PHARMACOTHERAPY

CORRIGENDUM

2018 ACCP Updates in Therapeutics

In 2018 ACCP Updates in Therapeutics,[1] the following errors were published in the meeting title and section headings of the Abstracts.

- **Page e29, leftmost part of the page**

The meeting title "ACCP Updates in Therapeutics ®2018 May 23–24, 2018" should have read:

ACCP Updates in Therapeutics®2018
Patient-Centered Team-Based Practice Forum
February 16–18, 2018

- **Page e29, first Abstract section heading**

The section heading "UT CLINICAL PHARMACY FORUM" should have read "**CLINICAL PHARMACY FORUM ABSTRACTS**"

- **Page e30, bottom right of the page, second Abstract heading**

The section heading "UT ORIGINAL RESEARCH" should have read "**ORIGINAL RESEARCH ABSTRACTS**"

We apologize for these errors.

Reference

1. 2018 ACCP Updates in Therapeutics. Pharmacotherapy 2018;38(4):e29–e40. https://doi.org/10.1002/phar.2101

ACCP Updates in Therapeutics®2018

May 23–24, 2018

UT Clinical Pharmacy Forum

AMBULATORY CARE

S-7E. Developing a Fidelity Assessment System for Comprehensive Medication Management Service. *Caitlin K. Frail,*[1] Carrie Blanchard,[2] Melanie Livet,[3] Caryn Ward,[4] Todd D. Sorensen,[1] Mary Roth McClurg,[2]; [1]Pharmaceutical Care and Health Systems, University of Minnesota College of Pharmacy, Minneapolis, MN [2]UNC Eshelman School of Pharmacy, Chapel Hill, NC [3]UNC-Chapel Hill, Eshelman School of Pharmacy – CMOPP, Chapel Hill, NC [4]FPG Child Development Institute, UNC-Chapel Hill, National Implementation Research Network, Chapel Hill, NC
Presented at the American College of Clinical Pharmacy Annual Meeting, Phoenix, AZ, October 7–10, 2017.

S-6. Mapping Ambulatory Pharmacy Services: A Strategy to Create a Shared Vision and Enhance Comprehensive Medication Management in an Academic Medical Center. *Kelly Cochran,*[1] Bushra Muraywid,[2] Julia Chisholm,[2] Laura Butkievich,[2]; [1]Division of Pharmacy Practice & Administration, University of Missouri-Kansas City School of Pharmacy at MU, Columbia, MO [2]University of Missouri Health Care, Columbia, MO
SERVICE OR PROGRAM: University of Missouri Health Care is a health system with five hospitals and over 50 primary and specialty clinics. The Pharmacy Services department is developing strategies and organizational structure to optimize delivery of comprehensive medication management (CMM) in the ambulatory care setting where over 600,000 patient visits occur annually. The health system contains nine retail pharmacies offering pharmacist consultation and vaccination services. Current structure includes clinical pharmacist presence at three primary care clinics and at the oncology clinic. Specialty pharmacists are integrated within several medicine specialty clinics. Virtual comprehensive medication reviews are provided to select patients at all primary care clinics. Pharmacist managed anticoagulation services are delivered through a phone-based service. A pharmacist and pharmacy technician team is also involved in transition of care management at discharge from hospital, including a medication bedside delivery program.
JUSTIFICATION/DOCUMENTATION: A 1-day ambulatory care summit was held to develop a cohesive vision for ambulatory care pharmacy services within the health system. The summit allowed participants to map current clinical activities, practice locations, tools utilized, and identify key stakeholders. Mapping revealed fragmentation among ambulatory pharmacy services. Through the summit, next steps were identified to ensure complementary activities and communication.
ADAPTABILITY: Opportunities to adapt this mapping strategy to foster efficient communication, develop a shared vision, and align ambulatory pharmacy services may exist across health systems. Analysis of CMM activities serves as a catalyst to advance pharmacy practice, outline resource needs, and identify key interdisciplinary stakeholders.
SIGNIFICANCE: An in-depth, collaborative outline of current ambulatory care pharmacist activities allows the pharmacy team to define and deliver services under a unified vision. This also allows for optimization and advancement of resources, both information technology and clinicians. Additional benefits include enhanced collaboration across the department. Furthermore, a unified and consistent department allows for better relationships with physicians and the interdisciplinary clinic team.

S-5E. The Role of Improvement Cycles in Scaling Up Delivery of Comprehensive Medication Management (CMM) in Primary Care Settings. Melanie Livet,[1] Lindsay Sorge,[2] Carrie Blanchard,[3] Caryn Ward,[4] Mary Roth McClurg,[3] *Todd D. Sorensen,*[2]; [1]UNC-Chapel Hill, Eshelman School of Pharmacy – CMOPP, Chapel Hill, NC [2]Pharmaceutical Care and Health Systems, University of Minnesota College of Pharmacy, Minneapolis, MN [3]UNC Eshelman School of Pharmacy, Chapel Hill, NC [4]FPG Child Development Institute, UNC-Chapel Hill, National Implementation Research Network, Chapel Hill, NC
Presented at the American College of Clinical Pharmacy Annual Meeting. Phoenix, AZ. October 2017.

