PHYSICIAN PERCEPTIONS OF THE CURRENT LEVEL OF PHARMACY PRACTICE IN A COMMUNITY TEACHING HOSPITAL

*Christopher P Shelby, PharmD, James E Reissig, PharmD, Jessica L Boss, PharmD, BCPS, Kathleen D Donley, RPh, MBA, Tim R Brown, PharmD, BCACP

Akron General Medical Center,400 Wabash Avenue,Akron,OH,44307

christopher.shelby@akrongeneral.org

Purpose:
Current pharmacy practice model initiatives are promoting an increased collaboration between pharmacists and physicians in order to provide safe, effective, efficient, and accountable care. Limited studies have been done to assess physicians expectations of pharmacist roles in collaborative practice. The objective of this study is to determine whether the current level of pharmacy practice within our health system meets our physicians expectations.

Methods:
Prior to commencement, this study was submitted to the Institutional Review Board for approval. A mixed-mode survey was distributed to physicians for self-administration. All resident physicians and physicians with active medical staff privileges at AGMC were included. Those physicians who do not see an average of > 2 patients/month or those physicians without an active email and mailing address were excluded. First contact was through email and a web-based survey. Second contact was through a mailed paper survey identical to the web-based survey. The following data was collected from the survey: current position (i.e. Private practice, hospitalist, etc.), years in practice, practice area, interactions with pharmacists, and perceptions on experiences with and expectations of pharmacists. All data was recorded without specific identifiers and maintained in a password protected file. Data will be analyzed descriptively as a whole and then analyzed comparatively by the independent variables. The primary outcome is to describe the difference between physicians experiences with and expectations of pharmacy services within our health system. Secondary outcomes include demographic influence on primary outcome and physician assessment of the following: physician/pharmacist and patient/pharmacist affect on outcomes, pharmacist provided drug therapy management, and pharmacist accountability.

Results and Conclusions:
Data analysis in progress, results to be presented

Learning Objectives:

Describe the role of the physician in determining pharmacist involvement in an interprofessional care team

Discuss areas where Akron General Medical Center pharmacists are or are not meeting physician expectations of pharmacy services

Self Assessment Questions:

According to the American College of Physician-American Society of Internal Medicine:

A The physician solely determines if he or she will establish a relatio
B: More progressive pharmacist roles are detrimental
C: Multiple studies have been done evaluating physician perceptions
D: Physicians and pharmacists should work independently to best imp

Which of the following statements is false? Akron General Medical Center (AGMC) physicians:

A Feel their interactions with pharmacists result in better patient outc
B Feel patient interactions with pharmacists result in better patient ou
C Feel AGMC pharmacy services are meeting their expectations with
D Feel AGMC pharmacy services are meeting their expectations with

Q1 Answer: A Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-760 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

IMPLEMENTATION OF A READY-TO-ADMINISTER MEDICATION PROGRAM FOR PEDIATRIC PATIENTS

Kimberly C. Sherman*, Pharm.D.; Erin C. Hendrick, M.S., Pharm.D.; Jessica A. Mahoney, M.S., Pharm.D.; Jack D. Temple, M.S., Pharm.D.; Philip J. Trapskin, Pharm.D.

University of Wisconsin Hospital and Clinics,600 Highland Ave,F6/133-1530,Madison,WI,53792

ksherman@uwhealth.org

PURPOSE: Medications defined as "ready to administer" are unit dosed and require minimal manipulations by the end user prior to administration. Currently, intravenous (IV) medications distributed to the pediatric hospital at University of Wisconsin Hospital and Clinics (UWHC) are in a concentrated form requiring end users to dilute the medications to a concentration that is safe for administration. The purpose of this project is to standardize the drug concentrations of IV medications that will be used in our pediatric and neonate populations in order to minimize end user manipulation of pediatric medications prior to administration

METHODS: Complete an exhaustive literature review to determine maximum standard concentrations that will be utilized to prepare all pediatric IV medication doses, including neonates. These concentrations will be reviewed by key stakeholders from pharmacy, nursing, and physician leadership to gain consensus on the final concentrations being recommended. Using United States Pharmacopeia (USP) <797> standards develop recipes for preparing dilutions in the central pharmacy and determine appropriate beyond-use dating for the new medication doses. Coordinate with the pharmacy informatics team to ensure the medications are orderable in the electronic medical record. Evaluate current workflow in the central pharmacy and implement necessary changes to support IV production. Finally, collaborate with the nursing staff to implement the changes and eliminate use of buretrols on the pediatric units.

RESULTS: Seventy individual IV medications were indentified and reviewed to determine a maximum standard concentration. This list was reviewed and approved by pediatric pharmacists and physicians. Education and work area re-design is underway and will be presented at the conference.

CONCLUSION: Implementing a ready to administer medication program for pediatric patients requires interdisciplinary collaboration, proper training, and change management strategies to ensure success.

Learning Objectives:

Identify a ready to administer medication and why these medications enhance a patients safety.

Recognize all the disciplines within the hospital that need to collaborate to create and implement a ready to administer medication program.

Self Assessment Questions:

Which of the following appropriately describes a ready to administer medication?

A Medications dispensed to inpatient units in their original container

B: Intravenous medications dispensed to inpatient units in the most c

C: Medications dispensed to inpatient units as a single unit dose and

D: Intravenous medications dispensed to the inpatient units with enou

Which of the following disciplines is NOT directly involved in the creation and implementation of a ready to administer medication program?

A Nursing

B Pharmacy

C Physicians

D Respiratory therapists

Q1 Answer: C Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-831 -L05-P

Activity Type: Knowledge-based Contact Hours: 0.5

PHARMACY RESIDENTS PURSUIT OF ACADEMIC POSITIONS

Tiffany R. Shin, PharmD*; Colleen A. Clark Dula, PharmD; Jennifer L. Rodis, PharmD, BCPS; Bella H. Mehta, PharmD; Maria C. Pruchnicki, PharmD, BCPS, CLS

The Ohio State University College of Pharmacy,500 W 12th Ave.,Columbus,OH,43210

shin.171@osu.edu

Background: Growth of residency programs and demand for pharmacy practice faculty may make pharmacy residents ideal candidates for faculty recruitment.

Purpose: Determine the percentage of pharmacy residents that accept an academic position at the end of residency, identify factors influencing residents decision to pursue/not pursue a career in academia, and compare perceived characteristics of the ideal position early in residency training versus characteristics of positions accepted upon completion.

Methods: Study includes PGY-1 and PGY-2 pharmacy residents, and consists of an electronic pre-/post-survey with matched responses. Survey invitations were disseminated via residency directors in October 2011; residents who consented to participate in pre-survey and provided an email address will be included in May 2012 follow-up survey. Job preferences, characteristics of the ideal job, interest in academia, and experience in teaching and research were evaluated in pre-survey. End-of-residency survey will focus on job selection, including applied and accepted positions, with specific questions regarding the pursuit of academic positions and characteristics of positions accepted by residents.

Results: A total of 932 pharmacy residents completed the pre-survey (71.5% PGY-1, 26.3% PGY-2, 2.2% combined program). 46.8% of residents agreed they were seriously considering a position in academia 30.4% were neutral, and 22.9% disagreed. A formal training program in teaching was available to 70.9% of residents, while only 26.3% had a formal training program in precepting and 16.1% in research. The top three settings where residents wanted to work upon completion of residency were inpatient clinical (67%), academia (39%), and ambulatory care (31%). Top characteristics of the ideal job were collaboration with others (62.1%), variety of daily activities (45.2%), and free time for leisure/family (34%).

Conclusions: Post-graduate trainees enter residencies identifying a high interest in faculty positions. Training in teaching is common, however programs may improve resident preparedness by offering formal training in precepting and research.

Learning Objectives:

Discuss the reasons for vacant faculty positions at colleges and schools of pharmacy.

Describe the training that pharmacy residents receive to make them ideal candidates for faculty positions.

Self Assessment Questions:

What was the most common reason faculty positions remained vacant during the 2009 - 2010 Academic year?

A Lack of job security

B: Geographic location

C: Not enough qualified candidates in the pool

D: Budget limitations that affected ability to offer a competitive salary

According to the initial survey of pharmacy residents, what percent of residents have the opportunity to receive formal training in teaching through their residency program?

A 16%

B 26%

C 55%

D 71%

Q1 Answer: C Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-761 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

EFFECT OF COLONIZATION WITH VANCOMYCIN-RESISTANT ENTEROCOCCI ON EMPIRIC LINEZOLID OR DAPTOMYCIN USE FOR ENTEROCOCCAL BLOOD STREAM INFECTIONS (BSI)

Elizabeth J. Short* PharmD; Milena Griffith PharmD, BCPS; John Esterly PharmD, BCPS

Northwestern Memorial Hospital,251 East Huron Street,Feinberg Pavilion, LC-700,Chicago,IL,606112908

eshort1@nmh.org

Purpose

Vancomycin-resistant enterococci (VRE) colonized patients may have a greater risk of infection with VRE based on patient specific factors. Colonized patients with positive blood culture results for Enterococcus frequently receive empiric broad-spectrum antibiotics with VRE activity such as linezolid or daptomycin. If the infecting organism is reported as vancomycin-sensitive, empiric therapy may warrant de-escalation, which is important to reduce the risk of the development of resistance in Enterococci against these last-line agents. It is unknown how often this practice occurs and whether it varies based on specific patient factors such as neutropenia. The objective of this study is to determine whether broad-spectrum antibiotic use is appropriate in Enterococcal BSIs and to determine whether empiric therapy is appropriately de-escalated once susceptibility data are available.

Methods

This study will be a retrospective, cohort study at an academic medical center. The study population will consist of patients with a positive blood culture with Enterococcus. Patients will be stratified by VRE colonization status, defined as a positive VRE screening or previous VRE infection. The primary outcome assessed will be the percent of patients initially started on broad-spectrum antibiotics active against VRE who are narrowed to appropriate therapy once VRE is ruled out. Secondary outcomes evaluated will include the percent of Enterococcal BSI caused by VRE, percent with neutropenia present, and incidence of sepsis and death.

Results/Conclusions

Data collection and analysis are currently in progress. Results and conclusions will be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Describe the impact of VRE colonization on institutional infection control protocols and empiric antibiotic choice

Review appropriate therapy for Enterococcal infections

Self Assessment Questions:

Which of the following statements is correct regarding VRE colonization?

A Antimicrobial therapy is required to prevent transmission to other p

B: Colonization is always associated with active infection

C: Contact precautions are required when patients screen positive for

D: Infection control is only required in high-risk units with severely ill p

Which of the following statements is correct regarding Enterococcal infection?

A Most isolates of VRE are susceptible to ampicillin

B Only neutropenic patients are at risk of an enterococcal infection

C Patients with a VRE BSI are subsequently considered colonized

D VRE infection only occurs in VRE colonized patients

Q1 Answer: C Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-567 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

DEVELOPMENT OF COLLABORATIVE PRACTICE AGREEMENTS FOR MANAGEMENT OF CONSTIPATION AND DIARRHEA IN ONCOLOGY

Stephanie Shuey, Pharm.D.*; Sol A. Yoder, Pharm.D., BCOP; Susan K. Woelich, Pharm.D.; Jennifer Godden, Pharm.D.

Aurora Health Care,2260 N. Summit Ave,Apt 115,Milwaukee,WI,53202

stephanie.shuey@aurora.org

Purpose: Collaborative drug therapy management is a multidisciplinary approach to health care in which one or more physicians and pharmacists establish written guidelines or protocols that authorize the pharmacist to initiate, modify, and/or continue drug therapy. Such agreements improve patient outcomes by reducing delays in necessary modifications of drug therapy, increasing patient compliance, decreasing unnecessary physician office visits, and preventing drug therapy problems.

Constipation and diarrhea are among the most commonly reported gastrointestinal symptoms in patients with cancer. Both are major sources of morbidity and distress. Constipation affects approximately 40-60% of patients with advanced cancer and can significantly impact quality of life. Diarrhea may be severe, leading to consequences such as dehydration, electrolyte abnormalities, and death. The primary objective of this project is to develop and implement collaborative practice agreements (CPAs) for the management of constipation and diarrhea in patients with cancer.

Methods: Prior to commencement, the project was submitted to the Institutional Review Board for approval and was deemed exempt from further oversight, due to the fact that it is not human subject research. Evidence-based collaborative practice agreements were developed and presented to the oncologists and the Pharmacy and Therapeutics Committee. Approval was obtained to conduct a pilot on the inpatient oncology unit at Aurora St. Lukes Medical Center in February 2012. In December 2011, baseline data was collected via electronic chart review to assess current practices for managing constipation and diarrhea among inpatients with cancer. Information such as cancer history, onset of symptoms, bowel regimen prior to admit, inpatient bowel regimen, and time to relief of symptoms was collected. This data will be compared to post-implementation data to assess impact.

Results/Conclusions: Results and conclusions will be presented at the Great Lakes Pharmacy Residency Conference

Learning Objectives:

Explain collaborative drug therapy management

Outline a process for choosing appropriate therapy in a patient with constipation or diarrhea

Self Assessment Questions:

The following is/are true regarding collaborative drug therapy management:

A Governed by a written practice agreement between one or more ph

B: Physician must approve any changes to drug therapy before initiat

C: The pharmacist is granted authority to initiate, modify, and/or conti

D: A and C

When choosing therapy for a patient with constipation or diarrhea, the following factors must be taken into consideration:

A Potential causes of symptoms

B Whether the patient is neutropenic

C Patient weight

D A and B

Q1 Answer: D Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-568 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

UTILIZATION OF A COMPUTER-ASSISTED DECISION MAKING SYSTEM TO INCREASE ACUTE MYOCARDIAL INFARCTION CORE MEASURE COMPLIANCE

Jerrica E. Shuster*, PharmD, BCPS; Michael P. Dorsch, PharmD, MS, BCPS AQ Cardiology

University of Michigan Health System,1500 E. Medical Center Dr.,Ann Arbor,MI,48109

jerricas@med.umich.edu

The Center for Medicare and Medicaid Services (CMS) implemented a quality initiative program to ensure appropriate patient treatment plans for certain medical diagnoses and to improve patient outcomes. One of the diagnoses involved is acute myocardial infarction (AMI), and most of these core measures involve administration of certain medications prescribed at discharge. The objectives of this research project are to determine the accuracy and practicality of the pharmacy computer system (Theradoc) AMI core measures alert message at University of Michigan Hospitals and Health Centers (UMHHC).

This is a single-center, cohort chart review. The current CMS core measures require AMI patients to receive aspirin upon arrival, adult smoking cessation, and certain medications at discharge (aspirin, beta-blocker, statin, and ACEI/ARB for left ventriclular systolic dysfunction). An optional alert message exists in the UMHHC pharmacy computer system, Theradoc, to identify AMI patients whose treatment regimen is currently noncompliant with CMS core measures due to missing orders for required discharge medications. Through this system, an alert will be sent for any patient with a positive troponin result (>0.03ng/mL) without a current order for at least one of the required medications (aspirin, beta-blocker, statin, ACEI/ARB). This alert message will be compared to the current UMHHC gold standard for CMS core measure compliance, Quality Improvement (QI) review, for sensitivity and specificity. All patients who have an alert or who are included in the QI review will be analyzed for the sensitivity/specificity analysis. Multiple alerts for the same patient-visit will be excluded. All data will be collected without patient identifiers and maintained confidentiality. Physician documentation will be reviewed to determine if documentation for appropriate noncompliance is present. Factors affecting sensitivity and specificity will also be reviewed.

Data collection and analysis is currently ongoing. Results and conclusions will be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Explain the criteria for CMS core measure compliance for AMI patients

Describe the rationale for utilizing a computer system alert message to increase core measure compliance

Self Assessment Questions:

Which of the following is part of the core measure compliance criteria for AMI patients?

A Patient discharged on aspirin

B: Patient discharged on statin

C: Documentation of reason if a patient is not discharged on required

D: All of the above

Increasing core measure compliance has been shown to:

A Improve patient outcomes

B Worsen patient outcomes

C Have no effect on patient outcomes

D This has never been studied

Q1 Answer: D Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-569 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

A RETROSPECTIVE ANALYSIS OF CLINICAL AND INFECTIOUS OUTCOMES IN ADULT HEMATOPOIETIC STEM CELL TRANSPLANT PATIENTS PRE-AND POST-IMPLEMENTATION OF A FLUOROQUINOLONE PROPHYLAXIS PROGRAM

Katherine A. Simondsen, PharmD*; Michael P. Reed, RPH, BCOP; Mary S. Mably, RPh, BCOP; Yang Zhang, PharmD Candidate; Walter Longo, MD

University of Wisconsin Hospital and Clinics,Department of Pharmacy,600 Highland Avenue,Madison,WI,53792

ksimondsen@uwhealth.org

The purpose of the study is to monitor the impact of the implementation of fluoroquinolone (FQ) prophylaxis on infectious disease outcomes in patients undergoing allogeneic hematopoietic stem cell transplant (HSCT).

Objectives

1. Determine whether infectious outcomes in the allogeneic HSCT population have changed following implementation of the FQ prophylaxis in February 2010.
2. Determine if there has been an increase in quinolone resistant infections and in C. Difficile infections in patients receiving fluoroquinolone prophylaxis

Methods

The FQ prophylaxis program was implemented in February 2010. To assess infectious outcomes, a pre- and post implementation analysis is being conducted. The post-implementation group (group 1) consists of 53 patients who received FQ prophylaxis during allogeneic HSCT and who have 100 day follow-up available. The pre-implementation group (group 2) consists of a matched number of patients who received an allogeneic HSCT prior to February 2010 and consequently, did not receive FQ prophylaxis. Eligible patients were identified by using the internal bone marrow transplant database. The principle method for data collection is chart review. Data collection will include demographic and transplant information (age, gender, underlying malignancy, conditioning regimen, source and type of stem cells, duration of neutropenia), infectious disease prophylaxis (antifungal, antiviral and antibacterial prophylaxis), in group 1 details regarding fluoroquinolone prophylaxis provided (agent utilized, days utilized, reason for discontinuation), infectious disease and mortality outcomes (febrile episodes, antibiotic days, positive cultures, resistance of isolates, C. difficile infection, readmission during first 100 days, readmission requiring IV antibiotics). Preliminary data will be presented to the bone marrow transplant group in order to determine if the FQ prophylaxis program needs to be changed. Data from this project will be utilized in a second study which will help to determine if expansion to autologous transplants is appropriate.

Results will be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Describe the risks of using fluoroquinolone prophylaxis in patients undergoing allogeneic hematopoietic stem cell transplant.

Describe the benefits of using fluoroquinolone prophylaxis in patients undergoing allogeneic hematopoietic stem cell transplant.

Self Assessment Questions:

Which of the following best describes the benefits of using fluoroquinolone prophylaxis in patients undergoing allogeneic hematopoietic stem cell transplant?

A Fewer ICU admissions

B: Fewer fungal infections

C: Improved mortality

D: Decreased mucositis

Which of the following best describes the potential risks associated with fluoroquinolone prophylaxis in patients undergoing allogeneic hematopoietic stem cell transplant?

A Administration of a fluoroquinolone may prolong the period of neut

B Administration of a fluoroquinolone may lead to increased bacteria

C Fluoroquinolone requires administration of an IV medication which

D Prophylaxis with a fluoroquinolone is unlikely to cover the most cor

Q1 Answer: C Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-570 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

DEVELOPING AND IMPLEMENTING A GLUCOSE MANAGEMENT SERVICE

Nathan K. Sippel, Pharm.D.*, Michael S. Nyffeler, Pharm.D., BCNSP, Catherine M. Sesing, Pharm.D., BCPS

Meriter Hospital,202 S. Park St,Madison,WI,53715

nsippel@meriter.com

Background:
In December 2007, multiple cardiology midlevel providers were willing to assume full responsibility of blood glucose management as an important practice issue. To improve blood glucose control of these patients, a task force consisting of a hospitalist, pharmacist and diabetes educator developed four training sessions about appropriate management of diabetic patients. Since this time, the level of blood glucose control on the Heart and Vascular Unit has deteriorated. Recently, there was a request by Meriter Endocrinology to start a new consult service to provide support for the management of diabetes in the hospital. Pharmacy is involved based on the successful development and management of a perioperative blood glucose service that began in September 2007.
Purpose:
The main purpose of this project is to develop and implement a multidisciplinary Glucose Management Service for Meriter Hospital. The primary goal is to demonstrate an improvement in the present level of glycemic control. Comparisons will be done using the percentage of blood sugars between 140-180 mg/dL, based on the goals established by the American Diabetes Association/American Association of Clinical Endocrinology and American Heart Association for patients in a non-critical care setting.
Methods:
Patients on the Heart and Vascular Unit were identified for consults based on a computer generated report that scanned them for a blood glucose greater than 140 mg/dL and a diagnosis of diabetes mellitus, impaired glucose tolerance, or metabolic syndrome. Patient profiles were reviewed to assure a cardiologist was following them and that a hospitalist was not involved in their medical management. Cardiologists were notified their patient may be a candidate for the service and a consult was obtained when appropriate.
Results and conclusions will be presented at the Great Lakes Residency Conference.

Learning Objectives:

Describe the negative effects hyperglycemia may have on a patient who presents with an acute coronary syndrome.

List the blood glucose goals and therapeutic options for managing non-critical care patients admitted to the hospital with diabetes.

Self Assessment Questions:

Patients who present with hyperglycemia and acute coronary syndrome are more likely to have which of the following:

A A 50% relative increase in the risk of in-hospital death.
B: Elevated blood pressures, QT prolongation, myocardial perfusion c
C: A mortality benefit even if a patient's blood sugars are not tightly co
D: A lower correlation with the development of congestive heart failure

Which of the following is recommended for non-critical care patients admitted to the hospital who have diabetes?

A Premeal glucose target of less than 180 mg/dL or a random blood
B Correctional insulin therapy should be second line therapy for achi
C Scheduled subcutaneous insulin therapy should consist of basal or
D Patients should be continued on oral antidiabtic agents because th

Q1 Answer: B Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-571 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF PATIENT REPORTED ALLERGIES IN THE ELECTRONIC MEDICAL RECORD AND ITS EFFECT ON ANTIMICROBIAL DRUG SELECTION

James A. Sizemore, PharmD; Joan B. Haltom, PharmD; Michelle D. Fraley, PharmD; Jeffrey W. Heath, PhD.

Ephraim McDowell Regional Medical Center,217 S Third Street,Danville,ky,40422

asizemore@emrmc.com

Background: There is a large misconception in the general public regarding the difference between a drug allergy and an adverse drug reaction. Many patients report a drug allergy after experiencing a known adverse drug reaction. Reported drug allergies can affect the medication selection for managing various disease states especially in the realm of infectious diseases. Patients may receive second line therapies due to a reported allergy to an antibiotic agent. Interviewing the patient is one of the most efficient ways to determine whether a true drug allergy exists and educating the patient on the difference between an adverse drug reaction and a drug allergy may improve subsequent reporting. Clarifying reported allergies and updating the electronic health record accordingly may impact patient care overall and across the continuum.
Purpose:
To determine the accuracy of reported allergic reactions in the electronic health record to antimicrobial agents and evaluate its impact on antimicrobial selection. Patients will be educated on the difference between an adverse drug reaction versus a drug allergy and the patients allergy information will be updated in the electronic health record after each interview.
Methods:
A review of inpatient medical records with concurrent interviews in a selected subgroup with reported allergies to antibiotic agents will be conducted. The primary outcome is to determine the percentage of patient reported allergies to antimicrobials that are adverse events versus true allergies. The secondary outcome is the percentage of patients whose initial antimicrobial selection was affected due to the misclassification of patient allergies. The study population will consist of any patient greater than 18 years of age who has received antimicrobial therapy during current hospitalization with at least one reported allergy to an antimicrobial agent. Results will be collected between September 2011 and the end of the study period spring 2012.
Results:
Results and conclusions will be presented at the Great Lakes Residency Conference.

Learning Objectives:

Explain the importance of clarifying antimicrobial allergies found in the electronic health record and the effects of inappropriate documentation on antimicrobial selection.

State signs and symptoms of a true allergy in order to distinguish between an adverse drug reaction and allergy.

Self Assessment Questions:

Approximately what percent of patient self-reported antimicrobial allergies are immunological in nature and represent a true allergy?

A < 50%
B: 60% - 70%
C: 70% - 80%
D: 80% - 90%

Which of the following would be a characteristic of a true drug allergy?

A Headache
B Nausea
C Throat tightness
D Constipation

Q1 Answer: A Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-572 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

CLINICAL OUTCOMES OF ACUTE CYSTITIS, PYELONEPHRITIS, AND CATHETER-ASSOCIATED URINARY TRACT INFECTION WITH LEVOFLOXACIN VERSUS ALTERNATIVE THERAPY

Tiffany B Skaggs, PharmD*; Shawn King, PharmD; Kevin L Poe, PharmD, BCPS; Dana M Stephens, BS, MT, CIC; William R Judd, PharmD, BCPS

St. John Hospital and Medical Center,1 St Joseph Dr,Lexington,ky,40504

skaggstb@sjhlex.org

Since the IDSA guidelines for treating acute uncomplicated cystitis and pyelonephritis were published in 1999, antimicrobial resistance of gram-negative organisms has increased. Due to concern for collateral damage and development of resistance, the utility of fluoroquinolones for empiric treatment of acute uncomplicated cystitis and pyelonephritis has been questioned. The objective of this study is to compare clinical and microbiological outcomes among patients empirically treated with levofloxacin versus other commonly used agents for acute cystitis, pyelonephritis, and catheter-associated urinary tract infections (CA-UTI). This is a retrospective chart review that will be performed on patients with a urinary tract infection (UTI) at Saint Joseph Hospital in Lexington, KY between June 2010 and June 2011. Inclusion of CA-UTI patients will be provided through infectious disease review data as defined by The National Healthcare Safety Network. Inclusion of cystitis and pyelonephritis will be provided through positive urine cultures for Acinetobacter baumannii, Acinetobacter haemolyticus, Citrobacter freundii, Enterobacter aerogenes, Enterobacter cloacae, Escherichia coli, Klebsiella oxytoca, Klebsiella pneumoniae, Morganella morganii, Proteus mirabilis, Pseudomonas aeruginosa, and Serratia marcescens. Patients will be excluded if more than one antibiotic was administered on Day 1 of therapy, if no antibiotic was administered on Day 1 of therapy, patient has multiple infection sites, or antibiotics were changed due to drug allergy. Clinical failure rates will be determined upon antibiotic discontinuation or hospital discharge. Microbiological failure rates will be determined at discharge or repeat culture, if available. Levofloxacin clinical and microbiological outcomes will be compared to all other antibiotic outcomes within each infection group. The following data will be collected: age, sex, empiric antibiotic regimen, culture and susceptibility data, change to or addition of second antibiotic, length of hospital stay, duration of complete antibiotic therapy, and creatinine clearance.

Learning Objectives:

Define cystitis, pyelonephritis, and catheter-associated urinary tract infection.

Recall current IDSA guidelines for the treatment of cystitis, pyelonephritis, and catheter-associated urinary tract infection.

Self Assessment Questions:

Cystitis is characterized by:

A flank pain, tenderness, and fever confirmed by the presence of sig
B: dysuria, frequency, and/or urgency confirmed by the presence of s
C: flank pain, tenderness, and fever confirmed by the presence of sig
D: dysuria, frequency, and/or urgency confirmed by the presence of s

Which of the following medications is not recommended as a first-line treatment for acute cystitis per IDSA guidelines?

A Bactrim (sulfamethoxazole/trimethoprim)
B Cipro (ciprofloxacin)
C Macrobid (nitrofurantoin)
D Monurol (fosfomycin)

Q1 Answer: B Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-573 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

VITAMIN D THERAPY FOR ROSUVASTATIN-INDUCED MYALGIAS

Jenna L Slattery, PharmD*, Tonimarie Swartz, PharmD, CLS, Alice Leone, RPh, and Jose Ortiz, MD

Louis Stokes Cleveland VAMC,10701 East Boulevard,Cleveland,OH,44106

jenna.slattery@va.gov

Purpose: Myositis and myalgia are common adverse effects associated with statins and are a major cause for discontinuation of therapy. The mechanism of statin induced muscle injury is not well understood. One hypothesis is that a deficiency in vitamin D levels leads to decreased nuclear vitamin D receptor gene transcription of proteins that prevent subsarcolemmal rupture and are needed for repair of the T-tubular system inside muscle cells.
Research has shown that a strong association exists between low serum levels of vitamin D (25(OH)D) and myositis. Upon supplementation in vitamin D deficient patients, improvements can be seen in muscle strength and reduced falls. This is hypothesized to be due to a reduction in type II muscle fiber atrophy from deficiency in vitamin D.

Objective: To assess the ability to tolerate rosuvastatin after adequate vitamin D replacement therapy in patients who had an adverse drug reaction of myalgia with rosuvastatin and were vitamin D deficient.

Methodology: This retrospective chart review will be conducted on patients at Louis Stokes Cleveland VA Medical Center who had a reaction of myalgia, muscle pain, muscle weakness, muscle spasm, cramping, or joint pain identified with the use of rosuvastatin between August 1, 2009 and August 1, 2011. Patients must have received vitamin D therapy with cholecalciferol or ergocalciferol after the baseline 25(OH)D level was drawn. A second 25(OH)D level must be documented as an increase of greater than or equal to 10 ng/mL from the lowest previous 25(OH)D level. After receiving vitamin D supplementation patients must have been reinitiated on rosuvastatin therapy or had an increase in rosuvastatin dose or frequency attempted. Both the primary and secondary outcomes will be assessed by logistic regression analysis using Microsoft Excel software.

Results and conclusions: Results pending

Learning Objectives:

Discuss the current management of myalgias associated with statin therapy.

Describe the hypothesis for vitamin D supplementation leading to a reduction in statin associated myalgias.

Self Assessment Questions:

A common adverse effect of statin therapy is

A Pruritis
B: Diarrhea
C: Myalgia
D: QT prolongation

Vitamin D supplementation in patients with low serum vitamin D levels can lead to

A Increased energy
B Increased muscle strength and reduced falls
C Improved kidney function
D Improved memory and concentration

Q1 Answer: C Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-574 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

IMPLEMENTATION OF PHARMACIST INITIATED GERIATRIC DE-PRESCRIBING

Lauren Sledjeski, Pharm.D.*; Mark Cox, Pharm.D., BCPS; Karen Kirschbaum, Pharm.D., BCPS; Carolyn Chou, Pharm.D.; Demetra Antimisiaris, Pharm.D., BCPS, CGP

University of Louisville Hospital,530 South Jackson St,Louisville,KY,40202

lauresle@ulh.org

Purpose

Polypharmacy is becoming an emergent problem in the elderly population. This is due mainly to the increased incidence of disease states and comorbidities acquired by this age group as a natural part of the aging process and progressive worsening of other conditions diagnosed earlier in life. In order to help avoid inappropriate geriatric prescribing, screening tools have been developed to alert healthcare providers of medications that may not be appropriate to use in this population. One such tool, the Screening Tool of Older Persons potentially inappropriate Prescriptions (STOPP) criteria has emerged as an updated replacement for the Beers Criteria. The purpose of this study is to determine the physician acceptance rates of de-prescribing recommendations made by pharmacists of six select regimens from the STOPP criteria.

Methods

Prior to commencement, this study was submitted to the Institutional Review Board for approval. This study is a retrospective chart review taking place at an academic hospital. The primary endpoint of this study is the number of pharmacist de-prescribing recommendations accepted by physicians as compared to the total number of pharmacist recommendations presented. Secondary endpoints include identification of the most common recommendations made, age stratification of patients who necessitated intervention, and percentage of recommendation acceptance by service. Patients will be selected for inclusion if admitted to the hospital between January 2012 and March 2012, are 65 years of age or older and had a minimum length of stay of three days. Pharmacists will identify patients that qualify for de-prescribing based on six of the STOPP criteria. After recommendations are made in favor of de-prescribing, a retrospective review will be completed to determine the rate and qualitative aspects of physician acceptance of recommendations made.

Results

Pending completion of data collection

Conclusions

To be presented at Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Explain why polypharmacy is becoming a significant problem in the elderly population.

Describe current screening tools to help health care providers identify potentially inappropriate medications in the elderly.

Self Assessment Questions:

Which of the following is not a concern in polypharmacy with elderly patients?

A Increased drug-drug interactions

B: Increased drug-disease interactions

C: Increased drug metabolism and reduced drug accumulation

D: Decreased drug doses to achieve similar effects

Which screening tool is most applicable to current practice?

A Improving Prescribing in the Elderly Tool (IPET)

B French Consensus Panel list

C Australian Prescribing Indicators Tool

D Screening Tool of Older Persons' potentially inappropriate Prescrip

Q1 Answer: C Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-575 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

TRANSITIONING OF CARE INITIATIVE FOCUSING ON PREVENTING READMISSION IN AN UNINSURED URBAN POPULATION

Zachary R. Smith, Pharm.D.*, Nadia Z. Haque, Pharm.D., BCPS, James S. Kalus, Pharm.D., BCPS (AQ-CV)

Henry Ford Health System,2799 West Grand Blvd,Detroit,MI,482022608

zsmith1@hfhs.org

Purpose:

Clinicians focus on preventing hospital readmission by targeting interventions at conditions frequently described in the literature: heart failure, COPD and infections. However, little is known about the demographic characteristics and conditions causing readmission in the uninsured. Extrapolating literature from elderly populations may not accurately describe the needs of the uninsured. Aims of this study are to compare demographic characteristics and conditions affecting the readmitted uninsured and insured populations at a large, urban, tertiary teaching hospital. From this retrospective data, an intervention will be developed to target the uninsured to prevent readmission.

Methods:

Patients will be identified from 7/1/2010 - 6/30/2011 that are between the ages of 18-64 with a financial code for no insurance or insurance provider affiliated with the health system. Data collected will include age, race, zip code, admission date, discharge date, 30 day hospital admission or ER visit. From the readmitted uninsured population, 100 patients will randomly be selected. Reason for index hospitalization and ER or hospital readmission will be described in this group. The intervention developed is based on a previously described initiative focusing on disease state red flags, medication reconciliation and transfer of care to provider. Uninsured patients admitted to a medicine floor, with a length of stay > 24 hours will be included. The intervention will include a visit with a pharmacist focusing on standardized information on the patients condition, pharmacotherapy, and information about the underserved clinic. Patients will be educated on symptoms signifying a worsening in condition and when to seek medical attention. A summary will be placed in the patients electronic medical record that will summarize the interaction for the underserved clinic physicians to review. Three to five days after discharge, patients will be contacted to reinforce education and to make sure the condition is improving and to answer any questions.

Learning Objectives:

Describe the demographic characteristics and most frequent reason for health care resource utilization in an uninsured urban population.

Discuss discharge planning strategies that have been shown to be effective at preventing hospital readmission and apply them to an uninsured population.

Self Assessment Questions:

Which of the following conditions was most frequently a cause of readmission in the uninsured population in Detroit, Michigan?

A Heart failure

B: Diabetes mellitus

C: Chronic obstructive pulmonary disease

D: Hypertension

What discharge planning strategies have been consistently shown to decrease hospital resource utilization?

A Medication reconciliation and patient disease state education

B Facilitating outpatient follow-up visits and communicating care pla

C Communicating with patients after discharge to reinforce treatment

D A transitioning of care plan that includes all of the above and is tail

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-577 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

IMPACT OF RENAL FUNCTION ON THE INCIDENCE OF HYPOCALCEMIA IN PATIENTS WITH BONE METASTASES FROM SOLID TUMORS TREATED WITH DENOSUMAB FOR THE PREVENTION OF SKELETAL-RELATED EVENTS

*Michael Smith, PharmD; Sherry Vogt, PharmD, BCOP; Mike Berger, PharmD, BCOP; Niesha Griffith, RPh, MS, FASHP; J. Paul Monk III, MD; Amy Lehman, MAS

The Ohio State University Medical Center,410 West 10th Ave,Room 368 Doan Hall,Columbus,OH,43210

Michael.Smith2@osumc.edu

Purpose: Bone metastases are a frequent complication of solid cancers including breast, prostate, and lung cancers. Control of these complications is clinically important, because they cause skeletal-related events, including pathological fractures that impair quality of life, shorten survival, and increase healthcare costs. Denosumab is a human IgG2 monoclonal antibody that binds human RANKL, which inhibits osteoclast activity. It was approved by the FDA for the prevention of skeletal-related events in patients with bone metastases from solid tumors in November 2010. Hypocalcemia is an adverse effect known to be caused by denosumab, but the risk of hypocalcemia at the recommended dosing schedule of 120 mg every four weeks has not been compared between patients with varying degrees of renal function.

Methods: Retrospective data will be collected for patients with bone metastases from a primary solid tumor who have been treated with at least one dose of denosumab for the prevention of skeletal-related events. All patients receiving the medication for this purpose will be included, regardless of previous bisphosphonate usage or prior skeletal-related events. The study population will be stratified into two groups according to renal function, based upon creatinine clearance of greater than or less than 60 mL/min using the Cockroft-Gault equation. The incidence of hypocalcemia will be compared between the two groups.

Results/conclusions: Results and conclusions are pending and will be presented at a later date.

Learning Objectives:

Identify approved indications and uses for the RANK ligand inhibitor denosumab

Describe denosumab dosing and anticipated adverse effects in the setting of renal dysfunction

Self Assessment Questions:

Denosumab is approved by the FDA for which of the following indications?

A Prevention of skeletal-related events from hematological malignan
B: Prevention of skeletal-related events from solid tumors with bone n
C: Prevention of skeletal-related events associated with multiple myel
D: Treatment of symptomatic hypercalcemia

According to the medication package insert, when used for the prevention of skeletal-related events associated with bone metastases, which of the following creatinine clearance thresholds is the minim

A 60 mL/min
B 30 mL/min
C 20 mL/min
D No required dose reduction

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-576 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

THE ANCHORING AND ADJUSTMENT HEURISTIC IN MEDICATION PRESCRIBING

Thomas L. Smoot Pharm.D.*, Megan Winegardner Pharm.D., James Kalus Pharm.D., BCPS AQCV

Henry Ford Health System,2044 Ridgemont Road,Grosse Pointe Woods,MI,48236

tsmoot1@hfhs.org

Purpose:
The objective of this study is to evaluate the effect of the anchoring and adjustment heuristic on medication prescribing in a hospital setting. The anchoring and adjustment heuristic is a psychological theory that attempts to describe how people make decisions under conditions of uncertainty. When given a reference value, people will adjust a predictable amount from that value, especially when uncertain of the correct answer. Currently there is no published literature assessing the impact of this theory on medication prescribing. However, given the published studies, our hypothesis is that physicians will also be affected by this principle.

Methods:
Prior to commencement, this study will be approved by the Institutional Review Board. Once approved, medical residents will be recruited and divided into 3 groups and each group will be provided with an identical written patient case, involving pain management. The residents will be asked to provide a dose for two medications, hydromorphone and a fictitious drug isomorphone. Each group will be provided a different "anchor" for the medications in the patient case: group 1 will receive a minimum dose value, group 2 will receive a maximum dose value and group 3 will receive a dosing range. The mean distance between the anchor and the dose written will be calculated for each medication and compared between groups. With recruitment of 30 physicians 97% power to detect at the 0.050 level a difference in means characterized by a Variance of means of 0.167.

