Title: The role of tenofovir in preexposure prophylaxis of herpes simplex virus type 2: a systematic review

Abstract:
Purpose: Herpes simplex virus type 2 (HSV-2) is among the most common sexually transmitted infections, affecting approximately 417 million sexually active adults worldwide [1]. HSV-2 is the leading cause of genital ulcers, and is associated with pain, itching, negative social stigma and increased risk for HIV-1 [2]. Current preventative measures include barrier methods, abstinence, and chronic antiviral suppressive therapy for HSV-2 positive patients. There is not currently a vaccination or medication for preexposure prophylaxis (PrEP) for HSV-2. The purpose of this study is to assess the efficacy of the nucleotide reverse-transcriptase inhibitor, tenofovir, in the preexposure prophylaxis of HSV-2.

Methods: Data sources included PubMed, Cochrane Library and Embase between 1966-2015. Search terms included, “tenofovir prevention herpes virus”. A total of 222 articles resulted. Inclusion criteria were set as randomized controlled trials with human participants conducted over the last 5 years, which yielded 2 studies. The main outcome measured is HSV-2 seroconversion.

Results: In one study, the incidence rate of HSV-2 was 10.2 cases per 100 person years with pericoital application of tenofovir gel, compared to incidence rate of HSV-2 of 21.0 cases per 100 person-years with placebo gel, NNP = 9.8 [3]. A second study resulted in an incidence rate of HSV-2 of 5.6 cases per 100 person years with oral tenofovir-based PrEP, compared to 7.7 cases per 100 person years with placebo, NNP = 37.1 [4].

Conclusion: Tenofovir-based therapy significantly reduced HSV-2 seroconversion in two double-blinded, randomized controlled trials. Periocoital tenofovir gel resulted in a 51% decrease in HSV-2 seroconversion, while oral tenofovir-based therapy resulted in a 30% decrease in HSV-2 seroconversion, suggesting that topical therapy is more effective in preventing HSV-2 seroconversion compared to oral therapy, although future studies comparing topical and oral tenofovir therapy for PrEP of HSV-2 are needed. Limitations of the studies are as follows: neither study was originally designed to assess the effect of tenofovir on HSV-2 acquisition thus randomization at study enrollment was not stratified by HSV-2 status; the studies do not use the same formulation of tenofovir and neither study assesses the timing of HSV-2 acquisition in relation to plasma tenofovir levels. This systematic review suggests that there is a potential role of tenofovir to prevent HSV-2 acquisition, which could reduce genital ulcers, pain, social stigma and HIV risk associated with HSV-2.

Category: Original - Research in Progress

Title: Analysis of Risk Factors and Antipsychotic Usage Patterns Associated with Terminal Delirium in a Veteran Inpatient Hospice Population

Abstract:
Purpose: The purpose of this study is to (1) Identify risk factors for terminal delirium in a VA inpatient hospice population (2) Assess usage patterns of antipsychotics in terminal delirium (3) Describe nursing assessment, non-pharmacological and pharmacological interventions, and documentation of terminal delirium

Methods: This is a retrospective case-control study of patients who expired in the Edward Hines, Jr. VA Hospital Community Living Center (CLC) under the treating specialty “NH hospice” during the period of October 1, 2013 to September 30, 2015. Cases are defined as patients who were treated with antipsychotics for terminal delirium within the last two weeks of life. Controls are defined as patients who were not treated with antipsychotics for terminal delirium within the last two weeks of life. All patients enrolled under the treating specialty “NH Hospice” will be evaluated with the exclusion of living hospice patients and patients discharged to receive home hospice care prior to death. Patients’ medical records will be reviewed from two weeks prior to death until the recorded death date during which the following will be assessed from the medical record as available: age, terminal diagnosis, time interval cancer diagnosis and death, war era, comorbid conditions, prescribed antipsychotic medications, other medications potentially contributing to delirium, documentation for antipsychotic use, non-pharmacological interventions, and date of death.

Results: Research in progress

Conclusions: Research in progress

Submitting Author: Emily Ellsworth

Organization: Edward Hines, Jr. VA Hospital

Authors: Emily Ellsworth, PharmD., Kevin Bacigalupo, PharmD., BCPS, Kavita Palla, PharmD., BCPS, Seema Limaye, M.D., Margaret Walkosz, ACHPN, GNP-BC, Sandra Szczecinski, BSN, Katie Suda, PharmD, M.S. All authors employed by Edward Hines, Jr. VA Hospital.
Purpose: Vancomycin plus piperacillin-tazobactam is a broad-spectrum antibiotic regimen chosen as empiric therapy for a multitude of infections. Recent data suggests that this combination may increase the risk of nephrotoxicity when compared to vancomycin alone, or when compared to vancomycin plus an alternative beta-lactam antibiotic, such as cefepime. Recently, as a result of these studies and due to recommendations by pharmacy, prescribing at Edward Hines, Jr. VA Hospital has begun to shift from using vancomycin plus piperacillin-tazobactam to a regimen of vancomycin plus cefepime with or without metronidazole for anaerobic coverage. This regimen has been chosen for many infections, but most commonly for the nosocomial pneumonias: hospital-acquired pneumonia (HAP), healthcare-associated pneumonia (HCAP), and ventilator-associated pneumonia (VAP). This change in prescribing practices raises many important questions. First, in terms of aspiration pneumonia and VAP, what is the difference in efficacy between vancomycin plus piperacillin-tazobactam and vancomycin plus cefepime plus metronidazole? Additionally, in terms of nosocomial pneumonia without mention of aspiration, what is the difference in efficacy between vancomycin plus piperacillin-tazobactam and vancomycin plus cefepime? Finally, what is the difference in the rates of nephrotoxicity and Clostridium difficile infection associated with these regimens?

Methods: This study is a retrospective, electronic chart review of patients with nosocomial pneumonia. Eligible patients for screening will be identified via a fileman search of patients using ICD codes and active orders of piperacillin-tazobactam plus vancomycin, cefepime plus vancomycin, or cefepime plus vancomycin plus metronidazole. Inclusion criteria for the study include male and female patients ≥ 18 years of age with a clinical diagnosis of nosocomial pneumonia, who had a baseline serum creatinine obtained within 24 hours of admission, and who received one of these broad-spectrum antibiotic regimens for at least 48 hours. Patients will be excluded if they are receiving chronic dialysis or have a diagnosis of end stage renal disease. The primary outcome being evaluated is clinical efficacy of antibiotic regimens, which is reflected as improvement in two of the following three clinical symptoms (fever, leukocytosis/leukopenia, purulent secretions) at 48 hours. A secondary endpoint will be the incidence of Clostridium difficile infection, which is reflected as a positive Clostridium difficile toxin B PCR test with diarrhea (three or more unformed stools passed in 24 hours) or histopathological findings of pseudomembranous colitis within 14 days of starting antibiotics. An additional secondary endpoint of acute kidney injury, defined as an increase in serum creatinine ≥50% from baseline, an increase in serum creatinine of ≥0.3 mg/dL, or a urine output <0.5mL/kg per hour for >6 hours, will also be evaluated. Data collection will include demographics (age, race), classification/etiology of pneumonia, temperature, WBC count, blood pressure, pulse rate, sputum production, use of broad-spectrum antibiotic regimens (dose, route, duration), number of days on oral or IV antibiotics in the 14 days prior, concomitant use of nephrotoxic drugs, clinical improvement (documented in progress notes) and documented adverse drug reaction or allergy to antibiotics.

Results: Research in progress.
CONCLUSIONS: Research in progress.