HIV/AIDS

F-12. Implementation of Daily Pharmacist Review of Patients Receiving Antiretroviral Therapy at an Eleven-Hospital Health System. *Andrea Pallotta,* Elizabeth Neuner; Department of Pharmacy, Cleveland Clinic, Cleveland, OH
SERVICE OR PROGRAM: Antiretroviral therapy (ART) for treatment of patients with HIV infection can be complex and prone to medication errors during hospitalization. In an effort to minimize errors and provide excellent patient care, Cleveland Clinic Health System (CCHS), implemented a daily infectious diseases (ID) pharmacist review of all patients receiving ART. This includes monitoring drug-drug interactions, regimen accuracy and completeness, renal/hepatic dosing, opportunistic infection prophylaxis/treatment. Patients automatically populate a list in the electronic health record (EHR). An initial note is placed in the EHR, and daily review using a standardized template is documented in the pharmacy intervention system. Monthly intervention numbers are tracked and reported.
JUSTIFICATION/DOCUMENTATION: The initiative was developed in accordance with Amercian College of Clinical Pharmacyopinion paper on acute care management of the HIV-infected patient. Prior to implementation, a retrospective review determined the admission rates and pharmacist time commitments. Across CCHS, the average admissions with ART per week ranged from 0.5 to 6 with estimated pharmacist time commitment of 5–30 minutes/day. Directors of Pharmacy approved the service.
ADAPTABILITY: CCHS antimicrobial stewardship program (ASP) is comprised of 10 ID pharmacists across 11 hospitals. ID pharmacists/residents perform service remotely through the EHR and/or mentor non-ID pharmacists at hospitals without ID pharmacists. A process and clinical guide were developed as training materials. Adaptations to initial roll-out include improving patient identification in EHR and inclusion in external prospective-audit and feedback alert system.
SIGNIFICANCE: The service highlights the skills ID pharmacists can provide this patient population. The daily ART review started at the main campus hospital in 2011 and showed improved time to error resolution and number of medication errors after implementation. Expanding the service will mirror these results in a larger patient population.

Infectious Diseases

F-11. Impact of an Antimicrobial Stewardship Program at a Community Teaching Hospital. *Elias Chahine,* Rita Chamoun, AnneMarie Blake, Thica Tran, Catherine Harrington; Lloyd L. Gregory School of Pharmacy, Palm Beach Atlantic University, West Palm Beach, FL

SERVICE OR PROGRAM: A team of infectious diseases physicians, pharmacists, and trainees implemented an Antimicrobial Stewardship Program (ASP) at a 233-bed community teaching hospital in December 2014. The program's strategies were infectious diseases consult services and restrictions on the use of ceftaroline, colistin, daptomycin, ertapenem, linezolid, meropenem, micafungin, and tigecycline.
JUSTIFICATION/DOCUMENTATION: The days of therapy (DOT) per 1000 patient days (PD) for all restricted antimicrobials decreased significantly. The DOT/1000 PD for meropenem were 39 in 2013, 40 in 2014, 22 in 2015, and 21 in 2016 demonstrating a statistically significant decline between 2014 and 2015 (difference 18, 95% CI, 16.32–20.74; p<0.0001). The DOT/1000 PD for several non-restricted antimicrobials also decreased significantly. The DOT/1000 PD for piperacillin/tazobactam were 118 in 2013, 131 in 2014, 86 in 2015, and 92 in 2016 demonstrating a statistically significant decline between 2014 and 2015 (difference 45, 95% CI, 40.30–48.52; p<0.0001). The DOT/1000 PD for vancomycin were 123 in 2013, 130 in 2014, 109 in 2015, and 105 in 2016 demonstrating a statistically significant decline between 2014 and 2015 (difference 21, 95% CI, 15.88–24.50; p<0.0001). The ASP resulted in approximately $234,176 in cost savings per year. The rates of *Clostridium difficile* infection per 10,000 PD were 2.49 in 2013, 2.77 in 2014, 3.27 in 2015, and 6.14 in 2016. The trend towards increased rates of *Clostridium difficile* infection was due to overutilization of diagnostic tests.
ADAPTABILITY: Our model demonstrates that a partnership between infectious diseases physicians, pharmacists, and trainees can result in a significant decrease in antimicrobial utilization at a community teaching hospital. An educational program was requested by and delivered at a neighboring community hospital.
SIGNIFICANCE: The inappropriate use of antimicrobials leads to an increase in antimicrobial resistance, adverse effects, and cost. Pharmacists are well positioned to collaborate with infectious diseases physicians to implement effective ASPs that meet regulatory requirements.

Peri-Operative Care

S-26. Standardization of Orthopedic Residents' Knowledge of Post-Operative Anticoagulant Management Through a Knowledge Translation Intervention by Pharmacists. *Vivian Law,*[1] Priscilla Rubio-Reyes,[1] Norman Dewhurst,[2] Sarah Ward,[1]; [1]Orthopedic Surgery, St. Michael's Hospital, Toronto, ON, Canada [2]Pharmacy, St. Michael's Hospital, Toronto, ON, Canada
SERVICE OR PROGRAM: In Aug. to Nov. 2017, orthopedic pharmacists at St. Michael's Hospital (Toronto, Canada) developed and delivered a 15-min case-based presentation to orthopedic surgery residents regarding post-operative anticoagulant management. We developed a test including nine case-based multiple choice questions and three questions rating self-confidence. The test was administered immediately pre- and post the presentation. Twelve residents completed the test. The results were used to evaluate the impact of the education intervention on both knowledge and confidence levels in orthopedic surgery residents.
JUSTIFICATION/DOCUMENTATION: The aim of this quality improvement study was to identify the existing care gap and explore different interventions to improve orthopedic residents' adherence to best practice recommendations for anticoagulants. Based on a root cause analysis and discussion with residents, our first intervention was an educational program. Differences in the pre/post-test were evaluated using the one-sample signed rank test. The mean scores from the pre- and post-tests increased significantly by 15% (from 38% to 53% [p=0.0417]). There was a non-significant increase in confidence [0 = not confident, 1 = little, 2 = some, 3 = fairly, 4 = very] from 2.42 to 2.75 (p=0.313).
ADAPTABILITY: The educational intervention was based on therapeutic recommendations from the American College of Chest Physicians guidelines and Thrombosis Canada recommendations for antithrombotic therapy. Pharmacists are highly trained medication experts and can assist in knowledge translation of guideline recommendations to practical use. Within busy hospital environments, 15-min interactive education presentations are feasible and effective for orthopedic resident learning.
SIGNIFICANCE: An educational program delivered by pharmacists to orthopedic residents can significantly increase anticoagulant knowledge, however further opportunity for improvement exists. A trend toward increased confidence levels was seen. To our knowledge, this is the first study to evaluate the impact of an orthopedic pharmacists' knowledge translation program to improve knowledge and confidence levels of orthopedic surgery residents, with the goal of improving patient outcomes.