Results:
Results and conclusions will be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Describe the anchoring and adjustment heuristic.

Explain how the anchoring and adjustment heuristic could affect medication prescribing in a hospital setting.

Self Assessment Questions:

When provided an anchor under circumstances of uncertainty, adjustment from that anchor is usually:

A Insufficient
B: Excessive
C: Accurate
D: Proportional

Heuristic principles are:

A Time Consuming
B Susceptible to bias
C Rarely used in daily activities
D Not applicable to the practice of medicine

Q1 Answer: A Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-832 -L05-P

Activity Type: Knowledge-based Contact Hours: 0.5

POST CARDIAC ARREST THERAPEUTIC HYPOTHERMIA WITHOUT NEUROMUSCULAR BLOCKADE VS. CONTINUOUS OR INTERMITTENT NEUROMUSCULAR BLOCKADE

John D. Snider, PharmD* Heather M. Bockheim, PharmD, Wendy L. Thomas, PharmD, Melissa M. VandenBerg, PharmD.

Spectrum Health,100 Michigan St. NE,Grand Rapids,MI,49503

john.snider@spectrumhealth.org

Purpose:
There is limited evidence surrounding the utilization of neuromuscular blocking agents (NMBA) during therapeutic hypothermia. The objective of this study is to compare time to goal temperature among three groups: continuous infusion NMBA, intermittent NMBA and no NMBA to prevent shivering during therapeutic hypothermia post cardiac arrest. We also sought to examine their effect on neurologic outcome and ICU complications.

Methods:
We performed a retrospective cohort study including adult patients undergoing therapeutic hypothermia post cardiac arrest. Patients were excluded for downtime > 30 minutes, evidence of cardiogenic shock, hypotension, hypoxia, uncontrolled bleeding, temperature < 30C on admission, pregnancy and prisoner status. A comparison of response to hypothermia was performed between groups, with respect to time to reach < 34C, time to discharge, ICU complications related to study medications, and neurologic outcome determined by survival to hospital discharge with sufficiently good neurologic function to be sent home or to a rehabilitation facility.

Results:
To date, 45 patients were reviewed. Fifteen patients with similar baseline demographics (p>0.05) met inclusion criteria. Precipitating arrhythmias included: ventricular fibrillation 53%, ventricular tachycardia 6.7%, pulseless electrical activity 33.3%, and asystole 6.7%. The median downtime was 15 (4-27) minutes. Five (33%) received no NMBA and 10 (66.7%) received NMBA. Of those that received NMBA, 4 received continuous infusions and 6 received intermittent dosing. Comparing no NMBA vs. received NMBA there was no difference in time to < 34C (6.2 vs. 5.7 hours, p=0.724). Incidence of ICU complications (5 vs. 6, p=0.231) between the groups was similar and there was no difference in good (2 vs. 2, p=0.56) compared to bad (3 vs. 8, p=0.56) neurological outcomes.

Conclusions:
The use of NMBA in therapeutic hypothermia post cardiac arrest had no effect on time to goal temperature, ICU complications, or neurologic outcomes.

Learning Objectives:

List two side effects of neuromuscular blocking agents.

Explain the reason why neuromuscular blocking agents are sometimes used in therapeutic hypothermia post cardiac arrest.

Self Assessment Questions:

What is the major cause of morbidity and mortality after return of spontaneous circulation post cardiac arrest?

A Infection
B: Sepsis
C: Anoxic brain injury
D: Respiratory failure

Neuromuscular blocking agents are used in therapeutic hypothermia to prevent?

A Hyperventilation
B Volume overload
C Shivering
D Aspiration

Q1 Answer: C Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-578 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

IMPLEMENTATION AND EVALUATION OF A PRIMARY CARE PHARMACIST ROLE AT UW HEALTH

Erick Sokn, PharmD, Michelle Thoma, RPh, PharmD, Steve Rough, MS, RPh

University of Wisconsin Hospital and Clinics,2892 Mickelson Parkway,Apt 108,Fitchburg,WI,53711

esokn@uwhealth.org

Purpose:
The purpose of this project is to coordinate the implementation of primary care pharmacy services and evaluate the impact of the role on outpatient medication reconciliation, polypharmacy, and patients access to care.

Methods:
A literature review was conducted to assess the current level of evidence supporting pharmacist involvement in primary care, and to aid in determining appropriate outcome measures for evaluation. Criteria for identification of patients for profile review by the pharmacist were developed in collaboration with an interdisciplinary steering committee and were applied to patients recently discharged from the University of Wisconsin Hospital. Physician-initiated referral processes were developed. Pharmacists reviewed medical profiles of identified patients, conducted telephone interviews with patients, and provided therapy recommendations to primary care physicians. Specific measures assessed include descriptive statistics (such as the number of patients reviewed, types and frequencies of pharmacist recommendations, etc), pill burden, self-reported medication adherence, and medication reconciliation corrections.

Results:
Results will be presented at the Great Lakes Pharmacy Residency Conference.

Conclusions:
Conclusions will be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Review current evidence surrounding a need for pharmacist involvement in primary care.

Discuss the activities and impact a primary care pharmacist can have on patient care, especially in transitional care phases.

Self Assessment Questions:

Opportunities for increased pharmacist involvement in primary care stem from all of the following except:

A Primary care physician shortages
B: Well-documented improvements in clinical and economic outcome
C: Increasing focus on outcome-driven reimbursement
D: Pharmacist recognition as providers, allowing direct billing for med

Pharmacist involvement in primary care has been noted to produce which of the following:

A Increased medication costs and decreased hospital readmission ra
B Increased polypharmacy
C Decreased medication costs and increased hospital readmission ra
D Decreased patient satisfaction

Q1 Answer: D Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-762 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

CLOSING THE SAFETY GAP: IMPLICATIONS OF MANAGING DIABETIC KETOACIDOSIS WITHOUT AN INSULIN DRIP PROTOCOL AND MANAGEMENT PATHWAY

Sarah Sokol*, PharmD; Nishil Patel, PharmD,BCPS; Edward Gutierrez, RN, CEN; Linda Druelinger, MD

University of Chicago Medical Center,5841 S. Maryland Ave,Chicago,IL,60637

sarah.sokol@uchospitals.edu

Purpose: The Institute of Safe Medication Practices (ISMP) reports that insulin is frequently associated with preventable adverse drug events in the hospital setting. In conjunction with aggressive fluid administration and electrolyte repletion, insulin infusion is used for the treatment of diabetic ketoacidosis (DKA). Several studies have demonstrated that utilization of a standardized order set to guide DKA therapy is safe, effective, and can decrease length of hospitalization. The American Society of Health Systems Pharmacists and ISMP have established patient safety initiatives to assist in the prevention of insulin related adverse drug events. The University of Chicago Medical Center (UCMC) has order sets established for the treatment of hyperglycemia, but does not have specific titration parameters for DKA in the emergency department or intensive care unit. Due to the complex patient population seen at UCMC, an all-encompassing order set may deter physicians from its use because it may not be applicable to every patient. The purpose of this study is to characterize the management of DKA at UCMC and develop an institutional clinical pathway for DKA.

Methods: The population for this retrospective study includes patients with a primary diagnosis of DKA admitted to the emergency room, intensive care, or general medicine units from January 1, 2010 to October 30, 2011. During this time frame 191 patient admissions were attributed to DKA. Relevant data points will be collected through the electronic medical records to characterize practice trends at UCMC and identify opportunities for cost and process improvement. Primary endpoints include the incidence of hypoglycemia, time to DKA resolution, and length of stay. Nominal data will be analyzed using the chi square test and continuous data by the student t-test.

Results: To be presented

Conclusion: To be presented

Learning Objectives:

Recognize benefits of DKA order set utilization

Define the goals of therapy for a patient with diabetic ketoacidosis

Self Assessment Questions:

Utilization of a DKA order set

A Has shown to decrease mortality

B: Demonstrated a decreased length of stay

C: Demonstrated improvement in adherence to appropriate therapy

D: B and C

What are the goals of therapy of DKA?

A correct dehydration

B correct metabolic abnormalities

C normalize blood glucose

D all of the above

Q1 Answer: D Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-580 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EFFECT OF A URINARY TRACT INFECTION STEWARDSHIP PROGRAM IN AN EMERGENCY DEPARTMENT

Andrea H. Son, Pharm.D*; Nina Naeger Murphy, Pharm.D.BCPS; Clinton Fox; Michelle Hecker, M.D.

MetroHealth Medical Center,2500 MetroHealth Drive,Cleveland,OH,44109

ason@metrohealth.org

Purpose: Urinary tract infections (UTIs) are one of the leading causes of emergency department (ED) visits in the United States. The ED at MetroHealth Medical Center averages 100,000 visits annually during which approximately 120 patients per month are diagnosed with uncomplicated cystitis and uncomplicated pyelonephritis. On December 30, 2010, MetroHealth Medical Center implemented an electronic UTI order set in the ED to increase adherence to the Infectious Diseases Society of America (IDSA) 2010 practice guidelines for antimicrobial treatment of acute uncomplicated cystitis and pyelonephritis in women. Preliminary results showed that the percentage of patients receiving ciprofloxacin decreased from 53 to 20% and adherence to the IDSA guidelines increased from 41 to 75%. However, a number of patients were either found to have an alternative diagnosis or did not meet study criteria for cystitis and pyelonephritis. The primary objectives of this study are to (1) determine if a UTI stewardship intervention will improve the appropriateness of treatment for uncomplicated UTIs and to (2) reduce antimicrobial therapy for conditions not meeting study definitions for uncomplicated cystitis and pyelonephritis. The secondary objective is to assess the compliance rate to the previous ED UTI order set.

Methodology: This study was approved by Institutional Review Board. Study population will include women ages 18 - 65 years. A retrospective chart review will be conducted to collect baseline data during the 4-8 weeks prior to the intervention (100 cases). The intervention will occur over an 8 week time period Post-intervention data will be collected during the 4-8 weeks after the intervention (100 cases). Data collected will include demographic information, laboratory test results, past medical history, documented signs and symptoms, prescribed antibiotic therapy, and adverse events. Appropriateness of UTI testing and treatment will be determined.

Results: To be presented at the Great Lakes Pharmacy Resident Conference

Learning Objectives:

List the A-1 recommended antibiotic therapies for treatment of acute uncomplicated cystitis and pyelonephritis in women based on Infectious Diseases Society of America (IDSA) 2010 practice guidelines

State the classic signs and symptoms of uncomplicated cystitis and pyelonephritis

Self Assessment Questions:

Which of the following is a first line treatment for uncomplicated cystitis based on the IDSA guidelines?

A 5 days of ciprofloxacin

B: 5 days of nitrofurantoin

C: 5 days of sulfamethoxazole/trimethoprim

D: 5 doses of fosfomycin

Which of the following is a classic sign/ symptom of pyelonephritis

A Suprapubic pain

B Abdominal pain

C Flank pain

D Dysuria

Q1 Answer: B Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-581 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

STANDARDIZATION AND IMPLEMENTATION OF HOSPITAL PHARMACIST ROUNDING AND EVALUATING ITS IMPACT ON THE HOSPITAL CONSUMER ASSESSMENT OF HEALTHCARE PROVIDERS AND SYSTEMS SURVEY SCORES

Monica Sopiarz, PharmD*

Columbus Regional Hospital,2400 East 17th St.,Columbus,IN,47201

msopiarz@crh.org

Purpose: Patient satisfaction is an important component of how quality of care is measured by hospitals as well as the Centers for Medicare and Medicaid Services. To measure this, the Hospital Consumer Assessment of Healthcare Providers and Systems survey is utilized. Currently, the results of the survey must be reported to CMS in order to receive Medicare reimbursement. Starting in 2013, reimbursement will be based on performance.

Methods: Initially, clinical pharmacists at Columbus Regional Hospital in Columbus, IN educated patients in addition to their clinical duties. A standardized key-word script was developed & implemented for pharmacist-patient medication education encounters. A new model was then implemented with an additional pharmacist scheduled daily Monday Friday to provide new medication education for the entire shift. Pharmacists documented each session providing patient identification, inpatient unit, time spent, medications discussed, educational issues identified, and the need for follow-up. The goal was to establish a standardized method to provide these educations in order to redistribute this responsibility back to the clinical pharmacists. Once the standardized process was finalized, the number of unit based pharmacists was expanded, the workload was redistributed and the new patient rounding service was integrated into the daily work of the unit based pharmacists.

Results: Prior to implementing pharmacist rounding, using the date of discharge, the percent who responded "always" in the communication about medication scores was 43% and 51% in May and June, respectively. 56% and 54% was seen in August and September, respectively, which reflects the months where one pharmacist provided new medication education for the entire shift. The scores seen with the rounding as part of the unit based clinical workload has been 63% in October, 54% in November, and 62% in December.

Conclusion: Implementing hospital pharmacist rounding improved the HCAHPS scores in the communication about medication domain.

Learning Objectives:

Explain the purpose behind the Hospital Consumer Assessment of Healthcare Providers and Systems survey questions as it is related to the communication about medications.

State the methods that are utilized by pharmacists when providing the hospital pharmacist rounding service.

Self Assessment Questions:

What does the Hospital Consumer Assessment of Healthcare Providers and Systems survey medication domain questions focus on?

A Communication about the use and most common side effects of th

B: Dosages of the new medications

C: Providing the new medication information to the patient anytime du

D: Required new medication education to the patient and their family

What is the requirement for a medication to be considered "new" to the patient at Columbus Regional Hospital?

A Formulary substitution medication

B Restarting a home medication that the patient has stated he/she is

C A completely new medication that was prescribed and started while

D A completely new medication that was prescribed and started while

Q1 Answer: A Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-763 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

THE IMPLEMENTATION OF AN EMERGENCY DEPARTMENT PROTOCOL FOR PATIENTS DIAGNOSED WITH A STEMI

Brian T Spoelhof, PharmD* and Lori L Wetmore,PharmD, BCPS

Indiana University Health,8014,APT 20,India,IN,46260

bspoelhof@iuhealth.org

Background: Currently, guidelines for patients undergoing primary percutaneous intervention (PCI) after being diagnosed with a ST segment elevation myocardial infarction recommends the use of a GP IIb/IIIa inhibitor plus heparin or the direct thrombin inhibitor bivalirudin. Recent clinical trials have suggested that bivalirudin may provide similar efficacy and a lower risk of bleeding.

Purpose: To demonstrate whether the use of bivalirudin offers a safe and cost-effective alternative to eptifibatide and heparin for patients undergoing primary PCI

Methods: This two phase study looked at all patients who underwent primary PCI following a ST-elevation myocardial infarction (STEMI) at IU Health Arnett hospital, and compared the use of the combination of eptifibatide and heparin with bivalirudin. A new order set was developed that included bivalirudin as the primary anticoagulant used prior to PCI. Furthermore, restrictions on IV beta blockers use was implemented. Prior to implementation the protocol was approved by the STEMI and Emergency Department committees. To be included, patients must gave been admitted through the emergency department and undergone primary PCI for a STEMI. Patients presenting greater than 12 hours from the onset symptoms were not included. Patients who were treated with eptifibatide and heparin prior to the new protocol implementation were included in the retrospective analysis, and patients treated with bivalirudin after protocol implementation will be included in the prospective analysis. The primary endpoint is rates of major and minor bleeding as defined by the Thrombosis in Myocardial Infarction (TIMI) study group. Furthermore, time of door-to-PCI, length of stay, and drug cost will be evaluated as secondary endpoints.

Results: The results will be reported during the Great Lakes Pharmacy Residency Conference

Learning Objectives:

Describe the role of bivalirudin in the treatment of ST-segment elevation myocardial infarction.

Review the safety and efficacy profile of bivalirudin with compared to GP IIb/IIIa inhibitors plus heparin.

Self Assessment Questions:

What is the role of bivalirudin in the treatment of ST-segment elevation myocardial infarction?

A Bivalirudin is primarily used during PCI

B: Bivalirudin is primarily used after PCI

C: Bivalirudin is primarily used during and after PCI

D: There is no role for bivalirudin

The HORIZONS-AMI trial demonstrated that bivalirudin compared to GP IIb/IIIa inhibitors plus heparin:

A Is associated with a lower risk of major bleeding

B Is associated with a higher risk of Net Adverse Clinical Events

C Is no different

D Reduces cardiovascular mortality

Q1 Answer: A Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-582 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

ASSOCIATION OF DIABETES MELLITUS & HYPERLIPIDEMIA WITH THE USE OF OLANZAPINE VERSUS HALOPERIDOL

Rachel A. Springer PharmD*, Stanley Erk Ph.D, Stella Nwokoro PharmD
Dayton VA Medical Center,9595 Saddlebrook Lane,Apt 2C,Miamisburg,OH,453426137
Rachel.Springer@va.gov

Previous research has documented that in addition to psychiatric barriers, patients diagnosed with schizophrenia are at a higher risk than the general population of developing metabolic abnormalities. Considering the serious metabolic effects of atypical antipsychotics, the current APA/ADA Metabolic Monitoring Guidelines and the implementation of Veterans Integrated Service Network (VISN) 10 monitoring parameters, it is important to evaluate if appropriate monitoring and treatment are being conducted. This study will determine the prevalence of development of diabetes mellitus and hyperlipidemia with the treatment of olanzapine versus haloperidol in schizophrenia patients, and to determine if appropriate metabolic monitoring guidelines are being followed.

A retrospective study will be conducted using the Dayton Veterans Affairs Medical Center database. Patients with a diagnosis of schizophrenia who are prescribed olanzapine or haloperidol from January 1, 2009 to January 1, 2011 will be evaluated for inclusion. Patients were included in the study if they received olanzapine or haloperidol for at least 3 months of treatment during the study period. The date of the first prescription for either medication will be considered the patients baseline date. Patients will be excluded for receiving an atypical antipsychotic prescription within 6 months prior to study baseline, a hemoglobin A1c > 6.5% or diagnosis of diabetes mellitus prior to study baseline, a diagnosis of hyperlipidemia, and receiving less than 3 months of treatment of olanzapine or haloperidol. During the study diabetes and hyperlipidemia will be identified by either diagnosis o International Classification of Diseases or by prescriptions for diabetic and hyperlipidemia medications. Monitoring parameters including hemoglobin A1c and or fasting plasma glucose (FPG) and a fasting lipid panel to be done at baseline and 12 weeks for both disease states. Hemoglobin A1c and or FPG are to be conducted annually.

Learning Objectives:

Define the relationship in the development of diabetes and hyperlipidemia in patients with schizophrenia at the Dayton VA Medical Center.

Identify the results of the study to develop a better monitoring system for patients with schizophrenia.

Self Assessment Questions:

Currently there are metabolic monitoring parameters for patients on atypical antipsychotics set forth by:

A American Diabetes Association (ADA)
B: American Psychiatric Association (APA)
C: Both the American Diabetes Association (ADA) and American Psy
D: None of the above

Metabolic parameters affected by atypical antipsychotics include the following:

A Hyperlipidemia
B Increased plasma glucose
C Increased weight
D All the above

Q1 Answer: C Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-583 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

MULTIDOSE MEDICATION DISPENSING FOR DISCHARGE

John A. Stansbury* Pharm.D., Jackie Kessler MS, FASHP
Advocate Lutheran General Hospital,1775 Dempster Street,Park Ridge,IL,600681174
John.Stansbury@advocatehealth.com

Background
Multidose medications are packaged in containers that provide multiple doses such as inhalers, nasal sprays, ophthalmic or otic preparations, and topical medications. Patients are frequently started on multidose medication as an inpatient in the hospital and then continued on the same medication at home. Medications dispensed for use by patients on an outpatient basis must meet legal requirements as to proper labeling and opportunity for counseling, which is why the current practice for most inpatient settings is to return all medications to the pharmacy for disposal. Patients must then obtain these medications from their pharmacy following discharge. Multidose medication dispensing for discharge (MMDD) is the process of relabeling inpatient multidose medications for use as an outpatient after hospital discharge.

Purpose
This study is being conducted to assess the feasibility of implementing a multidose medication dispensing for discharge (MMDD) program at Advocate Lutheran General Hospital.

Methods
This study is a descriptive pilot study to evaluate the feasibility of a MMDD program at Lutheran General Hospital. The pilot was conducted over a one month period. Patients were identified at the time of discharge as qualifying for the study if they were being continued on a multidose medication for home use. The pharmacist relabeled the multidose medications for outpatient use, and then counseled the patient prior to discharge. A follow-up phone survey was conducted 24 hours after discharge to assess patient satisfaction with the process. Outcomes measures included cost savings from reduced pharmaceutical waste, cost savings to the patient and third-party payers, hospital personnel costs, and patient satisfaction with the program.

Results and conclusions are pending.

Learning Objectives:

Identify 3 potential benefits of implementing a multidose medication dispensing for discharge program.

Describe the roles of the members that would comprise a multidisciplinary team for a multidose medication dispensing for discharge program.

Self Assessment Questions:

Which of the following is a potential benefit of a multidose medication dispensing for discharge program?

A Decrease in patient hospital costs.
B: Increase in patient satisfaction.
C: Decrease in hospital personnel cost.
D: Increase in hospital administrative costs.

The role of nursing on the multidisciplinary team of the multidose medication dispensing for discharge program involves:

A Relabeling the multidose medications prior to discharge.
B Writing discharge prescriptions for patients.
C Disposing of multidose medications that do not qualify to be disper
D Identifying patients who qualify for the multidose medication disper

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-764 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

LOW DOSE DOPAMINE EFFECTS ON RENAL FUNCTION POST ORTHOTOPIC LIVER TRANSPLANTATION

Kaitlin Starosta*, Michael Peters, James Fleming, James S. Kalus
Henry Ford Health System,2799 W. Grand Blvd,Detroit,MI,48021
kstaros1@hfhs.org

Purpose:
The purpose of this study is to evaluate low dose dopamine infusions on urine output, need for renal replacement therapy (RRT), and the incidence of cardiac toxicities after orthotopic liver transplantation (OLT).

Background:
Dopamine is an endogenous hormone which can stimulate various receptors throughout the body to elicit different responses on the renal and cardiovascular system. At low doses (1-3 mcg/kg/min), dopamine activates dopamine-1 receptors in the renal vasculature, which can cause vasodilation, increased renal blood flow and glomerular filtration rates (GFR), and potentially increases urine output. Current literature doesnt support the use of low dose dopamine for the improvement of urine output in critical care patients, although its extensively used post-operatively to improve renal function in OLT recipients. Currently, there is insufficient evidence to support the use of low dose dopamine after OLT.

Methods:
This is a retrospective cohort study and has been approved by the Institutional Review Board. Patients are included if theyre over the age o 18 years and received an OLT from July 2006 until present. The low dose dopamine cohort requires the above criteria plus the dopamine infusion dose is less than or equal to 3 mcg/kg/minute and started either intraoperatively or within 24 hours post OLT. Patients will be excluded if they were enrolled in a clinical trial for immunosuppressant therapy, received a kidney-liver transplant, or received any dose escalations of dopamine infusions. Patients will be matched based on age, MELD score, baseline serum creatinine, and red blood cell transfusions intraoperatively. The primary outcome is total urine output 24 hours after dopamine initiation or OLT. The secondary outcomes include the need for RRT, estimated creatinine clearance and estimated GFR within 7 or 30 days post OLT, and development of tachyarrythmias after dopamine infusion initiation.

Results:
Results and conclusions will be presented at Great Lakes Pharmacy Residence Conference.

Learning Objectives:

Review the pharmacology and literature surrounding low dose dopamine infusions on renal function in critical care and liver transplant patients

Define the role for low dose dopamine infusions on renal function after an orthotopic liver transplant

Self Assessment Questions:

Which of the following is postulated as an effect of low dose dopamine (1 to 3 mcg/kg/minute) on renal function

A Increased peripheral vasoconstriction
B: Increased renal blood flow and urine output
C: Increased systemic vasculature resistance (SVR) and cardiac outp
D: Decreased glomerular filtration rate (GFR)

Which of the following is true regarding the use of low dose dopamine after liver transplant:

A There is overwhelming evidence to support improved renal functio
B The literature supporting low dose dopamine was completed in kid
C OR course and the use of nephrotoxic agents will impact patient's
D All of the above

Q1 Answer: B Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-584 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF QUETIAPINE IN THE TREATMENT OF DELIRIUM IN MECHANICALLY VENTILATED CRITICALLY ILL SURGICAL PATIENTS: A RETROSPECTIVE CASE-CONTROLLED STUDY

Madeline J. Stephens PharmD*, Neil E. Ernst PharmD, Eric W. Mueller PharmD; UC Health - University Hospital, 324 Goodman Ave. ML 0741, Cincinnati, OH, 45208
UC Health-University Hospital,234 Goodman Street,Cincinnati,OH,452192316
madeline.stephens@uchealth.com

Purpose:
Delirium in surgical critically ill ventilated patients is an independent risk factor for mortality. Current Society of Critical Care Medicine guidelines recommend using haloperidol for the treatment of delirious ICU patients. Atypical antipsychotics, specifically quetiapine, have fewer side effects compared to haloperidol. Quetiapine has demonstrated efficacy for the treatment of delirium in critically ill patients, but, data are limited by sample size and generalizability. The purpose of this study is to evaluate the effectiveness of quetiapine for the treatment of delirium in mechanically ventilated, critically ill, surgical patients. Specifically, to determine if patients who receive quetiapine spend less time in delirium, more often and more timely resolve delirium, and have fewer daily episodes of delirium than those who do not receive quetiapine.

Methods:
This single-center, retrospective, case-controlled study, includes mechanically ventilated critically ill surgical patients at UC Health - University hospital. Patients were identified using the 2009-2011 Surgica Intensive Care Unit Critical Outcomes patient tracking database. All patients who were mechanically ventilated and delirious were evaluated for inclusion in the study. Once the entire cohort of mechanically ventilated, delirious, critically ill surgical patients was identified, patients were divided into two groups: 1) those treated with quetiapine, and 2) those not treated with quetiapine. The primary outcome was to determine the number of delirium free days in the two groups. Secondary outcomes included: amount per day of other sedative, analgesic, and anti-delirium pharmacotherapy; duration of mechanical ventilation; total ICU length of stay; and final disposition. Safety was evaluated by identifying reasons for anti-delirium pharmacotherapy discontinuation, including ECG changes, movement disorders, or over-sedation. Between 29-64 patients were needed to detect a difference of three delirium free days between the two groups.

Results/Conclusions
Data are currently being reviewed, collected, and analyzed. Results will be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Describe the complications associated with delirium and list the main risk factors for delirium in critically ill patients.

Review anti-psychotic pharmacotherapy treatments in delirious critically ill patients.

Self Assessment Questions:

Of the following, which has been shown to be an independent risk factor for delirium in critically ill patients?

A ICU room with no windows
B: Lorazepam
C: Hypoglycemia
D: Age < 65

What benefit may quetiapine have compared to other atypical antipsychotic in the treatment of delirium in critically ill patients.

A Quetiapine has no antihistamine effects, a long half life allowing fo
B Quetiapine has no antihistamine effects, a short half life allowing fo
C Quetiapine has antihistamine effects, a short half life allowing for d
D Quetiapine has antihistamine effects, a long half life allowing for or

Q1 Answer: B Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-585 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

ANALYSIS OF THE RELATIONSHIP BETWEEN LITHIUM CONCENTRATIONS, SYMPTOM RESPONSE, AND COGNITIVE PERFORMANCE IN CHILDREN AND ADOLESCENTS WITH BIPOLAR DISORDER

James M. Stevenson, PharmD *; Jeffrey R. Bishop, PharmD, MS, BCPP; Jacklynn M. Fitzgerald; Meredith Wong; Mani Pavuluri, MD, PhD

University of Illinois at Chicago,Department of Pharmacy Practice (MC 886),833 South Wood Street, 164 PHARM,Chicago,IL,606127230

jmspharmd@gmail.com

Purpose: Lithium is an FDA-approved treatment for acute mania and maintenance therapy for children ages 12 and over with bipolar disorder. However, studies specifically evaluating the relationship between serum lithium concentration, efficacy, and cognitive performance in adolescents are lacking. This study will assess the impact of lithium treatment on cognitive performance and clinical response, and determine if these effects are related to lithium concentrations.

Methods: The institutional review board approved this 8-week open-label, outpatient study. Medically-healthy subjects aged 8-18 years experiencing a manic or mixed episode are eligible. Subjects with additional major DSM-IV axis I diagnoses are excluded. Subjects are initially treated with lithium carbonate 300 mg twice daily. Dose is increased based on response and adverse drug events. Dose escalation is stopped if a) the subject meets pre-determined criteria for clinical response, b) side effects significantly impair the subjects functioning, or c) the serum lithium level is >1.2 mEq/L. Clinical response is defined by a decrease of at least 50% on the Young Mania Rating Scale (YMRS), and symptomatic remission is defined as a score of 12 or less on the YMRS. Cognitive changes are measured by performance on the California Verbal Learning Test to evaluate verbal learning and memory, and the Trails B portion of the Halstead-Reitan Neuropsychological Battery as a marker of judgment and problem-solving. Differences between 8-week and baseline cognitive tests will be analyzed by repeated-measures analysis of variance using matched untreated healthy controls receiving testing in parallel to assess practice effects. Receiver operating characteristic curves for clinical response and remission will be used to identify threshold lithium levels at which response or remission could be predicted in this study sample.

Results and conclusions: Enrollment is ongoing. Results and conclusions will be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Explain the similarities and differences between adult and pediatric bipolar disorder.

Describe the role of therapeutic drug monitoring during lithium treatment.

Self Assessment Questions:

Which of the following is an appropriate target lithium trough concentration for an acutely manic adult?

A 0.3-0.8 mEq/L
B: 0.9-1.4 mEq/L
C: 1.5-2.0 mEq/L
D: 2.1-2.6 mEq/L

Which of the following is a common adverse event during lithium treatment?

A Muscle pain
B Ototoxicity
C Tremor
D Hyperglycemia

Q1 Answer: B Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-586 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

STUDENT PERCEPTION AND SATISFACTION WITH THE IMPLEMENTATION OF TEAM-BASED LEARNING IN A LANDMARK TRIALS ELECTIVE COURSE

Jill S. Borchert, Pharm.D., BCPS, FCCP; Christina P Stier, Pharm.D., PGY1 Pharmacy Practice Resident

Midwestern University,555 31st Street,Downers Grove,IL,60515

cstier@midwestern.edu

Purpose: Team-based learning (TBL) is a form of active learning that integrates smalls groups of students working together to complete an assignment. The purpose of this study is to evaluate students perceptions and satisfaction with the implementation of TBL, and to compare student self-reported classroom engagement with TBL versus non TBL class sessions.

Methods: This was a prospective study over one quarter throughout the fall semester. TBL was piloted in an elective course entitled "Landmark Trials in Primary Care." First, students were organized into permanent groups. Each TBL class began with an individual readiness assurance test where students individually took an in-class test based on course pre-readings. Next, students turned in their answers and retook the same test as a team. Lastly, the instructor provided a brief review of pre class reading assignments. Descriptive statistics were used to report results for items on the post-course survey that did not appear on the pre-course survey. Wilcoxon Signed-rank will be used to compare the matched results on the pre- and post-course survey for identical questions and to compare the student engagement survey results for TBL sessions and non TBL sessions.

Results: Seventeen students enrolled in the ten week course, which included two TBL sessions on weeks seven and nine. Based on the post-course survey, a greater percentage of students both agreed and strongly agreed that TBL should continue to be utilized in elective courses (60.0%) and that TBL should continue to be utilized in other required courses (60.0%). Additionally, 50% of students agreed that TBL should continue to be utilized for more than two of the nine classes in this course, and 50% of students disagreed.

Conclusions: The results of the study will help to provide implications on the possible role of TBL in pharmacy education.

Learning Objectives:

Define team-based learning

Identify the benefits of team-based learning for students and faculty

Self Assessment Questions:

Which of the following is one of the four essential principles of team-based learning?

A Lecture
B: Peer evaluations
C: Presentations
D: Groups

Which one of the following is an advantage of team-based learning implementation?

A Increased student engagement
B Lecture-based curriculum
C Pre-class work not required
D Less class work preparation for faculty

Q1 Answer: D Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-765 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

COMPARISON OF PROTHROMBIN COMPLEX CONCENTRATES AND RECOMBINANT ACTIVATED FACTOR VII FOR WARFARIN-ASSOCIATED INTRACRANIAL HEMORRHAGE: A RETROSPECTIVE CASE MATCHED STUDY

Andrew Stivers, PharmD.* Pamela Buschur, PharmD, BCPS, Lorrie Burns, PharmD.

Riverside Methodist Hospital,4124 Times Square Blvd,Dublin,OH,43016

astiver2@ohiohealth.com

Background:
Warfarin therapy is widely utilized for prevention of thromboembolic events in patients with atrial fibrillation, a history of deep vein thrombosis and pulmonary embolism, and mechanical heart valve replacement. Warfarin-related intracerebral hemorrhage occurs 8-10 times more frequently in patients receiving warfarin and imparts a significant increase in 30-day mortality. Medications utilized to correct the international normalized ratio (INR) have been shown to improve outcomes in this patient population.

Objective:
The purpose of this study is to compare the effectiveness of prothrombin complex concentrates (PCC) and activated factor VII (rFVIIa) at reducing the INR to less than 1.4. Secondary outcomes that will be measured include comparison of mortality, length of stay, evidence of worsening ICH, and improvement in Glasgow Coma Scale score. Additionally, this study will evaluate the effectiveness of the new Prothrombin Complex Concentrates for Warfarin Induced Intracranial Hemorrhage Physician Orders dosing protocol at achieving an INR <1.4.

Methodology:
A retrospective, single-center, case-matched study will be conducted at Riverside Methodist Hospital in Columbus, Ohio. All hospitalized patients initiated on the PCC between July 1, 2011 and December 31, 2011 with a confirmed ICH who were receiving warfarin therapy at the time of the event will be included. Exclusion criteria include individuals less than 18 years of age and pregnant patients. Patients will be case-matched for age, baseline INR, and admission GCS score. Case-matched patients who received recombinant activated factor VII (rFVIIa) for a confirmed ICH who were receiving warfarin therapy at the time of the event will be included as the comparator group. Patients from in the rFVIIa comparator group will included until a 2:1 (rFVIIa:PCC) case-match is complete. Specific case match groups will be defined upon completion of the PCC group data collection

Results: In progress.

Learning Objectives:

Review the risks associated with oral anticoagulation.

Discuss the role of prothrombin complex concentrates and recombinant activated factor VII for management of warfarin-related intracerebral hemorrhage.

Self Assessment Questions:

The risk of warfarin-related intracerebral hemorrhage is increased in:

A Patients with advanced age.
B: Patients with higher cumulative weekly warfarin doses.
C: Patients who develop supratherapeutic INR > 4.0.
D: A & c.

The 2010 American Stroke Association practice guidelines recommend which of the following management strategies for intracerebral hemorrhage?

A Fresh frozen plasma, IV vitamin K, and prothrombin complex conc
B Continuation of warfarin therapy for prevention of venous thromboe
C Recombinant activated factor VII as a sole agent for anticoagulatio
D A & b.

Q1 Answer: D Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-587 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

ACTIVITY OF SODIUM OXYCHLOROSENE AGAINST RESISTANT PATHOGENS AND EFFICACY IN TREATMENT OF URINARY TRACT INFECTIONS

Andrea H. Stock*, Pharm.D., Pharmacy Resident, Franciscan St. Francis Health, Indianapolis, IN; S. Christian Cheatham, Pharm.D., Infectious Disease Clinical Pharmacy Specialist, Franciscan St. Francis Health, Indianapolis, IN; Matt Wack, MD, Infectious Diseases of Indiana; Michael Kays, Pharm.D., Department of Pharmacy Practice, Purdue University College of Pharmacy and Department of Medicine, Indiana University School of Medicine, Indianapolis, IN; Megan R. Fleming, Pharm.D., Methodist Dallas

St. Francis Hospital,8111 S. Emerson Ave,Indianapolis,IN,46237

andrea.stock@franciscanalliance.org

Statement of purpose: The microbiological goal of this study is to determine the efficacy of different concentrations of sodium oxychlorosene against isolates of drug-resistant organisms. The clinical goal of this study is to determine the efficacy of a 0.2% sodium oxychlorosene regimen twice daily for three days at certain times throughout the treatment course.

Statement of methods: For the microbiological portion of this study, 50-100 isolates will be retained for five different resistant organisms including Pseudomonas aeruginosa, Extended Spectrum Beta-Lactamase producing organisms (ESBLs), Klebsiella Pneumonia Carbapenemases (KPCs), Vancomycin resistant Enterococcus (VRE), and Candida spp. The isolates will be tested at different inoculums of 10^5 and 10^7 and will be subjected to different concentrations of sodium oxychlorosene, including 0.025%, 0.05%, 0.1%, 0.2%, 0.4%, and 0.8%. Once the minimum effective concentration is determined for the isolates, a time-kill study will be designed to assess the efficacy of the drug at different time points for the various organisms. For the clinical portion of the study, patients may be enrolled once their provider has prescribed a treatment regimen of sodium oxychlorosene 0.2% twice daily for three days for treatment of urinary tract infection. Urinalysis and urine cultures will be collected on patients before the first treatment with sodium oxychlorosene. Subsequent urinalysis and urine cultures will be collected after the first treatment on Day 1, after the second treatment on Day 2, after the second treatment on Day 3, and at time of discharge from the hospital or 3 days after the last treatment, whichever is sooner. Urinalysis and urine cultures from study patients will be analyzed by the investigators to determine efficacy of the sodium oxychlorosene regimen at different time points throughout the treatment period.

Summary of results to support conclusion: Results unavailable at the time of abstract submission.

Conclusions: Conclusions unavailable at the time of abstract submission.

Learning Objectives:

Recognize the types of organisms against which sodium oxychlorosene demonstrates cidal activity.

Restate the mechanism of action of sodium oxychlorosene.

Self Assessment Questions:

Against what types of organisms does sodium oxychlorosene have cidal activity?

A Gram-positive bacteria and Gram-negative bacteria
B: Fungi, yeast, mold, viruses and spores
C: Gram-negative bacteria, Gram-negative bacteria, and yeast
D: Gram-positive and Gram-negative bacteria, fungi, yeast, mold, viru

What is the mechanism of action of sodium oxychlorosene?