**Submitting Author:** Kaitlyn Kalata

**Organization:** Edward Hines, Jr. VA Hospital

**Authors:** Kaitlyn B. Kalata, Pharm.D., Sue Kim, Pharm.D., BCPS, Ursula C. Patel, Pharm.D., BCPS, AQ-ID, Raymond Byrne, Pharm.D., BCPS. All authors are employees of Edward Hines, Jr. VA Hospital.
Category: Original - Research in Progress

Title: Evaluation of a Protocol used to Screen and Control Glycemic Levels Following Total Orthopedic Knee and Hip Surgeries.

Abstract:
Purpose: Perioperative hyperglycemia can affect a patient’s recovery following orthopedic surgery by increasing the risk of complications including infection and by increasing patient length of stay. Currently, our institution does not have a standardized glucose management protocol for this patient population. The objective of this study is to implement a protocol that can effectively manage patient’s glucose levels post-operatively and decrease the rate of post-op infections in patients who have undergone a total orthopedic knee or hip surgery.

Methods: Patients undergoing elective orthopedic knee or hip surgery will first have Hemoglobin A1c labs drawn during preadmission testing. Patients with an A1c <8 will undergo surgery as planned while patient with an A1c >8 will be referred to their primary care physician to help manage their glucose levels. Their surgery will be postponed until the patient can provide documented glucose logs demonstrating glucose control and management over a 4 week period. Once patients undergo surgery their glucose level will be managed by a P&T approved protocol using a sliding scale or basal plus correction method of insulin administration. Both non-diabetic and diabetic patient’s glucose will be managed by this protocol. This study will compare the management of patient glucose levels prior to and after the initiation of the protocol. The primary outcome of the study is the rate of post-operative infection. Secondary outcomes include the average glucose on post-operative days 0, 1, 2, and 3. Other outcomes include nursing satisfaction and number of patients who are found to have new onset diabetes.

Results: Research in Progress

Conclusions: Research in Progress

Submitting Author: Patrick Hammond

Organization: Presence St. Joseph Medical Center

Authors: Patrick D. Hammond, PharmD. Presence St. Joseph Medical Center, Joliet Rishita Shah, PharmD. Presence St. Joseph Medical Center
Category: Original - Research in Progress

Title: Evaluation of a Pilot Benzodiazepine Taper Clinic in Veterans with Concurrent Opioid Use

Abstract:
Purpose: Opioid pain relievers are implicated in nearly 17,000 overdose deaths in the United States. This is over a 100% increase in rates over the first decade of this century. Thirty-one percent of these deaths involved the concurrent use of benzodiazepine sedatives. In late 2013, the Department of Veterans Affairs (VA) launched the Opioid Safety Initiative to reduce the use of opioids among veterans. While the initiative drew attention to clinical considerations regarding the risk of co-administration, a recent medication use evaluation concluded that over 700 Veterans had active outpatient prescriptions for both a benzodiazepine and an opioid at a single VA facility. As a result, a pilot benzodiazepine taper clinic will be implemented at Edward Hines, Jr. VA Hospital in January 2016 in collaboration with the Hines Primary Care and Mental Health Providers to reduce the number of veterans on high dose benzodiazepines and concurrent opioid therapy. An order set for the treatment of insomnia will also be created and integrated into the electronic medical record system in February 2016 at Edward Hines, Jr. VA Hospital to promote and facilitate the use of non-benzodiazepine evidence-based treatment of insomnia. The primary purpose of this quality assurance and quality improvement project is to evaluate potential benefits and barriers to implementing a multidisciplinary benzodiazepine taper clinic at Edward Hines, Jr. VA Hospital.

Methods: The project will assess the reduction in high dose benzodiazepines for the pilot clinic patients. The magnitude and time to dose reduction(s) will be evaluated. High dose benzodiazepines will be defined as total daily doses of temazepam >20 mg, diazepam >10 mg, clonazepam >1 mg, lorazepam >2 mg, and alprazolam >1 mg. Patients receiving opioids for cancer pain, patients receiving a benzodiazepine for back spasms in spinal cord patients, hospice patients, and patients with severe mental health disorders (i.e. bipolar disorder, psychosis) will be excluded. Time spent in preparation for clinic visits, patient contact hours, and time spent for follow up will be logged. Self-reported patient compliance with treatment plans and patient clinic cancellations will be recorded. Additionally, the project will track the use of the newly implemented order set for the treatment of insomnia.

Results: Research in Progress

Conclusion: Research in Progress

Submitting Author: Julie Cabrera

Organization: Edward Hines Jr., VA Hospital

Authors: 1. Julie Bucek Cabrera, Pharm.D., PGY1 Pharmacy Practice Resident, Edward Hines Jr., VA Hospital 2. Julie Stein, Pharm.D., VHA-CM, Associate Chief of Pharmacy Clinical & Education Programs, Director of PGY1 Pharmacy Residency, Edward Hines Jr., VA Hospital 3. Sue Kim, Pharm.D., BCPS, Clinical Pharmacy Specialist, Edward Hines Jr., VA Hospital
Impact of pharmacists within a multidisciplinary team on chronic obstructive pulmonary disease (COPD) readmission rates

Abstract:
Purpose: In FY2015, the Centers for Medicare and Medicaid Services (CMS) expanded the existing algorithm accounting for readmission of patients to include those admitted for an acute exacerbation of chronic obstructive pulmonary disease (AECOPD). The Medicare Hospital Readmissions Reduction Program (HRRP) penalizes hospitals for excess early readmissions of patients with AECOPD. Currently, the penalty is in place for all-cause 30 day readmissions. The purpose of this study is to evaluate the impact of pharmacists within a multidisciplinary team on chronic obstructive pulmonary disease (COPD) readmission rates.

Methods: Patients were identified at admission to University of Chicago Medicine using an algorithm that identified documented COPD. On admission, a medication history was performed by a pharmacist or student pharmacist during which five COPD-focused questions were asked to each patient. The patients were then seen by the pulmonary advanced practice nurse (APN). After being seen by the APN, the pharmacy department provided inhaler education utilizing the teach-to-goal (TTG) method. Once the patient was discharged, a follow up appointment was scheduled within approximately seven to ten days with the pulmonary APN. During this follow up appointment, the pharmacy department provided further inhaler education using TTG. The primary endpoint of this study was COPD readmission in 30 days. The secondary endpoints were to show an increase in completed medication histories and an improvement in patients’ inhaler techniques using the TTG method. COPD readmission rates were determined by reporting from the hospital’s quality department. Improvement in patients’ inhaler techniques was evaluated through a systematic scoring system which allowed for the comparison of initial and final inpatient technique scores.

Results: Research in progress. Preliminary data collection comparing scores before TTG session and after TTG session in the inpatient setting shows the average increase in TTG score was 4.9 points for the MDI inhaler (percentage change 20.3%). For the tiotropium inhaler, the average increase in the TTG score was 6 (percentage change of 20%).

Conclusions: Research in progress.

Submitting Author: Leigh Moffett
Organization: University of Chicago Medicine
Authors: Leigh A Moffett, PharmD, BCPS, University of Chicago Medicine, PGY2 Internal Medicine Pharmacy Resident Jennifer Szwak, PharmD, BCPS, University of Chicago Medicine, Clinical Pharmacist Specialist, Internal Medicine, PGY2 Internal Medicine Residency Program Director
Category: Original - Research in Progress

Title: A Performance Improvement Approach to Implementing a Pharmacist-led Medication Education Program in a Community Hospital

Abstract:
Purpose: The Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey is a standardized questionnaire that has become an important indicator of the patient’s view of perceived care. The study site was underperforming in the medication-related survey questions: “How often did hospital staff tell you what the medication was for?” and “How often did hospital staff describe possible side effects in a way you could understand?”. The Pharmacy Department wanted to implement an intervention to improve patient satisfaction in this domain. The purpose of the study was to determine the impact of a pharmacist-led medication education program on the medication-related HCAHPS scores.