Women's Health

F-47. New Inpatient Service Initiated by Clinical Pharmacists in Postnatal Care within Qatar. Yehia El Khawly,[1] Raja Barazi,[2] Tarek Ibrahim,[3] Mohamed Alloub,[4] Tamara Salama Fady Al Shdafat,[5] Wesam Smidi,[6] Rasha El Enany,[2] Amy Ann Mathew,[7]; [1]Department of Obstetrics & Gynecology, Hamad Medical Corporation (HMC) Qatar, Doha, Qatar [2]Pharmacy Department, Hamad Medical Corporation (HMC), Doha, Qatar [3]Clinical Pharmacy, Al-Wakra Hospital: Hamad Medical Corporation, Al-Wakra, Qatar [4]Obstetrics and Gynecology Department, Hamad Medical Corporation (HMC), Doha, Qatar [5]Department of Nursing, Obs/Gyn Unit, Hamad Medical Corporation (HMC) Qatar, Doha, Qatar [6]Department of Pharmacy, Hamad Medical Corporation (HMC), Qatar, Doha Qatar, Qatar [7]Department of Clinical Pharmacy, Hamad Medical Corporation (HMC), Qatar, Doha Qatar, Qatar
SERVICE OR PROGRAM: The provision of immediate post-partum contraception counseling service, according to ACOG practice guidelines, is an important component in improving the quality of postnatal health care.Currently in our setting, postpartum women interested in contraception are referred to the Family Planning Clinic which may take approximately 6 weeks. This delay in initiating contraception may place patients at risk of conceiving within a short IPI. This service was initiated with a vision to reach all postpartum patients and educate them about all contraceptives and time to start it, prior to discharge. The service was conducted by two clinical pharmacists in a specific room beside patient rooms to provide patient-centered care and privacy.
JUSTIFICATION/DOCUMENTATION: A total of 795 patients were counseled in the service. The average time of each session was 16 min. A cross sectional survey evaluating patient's satisfaction was voluntarily completed by 100 patients. Based on this survey, 97–100% of the patients agreed that the clinical pharmacist answered their questions regarding contraception, and the healthcare professional clearly explained all birth control options including possible side effects, missed doses, drug interactions and guided them in choosing a suitable contraceptive method. This patient-centered counseling service had provided patients with a better experience as well as increased their knowledge about contraception.
ADAPTABILITY: The inpatient counseling service provides an important opportunity to improve postnatal care. Our service is the first initiative in GCC, to address the need for inpatient contraception service. This may motivate other institutions to evaluate their current process and justify the need for a clinical pharmacist to be involved throughout the continuum of postnatal care.
SIGNIFICANCE: We continue to positively impact postnatal care outcomes, allowing for further expansion of clinical pharmacist-provided services. Furthermore, this newly established service has the potential to reduce OPD appointments, the rate of short IPIs, and save the hospital additional expenses.

UT ORIGINAL RESEARCH

Ambulatory Care

S-2E. The Philosophy of Practice of Comprehensive Medication Management: Evaluating its Meaning and Application in Practice.

Deborah L. Pestka,[1] Lindsay Sorge,[2] Mary Roth McClurg,[3] Todd D. Sorensen,[2]; [1]Social and Administrative Pharmacy, University of Minnesota College of Pharmacy, Minneapolis, MN [2]Pharmaceutical Care and Health Systems, University of Minnesota College of Pharmacy, Minneapolis, MN [3]UNC Eshelman School of Pharmacy, Chapel Hill, NC
Presented at the American College of Clinical Pharmacy Annual Meeting, Phoenix, AZ, October, 2017.

S-4E. Assessing Fidelity through a Comprehensive Medication Management Self-Assessment Tool. Carrie Blanchard,[1] Caitlin K. Frail,[2] Kylee Funk,[2] Melanie Livet,[3] Caryn Ward,[4] Todd D. Sorensen,[2] *Mary Roth McClurg,*[1]; [1]UNC Eshelman School of Pharmacy, Chapel Hill, NC [2]Pharmaceutical Care and Health Systems, University of Minnesota College of Pharmacy, Minneapolis, MN [3]UNC-Chapel Hill, Eshelman School of Pharmacy – CMOPP, Chapel Hill, NC [4]FPG Child Development Institute, UNC-Chapel Hill, National Implementation Research Network, Chapel Hill, NC
Presented at American College of Clinical Pharmacy Annual Meeting, Phoenix, AZ, October 7–10, 2017.

S-3E. Assessing the State of Comprehensive Medication Management in a Sample of Primary Care Clinics. Jordan Mendkoff,[1] *Deborah L. Pestka,*[2] Caitlin K. Frail,[3] Lindsay Sorge,[3] Kylee Funk,[3] Jennifer Carroll,[4] Todd D. Sorensen,[3] Mary Roth McClurg,[5]; [1]University of Minnesota, Minneapolis, MN [2]Social and Administrative Pharmacy, University of Minnesota College of Pharmacy, Minneapolis, MN [3]Pharmaceutical Care and Health Systems, University of Minnesota College of Pharmacy, Minneapolis, MN [4]University of Colorado, Aurora, CO [5]UNC Eshelman School of Pharmacy, Chapel Hill, NC
Presented at American College of Clinical Pharmacy Annual Meeting, Phoenix, AZ, October 7–10, 2017.

S-1E. Developing a Tool to Assess the Essential Components of Practice Management for Comprehensive Medication Management within Primary Care Clinics. *Deborah L. Pestka,*[1] Caitlin K. Frail,[2] Lindsay Sorge,[2] Kylee Funk,[2] Mary Roth McClurg,[3] Todd D. Sorensen,[2]; [1]Social and Administrative Pharmacy, University of Minnesota College of Pharmacy, Minneapolis, MN [2]Pharmaceutical Care and Health Systems, University of Minnesota College of Pharmacy, Minneapolis, MN [3]UNC Eshelman School of Pharmacy, Chapel Hill, NC
Presented at the American College of Clinical Pharmacy Annual Meeting, Phoenix, AZ, October 2017.