A inhibition of protein synthesis by binding to the 30S ribosomal subu
B chlorinization and oxidation of cellular proteins and enzymes, leadi
C inhibition of bacterial DNA gyrase
D depolarization of membrane potential which leads to inhibition rapi

Q1 Answer: D Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-588 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

COMPARISON OF INDIVIDUALIZED VERSUS STANDARDIZED PARENTERAL NUTRITION (PN) FOR ADULT INPATIENTS IN A HEALTHCARE SYSTEM

*Thomas N Stoltz, PharmD., Leslie K Kenney, BS Pharm., BCPS.
Norton Healthcare,315 East Broadway, Suite 50,Louisville,KY,40202
thomas.stoltz@nortonhealthcare.org

PURPOSE: The specific aim of this project is to compare the use of individualized PN versus standardized PN in the adult acute inpatient setting. This comparison will be utilized to determine if the implementation of a standardized PN process could resolve many of the problematic aspects of PN delivery at Norton Healthcare. Macronutrient and electrolyte shortages, inherent risks associated with compounding, and transportation of PN across the healthcare system make up some of the problematic aspects of the current process.
METHODS: An extensive comparison of individualized versus standardized PN for use in adult inpatients is being performed focused on the clinical, operational, and financial aspects. Current literature and pooled opinion will be the primary sources used to conduct the comparison. The financial component will be analyzed by comparing current costs associated with the individualized PN at Norton Healthcare and the anticipative costs of adopting a standardized process that utilizes pre-manufactured products.
RESULTS/CONCLUSION: Data collection is ongoing, results and conclusions will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Outline the clinical, operational, and financial differences between standardized and individualized parenteral nutrition.

Describe the barriers to implementation of a new adult parenteral nutrition process in a healthcare system.

Self Assessment Questions:

1. All of the following are potential advantages to standardized parentera nutrition except.

A Decrease risks associated with compounding including blood strea
B: More efficient management of electrolyte balance
C: Decreased time to prepare parenteral nutrition products
D: Less susceptible to macronutrient and micronutrient shortages

Which of the following is a barrier to the implementation of an adult standardized parenteral nutrition process in a healthcare system currently utilizing individualized parenteral nutrition?

A Development of new ordering process
B Education of staff
C Change in culture
D All of the above

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-766 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

EFFECTS OF A PHARMACIST MANAGED CLINICAL SERVICE ON THE UTILIZATION AND MANAGEMENT OF INTRAVENOUS DIRECT THROMBIN INHIBITORS FOR THE TREATMENT OF HEPARIN-INDUCED THROMBOCYTOPENIA

Ellen O. Stolz, Pharm.D.*; Garret L. Newkirk, Pharm.D., BCPS; Heidi W. Smith, Pharm.D.; Ann N. Biesboer, Pharm.D.; Greg P. Stilin, RPh; Bethanne M. Held-Godgluck, Pharm.D.; David J. Herrmann, Pharm.D.
Froedtert Hospital,9200 W. Wisconsin Ave,Milwaukee,WI,532263596
ellen.stolz@froedterthealth.org

Background: Heparin-induced thrombocytopenia (HIT) is a possible complication associated with the utilization of either unfractionated heparin or low-molecular-weight heparin. Currently, the American College of Chest Physicians practice guidelines recommend the use of intravenous direct thrombin inhibitors (DTIs) as first-line therapy in the management of HIT. Due to the complex diagnosis of HIT and challenges associated with the management of intravenous DTIs, a pharmacist managed guideline was developed at Froedtert Hospital to standardize the clinical assessment and treatment of HIT.

Purpose: The primary objective of this study is to evaluate the safety and efficacy of intravenous DTIs following the implementation of a pharmacist managed guideline for the treatment of HIT. Secondary objectives will be to identify and assess areas of improvement for the guideline in order to optimize safety, efficacy, and quality outcomes.

Methods: The current study is a retrospective analysis at a single, academic medical center. The pharmacist managed guideline for the treatment of HIT was implemented on June 23rd, 2011. All patients who were hospitalized between December 2010 and November 2011 and received treatment with either argatroban or lepirudin for documented or suspected HIT were included in the study. Patients were excluded from the study if they received treatment with a DTI for an indication other than HIT or if they had documented end stage renal disease. The primary outcome assessed was the time from DTI initiation to reach the desired goal for activated partial thromboplastin time (aPTT). Secondary outcomes were percentage of time within goal aPTT range, frequency of infusion rate adjustments, treatment duration, adverse events, length of hospital stay and guideline adherence.

Results and Conclusion: Data collection and analysis are currently taking place. Results and conclusions will be presented at the Great Lakes Pharmacy Regional Conference.

Learning Objectives:

Recognize the role of pharmacists in the clinical assessment and treatment of HIT

Describe characteristics of the intravenous direct thrombin inhibitors and their utilization in the setting of HIT

Self Assessment Questions:

HIT diagnosis should be based on which findings?

A Clinical
B: Serologic
C: Both
D: None of the above

The elevated INR in the presence of a DTI:

A Reflects true anticoagulation
B Is only an in vitro effect
C Is observed as the same effect between argatroban, lepirudin, and
D Both A and C are correct

Q1 Answer: C Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-589 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

UPPER EXTREMITY DEEP VEIN THROMBOSIS: A RETROSPECTIVE COHORT EVALUATION AT A UNIVERSITY TEACHING HOSPITAL ANTITHROMBOSIS CLINIC

Rebecca H. Stone*, Pharm.D., BCPS; Nancy L. Shapiro Pharm.D., FCCP, BCPS; Edith A. Nutescu Pharm.D., FCCP; University of Illinois at Chicago College of Pharmacy, Chicago, IL

University of Illinois at Chicago,833 S. Wood St,M/C 886,Chicago,IL,60612

rebeccahstone@gmail.com

Background:
Upper-extremity deep venous thrombosis (UEDVT) is commonly defined as thrombosis of the brachial, axillary, subclavian, and internal jugular veins. While extensive literature and well defined consensus guidelines exist regarding the risk factors, prevention, and treatment of lower extremity deep venous thrombosis (LEDVT), guidelines for prevention and treatment of UEDVT are not well defined. Available recommendations for UEDVT are primarily based on data from patients with LEDVT. Randomized controlled trials which validate UEDVT recommendations or assess treatment outcomes are lacking.

Objectives:
The purpose of this study is to identify risk factors associated with UEDVT and to determine appropriateness of current prophylaxis strategies utilized.

Methods:
We conducted a retrospective cohort evaluation of patients with a confirmed UEDVT managed at the University of Illinois at Chicago (UIC) Antithrombosis Clinic between May 1, 2007 and October 1, 2011. Patients were identified by an ICD9 code for UEDVT (451.89, 453.82) in the electronic medical record. The primary outcome variables included were: patient demographics, past medical history, and details specific to UEDVT prophylaxis, location, symptoms, diagnosis, and treatment. A standardized data collection sheet was utilized and descriptive statistics were peformed with Excel software.

Results:
A total of 345 patients will be evaluated for study inclusion using existing Antithrombosis Clinic medical records. To date 195 of the 345 patients have been screened. A total of 139 of 195 patients screened meet criteria for study inclusion. Our preliminary data to date suggests that the average patient age is 49 years old + 15.6, the average BMI is 29.3 kg/m2 + 8.4 and 99 (71%) patients are African American. The average number of UEDVT risk factors for each patient is 5.2. The two most common risk factors are use of a central venous catheter in 108 (77.7%) patients and age greater than 40 years in 101 (72.7%) patients.

Learning Objectives:

Describe the risk factors for UEDVT

List significant complications of UEDVT

Self Assessment Questions:

What is the most common risk factor for UEDVT?

A Obesity
B: Central Venous Catheter
C: Medication burden
D: History of DVT

Which of the following is a significant complication of UEDVT?

A Pulmonary embolism
B Anasarca
C Anemia
D Hepatic dysfunction

Q1 Answer: B Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-590 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

THE USE OF SYSTEMIC AGENTS IN THE MANAGEMENT OF MODERATE TO SEVERE PSORIASIS AT JESSE BROWN VA MEDICAL CENTER

Elizabeth L. Stone, Pharm.D.*, Jaclyn Ng, Pharm.D. Sindhu Abraham, Pharm.D., BCPS, Judith Toth, Pharm.D., CGP, CDE

Jesse Brown VA Medical Center,820 S Damen,Chicago,IL,60612

elizabeth.stone1@va.gov

Background/Purpose
Psoriasis is a visible and an emotionally disabling disease that is associated with multiple co-morbidities. There is no cure for psoriasis. Treatment is a multifaceted approach that depends on several patient characteristics and can change over time. Since the pathophysiology of psoriasis is complex, different treatment strategies are often utilized to manage this disease. There have been various trials evaluating the efficacy of individual systemic agents in the treatment of plaque psoriasis and only few head-to-head comparison trials. The purpose of this study is to evaluate the efficacy and safety of systemic agents for the treatment of moderate to severe plaque psoriasis.

Methods
This study is an Institutional Review Board and VA Research and Development Committee approved retrospective, electronic chart review of patients with an ICD-9 diagnosis code of psoriasis who received systemic treatment between January 1, 2005 and June 1, 2011. Patients are followed for a minimum of three months up to one year until the end of the study period which is September 1, 2011. The study includes patients aged 18 years and older on any of the following medications for the treatment of plaque psoriasis: methotrexate, cyclosporine, acitretin, etanercept, or adalimumab. Patients are excluded if they have a diagnosis of mild plaque psoriasis, psoriatic arthritis, guttate, inverse, pustular, erythrodermic psoriasis. In addition, patients who have had any systemic agent prescribed by an outside provider for the treatment of psoriasis at any time without outside medical records are excluded. The primary endpoint is the percentage of patients showing improvement in psoriasis after systemic treatment.

Results
Data collection and analysis will be completed by April 2012. Final results with conclusion will be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Describe current treatment options for the management of moderate to severe plaque psoriasis.

Discuss the safety and efficacy of the use of systemic agents in the management of moderate to severe plaque psoriasis.

Self Assessment Questions:

What is the most common type of psoriasis?

A Arthritis
B: Plaque
C: Guttate
D: Pustular

In general, severe psoriasis typically affects what percentage of the body surface area (BSA)?

A Less than 1%
B Less than 3%
C 3-10%
D > 10%

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-591 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

MEDICATION ERRORS WITH PARENTERAL NUTRITION: IMPACT OF INGREDIENT SHORTAGES

Michael Storey, PharmD*, Robert Weber, PharmD, MS, BCPS, FASHP, Kelly Besco, PharmD, FISMP, Stuart Beatty, PharmD, BCPS, Kumiko Aizawa, MS, Jay Mirtallo, MS, BCNSP, FASHP

The Ohio State University Medical Center,99 Price Ave,Columbus,OH,43201

mike.storey@osumc.edu

Background:

Ingredient shortages have a significant impact on parenteral nutrition (PN) safety. Due to a lack of appropriate alternatives for PN therapy, the utilization of unfamiliar products or systems has risen and in some instances has led to harmful medication errors. Shortages have affected nearly every component of PN in recent years. The relationship of PN ingredient shortages to harmful medication errors has not been formally evaluated. This study characterizes PN medication errors and correlates them with recent medication shortages, with a particular interest in preventable events with harm (NCC-MERP Index E-I) that occurred as a result of PN ingredient shortage.

Methods:

Medication errors involving PN that were reported to the national, anonymous reporting MED-MARX database between May 2009 and April 2011 were reviewed. All errors were categorized by ingredient, node, and severity. The categorization of the reported events was validated by an expert panel. A timeline of PN ingredient shortages was collected, and compared with the PN errors to determine if events could have been directly caused by an ingredient shortage. This information was used to determine the prevalence and change in harmful PN events during periods of shortage, determining if a statistically significant difference exists in errors during shortages as compared with a control period (i.e., no shortage).

Results:

Preliminary data analyzed 1441 PN MED-MARX reports, including 20 that caused harm (1.4%); an estimated 105 errors reviewed are associated with drug shortages, with a considerable number of errors attributable to changes in practice associated with intravenous fat emulsions. The most common types of errors were improper dose, omission, and prescribing. Ordering, preparation, and administration nodes were associated with harmful errors. Drug shortages with PN ingredient may create opportunities for error, including the possibility of patient harm.

Learning Objectives:

Describe the impact that drug shortages can have on the quality of patient care.

Review the process for medication error reporting for parenteral nutrition

Self Assessment Questions:

Which of the following ingredients of parenteral nutrition has not experienced a significant shortage since 2009?

A Amino Acide

B: Sodium Chloride

C: Dextrose

D: Calcium Gluconate

The NCC-MERP Index rates the severity of errors on which scale?

A 0-9, with 0 being a non-error and 9 resulting in patient death.

B A-D, with A being a non-error and D resulting in patient death.

C A-I, with A being a non-error and I resulting in patient death.

D 0-100, with 100 being a non-error and 0 resulting in patient death.

Q1 Answer: C Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-833 -L05-P

Activity Type: Knowledge-based Contact Hours: 0.5

FACTORS PREDICTING PRESCRIBING PATTERNS OF ANTIEPILEPTIC MEDICATIONS

Rebekah E Stover*, Jeffery C Talbert, Yevgeniya Gokun, Melody Ryan

Lexington VA Medical Center,1101 Veterans Drive,Lexington,KY,40502

Rebekah.Stover@va.gov

Purpose:

Some antiepileptic drugs (AEDs) are narrow therapeutic index medications, raising concerns regarding automatic generic substitution. The primary objective of this study is to determine if neurologists intend to prescribe brand name AEDs more often than general practitioners. The secondary objective of this study is to examine factors that could influence prescribing habits with regard to brand and generic AEDs.

Methods:

The study has been declared exempt by the Institutional Review Board. A Survey Monkey e-mail survey has been created and contains 25 questions regarding demographics and prescribing habits. The survey will be anonymous. This survey has been piloted with local physicians practicing in internal medicine and neurology. The final survey has been sent to 295 neurologists and 1150 general practitioners. Those physicians who do not write prescriptions for antiepileptic medications will be excluded from data analysis. The primary objective will be assessed with the chi square test. Logistic regression will be used to determine which, if any, demographic factors predict prescribing habits of brand name AEDs.

Results and conclusions will be presented at Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Recognize the importance of antiepileptic medication brand/generic substitution.

Discuss reasons for and against brand/generic substitution of antiepileptic medications.

Self Assessment Questions:

Which of the following are concerns physicians have with regards to generic substitution of antiepileptic medications?

A Risk of supratherapeutic or subtherapeutic concentrations

B: Patient not recognizing the medication

C: Increased monitoring needed after substitution

D: All of the above

Which of the following are reasons for generic substitution of antiepileptic medications?

A Improved seizure control

B Improved adverse reactions

C Decreased cost

D Decreased pill burden

Q1 Answer: D Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-767 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

FIDAXOMICIN VERSUS ORAL VANCOMYCIN FOR THE TREATMENT OF CLOSTRIDIUM DIFFICILE DIARRHEA: A PHARMACOECONOMIC ANALYSIS

Stranges, PharmD*; Curtis D. Collins, PharmD, MS, BCPS AQ-ID; Jerod Nagel, PharmD, BCPS

University of Michigan Health System,1500 E. Medical Center Dr.,UH B2 D301,Ann Arbor,MI,48109

pstrange@med.umich.edu

Purpose: Fidaxomicin is a new antibiotic for the treatment of Clostridium difficile associated diarrhea (CDAD). The objective of this study is to determine the financial impact of utilizing fidaxomicin for the treatment of CDAD compared to oral vancomycin.

Methods: A decision analytic model was developed from the payer perspective to test the cost-utility of treating CDAD with fidaxomicin or vancomycin. The decision tree was created and tested using decision-analysis software (DATA, Treeage Software, Inc. Williamstown, MA)Clinical data for the treatment of CDAD with fidaxomicin versus vancomycin, as well as published cost estimates of CDAD and drug acquisition costs were used to populate our model. . .Incremental costs were determined by the sum of the cost of a CDAD and the cost of drug treatment. Incremental effectiveness was defined using quality-adjusted life years (QALYs) for grade 3-4 diarrhea and determined by time spent treating CDAD in the hospital. Incremental cost-effectiveness ratios (ICERs) were calculated by taking the cost between the two treatments and dividing by the difference in QALYs between treatments. ICERs were compared to a willingness to pay of $100,000. To test the robustness our model, upper and lower bounds, or standard deviations, were determined for all inputs using available data and appropriate distribution patterns. We utilized probabilistic sensitivity analysis using Monte Carlo simulation to test all assumptions and deviations in addition to the base case analysis.

Preliminary Results: Preliminary analysis of the base case reveals the incremental effectiveness gained from utilizing fidaxomicin relative to oral vancomycin was 0.0122 discounted QALYs (14.1009 vs. 14.1131). The cost per patient was an estimated $1,300 higher in the fidaxomicin group. This suggested an incremental cost/effectiveness ratio of $108,271.

Preliminary Conclusion: Based on a willingness to pay threshold of $100,000 US, oral vancomycin appears to be a more cost-effective option compared with fidaxomicin for the treatment of CDAD.

Learning Objectives:

Describe the economic impact of Clostridium difficile associated diarrhea on the health care system.

Discuss the benefits, risks, and costs associated with treatment of Clostridium difficile associated diarrhea with metronidazole, oral vancomycin, and fidaxomicin.

Self Assessment Questions:

According to McGlone, et al. the third-party payer costs attributable to healthcare-acquired Clostridium difficile infection is estimated to cost how much per episode?

A $8,776
B: $4,306
C: $10,132
D: $15,099

Which of the following has been found in phase III randomized clinical trials to be a benefit of fidaxomicin therapy over oral vancomycin for the treatment of Clostridium difficile associated diarrhea

A Reduced colonization of VRE with use of fidaxomicin
B Reduced recurrence rate with use of fidaxomicin
C Increased Clostridium difficile spore formation with use of vancomy
D Increased clinical cure rates when treating first episode of Clostridi

Q1 Answer: C Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-592 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF PATIENTS SEEKING FREQUENT PAIN MANAGEMENT SERVICES WITHIN A COMMUNITY HOSPITAL EMERGENCY DEPARTMENT

*Kelly E Struemph, PharmD; Chris M Herndon, PharmD, BCPS, CPE, FASHP; Julia K Schimmelpfennig, PharmD, MS, BCPS, CDE

St. Elizabeth's Hospital,909 Lami,Apt. D,St. Louis,MO,63104

Kstruemph@sebh.org

Purpose:
This retrospective project will focus on the pain management utilization of Emergency Department resources at St. Elizabeths Hospital, a 400-bed community teaching hospital in Belleville, Illinois. The purpose of this retrospective study is to evaluate the patient demographics and treatment modalities employed during ED visits for pain management services.

Methods:
Following institutional review board approval, patients were identified by a computerized dispensing device medication summary of all scheduled pain medications that were administered in the ED during the months of April 2011 through June 2011. From this, any patient greater than 18 years of age with greater than four separate ED visits was included in the study. Patient demographics, chief complaint, treatment modalities and disposition of patients were collected for each visit.

Results:
Seventy-one ED visits were evaluated for thirteen patients. The top chief complaints reported were abdominal pain, chest pain and headache. The mean number of days between visits was 11 (SEM 1.2). Only 4% of visits received a urine drug screen and at no visit was it documented that the Prescription Drug Monitoring Program was reviewed. In 89% of visits, patients received intravenous opioid treatment with a mean intravenous morphine equivalent of 17.1 mg per visit. Patients with third party insurance were more likely to be admitted to the hospital ($p = 0.002$). There was no difference between genders or prescribing physicians in provision of discharge medications ($p = 0.48$ and 0.433, respectively).

Conclusion:
The results may not be generalizable to patients seeking frequent ED services for pain at other institutions. Planned interventions at our institution include obtainment of dedicated PDMP access for triage nursing staff, training of all ED physicians and nurses on PDMP use and evaluation, development of policies regarding urine drug screening and case management follow-up with primary care providers.

Learning Objectives:

Identify processes that can be implemented in Emergency Departments to promote safe prescribing practices of opioid analgesics.

Explain opioid urine drug screen results based on metabolites of medications.

Self Assessment Questions:

A patients urine drug screen results just came back. The patient stated she takes oxycodone/acetaminophen at home. What would you expect to find in her urine drug screen?

A Hydrocodone
B: Ibuprofen
C: Oxymorphone
D: Hydromorphone

Which of the following can be feasibly implemented in Emergency Departments to promote the safe administration/prescribing of opioid analgesics?

A Send all negative urine drug screens for confirmation
B Obtainment of dedicated prescription drug monitoring programs in
C Only provide opioid analgesics to cancer patients in the Emergenc
D Do not administer or prescribe opioid analgesics to anyone in the E

Q1 Answer: C Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-768 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATING PAIN MANAGEMENT IN SURGICAL PATIENTS TRANSITIONING FROM PATIENT CONTROLLED ANALGESIA (PCA) TO ORAL REGIMENS

David Sudekum, Pharm.D.*; Cheryl Genord, RPh; Bonita Singal, MD, PhD

St. Joseph Mercy Hospital,5301 McAuley Dr,Ypsilanti,MI,48197

sudekumd@trinity-health.org

Background:
PCA is an effective short-term management strategy for the immediate control of postoperative pain. As surgical patients are transitioned from PCA to conventional opioid regimens in preparation for discharge, total PCA doses are often not taken into consideration. Prescribers will utilize a one-size-fits-all approach to post-PCA pain management. This current approach is not effective for many of the patients transitioning from PCA, which results in increased time to adequate pain relief. Currently, there are no protocols at this institution to help guide prescriber selection of conventional regimens based on PCA consumption.

Purpose:
To conduct a medication-use-evaluation (MUE) on the effectiveness of our hospitals current approach to PCA transitioning in the management of postoperative pan in surgical patients to determine if higher doses of PCA predict worse patient outcome.

Methods:
This retrospective study evaluated patients from January 2011-October 2011 having underwent surgery, treated postoperatively with PCA, and transitioned to oral/rescue opioid analgesics. These patients were divided into 3 groups based on average PCA consumption in the 24 hours prior to discontinuation: (high:>4.16 mg/hr, moderate:2.08-4.16 mg/hr, and low:<2.08 mg/hr IV MSeq). The patients average 24-hour pain score on-PCA will be compared to their average 24-hour pain score post-PCA to calculate a pain intensity difference (PID) score. This score will then be stratified according to total PCA consumption (high, medium, or low) in order to compare pain control across these groups. Successful pain management will be defined as a PID score greater than or equal to 0 plus the patient having not received more than a total of 4mg morphine equivalent rescue analgesia by parenteral route in the 24 hours following PCA discontinuation. Otherwise, pain management will be considered a failure.

Results:
To be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Discuss the importance of appropriate postoperative pain management.

Describe the factors that increase the likelihood of successful pain management in patients transitioning from PCA analgesia to oral/rescue regimens.

Self Assessment Questions:

What are potentially harmful effects that poorly controlled postoperative pain induces?

A Activation of the stress response
B: Impaired immune function
C: Sleep deprivation
D: All of the above

What are some factors that increase likelihood of successful pain management post-PCA in patients requiring high doses of PCA?

A Selecting an appropriate oral/rescue opioid regimen
B Administering the first oral opioid within 60 minutes of discontinuing
C Having a validated system that adequately documents total PCA c
D All of the above

Q1 Answer: D Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-593 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

ASSOCIATION BETWEEN PRESCRIBING OF ANTICHOLINERGIC MEDICATIONS AND HOSPITAL-RELATED OUTCOMES IN A GERIATRIC POPULATION

Calleen Sullivan, PharmD, BCPS*; Noll Campbell, PharmD, BCPP; Anthony Perkins, MS; Siu Hui, PhD; Babar Khan, MD, MS; Malaz Boustani, MD, MPH

Wishard Health Services,1001 W. 10th St.,WHS, Myers Bldg W7555,Indianapolis,IN,46202

sullivco@purdue.edu

BACKGROUND: A 2011 study suggested that the use of anticholinergic medications increased the risk of mortality in community-dwelling elderly patients.

OBJECTIVE: To evaluate the association between anticholinergics and hospital-related outcomes, including mean length of hospital stay and survival at discharge.

METHODS: Between 2006 and 2008, English-speaking patients over the age of 65 admitted to a general medicine ward were eligible for inclusion. The Regenstrief Medical Record System (RMRS) was used to gather demographic and mortality data, medication orders, and length of stay. Acute Physiology Scores (APS) and Charlson comorbidity scores were used to determine severity of illness. Baseline cognitive function and delirium were assessed using the Short Portable Mental Status Questionnaire (SPMSQ) and Confusion Assessment Method (CAM), respectively. The Anticholinergic Cognitive Burden Scale (ACB) identified orders for anticholinergic medications. Study participants were stratified into three groups: no orders for anticholinergics (NA), orders for possible anticholinergics (PA), and orders for definite anticholinergics (DA).

RESULTS: A total of 991 patients provided consent. The mean age was 74.6 years with females representing 69% and African Americans representing 56% of the study population. Baseline demographics were similar between the groups for percentage of females, mean age, mean baseline SPMSQ, and mean Charlson score. The DA group was younger and had higher severity of illness scores. Approximately 50% of patients received an order for a PA and 32% received an order for a DA. After adjusting for age, race, gender, Charlson score, and APS, the mean hospital length of stay was 5.5, 5.6, and 8.6 days in the NA, PA, and DA groups, respectively ($p<0.001$). The percentage of patients surviving at discharge was 100% in the NA group, 99.2% in the PA group, and 97.2% in the DA group ($p=0.036$).

Learning Objectives:

Identify medications with high anticholinergic burden using the Anticholinergic Cognitive Burden Scale.

Recognize the association between anticholinergic medications and hospital-related outcomes.

Self Assessment Questions:

According to the ACB Scale, which set of medications are defined as definite anticholinergics and should be used with caution in elderly patients?

A hydrochlorothiazide and clozapine
B: oxybutynin and nortriptyline
C: amantadine and clopidogrel
D: dabigatran and diphenhydramine

The use of definite anticholinergics in elderly hospitalized patients has been associated with which of the following?

A Increased survival at 60 days
B Decreased hospital length of stay
C Increased risk of mortality
D Decreased risk of falls

Q1 Answer: B Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-594 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

OUTCOMES ASSOCIATED WITH THE USE OF RIFAXIMIN IN PATIENTS WITH HEPATIC ENCEPHALOPATHY AT A VETERANS AFFAIRS MEDICAL CENTER

Kristine Swank, PharmD, BCPS*, Chris Degenkolb, PharmD, BCPS
Richard L. Roudebush Veterans Affairs Medical Center,1481 W. 10th Street,Indianapolis,IN,46202
kristine.swank@va.gov

Purpose: Rifaximin is an emerging therapy for the treatment of hepatic encephalopathy in patients with chronic liver disease. Current data has conflicting results. A large meta-analysis demonstrated no benefit over traditional therapies of non-absorbable disaccharides, and a more recent randomized double-blind trial indicated a significant reduction in risk of recurrence of hepatic encephalopathy. The Department of Veterans Affairs restricts the use of rifaximin to those patients with a history of hepatic encephalopathy who are refractory, intolerant, or non-adherent to lactulose. The primary objective of this study is to determine the effect of rifaximin therapy versus lactulose on the time to first incidence of hepatic encephalopathy in patients with chronic liver disease. Secondary outcomes include time to first hospital admission, number of hospital admissions per 100 days of therapy, length of hospital admission, and an evaluation of medication compliance.
Methods: Approval was obtained through the Institutional Review Board prior to initiation of this retrospective study. This study is a single center retrospective chart review of all patients receiving rifaximin as an outpatient medication at the Richard L. Roudebush Veterans Affairs Medical Center. Data was generated electronically to select for patients who received rifaximin and reviewed for use for hepatic encephalopathy from January 2005 through August 2011. Patients were evaluated during an initial period of lactulose monotherapy in regards to each outcome, and then re-evaluated after transition to rifaximin mono- or combination therapy in a modified crossover fashion. The following patient data was also collected: baseline demographics, etiology of liver disease, MELD score at initiation of therapy, additional drugs that may be used to treat hepatic encephalopathy, and dose of rifaximin or lactulose utilized.
Results and Conclusions: To be presented during Great Lakes Pharmacy Resident Conference

Learning Objectives:

Discuss outcomes data supporting the use of rifaximin for prevention of hepatic encephalopathy.

Identify patients who will benefit from the use of rifaximin for hepatic encephalopathy based on evidence-based, patient specific information.

Self Assessment Questions:

Rifaximin has been proven to do which of the following:

A Reduce mortality of patients with end-stage liver disease (ESLD)
B: Reduce initial incidence of hepatic encephalopathy in patients with
C: Reduce overall cost of healthcare for patients with hepatic encepha
D: Reduce cost of prescription drugs for patients with hepatic encepha

According to currently published data, the following patient would benefit most from use of rifaximin:

A An 87 YOM with end-stage liver disease who presents to an outpat
B A 46 YOM with end-stage liver disease who presents with his seco
C A 55 YOM with end-stage liver disease who presents with his third
D A 60 YOM with end-stage liver disease who is going to be discharg

Q1 Answer: C Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-595 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

IDENTIFICATION OF RISK FACTORS FOR THE ACQUISITION OF ERTAPENEM-RESISTANT ENTEROBACTERIACEAE

Michele M. Swihart, PharmD, BCPS*; Christopher W. Crank, PharmD, BCPS AQ-ID; Kamaljit S. Singh, MD
Midwestern University,555 31st St.,Downers Grove,IL,60515
michele.swihart@gmail.com

BACKGROUND: Antimicrobial resistance is increasing within the Enterobacteriaceae family of bacteria, largely due to the production of extended-spectrum beta-lactamases (ESBLs). Broad-spectrum antibiotics such as the carbapenems are considered the treatment of choice for these resistant gram-negative organisms; however, additional resistance is developing, including a pattern where the bacteria are resistant to ertapenem but susceptible to other carbapenems. Limited literature regarding this pattern suggests invasive interventions and antibiotic exposure, especially carbapenem exposure, may be risk factors associated with the acquisition of this resistance. Identification of additional risk factors and confirmation of current literature may guide future empiric therapy and provide insight into slowing the spread of this resistance pattern.

PURPOSE: The primary purpose of this study is to identify patient risk factors which are associated with the acquisition of ertapenem-resistant Enterobacteriaceae.

METHODS: This is a retrospective case-control study of patients with identification of an isolate in the Enterobacteriaceae family during the study period of 1/1/2009 to 11/31/2011. Case patients are defined as patients with ertapenem-resistant strains of Enterobacteriaceae which are susceptible to other carbapenems. Control patients are defined as patients with ertapenem-susceptible strains of Enterobacteriaceae. Patients will be matched for the site of positive culture, age 10 years, and admission date 30 days. Patients may be either infected or colonized with the organism. Patient data to be collected for analysis will include demographics (age, sex, race), location prior to admission, length of stay and hospital service at time of isolate collection, comorbid disease states (diabetes, impaired renal or hepatic function, pulmonary disease, immunosuppressant use, malignancy, HIV+ status, organ transplant), invasive interventions (surgery, mechanical ventilation, CVC or PICC, endoscopy, urinary catheter) within 30 days, and exposure to specific antimicrobials within 30 days.

RESULTS/CONCLUSIONS: Results will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Identify the mechanisms of antimicrobial resistance found in Enterobacteriaceae

Describe the potential risk factors associated with ertapenem-resistant Enterobacteriaceae which have been identified in current literature

Self Assessment Questions:

Which of the following resistance mechanisms is postulated to cause ertapenem resistance in Enterobacteriaceae that are susceptible to other carbapenems?

A Klebsiella pneumoniae carbapenemase (KPC)
B: Ertapenem-specific efflux pumps
C: New Delhi metallo-beta-lactamase
D: Porin alterations from genetic mutation

Which of the following pairs CORRECTLY identifies independent risk factors associated with ertapenem-resistant Enterobacteriaceae in current literature?

A Exposure to first-generation cephalosporins, urinary catheter use
B Exposure to carbapenems, endoscopy procedure
C Exposure to fluoroquinolones, PICC line placement
D Exposure to aminoglycosides, mechanical ventilation

Q1 Answer: D Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-596 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

IMPACT OF FIORICET ADMINISTRATION ON THE INCIDENCE OF VASOSPASM IN SUBARACHNOID HEMORRHAGE

Rachel L Swope, PharmD*, Kelly Glover, PharmD Candidate, Aaron M. Cook, PharmD, BCPS

University of Kentucky HealthCare,800 Rose St,UK Medical Center,Lexington,KY,40536

rljohn8@uky.edu

Purpose: Up to 30% of patients who survive an aneurysmal subarachnoid hemorrhage will have a moderate-to-severe disability, and a major source of the disability is due to cerebral vasospasms which cause delayed ischemic neurologic deficits. Vasospasms are characterized as persistent vasoconstriction which can ultimately lead to distal cerebral blood flow and ischemic injury. Greater than half of patients with a subarachnoid hemorrhage complain of headache during their hospitalization. A common analgesic used for headache is Fioricet which is a combination product containing acetaminophen, bultabital, and caffeine. Caffeine is known to cause cerebral vasoconstriction. No safety analysis has been done to address the potential problem of Fioricet causing cerebral vasoconstriction in the setting of subarachnoid hemorrhage. The primary objective is to evaluate the association between Fioricet and the incidence and severity of vasospasm within seven days of a subarachnoid hemorrhage. The secondary objective is to describe the use of additional analgesic medications other than Fioricet for headache.

Methods: A retrospective chart review included patients who were identified by the UHC Database as having been admitted for an aneurysmal subarachnoid hemorrhage at the University of Kentucky Medical Center for greater than three days between January 2008 to December 2010. Patients were excluded if they had a traumatic subarachnoid hemorrhage, presented with a Hunt & Hess Grade IV/V subarachnoid hemorrhage, or if there were incomplete medical records. Data points collected include daily transcranial doppler results, need for intervention for clinical vasospasm, amount of Fioricet per day, and the amount of other analgesics per day. Statistical analysis will evaluate the extent of Fioricet exposure and the potential association with cerebral vasospasm as well as the extent of analgesic use in relation to Fioricet use.

Results: Pending data analysis

Conclusions: Pending data analysis and interpretation

Conflict of Interest:
The speaker has no actual or potential conflict of interest in relation to this presentation.

Learning Objectives:

Describe caffeines potential mechanism of cerebral vasoconstriction.

Define vasospasm in the setting of subarachnoid hemorrhage and discuss the timing with regards to the initial event.

Self Assessment Questions:

What is the proposed mechanism by which caffeine causes cerebral vasoconstriction?

A By inhibiting adenosine receptors
B: By inhibiting phosphodiesterase receptors
C: By inhibiting alpha receptors
D: By inhibiting both adenosine and phosphodiesterase receptors

What is the onset of vasospasm after a subarachnoid hemorrhage?

A Within 24 hours
B Within 48 hours
C Within 3-5 days
D Within 7-10 days

Q1 Answer: D Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-597 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

ASSOCIATION BETWEEN VANCOMYCIN-RESISTANT ENTEROCOCCUS COLONIZATION AND CLINICALLY SIGNIFICANT VANCOMYCIN-RESISTANT ENTEROCOCCUS INFECTION IN CRITICALLY ILL PATIENTS: A RETROSPECTIVE COHORT STUDY

Sheila C. Takieddine, PharmD*; Neil E. Ernst, PharmD; Maria Guido, PharmD, BCPS; Eric W. Mueller, PharmD, FCCM

UC Health-University Hospital,234 Goodman St.,ML 0740,Cincinnati,OH,45219

Sheila.Takieddine@UCHealth.com

Background
Clinical decisions (e.g., contact isolation; empiric antibiotic therapy) may be based on the rectal colonization status of vancomycin-resistant Enterococcus spp. (VRE) in critically ill patients. Medical (MICU) and surgical (SICU) intensive care unit patients at UC Health-University Hospital in Cincinnati, Ohio who are admitted from an outside institution are routinely screened for rectal VRE colonization. This study will evaluate the association between VRE colonization and clinically significant VRE infection. Results from this study may support the development of guidelines for empiric antibiotic therapy in patients colonized with VRE.

Methods
This is an investigator-initiated, single-center, retrospective study. All adult MICU and SICU patients at University Hospital with a documented rectal screen for VRE between January 2010 and August 2011 will be included.

The primary outcome is the incidence of clinically significant VRE infection in patients colonized versus those not colonized with VRE. Secondary outcomes include predictive utility (sensitivity, specificity, positive and negative predictive values) of colonization for infection, intensive care unit length of stay, hospital length of stay, and rates of mortality between groups. This study also will evaluate the rate of unnecessary VRE-related antibiotic therapy and identify independent risk factors for VRE infection. A sample size of 220 patients will be required to find an absolute difference of 10% of VRE infection between the two groups with a power level of 80% and a one-tailed significance level of 0.05. Hypothesis testing will be done using Fischers exact test, chi square test, Wilcoxin rank-sum or students t-test as appropriate.

Results
Data analysis is currently being conducted, and results are pending.

Learning Objectives:

Identify risk factors for the development of clinically significant VRE infection in patients who are colonized with VRE

Recognize when it is clinically appropriate to empirically treat patients with VRE-active antibiotic therapy when they develop signs and symptoms of infection

Self Assessment Questions:

What is the mechanism of acquired vancomycin resistance in Enterococcus species?

A Inactivation of vancomycin via the production of beta-lactamase
B: Decreased drug permiability through the activation of efflux pumps
C: Mutation of the D-Ala-D-Ala peptide terminus to alter vancomycin b
D: Alteration of the penicillin-binding protein on the bacterial cell wall

Which antibiotic is appropriate to use for the treatment of a VRE infection?

A Clindamycin
B Sulfamethoxazole/trimethoprim
C Meropenem
D Linezolid

Q1 Answer: C Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-598 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

USE OF THE 2011 INSTITUTE FOR SAFE MEDICATION PRACTICES (ISMP) MEDICATION SAFETY SELF ASSESSMENT FOR HOSPITALS AS A QUALITY IMPROVEMENT TOOL

Courtney L. Tam, Pharm.D.*; Karen J. Arthur, Pharm.D., BCPS

Richard L. Roudebush Veterans Affairs Medical Center,1481 W. 10th Street,Dept 119,Indianapolis,IN,46202

courtneytam@gmail.com

Purpose: Medication safety is a commitment hospitals strive to achieve and maintain to improve the quality of care for patients. It is the target of several of the Joint Commissions National Patient Safety Goals. The main focus that the Institute for Safe Medication Practices (ISMP) devotes itself to is the practice of safe medication use and medication error prevention. In 2011, the ISMP provided healthcare organizations with the medication safety self assessment for hospitals (MSSAH) survey to gather information to help evaluate their medication safety practices and to further assist them with identifying opportunities for improvement. The survey also allows institutions to compare their experiences with those of demographically similar organizations. The purpose of this quality improvement project (QIP) is to use the 2011 ISMP MSSAH as a planning tool for improvement in medication safety within the Department of Veterans Affairs (VA).

Methods: Prior to initiating, this QIP will be submitted to the Institutional Review Board for approval. The ISMP 2011 MSSAH survey will be completed by the Richard L. Roudebush Veterans Affairs Medical Center with the assistance of employees from various disciplines, including pharmacy and nursing. The results will be submitted electronically to ISMP for scoring. The survey will evaluate medication safety practices through ten key elements that significantly influence safe medication use: 1) patient information; 2) drug information; 3) communication; 4) labeling, packaging and nomenclature; 5) drug storage, stock, and distribution; 6) device acquisition, use and monitoring; 7) environmental factors; 8) staff competency and education; 9) patient education; and 10) quality processes and risk management. The results of the survey will be assessed within our institution and compared to demographically similar VA institutions. This will further assist our facility in evaluating the areas in need of improvement within our current medication safety practices.