Methods: The study was conducted at a small community hospital from July to December 2015. All pharmacists and student pharmacists received competency and training to ensure uniformity in the medication education sessions. Patients from two medical-surgical units were targeted to receive medication counseling by a pharmacist or student pharmacist with priority given to those with heart failure, on an oral anticoagulant or receiving 6 or more medications. Nursing home patients and patients with altered mental status were excluded from receiving the intervention. At the end of the month, data was reviewed and changes were made to the process to improve to the target goal of five counseling sessions per day. The primary outcome was change from baseline on medication-related HCAHPS scores. A secondary outcome was number of documented counseling sessions performed, tracked on a daily basis on a department quality improvement board and trended monthly.

Results: The 2015 HCAHPS results regarding the question about explaining medication indications improved by 8% and the scores regarding the question about side effects improved by 36% when comparing the pre and post implementation of the medication education service. 392 patients were counseled as part of the pharmacist-led medication education program with an average of 65 sessions performed per month.

Conclusion: As shown in the study, pharmacist medication counseling can make an impact on the medication-related HCAHPS scores. Medication education is an important aspect of patient communication in the inpatient setting and the launching of this service enhanced patient understanding of the indications and side effects of their medications as measured by these scores.

Submitting Author: Stacy Scaria

Organization: Tenet Healthcare - Westlake Hospital

Authors: Stacy Thomas Scaria, PharmD Clinical Pharmacist Tenet Healthcare - Westlake Hospital Deanna McMahon Horner, PharmD, BCPS Clinical Pharmacy Manager Chicago Market, Tenet Healthcare - MacNeal, Weiss, West Suburban, Westlake Dusica Jovic Szczybyra, PharmD Clinical Pharmacist Tenet Healthcare - Westlake Hospital Amita Healthcare - St. Alexius Medical Center Charlene Hope, PharmD,
MS, BCPS Quality and Safety Pharmacy Manager Chicago Market, Tenet Healthcare - MacNeal, Weiss, West Suburban, Westlake
Category: Original - Research in Progress

Title: Redesigning PGY1 Pharmacy Residency Interview Structure

Abstract:
Purpose: The structure of our PGY1 residency interview day was redesigned to increase objectivity in candidate evaluations and exposure of candidates to the activities in our department while decreasing the preceptor time commitment.

Methods: In 2015 the PGY1 recruitment team incorporated multiple mini interviews (MMI), interdisciplinary rounds and a departmental activity in the interview days for PGY1 residency candidates for the 2015 recruitment season. Each multiple mini interview assessed specific qualities deemed to be essential in pharmacy residency training and utilized standardized evaluation tools. In 2016, the interview day was again restructured to adjust the time candidates spend rounding, eliminated one of the MMIs and implemented a one-on-one discussion session with the candidates and a current resident. Following the interviews, candidates were sent an electronic survey to evaluate their satisfaction with the interview day and the new structure. Descriptive statistics were used to describe the survey results from 2015 and survey results from 2016 are pending. Preceptor time for interview days in 2015 and 2016 will be compared with the amount of time required of preceptors in previous years.

Results: In 2015 a total of 72 candidates were interviewed and 49 completed the post-interview survey. The activities that left the highest positive impression during the interview day were the introduction section, departmental activity and traditional interview sessions. The majority of candidates (84%) stated that the interview day increased their desire to pursue residency training at University of Chicago and felt that time was adequately appropriated between activities. Preceptor time for candidate interviews decreased by 72% (600 hours vs 168 hours) and from 7.1 hours per candidate to 2.3 hours per candidate. With the new structure, the number of candidates per day was increased allowing us to decrease the number of interview days by 36%. Results from 2016 are in progress.

Conclusion: The restructuring of the interview day in 2015 provided resident a positive impression of our residency program while requiring fewer preceptor hours dedicated to interviewing. These results will be compared and new conclusions drawn off of the research conducted on the 2016 interview cycle.

Submitting Author: Hailey Soni

Organization: University of Chicago

Authors: Hailey P. Soni PharmD, University of Wisconsin- Madison, Internal Medicine Pharmacist Specialist, University of Chicago Medicine Shannon Rotolo PharmD, University of Buffalo, Pediatric Clinical Pharmacist, University of Chicago Medicine Mary Kate Miller PharmD, Chicago State University, Critical Care Pharmacist Specialist, University of Chicago Medicine Jennifer Austin Szwak PharmD, Virginia Commonwealth University, Internal Medicine Pharmacist Specialist, University of Chicago Medicine
Category: Encore

Title: Global Initiatives to Streamline Pharmacy Education and Workforce Development

Abstract:
Purpose: To evaluate trends and developments in pharmacy education that impact and influence national and global design and delivery - To examine national and global initiatives and resources that both drive and support curricular changes and international collaborations

Methods: The educational experts describe national and global initiatives to best streamline Competencies for pharmacy education. Specifically, the experts highlight programs for pharmacy education and workforce development that have been successfully implemented and assessed to assure the quality of pharmacy education on the global level.

Results: Descriptions of the following six frameworks and initiatives will be presented. Here is a list of national and global resources: 1. The Global Competency Framework; 2. FIPEd Strategic Plan; 3. WHO-UNESCO-FIP Education Initiative Development Team; 4. ACPE's International Certification Quality Criteria "Standards"; 5. Pillars and Foundation of Educational Quality; and 6. Global Competency Framework.

Conclusions: Several national and global initiatives have used the FIP and ACPE resources were successful in advancing pharmacy education and assuring its quality. Future initiatives will further streamline global

Submitting Author: Abby Kahaleh

Organization: Roosevelt University College of Pharmacy

Authors: 1. Abby A Kahaleh, BPhrm, MS, PhD, MPH-RUCOP 2. Mike Rouse, BPharm (Hons)-ACPE 3. Ian Bates, PhD-FIP 4. Andreia Bruno, PhD
**Title:** Comparison of Pharmacist and Physician Attitudes and Knowledge of Pain Management

**Abstract:**

Purpose: The purpose of this research is to further explore pharmacists’ attitudes and knowledge of pain management and education, then compare and contrast it to the following study: Primary Care Physicians’ Knowledge And Attitudes Regarding Prescription Opioid Abuse and Diversion (Hwang et al., 2015). We are therefore conducting this survey through pharmaceutical organizations targeting licensed pharmacists. The data collected can then be compared and contrasted to a recently published study that targeted primary care physicians on the issue of prescription opioid diversion. By comparing and contrasting these two studies together, we will be able to assess the current viewpoint spectrum regarding pain management from various health care professions and recommend new implementations into the education of pain management to construct consistency in the continuity of care throughout the health care system. Furthermore, it is wise to note that the focus of this study is not on prescription drug abuse, but on how to properly manage pain through education and alternative therapies such as mindfulness. Mindfulness is a particular alternative therapy that originates from the Buddhist practice and was further developed in the 1970’s by psychologists. Mindfulness can be described as “paying attention in a particular way; on purpose, in the present moment, and nonjudgementally.” As this definition implies, mindfulness involves attention and awareness to the present moment in an intentional manner and in an objective manner that attempts to remove judgment from one’s initial response to experiences. The idea is that a mindful person will be able to assess his or her situation in a reasonable manner that will allow him or her to make the best decision to attain a desirable outcome. Dispositional mindfulness describes the innate characteristic to be mindful. In this study, mindfulness can used as an educational tool by the prescribing physician or distributing pharmacist to enable the patient to make conscience therapeutic decisions. Through this education, it may enhance medication efficiency by reducing a growing development tolerance to pain medications.