Cardiovascular

S-13. Characteristics and Clinical Outcomes of Patients Using Rivaroxaban Versus Dabigatran for Non-Valvular Atrial Fibrillation. *Ahmed Mahfouz,*[1] Safae Abu Yousef,[1] Fatima Hamou,[1] Amer Aljundi,[1] Sumaya AlYafei,[1] Rajvir Singh,[2]; [1]Pharmacy Department, Heart Hospital, Hamad Medical Corporation, Doha, Qatar [2]Medical Research Center, Hamad Medical Corporation, Doha, Qatar
INTRODUCTION: Non-vitamin K Oral Anticoagulants (NOACs) represents a major revolution in the prevention and treatment of thromboembolic events. NOACS have rapid onset/offset of action, few drug interactions, predictable pharmacokinetics and diminished need for frequent monitoring.There is a need to determine the clinical difference by head to head study between NOACs specifically in the Middle East region and to compare the result with the current published studies.
RESEARCH QUESTION OR HYPOTHESIS: To compare the efficacy (stroke and systemic embolism), safety (major and minor bleeding) and mortality of rivaroxaban with dabigatran in patients with non-valvular atrial fibrillation (AF).
STUDY DESIGN: A quantitative, retrospective, observational study of 409 patients admitted to Heart Hospital in Qatar over a 1-year period. IRB approval was obtained.
METHODS: The study included patients with age >18 years, diagnosed with nonvalvular AF and received either dabigatran or rivaroxaban for stroke prevention between October 2013 and October 2015. The primary outcomes are a composite of stroke and systemic embolism, major bleeding, gastrointestinal bleeding and mortality. Data were obtained from patients' electronic health record. All analyses performed with SPSS 21 utilizing two-tailed p value ≤ 0.05 to assess significance.
RESULTS: Of the 409 patients included, 269 patients were on dabigatran group and 140 patients were on rivaroxaban group. The analysis revealed that both groups exhibited similar rates of stroke and systemic embolism (5.6% vs 2.1% respectively; p=0.1), major bleeding (7.1% vs 10.7% respectively; p=0.2), GI bleeding (4.1% vs 3.6% respectively; p=0.8) and mortality (4.1% vs 5% respectively; p=0.67).
CONCLUSION: In patients with non-valvular AF, there was no clinical difference between dabigatran and rivaroxaban in terms of efficacy and safety outcomes.

S-15E. Evaluation of Apixaban Dose Reductions Deviating from Standard Criteria. Emily Reichbach,[1] Funnce Liu,[2] *Zhe Wang,*[3]; [1]Pharmacy Practice, Long Island University, Brooklyn, NY [2]Pharmacy Department, Mt. Sinai St. Luke's, Manhattan, NY [3]Department of Pharmacy, Touro College of Pharmacy, New York, NY
Presented at the American Society of Health-System Pharmacists Midyear Clinical Meeting, Orlando, Florida, December 4th, 2017.

F-19. VAMP-IT: Veteran Antiarrhythmic Monitoring Program-Improving Therapy. *Kelly C. Rogers,*[1] Ezra Gabre,[2] Nicholas Elliott,[3] Katelyn Garner,[4] Shannon W. Finks,[1]; [1]Department of Clinical Pharmacy and Translational Science, University of Tennessee College of Pharmacy, Memphis, TN [2]Department of Pharmacy, Methodist LeBonheur Healthcare, Memphis, TN [3]Department of Pharmacy, Vanderbilt University Medical Center, Nashville, TN [4]University of Tennessee College of Pharmacy, Memphis, TN
INTRODUCTION: Amiodarone and sotalol are effective antiarrhythmic drugs (AAD) complicated by serious adverse drug events (ADE) for which specific monitoring is required. Sotalol has renal dosing limitations and risk of QTc prolongation, while amiodarone warrants monitoring to limit serious long-term ADEs. A previous retrospective study showed poor monitoring with these high-risk agents. Subsequently, standardized orders were implemented to improve patient safety.
RESEARCH QUESTION OR HYPOTHESIS: Standardized orders to facilitate appropriate monitoring will improve AAD patient safety.
STUDY DESIGN: Retrospective assessment of AAD monitoring before and after implementation of standardized orders.
METHODS: A previous retrospective study (Group 1) demonstrated poor compliance with recommended monitoring of amiodarone and sotalol. After implementation of standardized orders, a retrospective assessment was conducted to ensure an improvement in patient safety with AADs. Veterans were included if amiodarone or sotalol were prescribed after implementation of standardized orders (Group 2) and excluded if therapy was short term intravenous use or $\leq$1 month. Groups were compared noting adherence to recommended baseline and follow-up monitoring or discontinuation due to ADEs.
RESULTS: Baseline amiodarone monitoring improved after implementation of standardized orders (n=100 Group 1; n=42 Group 2). Statistically significant improvements were noted in

thyroid function (p=0.023), chest x-ray (p=0.048), and pulmonary function tests (p=<0.001) with trends for improvement in liver function tests and electrocardiograms. For sotalol, 93 veterans (Group 1) were compared to 22 veterans (Group 2). Statistically significant improvements were seen with baseline QTc (p=0.05) and serum magnesium (p<0.01). Trends toward improvement for follow-up monitoring for both AADs were present. Nine sotalol patients (Group 1) experienced ADEs with 6 requiring discontinuation compared to zero in Group 2.
CONCLUSION: Implementation of amiodarone and sotalol standardized orders improved baseline monitoring in veterans. Preliminary evaluation of development of ADEs suggests that appropriate monitoring leads to improved patient safety and less ADEs.