Results/Conclusion: To be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Discuss the significance of the 2011 ISMP Medication Safety Self Assessment and the key elements it uses to evaluate medication safety

Describe how healthcare organizations can use their 2011 ISMP Medication Safety Self Assessment results to improve medication safety

Self Assessment Questions:

Which of the following statements about the 2011 ISMP Medication Safety Self Assessment is correct?

A It evaluates medication safety practices through ten key elements f
B: The 2011 results CANNOT be compared to the 2004 results.
C: The results can be used to help identify areas for improving the me
D: A and C

How can healthcare organizations use their 2011 ISMP Medication Safety Self Assessment results to improve medication safety?

A Reaching out to other healthcare organizations for improvement id
B Not sharing low scores with organizational leadership
C Creating work plans to tackle low scoring elements
D A and C

Q1 Answer: D Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-834 -L05-P

Activity Type: Knowledge-based Contact Hours: 0.5

DOES ONE SIZE FIT ALL? VENOUS THROMBOEMBOLISM PROPHYLAXIS IN MORBID OBESE PATIENTS

Gelson J Taube Jr, PharmD; Kim Scarsi, PharmD; Rachael Prusi, PharmD BCPS

Northwestern Memorial Hospital,251 e huron st,Dept. of Pharmacy, LC700,Chicago,il,606112908

gtaube@nmh.org

Purpose:

Dalteparin is a low-molecular weight heparin (LMWH) that is indicated for the prophylaxis of deep venous thromboembolism (DVT) in at risk hospitalized patients. Previous trials showed dalteparins safety and efficacy in obese patients for the prophylaxis of DVTs at a daily dose of 5,000 units. However, there is no published data in the morbid obese patients (body mass index >40). Although previous studies in obese patients showed varied pharmacokinetic/dynamic properties with LMWH more data is needed to determine the safety and efficacy of standard dosing in this population. A recent consensus statement has recommended dose adjustment for obese patients receiving DVT prophylaxis. Given the obesity epidemic within our population, we are interested to compare the incidence of VTE between morbid obese and non-obese hospitalized patients receiving LMWH prophylaxis.

Methods:

This is a retrospective case-control study to determine the risk associated with developing an episode of VTE while receiving prophylactic doses of dalteparin (5000 units SQ daily) in morbid obese patients compared to non-obese patients at Northwestern Memorial Hospital. The study will include general medicine patients hospitalized for greater than 4 days and receiving prophylactic dalteparin. Patients will be excluded if, receiving concomitant anticoagulative medications, with renal dysfunction, non-LMWH thrombocytopenia, nor confirmed diagnosis of blood factor deficiency. Primary endpoints include incidence of symptomatic VTEs and/or composite of any thrombotic event. Secondary endpoints include length of stay, incidence of clinically significant hemorrhage, and thrombocytopenia.

Results/Conclusions:

Data collection and analysis are currently in progress. Results to be presented at Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Recognize the incidence and risk of VTE associated with fixed-dose LMWH prophylaxis.

Recall weight-adjusted and risk-based dose recommendations in VTE prophylaxis with LMWH.

Self Assessment Questions:

Which of the following statements regarding VTE prophylaxis is correct?

A There is strong evidence for weight-adjusted dosing of LMWH in th
B: Current best practices recommend anti-Xa testing for all patients re
C: Clinical guidelines recommend VTE prophylaxis to all qualifying hig
D: Geriatric patient population is an absolute contra-indication for VTE

Which of the following statements best represent the current expert opinion on the management of LMWH in the obese population?

A Starting dose of 7500 units of dalteparin daily followed by anti-Xa le
B Bolus dose of 10000 units of dalteparin followed by daily 5000 units
C Starting dose of 5000 units of dalteparin daily for low risk patients f
D Starting dose of 2500 units of dalteparin daily for low risk patients f

Q1 Answer: C Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-769 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF A DIABETIC KETOACIDOSIS TREATMENT PROTOCOL USING SUBCUTANEOUS INSULIN ASPART

*Colleen J Teevan, PharmD, BCPS; Gourang Patel, PharmD, MSc, BCPS; Tudy Hodgman, PharmD, FCCM, BCPS
Midwestern University,555 31st Street,Downers Grove,IL,60515
cteeva@midwestern.edu

Purpose: Diabetic ketoacidosis (DKA) is a serious metabolic complication of diabetes that results in thousands of hospitalizations each year. Management of DKA includes fluids, electrolyte replacement, treatment of any identified precipitating factors, and insulin therapy. Guidelines from the American Diabetes Association recommend regular insulin by continuous intravenous infusion as the treatment of choice for all but mild cases of diabetic ketoacidosis. Several studies, each enrolling a small number of patients, have examined the use of rapid-acting subcutaneous insulin analogs for the treatment of DKA. The protocol for treatment of diabetic ketoacidosis currently in place at Rush University Medical Center utilizes subcutaneous insulin aspart, with weight-based doses administered every two hours. The primary objective of this study is to assess the efficacy and safety of this insulin regimen.

Methods: This study is a retrospective chart review. All adult patients who received insulin aspart for the treatment of diabetic ketoacidosis at Rush University Medical Center between January 1, 2008 and Decembe 1, 2011 are included in the study. The primary efficacy outcome is the time to resolution of DKA and the primary safety outcome is the number of hypoglycemic events. Secondary outcomes include the length of stay in the hospital and the ICU, time to initiation of basal/prandial insulin, and adherence to the protocol. If the sample sizes of subgroups are sufficient for meaningful comparisons, outcomes will be compared for the following independent variables: type 1 vs. type 2 diabetes, amount and type of fluids given, precipitating cause of DKA, and concomitant use of antibiotics, steroids, and vasopressors.

Results and Conclusions: Data collection and analysis are in progress. Final results and conclusions will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Outline guideline recommendations for insulin therapy in the treatment o diabetic ketoacidosis and literature supporting alternative strategies.

Discuss the advantages and disadvantages of using subcutaneous insulin for the treatment of diabetic ketoacidosis.

Self Assessment Questions:

According to the American Diabetes Association, which of the following sets of parameters describes a mild case of diabetic ketoacidosis?

A Blood glucose >250mg/dl; arterial pH=6.9; serum bicarbonate=9ml
B: Blood glucose >250mg/dl; arterial pH=7.1; serum bicarbonate=11n
C: Blood glucose >250mg/dl; arterial pH=7.2; serum bicarbonate=14n
D: Blood glucose >250mg/dl; arterial pH=7.3; serum bicarbonate=17n

In studies that looked at treatment of diabetic ketoacidosis with subcutaneous insulin analogs, which of the following was found to be a benefit of this regimen over treatment with IV insulin infusion

A Administration of less total insulin during treatment
B Fewer hypoglycemic events
C Potential for cost-savings related to treatment in non-ICU settings
D Shorter duration of treatment until resolution of DKA

Q1 Answer: D Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-599 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF THE IMPACT OF PHARMACIST-LED INTERVENTIONS ON TRANSITION OF CARE FOR DABIGATRAN PATIENTS

Jiz Thomas, PharmD*, Trupti Mehta, PharmD, BCPS, Megan Bestul, PharmD, CDE, Jassu Dulai, PharmD, Maureen Smythe, PharmD, FCCP
William Beaumont Hospital,3601 W. 13 Mile Rd.,Royal Oak,Mi,48073
jiz.thomas@beaumont.edu

Background:
Dabigatran, an oral direct thrombin inhibitor, is indicated for the prevention of stroke and systemic embolism for non-valvular atrial fibrillation. Without routine laboratory monitoring, patients on dabigatran have less exposure to providers which may result in increased non-adherence.

Purpose:
To assess the impact of a pharmacist-led telephonic intervention post-discharge for patients receiving dabigatran.

Methods:
A pre-post study was conducted in patients discharged on dabigatran. Patients were included if they were taking dabigatran prior to admission or initiated during hospitalization. Patients were identified using the pharmacy database and were categorized into the control and intervention groups. The control group included patients discharged between July and September 2011 and the intervention group included patients discharged from October to December 2011. The control group was contacted via telephone in December to collect data on medication adherence and patient competence of drug information. The intervention group was contacted one week, two months, and six months post-discharge. The intervention was performed at one week post-discharge, which consisted of counseling on appropriate dabigatran use and education on behavior modifications. At two and six months post-discharge, a telephonic survey was conducted to assess adherence and competence and counseling in areas that the patient did not achieve competence.

The primary outcome, recent dabigatran adherence, was categorized as full, partial, or non-adherent based on subjective patient reports on self discontinuation, missed doses and administration time. Secondary outcomes included global medication adherence using the Morisky scale; readmissions for major bleeding or systemic embolism; patient medication competence with respect to indication, storage, side effects and when to contact their provider; and number of physician contacts by the pharmacist. Primary and secondary outcomes were collected in December for the control group and up to six months post-discharge for the intervention group.

Results/Conclusion:
To be presented at Great Lakes Pharmacy Resident Conference

Learning Objectives:

Discuss the pharmacists role in improving patient adherence to dabigatran

Describe appropriate patient counseling and follow-up for patients on dabigatran

Self Assessment Questions:

To improve patient adherence to dabigatran, pharmacists should counsel patients to:

A Use a pillbox to help patients remember to take their medication
B: Take the medication once in the morning before meals to improve
C: Open the capsule and sprinkle the contents in applesauce if difficu
D: Take with food to decrease stomach upset

Patients taking dabigatran should be advised to contact their doctor if they:

A Start sotalol
B Notice black tarry stools
C Have a severe headache with slurred speech
D b and c

Q1 Answer: D Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-835 -L05-P

Activity Type: Knowledge-based Contact Hours: 0.5

SMOKING CESSATION PRACTICES OF COMMUNITY AND AMBULATORY CARE PHARMACISTS RELATED TO DECREASED STATE FUNDED RESOURCES

Rachel M. Thomas, Pharm.D.*; Maria C. Pruchnicki, Pharm.D., BCPS, CLS; Tiffany R. Shin, Pharm.D., Christopher G. Green, Pharm.D.

The Ohio State University College of Pharmacy,500 West 12th Ave,Columbus,OH,43210

thomas.2552@osu.edu

Objectives:
Smoking prevalence in Ohio was 20.3% in 2009, slightly above national average. State funding has declined for the Ohio Tobacco Quit Line (OTQL) as of July 2011. Pharmacists are accessible health care providers and with decreased smoking cessation resources, patients may be likely to seek them as providers of smoking cessation education. Our objectives are to determine 1) how community/ambulatory pharmacists provide smoking cessation services and 2) extent of pharmacists prior utilization of OTQL. Secondary objectives are to determine influence of pharmacist clinical training and awareness/perceptions regarding changes in smoking cessation resources. Investigators will assess pharmacists' interest in smoking cessation education.
Methods:
An online survey will be delivered to community/ambulatory care pharmacists using the Dillman Tailored Design Method. Pharmacists licensed and practicing in the state of Ohio with a valid e-mail address on file with the Board of Pharmacy will be included. It will be open from January-February 2012 with two reminder emails for non-respondents. Data collection will include current practice setting, level and type of professional training, use of clinical guidelines, frequency of smoking cessation counseling, utilization of OTQL, and preferences on smoking cessation education. Demographics and perceptions regarding decreased funding for OTQL will be assessed. Questions will include multiple choice, Likert-type, and open-ended responses. Data will be analyzed using descriptive statistics and chi-square and Wilcoxon rank-sum tests for categorical and ordered responses, respectively.
Preliminary Results:
Results will be evaluated to determine how Ohio community/ambulatory care pharmacists provide smoking cessation in their practice. The perceived impact of reduced availability of OTQL will be summarized. Associations between demographics and perceptions regarding OTQL will be compared to smoking cessation practices. Results may identify opportunities for increased pharmacist involvement in smoking cessation and opportunities to enhance services in this area. Potential needs may include expansion of smoking cessation education and resources for pharmacists.

Learning Objectives:

Identify the patient populations that are still eligible to use the Ohio Tobacco Quit Line

Recall the current smoking cessation therapies

Self Assessment Questions:

As of July 1, 2011, which patient population is still eligible to utilize the Ohio Tobacco Quit Line (800-QUIT-NOW)?

A All Ohio residents
B: Non-pregnant women
C: Pregnant women
D: Medicare recipients

Which smoking cessation product requires a prescription?

A nicotine patch
B nicotine inhaler
C nicotine lozenges
D nicotine gum

Q1 Answer: C Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-770 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

IMPACT OF A PHARMACIST-DELIVERED ASTHMA MEDICATION CONSULTATION BEFORE EMERGENCY DEPARTMENT DISCHARGI

*Andrew J Ticcioni, PharmD, Jeffrey S Yochum, PharmD, Jordan M Williams, PharmD, Anne C Polzin, PharmD, Michael F Gillard, PharmD, BCPS

St. Joseph Regional Medical Center - WI,5000 W. Chambers St,Milwaukee,WI,53210

andrew.ticcioni@wfhc.org

Purpose: Patients who present to the emergency department (ED) for an acute exacerbation of asthma are often treated and discharged with little personalized counseling on their medications or disease state. The objective of this study is to assess whether a brief, yet comprehensive, pharmacist-delivered asthma medication consultation prior to discharge from the ED reduces the frequency of ED revisits for exacerbation of asthma symptoms. In addition to a consultation, patients will be allowed to take an albuterol inhaler home for continued use if the inhaler was part of their treatment.
Methods: Electronic medical record data were reviewed to determine the 28-day baseline rate of revisit and the number of days to revisit in patients presenting to the ED due to an asthma exacerbation. Patients who received a prescription for antibiotics were excluded. In the prospective portion of this investigation patients being discharged from the ED following treatment for an asthma exacerbation during hours when a pharmacist is staffing (12:30 - 23:00, 7 days a week) will be offered a consultation on their asthma medications including inhaler technique, an ED discharge asthma plan and a personalized review of asthma triggers. After three months providing this service, electronic medical records will be reviewed to determine the rate of 28-day revisit and the number of days to revisit. The primary outcome is the difference in 28-day revisit rate and number of days to revisit between the baseline and intervention periods.
Preliminary Results: The baseline rate of revisit was 14% with a median time to revisit of 5 days. A majority of patients were female and 80% were greater than 18 years old. Multiple patients reported they were unable to afford their medications and/or did not have an albuterol inhaler, indicating an opportunity for improved compliance through the provision of an inhaler.

Learning Objectives:

Identify opportunities for pharmacists to participate in the education of patients treated for an asthma exacerbation in the emergency department

Describe the requirements, both state and organizational, for dispensing albuterol inhalers directly from the emergency department

Self Assessment Questions:

The 2007 NHLBI Guidelines for the Diagnosis and Management of Asthma recommend which of the following for the treatment of asthma exacerbations?

A Doubling the current home dose of inhaled corticosteroids
B: Administration of IV magnesium sulfate for EVERY exacerbation
C: Patient education including an emergency department discharge a
D: Albuterol MDI therapy may ONLY be used for mild exacerbations c

In which of the following scenarios may the patient take an albuterol MDI home?

A The asthma exacerbation was treated with hand held nebulizers ar
B An albuterol MDI was used to treat the exacerbation and the physi
C The patient was treated for a severe asthma exacerbation
D The patient has an insurance plan with minimal outpatient prescrip

Q1 Answer: C Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-771 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

COMPLIANCE WITH IDSA GUIDELINES FOR THE DIAGNOSIS AND TREATMENT OF STREPTOCOCCAL PHARYNGITIS IN A PEDIATRIC EMERGENCY DEPARTMENT VS. URGENT CARE CENTER

Chelsey N. Timmer, PharmD*; Christie J. Van Dyke, PharmD, BCPS
Spectrum Health,100 Michigan St. NE,Department of Pharmacy, MC001,Grand Rapids,MI,49503
chelsey.timmer@spectrumhealth.org

PURPOSE: Group A streptococcal (GAS) pharyngitis is the only commonly occurring form of pharyngitis for which antibiotics are indicated; it is therefore recommended to use bacteriologic confirmation when determining whether to prescribe antibiotics. The purpose of this study is to compare the percentage of pediatric patients presenting to the emergency department and urgent care center who are appropriately diagnosed and treated for GAS pharyngitis.

METHODS: Patients from a childrens hospital emergency department (ED) and urgent care (UC) center were retrospectively assessed to determine provider compliance with Infectious Disease Society of America (IDSA) guidelines for the diagnosis and management of GAS pharyngitis. Eligible patients were ≤18 years of age and were identified based on ICD-9 codes for acute pharyngitis or streptococcal sore throat. The primary objectives were to determine the percent of patients who were appropriately tested for GAS pharyngitis as well as the percent that were prescribed unnecessary antibiotics. The secondary objective was the percent of patients who were prescribed an appropriate antibiotic agent, as outlined by IDSA guidelines.

RESULTS: Ninety-seven patients were assessed in total (n=48 ED, n=49 UC). Significantly fewer patients in the ED group were appropriately tested for GAS pharyngitis in comparison to the UC group (n=32 [66.6%] ED, n=43 [87.8%] UC; p=0.013). Twelve patients (25%) treated in the ED and 10 (20.8%) in the UC were prescribed antibiotics when IDSA guidelines recommended against this practice (p=0.627). Of those who were prescribed antibiotics, significantly more patients in the ED received an appropriate agent than in the UC (n=25 (100%) and n=15 (75%), respectively; p=0.013).

CONCLUSIONS: Although patients in the UC group were more often appropriately tested for GAS pharyngitis, ED patients were more likely to receive an appropriate antibiotic agent.

Learning Objectives:

Review the recommendations for the diagnosis and treatment of group A streptococcal pharyngitis, as outlined by IDSA guidelines.

Discuss potential reasons why providers may prescribe treatment to pediatric patients when not indicated by the guidelines.

Self Assessment Questions:

Approximately what percent of acute pharyngitis is caused by Streptococcus pyogenes?

A < 5%
B: 15 - 30%
C: 40 - 60%
D: > 70%

What is the main limitation of the throat swab culture for the diagnosis of GAS pharyngitis?

A It has low specificity
B It is difficult to get a good sample from a screaming child
C False negatives are common
D The long incubation period

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-600 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF OUTCOMES FOR POST-OPERATIVE ATRIAL FIBRILLATION

*Long To, PharmD, Doug Jennings, PharmD, BCPS (AQ-CV), James Kalus, PharmD, BCPS (AQ-CV), Carrie Nemerovski, PharmD, BCPS
Henry Ford Health System,2799 West Grand Boulevard,Detroit,MI,48202
lto1@hfhs.org

Purpose
Post-operative atrial fibrillation (POAF) is the most common arrhythmic complication of cardiac surgery. Although it is a self-limiting condition that rarely requires long-term therapy, POAF is associated with poor outcomes. Despite its relatively high prevalence, very little data is available to guide clinicians regarding choices between antiarrhythmic and anticoagulant strategies. As a result, the practice of treating POAF is heterogeneous. The purpose of this study is to identify the optimal treatment strategies for POAF patients treated at our institution.

Methods
This was a retrospective observational cohort study evaluating POAF patients from August 2008 to August 2010. Patients included in this study are those who were greater than 18 years of age undergoing cardiac surgery (coronary artery bypass graft, valvular repair, type A dissection repair, or myectomy) who also were diagnosed with POAF. Procedure codes and ICD-9 codes were used to identify POAF patients. Data collection included demographics, baseline labs (ie, liver function tests, pulmonary function tests, thyroid tests), duration of drug therapy, and adverse medication effects. Hospital discharge summaries were reviewed for up to 1 year or until the patient experienced one of the primary outcomes, which were hospital readmission from recurrent atrial fibrillation, stroke, bleeding, or adverse events associated with drug use. Rates for the primary outcome were compared between those who were treated with rate control or rhythm control and those who were treated with anticoagulation or no anticoagulation.

Results
Results and conclusions will be presented at the Great Lakes Residency Conference.

Learning Objectives:

Define the clinical outcomes associated with POAF

Identify the treatment regimens recommended by the CHEST guidelines in patients with POAF

Self Assessment Questions:

What are some potential complications associated with post-operative atrial fibrillation?

A Recurrent atrial fibrillation
B: Stroke
C: Myocardial Infarction
D: All of the above

Based on the limited available evidence, what are the recommended treatments for POAF based on the current CHEST guidelines?

A Beta-blocker for all POAF patients, amiodarone as antiarrhythmic t
B Beta-blocker, antiarrhythmic therapy, and warfarin prophylactically
C Initiation of anticoagulation should be considered on a risk versus l
D A and C

Q1 Answer: D Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-601 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

PHARMACIST IMPACT ON PATIENT CARE AND SATISFACTION AT AN OUTPATIENT INFUSION CENTER

Sara Toflinski*, Pharm.D., PGY1 Pharmacy Practice Resident ; Lauryl Kristufek, Pharm.D. , BCPS, CACP, Clinical Pharmacy Coordinator
Mercy St. Vincent Medical Center,110 East Perry,Walbridge,OH,434659798
sara_toflinski@mhsnr.org

Purpose:
Interaction with a pharmacist has a positive effect on patient satisfaction and provides improved management of adverse events experienced with chemotherapy. This prospective study will evaluate the impact of a pharmacist as part of an interdisciplinary team at an ambulatory infusion center. The primary objective is to improve patient satisfaction at the outpatient infusion center through medication education and management of adverse reactions.

Methods:
Patients 18 to 90 years old receiving chemotherapy at Mercy St. Charles infusion center from October 1, 2011 to November 30, 2011 were included. Prior to implementation, patients were administered a survey with cover letter for consent. The survey focused on satisfaction with pharmacy services as well as patient rating of nausea and pain using a 5 point Likert-type scale. Upon completion of pre-implementation surveys patients met with a pharmacist to discuss chemotherapy and proper management of adverse events. After meeting with the pharmacist, patients were asked to complete a follow up survey at the next appointment to measure satisfaction, nausea and pain ratings after applying information discussed with the pharmacist.

Results/Conclusion:
Thirty patients completed the pre-intervention survey. Eighty percent had not received counseling from a pharmacist while at the outpatient infusion center and satisfaction averaged 2.99. Pain scores averaged 2.95 and nausea scores averaged 2.7 pre-intervention. Twenty-two patients participated in the follow-up survey, response rate 73.3%. About 78% reported speaking with a pharmacist at the infusion center, satisfaction rated 4.57. On follow up, average pain score was 2.92, a decrease of 7.5%. Average nausea scores decreased to 2.7 on follow up, a decrease of 24.1%. Patient counseling by a pharmacist increased patient satisfaction and decreased nausea and pain ratings significantly. Based on the findings of the study pharmacists should be incorporated into the multidisciplinary team in outpatient infusion centers.

Learning Objectives:

Identify areas for improvement in patient care at ambulatory chemotherapy clinics by incorporating a pharmacist as part of the interdisciplinary team.

Explain how a pharmacist can impact patient satisfaction over the course of chemotherapy treatment.

Self Assessment Questions:

Which of the following is the best way a pharmacist can positively impact management of side effects in chemotherapy patients?

A Decrease incidence of adverse events of chemotherapy through pr
B: Address management of side effects only after they occur and the
C: Do not discuss side effect management with the patient; this shoul
D: Address how to manage side effects of chemotherapy with the pati

A pharmacist can contribute to patient satisfaction by which of the following

A Only discuss treatment related topics with patients and avoid discu
B Develop a trusting relationship with patients over the course of che
C Develop a relationship where the pharmacist is only available at th
D Have pharmacists in the central pharmacy in the basement of the h

Q1 Answer: A Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-772 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

PROSTACYCLIN CONVERSION PROTOCOLS FOR PATIENTS WITH PULMONARY HYPERTENSION

Jennifer S Tomczak, PharmD*, Frank C Spexarth, RPh, BCPS
Aurora Health Care,2900 W Oklahoma Ave,Milwaukee,WI,53215
jennifer.tomczak@aurora.org

Purpose: Parenteral prostacyclins play an important role in the treatment of pulmonary hypertension. Two of the most commonly used parenteral prostacyclin agents are epoprostenol (Flolan or Veletri) and treprostinil (Remodulin). Patients being treated with a parenteral prostacyclin occasionally require conversion to another agent in the same class due to adverse effects associated with the route of administration, inadequate response, or specific patient preference. Conversion from one drug to another requires careful titration and monitoring to avoid adverse events while maintaining disease control. The objective of this project is to create protocols for transitioning patients between epoprostenol IV, treprostinil IV, and treprostinil SQ. The development of these protocols will provide a more standardized approach for physicians and pharmacists to safely manage patients during prostacyclin conversions.

Methods: The preliminary steps of this project were to gather pharmacokinetic data on the parenteral prostacyclin medications and conduct a general literature search of current prostacyclin conversion strategies. Representatives from pulmonary hypertension clinics outside of Aurora St. Luke's Medical Center (ASLMC) were then contacted to obtain information about conversion protocols in place at other sites. Once this was completed, prostacyclin conversions previously conducted at ASLMC were evaluated and summarized. Using the information collected, the process of creating the protocols was initiated. Approval of each protocol will be obtained from the pulmonary hypertension clinic physicians. Once the final protocols are developed, education will be offered to physicians, pharmacists, and nurses.

Results/Conclusion: Data collection and analysis are in progress. The results and conclusions will be presented at the Great Lakes Residency Conference

Learning Objectives:

List possible limitations of parenteral prostacyclin agents

Identify reasons that patients may convert from one parenteral prostacyclin agent to another

Self Assessment Questions:

Which of the following are limitations of epoprostenol?

A Long half life
B: Good stability at room temperature
C: Short half life
D: Must be administered peripherally

Which of the following is a reason that patients may be converted from epoprostenol to treprostinil?

A Epoprostenol administration is more painful than treprostinil admin
B Treprostinil administration is more convenient than epoprostenol ad
C Epoprostenol is associated with decreased absorption compared to
D Treprostinil is less stable at room temperature compared to epopro

Q1 Answer: C Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-602 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

DEVELOPMENT OF A COMPLIANCE PACKAGING PHARMACY SERVICE FOR AN OUTPATIENT HIV CLINIC

Tiffany N. Town, PharmD.*, Sarah Kemink, PharmD., Joseph Graftema, PharmD. BCPS, Kim Debruin, CPhT, Scott Butler, CPhT, Kelly Maes, PharmD., Angela K. Green, PharmD., BCPS

Mercy Health Partners,1500 E. Sherman Blvd.,Muskegon,MI,49444

towntif@trinity-health.org

Background:
Adherence rates of ≥ 95% are recommended to prevent resistance and decrease risk of HIV/AIDS disease progression, making adherence vital to successful treatment. Many patients, including some of the 15,000 people in Michigan living with HIV/AIDS, find it difficult to take medications as prescribed for a variety of reasons including complicated regimens, number of doses per day, and food restrictions. Compliance packaging offers patients a simplified, organized option, which can reduce confusion related to medication regimens.

Purpose:
To evaluate the effect of compliance packaging on medication adherence rates in HIV clinic patients when compared to baseline adherence data collected through patient interview.

Methods:
A compliance packaging program for HIV clinic patients was implemented at Hackley Professional Pharmacy (HPP) in an effort to increase compliance rates. This IRB approved prospective study was conducted from January 2012 through April 2012. In preparation, compliance packaging options were reviewed and a process was created for the outpatient pharmacy. Patients included in the study were HIV clinic patients that have agreed to complete required study components and have had their HIV medications filled in compliance packaging at HPP. The primary outcome measure for this study is the impact of compliance packaging on adherence rates for the study participants. This was monitored with pharmacy software and monthly phone calls performed by the pharmacy resident. Secondary outcome measures include the impact of 340B pricing and pre- and post-study quality and satisfaction surveys to be completed by HPP personnel, HIV clinic nursing staff, and study participants.

Results:
Data collection currently in progress and will be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Identify potential barriers to medication adherence in the HIV/AIDS population

Describe how the utilization of compliance packaging can positively impact medication adherence

Self Assessment Questions:

Which of the following is/are common barriers to medication adherence?

A Good social and economic support systems
B: Complicated medication regimens
C: Dietary restrictions associated with some HIV/AIDS medications
D: B and C

Choose the correct statement from the choices below:

A Resistance is only a problem when patients forget multiple doses c
B Resistance can lead to increased viral load and limit therapy choic
C Resistance has no effect on medication therapy choices
D Resistance only occurs in patients with medications dosed multiple

Q1 Answer: D Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-649 -L02-P

Activity Type: Knowledge-based Contact Hours: 0.5

IMPLEMENTATION OF GUIDELINES FOR THE INITIATION AND TITRATION OF OPIOID THERAPY IN THE PEDIATRIC ONCOLOGY POPULATION

Jennifer Townsell, PharmD*; Reginald King, PharmD; Randall Knoebel, PharmD, BCOP

University of Chicago Medical Center,5841 South Maryland Ave.,Chicago,IL,60615

jennifer.townsell@uchospitals.edu

Purpose: This quality improvement project will assist in creating institutional guidelines for opiate initiation and titration in pediatric oncology patients. It is hypothesized that the guidelines will provide the necessary structure to guide pain management and improve patient outcomes and satisfaction. Many barriers exist which inhibit effective pain control. These include knowledge deficits, inappropriate dosing, inadequate or infrequent pain assessment, worrisome adverse drug effects and fear of tolerance or addiction. Within the pediatric population, these barriers are heightened. Unlike in adult oncology, in pediatric oncology there are no consensus guidelines available to aid the clinician in the selection of an appropriate analgesic agent and titration to an effective level of analgesia. As a result, prescribing practices must be extrapolated from the adult guidelines. This lack of specific age-appropriate guidelines is a contributing factor to the high incidence of error. The creation of such guidelines would facilitate higher quality pain management for this population.

Methods: The patient population will be identified through use of a drug utilization report identifying Comer Childrens Hospital inpatients who have received morphine, hydromorphone, fentanyl, and oxycodone from April through September 2011. This patient base will be divided into two arms, opioid-nave or non-nave, by review of prior to admission medications. Within each arm the inpatient initiation of opioid therapy will be reviewed. Based upon prescribing practices, each arm will be further divided into two groups: per-protocol versus off-protocol initiation. Per-protocol initiation is defined as adhering to the prescribing protocol proposed by this study. These groups will then be analyzed for analgesia outcomes within the first 24 hours following initiation. Within each patient population nursing documentation of pain scores, pain characteristics, interventions applied, and subsequent pain scores will be analyzed to evaluate baseline efficacy of current nursing documentation practices.

Results: To be presented

Conclusion: To be presented

Learning Objectives:

Identify appropriate initial opioid doses for both opioid naive and non-naive pediatric patients

Recognize barriers to achieving adequate pain control which are specific to the pediatric oncology population

Self Assessment Questions:

Which of the following pain scales may be appropriate for a pediatric oncology patient?

A Flacc
B: Wong-Baker Faces
C: Numerical Pain Scale
D: All of the above

Which are the four tenets of the pediatric opioid prescribing protocol?

A By the ladder, by the clock, by the dose, by the institution
B By the ladder, by the clock, by the mouth, by the child
C By the ladder, by the need, by the mouth, by the institution
D By the stairs, by the need, by the mouth, by the child

Q1 Answer: D Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-603 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

CLINICAL OUTCOMES AND PRESCRIBING PRACTICES OF CARBOPLATIN IN ADULT PATIENTS

Melinda Tran, PharmD*; Shawna Kraft, PharmD, BCOP; Erika Howle, PharmD, BCOP

University of Michigan Health System,1500 E. Medical Center Drive,Ann Arbor,MI,48109

meltran@med.umich.edu

Introduction: Carboplatin is a platinum alkylating agent used to treat a variety of malignancies and is unique in that it is the only chemotherapeutic agent that is dosed based on renal function. The Calvert formula has been widely used to calculate carboplatin doses and incorporates two important factors -- target AUC and pre-treatment glomerular filtration rate. Therefore, the optimum dosing of carboplatin is highly dependent on accurate measurements of renal function. In October 2010, the FDA released a statement regarding the national transition to the Isotope Dilution Mass Spectrometry (IDMS) method to measure SCr. The IDMS method results in lower SCr measurements compared to other assays, which could result in overestimation of the GFR calculation. Because the Calvert formula relies on accurate measurements of renal function, an overestimation of GFR may result in prescribing of higher carboplatin doses and increased toxicities. Therefore, the FDA proposed maximum carboplatin doses for patients, based on a GFR estimate of 125ml/min to avoid increased risk of toxicity. The purpose of this study is to retrospectively evaluate the incidence of toxicity in patients who received varying doses of carboplatin.

Methods: This retrospective chart review was approved by the Institutional Review Board. The health systems electronic medical record system will be used to identify adult patients who received carboplatin between August 1, 2009 and August 31, 2010. The following information will be gathered: weight, malignancy, chemotherapeutic agents used, date of infusion, carboplatin dose, target AUC, SCr, GFR, ANC, platelets, RBC, and Calvert formula adjustments. Data collection and analysis are currently ongoing. Results and conclusion will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Recognize the basic pharmacologic properties of carboplatin and carboplatin dosing.

Explain the potential pitfall of estimating glomerular filtration rate with the isotope dilution mass spectrometry (IDMS) method

Self Assessment Questions:

Which of the following best describes the elimination pathway of carboplatin?

A Carboplatin is primarily eliminated in the urine as the inactive meta
B: Carboplatin is primarily eliminated in the urine as unchanged drug.
C: Carboplatin is primarily eliminated in the feces as unchanged drug.
D: Carboplatin is primarily eliminated in the plasma via hydrolysis.

Which of the following best describes the potential pitfall to utilizing the IDMS method to measure serum creatinine?

A IDMS method overestimates serum creatinine compared to older n
B IDMS method underestimates serum creatinine compared to older
C IDMS method is less accurate than the alkaline picrate method (Ja
D IDMS method is comparable to other methods of measuring serum

Q1 Answer: B Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-604 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

IMPACT OF PHARMACISTS ON RISK OF ALL-CAUSE MORTALITY USING VETERANS AGING COHORT STUDY (VACS) INDEX IN AN URBAN HIV CLINIC

Mai-Chi* N. Tran, PharmD, Eric K. Farmer, PharmD, BCPS, AAHIVP, Lisa A. Fletcher, PharmD, BCPS, Julie Williams, PharmD, BCPS

Indiana University Health,1701 North Senate Blvd. Room AG401,Indianapolis,In,46206

mtran@iuhealth.org

Purpose:
As HIV-infected patients age, their survival is affected by long term toxicities from treatment as well as comorbidities. Currently, the risk indices in HIV have been based on CD4+ cell count, HIV RNA and AIDS defining conditions. The risk indices do not take into account chronic inflammation associated with comorbidities. The VACS Index accounts for age, HIV-1 RNA level, CD4+ cell count, composite markers for liver and renal injury, hepatitis C status and hemoglobin level. By combining HIV and "non-HIV" biomarkers associated with immunodeficiency and chronic viral inflammation, the Veterans Aging Cohort (VACS) Index is a multivariable risk index predicting 5-year risk of all-cause mortality in HIV infected patients.

The VACS Index is affected by patients treatment and adherence, which provides a potential opportunity to assess the overall impact of the pharmacists interventions on a defined populations disease progression. Pharmacists optimize therapy in the selection of antiretroviral regimens, patient education, and adherence counseling. The primary objective of this study is to evaluate pharmacists impact on risk of all-cause mortality in patients infected with HIV using the VACS Index.
Methods:
A retrospective, randomly selected chart review of HIV infected patients at Lifecare Program, an urban HIV clinic, at Indiana University Health was conducted at time 0 prior to the pharmacist arrival from July 1, 2009 to October 1, 2009 and at time 2 years after the arrival of the pharmacist from July 1, 2011 to October 1, 2011. Patients who are included must have required lab data drawn within the time period to calculate a VACS score. Patients who were pregnant were excluded.
The primary outcome is the difference in mean change in VACS Index between baseline and 2 years after the arrival of pharmacists. Secondary outcomes include mean change in CD4 count, community viral load, and presence of opportunistic infections.
Results/Conclusion:
To be presented pending completion of data collection

Learning Objectives:

Identify factors used to determine an HIV infected patients risk of all-cause mortality with the VACS index

Explain the role that pharmacist has to positively impact the VACS index

Self Assessment Questions:

All of the following contribute to determining the patients all-cause mortality with the VACS Index except:

A Cd4
B: Age
C: Gfr
D: Wbc

All of the following are activities a pharmacist can have to positively impact the VACS Index except:

A Optimizing antiretroviral therapy
B Diagnosing hepatitis B infections
C Managing adverse effects of antiretrovirals
D Providing adherence education

Q1 Answer: D Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-648 -L02-P

Activity Type: Knowledge-based Contact Hours: 0.5

INCIDENCE OF MYALGIAS IN PATIENTS TAKING SIMVASTATIN AND INTERACTING MEDICATIONS AT A VETERANS AFFAIRS MEDICAL CENTER

Jessica S. Triboletti, PharmD*, Amy S. Boldt, PharmD, Darin C. Ramsey, PharmD, BCPS

Richard L. Roudebush Veterans Affairs Medical Center,1481 West 10th Street,Indianapolis,IN,46202

jessica.larva@va.gov

STATEMENT OF PURPOSE: In June of 2011, guidance was set forth by the FDA regarding high-dose simvastatin and dosage limitations with interacting medications to reduce risk of adverse effects including myopathy. As a result, national Veterans Affairs recommendations were provided on how to modify practice to comply with dosage limitations. It is unclear whether the changes made were warranted based on previous occurrence of adverse effects in the veteran population.
The purpose of this study was to provide evidence to either support or refute the idea that simvastatin dosage restrictions are providing value to the safety of patients at the Roudebush VA Medical Center. As cholesterol-lowering medications are widely used in the veteran population and given high likelihood that patients have a concomitant interacting medication, the findings of this study have the potential to affect many patients and have an impact on budgetary or formulary restrictions. Given the recent presentation of these recommendations, similar studies have not been identified in the literature and the results of this study may aid in guiding clinical practice decisions.
STATEMENT OF METHODS USED: The primary objective was to evaluate the incidence of adverse effects in patients taking simvastatin and at least one interacting medication. A retrospective chart review was conducted on patients taking simvastatin and at least one interacting drug involved in a changed simvastatin dosage restriction. The interacting medications that were evaluated include ranolazine, amlodipine, diltiazem, and verapamil. To be included in the study, patients must have received their prescriptions from the VA between June 1, 2010 and May 31, 2011. Incidence of adverse effects was compared between two groups: those in accordance with the previous prescribing guidelines and those in accordance with the new recommendations. Statistical analysis was conducted using a student t-test for categorical variables.
RESULTS AND CONCLUSIONS: Results and conclusions were pending at the time of submission.

Learning Objectives:

Identify the differences between previous prescribing recommendations and updated recommendations from the Food and Drug Administration with regard to dosage limitations for patients taking simvastatin and an interacting medication.