Methods: This is a cross-sectional study where all participants will be given a questionnaire consisting of questions utilizing a 4-point likert scale. A likert scale uses a fixed choice response format and is designed to measure attitudes or opinions. The survey will be administered through SurveyMonkey sent by listservs of pharmaceutical organizations that will target pharmacist in the current practice of pharmacy. The data will then be taken and be analyzed for statistical significance and compared to other healthcare providers knowledge and attitudes toward pain management.

Results: Research in Progress

Conclusions: Research in Progress

**Submitting Author:** Lauren Pestka

**Organization:** Chicago State University College of Pharmacy

**Authors:** Rebecca M. Castner, PharmD, is a Clinical Assistant Professor of Pharmacy Practice at Chicago State University College of Pharmacy (CSU-COP)  Diana Isaacs, Pharm.D., BCADM, BCPS, is a Clinical Assistant Professor of Pharmacy Practice at Chicago State University College of Pharmacy (CSU-COP)
Lauren H Pestka, Associates of Science, is a 4th year pharmacy student at Chicago State University College of Pharmacy
**Poster #: 11**

**Category:** Student - Research in Progress

**Title:** Phytopharmacological evaluation of chamomile (Matricaria recutita L.) for indirect modulation of the endocannabinoid system

**Abstract:**
Purpose: German chamomile (Matricaria recutita L.) has been known to be a useful antidepressant and anxiolytic in humans. Clinical trials demonstrate the role of the endocannabinoid system in modulating emotional homeostasis. The objective of our research was to identify compounds in chamomile that indirectly modulate the endocannabinoid system through inhibition of the endocannabinoid catabolizing enzymes, fatty acid amide hydrolase (FAAH) and monoacylglycerol lipase (MAGL). The identification of compound(s) interacting with the endocannabinoid system will provide lead compounds with therapeutic potential against various mood disorders.

Methods: A bioassay-guided fractionation approach was adopted. Whereas chamomile powder was initially extracted with methanol followed by fractionation with hexane, chloroform, ethyl acetate, and methanol. All fractions were fingerprinted using high performance liquid chromatography. The fractions were evaluated for FAAH inhibition using an in vitro microplate assay. In the initial screening, the hexane showed the highest activity. The fraction was further subjected to bioassay-guided chromatography until a pure active compound was isolated and identified. All fractions were also evaluated for inhibition of the MAGL enzyme.

Results: Research in progress. Throughout our experiments, we were able to identify one active compound, linoleic acid. Our current and future research aim at identifying the remainder of compounds and their evaluation in animal models.

Conclusions: Though our research is still in progress, our experiments demonstrate a procedure that can be replicated for any other herbs of interest. We are still in an early phase of our chamomile project, and many active compounds are yet to be isolated and identified. However, we were able to reliably demonstrate FAAH and MAGL inhibition activity, which show that chamomile has a role in modulating the endocannabinoid system and supports its use as an herbal dietary supplement for depression and anxiety.

**Submitting Author:** Kristine Manlimos

**Organization:** Chicago State University College of Pharmacy

**Authors:** Kristine Manlimos1, Nidhi Patel1, Ehab Abourashed, MS, PhD2, and Abir El-Alfy, MS, PhD2
1PharmD Candidate 2016, 2Department of Pharmaceutical Sciences Chicago State University College of Pharmacy, Chicago, IL
Poster #: 12       Poster Session I, Friday, April 8, 2016

Category: Student - Research in Progress

Title: Retrospective analysis of osteoporosis risk factors among the Chinese population

Abstract:
Purpose: Assess effects of weight, cigarette smoking, and alcohol intake, on bone mineral density, measured as T-score, among the Chinese population in Chicago’s Chinatown neighborhood. -Determine if length of stay in the US has any impact on BMD.

Methods: A retrospective analysis will be conducted using data collected at Midwest Asian Health Association (MAHA) in Chicago’s Chinatown neighborhood from August 2013 to August 2015. Data from 200 participants will be reviewed. MAHA, located in Chicago, is a community-based, non-profit 501(c)(3) organization that provides community outreach education, screenings, immunizations and linkage to care in collaboration with community-based organizations, health care providers and academic institutions to reduce health disparities for the Asian population. The majority of the health fair attendees lack or have limited health insurance. For the last two years, pharmacy school students from Chicago State University College of Pharmacy have partnered with MAHA to offer free bone mineral density screening during MAHA’s monthly health fair. During these events, MAHA collected demographic information of each participant as part of their record keeping in order to properly assess the participants’ risk of osteoporosis. These demographic information include age, sex, height weight, social and family history. Bone health-bone density screenings were offered to men and women aged 20 years and older using the Lunar Achilles™Quantitative Ultrasound System provided by the College of Pharmacy at Chicago State University. All participants signed a consent form to be part of the health screenings. Descriptive analysis will be used to report demographic and fracture risk factors. A correlation analysis will be used to describe the relationship between length of stay in the US, weight, smoking status, and alcohol consumption and BMD.

Results: Research in Progress

Conclusion: Research in Progress

Submitting Author: Anna Aidonis

Organization: Chicago State University College of Pharmacy

Purpose: The purpose of this poster is to examine if vitamin D and calcium supplementation is an effective intervention during pregnancy to improve maternal outcomes in patients with gestational diabetes. Diabetes is a significant cause of morbidity and mortality in the US, and an important economic burden. The CDC estimates up to 9.2% of pregnancies are affected by GDM. A 2012 study estimated the costs associated with GDM at about $1.3 billion. Available studies examining the relationship between Vitamin D deficiency and insufficiency in patients with GDM and associated maternal outcomes are inconsistent in their findings. Although the mechanism of effect is unclear there are a few studies of Vitamin D and calcium co-supplementation reporting promising results.

Methods: A systematic review was conducted using EMBASE, PubMed, and MedLine databases between October and December 2015. Search terms included: Calcium, Vitamin D, Gestational Diabetes. Studies written in English and published in the last 5 years were included in this review. As there are so few studies on co-supplementation with calcium and vitamin D, CEBM level of evidence 4 or greater were included. Studies that did not examine gestational diabetes or did not examine co-supplementation of calcium and vitamin D were excluded. Under these inclusion and exclusion criteria a total of 3 eligible studies were identified.

Results: Karamali in a randomized placebo controlled trial of 60 patients found that Vitamin D and calcium co-supplementation in women with gestational diabetes decreased the rates of many maternal and neonatal outcomes. There was a significant reduction in cesarian rates from 63% to 23% the number needed to treat (NNT) estimated as 2.5, and for maternal hospitalization from 13% to 0 (NNT=7). For neonatal hyperbilirubinemia the NNT=2.7, neonatal hospitalization was reduced from 57% to 20% (NNT = 2.7), and macrosomia NNT = 3. Asemi in a randomized placebo controlled trial of 56 patients found statistically significant improvement in laboratory values for fasting plasma glucose, serum insulin, HOMA-R, LDL cholesterol, total cholesterol:HDL cholesterol, HDL cholesterol, GSH, and MDA. Clinical outcomes were not measured in this trial. Whitelaw in a cross-sectional study of 1467 patients found a weak inverse association for laboratory values with FPG and 25-hydroxyvitamin D at 0.99 (0.98, 0.99) and p-value <0.001. They found a strong association between serum calcium and fasting insulin (ratio of Geometric means 1.06 at 95% CI 1.03, 1.08, p<0.001), post challenge glucose (RGM 1.03, CI 10.01, 1.04, p<0.001), and GDM (Odds ratio 1.33, 95% CI 1.06, 1.66, p = 0.012).