S-14. Determinants of Self Care Practices among Hypertensive Patients at Jimma University Specialized Hospital, Southwest Ethiopia. Bucha Gemeda,[1] *Muktar Ahmed,*[2] Fekede Bekele,[1]; [1]Pharmacy, Jimma University, Jimma, Ethiopia [2]Epidemiology, Jimma University, Jimma, Ethiopia
INTRODUCTION: Hypertension is the most common chronic condition and most patients with hypertension have other risk factors. About one third of adults in the world have hypertension. Even though pharmacotherapy is considered first line treatment of hypertension, self-care practices should be encouraged for all patients, whether they are in pre-hypertensive or hypertensive stage.
RESEARCH QUESTION OR HYPOTHESIS: What is the prevalence and determinants of self-care practices among hypertensive patients at Jimma University Specialized Hospital.
STUDY DESIGN: Hospital based cross-sectional study was conducted from April 4 to May 30, 2016 at ambulatory care unit of Jimma University Specialized Hospital.
METHODS: Participants were recruited consecutively. A structured questionnaire was prepared and used to obtain information. Data was entered and cross-checked using Epi data version 2.0 and exported to the SPSS version 21.0 for analysis. The logistic regression model was used to analyze any association between dependent variable and independent variables. Statistical significance was considered at p-value <0.05.
RESULTS: A total of 341 hypertensive patients participated in the study. About 61.9% respondents were adherent to medication usage and 44.9%, 88.3%, 93.5% and 56.9% of respondents were adherent to physical activity, non-alcohol drinking, nonsmokers and weight management respectively. Normal weight (AOR = 1.822, 95% CI: 1.073–3.093) was independent predictor of medication usage whereas good self-efficacy (AOR = 2.584, 95% CI: 1.477–4.521) and being female (AOR = 0.517, 95%CI: 0.301–0.887) was independent predictor of low salt diet and physical activity respectively while college/above education (AOR = 0.239, 95% CI: 0.063–0.908) was inversely related with non-alcohol use. Self-efficacy was independent predictor of self-care practices of medication usage, low salt diet and weight management.
CONCLUSION: Self-care practices of hypertensive patients, especially behaviors related to low salt diet (30.5%), physical activity (44.9%), medication usage (61.9%) and weight management (56.9%) were generally low whereas self-care practices related to non-alcohol use and non-smoking are relatively promising.Health professions should educate hypertensive patients on self-care practices at regular bases.

Community Pharmacy Practice

S-45. Evidence Based Supply of Over the Counter Medicines in Community Pharmacies. A Mixed Methods Study. *Hind Aboheimed,*[1] Areej Alhumsi,[2] Nada Alobaid,[2] Ghada Aboheimed,[2] Nouf Aloudah,[2] Noura Aboheimed,[2]; [1]King Saud University, Kingston, ON, Canada [2]King Saud University, Riyadh, Saudi Arabia
INTRODUCTION: Despite current studies that showed community pharmacists had a positive attitude toward evidence based medicine (EBM) supply of OTC medicines, there is a lack in EBM practice in community pharmacies.
RESEARCH QUESTION OR HYPOTHESIS: To assess and explore EBM in supplying OTC medicines for three minor ailments: diarrhea, cough, common cold by community pharmacists in Saudi Arabia.
STUDY DESIGN: Mixed methods study.
METHODS: The study used a mixed methods approach consisted of two parts. The quantitative study which used a mystery shopper approach for 214 randomly selected pharmacies from Riyadh region using 14 questions-Quest Scholar MAC checklist to examine community pharmacists' application of EBM. Secondly, the qualitative study which encompassed three focus groups with 13 pharmacists from different community practice settings to explore factors affecting EBM practice in supplying OTC medicines from the pharmacist's point of view using theoretical underpinning designed topic guide.
RESULTS: The analysis showed that only 40% of pharmacists supplied OTC medicines according to EBM. Additionally, logistic regression analysis showed that only two questions asked predicted the correct supply of OTC medicines (Q1:describe your symptoms, Q2:when did the symptoms start?). The two questions has significant p values: 0.022 and 0.023 respectively. The focus groups analysis has identified a range of 29 factors, some were facilitators such as established patient-pharmacist relationship, some were barriers such as conflicts between available evidence, and some were acting as both facilitator and barrier such as patient' awareness and education.
CONCLUSION: Given the fact that OTC supply is a core function for pharmacists, this study showed a low OTC supply according to EBM. Furthermore, this study identifies several factors explaining this phenomenon. Targeting factors identified in this study might help change this behavior and decrease unwanted events.

Critical Care

S-22E. Fluid Resuscitation in End Stage Renal Disease Patients Presenting with Sepsis. *Khalida Amini,*[1] Erika Weidman,[2] Heather Nix,[3] Andrea Thurman,[4] Sean Nix,[5]; [1]Assistant Professor, School of Pharmacy, Hampton University, Hampton, VA [2]4th Year Student, Virginia College of Osteopathic Medicine, Virginia College of Osteopathic Medicine, Blacksburg, VA [3]Pharmacist, Critical Care Unite, Riverside Regional Medical Center, Newport News, VA [4]Professor, Eastern Virginia Medical School, Norfolk, VA [5]Trauma/Critical Care and General Surgeon, Riverside Regional Medical Center, Newport News, VA
Presented at the American Society of Health System Pharmacists, Las Vegas, NV, December 4–8, 2016.

Education/Training

F-1. Introduction of Anxiety-Reducing Strategies to Manage Student Anxiety Associated with Participating in American Pharmacists Association Pharmacy-Based Immunization Delivery Certificate Training. *Malgorzata Slugocki,* Ayse Elif Ozdener, Georgeta Vaidean; Fairleigh Dickinson University School of Pharmacy and Health Sciences, Florham Park, NJ
INTRODUCTION: In the past students experienced anxiety when participating in American Pharmacists Association (APhA) Pharmacy-Based Immunization Delivery certificate training due to trypanophobia. In order to address this problem, our institution incorporated an educational component on strategies to manage trypanophobia.