Describe the risks associated with use of simvastatin and the implications of concomitant use of commonly used medications that have been associated with increased simvastatin effect.

Self Assessment Questions:

Which of the following is an accurate representation of the updated Food and Drug Administration recommendations with regard to dosage limitations for patients taking simvastatin and an interacting me

A Do not exceed 10mg of simvastatin daily when taken with ranolazi
B: Do not exceed 20mg of simvastatin daily when taken with amlodipi
C: Do not exceed 20mg of simvastatin daily when taken with verapam
D: Do not exceed 40mg of simvastatin daily when taken with diltiazem

Which of the following is a risk associated with simvastatin use which may be amplified when taking a concomitant interacting medication?

A Lower than normal creatine phosphokinase
B Increased serum creatinine
C Myopathy
D Lower than normal liver function tests

Q1 Answer: B Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-836 -L05-P

Activity Type: Knowledge-based Contact Hours: 0.5

COMPARISON OF INTRAVENOUS ACETAMINOPHEN WITH ADJUNCT OPIOIDS VERSUS STANDARD PAIN MANAGEMENT IN POSTOPERATIVE PATIENTS

*Mabel H. Truong, PharmD; Greg Mateyoke, PharmD; Alissa Langley, PharmD, BCPS; John Peppin, DO, FACP; Lauren Cottingham, PharmD

St. Joseph Hospital East,150 N Eagle Creek,Lexington,KY,40509

truongmh@sjhlex.org

Adequate pain management is a critical factor in postoperative patient care and better options are necessary to shorten the recovery process and decrease utilization of resources. Acetaminophen is a non-opioid, centrally acting analgesic and is available in a recently approved parenteral formulation that can be used for mild to moderate pain, alone or in conjunction with other analgesics for moderate to severe pain. Studies have shown synergistic utility of acetaminophen or NSAIDS with opiates to provide improved pain management based on visual analog scales (VAS) assessment, and minimal observed side effects, particularly lower incidence of nausea and vomiting. The purpose of this study is to compare efficacy and safety in postoperative patients receiving intravenous acetaminophen with adjunct opioids versus standard pain management therapy.

This is an IRB approved retrospective multicenter analysis and at Saint Joseph Hospital and Saint Joseph East in Lexington, Kentucky from January 2008 through December 2011. Patients 18 years and older who received postoperative pain management for specific surgical procedures (laparascopic cholecystectomy, appendectomy, hysterectomy, gastric bypass) were included. Patients with multiple surgical procedures per encounter were excluded. The treatment group received intravenous acetaminophen with adjunct opioids and was matched with a control group that has received standard postoperative pain management. For every patient in the treatment group, 2 similar patients in the control group were matched by age, gender, femoral block use, surgeon, and surgical procedure. Primary outcome measures were pain control from pain score and length of hospitalization. Secondary measures were total amount of opioid use and number of nausea and vomiting events.

A total of 47 patients met inclusion criteria in the treatment group and of the 4810 patients evaluated, 94 met criteria to be matched in the control group. Results are pending and will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Describe physiologic responses to inadequate pain control

Identify proposed benefits of intravenous acetaminophen usage

Self Assessment Questions:

Which of the following are physiologic changes that can be observed in patients with inadequate pain control?

A Decreased heart rate and blood pressure
B: Increased GI motility and secretions
C: Hypoventilation and hypoxia
D: Lethargy and sedation

What are the proposed benefits of intravenous acetaminophen?

A Increased pain intensity
B Decreased pain relief
C Decreased absorption
D Decreased opiate use

Q1 Answer: C Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-605 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

DOES THE USE OF IV ACETAMINOPHEN IN GENERAL SURGICAL PATIENTS REDUCE OPIOID AND NSAID USE IN A COMMUNITY HOSPITAL?

Veneta P. Tsonev Pharm.D.*, Thomas J. Vasdekas, MD, Daniel Abazia, Pharm.D., BCPS

Palos Community Hospital,12251 S. 80th Avenue,Palos Heights,IL,6046

vtsonev@paloscomm.org

Purpose:
Effective pain management is an important component of postoperative care. Combination with nonopioid analgesics has been suggested to provide multimodal analgesia and improve the treatment of postoperative pain. In addition, these regimens may decrease opioid dose requirements and may reduce associated adverse events. Presently, nonsteroidal anti-inflammatory drugs (NSAIDs) and acetaminophen are used as adjuncts to opioid-based analgesia. Acetaminophen has less of a risk of serious adverse effects compared to NSAIDS and a desirable analgesic profile. An intravenous form of acetaminophen has been recently approved by the FDA for pain management and fever reduction. The purpose of this study is to evaluate if the use of IV acetaminophen reduces utilization of opioids and NSAIDs in postoperative patients at a community hospital.

Methods:
A retrospective chart review of patients treated for post-surgical pain 3 months pre- and 3 months post-addition of IV acetaminophen to the formulary was conducted. Patients were identified using the Palos Community Hospital (PCH) clinical information system. Data collected include: PACU/inpatient LOS, pain scores, liver function tests, blood pressure, heart rate, and respiratory rate. The two groups data was randomized and the first 25 patients in each group were included for evaluation and analysis. The primary endpoints of the study are total morphine equivalent dose and NSAIDs dose required during the first 24 hours post-op. Informed consent from the patients was not required.

Results:
A total number of 163 patients were identified in the pre-IV APAP group, and a total of 237 patients were evaluated in the post-IV APAP group. Data analysis will be performed to evaluate the reduction of opioid and NSAID use after the addition of IV acetaminophen to PCH formulary.

Conclusion:
It is expected that adjunct therapy with IV acetaminophen in postoperative pain management will show decrease in the use of opioids and NSAIDs.

Learning Objectives:

Describe recommended postoperative treatment regimens.

Identify the properties that make IV acetaminophen an appropriate adjunct agent in postoperative pain control.

Self Assessment Questions:

Which of the following is part of the multimodal analgesia used in post-operative pain management:

A Opioids
B: NSAIDs
C: Acetaminophen
D: All of the above

Which of the following properties make IV acetaminophen an appropriate adjunct agent in post-op pain treatment:

A Fast onset
B No side effects
C Centarlly acting
D A and C

Q1 Answer: D Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-606 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

SAFETY OF MONITORING UNFRACTIONATED HEPARIN INFUSIONS IN CRITICALLY ILL PATIENTS USING ANTI-FACTOR XA VERSUS APTT ASSAYS

Abigail L. Tucker* PharmD; Michael W. Cunningham PharmD; Neil E. Ernst PharmD; Eric W. Mueller PharmD;

UC Health-University Hospital,234 Goodman St,MI 0740,Cincinnati,OH,45219

abigail.tucker@uchealth.com

Purpose:
Unfractionated heparin (UFH) is used in a variety of situations for anticoagulation of critically ill patients, including the prevention and treatment of venous thromboembolism. Due to intra-patient variations in clinical response and pharmacokinetics, the management and titration of UFH to therapeutic effect can be difficult, further imbalancing the risk-benefit relationship for this high-alert medication.

Clinical monitoring of the therapeutic effects of heparin is usually performed by either the activated partial thromboplastin time (aPTT) or anti-factor Xa assay. Published studies comparing aPTT and anti-factor Xa assays suggest anti-factor Xa-based protocols may allow faster time to therapeutic anticoagulation and improved maintenance within the therapeutic range. However, no studies to date have specifically compared the safety of these assays for monitoring anticoagulation in critically-ill patients. Since UC Health changed its heparin monitoring protocols from aPTT-based to anti-factor Xa-based in August 2010, the investigators have made several anecdotal observations of discordance between sub-therapeutic and therapeutic anti-factor Xa values paired with very high aPTT values in critically-ill patients who developed major bleeding complications. Due to safety concerns, UC Heath has planned a quality assurance project evaluating aPTT and anti-factor Xa monitoring of heparin.

Methods:
This single-center, multi-disciplinary quality assurance project aims to prospectively examine intra-patient variability in matched aPTT and anti-factor Xa levels in 100 consecutive critically-ill and non critically-ill patients at UC Health University Hospital receiving continuous infusions of UFH. The primary purpose is to examine the incidence of intra-patient discordance and to identify potential predictive measures of that discordance which can be used to develop clinical decision pathways. Secondary clinical outcome measures include incidence of thrombosis as well as significant bleeding.

Results:
Results and conclusions are pending and will be presented at the Great Lakes Regional Pharmacy Conference.

Learning Objectives:

Describe the aPTT and anti-Xa assays commonly used to monitor anticoagulation with unfractionated heparin.

Discuss factors present in critical illness that may interfere with either the aPTT or anti-factor Xa assays for unfractionated heparin monitoring.

Self Assessment Questions:

Which of the following does not interfere with the anti-factor Xa assay?

A Warfarin therapy
B: Antithrombin III deficiency
C: Elevated serum triglycerides
D: Elevated serum bilirubin level

Antithrombin III deficiency has which of the following effects on the anti-factor Xa assay?

A True elevation
B True depression
C False elevation
D False depression

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-607 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

PHARMACY PRACTICE MODEL INITIATIVE (PPMI) IMPLEMENTATION IN A COMMUNITY HOSPITAL SETTING

Joshua J. Unsworth*, PharmD; Nicholas Link, PharmD, BCOP; Randall Voytilla, PharmD, PhD; Mary E. Temple, PharmD, BCPS; Michael A. Jakubecz, RPh, MBA

Hillcrest Hospital- A Cleveland Clinic Hospital,6780 Mayfield Road,Mayfield Heights,OH,44124

unsworj@ccf.org

Purpose: The pharmacy profession is evolving from a dispensing oriented model to a patient-centered care model, as a result of the initiative from the American Society of Health-System Pharmacists (ASHP) practice model summit. The Pharmacy Practice Model Initiative (PPMI) is a framework for advancing the health and well-being of patients in hospitals and health systems by developing and disseminating optimal pharmacy services based on the effective use of pharmacists as direct patient care providers. Successful implementation of the PPMI is well documented in academic health care systems, however Hillcrest hospital is a community based non-teaching medical center. The recent implementation of Computerized Physician Order Entry (CPOE) allowed us to evaluate our current order entry and dispensing model and evolve into a nursing unit based order verification model with a focus on patient counseling. To facilitate our PPMI, the staff pharmacists will embark upon a didactic educational program over the next two years. We hypothesize staff pharmacists will demonstrate increased clinical knowledge through didactic education provided by the clinical pharmacy staff. This will allow us to maintain exceptional core measure scores, which will be evaluated as a secondary endpoint.

Methods: This will be a single center, prospective, paired, cross-over study designed to test the change in pharmacists knowledge after didactic education. The primary endpoint will be change in staff pharmacist knowledge, and will be tested by a pre-test and post-test. The primary endpoint will be analyzed by a student paired t-test. To ensure integrity of current core measures, fall outs will be assessed via six sigma u-chart. Data collection time intervals will include three months pre-PPMI and three months post-PPMI.

Results/Conclusions: Data collection and result analysis are currently in progress and will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Identify the transition of staff pharmacist roles and responsibilities in regards to nursing unit based order verification model with a focus on patient counseling, and provide background on the management strategy to increase the clinical acumen of the staff pharmacists while maintaining pre-PPMI quality measure scores.

Discuss data regarding the change in staff pharmacist clinical knowledge through didactic education and evaluation with a pre-test and post-test.

Self Assessment Questions:

Where is successful implementation of the Pharmacy Practice Model Initiative (PPMI) documented within literature?

A Academic Health Care Systems
B: Community hospitals
C: Rural hospitals
D: Retail pharmacies

What is the definition of the Pharmacy Practice Model Initiative (PPMI)?

A Increase technological advances within the profession of pharmacy
B Promote prescribing privileges for certified pharmacists
C Advancing the health and well-being of patients by developing opti
D Allow pharmacists to bill for provided services

Q1 Answer: A Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-608 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

LOCAL SUSCEPTIBILITY PATTERNS AND STEADY-STATE PHARMACOKINETICS/PHARMACODYNAMICS OF CEFAZOLIN AND CEPHALEXIN IN HOSPITALIZED PATIENTS

Sara S Utley, Pharm.D.*, S. Christian Cheatham, Pharm.D., Michael B. Kays, Pharm.D., Matthew Wack, M.D., Megan R. Fleming, Pharm.D., Katherine M. Shea, Pharm.D.

St. Francis Hospital,Dept of Pharmacy,8111 S. Emerson Ave,Indianapolis,IN,46237

sara.utley@franciscanalliance.org

Purpose

Cefazolin and cephalexin are 1st generation cephalosporins often used as step-down therapy for gram positive and gram negative infections. A paucity of pharmacokinetic-pharmacodynamic (PK-PD) data exists for both agents; the majority of data is from studies conducted in healthy volunteers more than 30 years ago. The purpose of this study is to evaluate the pharmacokinetics of cefazolin and cephalexin in infected patients to determine pharmacodynamic target attainment of current doses and optimal doses in obese patients. Additionally, this study will determine minimum inhibitor concentration (MIC) distributions of cefazolin, cephalexin, and cephalothin for recent patient isolates of E. coli, K. pneumoniae, P. mirabilis, and methicillin-susceptible S. aureus.

Methods

Patients deemed eligible for inclusion were administered weight based cefazolin intravenously and cephalexin orally for 24 hours. Blood samples were drawn around the dose at steady state. Urine was also collected throughout the sampling period. Drug concentration and protein binding were determined using validated HPLC. PK-PD software was utilized to determine target attainment data.

To determine MIC distribution of K. pneumoniae, E. coli, P. mirabilis and methicillin-susceptible S. aureus (MSSA), consecutive, non-duplicate isolates of from sterile body sites were collected by the microbiology laboratory departments at participating sites. MICs for cefazolin, cephalothin, and cephalexin were determined by broth microdilution using CLSI guidelines.

Results

Conclusion

Learning Objectives:

Identify the CLSI breakpoint for the 1st generation cephalosporin cefazolin.

Recall the pharmacodynamic principle that predicts for optimal outcomes in cephalosporins.

Self Assessment Questions:

The current CLSI breakpoint for cefazolin is:

A 8 mcg/mL
B: 4 mcg/mL
C: 2 mcg/mL
D: 1 mcg/mL

To optimize outcomes with cephalosporin treatment, pharmacists should optimize:

A The peak concentration of free drug at the site of infection
B The peak to MIC ratio of free drug in the serum
C The amount of time the free drug is above the MIC
D The AUC to MIC ratio of free drug in the serum

Q1 Answer: C Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-609 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

IMPLEMENTATION OF CLINICAL DECISION SUPPORT TOOLS FOR THE MANAGEMENT OF ADULTS WITH DIABETIC KETOACIDOSIS (DKA) TO MAXIMIZE QUALITY OUTCOMES

Sophia Vainrub*, PharmD; Julie Cable, PharmD, BCPS; Gwen Klinkner, MS, RN, APRN, BC-ADM, CDE ; Philip Trapskin, PharmD, BCPS

University of Wisconsin Hospital and Clinics,4829 Sheboygan Ave apt 217,Madison,WI,53705

svainrub@uwhealth.org

PURPOSE

In 2009, the American Diabetes Association (ADA) issued a consensus statement on the diagnosis, treatment, and prevention of DKA in adult patients. The annual incidence of DKA from population-based studies is estimated to range from 4 to 8 episodes per 1,000 patient admissions with diabetes and continues to increase, with DKA accounting for about 136,510 hospitalizations in 2006. Deviations from the recommended standard treatment may lead to suboptimal clinical outcomes and increased length of hospitalization. This investigation aims to characterize differences from ADA recommendations, improve adherence to best practice treatment recommendations, and evaluate the impact on DKA patient care. Primary outcomes include the length of the DKA episode, length of hospital stay, and number of readmissions within 30 days and 3 months of hospitalization. Secondary measures examine repletion of electrolytes, insulin therapy, selection of IV fluids, and number and severity of episodes of hypoglycemia.

METHODS

A chart review of adult patients who presented in DKA between July 1, 2010 and June 30, 2011 was performed to assess clinically important areas of deviation from best practices. Patients were identified based on ICD-9 codes and data was collected through Health Link, the hospitals electronic medical record. Based on the results, the adult admission DKA order set is in revision and a UWHC-specific DKA treatment algorithm is being created. A Health Link monitoring tool is in development to assist pharmacists in making proactive interventions at key stages of DKA treatment and in communicating care provided to patients in DKA.

RESULTS/CONCLUSION: Results and conclusions to be presented at the Great Lakes Residency Conference.

Learning Objectives:

Review main components of the ADA algorithm for DKA management in adult patients

Discuss patterns of DKA treatment revealed through data collected at one academic medical center

Self Assessment Questions:

What was the estimated treatment cost of DKA as of 2009, in US dollars?

A 130 million

B: 780 million

C: 1.5 billion

D: 2.4 billion

What laboratory values characterize DKA?

A Blood glucose >600 mg/dL, pH <7.3, and bicarbonate ≥15 mmol/L

B Blood glucose >600 mg/dL, pH <7.3, and bicarbonate <15 mmol/L

C Blood glucose ≥250 mg/dL, pH <7.3, and bicarbonate <15 mmol/L

D Blood glucose ≥250 mg/dL, pH <7.3, and bicarbonate <20 mmol/L

Q1 Answer: D Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-610 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF APPROPRIATE USE OF ANTIBIOTICS IN PATIENTS WITH COMMUNITY ACQUIRED PNEUMONIA

Sonali P. Vakharia, PharmD*, Tana E. Hannawa, PharmD, Dustin B. Gladden, PharmD

St. Joseph Mercy Oakland,44405 Woodward Avenue,Pontiac,MI,48341

sonalivakharia@gmail.com

Purpose:

Antibiotic stewardship is necessary to ensure appropriateness of antibiotic use, maximize efficacy, and reduce rates of resistance. The purpose of this study is to evaluate the appropriate use of antibiotics in patients with Community Acquired Pneumonia (CAP) at St. Joseph Mercy Oakland Hospital (SJMO). The target for appropriate prescribing of antibiotics for CAP at SJMO is 100%.

Methods:

This is a retrospective cohort study of patients admitted for CAP from July, 2010 through July, 2011. Patients were excluded if they had any risk factors for Hospital-Acquired Pneumonia, Ventilator-Associated Pneumonia, Healthcare-Associated Pneumonia, or any other bacterial infections requiring the use of antibiotics. The primary outcome was to evaluate the appropriate prescribing of antibiotics according to the SJMC criteria for CAP. SJMO criteria are based upon Infectious Disease of Society of America (IDSA) Guidelines and hospital microbiological data. Patients were evaluated for appropriate route of administration and duration of therapy. The secondary outcome was to evaluate whether discharge antibiotics and their duration were appropriate.

Results:

A total of 200 patients were reviewed, and 50 patients met the inclusion criteria for this study. Antibiotics were initiated appropriately in 80% of patients, and duration of therapy was appropriate in 67% of patients. Route of administration was appropriate in 47% of patients leading to prolonged intravenous administration by 1.8 days. Patients were discharged on appropriate antibiotics 53% of the time, and of the 50 patients studied, 38% were discharged on the appropriate duration of antibiotics.

Conclusion:

Based on these findings, antibiotics prescribed for CAP at SJMO did not meet the target goal of 100%. Route of administration and duration of therapy did not meet the IDSA Guidelines criteria. Education, closer monitoring, and addition of an antibiotic stewardship program should help improve rates of appropriate use of antibiotics.

Learning Objectives:

List first-line treatments for Community Acquired Pneumonia.

Identify factors for switching from intravenous antibiotic treatment to oral treatments in Community Acquired Pneumonia.

Self Assessment Questions:

According to the IDSA Guidelines, which of the following criteria should a patient with CAP meet in order to switch from intravenous to oral administration of antibiotics?

A Temperature is less than 37.8 degrees Fahrenheit

B: Patient is not able to maintain oral intake

C: Systolic blood pressure is less than 90 mm Hg

D: Respiratory rate is greater than 30 breaths per minute

What is the appropriate first-line treatment for a patient with CAP who has diabetes and a penicillin allergy (anaphylaxis)?

A Azithromycin 500 mg IV or PO daily

B Azithromycin 500 mg PO daily plus ceftriaxone 1 gram IV daily

C Levofloxacin 500-750 mg PO or IV daily

D Doxycycline 100 mg PO BID

Q1 Answer: A Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-611 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF EXTENDED INFUSION PIPERACILLIN/TAZOBACTAM COMPARED TO TRADITIONAL DOSING ON LENGTH OF HOSPITAL STAY AND ASSOCIATED COST SAVINGS

Jessica L. Valentine, PharmD*, Jon P. Wietholter, PharmD, BCPS, Edgar R. Gonzalez, PharmD, FASHP

Cabell Huntington Hospital,1340 Hal Greer Blvd,Huntington,WV,25701

jessica.valentine@chhi.org

Background

Piperacillin/tazobactam is a beta-lactam antibiotic with broad-spectrum bactericidal activity. The pharmacodynamics of piperacillin/tazobactam are time dependent; thus, it is more effective when a greater amount of time is spent with its concentration above the minimum inhibitory concentration (MIC) of the offending organism. In January 2009, Cabell Huntington Hospital implemented an automatic interchange of extended infusion piperacillin/tazobactam which converted each dose of antibiotic to infuse over four hours instead of the traditional 30 minutes.

Purpose

This study evaluated the cost effectiveness of the conversion to extended infusion piperacillin/tazobactam at Cabell Huntington Hospital. Primary objectives include hospital and patient cost savings of piperacillin/tazobactam extended infusion, as well as length of hospital stay.

Methods

This study was a retrospective analysis of electronic medical records at Cabell Huntington Hospital in Huntington, West Virginia identifying patients that received piperacillin/tazobactam from March 1, 2008 through February 28, 2010. Inclusion criteria included: age ≥ 18 years; piperacillin/tazobactam therapy ≥ 72 hours; confirmed piperacillin/tazobactam susceptible bacterial infections or empiric therapy with negative culture results. Exclusion criteria were: ESBL bacterial infections; piperacillin/tazobactam therapy < 72 hours; and infection with organisms intermediate or resistant to piperacillin/tazobactam. Patients were divided into two cohorts: 1) those that received piperacillin/tazobactam in a 30 minute infusion, or 2) those that received piperacillin/tazobactam extended infusion.

Results

Data collection and analysis are ongoing. Results will be presented at the Great Lakes Pharmacy Conference.

Learning Objectives:

Describe why the pharmacokinetic/pharmacodynamic profile of piperacillin/tazobactam favors extended infusion.

Discuss the cost effectiveness of piperacillin/tazobactam extended infusion as compared to the traditional 30 minute infusion.

Self Assessment Questions:

Which statement is true regarding the killing potential of piperacillin/tazobactam?

A Extended infusion piperacillin/tazobactam increases the time of co
B: Extended infusion piperacillin/tazobactam decreases the time of cc
C: Piperacillin/tazobactam is a bacteriostatic antibiotic.
D: Piperacillin/tazobactam has a concentration dependent pharmacoc

Which of the following are potential benefits for extended infusion piperacillin/tazobactam?

A Cost savings and increased IV catheters
B Shorter treatment duration and cost savings
C Cost savings and reduced mortality
D Reduced mortality and increased IV catheters

Q1 Answer: A Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-773 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

INVENTORY REDUCTION STRATEGIES WITHIN AN INTEGRATED HEALTH CARE SYSTEM

Nicholas J. Van Gompel, PharmD*, Greg Weber, MS, RPH

Aurora Health Care,2900 W. Oklahoma Ave,Milwaukee,WI,53215

nicholas.van.gompel@aurora.org

Background

Elevated health care costs and decreased reimbursement rates put pressure on hospitals and clinics to identify cost saving strategies. The largest expense to a hospital pharmacy is associated with medication acquisition, which commonly lends drug inventory as a major focus for cost containment measures.

Purpose

The primary goal was a $800K (7.4%) reduction of inventory costs throughout 15 hospitals, and $1.25M throughout 7 oncology clinics. A secondary goal to measure a 10% gap closure between current hospital inventory turns and the hospital specific goal based on average daily census.

Methods

An external consultant identified inventory management opportunities and estimated potential cost savings for management techniques including A-Item Initiative and C-II Safe Management. The highest 50 drugs or 70% of wholesaler expensed medications comprised the A-List items. Purchase history was used to establish max and reorder points for the A-List medications and targeted a turn rate of 18. The C-II Safe Management implementation used historic usage patterns to set par levels that targeted 12 inventory turns. On site visits and interactive presentations were utilized to complete implementation. Year end inventory assessment from 2010 of $10.86M served as comparison for 2011.

The oncology clinics previously did not have organized inventory control mechanisms in place. Integration of pharmacy technicians and automated storage cabinets was completed during 2011. A return on investment was completed to measure the financial impact of the automated cabinets.

Results

Hospital control strategies were implemented approximately 45 days before yearly inventory assessment was completed. A total system inventory reduction of $1.54M was achieved during 2011 when compared to the 2010 baseline value. Inventory turn rate was increased by an average of 2.3 turns per year across the system. The seven oncology clinics achieved an additional $1.3M from inventory cost savings during 2011. A return on investment analysis found a 616% rate of return.

Learning Objectives:

Describe at least one process for establishing inventory par levels

Explain the importance of inventory par levels

Self Assessment Questions:

What is the importance of higher turn ratre for A-List medications compared to non-A-List inventory?

A Reduces product handling time
B: Increases quantities of expensive medications
C: Increases the total turn rate for your remaining inventory
D: Reduces the amount you spend on drop shipments

2.In which of the following time spans after implementation would you expect to see an inventory control strategy to display accurate inventory reductions?

A 4 – 6 weeks
B 60 – 90 days
C 3 – 4 months
D 0 – 30 days

Q1 Answer: C Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-774 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

PHARMACY TECHNICIAN MEDICATION HISTORIES IN THE EMERGENCY DEPARTMENT, A PILOT STUDY

Tyler Van Schyndel, PharmD*; Jordan Dow, MS, PharmD; Jill Zimmerman, MS, PharmD; Lisa Kann, CPhT; Todd Karpinski, MS, PharmD; Froedtert Hospital, Milwaukee, WI

Froedtert Hospital,2036 N Prospect Ave,Milwaukee,WI,53202

tyler.vanschyndel@froedterthealth.org

Purpose:
A key component of the pharmacy practice model initiative is to advance pharmacy technician roles. This workload shift will become critical in allowing pharmacists to practice at the top of their license. The objective of this pilot study is to evaluate the efficiency, accuracy, and timeliness of technician collection of medication histories in the Emergency Department.

Methods:
This study tracked a single technicians collection of medication histories over the course of three weeks in the Emergency Department at Froedtert Hospital in Milwaukee, WI. Technician efficiency was measured by technician documentation of time spent per history, number of histories collected per day, and number of medication modifications per patient. Technician accuracy was measured using pharmacist documentation, at the time of verification, of the number and types of discrepancies. Technician timeliness was measured by electronic tracking of time from medication history completion until the entry of admission orders.

Results:
The piloting technician collected 147 histories spending 20.3 minutes per history, averaging 13.4 histories per day, and modifying 4.9 modifications per patient. The pharmacist identified 0.3 discrepancies per history when verifying the technicians work. Technician medication histories were collected prior to admission orders 98.5% of the time. This compared to pharmacist medication histories collected on the floor, which were collected prior to admission orders 10.6% of the time.

Conclusions:
The results of our pilot study demonstrate the efficiency, accuracy, and timeliness of technicians in the expanded role of medication history collection.

Learning Objectives:

Discuss the benefit of having pharmacy technicians collect medication histories.

Describe the benefit of having medication histories collected before admission orders are written.

Self Assessment Questions:

Which is true for Froedterts pilot of pharmacy technicians collecting medication histories in the emergency department?

A Pharmacists found 4.9 discrepancies in the technician's work
B: The pharmacy technician updated the patient's medication list befo
C: The pharmacy technician updated the patient's medication list befo
D: The pharmacy technician did not call pharmacies to verify medicati

Accurate medication histories can accomplish which of the following?

A Create therapy duplication at discharge.
B Prevent all prescribing errors at admission.
C Potentially uncover reasons for a patients illness.
D Lead to interrupted therapy during the hospital stay.

Q1 Answer: C Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-775 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

DEVELOPMENT AND IMPLEMENTATION OF AN INTERDISCIPLINARY PAIN CONSULT SERVICE IN A COMMUNITY HOSPITAL

Joshua P. Vanderloo, PharmD*; William J. Herbert, RPh, MS; Michael S. Nyffeler PharmD, BCNSP

Meriter Hospital,202 S Park St,Madison,WI,53715

jvanderloo@meriter.com

Purpose:
The treatment and management of pain in the United States costs at least 100 billion dollars annually and future hospital reimbursement will be associated with effective pain management. The purpose of this study is to develop and implement an interdisciplinary pain consult service (IPCS) at Meriter Hospital with a hypothesis that provision of a defined plan of care for the specified population will improve pain management outcomes as reflected by Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) scores. Additionally, other metrics will measure the impact of the IPCS.

Methods:
General medicine service patients were screened for inclusion to the study or referred by a member of their treatment team. Exclusion criteria include obstetrics patients, patients younger than 18 years, and patients with an admitting diagnosis of substance abuse or withdrawal. The IPCS performed relevant chart review, met with and interviewed the patient, and made recommendations to the patients provider. Chart review included, but was not limited to: admitting diagnosis and potential role in patients pain, chronic pain problems, and current pain management. A follow-up visit and chart review was conducted by the IPCS 24 to 48 hours after the initial visit. The follow-up visit assessed if suggested changes to the pain management plan were implemented and the clinical impact of the changes.

Impact measurement of the IPCS will be achieved through two mechanisms. First, HCAHPS scores relevant to pain management on the general medicine service will be compared pre- and post-deployment of the IPCS. Second, the utility of the interdisciplinary pain consult team will be evaluated through the number of consult requests received, the number of patients seen, the frequency of recommendation acceptance, and evaluation of nurse and physician satisfaction with the interdisciplinary team.

Results: To be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Identify the pharmacists role in providing acute pain management services in the hospital

Describe basic approaches and techniques for improving pain management in the hospitalized patient

Self Assessment Questions:

In the hospitalized patient high quality pain management may lead to

A Decreased length of stay
B: Decreased satisfaction of care
C: Increased cost of hospitalization
D: Reduced rates of reimbursement

A common approach for managing the hospitalized patient with inadequate pain control includes:

A Restarting home pain medications while patients are hospitalized
B Initiating ketamine infusions to reduce opioid use
C Using only "as needed" analgesics for around the clock pain
D Selecting two different agents for scheduled medication and as nee

Q1 Answer: A Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-612 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF IV ACETAMINOPHEN AFTER TOTAL HIP AND TOTAL KNEE REPLACEMENT

Jeremy D. VanHoose* PharmD, Joan B. Haltom, PharmD, Michelle D Fraley, PharmD, Jeffrey W Heath, PhD

Ephraim McDowell Regional Medical Center,217 S. Third Street,Danville,KY,40422

jvanhoose@emrmc.com

Purpose: Multiple adverse events are possible after surgery that opioid medications can precipitate. Opioid analgesic use risks include post-operative ileus, respiratory depression, and somnolence. Using an adjunctive analgesic like intravenous acetaminophen may reduce the daily dose of opioids and therefore these risks could be decreased. Additionally, concomitantly using another medication from a different class may produce more desirable analgesia and provide patients with better pain control.

Methods: A retrospective chart review of patients who had total hip or knee replacement during their hospital admission will be conducted to evaluate primary and secondary endpoints. The treatment group will consist of patients who received intravenous acetaminophen while the control group will not receive adjunctive intravenous acetaminophen but will receive usual standard of care consisting of opioid therapy. The primary endpoint will be the difference in average pain score at 24 and 48 hours between both treatment and control groups. Secondary endpoints to determine if differences exist in morphine equivalents used in 48 hours, time to first bowel movement, and physical therapy participation between the two groups. Adverse events associated with opioid administration will also be discussed as well as length of stay.

Results: Data collection is ongoing. Results will be presented at residency conference.

Learning Objectives:

Identify potential benefits of decreased opioid consumption

Discuss differences, if any, IV acetaminophen had on opioid requirements

Self Assessment Questions:

Which is/are potential risk(s) of opioid consumption for surgery?

A Post-operative Ileus

B: Excessive Sedation

C: Respiratory Depression

D: All of the Above

Intravenous acetaminophen has been shown to

A Increase patient satisfaction

B Be effective as monotherapy in patients with severe pain

C Increase time to rescue medication

D A and C

Q1 Answer: D Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-613 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

IMPACT OF PHARMACIST INVOLVEMENT ON ACCURACY OF DISCHARGE MEDICATION RECONCILIATION AT A RURAL COMMUNITY TEACHING HOSPITAL

Julie R. Vanlandingham, PharmD*, Jeffrey M. Cavanaugh, PharmD, BCPS, Margo N. Ashby, PharmD, BCPS

Trover Health System Regional Medical Center,900 Hospital Drive,Madisonville,KY,42431

jrvanlan@trover.org

Purpose: Medication reconciliation is recognized as an important factor in preventing medication errors and hospital readmissions after discharge. The Joint Commission requires hospitals to provide patients with a complete and accurate list of medications at discharge from the inpatient setting. Studies have examined the impact of pharmacist involvement in the medication reconciliation process throughout the course of hospital care, and have demonstrated improved outcomes with involvement in discharge medication reconciliation. Pharmacists at Trover Health System began performing discharge medication reconciliation for select patients with a diagnosis of congestive heart failure (CHF) in January 2011, and expanded the service to include patients with diagnosis of acute myocardial infarction (AMI). The objective of this study is to determine the impact of pharmacist involvement on accuracy of discharge medication reconciliation compared to the current process utilized at this facility.

Methods: In order to examine pharmacist impact on the medication reconciliation process, a list of interventions documented by pharmacists performing discharge medication reconciliation for CHF or AMI patients in 2011 was obtained. Interventions were classified according to type, and number of interventions per patient was documented. Discharge records were reviewed for a random selection of patients with a diagnosis of CHF, comparing current process and pharmacist intervention. The discharge medication reconciliation orders completed by the discharging physician were reviewed for discrepancies and appropriate therapy, and the orders were compared to home medication instructions and prescriptions given to the patient at discharge. Discrepancies occurring on discharge orders or home medication instructions were documented as a variance and classified according to type. The number and type of variances were compared between the two groups of patients to determine whether pharmacist involvement in the medication reconciliation process produces more accurate results.

Results: Data collection and analysis is ongoing.

Conclusions: Final results and conclusions will be presented.

Learning Objectives:

Discuss the impact of discharge medication reconciliation on medication errors, readmissions, and patient outcomes.

Recognize common types of medication variances that may be identified during discharge medication reconciliation.

Self Assessment Questions:

Medication reconciliation is most accurately described as:

A The process of comparing a patient's medication orders to current

B: Obtaining an accurate list of home medications from a patient and

C: Providing a medication list to a patient upon discharge from the ho

D: Providing counseling to a patient at discharge regarding their home

Medication variances that may be identified during discharge medication reconciliation include:

A Conflicting dose information

B Patient compliance

C Therapeutic duplication

D A and C

Q1 Answer: A Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-837 -L05-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF A INSULIN INFUSION PROTOCOL

Lindsey VerBunker*, Frank Spexarth
Aurora Health Care,2900 W Oklahoma Avenue,Milwaukee,WI,53215
lindsey.verbunker@aurora.org

Purpose: Safety concerns with tight glucose control in hospitalized patients led the American Association of Clinical Endocrinologists (AACE) and American Diabetes Association (ADA) to reexamine target glucose ranges. Until recently, Aurora Health Care utilized various insulir infusion protocols. A system wide protocol was implemented in July, 2011 to ensure a consistent approach for the management of insulin infusion. "Glucometrics" is a measure of inpatient glucose control using safety and efficacy data. Currently, there is no standardization for formulating metrics on the quality of inpatient glycemic control. The purpose of this project is to measure the performance of an insulin infusion protocol

Methods: A review of the current literature was conducted to determine glucometric measurement outcomes used in guidelines and clinical practice. Data was requested from our pharmacy information technology personnel and our point of care lab coordinator. Glucometrics were analyzed, compared to historical data and will be used as a baseline for future comparison.

Results: Data collection is in progress; results and conclusions will be presented at Great Lakes Residency Conference

Learning Objectives:

Define efficacy and safety measurement outcomes?

Review glycemic control using different units of analysis?

Self Assessment Questions:

Which of the following is a unit of analysis measure for glucose results?

A patient-sample
B: patient-day
C: patient-stay
D: All of the above

What is the defintion of severe hypoglycemia?

A blood glucose<70
B blood glucose<60
C blood glucose<40
D blood glucose<30

Q1 Answer: D Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-838 -L05-P

Activity Type: Knowledge-based Contact Hours: 0.5

ASSESSMENT OF A MULTIDISCIPLINARY DIABETES CLINIC IN A VETERANS AFFAIRS MEDICAL CENTER

Veronica P. Vernon, PharmD*; Deanna S. Kania, PharmD, BCPS; Lindsey C. Healey, PharmD, CDE
Richard L. Roudebush Veterans Affairs Medical Center,1481 W. 10th St (119),Indianapolis,IN,46202
veronica.vernon@va.gov

Statement of Purpose: The objective of this study is to assess the management of diabetes in a multidisciplinary endocrine clinic at the Richard L. Roudebush Veterans Affairs Medical Center.

Statement of Methods Used: This is a retrospective chart review of approximately 100 patients enrolled in the multidisciplinary endocrine clinic from January 2009-June 2011. The primary endpoint of this study is the change in glycosylated hemoglobin (HbA1c). Secondary endpoints include the percentage of patients with HbA1c < 7%, percentage of patients at goal low-density lipoprotein (LDL) and at goal blood pressure, change in body mass index (BMI), weight, and serum creatinine, and total number of emergency department (ED) appearances, urgent clinic visits, and days spent as an inpatient due to diabetes-related complications. The inclusion criteria include at least two visits to the multidisciplinary clinic and at least 6 months of clinic enrollment. Patients were excluded if they have seen a non-VA endocrinologist, had less than two visits to the clinic, or do not have any laboratory monitoring data available. Prior to initiation of this study, approval through both the Institutional Review Board of Indiana University Purdue University of Indianapolis and the VA Research and Development Committee was obtained. The following demographic data was collected from the patients electronic medical record: age, gender, marital status, ethnicity, type of diabetes, clinic start date, and number of visits to clinic. HbA1c, BMI, blood pressure, LDL, serum creatinine, number of clinic visits, and incidence of ED visits, urgent clinic visits, and hospitalizations for diabetes complications were also collected one year prior to clinic enrollment and throughout the time of clinic enrollment. Documentation of annual foot exams and dilated eye exams was also recorded.

Results/Conclusions: Results and conclusions will be presented at the Great Lakes Residency Conference.

Learning Objectives:

Recall current treatment goals for patients with diabetes.

Discuss the impact of a pharmacist in a multidisciplinary setting.