Conclusion: These early studies indicate that co-supplementation with Vitamin D and calcium could be an inexpensive and safe intervention to help reduce undesirable maternal outcomes in patients with gestational diabetes. The cross-sectional study’s results find only a weak association with laboratory outcomes for vitamin D supplementation, but find strong associations with calcium. This is the weakest study design examined and it also it did not examine the combined effects of calcium and vitamin D supplementation, rather it examined their effects independent of one another. The two RCTs examined in this systematic review found co-supplementation with calcium and vitamin D improved maternal laboratory results and improved maternal outcomes. There are other limitations to note: studies are small, two were conducted in the middle east and may lack external validity, and only a single small trial.
measured clinical outcomes. Further well-designed, randomized controlled trials investigating the impact on maternal and fetal outcomes are necessary. If a positive effect is established, future studies can focus on the optimal amount of supplementation and the timing during pregnancy.

**Submitting Author:** Michael Fotis

**Organization:** Northwestern University Feinberg School of Medicine

**Authors:** Primary Author: Christina Hill PA-S2; Master of Medical Sciences Candidate; Northwestern University Feinberg School of Medicine
Abstract:
PURPOSE: Congestive heart failure (CHF) is a leading cause of morbidity and mortality for which there are few recent improvements in treatment. Over one million US patients on optimized drug therapy are hospitalized each year. These patients are at high mortality risk and are likely to be readmitted within 2-3 months. Identification of neurohormonal mechanisms that do not overlap with existing therapies are needed. The enzyme Neprilysin impairs endogenous vasoactive compounds, including natriuretic peptide leading to diuresis, natriuresis, and vasodilation. Sacubitril, a neprilysin inhibitor in combination with valsartan is the first of these treatments to show a morbidity and mortality benefit compared to enalapril, as reported in the PARADIGM-HF trial. The purpose of this study is to analyze the safety and efficacy data available on Sacubitril; valsartan and to determine if there is a role for the drug in the clinical treatment of CHF. This poster summarizes the findings from the Northwestern University’s Physician Assistant program’s capstone project.

METHODS: A systematic review of the databases PubMed, MedLine, and EMBASE was performed up to December of 2015. The following keywords were used: Heart Failure, Neprilysin, ACE-I, ARB, Sacubitril, vasopeptidise inhibitor, PARADIGM-HF. Evidence from RCT, systematic reviews, and retrospective cohort studies was examined. Inclusion criteria was specified by the PICO approach and included: 1) adult patients with NYHA class II-IV HF with ejection fraction <40% 2) treatment with Sacubitril; valsartan 3) direct comparison to recommended treatment with an ACE-I 4) inclusion of morbidity, mortality, and safety outcomes 5) CEBM level of evidence 2b or greater. Three studies met all inclusion criteria.

RESULTS: Clinical trials (ASCEND-HF, IMPRESS, OVERTURE) support a logical progression to the development of Sacubitril, based on clinically objective outcomes, including safety and tolerability. Specifically, combining a neprilysin inhibitor with an ARB reduces the risk of increased peripheral vascular resistance seen when used in isolation, or angioedema when used in combination with an ACEI. The use of Sacubitril; Valsartan compared to enalapril in the treatment of HF was found to significantly reduce the risk of death (17% vs 19.8% NNT 36) from any cause and (13.3% vs 16.5% NNT 31) from cardiovascular causes, and time to first hospitalization for CHF (12.8% vs 15.6% NNT 36). Safety data for Sacubitril; Losartan found patients experiencing significantly less angioedema, renal impairment, or adverse events leading to discontinuation compared to enalapril. However a significant (18% vs 12%; NNH 17) increase in hypotension was found for patients on Sacubitril; Losartan compared to enalapril.

CONCLUSION: Clinical evidence supports a modest benefit of Sacubitril; Losartan in eligible patients for the treatment of CHF. However, this evidence should be examined in light of a number of limitations that may overestimate effectiveness when used in the general population. First, there is only a single RCT directly comparing Sacubitril; Losartan to guideline therapy. The study population is dominated by white males. Other limitations include: a run-in period, which may have led to an underestimation of the rate of angioedema as these patients were excluded from randomization; and a dose related disparity between groups (max dose of Sacubitril; Losartan versus 10 mg enalapril). Twelve percent (12%) of patients dropped out of the “run-in” phases because of side effects; reported adverse reaction rates are
thus likely lower than would be expected in practice. Publication bias is also a safety concern. Nesiritide a natriuretic peptide agonist has restricted indications due to insufficient evidence to demonstrate benefit and findings of increased mortality. Treatment with Sacubitril; Losartan may cost 10 times more than generic ACE/ARB regimens. Clinicians should interpret these findings cautiously as more research is needed.

**Submitting Author:** Michael Fotis

**Organization:** Northwestern University Feinberg School of Medicine

**Authors:** Primary Author: Tara Marcus PA-S2; Master of Medical Sciences Candidate; Northwestern University Feinberg School of Medicine
Poster #: 15
Poster Session II, Saturday, April 9, 2016

Category: Original - Research in Progress

Title: Digoxin and Time to Cardiac-Related Hospitalizations: A Retrospective Cohort Study

Abstract:
Purpose: The purpose of this study is to evaluate the safety of digoxin therapy in patients with atrial fibrillation with and without heart failure. The time to first cardiac-related hospitalization will be documented comparing patients with atrial fibrillation with and without digoxin therapy. Additionally, the safety of digoxin will be further analyzed by evaluating the length of digoxin therapy prior to first cardiac-related hospitalization and digoxin serum concentrations. Finally, a sub-group analysis of patients with and without heart failure will be conducted to determine if concomitant heart failure has any impact.

Methods: This study is a retrospective cohort study with two groups of patients: patients with atrial fibrillation receiving digoxin therapy and patients with atrial fibrillation not receiving digoxin therapy. Cardiac event is defined as any of the following: cardiac arrhythmia, acute myocardial infarction, unstable angina, cardiac arrest, hypertensive urgency/emergency, and cardioembolic stroke. Patients included in the study are those who are 18 years of age and older, with one or more inpatient admission with a primary discharge diagnosis of atrial fibrillation or two or more outpatient, nonemergency department encounters for atrial fibrillation. Patients must also have at least one primary care or cardiology clinic visit. The following data will be collected for each patient: initial diagnosis of atrial fibrillation, patient age and gender, past medical history, start date of digoxin therapy, concurrent medications, date of initial hospitalization with a cardiac primary admission diagnosis, primary admission diagnosis, length of hospitalization, admission to ICU or general acute medicine floor, serum digoxin level, admission renal function, troponin, potassium, magnesium, and most recent height and weight. The data collected will be used to assess the time to first hospitalization in patients with atrial fibrillation with or without digoxin therapy. The time to initial hospitalization will be reported in number of days since atrial fibrillation diagnosis, and will be analyzed using a Cox proportional hazards regression. The secondary endpoints for continuous variables will be reported as percentages, means, and standard deviations, and assessed using a student t-test.