RESEARCH QUESTION OR HYPOTHESIS: Our study assessed whether the introduction of anxiety-reducing strategies in the immunization certificate training helped students overcome trypanophobia.
STUDY DESIGN: This was a pre- and post- prospective survey-based cohort study.
METHODS: Pre- and post-surveys were administered before intramuscular and subcutaneous injection instruction and after completing the injections in the final assessment of the certificate training, respectively. The surveys contained 5-point Likert scale questions measuring student fear regarding administering and receiving injections. Before completing the final injection, the students watched a lecture presentation that coached them on various techniques that can reduce anxiety: behavioral interventions (breathing, mindfulness), applied tension, and exposure-based therapy. The results from the pre- and post-survey were analyzed using Mantel-Haenszel Chi-Square method. Statistical significance was defined as p-value of ≤ 0.05.
RESULTS: In the pre-survey, in response to the statement of whether they are afraid to receive the injection but not administer the injection, 24% of 71 students strongly agreed/agreed versus 48% strongly disagreed/disagreed. In the post survey, 14% of students strongly agreed/agreed with the same statement versus 69% of students strongly disagreed/disagreed (p value=0.05). In the pre-survey, in response to the statement of whether they are afraid to administer the injection but not receive the injection, 27% students strongly agreed/agreed versus 53% strongly disagreed/disagreed. In the post survey 13% of students strongly agreed/agreed with the same statement versus 75% of students strongly disagreed/disagreed (p value=0.03).
CONCLUSION: The introduction of anxiety-alleviating techniques into the curriculum helped students overcome their anxiety and reduce the fear of administering and receiving subcutaneous and intramuscular injections.

F-9. Integrating Continuous Quality Improvement (CQI), Teamwork, and Leadership into a New Curricular Elective. *Lara Kerwin*,[1] Lindsay Sorge,[2] Todd D. Sorensen,[3] Kristin K. Janke,[4]; [1]Department of Pharmacy Practice, Division of Ambulatory Care, St. Louis College of Pharmacy, St. Louis, MO [2]Department of Pharmaceutical Care & Health Systems, University of Minnesota College of Pharmacy, Minneapolis, MN [3]Pharmaceutical Care and Health Systems, University of Minnesota College of Pharmacy, Minneapolis, MN [4]University of Minnesota College of Pharmacy, Minneapolis, MN
INTRODUCTION: There is a call for quality improvement (QI) education into Pharm.D. curricula. Present instruction is predominantly lectures within courses, although hands-on application is historically more effective. QI education in pharmacy tends toward medication safety and quality assurance rather than QI principles and how to improve quality. QI experts urge healthcare educators to teach continuous quality improvement (CQI) skills alongside leadership and teamwork. Yet, this design is scarcely reported.
RESEARCH QUESTION OR HYPOTHESIS: How should an elective in CQI be designed, implemented, and evaluated for students to develop a CQI mindset to participate in QI initiatives?
STUDY DESIGN: One pharmacy resident and three professors outlined course goals, objectives, values, and structure over approximately 6 months (April 26, 2016–January 16, 2017). Assignments were developed for practice authenticity, context to the healthcare system, and peer-to-peer interaction. Assessments and designed to support growth in a non-threatening environment.
METHODS: Evaluation included a Likert-based questionnaire and two-round modified-Delphi process via Qualtrics® (Qualtrics Labs Inc., Provo, UT). Round one asked open-ended questions about benefits and improvements for four major course activities. Round two grouped responses, then assessed consensus (set prospectively at 75%).
RESULTS: Eight third-year Pharm.D. students completed the course (January 17, 2017–April 11, 2017). Five students completed traditional evaluations; all respondents reported a CQI mindset resulting from the course (100%). All eight students completed both Delphi rounds. Eleven areas of benefit and sixteen improvements were described with consensus attained for five benefits (45.5%) and one improvement (6.25%).
CONCLUSION: An elective in CQI, teamwork, and leadership allowed students to build a CQI mindset (i.e. real-world context, relevance, and application of course material). Future offerings should maintain a discussion-based style and CQI project and storytelling elements.

F-8. Measuring the Effect of Implementing Standardized Flashcards as a Study Tool in a Pathophysiology Class. *Erin K. Hennessey*,[1] Mackenzie T. Steck,[2] Erica F. Crannage,[2] Andrew J. Crannage,[1] Theresa Prosser,[2]; [1]St. Louis College of Pharmacy/Mercy Hospital St. Louis, St. Louis, MO [2]St. Louis College of Pharmacy, St. Louis, MO
INTRODUCTION: Self-testing is a method to practice the skill of content retrieval. Studies show that retrieval practice is not part of the studying process for most students. Reasons include lack of awareness of benefits and time necessary to create self-testing materials like flashcards. Pathophysiology a content heavy course requiring significant factual memorization. The purpose of this project was to assess if providing students with a convenient method of self-testing in the form of electronic flashcards would enhance retrieval ability.
RESEARCH QUESTION OR HYPOTHESIS: Do electronic flashcards enhance student performance and ability to retrieve information in a pathophysiology course?
STUDY DESIGN: Retrospective cohort.
METHODS: Students registered for Pathophysiology in 2016 who provided consent and a Quizlet© username were included. Quizlet© was chosen as the electronic flashcard medium for the project based on cost and usability. Flashcard sets were created for each disease state topic. Data on flashcard utilization by students was collected from Quizlet©. Remembering level multiple choice questions were identified for each of four exams and a score was calculated for those questions. The primary outcome was to evaluate for correlation between number of flashcard sets studied and overall student performance on remembering level multiple choice items on each exam.
RESULTS: A total of 193 students were included. Mean number of flashcard sets studied decreased each exam (2.26 ± 2.58, 1.21 ± 2.02, 0.68 ± 1.93, and 0.48 ± 1.59). Pearson correlation coefficients for the four exams were -0.062, 0.066, 0.031, and 0.027. The correlation coefficient for total flashcard sets studied and overall course grade was 0.089.
CONCLUSION: The number of electronic flashcard sets viewed was not correlated with improved performance on remembering level exam questions. This could be partly due to insufficient instruction on using flashcards appropriately for retrieval practice and/or underutilization. Creation and maintenance of electronic flashcards requires a large time commitment that must be weighed against the benefits of providing this resource to students.