Self Assessment Questions:

According to the American Diabetes Association, what are the goals for glycosylated hemoglobin (HbA1c), blood pressure (BP), and low density lipoprotein (LDL) in patients with diabetes and no other co

A HbA1c: < 7%; BP: <130/80 mmHg; LDL: < 100 mg/dL
B: HbA1c: < 6.5%; BP: <130/80 mmHg; LDL: < 70 mg/dL
C: HbA1c: < 7%; BP: <135/80 mmHg; LDL: < 70 mg/dL
D: HbA1c: < 6.5%; BP: <135/80 mmHg; LDL: < 100 mg/dL

Current literature has shown that the addition of pharmacist to a multidisciplinary setting can have which one of the following effects?

A A greater number of patients achieve goal fasting blood glucose ar
B A great number of patients achieve goal LDL and HDL
C A greater number of patients achieve goal HbA1c and LDL
D A great number of patients achieve goal HbA1c and weight

Q1 Answer: A Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-614 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION AND IDENTIFICATION OF CLINICAL FACTORS FOR PERFORMING VORICONAZOLE THERAPEUTIC DRUG MONITORINC

Mildred R. Vicente, PharmD*; Sandeep D. Parsad, PharmD, BCOP; Benjamin Brielmaier, PharmD BCPS

University of Chicago Medical Center,5841 South Maryland Ave,Chicago,IL,606371470

mildred.vicente@uchospitals.edu

Purpose: Therapeutic drug monitoring (TDM) for antifungals for both efficacy and toxicity has become an increasing area of interest to help optimize clinical outcomes. Voriconazole is a second generation triazole with broad spectrum antifungal activity and is indicated as first line treatment for invasive aspergillosis and used for the treatment of invasive fungal infections (IFI). Voriconazole exhibits nonlinear saturable kinetics and multiple studies have demonstrated relationships between mean plasma voriconazole concentrations, breakthrough infections, and drug-related adverse events. Troughs >2.0 mcg/mL are associated with higher success rates and less breakthrough infections and troughs >5.5 mcg/mL are associated with hepatic failure and ocular toxicity. Patients with CYP2C19 genetic polymorphism are poor metabolizers and at increased risk for supratherapeutic plasma concentrations and toxicities. Drug-drug interactions via the CYP2C19 pathway may result in unpredictable plasma concentrations. Thus, voriconazole is an ideal candidate for TDM. Currently, at the University of Chicago Medical Center voriconazole TDM is performed at clinicians discretion, and interpretation of serum concentrations and subsequent changes to AF therapy are variable. Patients receiving voriconazole for IFI with or without TDM since June 2008 at UCMC will be evaluated and patient specific clinical factors will be identified that influence clinicians decision to perform TDM.

Methods: This study is a single center, retrospective, cohort analysis including patients who received voriconazole for treatment of IFI with or without TDM between June 1, 2008 to January 30, 2012. The primary objective is to identify patient specific clinical factors that influence clinicians decision to perform voriconazole TDM. This will be analyzed with a multivariate analysis. Secondary objectives are to determine the incidence of voriconazole levels drawn appropriately, incidence of subtherapeutic, therapeutic, and supratherapeutic troughs, incidence of dosage adjustments based on subtherapeutic or supratherapeutic troughs and indications for TDM.

Results/Conclusions: Pending data collection and analysis.

Learning Objectives:

Identify appropriate timing of serum voriconazoles level and the therapeutic concentration range

Describe the characteristics that make voriconazole an ideal candidate for therapeutic drug monitoring

Self Assessment Questions:

The therapeutic range for a serum voriconazole _____ is _____?

A Peak: 1-5.5 mcg/mL

B: Trough: 1-5.5 mcg/mL

C: Peak: 2 - 5.5 mcg/mL

D: Trough: 2 - 5.5 mcg/mL

Which of the following characteristics make voriconazole an ideal candidate for TDM?

A Linear saturable kinetics, relationship between trough level with eff

B Non-linear saturable kinetics, relationship between trough level wit

C Non-linear saturable kinetics, relationship between trough level wit

D Non-linear saturable kinetics, relationship between trough level wit

Q1 Answer: D Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-615 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

PEDIATRIC EMERGENCY DEPARTMENT PHARMACIST: CLINICAL IMPACT

Jamie Visintainer, PharmD*

Children's Hospital of Wisconsin,9000 W. Wisconsin Ave,Milwaukee,WI,532011997

jvisintainer@chw.org

Purpose: The objective is to define and optimize the role of the clinical pediatric pharmacist to improve the quality of care through safer and more efficacious medication utilization in an emergency department (ED). A secondary objective is to determine the financial impact of the interventions made by an ED pharmacist in order to cost-justify pharmacy services in the ED.

Methods: This prospective, quality improvement evaluation will be completed in the ED at Childrens Hospital of Wisconsin in Milwaukee, WI. All patients who present to the ED from January to April 2012, when the pharmacist is present, will be included into this evaluation. Patients being admitted to an inpatient unit will be included in the medication history portion of the evaluation. This pharmacist will record interventions including medication histories, drug information requests, therapeutic recommendations, review of medication orders, and participation in resuscitation. The interventions will be categorized by type and clinical importance based on probability of harm. For each inpatient admission from the ED, the pharmacist will interview patients and obtain information from other resources to document an accurate medication history. The pharmacists medication history will be compared to the history obtained by the physician and discrepancies will be clarified and documented. Following the three month period, a cost analysis based on clinical significance rating of the interventions will be conducted to determine the financial impact of the ED pharmacist.

Preliminary results: Data collection is ongoing. Preliminary data includes 40 cost-avoidance interventions, 42 medication histories, 69 drug information requests (including 24 administration requests), 6 discharge medication recommendations, and 3 resuscitations during 72 hours of pharmacist presence in the emergency department.

Conclusions: Conclusions will be based on the clinical impact of the ED pharmacist and cost avoidance from interventions during medication reconciliation, drug processing/administration, and resuscitation involvement.

Learning Objectives:

Describe the roles and responsibilities of a pharmacist in a pediatric emergency department.

Recognize pharmacist interventions which have potential cost savings.

Self Assessment Questions:

Which of the following is an ideal role of the emergency department pharmacist:

A Provide therapeutic recommendations

B: Participate in resuscitations

C: Stock controlled access cabinets

D: A and B

Which of the following interventions can be assigned a cost avoidance value:

A Medication error prevented

B Drug-disease interaction

C Drug-drug interaction

D All of the above

Q1 Answer: D Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-776 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF THE CURRENT PRACTICE OF PAIN MANAGEMENT FOR ADHERENCE TO EVIDENCE-BASED GUIDELINES AND IMPLEMENTATION OF A PROPOSED ANALGESIA ORDER SET IN ADULT MEDICINE PATIENTS

Alison T. Vo*, PharmD, Randall W. Knoebel, PharmD BCOP, Katherine Mieure, PharmD BCPS

University of Chicago Medical Center,5841 S. Maryland Ave.,Chicago,IL,60615

alison.vo@uchospitals.edu

Purpose: Inadequate pain management increases morbidity and reduces the quality of life. Previous studies have shown that the lack of adherence to guidelines and lack of knowledge on pharmacological treatment options continue to be barriers for safe and efficient pain management. The Joint Commission on Accreditation for Healthcare Organizations recommended the use of standardized order sets to decrease variation in practice to provide quality pain management and lower incidence of medication errors. In response, many institutions have implemented treatment based on guidelines. The purpose of this study is to evaluate the current practice of pain management in adult medicine patients and whether adherence to evidence-based guidelines will lead to adequate pain control.

Methods: This is a retrospective analysis that will be conducted by reviewing medical records of patients admitted to the University of Chicago Medical Center from April 2011 through September 2011. A targeted sample size of 250 patients will be collected. Patients will be included if they were at least 18 years of age and had moderate-to-severe non-cancer pain admitted to the emergency department or Internal Medicine services for at least 24 hours. An opioid utilization report will be used to identify the administration of morphine, hydromorphone, oxycodone, and or fentanyl to patients within 24 hours of admission. Data collection will include age, gender, history of opioid use, inpatient opioid use, pain scores, serum creatinine, and liver function tests. The primary outcome, achievement of analgesia (pain score ≤ 4 or 50% reduction of pain from baseline) within 24 hour after opioid initiation, will be analyzed using either chi-square or Fisher's exac tests. Secondary outcomes will be analyzed using chi-square for categorical variables, Student's t-test for parametric continuous variables, and descriptive analysis for observational data. All analysis will be performed using STATA.

Results: To be presented

Conclusion: To be presented

Learning Objectives:

Discuss the role of opioids in moderate to severe pain management in adult medicine patients

Identify the achievement of analgesia by evaluation of pain assessment tools

Self Assessment Questions:

According to the WHOs Pain Relief Ladder, opioids are recommended for what type pain?

A Mild pain
B: Moderate pain
C: Severe pain
D: Opioids are recommended in mild, moderate, and severe pain

In order to evaluate the achievement of analgesia, the most reliable determinant is:

A Patient's own responses
B Pain assessment tools
C Type of therapy used
D Titration of medications

Q1 Answer: D Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-616 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

BARCODE MEDICATION ADMINISTRATION WORKFLOW ASSESSMENT FOR TOP MEDICATIONS GIVEN NON-BARCODED

Meghann M. Voegeli, PharmD*; Jack D. Temple, PharmD, MS

University of Wisconsin Hospital and Clinics,600 Highland Avenue,F6/133-1530,Madison,WI,53792

mvoegeli@uwhealth.org

Purpose:
According to the Institute of Medicine, hospitalized patients experience an average of at least one medication error per day. The administration step of the medication process is estimated to account for 34% of harmful medication errors in hospitalized patients (Bates et al., 1995). These errors not only compromise patient safety, but can account for significant increased costs to health systems. Barcode medication administration (BCMA) is an established system designed to reduce medication errors at the administration step of the medication process. University of Wisconsin Hospital and Clinics (UWHC) has utilized BCMA technology since 2001. Over the previous year, quarterly analyses of the barcode scanning rates have shown an average of 9.4% of medications at UWHC are not barcode scanned prior to administration. The purpose of this project is to reduce the number of medications that are not barcode scanned prior to patient administration at this institution.

Methods:
The FOCUS-PDCA method was employed to address non-compliance with barcode scanning prior to medication administration. Using reporting functionalities from the electronic medication record, reports were analyzed to determine the top ten medications with the lowest compliance of medication barcode scanning prior to patient administration. An interdisciplinary workgroup was formed and charged to select five medications as targets for the study. Direct observations of nurses administering these five target medications were conducted to assess the workflow barriers that prevent these medications from being scanned prior to administration. Observation data was reviewed by the interdisciplinary workgroup and strategies were identified to improve scanning compliance. These strategies were implemented to redesign the workflow and post-implementation barcode scanning compliance was compared to baseline.

Results:
Results to be presented

Conclusions:
Conclusions to be presented

Learning Objectives:

Identify the overarching purpose of barcode medication administration

Discuss the benefits of barcode medication administration

Self Assessment Questions:

What is the overall purpose of barcode medication administration?

A It allows hospitals to track their inventory
B: It gives nurses the contact information for the drug manufacturer
C: It confirms the five rights (right patient, right drug, right dose, right r
D: It is mandated by The Joint Commission

Which of the following best describes a financial benefit of barcode medication administration?

A It allows for more accurate charge capture and thus increased reim
B It reduces medication errors and thus can decrease costs to the he
C It allows for more accurate restocking of automated dispensing ma
D It allows patients to self-administer medications and thus allows for

Q1 Answer: C Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-839 -L05-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF SUCCESSFUL THERAPY WITH TNF-A INHIBITOR USE IN RHEUMATOLOGY

Arthur A. Schuna, M.S., F.A.S.H.P., R.Ph, Kimberly R. Wahl, Pharm.D.
William S. Middleton VA Hospital,Wm.S.Middleton Memorial VA Hospital,2500 Overlook Terrace, Pharmacy 119,Madison,WI,537052286
kimberly.wahl@va.gov

PURPOSE: Tumor necrosis factor (TNF) inhibitors are utilized for a number of immune-mediated disease states, but studies have shown these agents fail to improve disease activity in a substantial portion of patients. Aside from treatment failure, these agents may be discontinued due to intolerance or adverse effects. The reason for discontinuation of the first TNF-α inhibitor is thought to have implications on the success of subsequent TNF-α inhibitor therapies. The purpose of this retrospective study is to determine the likelihood of continuing treatment with the initial TNF-α inhibiting agent for successful therapeutic outcomes in VA patients with a rheumatic indication. This study will also determine the frequency for which initial therapy was changed to a second TNF-α inhibitor or another disease-modifying antirheumatic drug.

METHODS: A retrospective patient records review will be completed for up to 260 patients who were treated with a TNF-α inhibitor prior to April 1, 2011 for treatment of rheumatoid arthritis, psoriatic arthritis, ankylosing spondylitis, or arthritis associated with inflammatory bowel disease. Records to review will be chosen using a random number generator. Data abstracted will include age, gender, race, indication for use, disease duration, initial TNF-α inhibiting agent utilized, pain scores, global assessment, length of time on TNF-α inhibitor, concomitant therapy with other DMARDS or steroids, ability to discontinue steroids or other DMARD during treatment with TNF-α inhibitor, TNF-α inhibitor dose changes and interval between dosing, length of follow-up, reason for discontinuation of initial TNF-α inhibitor, and secondary agent initiated after TNF-α inhibitor failure. If secondary treatment was with another TNF-α inhibitor, the success of that therapy will be assessed.

RESULTS/CONCLUSION: The results and conclusion are pending.

Learning Objectives:

Recognize the impact initial TNF inhibitor therapy failure has on the management of rheumatologic disease states.

Identify patient subgroups that may benefit from trialing a second TNF inhibitor based on reason for discontinuation of the initial agent.

Self Assessment Questions:

What percent of patients treated with a TNF-inhibitor fail to show improvement in disease activity?

A 85%
B: 46%
C: 30%
D: 12%

Which of the following responses is most accurate regarding the utility of switching to a secondary TNF inhibitor?

A More favorable treatment outcomes are seen in patients who discc
B More favorable treatment outcomes are seen in patients who discc
C More favorable treatment outcomes are seen in patients who discc
D Studies do not show consistent differences regarding disease-state

Q1 Answer: C Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-617 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

LOOKING AT CORTISOL AND TESTOSTERONE LEVELS IN PATIENTS WITH CHRONIC PAIN SYNDROME

Stephanie Walchli, Pharm.D.*; Stanley Erk, Ph.D.; Debra Williams, Pharm.D.
Dayton VA Medical Center,4100 W. Third Street,Dayton,OH,454280000
Stephanie.Walchli@va.gov

Purpose: Recent literature suggests that chronic peripheral pain may migrate to the central nervous system and transform itself into a central pain syndrome. Due to the complex natural history, unclear etiology, and poor response to therapy both chronic peripheral and central pain are a challenge to adequately manage. Pain medications often provide some reduction of pain, but not complete relief of pain. During central pain the pituitary-adrenal-gonadal axis is over stimulated and limited research has shown that lowering stress levels appears to reduce pain. The objective of this study is to determine if stabilizing endocrine function, specifically cortisol and testosterone levels, improves pain management and quality of life.

Methodology: A retrospective, cohort study will be conducted using the Dayton Veterans Affairs Medical Center database. Prior to the conference, this study will be submitted to the Institutional Review Board for approval. A chart review will be performed for all patients enrolled in the polytrauma pain clinic with a diagnosis of chronic pain syndrome. The diagnosis of chronic pain syndrome will be identified by the use of International Classification of Diseases (ICD-9 codes) or by the providers assessment documented in the chart progress note. Patients who meet this criteria and who were enrolled in the clinic from October 1, 2009 to October 1, 2011 will be included in this study. All patient data will be de-identified. Assessments will be made on the patients pain control, cortisol level, and testosterone level at baseline and then again after correction of hormone levels, if applicable. Once collected, data will be sorted into a chart to allow for better analysis.

Results: In progress.

Conclusions: In progress.

Learning Objectives:

Define chronic pain syndrome

Discuss the effects of stabilizing endocrine function on pain managemen

Self Assessment Questions:

Which of the following is/are true regarding chronic pain syndrome?

A Chronic pain syndrome is the presentation of combined physical ar
B: Chronic pain syndrome is characterized by pain which persists des
C: There is no clear definition for chronic pain syndrome.
D: All of the above.

Which of the following is/are true regarding the relationship between endocrine function and pain?

A Pain causes an activation and stimulation of the hypothalamus-pitu
B If pain persists, hormonal secretions from the adrenal gland will co
C Severe pain and adrenal exhaustion can lead to serious health con
D All of the above.

Q1 Answer: D Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-618 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

ASSESSMENT OF THE TRANSITION OF ANTICOAGULATION CARE FROM AN INPATIENT TO OUTPATIENT SETTING AFTER IMPLEMENTATION OF AN INPATIENT PHARMACIST-ASSISTED ANTICOAGULATION SERVICE

Claire P. Walter, PharmD*; Megan M. Barnes, PharmD, BCPS; Mike P. Dorsch, PharmD, MS, BCPS; Paul C. Walker, PharmD, FASHP

University of Michigan Health System,1500 E. Medical Center Drive,UH B2 D301,Ann Arbor,MI,48109

cpwalter@med.umich.edu

Anticoagulant medications are frequently used, complex to manage, and are often listed among the most common drugs associated with medication errors. Warfarin is involved in approximately 29% of medication errors. This high error rate led the Joint Commission to establish anticoagulation safety as one of its National Patient Safety Goals in 2008. The goal aims to improve the safety of anticoagulation therapy and requires institutions to standardize practices to reduce the risk of adverse events that are associated with anticoagulants. In accordance with this initiative, the University of Michigan Health System developed the Adult Inpatient Pharmacist-assisted Anticoagulation Service. One of the major roles of the service is to aid in the education and the transition of care for patients receiving warfarin therapy. The objective of this study is to assess the impact of the service on the transition of anticoagulation care from an inpatient to outpatient setting.

This single center, survey-based, case-control study includes adult patients discharged to home from the University of Michigan Hospital on warfarin therapy. Currently, the anticoagulation service is not fully implemented throughout the entire hospital. Patients without this service serve as the control group in this study. After discharge, patients receive a consent form and survey by postal mail. They have the option of completing the survey and returning it via postal mail or completing the survey online. The following data is collected from this survey: age, gender, indication for warfarin therapy, INR goal, duration of warfarin therapy, time to first INR check, time to first follow-up with outpatient provider, adverse events related to warfarin therapy, warfarin education provider, and patient satisfaction in regards to warfarin education and discharge instructions. Data collection and analysis is currently ongoing. Results and conclusions will be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Describe the components of the Joint Commissions National Patient Safety Goal for anticoagulation therapy.

Discuss the benefits of pharmacist-managed anticoagulation services

Self Assessment Questions:

The Joint Commissions National Patient Safety Goal for anticoagulation recommends all of the following EXCEPT:

A The use of approved protocols for the initiation and maintenance o

B: Education regarding anticoagulants for prescribers, staff, patients,

C: Evaluation of anticoagulation safety practices by the organization v

D: Pharmacists involvement in the management and prescribing of ar

Based on the study by Bond and Raehl, pharmacist-managed anticoagulation services have demonstrated which of the following:

A Decreased readmission rates

B Decreased death in patients with bleeding

C Decreased rates of thromboembolism

D Decreased bleeding complications

Q1 Answer: D Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-777 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

IDENTIFICATION OF VANCOMYCIN-RESISTANT ENTEROCOCCUS (VRE) SUSCEPTIBILITY TO FOSFOMYCIN

Stacy L. Waterman, PharmD*; Sarah Pfaehler, PharmD, BCPS

Parkview Health System,2200 Randallia Drive,Pharmacy Department,Fort Wayne,IN,46805

stacy.waterman@parkview.com

Background:
The escalating prevalence of vancomycin-resistant Enterococcus (VRE) is of significant concern for healthcare institutions. VRE is associated with decreased survival rates, increased length of stay, and increased healthcare costs. Available therapeutic options for pathogenic isolates of VRE are limited as resistance continues to develop among alternative antimicrobials. Evidence has shown efficacy of fosfomycin against VRE; however, susceptibility of local VRE to fosfomycin has not been established.

Purpose:
The objective of this study is to determine the susceptibility of vancomycin-resistant Enterococcus (VRE) to fosfomycin.

Methods:
This is a prospective, open investigation of the minimum inhibitory concentration (MIC) of VRE isolates to fosfomycin. One-hundred previously identified unique VRE samples collected from patients in the Northeast Indiana region serviced by the Parkview Health Microbiology Laboratory will be included in the study. VRE samples collected from rectal swabs to identify VRE colonization will be excluded. As eligible pathogenic clinical isolates are identified, each isolate will be cultured on Mueller Hinton Agar plates and be compared to a VRE quality control strain which is concurrently cultured. Susceptibility to fosfomycin will be determined using the fosfomycin E-test strips. Following 18 hours of incubation, the microbiologist will determine and record the MIC of the organism to fosfomycin. For each VRE sample, the date of sample collection, patient location, site of infection, and species of Enterococcus will be recorded. Data will be analyzed to identify the rate of susceptibility for the total number of organisms. Sub-analyses comparing susceptibility rates between Enterococcus species, sample location, and patient location will be performed using Students t-test or Fishers exact test as appropriate.

Results/Conclusions:
Data is currently being collected and analyzed. Results and conclusions will be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Describe the impact of increasing prevalence of VRE on patients and healthcare institutions.

Report preliminary susceptibilities of VRE to fosfomycin at a local community health-system.

Self Assessment Questions:

VRE is associated with:

A Decreased healthcare costs.

B: Decreased survival rates.

C: Decreased lengths of stay.

D: No change in hospital costs.

Which of the following statements is correct?

A Hand hygiene is not an effective means of preventing VRE infectio

B Treatment of VRE colonization is recommended since colonization

C Length of stay and ICU admission are considered risk factors for d

D Long-term antimicrobial courses with vancomycin have not contribu

Q1 Answer: B Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-619 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

FACTORS ASSOCIATED WITH METRONIDAZOLE TREATMENT FAILURE IN CLOSTRIDIUM DIFFICILE ASSOCIATED DIARRHEA: A RETROSPECTIVE ANALYSIS

Nicholas Weatherton, Pharm.D.*, Aeman Choudhury, Pharm.D. BCPS, Walid Khayr, MD

Captain James A. Lovell Federal Health Care Center,3001 Green Bay Road,North Chicago,IL,60064

nicholas.weatherton@va.gov

Purpose

The first line treatment for mild to moderate C. difficile-associated diarrhea is metronidazole. However, recent literature reports that up to 38% of patients have an inadequate response to metronidazole therapy. Lack of response is not thought to be entirely due to development of antimicrobial resistance.

The primary objective of this study is to identify risk factors which increase the likelihood of metronidazole treatment failure.

Methods

This study will be a retrospective chart review using a case control design. It will be conducted by examining the medical records of the Captain James A. Lovell Federal Healthcare Center for patients greater than 18 years of age with a positive C. difficile toxin stool assay and diarrhea.

Patients whose diarrhea does not resolve after 7 days of treatment, or in whom vancomycin is used within 7 days will serve as the cases of metronidazole treatment failure. For each patient experiencing treatment failure, two patients with positive C. difficile toxin stool assays and diarrhea who are successfully treated with metronidazole will serve as controls. A total of 75 charts will be included in the analysis.

Charts will be screened for demographic data such as age and sex. Other data collected will include risk factors found to be associated with metronidazole treatment failure in previous studies, as well as physiologically plausible risk factors such as: certain concomitant disease states, medications which may alter the immune system or intestinal motility, complications of C. difficile infection or certain exposure risk factors.

The primary objective will be analyzed via independent Students t-test for continuous variables and Fishers exact test for categorical variables. For all statistical analyses, a p value of < 0.05 will be considered significant.

Results/Conclusion

The results of this study will be presented at the Great lakes Pharmacy Resident Conference pending IRB approval.

Learning Objectives:

Review the rationale for using metronidazole as the first line agent in mild to moderate C. difficile-associated diarrhea.

Identify specific risk factors for metronidazole treatment failure in Clostridium difficile-associated diarrhea.

Self Assessment Questions:

Which of the following contributes to recommendations for metronidazole as the first line agent when treating mild to moderate C. difficile-associated diarrhea?

A Superior efficacy when compared to other agents

B: Lower risk of neurotoxicity than vancomycin

C: Concern over breeding glycopeptide resistant organisms

D: Metronidazole is the only FDA approved agent for treating C. diffici

Which of the following has previously been found to be a risk for metronidazole treatment failure?

A One previous episode of C. difficile-associated diarrhea which was

B Diabetes mellitus

C History of stroke

D Use of total parenteral nutrition

Q1 Answer: C Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-620 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

IMPLEMENTATION OF CAROUSEL DISPENSING TECHNOLOGY AND SATELLITE REPLENISHMENT SOFTWARE SYSTEM IN A PHARMACY STOCKROOM

Aaron P. Webb*, Pharm.D.; Brad C. Ludwig, R.Ph., M.S.; Jack D. Temple, Pharm.D., M.S.

University of Wisconsin Hospital and Clinics,600 Highland Ave.,F6/133-1530,Madison,WI,53792

awebb@uwhealth.org

Purpose:

The purpose of this project is to implement carousel dispensing technology and satellite replenishment software within a pharmacy stockroom to provide the most efficient, safe, and cost effective method for dispensing bulk and clinic medications. The specific objectives include: Measure the impact of carousel dispensing technology with integrated inventory management and satellite replenishment software on technician labor, workflow efficiency, on-hand medication inventory carrying costs, and inventory turns in a pharmacy stockroom; Measure the impact of dynamic inventory control software on medication inventory turns and carrying costs in all central pharmacy automation dispensing technologies.

Methods:

A workgroup consisting of pharmacy, informatics, architectural design, and facilities staff will determine facilities design, implementation plan, and technology integration. Pre- and post-implementation data will be used to evaluate the effect carousel dispensing technology has on the medication distribution process in terms of dispensing efficiency and full-time labor requirements compared to the manual distribution system. Direct observation time studies with workflow mapping will be used to determine the change in process steps and time of each step to dispense medications from stockroom and restocking of clinic medications. Workload statistics for pharmacy stockroom and restocking of clinic medications will be collected by self report and used to calculate full-time labor requirements.

New central pharmacy inventory control measures including par and maximum values will be determined using historical purchasing and dispensing data prior to implementation of dynamic inventory software. Pre- and post-implementation data for on-hand medication inventory, inventory turns and carrying cost will be determined from purchasing software and automated decision support.

Results:

Results will be presented at the Great Lakes Pharmacy Residency Conference.

Conclusion:

Conclusion will be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Describe the advantages of using carousel dispensing technology for medication distribution

Describe the advantages and disadvantages of utilizing direct observation to develop time standards

Self Assessment Questions:

Which of the following is an advantage of carousel dispensing technology:

A Increased time to fill medication orders

B: Increased accuracy of medications dispensed

C: Increased onhand inventory carrying costs

D: Reduced inventory turnover rate

Direct observation is subject to confounding via the:

A Heisenberg effect

B Hoffman effect

C Butterfly effect

D Hawthorne effect

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-778 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

DETERMINATION OF THE TRANSDERMAL ABSORPTION OF CHLORPROMAZINE IN PLURONIC LECITHIN ORGANOGEL (PLO) GEL IN HEALTHY ADULTS

Amanda Suchecki Weiland, PharmD.*, Bridget McCrate Protus PharmD., Jason Kimbrel PharmD., Phyllis Grauer, PharmD.

The Ohio State University College of Pharmacy,500 W. 12th Avenue,Park Hall 157F,Columbus,OH,43210

suchecki.2@osu.edu

Purpose: In recent years, there has been an increase in the use of compounded topical gel formulations to provide an alternative route of administration of medications for symptom management. Transdermal absorption and bioavailability studies of these gel products are lacking. Chlorpromazine is a medication used for the treatment of agitation, delirium and nausea. The objective of this study is to determine the transdermal absorption of chlorpromazine PLO gel in healthy adults.
Methods: This study has been submitted to the Institutional Review Board for approval. Ten healthy adults between 18 and 70 years of age will be recruited. Exclusion criteria include: pregnancy, female participants refusing a urine pregnancy test on study date, individuals allergic to phenothiazines, ethoxy diglycol, lecithin, isopropyl palmitate, Pluronic F-127 gel, or who are currently taking a phenothiazine medication. Each subjects blood pressure, heart rate, respiratory rate, and temperature will be recorded at 0, 1, 2, and 4 hours. Subjects will have blood drawn at 0, 1, 2, and 4 hours after chlorpromazine in PLO ge application to the subjects wrist. At each time point, subjects will complete a local and systemic adverse reaction questionnaire. Subjects will be contacted by telephone on the day following chlorpromazine topical gel application for a final assessment of adverse effects. As reported in the literature, the therapeutic concentration of chlorpromazine is approximately 50-300 ng/ml. Primary outcomes include the plasma concentration of drug at each time point. Secondary outcomes include local and systemic adverse reactions.
Results: Analysis of each blood sample will be completed using gas chromatography. The mean plasma concentration (with standard deviation) will be reported at each time point.
Conclusion: Determining the absorption of chlorpromazine in PLO gel in healthy adults will help direct pharmacist recommendations for symptom management, thereby improving treatment outcomes and quality of life for patients.

Learning Objectives:

Name the therapeutic concentration range of chlorpromazine.

Describe the most common adverse effects associated with chlorpromazine.

Self Assessment Questions:

The therapeutic concentration range of chlorpromazine is

A 10-100 mg/mL

B: 50-300 ng/mL

C: 0.5-10 mg/mL

D: 3-9 ng/mL

The most common adverse effects associated with chlorpromazine are _____ and _____.

A dizziness; drowsiness

B constipation; nausea

C dizziness; constipation

D nausea; drowsiness

Q1 Answer: B Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-621 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

A COMPARISON OF EXTENDED INFUSION VERSUS TRADITIONAL INFUSION OF PIPERACILLIN-TAZOBACTAM: A RETROSPECTIVE STUDY

Katie J Wenzel, Pharm.D.*, Dean A VanLoo, Pharm.D., Jim M Curtis, Pharm.D., BCPS

Bronson Methodist Hospital,601 John St,Kalamazoo,MI,49007

wenzelk@bronsonhg.org

Background:
Increasing resistance levels of organisms to currently accepted treatment standards have led many to reevaluate the manner in which certain antibiotics are given. The pharmacokinetics and pharmacodynamics of piperacillin-tazobactam have been well referenced, and studies show that the best predictor of bacterial death is the time during which the free drug concentrations exceed the minimum inhibitory concentration (MIC). Extending the infusion time of piperacillin tazobactam may increase the length of time the free drug levels are exceeding the MIC.
Gathering data from patients who participated in the pilot program of extended-infusion piperacillin-tazobactam at Bronson Methodist Hospital which began on August 1, 2011, will provide evidence that is needed to implement a hospital wide policy regarding extended-infusion piperacillin tazobactam.
Purpose:
The primary purpose of this study is to compare the outcomes of extended infusion piperacillin-tazobactam with traditional infusion piperacillin-tazobactam at Bronson Methodist Hospital.
Methods:
This study is a retrospective chart review of patients who received extended infusion or standard dosing of piperacillin-tazobactam. Patients admitted to the trauma care unit at Bronson Methodist Hospital from January 1st, 2011 to July 31st, 2011 will comprise the standard dosing group, while patients admitted to the trauma care unit from August 1st, 2011 to November 17th, 2011 will comprise the extended infusion dosing. Primary endpoints include time to deffervescene, intensive care unit length of stay, and clinical failure. Other factors that will be considered include antibiotic timeline, microbiologic cultures and white blood cell decline.
Results/Conclusions:
Data collection is ongoing and final results will be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Describe the pharmacokinetic justification for using extended infusion piperacillin-tazobactam.

Explain the recommendation for use of an extended infusion if given a patient with an infection requiring piperacillin-tazobactam.

Self Assessment Questions:

Which of the following is the best parameter to measure the effectiveness of piperacillin-tazobactam?

A Time above the MIC

B: Trough levels

C: Post antibiotic effect

D: Peak/MIC

Which of the following statements best represents the available data regarding the use of extended infusion piperacillin-tazobactam?

A Extending the infusion time of piperacillin-tazobactam dose not ma

B Extended infusion dosing of piperacillin-tazobactam is not an acce

C Shorter length of stay and lower mortality rates were associated wi

D Utilizing extended infusion dosing of piperacillin-tazobactam does

Q1 Answer: A Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-622 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

STANDARDIZATION OF INTRAVENOUS INFUSION MEDICATION CONCENTRATIONS ACROSS NORTHEAST INDIANA

Christopher D. Westrick, PharmD*; Tara K. Jellison, PharmD
Parkview Health System,2200 Randallia Dr.,Fort Wayne,IN,46805
christopher.westrick@parkview.com

Background:
Intravenous infusion medications have been associated with dosage errors and pose a significantly greater risk for harm compared to oral medications. The Northeast Indiana Patient Safety Coalition began this initiative modeled after the Indianapolis Coalition for Patient Safety task force.

Purpose:
The objective of this project is to standardize the concentrations of intravenous infusion medications used by hospitals and related emergency service providers in Northeast Indiana.

Methods:
This project is currently attempting to establish a standardized list of medication infusion concentrations among members of the Northeast Indiana Patient Safety Coalition and related emergency service providers in the area. The current list contains 25 medications and is modeled after the list used by the Indianapolis Patient Safety task force. More than 30 hospitals and related emergency service providers are involved with this standardization process. The goal is to achieve a single concentration for these medications across the health-systems of Northeast Indiana. A preliminary survey was distributed to each organization in order to report what concentration of each product is used. These reports will be used to establish commonalities and differences among the organizations. A recommendation will then be made of which concentrations will be the most useful to standardize.

Results/Conclusions:
Results and conclusions will be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Describe the importance of standardizing intravenous infusion medications across different health-systems

Identify the difficulties of the standardization process for the benefit of other health-care systems

Self Assessment Questions:

Medication infusion errors are associated with

A the availability of different medication concentrations
B: excellent communication during patient transfers
C: organizations purposefully changing an infusion rate of a medicatic
D: a standardized list of infusion medications

Which of the following statements is correct?

A Standardizing intravenous infusion medication concentrations acro
B There is no validity to standardizing intravenous infusion concentra
C Communication, cooperation, and compromise among health-care
D Health care professionals do not need to be concerned about med

Q1 Answer: A Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-840 -L05-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF SCHEDULED IV ACETAMINOPHEN: EFFECT ON OPIOID REQUIREMENTS AND POST-OPERATIVE ANALGESIA IN PEDIATRIC PATIENTS AFTER ANORECTAL MALFORMATION (ARM) REPAIR OR SPINAL FUSION SURGERY

*Heather N. Whitehead, PharmD; Andrea Chamberlain, PharmD, BCPS; Tamara K. Hutson, PharmD; Alexandra Szabova, MD
Cincinnati Children's Hospital Medical Center,3333 Burnet Avenue,MLC 15010,Cincinnati,OH,452293026
heather.whitehead@cchmc.org

Background: In 2010, an intravenous formulation of the COX inhibitor, acetaminophen, received FDA approval for the treatment of mild to moderate pain in adults and children 2 years of age and older. Studies in pediatric and adult post-operative patients suggest the use of similar intravenous non-opioid agents such as propacetamol, paracetamol, and ketorolac adjunctively with opioids has the potential to decrease the post operative use of opioids thus reducing opioid related side effects while improving pain scores.

Purpose: To determine opioid usage in post-operative anorectal malformation (ARM) repair and spinal fusion patients treated with opioids and intravenous acetaminophen or opioids alone. We expect data and results of this study to validate the use of intravenous acetaminophen for post-operative pain, in order to lower opioid use and reduce opioid-related side effects. We also anticipate that data will assist in establishing a time frame in which combination treatment is most beneficial.

Methods: This is a retrospective chart review of pediatric patients who underwent ARM repair or spinal fusion surgery who received intravenous acetaminophen in conjunction with opioids or opioids alone post-operatively at CCHMC. Patients were followed from the end of surgery to 36 hours post-surgery. The primary outcome is to compare equianalgesic dosage of total opioids received 36 hours post-operatively between patients who received opioids and patients who received opioids in combination with around the clock intravenous acetaminophen. Secondary outcomes include comparison of: equianalgesic dosage of total opioids patients received for the time frames of 0 to 12, 12 to 24, and 24 to 36 hours post-operatively, average pain scores, and incidence of adverse effects.

Results/Conclusions:
Initial statistical analyses demonstrate a statistically significant reduction in total opioid dosage in patients who were also treated with intravenous acetaminophen. Complete results and conclusions will be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Describe common adverse effects associated with opioid patient/parent/nurse-controlled analgesia in the pediatric population.

Explain the concept of multimodal analgesia and its utility in post-operative pain management.

Self Assessment Questions:

Which of the following is a common adverse effect of opioid PCA use in children?

A Diarrhea
B: Pruritus
C: Tachypnea
D: Hypertension

Which of the following best describes the benefit of multimodal analgesia?

A Potential for dose-sparing effects
B Potential for elimination of opioid use
C Potential for decreased adverse effects
D Both A & C

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-779 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

COMPLIANCE TO THE SURVIVING SEPSIS CAMPAIGN GUIDELINES: EFFECTS OF ORDER SET UTILIZATION

Jennifer A. Wiedmar, Pharm.D.*; Mark R. Cox, Pharm.D., BCPS; Karl R. Deibel, Pharm.D., BCPS; Carolyn W. Chou, Pharm.D.; Joy M. Kehoe, Pharm.D., BCPS

University of Louisville Hospital,530 S. Jackson Street,Louisville,KY,40202

jenniwie@ulh.org

Background: Despite a plethora of research conducted and the publication of international guidelines for the treatment of sepsis, mortality remains between 30% and 50%. Studies investigated if initiating a protocol for sepsis management would improve compliance to the Surviving Sepsis Campaign (SSC) guidelines and decrease mortality rates. Benefits of protocol initiation include shorter time to first dose antibiotics, initiation of broad spectrum antibiotic therapy, quicker time to hemodynamic resuscitation, increase in vasopressor and inotrope use, and reduced mortality rates. The purpose of this study is to determine if implementing a sepsis order set for patients admitted to the medical intensive care unit (MICU) service will increase compliance to the SSC recommendations.

Methods: The primary objective was to measure compliance to the SSC guidelines for the treatment of sepsis through retrospective chart review. Compliance was measured based on hemodynamic resuscitation, timely, appropriate antibiotic administration, and appropriate initiation of insulin infusions, stress ulcer prophylaxis, and deep vein thrombosis (DVT) prophylaxis. Secondary outcomes included mortality and ICU and hospital length of stay (LOS). Phase one evaluated compliance with current practice, phase two involved pharmacist-initiated education to physicians and protocol implementation, and the final phase evaluated compliance after protocol initiation. Compliance results from phase one and phase three will be compared using a chi-squared test.