Results: Research in Progress

Conclusions: Research in Progress

Submitting Author: Stephanie Dwyer, PharmD

Organization: Captain James A. Lovell Federal Health Care Center

Authors: Sherri Stoecklein, PharmD, BCPS Informatics Pharmacist Captain James A. Lovell Federal Health Care Center
Purpose: Antipsychotics are widely used as off-label treatment for behavioral symptoms in dementia patients. It is recognized that antipsychotics can increase the risk for falls in the elderly population. When used in dementia patients, this risk is further increased, since dementia itself is an independent risk factor for falls. A study on the use of antipsychotics in the Veterans Affairs (VA) Community Living Centers (CLC) found that veterans residing in the dementia special care units were more likely to receive an antipsychotic, more commonly atypical antipsychotics. The purpose of this study is to determine whether atypical antipsychotics increase fall risk in dementia patients.

Methods: This study was approved by the Institutional Review Board. This study will be a retrospective cohort study comparing two groups in the VA population: dementia patients receiving atypical antipsychotics versus dementia patients not receiving atypical antipsychotics. The primary endpoint is the difference in the incidence of falls between the two cohort groups. The secondary endpoints are the differences in the incidence of falls between subtypes of dementia, different atypical antipsychotics, and different fall risk as defined by the Morse Scale. Primary endpoint will be analyzed using unpaired t-test, while secondary endpoints will be analyzed through descriptive analysis. The following data will be collected: age, gender, number of other Fall Risk Increasing Drugs (FRIDs), comorbid conditions that can also increase fall risk, subtype of Dementia, type of atypical antipsychotics, fall risk as defined by Morse Scale, and the documented fall. Each patient’s chart will be reviewed from admission and up to 6 months, or patient’s discharge, or patient’s death whichever is the earliest to determine if a documented fall has occurred during that time. Determining fall risk in the dementia population receiving atypical antipsychotics can help prevent inappropriate prescribing of these agents for treatment of behavioral symptoms, leading to decreased fall risk.

Results: Research in Progress

Conclusions: Research in Progress

Submitting Author: Lianna Serbas

Organization: Captain James A. Lovell FHCC

Authors: Lianna Serbas, PharmD PGY1 Pharmacy Resident Capt. James A Lovell FHCC  Yinka Alaka, PharmD Pharmacy Clinical Specialist Capt. James A Lovell FHCC
Category: Original - Research in Progress

Title: Oral lorazepam for seizure prophylaxis in adult patients treated with high dose intravenous busulfan before hematopoietic stem cell transplantation: A retrospective study

Abstract:
Purpose: To determine the efficacy of oral lorazepam in preventing seizures in adult patients receiving high dose intravenous busulfan prior to allogeneic hematopoietic stem cell transplant (HSCT).

Methods: This is a single center study conducted at Rush University Medical Center (RUMC) located in Chicago, Illinois. • This retrospective study was approved by the Institutional Review Board prior to data collection. • A stem cell transplant database was used to identify patients who have received allogeneic HSCTs from January 1, 2009 to March 31, 2015. • Patients were included if they were ≥ 18 years old, received intravenous high dose busulfan, received oral lorazepam for seizure prophylaxis. • Patients were excluded only if they received concomitant phenytoin. • RUMC's electronic medical record system and the stem cell transplant database will be used to collect the following: age, sex, race, underlying malignancy, type of transplant, conditioning regimen, dates of busulfan administration, fever during busulfan administration. • Medication charts were reviewed for past medical history of seizures, illegal drug use, AIDS, and CNS malignant disease involvement at or during diagnosis. • The primary endpoint is the occurrence of seizures from the start of busulfan until 72 hours following the completion of busulfan. • Per RUMC policy, patients receive oral lorazepam 0.5 mg every 6 hours starting 24 hours prior to busulfan administration and continuing for 48 hours after the completion of busulfan. • Categorical variables will be analyzed using Chi square or Fischer's Exact test.

Results: Research in progress

Conclusions: Research in progress

Submitting Author: Monica Timmerman

Organization: Midwestern University Chicago College of Pharmacy and Rush University Medical Center

Authors: Lisa M. DiGrazia, PharmD, BCPS, BCOP; Amanda N. Seddon, PharmD, BCPS, BCOP; Annette Gilchrist, PhD
Title: Antifungal prophylaxis consideration in patients being treated with blinatumomab for Philadelphia chromosome-negative relapsed or refractory b-cell acute lymphoblastic leukemia: a case report.

Abstract:
PURPOSE: The purpose of this case is to illustrate why antifungal prophylaxis should be considered for patients being treated with blinatumomab for Philadelphia chromosome-negative relapsed or refractory B-cell acute lymphoblastic leukemia (ALL). Based on the National Comprehensive Cancer Network (NCCN) guidelines, consideration of antibacterial, antiviral, and antifungal prophylaxis should be considered for ALL patients being treated with chemotherapy. In this case, AL, a 24-year-old female, upon first diagnosis of B-cell acute lymphoblastic leukemia, was initiated on induction chemotherapy with Cancer and Leukemia Group B (CALGB) 10403 protocol. After four cycles, a bone marrow biopsy was performed and her results were consistent with remission. Two months later, during a routine follow-up visit, AL was noted to have worsening pancytopenia. Her bone marrow biopsy results were consistent with relapsed B-cell ALL involving 80% of the marrow space. The patient was then admitted to the hospital to begin re-induction therapy with newly approved blinatumomab. Blinatumomab is a novel agent that activates T cells by binding to both CD19 expressed on B cells and CD3 expressed on T cells, which results in lysis of the CD19 cells. It is recommended that the first 9 days of the first cycle be administered in the hospital to monitor for cytokine release syndrome (CRS). In addition to CRS, other side effects include neurological toxicities, infections, and elevated liver enzymes. As part of her supportive care regimen, AL continued acyclovir for antiviral prophylaxis and was initiated on levofloxacin for antibacterial prophylaxis. Due to patient’s pancytopenia, antifungal prophylaxis with an azole antifungal was considered, but due to concern for elevated liver enzymes reported with both blinatumomab andazole antifungals, antifungal prophylaxis was held. AL received the first 9 days of blinatumomab induction therapy inpatient as recommended to monitor for CRS. AL tolerated treatment without any issues and was discharged from the hospital to continue the remainder of blinatumomab therapy at home. One month after the initial induction of blinatumomab, AL was admitted to the emergency department with abdominal pain and headache. AL was afebrile upon admission and blood cultures were obtained. Blood culture results revealed growth of budding yeasts, which was later identified as candida krusei. AL began treatment with micafungin and blinatumomab therapy was discontinued. An infectious disease (ID) team was consulted and due to persistently positive cultures for budding yeast, AL’s central line was removed. Cultures of the line were negative. In addition, a transesophageal echocardiogram was obtained, which was negative for valvular vegetation. After five days of failed treatment with micafungin, persistent fever and now newly hypotensive, AL was transitioned to liposomal amphotericin and flucytosine per ID’s recommendations and also transferred to the medical intensive care unit (MICU) for sepsis. The following day, AL went into respiratory distress and was intubated. Two days after, liposomal amphotericin and flucytosine was discontinued and voriconazole was initiated. Cultures remained positive for 13 days with fungemia. Given the progressive decline in her condition and poor prognosis, she expired 21 days from when she was transferred to the MICU. As with any new cancer drug, supportive care treatment is not well defined. Although more experience is needed to draw a definitive conclusion, the purpose of this case report is to share our experience and generate discussion about the need for antifungal prophylaxis, and if so which antifungal agent, in patients receiving blinatumomab therapy.
METHODS: n/a RESULTS: n/a CONCLUSION: n/a

Submitting Author: Margaret Lee

Organization: Midwestern University Chicago College of Pharmacy

Authors: Margaret Lee, PharmD Candidate, Midwestern University Chicago College of Pharmacy, Downers Grove, IL; Lisa M. DiGrazia, PharmD, BCPS, BCOP, Amneal Biosciences, Bridgewater, NJ; Amanda N. Seddon, PharmD, BCPS, BCOP, Rush University Medical Center, Chicago, IL
Poster #: 19

Category: Encore

Title: Differences in Clostridium difficile infection outcomes between guideline concordant and discordant therapy

Abstract:

Purpose: Clostridium difficile infection (CDI) is currently the leading cause of nosocomial infection in the U.S. Treatment modality and prognosis is often based on infection severity; however, severity classifications differ widely among guidelines/severity indices. This study aimed to evaluate the outcomes in guideline concordant and discordant therapy for CDI by defining severity according to IDSA/SHEA (ID), Zar, and modified-ESCMID (ED) severity indices.