F-3. Evaluation of Student Pharmacists' Diabetes Knowledge after Teaching a Diabetes Self-Management Education Class. *Kendra Manigault,* Maria M. Thurston; Pharmacy Practice, Mercer University College of Pharmacy, Atlanta, GA
INTRODUCTION: There is evidence that a variety of educational experiences can positively impact a student pharmacist's knowledge, attitudes, and/or skills associated with chronic conditions; however, there are limited studies that evaluate the impact of a student pharmacist involvement with a diabetes self-management education (DSME) class.

RESEARCH QUESTION OR HYPOTHESIS: Does student pharmacist knowledge improve after teaching a DSME class?
STUDY DESIGN: This was a prospective, IRB-approved, pre/post assessment based study of fourth year student pharmacists completing an ambulatory care advanced pharmacy practice experience (APPE).
METHODS: Student led DSME classes were held between August 2016 and March 2017. The study investigators' APPE students were assigned to a control or intervention group based on scheduled DSME classes. Students in the intervention group team-taught (two students per team) a DSME class for patients with diabetes. Students in the control group did not teach a DSME class. Students in both groups completed a 10-item diabetes knowledge pre/post assessment to evaluate the student's knowledge of diabetes at baseline and during week 3 or 4 of the APPE (the intervention group completed the post assessment after teaching the DSME class and the control group completed the post assessment at a similar time). Change in diabetes knowledge was analyzed using a paired T-test.
RESULTS: Seven student led DSME classes were completed. Twenty-six students completed the pre/post assessment as members of the control group (n=12) and intervention group (n=14). The mean change from baseline in diabetes knowledge in the control and intervention groups was 0.69% (95% CI, −18.64 to 20.04, p=0.939) and 26.18% (95% CI, 16.75 to 35.62, p<0.001), respectively.
CONCLUSION: Student pharmacists who taught the DSME class had significantly improved diabetes knowledge compared to student pharmacists who did not teach the DSME class.

F-4. Impact of incorporating Advanced Pharmacy Practice Experiences students into small rural hospital to expand clinical pharmacy services, and Antimicrobial Stewardship Program. *Quoc Hoa Hoang,* Timothy Huynh; Inpatient Pharmacy, Desert Valley Hospital, Victorville, CA
INTRODUCTION: Pharmacy Colleges face the challenge of meeting the experiential needs given limited hospital practice sites and preceptors, particularly in smaller towns. Practice sites must balance clinical teaching while meeting the clinical practice demands with limited staff support.
RESEARCH QUESTION OR HYPOTHESIS: The purpose of this study is to evaluate the impact of incorporating Advanced Pharmacy Practice Experiences (APPE) students into clinical practice and Antimicrobial Stewardship Program (ASP) to enable students to be practice-ready graduates while adding value to and expanding clinical pharmacy services at Desert Valley Hospital.
STUDY DESIGN: Single-centered, retrospective, computerized medical record review study that examined the impact of APPE students on clinical services from June 2015 to June 2017.
METHODS: A total of 4155 patients' medical records were reviewed. Clinical recommendations/interventions based on guidelines and protocols were documented into computerized medical record and presented to physicians at clinical rounds. The primary outcomes included the number and types of recommendations/interventions were approved by physician; and secondary outcome was length of hospitalization.
RESULTS: There were 3097 recommendations approved of 4023 total interventions (77%). Out of 3074 antibiotic de-escalation recommendations, 2467 were approved (80.2%). Out of 1252 IV to PO recommendations, 771 were approved (61.6%). Out of 3144 dosing, renal adjustment, medication substitution recommendations, 2735 were approved (86.9%). The average length of stay for studied patients was 8 days.
CONCLUSION: Incorporating APPE students into clinical services and ASP allowing them contribute meaningfully to patient care during the length of rotation while fulfilling duties that are normally managed by a full staffed pharmacy. In the process of experiential learning, APPE students learned to fulfill both technical and clinical responsibilities to always continue enhancing quality of care.

F-2. The Relationship Between Pharmacy Work Experience Experience and Students' Performance on Top 200-drugs Formative and Summative Assessments. Abdilahi Mohamed, *Malgorzata Slugocki*; Fairleigh Dickinson University School of Pharmacy and Health Sciences, Florham Park, NJ
INTRODUCTION: Exposure to pharmacy practice setting may have a positive impact on student academic performance, based upon the assumption that students who have a direct pharmacy practice experience are more apt to grasp the comprehensive role of a pharmacist. Previously published literature suggests exposure to pharmacy practice prior to entering pharmacy school does not significantly influence the overall academic performance.
RESEARCH QUESTION OR HYPOTHESIS: The goal of this study was to evaluate student performance on Top 200 Drugs formative quizzes, summative assessment, and overall grade point average (GPA) in students with pharmacy work experience compared to students with no work experience during pharmacy school. Additionally, this study was aimed at determining which pharmacy work setting led to superior performance on the above assessments.
STUDY DESIGN: This was a retrospective survey-based cohort analysis.
METHODS: The employment status data from the class of 2016 students was collected, using an electronic survey. Scores for each quiz and for the final exam were compared between students who did and did not have work experience during pharmacy education, using the two-tailed, student's t-test for independent samples. Comparisons between various pharmacy settings were performed using ANOVA. Statistical significance was defined as p-value <0.05.
RESULTS: The mean scores for formative assessments across all courses in which they were delivered were not statistically significant. The average score in the final cumulative assessment was 85 for students with work experience versus 86 for students without work experience (p=0.601). The overall GPA was 3.37 for students with work experience versus 3.55 for students without work experience (p=0.179).
CONCLUSION: The students with work experience during the pharmacy education had higher average scores on formative and summative assessments, as well as a higher overall GPA, but there was no statistically significant difference between the two groups.