Results: Phase one data collection revealed forty patients eligible for inclusion. Analysis showed 52.5% of patients reached hemodynamic goals within six hours. The average time to first dose of antibiotic was 4.9 hours. Stress ulcer prophylaxis was initiated in 85.0% of patients and DVT prophylaxis was appropriately initiated in 88.6% of patients. Insulin infusions were initiated in 28.6% of hyperglycemic patients. The average hospital LOS was 12.3 days and the average ICU LOS was 7.4 days. Phase one showed a 35.0% mortality rate.

Conclusion: Pending completion of phase III.

Learning Objectives:

List appropriate steps for hemodynamic resuscitation in a patient with septic shock

Identify the benefits of a sepsis protocol reported in the literature

Self Assessment Questions:

Which of the following vasopressors is recommended first line by the Surviving Sepsis Campaign guidelines for hypotension unresponsive to fluids?

A Epinephrine
B: Vasopressin
C: Phenylephrine
D: Norepinephrine

Which of the following benefits has been reported in the literature in association with implementation of a sepsis protocol?

A A shorter time to achievement of hemodynamic goals during resus
B A decreased need for vasopressor therapy during hemodynamic re
C A decreased use of broad spectrum antibiotics
D An increase in mortality rates

Q1 Answer: D Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-623 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

IMPLEMENTATION OF A PHARMACIST-DIRECTED BLOOD PRESSURE SERVICE IN A MANAGED CARE SETTING

Samantha L. Wilhorn*, PharmD; Mara A. Kieser, MS, RPh

UW-Madison School of Pharmacy Community Pharmacy Residency Program,777 Highland Avenue,Madison,WI,53705

wilhorn@wisc.edu

Purpose:
The purpose of this study is to compare the impact of a pharmacist-directed blood pressure service to the standard treatment for patients with uncontrolled hypertension in a managed care setting.

Methods:
This will be a randomized, observational study involving 40 participants 18 years or older with uncontrolled hypertension. Additional inclusion criteria for subjects include, insurance and medical care at the clinic, understand and speak English, provide informed consent, and register to use MyChart. Forty patients meeting inclusion criteria will be evenly randomized to a control group or an intervention group. The control group will have a blood pressure check at baseline and at three months and continue with usual care. The intervention group will meet in a face-to-face visit to receive education about blood pressure control with the pharmacy resident. During the visit, patients will be provided with and receive training on the use of a home blood pressure monitor. Intervention participants will check their blood pressure on a daily basis and submit their blood pressure readings every two weeks via MyChart, a secure electronic message system. The pharmacy resident will review the blood pressure readings and make drug therapy recommendations to patients health care providers. The reviews will be done within 48 hours after patient submission of blood pressure readings and patients will be notified via phone communication. Participants will complete surveys to assess satisfaction with the blood pressure service. The primary outcome will be measured by comparison of the mean systolic blood pressure measures at baseline and 3 months after enrollment in the service compared to the control group.

Results/Conclusions:
To be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Identify potential risks for resistant hypertension.

Describe possible advantages for the utilization of home blood pressure monitoring (HBPM) for patients with hypertension.

Self Assessment Questions:

Which of the following patient characteristics is a risk for resistant hypertension?

A male gender
B: obesity
C: residence in the midwestern United States
D: moderate salt intake

Which of the following is an advantage of utilizing home blood pressure monitoring for patients with hypertension?

A patients will not have to make appointments with their physician an
B most insurance plans will cover home blood pressure monitors
C this will allow patients to stop their medications
D measurements are not affected by “white coat hypertension”

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-624 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

ACUTE MANAGEMENT OF HYPERTENSIVE CRISES IN THE EMERGENCY DEPARTMENT

Scott Wilkie PharmD*, Stephanie Baker PharmD BCPS, Kyle Weant PharmD BCPS

University of Kentucky HealthCare,800 Rose St,H110,Lexington,KY,40536

scott.wilkie@uky.edu

Purpose: Practitioners in the Emergency Department (ED), routinely encounter patients who are hospitalized for hypertensive crises and neurologic sequelae secondary to hypertension Thus, it is important that appropriate management of hypertension be initiated appropriately as it is critical for positive outcomes in these patients. Treatment should be initiated in the ED to decrease cardiovascular events and mortality. It is our belief that a medication; nicardipine, sodium nitroprusside, labetalol or hydralazine; will best control hypertensive crises in the ED by minimizing the time blood pressure is outside the goal target range. Secondarily, the management of hypertensive crises with the appropriate medication and the presence of pharmacy personnel in the ED will decrease Intensive Care Unit (ICU) and hospital lengths of stay, improve time to transition to oral therapy as well as the time a patient is on a particular antihypertensive agent. The intent of this project is to determine which antihypertensive medication (labetalol vs. hydralazine and nicardipine vs. sodium nitroprusside) best manages hypertensive crises in the ED.

Methods: This was a retrospective chart review of patients who presented to the ED between January 1, 2007 and December 31, 2010. Four study groups will be assessed, analysis of patients receiving antihypertensive therapy labetalol, hydralazine, nicardipine, nitroprusside or any combination of the aforementioned. Inclusion criteria include adults greater than 18 years of age; patients admitted through the ED and who received one of the aforementioned antihypertensive therapies Exclusion criteria include pregnancy. The variables measured will include ICU length of stay, hospital length of stay, worsening of clinical indication, time to transition to oral antihypertensive, and time on antihypertensive medication.

Results: Study in progress

Conclusion: Study in progress

Learning Objectives:

Identify differences in medications used emergently in managing hypertensive crises in the ED

Explain the rationale for controlled blood pressure lowering.

Self Assessment Questions:

A blood pressure above 180/120 is considered as a hypertensive emergency in conjunction with target organ damage. Our goal is to reduce mean arterial blood pressure by no more than _____ within 1 hou

A 15%
B: 25%
C: 35%
D: 45%

What drug is indicated for hypertensive emergency with increased intra cranial pressure?

A Nicardipine
B Fenoldapam
C Nitroprusside
D Enalaprilat

Q1 Answer: B Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-625 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

INITIATING COLLABORATIVE DRUG THERAPY MANAGEMENT SERVICES IN A PHARMACIST RUN EMPLOYEE WELLNESS PROGRAM

Kristan M.S. Wilson*, PharmD; Katharine D. Klyczek, PharmD; Kathleen B. Haynes, PharmD, BCPS, CDE; Monika B. McDougal, PharmD; Chauntae M. Reynolds, PharmD; Erin J. Weber, PharmD

Community Health Network - Wellspring Pharmacy,1400 N Ritter Suite 211,Indianapolis,IN,46219

kwilson8@ecommunity.com

PURPOSE: In Indiana, collaborative drug therapy management (CDTM) laws (Indiana Code 25-26-16) were passed July 1, 2011. Through these laws, pharmacists and physicians may enter into a protocol agreement concerning the adjustment of patients drug regimens by a pharmacist. Once a protocol is established, a pharmacist may change the duration of treatment for current therapy; adjust a drugs strength, dosage form, frequency of administration, or route of administration; discontinue the use of a drug; or add a drug to the treatment regimen. The goal of this project is to design and implement CDTM in Community Health Networks pharmacist run employee wellness program, Bridges to Health (BTH), in order to expand pharmacy services.
METHODS: In developing a CDTM for BTH, Community Health Networks legal department must review and interpret Indiana Code 25-26-16. Once approved by the legal department, a CDTM protocol can be written to guide and outline the pharmacists procedures and protocols. The current BTH patients physician groups are then contacted to determine which physicians are willing to enter into CDTM. The physicians, pharmacists, and legal department work together to establish the CDTM protocol and contract. CDTM protocols will include one or more of the following disease states: asthma, diabetes, and hyperlipidemia. Once the documents have been finalized, approved, and signed; the pharmacists can begin to manage the drug regimens for disease states in the protocol for the BTH patients whose physicians are included in the CDTM protocol and contract.
RESULTS AND CONCLUSION: To be presented at the Great Lake Pharmacy Residency Conference

Learning Objectives:

State the necessary documents for beginning collaborative drug therapy management.

List the barriers to beginning collaborative drug therapy management.

Self Assessment Questions:

Which of the following is a legal document needed for collaborative drug therapy management?

A Policy and Procedures
B: Protocol
C: Guidelines
D: Physician acceptance policy

Which of the following is a way to overcome barriers to beginning a collaborative drug therapy management program?

A Protest
B Find a champion
C Write a letter of intent
D Hire a lawyer

Q1 Answer: B Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-626 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

IMPACT OF A PHARMACIST IN THE EMERGENCY DEPARTMENT ON CRITICAL CORE MEASURES

Noelle Wimer Pharm.D.*, Kent Gierhart, RPh., Ron Hitzke, RPh.

Luther Midelfrot - Mayo Health System,1221 Whipple St.,Eau Claire,WI,54703

wimer.noelle@mayo.edu

Background:
Emergency departments (ED) are fast-paced and high-stress environments focused on efficient point-of-care treatments. This environment coupled with the potential for unfamiliarity with patients and a lack of pharmacy review can predispose EDs to errors. The issuance of an America Society of Health-System Pharmacists (ASHP) policy statement supporting the expansion of pharmacy services to the ED has brought an influx of potential opportunities for pharmacy intervention. In 2010, one study was able to show that the presence of a pharmacist on a ST-segment elevation myocardial infarction (STEMI) treatment team was associated with mean 13.1 min (95% CI 6.5 - 21.9) decrease in door/diagnosis-to-CCL time and a mean 11.5 min (95% CI 3.9 - 21.5) decrease in door-to-balloon time. However, more clinical data supporting the interventions of a pharmacist in the ED are still needed. Our study aims to look at critical core measures (areas that will have financial implications based on guidelines set forth by the Centers for Medicare and Medicaid Services (CMS) guidelines) as a way to measure the impact of integrating a pharmacist into the ED.

Purpose:
To evaluate the impact of a pharmacist's role in the ED on time to first antibiotic dose in patients with pneumonia and door-to-cardiac catheterization lab admittance in patients with a STEMI.

Method:
This prospective study will evaluate patients presenting to the ED with a diagnosis of pneumonia or STEMI for a 25 day period in February of 2012. Study patients will be compared to patients presenting to the ED with the same diagnosis, but without the presence of a pharmacist in the department during a 3 month period in 2011. Time to first dose antibiotic door-to-balloon time, and door/diagnosis-to-cardiac catheterization lab admittance will be compared between the two groups.

Results:
To be presented at the Great Lakes Residency Conference.

Learning Objectives:

Describe Potential opportunities for a pharmacist to aid in patient care in the Emergency Department

Identify the ACC/AHA recommended time to percutaneous coronary intervention (PCI) for STEMI patients.

Self Assessment Questions:

The role of a pharmacist in the Emergency Deparment is:

A Limited due to a lack of data
B: one-dimensional and based on medication dispensing
C: only of value for large teaching hospitals
D: rapidly evolving and ripe with opportunities

ACC/AHA guidelines recommend a time to percutaneous coronary intervention (PCI) intervention for STEMI patients of no more than

A 60 minutes
B 90 minutes
C 120 minutes
D 70 minutes

Q1 Answer: D Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-780 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

EFFICACY OF ALVIMOPAN FOLLOWING BOWEL RESECTION: A COMPARISON OF TWO DOSING STRATEGIES

Brad Winegar*, Pharm.D.; Mark Cox, Pharm.D., BCPS; Danny Truelove, Pharm.D., BCPS; Carolyn Chou, Pharm.D.; John Trombold, MD.; Leigh Ann Pass, Pharm.D. BCPS

University of Louisville Hospital,530 South Jackson Street,Louisville,KY,402021675

bradlewi@ulh.org

Purpose:
Postoperative ileus, which is defined as a transient impairment of bowel motility that occurs after surgery, is a common complication of abdominal surgeries. Alvimopan is a peripherally acting mu-opioid receptor antagonist. It is indicated to accelerate the time to gastrointestinal recovery following partial large or small bowel resection surgery with primary anastomosis. The approved dosing regimen of alvimopan includes an initial twelve milligram capsule thirty minutes to five hours prior to surgery and twelve milligrams twice daily after surgery for a maximum of seven days. There are no human studies to date evaluating the necessity of the pre-operative dose. Prescribing practices at this institution allow us to investigate the clinical utility of the pre-operative dose.

Methods:
This Institutional Review Board approved retrospective study included patients ≥ 18 years of age who had an elective partial large or small bowel resection surgery with primary anastomosis between September 1, 2008 and September 1, 2011. Patients were excluded if they were admitted to the trauma service or had received a colostomy or ileostomy. The study evaluated three groups of patients: (1) those who received alvimopan and received a dose pre-operatively, (2) patients who received alvimopan, but did not receive a dose pre-operatively, and (3) control patients who did not receive alvimopan. There was one control patient for each patient that received alvimopan. The primary endpoint is the length of stay following bowel resection surgery measured in hours. Secondary endpoints include total direct hospital costs, measured using the unadjusted mean cost, and the time to gastrointestinal recovery, measured using the time to first bowel movement and time to oral diet.

Results:
Pending completion of data collection and analysis.

Conclusions:
To be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Identify the maximum number of doses of alvimopan a patient should receive.

Recall the only absolute contraindication to the use of alvimopan.

Self Assessment Questions:

Alvimopan is indicated for short-term hospital use only. The maximum number of doses a patient should receive is:

A 2
B: 10
C: 15
D: 30

The only absolute contraindication to the use of alvimopan is:

A A creatinine clearance less than thirty
B The concomitant use of strong Cytochrome P450 inhibitors
C In patients who have taken therapeutic doses of opioids for seven
D In patients allergic to angiotensin converting enzyme inhibitors

Q1 Answer: C Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-627 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

SINGLE AGENT THERAPY VERSES COMBINATION THERAPY FOR THE TREATMENT OF CLOSTRIDIUM DIFFICILE IN CRITICALLY ILL PATIENTS (STOP-CDIFF): A RETROSPECTIVE COHORT STUDY

Jessica B. Winter. Pharm.D.*, Neil E. Ernst, Pharm.D., Eric W. Mueller, Pharm.D., FCCM

UC Health-University Hospital,234 Goodman St.,ML: 0740,Cincinnati,OH,452192316

Jessica.Winter@UCHealth.com

Background
Combination therapy (vancomycin plus metronidazole) for treatment of initial, severe Clostridium difficile infection (CDI) is a grade C-III recommendation, inviting clinicians to consider this when managing critically ill patients. Controversy also persists regarding the best single agent for managing CDI in critically ill patients who often have CDI as a complication rather than the primary illness. This study addresses the paucity of evidence-based recommendations specific to the challenges of critically ill patients by evaluating combination therapy and monotherapy for treatment of initial, severe CDI.
Methods
This single-center, retrospective, cohort study includes adult, critically ill patients meeting inclusion and exclusion criteria with CDI defined as a first documented positive c.difficile toxin A assay in combination with the presence of diarrhea. Patients will be divided into three groups: metronidazole monotherapy, vancomycin monotherapy, and combinatior therapy. Data collection will include pertinent laboratory values, sequential organ failure assessment (SOFA) score at day of CDI diagnosis, lactobacillus and proton-pump inhibitor treatment, immunosuppressant therapy, concurrent antibiotic therapy and duration, and incidence of vancomycin-resistant Enterococcus spp. (VRE) within six months of treatment with vancomycin.
The primary endpoint is clinical cure defined as the resolution of diarrhea by day 10 of treatment. Additional endpoints include recurrence , presence of VRE, prevalence of prolonged CDI therapy, and identification of predictors of CDI response. A subgroup analysis comparing cure rate between patients receiving prolonged treatment anc recommended durations of therapy also will be done.
113 patients are required to provide 80% power to detect an absolute difference of 15% between treatment groups. Statistical analysis will be performed using chi-squared for categorical data and ANOVA or ANOVA on ranks for numerical comparisons between groups. Multivariate logistic regression will be performed to identifyi independent predictors of therapy response and identify predictors of CDI recurrence.
Results
Results and conclusions to be presented at the Great Lakes Residency Conference.

Learning Objectives:

Explain the current recommendations for treatment of initial-episode clostridium difficile infection and the evidence used to re-enforce those recommendations.

Recognize the lack of evidence for treatment of first-episode clostridium difficile infection in critically ill patients.

Self Assessment Questions:

Which of the following statements is true regarding treatment of severe, complicated first-occurrence Clostridium difficile infection in critically ill patients?

A Vancomycin is superior to metronidazole for treatment no matter w
B: Metronidazole is appropriate treatment as single agent therapy unt
C: Vancomycin as single agent therapy is appropriate due to increase
D: All of the above could be correct due to incomplete data and recon

Combination therapy is often utilized in critical ill patients due to?

A Increased evidence that combination therapy is more effective at tr
B Vancomycin is synergistic with metronidazole to improve it's efficac
C Combination therapy is the current recommendation for patients wi
D Critically ill patients need more antibiotic selections due to the seve

Q1 Answer: D Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-628 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

MEDICATION THERAPY MANAGEMENT OF THE COMPLEX PEDIATRIC SPECIAL NEEDS PATIENT AND THE PHARMACISTS IMPACT ON CARE

Jena J Wissbroecker, PharmD*

Children's Hospital of Wisconsin,9000 W. Wisconsin Ave.,Milwaukee,WI,53226

jwissbroecker@chw.org

Purpose: The purpose of this pharmacy services pilot is to evaluate the impact of a pharmacists involvement in medication therapy management of complex pediatric special needs patients.

Methods: The pharmacist will obtain an accurate medication profile for each patient by reviewing the current home medication list in the electronic health record, progress notes from previous admissions and/or clinic appointments, outpatient pharmacy records, patient/family interviews via telephone, and completing medication reconciliation at clinic visits and/or hospital admissions. The patients home medication list will then be updated by the pharmacist for use by the health care team at future admissions/clinic visits. The pharmacist will complete a profile review of each patients medications with recommendations made to the special needs program team. Data collected will include the number of electronic medication profile discrepancies, number of therapeutic duplications, number of dosing changes, number of clinically significant drug-drug or drug-allergy interactions, number of drug additions and deletions including recommendations for streamlining/deescalating therapy, number of care-taker convenience recommendations, number of therapy management recommendations regarding labs or imaging, and the number of vaccination recommendations. Upon admissions/clinic visits, the home medication list previously reviewed by the pharmacist will be compared to the medications ordered by the physician with discrepancies clarified.

Preliminary results: Data collection is ongoing. Preliminary data includes seven errors identified in the electronic health care record per three patients. A total of 33 interventions were made by the pharmacist regarding five patients. Five interventions were regarding therapeutic duplications, nine were dosing changes, five drug-drug or drug-allergy interactions, four drug deletions, three caretaker convenience changes, five lab or imaging recommendations, and two vaccine updates. Of the 33 recommendations, eleven resulted in therapy changes.

Conclusions: Conclusions will be based on the number of clinical interventions made by the pharmacist as well as those that result in therapy change.

Learning Objectives:

Discuss the potential advantages of pharmacist involvement in medication therapy management of complex patients.

Describe the activities involved in medication therapy management.

Self Assessment Questions:

Which of the following are activities involved in medication therapy management?

A Therapeutic duplication review
B: Attempt to get the patient below 5 total medications
C: Caretaker convenience concerns
D: A and C

Where can the pharmacist search for up to date patient information?

A Admission note from last year
B The patient's current community pharmacy
C The patient/caregiver
D B and C

Q1 Answer: D Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-629 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF OFF-LABEL RECOMBINANT FACTOR VIIA UTILIZATION

Kevin Wohlfarth, PharmD* and Korin Calkins, PharmD

Toledo Hospital/Toledo Children's Hospital,2142 N Cove Blvd,Toledo,OH,43606

kevin.wohlfarth@promedica.org

Background:
Recombinant factor VIIa (rfVIIa) is currently only FDA approved for use in patients with hemophilia A or B with antibody inhibitors or with a congenital factor VII deficiency. However, it has been increasingly utilized off-label for the treatment of severe hemorrhages in patients without a coagulation factor deficiency.

Purpose:
The purpose of this study is to assess compliance with the established prescribing guidelines of rFVIIa for off-label uses at ProMedica Toledo Hospital. Secondary objectives assessed will include safety and efficacy with rFVIIa use, patients clinical outcomes, and a cost evaluation.

Methods:
The study is a retrospective chart review of 157 patients 18 years and older who received rfVIIa for off-label uses at ProMedica Toledo Hospital between January 1, 2004, and September 30, 2011. This study has been approved by the ProMedica Institutional Review Board. Data was collected from the patients electronic medical records. Patients who received rfVIIa off-label and their subsequent indication for treatment were stratified for analysis. Off-label uses of rfVIIa are broken down by: trauma/massive bleeding and transfusion, massive bleeding in cardiothoracic surgical patients without hemophilia, neurosurgical patients, patients requiring warfarin reversal, gastrointestinal bleeding/cirrhosis patients, and other patients. Guidelines have been established and implemented for the facility for each patient population and indication. Data collected includes patient age, patient weight, any comorbidities, indication for rFVIIa, dose given, number of doses, any partially wasted vials, compliance with established guidelines, any complications or adverse drug events, the clinical outcome of the patient, pre and post coagulation parameters, and concomitant hemostatic interventions or therapies. The reviewer assessed prescriber dosing compliance with rfVIIa in association with the established guidelines for the facility and the prescribed indication

Results:
Results and conclusions to be presented at Great Lakes Pharmacy Resident Conference

Learning Objectives:

Review utilization of recombinant factor VIIa in patients without hemophilia or factor deficiency

Identify potential adverse outcomes associated with the use of recombinant factor VIIa

Self Assessment Questions:

What is the recommended dose of recombinant factor VIIa for administration per its labeled indications?

A 40 mcg/kg
B: 60 mcg/kg
C: 90 mcg/kg
D: 100 mcg/kg

How should recombinant factor VIIa be administered?

A As a rapid IV push
B Infused over 30 minutes
C Infused over 60 minutes
D IV push over 3 to 5 minutes

Q1 Answer: C Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-630 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

THE RISK OF SUBOPTIMAL VANCOMYCIN TROUGH SERUM CONCENTRATIONS ASSOCIATED WITH OBESITY

Janice Wojtecki PharmD*, Paul ODonnell, PharmD, BCPS

CPS/Mercy Hospital and Medical Center,2525 S. Michigan Ave,Chicago,IL,60616

jwojtecki@mercy-chicago.org

The primary objective of this retrospective cohort study is to determine if obesity, defined as a body mass index (BMI) of at least 30 kg/m2, is a risk factor for suboptimal vancomycin trough serum concentrations for infections with a goal of 15-20 mg/L.

This IRB approved study included patients > 18 years of age with a BMI of at least 18.5 kg/m2 that received a minimum of four doses of vancomycin at Mercy Hospital and Medical Center and had a trough concentration measured. Patients included had a diagnosis of or clinical suspicion of sepsis, an abscess, bacteremia, endocarditis, osteomyelitis, meningitis, pneumonia or other infection with a corresponding vancomycin goal of 15-20 mg/L. Patients were excluded if they had a creatinine clearance less than 40 mL/min or vancomycin exposure in the 48 hours prior to their first dose. Additional data collected included height, weight, sex and age. Comorbidities, the presence of systemic inflammatory response syndrome, ascites, heart failure or malnutrition were also recorded.

Of 97 patients evaluated, only 31 (32%) attained a goal trough concentration of at least 15 mg/L. When comparing those that attained versus did not attain a goal trough concentration, rates of obesity were similar (39% each group, p=1.00). Rates of diabetes (29 vs 32%, p=0.82), hypertension (48 vs 58%, p=0.51), heart failure (3.2 vs 3.0% p=1.0) and sepsis (42 vs 53%, p=0.39) were also similar between those that attained versus did not attain goal trough concentrations.

Based on the preliminary results of this study, there does not appear to be an association between obesity, diabetes, hypertension, heart failure or sepsis and suboptimal vancomycin troughs. In addition, it appears that the majority of patients, both obese and non-obese, are not attaining their goal trough concentrations which may indicate a need for more aggressive vancomycin dosing.

Learning Objectives:

Identify potential risk factors associated with suboptimal vancomycin trough concentrations.

List the disease states that require goal vancomycin troughs of 15-20mg/L.

Self Assessment Questions:

1.Previous studies have shown that obese patients may be at higher risk for suboptimal vancomycin concentrations due to:

A Elevated renal function
B: Inadequate empiric dosing
C: Multiple comorbidities
D: Increased drug metabolism

Which of the following diseases does not require a vancomycin goal trough of 15-20mg/L?

A Pneumonia
B Osteomyelitis
C Endocarditis
D MSSA skin infection

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-781 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF DRUG-INDUCED QTC PROLONGATION MONITORING GUIDELINE IMPLEMENTED AT A UNIVERSITY HOSPITAL

Angela Wong, PharmD*; Michael Moranville, PharmD, BCPS

University of Chicago Medical Center,5841 South Maryland Avenue,Chicago,IL,60637

Angela.Wong@UCHospitals.edu

Purpose: Drug-induced QT prolongation is one of the most frequent causes of acquired long QT syndrome (LQTS). Prolongation of the QT-interval with correction for heart rate (QTc) often precedes Torsades de Pointe (TdP), a polymorphic ventricular arrhythmia that degenerates into ventricular fibrillation in 75-80% of cases. Current literature highlights the importance of EKG monitoring for patients with risk factors for QT-interval prolongation but there are few recommendations on how often o which patients should be monitored. In an effort to improve patient safety, the University of Chicago Medicine (UCM) implemented a drug-induced QTc prolongation monitoring guideline in July 2010 for hospitalized patients receiving medications that may lead to TdP. The purpose of this study is to identify the impact of medications on QT interval prolongation in hospitalized patients with additional risk factors.

Methods: This concurrent cohort analysis will be conducted from December 13, 2011 to February 3, 2012. Adult patients taking one or more high risk medication or two or more possible risk medications with a baseline QTc greater or equal to 440 ms are included in the study. Exclusion criteria are baseline QTc less than 440 ms, atrial fibrillation or flutter, and chronic ventricular pacing. The primary endpoint is to determine the incidence of QTc prolongation by more than 10 percent from baseline or an absolute QTc greater than 500 ms. Secondary objectives include percent change in QTc, mean change in QTc, adherence to the UCM QTc monitoring recommendations, reasons for non-adherence, and specific risk factors for QTc prolongation. The current guideline will be revised according to the results of this study to ensure appropriate monitoring of patients at high-risk for QTc prolongation. Data collection will be done using electronic medical records.

Learning Objectives:

Describe risk factors that cause significant QT interval prolongation in hospitalized patients.

Discuss the challenges of implementing QT interval monitoring guidelines in an academic medical center.

Self Assessment Questions:

Which of the following are risk factors for QT prolongation?

A Female gender

B: Hypomagnesemia

C: Heart failure

D: All of the above

The Arizona Center for Education and Research considers which medication to be high-risk for QTc prolongation?

A Amoxicillin

B Ondansetron

C Moxifloxacin

D None of the above

Q1 Answer: D Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-841 -L05-P

Activity Type: Knowledge-based Contact Hours: 0.5

A STEWARDSHIP APPROACH TO MANAGING COAGULASE-NEGATIVE STAPHYLOCOCCI (CONS) BACTEREMIA USING RAPID POLYMERASE CHAIN REACTION (RPCR) TECHNOLOGY MRSA/SA BC

Jordan R. Wong, PharmD*; Karri A. Bauer, PharmD, BCPS; Jessica E. West, MSPH; Debra A. Goff, PharmD, FCCP

The Ohio State University Medical Center,410 W. 10th Avenue,Department of Pharmacy, 368 Doan Hall,Columbus,OH,43212

Jordan.Wong@osumc.edu

Purpose: Coagulase-negative staphylococci (CoNS) are normal skin flora. CoNS often represent contamination, when obtained from a single blood culture in the absence of clinical signs and symptoms. Recently, microbiological efforts have focused on the development and implementation of rapid detection techniques, with rapid polymerase chain reaction (rPCR) being the most sensitive and specific. The Ohio State University Medical Center (OSUMC) uses the rPCR (Xpert MRSA/SA BC) to differentiate Staphylococcus aurues and CoNS. The purpose of this is to evaluate the impact of rPCR with infectious disease pharmacists (ID PharmD) intervention on antistaphylococcal (AS) antibiotic use in patients with a positive blood culture for CoNS.

Methods: This is a pre- and post-intervention study of patients with a positive blood culture for CoNS admitted from January 1 to March 31, 2011 and October 1, 2011 to January 31, 2012. In the pre-intervention group, the physician was notified by the clinical microbiology laboratory of the results of the rPCR with no ID PharmD intervention. In the post-intervention group, the clinical microbiology laboratory contacted both the physician and the ID PharmD with the results for the rPCR. The ID PharmD contacted the physician, communicated the interpretation of the results and discussed antibiotic therapy. The primary outcome is the time to discontinuation of AS therapy in patients with a positive blood culture for CoNS determined to be a contaminant. Secondary outcomes include patient length of stay, infection related length of stay, total hospital costs and infection related costs. Chi-squared or Fishers exact test will be performed on categorical data, while t-test or Mann-Whitney U test will be performed on continuous data. An IRB was approved by the local review board.

Results/Conclusions: to be presented at the Great Lakes Residency Conference.

Learning Objectives:

Explain the utility of rapid diagnostic tests for coagulase-negative staphylococci

Discuss stewardship approach to management of coagulase-negative staphylococci from positive blood cultures

Self Assessment Questions:

Stewardship intervention on coagulase-negative staphylococci may:

A decrease the time to appropriate antibiotic therapy

B: increase the time to appropriate antibiotic therapy

C: decrease the infection rate with CoNS

D: increase the infection rate with CoNS

Rapid diagnostic tests for coagulase-negative staphylococci can:

A aid in the identification of bacteria

B hinder clinical judgment for treatment of infection

C interfere with bacterial sensitivities

D promote inappropriate use of antibiotics

Q1 Answer: A Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-631 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

IMPLEMENTATION OF AN INTERVENTION TOOL TO MINIMIZE ANTIMICROBIAL ADMINISTRATION DELAYS AND OMISSIONS

*Sum Wong, Pharm.D., Lisa R.Young, Pharm.D., Isabel Sanvanson, Pharm.D., Thani D. Misra, Pharm.D., Richard J. Rooney, Pharm.D.

Jesse Brown VA Medical Center,820 S. Damen Ave,Chicago,IL,60612

sum.wong1@va.gov

Background:
Timely administration of antimicrobials is associated with decreases in 30-day mortality. Despite automation and technology to improve the accuracy and timeliness of medication administration, delays and omissions still occur. At Jesse Brown VA Medical Center (JBVAMC), a retrospective analysis of missed intravenous (IV) antimicrobial administrations from January 1st to March 31st, 2011 found at least one dose of IV medication was omitted or given more than 4 hours late in 23% of the patients sampled. Subsequently, a Missed Medications Report (MMR) was introduced and implemented in July 2011 to capture medications that were not administered at the designated administration time.

Purpose:
This study will retrospectively evaluate the effectiveness of the MMR by comparing the number of delays and omissions pre- and post-implementation at JBVAMC. The study will also investigate whether an association exists between delays or omissions of antimicrobial administration and length of stay (LOS) or 30-day mortality.

Methods:
This study is a retrospective, electronic chart review of subjects who received intravenous antimicrobials at JBVAMC pre- and post-implementation of the MMR. Data collected from July 1st through October 31st, 2010 (pre-implementation) will be compared with July 1st through October 31st, 2011 (post-implementation) data to evaluate the effectiveness of the MMR. Subjects who received multiple doses of an intravenous antimicrobial agent during their hospital stay will be included in this study. The primary endpoints of this study are to determine the difference in number of inappropriate antimicrobial administration(s), LOS and 30-day mortality between groups. Secondary endpoints include sub group analysis of the impact of concurrent intravenous agent(s) or hospital unit on inappropriate antimicrobial administration.

Results/Conclusions:
Data collection and analysis will be completed by April 2012. Final results with conclusion will be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Identify medication omission and wrong time administration as defined by American Society of Health-System Pharmacists.

Recall the reasons for delays and omissions in the administration of medications.

Self Assessment Questions:

Which of the following statement(s) is (are) true regarding wrong time medication administration?

A Wrong time medication administration is defined as a patient not re
B: While it is straightforward to identify a medication omission, it is mo
C: Wrong time medication administration is defined as a patient failing
D: Only a) & b)

Which of the following is not a causative factor in medication administration delays:

A Prescriber delay in ordering medications while laboratory tests and
B Implementation of an automated dispensing systems such as Pyxis
C Pharmacist delay in verifying prescriptions if there is a need for ord
D Nurse delay in administering medications if a patient is off the floor

Q1 Answer: D Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-782 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

USE OF METOCLOPRAMIDE IN THE TREATMENT OF NEONATAL REFLUX

Mallary Wood, PharmD*; Barbara Kaplan, MD; Kay Kyllonen, PharmD, FPPAG

Cleveland Clinic Foundation,9500 Euclid Ave,Cleveland,OH,44195

woodm4@ccf.org

Background: Gastroesophageal reflux (GER) is a common problem in infants and metoclopramide is amongst the treatment. The safety and efficacy of metoclopramide in this population has not been well validated; however, in many practices it is commonly used despite the obvious benefit and risk of side effects. Furthermore, the 2009 Pediatric Gastroesophageal Reflux Clinical Practice Guidelines stated there is insufficient evidence to justify its routine for the treatment of GER. One way to identify and quantify the clinical significance of GER is to document apnea, bradycardia and desaturation episodes then consider treatment based on the frequency of these events. This study will investigate the change in frequency of episodes after initiation of metoclopramide therapy.

Objective: To evaluate the clinical utility of metoclopramide for the treatment of neonatal reflux

Methodology: A non-interventional medical record review of approximately 90 patients admitted to the neonatal intensive care unit at the Cleveland Clinic Main Campus who received at least 72 hours of metoclopramide will be conducted. The number of apnea, bradycardia and desaturation episodes before treatment will be compared to the average number of episodes after 72 hours of treatment. Exclusion criteria include patients who received metoclopramide therapy for less than 72 hours, are immediately post-operatively prescribed metoclopramide, present with confirmed bowel obstruction, GI hemorrhage, necrotizing enterocolitis, a history of seizures or dystonic reactions and have a significant medically recognized immunodeficiency disorder or malignancy. Data describing patient demographics, GER medications, number and type of episode, weight gain and presence or absence of enteral feeds will be collected. An alpha of less than 0.05 will be considered statistically significant. A paired students t-test and chi-squared test will be used to evaluate the data as appropriate.

Results: Data collection is currently ongoing. Results and conclusions will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

List the treatment options for the treatment of neonatal gastroesophageal reflux.

Describe the mechanism of action of metoclopramide in the treatment of neonatal gastroesophageal reflux.

Self Assessment Questions:

What is the mechanism of action of metoclopramide?

A Inhibits the parietal cell hydrogen/potassium ATP pump
B: Inhibits the histamine H2 receptor of the gastric parietal cells
C: Blocks dopamine receptors
D: Forms a protective coating that acts locally to protect the gastric lin

Which of the following are signs/symptoms associated with neonatal gastroesophageal reflux?

A Weight gain
B Feeding intolerance and failure to thrive
C Increased heart rate
D Fever

Q1 Answer: C Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-632 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EFFECTS OF DEXMEDETOMIDINE ON INFLAMMATORY CYTOKINES IN PATIENTS WITH ANEURYSMAL SUBARACHNOID HEMORRHAGE

Brittany L. Woolf, PharmD;* Kiranpal Sangha, PharmD; Shaun P. Keegan, PharmD, BCPS

UC Health-University Hospital,234 Goodman St,ML 0740,Cincinnati,OH,45219

brittany.woolf@uchealth.com

Background:
Aneurysmal subarachnoid hemorrhage(aSAH) is a complex disorder associated with high morbidity and mortality. aSAH is further complicated by the development of late complications, such as delayed cerebral ischemia and vasospasm which may be related to inflammatory cytokines.
Dexmedetomidine, an FDA-approved intravenous sedative, has been shown to have anti-inflammatory effects in animal models involving traumatic brain injury, spinal cord injury, and subarachnoid hemorrhage and in humans suffering sepsis following abdominal surgery.
Purpose:
Determine if patients with aSAH on dexmedetomidine compared to propofol will have a more profound decline in inflammatory cytokines.
Methods:
This investigator-initiated, single-center, randomized prospective study will evaluate the anti-inflammatory effects of dexmedetomidine in patients with aSAH. The study is being conducted in the Neuroscience Intensive Care Unit at University Hospital in Cincinnati. Adults with aSAH who have World Federation of Neurosurgical Societies grades 4 or 5, are mechanically ventilated and have a CSF drain placed at start of study will be included after surgical repair. Subjects are being randomized to receive either dexmedetomidine/opioid or propofol/opioid for 24 hours titrated to a RASS of -1 to +1. Patients in the dexmedetomidine group will have propofol available for rescue if sedation goals are not met or an adverse event occurs.
The primary aim will compare differences in inflammatory markers (TNF-alpha, IL-6, glial fibrillary acidic protein, and malondialdehyde) in serum and cerebrospinal fluid in 10 patients with aSAH. Concentrations of those cytokines will be compared between the dexmedetomidine and propofol groups at baseline, 24 and 48 hours. Other study aims include comparing sedative and analgesic requirements, sedation scores, intensive care unit and hospital length of study, Glasgow Outcome Score at discharge and incidence of delayed cerebral ischemia.
Results:
Results and conclusions to be presented at Great Lakes Residency Conference.

Learning Objectives:

Recognize the most common locations of aneurysmal subarachnoid hemorrhages.

Define vasospasm.

Self Assessment Questions:

What is the most common location of an aneurysmal subarachnoid hemorrhage?

A Anterior Communicating Artery
B: Middle Cerebral Artery
C: Vertebrobasilar Junction
D: Superior Cerebellar Artery

What is the definition of vasospasm?

A Arterial narrowing after subarachnoid hemorrhage confirmed by ra
B Arterial dilation after subarachnoid hemorrhage confirmed by radio
C Neurologic deterioration that persists for greater than 1 hour and c
D A buildup of fluid inside the skull

Q1 Answer: A Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-633 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

IMPLEMENTATION OF THE STOPP/START TOOL IN A GERIATRIC VETERAN PRIMARY CARE CLINIC

Maria C. Wopat, PharmD*; Lauren L. Pyszka, PharmD, BCPS, CGP; Trisa Seys Ranola, PharmD, CGP, CDE

William S. Middleton VA Hospital,2500 Overlook Terrace,Madison,WI,537052286

maria.wopat@va.gov

OBJECTIVE: To evaluate medication regimens of geriatric patients for potentially inappropriate medications (PIMs) and potential errors of omission (PEOs).
PURPOSE: Geriatric populations consistently have higher medication use compared to younger patients, resulting in an increased potential for inappropriate prescribing practices. Several tools have been developed to assess medication regimens in elderly patients for inappropriate prescribing including the recently validated STOPP/START tool. This study may provide further evidence of the frequency of PIMs and PEOs in the geriatric population as well as the potential impact of decreasing this prevalence. Based on study results, procedures and policies can be implemented to assist practitioners in assessing medication regimens in geriatric veterans for PIMs and PEOs.
METHODS: A prospective study where up to 150 eligible patients seen in the Geriatric Medication Management (GEM Med Mgmt) Clinic from December 2011 through May 2012 will have a medication review performed using the Screening Tool of Older Persons Prescriptions (STOPP) and Screening Tool to Alert doctors to Right (START). Primary endpoint will be to determine the prevalence of potentially inappropriate medications (PIMs) and potential errors of omissions (PEOs) as identified by the STOPP/START tool.