Methods: Retrospective, single center study from a 495-bed tertiary medical center evaluating patients admitted with CDI between June 2006 and September 2010. CDI was defined as at least 3 loose stools within a 24-hour period plus a positive diagnostic assay (EIA or PCR). Severe CDI was defined according to the ID, Zar, and ED severity indices. Severe CDI cases treated with vancomycin 125 mg Q6 hours or non-severe CDI cases treated with metronidazole 500 mg Q8 hours were classified as guideline concordant therapy. Other treatment modalities were classified as guideline discordant therapy. Poor outcome (PO) was defined as: recurrent CDI (new-onset of CDI <8 weeks after a previous, successfully treated CDI), treatment failure (requiring treatment modification while on active therapy), or death during admission (all-cause mortality). Significant confounders for PO were identified via bivariate analysis (p<0.05) and multivariate logistic regression was used to control for these variables. Goodness-of-fit was assessed via Hosmer-Lemeshow. Statistical analysis was performed via Stata 12.0®. This project has been reviewed and approved by UIC's IRB committee.

Results: A total of 97 CDI cases were included. According to ID, Zar, and ED severity indices, 21%, 42%, and 86% of the cases were classified as severe CDI, respectively. 43%, 34%, and 18% of all cases were treated in concordance with the Zar, and ED indices, respectively. Overall, 24% of patients experienced a PO. Corticosteroid use and duration, current antifungal use, length of stay, baseline white blood cell count, and baseline serum creatinine were considered confounders to PO. Controlling for confounders, the odds of experiencing a PO in the ID-guideline concordant group was 16% (95%CI, -3.26 to -0.04, P=0.044) less than the discordant group. Similarly, the odds of experiencing a PO in the Zar-guideline concordant group was 19% (95%CI, -3.39 to -0.34, P=0.044) less than the discordant group. However, there was no significant difference in PO between ED-guideline concordant and discordant group (OR=-0.59. 95%CI: -2.18 to 0.99, P=0.461). The Hosmer-Lemeshow test showed reliable goodness-of-fit and all models showed good discriminatory ability (AUC>76%).

Conclusions: This is the first study to compare differences in patient outcomes among major severity indices as stratified by guideline concordant and discordant therapy. Adherence to severity classifications and treatment recommendations within the ID and Zar criteria was associated with a decreased risk of PO. In contrast, concordance with the ED guideline did not affect patient outcome. Dictating the treatment of CDI based on the ID or Zar severity index may more reliably predict patient outcomes compared to the ED guideline.

Submitting Author: Surafel Mulugeta
Organization: University of Illinois at Chicago

Authors: 1. Surafel Getachew Mulugeta, PharmD/MS Candidate(1) 2. Eric Wenzler, PharmD, BCPS(1) 3. Melinda M. Soriano, PharmD, BCPS(2) 4. Fred Zar, MD(3) 5. Larry Danziger PharmD, FIDSA(1),(3) (1)Pharmacy Practice, University of Illinois at Chicago, Chicago, IL, (2)Merck Research Labs, Upper Gwynedd, PA, (3)College of Medicine, University of Illinois at Chicago, Chicago, IL
Category: Encore

Title: Implementation of decentralized pharmacy technicians to improve medication delivery and nursing satisfaction

Abstract:
Purpose: To assess the impact decentralized pharmacy technicians (DPTs) can have on the medication delivery process and on nursing satisfaction with the pharmacy service

Methods: A two-week prospective study on one general medicine floor and two intensive care units was conducted between September and October 2015. One decentralized pharmacy technician was assigned to each of these locations Monday through Friday from 9:00 am to 5:30 pm to improve medication availability through timely communication with nursing staff regarding medication procurement issues. Each study floor served as its own control in that data pertinent to the study outcomes was collected in a two-week period preceding the intervention period. The number of medication requests sent to the central pharmacy and the number of medications that required physical pick-up by nurses during the intervention period and the control period were recorded. Nursing satisfaction was surveyed prior to the intervention period and immediately following the intervention period.

Results: Nursing workflow interruptions due to medication retrieval were decreased by 74%. Post-intervention, mean scores for each nursing satisfaction survey question were significantly higher than the pre-intervention period survey (P < 0.01 for all five questions). Electronic medication requests sent to central pharmacy did not decrease significantly, 463 and 453 requests were sent during the pre-intervention and intervention periods respectively.

Conclusion: The decentralized pharmacy technician model significantly reduced nursing workflow interruptions and improved nursing satisfaction.

Submitting Author: Whitnee Caldwell

Organization: Northwestern Memorial Hospital

Authors: Whitnee Caldwell, PharmD; Bryan Shaw, PharmD; Fuwang Xu, PharmD; Noelle Chapman, PharmD; Ana Fernandez, CPhT All from Northwestern Memorial Hospital
Title: Effectiveness of Pharmacy Practice Model Initiative Competency

Abstract:
Purpose: The Pharmacy Practice Model Initiative (PPMI) is a national initiative started by the American Health Systems Pharmacists (ASHP) in 2008 to encourage the most effective use of pharmacists allowing for overall advancement in patient care. With regards to pharmacy education, there is a lack of literature discussing PPMI. Such literature would be beneficial for schools of pharmacy in order to assess the best approach to teaching students regarding PPMI. Education of pharmacy students regarding PPMI and the professional goals of advancing patient care can impact healthcare reform and encourage them to advocate for patient care at all stages in their career. In 2013, Pharmacy Practice Model Initiative (PPMI) components were incorporated into Southern Illinois University Edwardsville School of Pharmacy’s curriculum. Students partook in an educational activity to learn more about PPMI during their Advanced Pharmacy Practice Experience (APPE) preparatory course in their 3rd year. Additionally, a competency requirement on PPMI was developed for students to complete during their Hospital (APPE). This study’s primary objective is to determine the effect of the PPMI competency on students’ understanding and discussion of PPMI during their Hospital (APPE).

Methods: A survey of SIUE preceptors who taught hospital APPE rotations was determined to be the most practical approach to obtaining the necessary information regarding student knowledge base of PPMI. A survey was created consisting of primarily short answer questions and yes/no options. The 20 question survey collected the following information: hospital and preceptor demographics, staffing model, staff training, automation/technology systems, pharmacy involvement in PPMI initiatives, and student understanding and discussion of PPMI during the rotation. Inclusion criteria were: Illinois or Missouri SIUE preceptors, taught ≥ 6 hospital APPE students for the academic school year, and agreed to the interview. Exclusion criteria included: those who did not respond or complete the interview. Only one preceptor was selected from each hospital site. Seven preceptors were selected based on the criteria that were eligible to partake in the survey and were subsequently contacted. Preceptors who taught from May 2013-May 2014 were selected to participate.

Results: Six out of the seven preceptors contacted responded and completed the interview. All preceptors interviewed answered every question on the survey. When asked about the average baseline knowledge of their SIUE Hospital APPE rotation students with regards to PPMI on a numerical scale, the responses ranged from 4 to 8.5 (mean ± S.D., 6.4±1.65). When asked about the impact of PPMI within the hospital after discussion with SIUE APPE hospital students, 5 out of 6 preceptors stated that no changes were made based on these discussions. One preceptor noted that three specific ideas for implementing the goals of PPMI were initiated by SIUE APPE students during their hospital rotation. These ideas included: technicians checking the work of other technicians (tech-check-tech), pharmacists managing insulin titrations until physician champion is set, and medication reconciliation done by pharmacy technicians. Another preceptor stated that since there were no changes implemented after student discussions within the 2013-2014 school year, the site decided to adjust the discussion of PPMI to include students filling out the ASHP hospital PPMI survey which allows hospitals to see how well they are doing in terms of implementing PPMI goals.
Conclusions: Based on the study results, the PPMI competency has been shown to be effective due to the majority of students having an appropriate understanding of PPMI according to their preceptors. Future directions could include studying the long term impact of student discussion on PPMI a few years after the rotations and surveying alumni to see how/if the competency impacted their own practice of pharmacy.

**Submitting Author:** Saba Mohiuddin

**Organization:** Southern Illinois University Edwardsville School of Pharmacy

**Authors:** Saba Mohiuddin, PharmD candidate Lisa Lubsch, PharmD, AE-C Jinyang Fan, PharmD, BCPS Dr. Lubsch and Dr. Fan are employed by Southern Illinois University Edwardsville School of Pharmacy.
Category: Student - Research Complete

Title: A Proposal for Interprofessional Home Visits for the Elderly in Rural Communities

Abstract:
Purpose: An assessment of elderly care was conducted in order to recognize the need of reducing cost and increasing quality and access of medical care among elderly patients living in rural counties.

Methods: According to a literature review conducted by pharmacy students, the market analyses indicates that the quality, cost, and access of care for the elderly living in rural Illinois is lower than in urban Illinois. The target area of research was Peoria and Fulton Counties in Illinois. In 2013, Peoria County consisted of 187,000 residents and Fulton County consisted of 36,346 residents. The counties in this study are categorized as rural.

Results: Based on a five star ranking of quality of care, which consists of quality measures, health inspections, staffing ratios and specialty. The overall ranking considers occurrences of bedsores, staff to patient ratio, and amount of specialized personnel. Service ratings in rural resident homes are often poor. This indicates that the need for interprofessional team is required, in order to improve care for rural elderly patients. Rural elderly residents are more likely to go without needed care, which increases their total medical costs due to future hospital or specialty care. Rural residents spend more on out of pocket health care than their urban counterparts. On average, rural residents pay 40 percent of their health care costs out-of-pocket compared to the urban share of 33 percent. Lack of access to healthcare providers for rural patients has been reported to be the biggest barrier, 31 percent were lacking transportation and 37 percent missed their appointments due to transportation issues. The average distance for an elderly person in Illinois to locate a community pharmacy was 0.9 miles in urban areas, but it was six times more (5.9 miles) in rural areas. At least 10 percent of the rural elderly had to travel more than 12 miles to find a community pharmacy.

Conclusions: Based on the review of the literature, our proposal is to incorporate pharmacists and other healthcare workers into interprofessional teams for home visits to the elderly living in rural areas. This team will be composed of physicians, pharmacists, nurses, and social workers who travel to patients. The team will propose a healthcare plan for each patient, and based on diagnosis, can determine a plan of action. Additionally, we propose for these interprofessional teams to offer general medical needs, such as blood glucose screenings, medication therapy reviews and patient counseling. This can be conducted in city centers or central points of counties that are easily accessible and open to elders living in that county. Our proposed services would help lower medical cost and increase access and quality to the elderly population in rural areas.

Submitting Author: Katarzyna Plis

Organization: Roosevelt University College of Pharmacy

Authors: Katarzyna Plis, Danielle Cilano, Sarah Bay, Rimple Patel, PharmD Candidates at Roosevelt University College of Pharmacy  Abby Kahaleh, BPharm, MS, PhD, MPH Faculty at Roosevelt University College of Pharmacy
Category: Student - Research in Progress

Title: Comparison of oral morphine equivalent doses vs. PHQ9 scores in a family practice setting

Abstract:

Purpose: Determine if a pharmacist is able to decrease opioid use without worsening PHQ9 scores.

Methods: This retrospective chart review evaluates a sample size of 271 patients receiving pain management by a pharmacist in a family practice setting in southern Illinois. The primary outcome is to determine if decreasing oral morphine equivalent doses increases PHQ9 scores. Opioid use (measured by the oral morphine dose) and depression (measured by PHQ9 scores) were calculated for each patient visit and compared over a two year time frame.

Results: Research in Progress

Conclusions: Research in Progress

Submitting Author: Lauren Kirkpatrick

Organization: Southern Illinois University Edwardsville

Authors: Lauren Ashley Kirkpatrick, PharmD candidate 2016, Southern Illinois University Edwardsville
Chris Herndon, PharmD, BCPS, CPE, FASHP Southern Illinois University Edwardsville
Title: Desmopressin (DDAVP) Dose Changes Post Discharge in Pediatric Patients with Diabetes Insipidus Receiving Oral DDAVP Compounded from Nasal Spray Inpatient

Abstract:
Purpose: The purpose of this study is to evaluate desmopressin (DDAVP) dose changes among diabetes insipidus (DI) pediatric patients receiving oral DDAVP solution formulated using DDAVP nasal spray. DDAVP is not commercially available as an oral liquid in the United States.1 This is problematic for pediatric patients unable to swallow whole tablets. Consequently, many caregivers must resort to extemporaneously compounding a DDAVP solution prior to immediate use. Comparing the effect of both formulations, oral tablets and solution compounded from tablets, on decreasing urine volume and increasing urine osmolality have produced equivalent results.2 However, many institutions utilize a compounding recipe that uses desmopressin nasal spray to produce an oral solution that has a 30 day shelf life.3 Following the inpatient administration of this formulation, however, the Pediatric Endocrinology service at the University of Chicago observed that preadmission desmopressin doses were no longer adequate post discharge.  


Methods: This single center retrospective study evaluated the medical records of pediatric patients who received DDAVP oral solution compounded from DDAVP nasal spray. The observation period took place between January 1, 2013 and August 7, 2015. Only patients who received oral desmopressin before admission and after discharge were included in the study. Additionally, a two-month refill history of oral desmopressin tablets with instructions for extemporaneous compounding before and after discharge was required. Patients undergoing neurosurgical procedures and displaying acute renal impairment were excluded. Doses were then tabulated and analyzed using descriptive statistics.

Results: Research in Progress

Conclusions: Research in Progress

Submitting Author: Gennaro Paolella

Organization: University of Chicago

Authors: Gennaro Anthony Paolella, BS Pharmacy Student, University of Illinois at Chicago Pharmacy Student - Technician, University of Chicago  Shannon Rotolo, PharmD, BCPS Clinical Pharmacist - General Pediatrics University of Chicago