Patients will be included if they are > 65 years old, have at least five active medications on their medication profile, and are seen in the GEM clinic within the timeframe of December 2011 through May 2012. Data to be collected includes patient age, gender, race, chronic medical conditions, height, weight, number of active medications, serum creatinine, estimated glomerular filtration rate (eGFR), hepatic function, and other relevant lab data based on patients current medication regimen. Statistics to be calculated include frequency of PIMs, frequency of PEOs, and percent of interventions accepted.

Learning Objectives:

Describe the dangers of potentially inappropriate prescribing in the geriatric population.

Identify PIMs and PEOs in a geriatric patient using the STOPP/START criteria.

Self Assessment Questions:

Which of the following is a danger of potentially inappropriate prescribing in the geriatric population?

A Increased risk of adverse drug events
B: Improved patient medication adherence
C: Decreased number of falls per patient
D: Enhanced cognitive function

Which of the following medications should a provider consider discontinuing based on the STOPP criteria?

A Omeprazole in a patient with a past medical history significant for G
B Prednisone instead of inhaled corticosteroids for maintenance ther
C Metoprolol used for hypertension in a patient who is not experienci
D Sertraline used as an antidepressant in a 70 year old patient

Q1 Answer: A Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-634 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

IMPACT OF A DELIRIUM TREATMENT PROTOCOL WITH NURSING EDUCATION IN A COMMUNITY HOSPITAL INTENSIVE CARE UNIT

Joanna E Woten*, PharmD; Herb Pettit, PharmD, BCPS; Amy M Weir, PharmD, BCPS

Central Baptist Hospital,1740 Nicholasville Road,Lexington,KY,40503

Joanna.woten@bhsi.com

Purpose

Intensive care unit (ICU) delirium is quite common, but many times throughout the United States it goes unrecognized despite the increased risk of mortality, morbidity and prolonged hospital stay. The primary objectives of this study are to increase recognition and subsequent diagnosis of delirium patients and to increase the use of appropriate protocol driven pharmacologic treatment to manage patients with delirium.

Methods

This IRB approved study was performed in two portions. An initial retrospective chart review included patients over 18 years of age (excluding pregnant patients or prisoners) who were admitted into the ICU during a three month study period. The presence of delirium during the ICU stay (disorganized thinking, fluctuation in mental status, inattention, and altered level of consciousness), appropriate documentation of CAM-ICU score, and pharmacologic intervention were recorded. Based on the preliminary results, a pharmacologic treatment protocol for ICU delirium was prepared and implemented. This was followed by nursing staff education on delirium (assessing, diagnosing, treating, and monitoring for improvement) as well as proper use of the CAM-ICU assessment tool and the new ICU delirium protocol. Following the education and protocol initiation, patient charts will be reviewed to monitor for an increase in documentation of CAM-ICU scores, diagnosis of ICU delirium, and pharmacologic treatment.

Preliminary Results and Conclusion:

Only 17.2% (126/733) of patients with documented CAM-ICU scores from the initial portion of the study exhibited a positive score. Sixty of the 126 patients with positive scores were randomly selected and evaluated for appropriateness of documentation, diagnosis, and treatment of delirium. From these patients, 53% (57/108) of the positive CAM-ICU scores were appropriately scored or documented, and only 42% of these patients were being treated with antipsychotics. This suggests that delirium may be going undiagnosed and untreated when diagnosed.

Final Results and Conclusion:

To be presented at Great Lakes Pharmacy Resident Conference

Learning Objectives:

Recognize the role of the CAM-ICU score in patient assessment

Describe the impact of delirium on the outcome of patients in the ICU

Self Assessment Questions:

Which of the following may occur in a patient experiencing delirium?

A Decreased risk of mortality

B: Decreased length of hospital stay

C: Increased days of the ventilator

D: Decreased risk of being placed back on a ventilator

Which of the following is a component of the CAM-ICU score?

A Pain

B Fluctuation in mental status

C Mini Mental State Exam

D Fever

Q1 Answer: C Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-635 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

ASSESSMENT OF THE EFFECT OF CYP3A4 INHIBITORS ON THE QTC INTERVAL IN PATIENTS RECEIVING DOFETILIDE

Elise M. Wozniak, PharmD*; Yvonne Tsao, PharmD, BCPS; Nicole Bernardo, PharmD; Michael Postelnick, RPh, BCPS, AQ ID

Northwestern Memorial Hospital,251 E. Huron St,Feinberg Pavilion, LC-700,Chicago,IL,60611

ewozniak@nmh.org

Background

Dofetilide is indicated for pharmacologic conversion of atrial fibrillation and atrial flutter and for maintenance of normal sinus rhythm. A direct relationship exists between dofetilide dose and plasma concentration and an increase in QTc interval. Although approximately 80% of dofetilide is excreted in the urine in its unchanged form, it also undergoes metabolism and is a substrate of CYP3A4. Some agents which are both CYP3A4 inhibitors and cation transport system inhibitors, such as ketoconazole and cimetidine, are contraindicated for concomitant use with dofetilide. There is limited data for concomitant use of other CYP3A4 inhibitors with dofetilide.

Purpose

The primary objective is to evaluate the effect on the QTc interval with dofetilide alone versus dofetilide plus a CYP3A4 inhibitor. The primary endpoint of this study is an increase in QTc of >15% or >500msec, which is the change in QTc that requires dose adjustment in the approved labeling. The results will be used to evaluate if empiric dose adjustment of dofetilide is warranted when used with a CYP3A4 inhibitor.

Methods

This is a retrospective cohort study of patients who received dofetilide at a tertiary academic medical center. Study endpoints will be compared between two patient groups: those who received dofetilide alone and those who received dofetilide with a CYP3A4 inhibitor. Patients will be excluded from the study if they do not have documentation of electrocardiographic monitoring after dofetilide initiation and if there are no documented serum creatinine measurements. Patient follow-up will include the entire inpatient admission. Concomitant CYP3A4 inhibitors will be classified as weak, moderate, or strong. Secondary endpoints will include: highest serum creatinine, time from baseline QTc to highest QTc, time from start of dofetilide to highest QTc, change in QTc, percent change in QTc, and incidence of Torsade de Pointes.

Results

Data collection and analysis are pending.

Learning Objectives:

Review the importance of monitoring renal function and electrocardiographic monitoring after the initiation of dofetilide

Describe the effect of CYP3A4 inhibitors on the QTc interval when administered with dofetilide

Self Assessment Questions:

Which of the following parameters do not need to be monitored closely after the initiation of dofetilide?

A Serum creatinine

B: Serum electrolytes

C: Electrocardiographic monitoring

D: Liver function tests

Which of the following statements is correct regarding the effect of dofetilide on the QTc interval?

A Increased dofetilide concentrations cause prolongation of the QTc

B QTc prolongation due to dofetilide is not related to serum concentr

C Dofetilide concentrations are not dependent on renal function

D CYP3A4 inhibitors may decrease dofetilide concentrations

Q1 Answer: D Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-636 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

IMPACTING PATIENT CARE WITH IMPROVEMENT OF CHEMOTHERAPY EDUCATION MATERIALS

Irene J. Wu, PharmD*, Daniel J. Bestul, PharmD

William Beaumont Hospital,3601 West Thirteen Mile Rd.,Royal Oak,MI,48073

irene.wu@beaumont.edu

Background:
Cancer is a prevalent and growing issue in the United States. A cancer diagnosis is a stressful situation for a patient, but provision of patient information on cancer can reduce anxiety, improve coping, and promote self-care and participation. It has been suggested that there is a discrepancy between patients and health care professionals regarding what information patients need or want to know about chemotherapy. At our institution, patients are provided chemotherapy education from the nurse clinicians once treatment is decided. Patients also receive education materials specific to their chemotherapy drug(s) at that time. Currently, there is no standardized format for our chemotherapy education materials.

Purpose:
The main objective was to evaluate the efficacy of new chemotherapy education materials with patient and nurse clinician surveys. The secondary objective was to identify deficiencies in the current chemotherapy education materials.

Methods:
Eligible patients were 18 years or older and were provided chemotherapy education from a nurse clinician. These patients were not necessarily chemotherapy-nave but received a chemotherapy drug for the first time. Patient and nurse clinician baseline and post-intervention surveys were conducted with the current and new chemotherapy education materials, respectively. All surveys included questions on patient satisfaction, utility of information, and need for more information. The nurse clinician survey had additional questions regarding feedback for improvement. Results from the baseline surveys and feedback from the oncology pharmacist and nurse clinicians were used to identify possible areas of improvement and to create the new chemotherapy education materials. Additional data collection included patient demographics such as age, sex, cancer diagnosis, and chemotherapy regimen.

Results/Conclusions:
Results and conclusions will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

List factors that can affect a patients information needs when using education materials for chemotherapy education.

Recognize that patients have individual needs regarding their chemotherapy education.

Self Assessment Questions:

Which of the following is a factor that can contribute to a patients information needs when using education materials? Please choose the BEST answer.

A Patient occupation
B: Month of cancer diagnosis
C: Level of reading material
D: Use of herbal supplements

Which of the following statements is true?

A For 2011, the American Cancer Society estimated that nearly 1 of
B During cancer treatment, patients usually do not experience physic
C Patients do not differ in their preference about how much chemoth
D Health care professionals may not always accurately perceive wha

Q1 Answer: C Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-783 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

DETERMINATION OF VANCOMYCIN-RESISTANT ENTEROCOCCAL BACTEREMIA AS A PREDICTOR OF MORTALITY IN HEMATOLOGY, ONCOLOGY, AND BONE MARROW TRANSPLANT PATIENTS

Minkey Wungwattana, PharmD*, Patrick J. Kiel, PharmD, BCPS, BCOP, John Mulvaney MHA, Dusten T. Rose, PharmD

Indiana University Health,1701 N. Senate Blvd,AG401,Indianapolis,IN,46202

mwungwattana@iuhealth.org

Background:
Several studies have identified vancomycin-resistant enterococcus (VRE) bacteremia as an independent predictor of mortality. However, the association between VRE infection and mortality is less conclusive among hematology, oncology, and hematopoietic cell transplant population.

Purpose:
The purpose of this study is to determine if VRE is an independent risk factor for death compared to vancomycin-susceptible (VSE) in the setting of bacteremia at Indiana University Simon Cancer Center.

Methods:
Single center, retrospective cohort study conducted among the adult hematology, oncology, and hematopoietic transplant patients with documented enterococcal bacteremia at Indiana University Simon Cancer Center. The primary endpoints of this study are treatment failure and mortality at 28 days. Treatment failure is defined as persistent bacteremia 72 hours following line removal with appropriate antimicrobia treatment. Secondary endpoints will be to identify modifiable variables associated with clinical success or failure in this patient population. Statistical analyses include X2 or Fishers exact test for categorical variables, independent t-test for parametric variables, and a Wilcoxon rank sum test for non-parametric variables. A Kaplan-Meier analysis will be conducted to analyze survival between patients with VSE and VRE bacteremia.

Learning Objectives:

Discuss the proper management of catheter-associated blood stream infections

Select the most appropriate antimicrobial treatment options for VRE bacteremia

Self Assessment Questions:

Patient A has VRE isolated from a blood culture on April 1st. Antimicrobial therapy was started that day. Repeat cultures were negative on April 4th. According to the IDSA guidelines, what is consi

A April 1st, 7 to 14 days
B: April 1st, 3 to 5 days
C: April 4th, 7 to 14 days
D: April 4th, 3 to 5 days

Which of the following describes the best directed therapeutic option for the treatment of VSE bacteremia?

A Vancomycin 15-20mg/kg every 8-12 hours
B Linezolid 600mg every 8 hours
C Quinupristin/Dalfopristin 6mg/kg every 24 hours
D Daptomycin 6mg/kg every 24 hours

Q1 Answer: C Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-637 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF THE RATES AND CHARACTERISTICS OF ABANDONED PRESCRIPTIONS PRESCRIBED BY FEDERALLY QUALIFIED HEALTH CENTER PROVIDERS AT 340B CONTRACTED COMMUNITY PHARMACIES

Shannon L. Yarosz, PharmD, RPh*; Cathy Kuhn, PharmD, RPh Ohio State University College of Pharmacy, 500 W. 12th Ave., Columbus, OH 43210 Kroger Patient Care Center, 2000 East Main St., Columbus, OH 43205 yarosz.2@osu.edu

The Ohio State University College of Pharmacy,500 West 12th Avenue,Columbus,OH,43210

yarosz.2@osu.edu

Purpose: Federally Qualified Health Centers (FQHCs) are eligible to participate in the 340B Drug Pricing Program, which helps provide affordable medications to eligible patients. The program allows FQHCs to contract with local community pharmacies. This opportunity places community pharmacists in a unique position to care for underserved patients, including monitoring medication adherence. Medication adherence plays an important role in patients overall health. Non-adherence, which may be found in the form of prescription abandonment, may lead to increased hospitalizations, health care costs, morbidity and mortality. An abandoned prescription is one that was filled by the pharmacy, but not picked up by a patient. Our focus will be to evaluate and compare the rates and characteristics of abandoned prescriptions prescribed by FQHC providers versus all other non-FQHC providers at select 340B contracted community pharmacies.

Methods: Abandoned prescriptions at four 340B contracted community pharmacies, part of a grocery store-based chain within Ohio, will be identified during the study period. The pharmacy database will be utilized to identify abandoned prescriptions and their characteristics such as whether it was prescribed by a FQHC provider or non-FQHC provider, the amount owed by the patient, and if it is a new or refilled prescription. All prescriptions that are picked up (not abandoned) from the 340B contracted community pharmacies will also be identified and their characteristics will be collected to use as a comparator group. Data will be analyzed once all information is collected.

Preliminary Results: Data collection will occur from February to May 2012. Preliminary results will be presented at the Great Lakes Residency Conference.

Conclusions: Study results will identify potential differences between groups and could provide opportunities to improve prescription abandonment rates in this FQHC patient population.

Learning Objectives:

Identify barriers that contribute to prescription abandonment in a 340B patient population

Discuss potential methods to improve prescription abandonment in a 340B patient population to increase medication adherence

Self Assessment Questions:

Barriers that contribute to prescription abandonment in a 340B patient population may include which of the following?

A Financial hardships
B: Insufficient patient contact information
C: Lack of transportation
D: All of the above

What may be a potential method(s) to improve prescription abandonment in a 340B patient with financial hardships?

A Utilize Patient Assistant Programs (PAPs) or co-pay assistant coup
B Enroll patient in an automatic refill program to make sure their mec
C Offer free delivery of medications to reduce patient's cost of transp
D A and C

Q1 Answer: D Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-638 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATION OF A PHARMACIST-INITIATED CLINICAL PHARMACOKINETIC SERVICE TO DOSE VANCOMYCIN AT THE CINCINNATI VA MEDICAL CENTER (CVAMC)

Bonnie Y. Yeung*, Pharm.D.; Ndidiamaka G. Moka, Pharm.D., BCPS; and Jason D. Hiett, Pharm.D., BCPS

Cincinnati Veteran Affairs Medical Center,3200 Vine St,Cincinnati,OH,452202213

bonnie.yeung@va.gov

Purpose:
To evaluate the impact of a pharmacist-initiated Clinical Pharmacokinetic Service (CPS) on vancomycin dosing in a veteran population. The CPS was implemented in June 2011 to create a consistent method for dosing certain intravenous antibiotics and optimize therapy. The study will evaluate if the newly implemented service improved the timeliness in achieving therapeutic vancomycin levels at the CVAMC. Secondary endpoints will include percentage of patients with a therapeutic level during the course of therapy, occurrence of nephrotoxicity, median days to a therapeutic trough and the number of patients with trough levels below 10 mg/L.
Methods:
The proposed study is a retrospective chart review, quality improvement study performed at the CVAMC. A computer program will identify patients started on vancomycin treatment for more than 48 hours at the CVAMC from August 1, 2010 to November 1, 2010 and from August 1, 2011 to November 1, 2011. The study will exclude patients on hemodialysis, receiving vancomycin for prophylaxis, on vancomycin therapy prior to admission, did not have a vancomycin trough drawn during the course of the treatment and did not have a true trough drawn. A power analysis was conducted to determine the sample size of the study. In order to achieve 80% power, with a margin of error of 5%, and an assumed difference between the two groups based on studies of 25%, an estimated 70 patients will need to be included in each group. The patients age, weight, height, sex, and serum creatinine will be collected. The indication for use, vancomycin administration times, vancomycin trough goals, the vancomycin dose and interval received, and the date data was documented will be recorded. All patients will be de-identified and individually assigned subject study numbers. Data collection with be maintained confidentially.
RESULTS/CONCLUSIONS:
Data collection and analysis are currently being conducted.

Learning Objectives:

Review the ASHP/IDSA/SIDP Vancomycin consensus review and how it impacted the development of the Clinical Pharmacokinetic Service.

Discuss the goals of the Clinical Pharmacokinetic Service on vancomycin dosing and the impact on patient outcomes.

Self Assessment Questions:

Based on the ASHP/IDSA/SIDP Vancomycin consensus review, a patient should be identified as having vancomycin-induced nephrotoxicity if:

A Serum creatinine concentrations increase 0.5mg/dL
B: eGFR <60 for 2-3 consecutive mesurements
C: Serum creatinine increases ≥50% from baseline
D: A or C

Based on the ASHP/IDSA/SIDP Vancomycin consensus review, a highe serum vancomycin trough should be targeted (15-20 mg/L) for which infection(s):

A Bacteremia
B Cellulitis
C Urinary Tract Infection
D A and B

Q1 Answer: D Q2 Answer: A

ACPE Universal Activity Number 0121-9999-12-639 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

LEVETIRACETAM OR CARBAMAZEPINE AS ADJUNCTIVE THERAP' FOR ACUTE ALCOHOL WITHDRAWAL SYNDROME IN THE INPATIENT CARE SETTING

Kelly M. Youland*, Pharm.D., Ryan F. Miller, Pharm.D., BCPS, Lisa J. Mahoney, Pharm.D., BCPS, Jacob D. Gundrum, MS

Gundersen Lutheran Medical Center,1900 S. Avenue,La Crosse,WI,546015400

keyoulan@gundluth.org

Purpose

Anticonvulsants have been used adjunctively for alcohol withdrawal syndrome in an effort to reduce the total requirement of symptom-triggered benzodiazepines. Benzodiazepines, which remain the standarc of care in alcohol detoxification, often result in many adverse effects, such as sedation, cognitive impairment, and dependence. Both carbamazepine and levetiracetam have been evaluated to reduce withdrawal symptoms and post-withdrawal alcohol intake, either as monotherapy or adjunctive therapy to benzodiazepines. Gundersen Lutheran Medical Center has recently revised its alcohol detoxification order set to include the option of adjunctive therapy with either carbamazepine or levetiracetam. The purpose of this study is to evaluate the impact of the agents on the average daily dose of benzodiazepines compared to those treated with only the standard of care (symptom-triggered lorazepam, thiamine, and a multivitamin). It is hypothesized that the use of adjunctive therapy will reduce the average daily dose of benzodiazepines required by hospitalized patients experiencing alcohol withdrawal syndrome.

Methods

This observational, retrospective cohort review will include hospitalized patients 18 and older experiencing alcohol withdrawal syndrome. Patients will be categorized into one of three treatment groups: those that received the standard of care prior to implementation of the revised order set, those that received the standard of care plus carbamazepine, and those that received the standard of care plus levetiracetam. The primary outcome measure is average daily benzodiazepine use. Secondary outcome measures include average daily Clinical Institute Withdrawal Assessment for Alcohol Scale scores, length of intensive care unit stay, duration of hospitalization, occurrence of seizures, days requiring ventilator support, adjunctive medication discontinuation rates, and adverse effects. Additional collected data includes: age, sex, ethnicity, history of previous detoxification attempts, seizure history, smoking status, relevant comorbidities, and other pertinent medications administered.

Results

Data collection is ongoing. Results and conclusions will be presented at the Great Lakes Pharmacy Resident Conference.

Learning Objectives:

Identify pharmacotherapeutic approaches for treating the symptoms of alcohol withdrawal in hospitalized patients.

Describe the evidence supporting the use of adjunctive agents, specifically levetiracetam, for the treatment of alcohol withdrawal syndrome.

Self Assessment Questions:

Which of the following is a true regarding the treatment of alcohol withdrawal syndrome?

A Benzodiazepines are contraindicated in patients undergoing detoxi
B: Benzodiazepines should only be administered using a fixed-dose r
C: Carbamazepine is approved for the treatment of alcohol withdrawa
D: Levetiracetam doses >100 mg/day have not been studied in alcoho

Which of the following most accurately describes the role of levetiracetam in the treatment of alcohol withdrawal syndrome?

A Adjunctive levetiracetam significantly increases the amount of ben
B Levetiracetam has never been studied in this patient population
C Patients treated with levetiracetam had a higher incidence of deliriu
D The mechanism of levetiracetam in alcohol withdrawal is thought to

Q1 Answer: C Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-640 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

OUTCOMES OF GRAM-NEGATIVE BACTEREMIA IN OBESE AND NON-OBESE PATIENTS

Marie A. Yu, Pharm.D, BCPS*; Anjly Kunapuli, Pharm.D; and Jerod L. Nagel, Pharm.D, BCPS

University of Michigan Health System,1106 Maiden Lane Ct #106,Ann Arbor,MI,48105

mariey@med.umich.edu

Purpose: Obesity affects approximately one third of Americans, and is linked with several chronic diseases and increased mortality in the general population. Studies show obesity is associated with worse clinical outcomes in critically ill patients and for developing post-surgical infections. However, limited literature is available on the relationship between obesity and overall infection outcomes. The primary objective of this retrospective study is to determine whether obesity is associated with higher mortality in patients with gram-negative bacteremias, and whether dosing of pre-specified antimicrobials is associated with differences in outcomes in the obese group.

Methods: In this single-center cohort study, patients will be identified through the University of Michigan Health Systems electronic medical record. Patients from Jan 2008 to Nov 2011 with documented gram negative bacteremias who received appropriate initial antimicrobial therapy will be evaluated for inclusion. Patients younger than 18 years old, enrolled in other antibiotic studies, or receiving renal replacement therapy will be excluded. Patients meeting inclusion criteria will be classified into two groups comprised of obese (body mass index, BMI >35) and non-obese (BMI 18-25) patients, and will be matched on age, gender, and ICU status. The following data will be collected via chart review: demographics including age, gender, weight, and height; states of immunosuppression; APACHE III scores; antimicrobial regimens and length of antimicrobial therapy; microbiological data; renal function; and other relevant data as identified by study researchers. The primary endpoint will be in-hospital mortality. Secondary endpoints include time to clearance of blood cultures, lengths of stay, and total antibiotic consumption. Standard statistical tests and multivariate regressions will be utilized for data analyses and to control for potential confounders identified in the literature.

Results and conclusions will be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Recognize predictors for mortality in patients with gram-negative blood stream infections.

Explain the differences in pharmacokinetics in obese patients compared to non-obese patients.

Self Assessment Questions:

Which of the following is an independent risk factor for adverse outcomes in gram-negative bacteremia?

A Low APACHE score
B: Older age
C: Cardiac comorbidities
D: Use of broad-spectrum antimicrobials

Which of the following pharmacokinetic or pharmacodynamics changes is true for beta-lactams in obese patients compared to non-obese patients?

A Decreased volume of distribution
B Increased volume of distribution
C Decreased renal clearance
D Increased absorption

Q1 Answer: B Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-641 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

ADHERENCE TO AND OUTCOMES ASSOCIATED WITH A CLOSTRIDIUM DIFFICILE INFECTION GUIDELINE AT A LARGE TEACHING INSTITUTION

RaeAnna C. Zatarski, Pharm.D.*, Sarah M. Wieczorkiewicz, Pharm.D., BCPS

Advocate Lutheran General Hospital,1775 Dempster Street,Park Ridge,IL,60068

raeanna.zatarski@advocatehealth.com

Background: Clostridium difficile is a gram positive, spore forming, anaerobic bacilli that causes 20-30% of cases of antibiotic-associated diarrhea. Previously, the drug of choice for patients with signs and symptoms of CDI and a positive toxin test was metronidazole. In 2007, Zar, et al. stratified patients according to severity of illness and found that while metronidazole and vancomycin were equally effective in mild-moderate CDI, vancomycin was superior in severe CDI. The Society for Healthcare Epidemiology of America (SHEA) and the Infectious Disease Society of America (IDSA) later published CDI guidelines that stratified patients based on clinical symptoms and recommended specific treatment selection based on severity of illness. In 2009, Advocate Lutheran General Hospital (ALGH) established physician-managed guidelines for stratifying and accordingly treating patients with CDI.

Purpose: To determine if patients admitted to ALGH with CDI were being treated in accordance with the guidelines.

Methods: This was a retrospective, descriptive study. Subjects were identified by ICD-9 codes for any CDI diagnosis from July 1, 2009 through June 30, 2011. Subjects were then assessed for disease severity based on symptoms and guideline adherence based on initial treatment selection. Secondary endpoints included incidence of mild-moderate versus severe CDI and mortality rate among. Prescribing trends were compared between the two years to identify differences in adherence.

Results: Two hundred patients accounting for 269 encounters were analyzed thus far. Forty-two percent of the subjects received appropriate treatment according to the guidelines. Adherence significantly increased among the two-year observation period, from 34.8% in year one to 49.3% in year two ($p = 0.016$). Further results pending.

Conclusions: The preliminary findings suggest that patients were not treated in accordance to the guidelines; however, adherence increased from year one to year two of the observation period.

Learning Objectives:

Select a treatment plan for a patient with CDI based on the severity of illness.

Identify potential barriers to adherence to the Clostridium difficile infection treatment guidelines.

Self Assessment Questions:

RW is a 37-year old female with no significant past medical history who is admitted to the hospital for 3 days of diarrhea after a seven day treatment course of moxifloxacin for treatment of community

A Mild-moderate
B: Mild-moderate, complicated
C: Severe
D: Severe, complicated

Based on RW's severity of illness, please select the most appropriate treatment option from the list below.

A Oral vancomycin 125 mg every 6 hours for 14 days
B Oral metronidazole 500 mg every 8 hours for 14 days
C Oral vancomycin 250mg every 6 hours for 14 days
D Intravenous metronidazole 500 mg every 8 hours PLUS oral vancc

Q1 Answer: A Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-642 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

IMPLEMENTATION OF AN ALLERGY ALGORITHM TO DECREASE PROPHYLACTIC VANCOMYCIN UTILIZATION IN ORTHOPEDIC SURGERY PATIENTS

Tara Zdybel, Pharm.D.*, Lindy Duff Pharm.D.,BCPS, Carrie Morrison Pharm.D., Angela Green Pharm.D.,BCPS

Mercy Health Partners,1500 E. Sherman Blvd.,Muskegon,MI,49444

zdybelt@trinity-health.org

Purpose: Cefazolin is the first line prophylactic antibiotic for orthopedic surgery at Mercy Health. Its use is limited due to patients reported history of penicillin hypersensitivity and clinicians fear of anaphylaxis anc cross-reactivity. Many self-reported allergic reactions are actually intolerances, but these patients are still labeled "penicillin allergic" and will receive prophylactic vancomycin inappropriately. This may ultimately increase resistance and cost. The aim of this study is to decrease prophylactic vancomycin use through the implementation of an allergy algorithm focusing on patients with beta-lactam allergies.

Methods: Baseline data on vancomycin use was collected in June 2011 and showed that an allergy algorithm was needed to decrease unnecessary vancomycin use for orthopedic surgery patients with documented beta-lactam allergies. Initially, the pharmacy resident called the patient to verify, describe, and document the patients allergic reaction. The patients primary care physician and pharmacy may have also been contacted for further clarification. Only patients with a type 1 reaction, rash, or indeterminable reaction would receive vancomycin. Once initial data was collected, the pre-admission testing nurses and pharmacists were educated and began using the algorithm. The primary outcome measure was the percent change in vancomycin use for orthopedic surgery. Secondary outcomes include: number of adverse reactions, medications costs including pharmacist dosing intervention, adherence to Surgical Care Improvement Process (SCIP) protocol, and surgery satisfaction.

Results/Conclusions: Data collection is currently in progress and will be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Recognize the difference between a true type I allergy and a medication intolerance

Identify which pre-operative orthopedic surgery patients with a penicillin or cephalosporin allergy are candidates for cefazolin based on their listed allergy reaction and past medical history

Self Assessment Questions:

Which of the following is not a true type 1 allergy symptom?

A Angioedema
B: Hives
C: Vomiting
D: Urticaria

Which of the following patients is a candidate for prophylactic cefazolin?

A A patient with a documented penicillin allergy with a reaction of “sw
B A patient with a documented penicillin allergy who does not know t
C A patient with a documented penicillin allergy who does not know t
D A patient with a documented penicillin allergy with a reaction of wh

Q1 Answer: C Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-784 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

MEDICATION RECONCILIATION AND DISCHARGE COUNSELING PILOT PROGRAM FOR ADULT SOLID TUMOR PATIENTS

Anthony S. Zembillas, Pharm.D., Erika Gallagher, Pharm.D., BCOP, Marc Earl, Pharm.D., BCOP

Cleveland Clinic Foundation,30 Severence Circle Apt 711,Cleveland Heights,OH,44118

zembila@ccf.org

Background: It is estimated that up to 60% of patients have at least one medication discrepancy on admission with approximately 43% having the potential to be harmful. It has also been shown that approximately 6% of patients admitted to the hospital will have an inadvertent drug discontinuation of serious nature. Additionally, 60% of postdischarge adverse drug events (ADEs) that occur can be prevented or ameliorated. Studies have shown that pharmacy involvement at discharge may reduce ADEs after discharge, hospital readmissions, and return visits to the ED. Currently there is no formal pharmacy involvement in medical reconciliation or discharge counseling in adult patients with solid tumors. The combination of recorded and reported medication use may increase the accuracy of the medication reconciliation process. Implementation of the pharmacy department in discharge counseling may also improve patient safety and satisfaction. This project will evaluate the feasibility of implementing a medication reconciliation and discharge counseling program for adult solid tumor patients.

Methodology: A medication reconciliation and discharge counseling pilot program to evaluate the time required for medication reconciliation, discharge counseling, and time to complete the quality assurance survey. Secondary endpoints include evaluating the number of medication discrepancies resolved as well as pre- and post-study Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) scores. The study will include all patients 18 years of age or older admitted to the adult solid tumor service and discharged to home. The timeframe for the study is from December 14, 2011 to January 27, 2012. Descriptive statistics using means, medians, and percentages will be applied to evaluate collected data.

Results and Conclusions: To be presented at Great Lakes Pharmacy Resident Conference

Learning Objectives:

Describe the consequences of medication discrepancies

Explain the pharmacists role in medication reconciliation and discharge counseling

Self Assessment Questions:

Approximately what percentage of patients have at least one medication discrepancy upon admission?

A 20
B: 40
C: 60
D: 90

Approximately what percentage of postdischarge adverse drug events (ADEs) can be prevented?

A 10
B 30
C 60
D 90

Q1 Answer: C Q2 Answer: C

ACPE Universal Activity Number 0121-9999-12-785 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

EVALUATING COST-EFFECTIVE PHARMACIST SERVICES FOR AURORA HEALTH CARE CLINICS

Alicia K. Zhu*, Prati Wojtal, Sarah Ray

Aurora Health Care,2900 W. Oklahoma Ave,Milwaukee,WI,53215

alicia.zhu@aurora.org

Purpose:
Due to changes in healthcare reimbursement, hospitals and health systems are exploring methods to reduce re-admissions, increase patient satisfaction, and improve quality of care while minimizing costs. Numerous studies have demonstrated the addition of a pharmacist to health care teams and clinics results in optimized drug therapy, improved medication safety and patient outcomes. Presently, Aurora Health Care has over 100 clinics. Pharmacists practice in a variety of select primary care and specialty clinics including the family practice clinic, transplant clinic, neurology/epilepsy clinic, anticoagulation clinic, oncology clinic and a medication management clinic. Collaborative practice agreements (CPA) have been established in the anticoagulation clinic and medication management clinic which allow the pharmacist to provide evaluation and management services.The objective of this project is to examine the cost-effectiveness of pharmacist services in clinics and recommend a cost-effective ambulatory pharmacist practice model for Aurora Health Care.

Methods:
This project has been deemed exempt from Institutional Review Board oversight. An extensive literature evaluation was conducted to assess ambulatory care pharmacist services in academic institutions, community hospitals, and the Veteran Health Administration. A 3-page data collection tool was created to document background information, the costs of pharmacist-services, and the benefits to the patients, providers, and the organizations. On-site visits as well as phone/email interviews were conducted using the data collection tool. Data gathered from the interviews was used to assess the cost vs. benefit of pharmacist-provided clinic services. Based on the findings, a recommendation of cost-effective ambulatory care pharmacy practice models for Aurora Health Care was proposed in the form of a business plan which included a return-on-investment analysis.

Results/Conclusions:
Results and conclusions will be presented at Great Lakes Residency Conference.

Learning Objectives:

Describe the process of completing a return-on-investment analysis on pharmacist services in clinics.

Identify the potential cost-saving opportunities that exist with pharmacist involvement in clinics.

Self Assessment Questions:

What are examples of the pharmacists responsibilities in clinics?

A Participate in multidisciplinary reviews of patients' progress
B: Provide information and counseling about medication-related care
C: Document the care provided in patients' record
D: All of the above

In many clinics, the need for pharmacist involvement was identified by

A physician champions
B detection of high-risk patients
C high-cost medications
D All of the above

Q1 Answer: D Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-786 -L04-P

Activity Type: Knowledge-based Contact Hours: 0.5

DAILY INTERRUPTION OF CONTINUOUS SEDATION: A MULTIDISCIPLINARY APPROACH FOR THE MECHANICALLY VENTILATED

Jeffrey Zimmerman, Pharm.D.*
Aurora Health Care,2900 W. Oklahoma Ave,Milwaukee,WI,53215
Jeffrey.Zimmerman@Aurora.org

Purpose:
Thousands of intensive care unit (ICU) admissions occur annually. Of these admissions, many patients require the use of mechanical ventilation secondary to a number of clinical indications. Contrary to physiologic breathing, mechanical ventilation is a major cause of agitation for many patients. To ease patients agitation during mechanical ventilation, the use of sedative infusions has become common practice in many ICUs throughout the country. Evidence-basec practice guidelines for sedation recommend the utilization of algorithm-based sedation protocols, intermittent or "as needed" (PRN) doses prior to the initiation and/or titration of continuous infusions, and titration of sedation to a defined endpoint with systematic tapering of the dose or daily interruption with retitration to minimize prolonged sedative effects. In addition to guideline recommendations, daily interruption of sedation has been shown to decrease time on the ventilator and subsequent adverse effect of mechanical ventilation, decrease total medication usage, decrease the length of stay in the ICU, increase success of spontaneous breathing trials, and increase the patients ability to participate in physical and occupational therapy to improve physical status. The purpose of this project is to implement a multidisciplinary, evidence-based, best practice protocol in mechanically ventilated patients that focuses on the utilization of daily interruption of sedation.

Methods:
A multidisciplinary team consisting of pharmacists, physicians, nurses, respiratory therapists, and physical and occupational therapists was created. A literature search of the evidence supporting daily interruption of sedation paired with spontaneous breathing trials and early physical/occupational therapy was completed. A pilot in the Medical-Respiratory Intensive Care Unit (MRICU) will be conducted based on an agreed upon evidence-based protocol. The percentage of daily sedation interruption (awake days), length of mechanical ventilation and length of stay in the ICU will be evaluated pre- and post-protocol implementation.

Results/Conclusions:
Pending.

Learning Objectives:

Describe one major benifit that has been correlated with a daily interruption of sedation.

Identify two common sedatives used in the ICU that require bolus dosing prior to the initiation and titration of continuous infusions.

Self Assessment Questions:

What have randomized controlled trials significantly demonstrated in regards to a daily interruption of sedation?

A Increase in post-traumatic stress disorder
B: Decrease in the lengh of mechanical ventilation
C: Increase in unplanned endotrachal tube removal
D: Decrease in success of spontaneous breathing trials

What sedative(s) should have a bolus dose prior to the initiation and titration of continuous infusions?

A Lorazepam
B Propofol
C Midazolam
D Both A and C are correct

Q1 Answer: B Q2 Answer: D

ACPE Universal Activity Number 0121-9999-12-643 -L01-P

Activity Type: Knowledge-based Contact Hours: 0.5

APPLICATION OF LEAN METHODOLOGY TO ASSESS & IMPROVE MEDICATION SAFETY WITHIN HENRY FORD HOSPITAL INPATIENT PHARMACY

Chrystia M. Zobniw, Pharm.D. Nadia Haque, Pharm.D., BCPS, Megan Winegardner, Pharm.D.
Henry Ford Health System,2799 West Grand Boulevard,Detroit,MI,482022689
czobniw1@hfhs.org

Purpose: LEAN is a process improvement strategy focusing on the value of a process through the identification of waste. Few published articles demonstrate the incorporation of LEAN methodology for process improvement and increased medication safety within the pharmacy department. The objective of this quality improvement study is to use LEAN methodology to identify the variation in the sterile product compounding process and determine the effects of a standardized process on efficiency and medication safety at Henry Ford Hospital.

Methods: This is a prospective quality improvement study. The study will include a pre-intervention phase, Kaizen phase, and post-intervention phase. During the pre-intervention phase, the creation of a standardized process for sterile compounding will be developed by recording the number of variations that occur within the process defined as any deviation from the proposed current process map. Efficiency of the sterile compounding process will be examined by evaluating the time in compounding the number of sterile products during one shift, time in processing one short term sterile product, and waste returned to the pharmacy. Medication safety will be examined by recording the number of medication errors that occur in one shift. The same data will be collected during the post-intervention phase. The Kaizen phase will consist of developing several adjustments each week to improve the process with the intent of determining a final process change solution within one month from starting the Kaizen phase. The data analysis will consist of descriptive statistics comparing the pre-intervention phase anc post-intervention phase.

Results: Results and conclusions will be presented at the Great Lakes Pharmacy Residency Conference.

Learning Objectives:

Explain the basic principles of LEAN Methodology

Identify the role of LEAN quality improvement principles in healthcare

Self Assessment Questions:

Which of the following are examples of waste:

A Processing one IV at a time
B: Receiving your prescription at the drive through
C: Having all supplies for surgery inside the surgical room
D: Processing a batch of patient labels

The first step in implementation of LEAN methodology is

A Improve Efficiency
B Identification of waste
C Elimination of waste
D Improve Value

Q1 Answer: D Q2 Answer: B

ACPE Universal Activity Number 0121-9999-12-842 -L05-P

Activity Type: Knowledge-based Contact Hours: 0.5