Emergency Medicine

F-46. Single Center Cohort Describing the Use of Intravenous Phenobarbital in Conjunction with Intravenous Benzodiazepine in the Management of Acute Alcohol Withdrawal in an Urban Level One Trauma Center Emergency Department. *Hoang Truong,*[1] Joyce Bensman,[2] Mustafa Lee,[1] Akemi Meguro,[3] Michael Levine,[1] Henry Kim[4]; [1]Emergency Department, LAC+USC Medical Center, Los Angeles, CA [2]Emergency Department, LAC+USC Medical Center, Los Angeles, CA [3]LAC+USC Medical Center, Los Angeles, CA [4]Olive View Medical Center, Sylmar, CA
INTRODUCTION: Acute Alcohol withdrawal (AAW) syndrome has several treatment options with benzodiazepines (BZDs) seen as first-line therapy. In BZD refractory cases, the addition of phenobarbital (PHB) is an effective alternative to BZDs.
RESEARCH QUESTION OR HYPOTHESIS: To evaluate hospital outcomes between the combination of intravenous (IV) PHB with BZD versus IV BZD alone for AAW.
STUDY DESIGN: Retrospective chart review.
METHODS: PHB and BZD patients were matched with patients who only received BZD between July 2014 to January 2016. Outcomes measured: heart rate (HR), respiratory rate (RR), and systolic blood pressure (SBP), BZD and PHB doses, hospital and intensive care unit (ICU) length of stay (LOS). BZD doses were converted to diazepam equivalents.
RESULTS: Fifty-three patients enrolled. Baseline characteristics and hemodynamics were similar between the groups. The BZD-only group's cumulative average BZD dose was 45.9 mg and the

highest single dose was 50 mg. The BZD+PHB group's cumulative average BZD dose was 152.3 mg and the highest single dose was 160 mg. The highest cumulative PHB dose was 650 mg, the highest single dose was 260 mg, and an average PHB dose of 276 mg. Five patients in the BZD+PHB group (22.7%) required intubation compared to zero in the BZD-only. In the BZD-only group, nine patients (29%) required ICU admission with an average ICU LOS of 1.6 days and an average overall hospital stay of 7.1 days. In the BZD+PHB group, all 22 patients required ICU admission with an average ICU LOS of 2.5 days and an average overall hospital stay of 7.6 days.
CONCLUSION: Combination of PHB+BZD had similar hemodynamics (RR, HR and SBP) compared to patients who only received BZDs but had longer hospital and ICU LOS. Despite the dose increase of BZDs in the PHB+BZD group, the addition of PHB may provide similar outcomes compared to BZD alone.

Health Services Research

S-25. Novel Role of Clinical Pharmacist in Providing Inpatient Contraception Service in Qatar. Yehia El Khawly,[1] Raja Barazi,[2] Tarek Ibrahim,[3] Anju Philip,[4] Wesam Smidi,[5] Rasha El Enany,[2] Nithya Clara Lazarus,[6] Shanty Peter,[7] Tamara Salama Fady Al Shdafat,[8] Mohamed Alloub,[9] Amy Ann Mathew,[10]; [1]Department of Obstetrics & Gynecology, Hamad Medical Corporation (HMC) Qatar, Doha, Qatar [2]Pharmacy Department, Hamad Medical Corporation (HMC), Doha, Qatar [3]Clinical Pharmacy, Al-Wakra Hospital: Hamad Medical Corporation, Al-Wakra, Qatar [4]Department of Obs/Gyn, Al Wakra Hospital, Hamad Medical Corporation (HMC) Qatar, DOHA, Qatar [5]Department of Pharmacy, Hamad Medical Corporation (HMC), Qatar, Doha Qatar, Qatar [6]Department of Ob/Gyn, 3 South Unit, Hamad Medical Corporation (HMC), Qatar, DOHA, Qatar [7]Department of Ob/Gyn, 3 North Unit, Hamad Medical Corporation (HMC), Qatar, DOHA, Qatar [8]Department of Nursing, Ob/Gyn Unit, Hamad Medical Corporation (HMC) Qatar, Doha, Qatar [9]Obstetrics and Gynecology Department, Hamad Medical Corporation (HMC), Doha, Qatar [10]Department of Clinical Pharmacy, Hamad Medical Corporation (HMC), Qatar, Doha Qatar, Qatar
INTRODUCTION: Postpartum contraception has been shown to reduce unintended pregnancies and optimize the Inter-pregnancy Interval (IPI). IPIs below 18 months have been associated with adverse outcomes in both the mother and child. ACOG recommends the initiation of immediate postpartum contraception before leaving hospital.This service was initiated by the clinical pharmacy department at the obs/gyn ward in order to provide comprehensive postpartum counseling on the various contraceptive options safe in breastfeeding mothers. The clinical pharmacist is ideally situated to lead such a service and provide education on the different types of contraceptives including missed doses, adverse effects, and drug interactions and improve adherence.
RESEARCH QUESTION OR HYPOTHESIS: What is the impact of clinical pharmacist-provided contraception education on postpartum patients?
STUDY DESIGN: Cross sectional survey collected from 26th March to 30th July 2017.
METHODS: Assessment of patient satisfaction was conducted using a cross sectional survey that comprised of thirteen questions. Patients who attended the pharmacists-led contraception counseling were voluntarily enrolled in the study. A Likert scale was used to measure the patients' responses.
RESULTS: Out of 714 patients who attended the service, 100 patients completed the survey. Based on this survey, 100% of the patients agreed that the clinical pharmacist's communication was clear and understandable. In addition, 99% of the women agreed that the healthcare professional answered their questions regarding contraception. Most of the patients agreed that the clinical pharmacist explained all birth control options including possible side effects (99%), and guided them in choosing a suitable contraceptive method (98%). The clinical pharmacist had a positive impact (97% agree) on patients in selecting their contraceptive method.
CONCLUSION: The counseling by clinical pharmacist had provided patients with a better experience as well as increased their knowledge about contraception. This study highlights the important role of clinical pharmacist and the scope of further expansion of clinical pharmacist-provided services in obs/gyn domain.

Hematology/Anticoagulation

S-29E. Evaluation of Prothrombin Complex Concentrates for the Reversal of Liver Coagulopathy. Keri Kim,[1] *Mariana Mallidi,*[2] Jeffrey Mucksavage,[3] Eljim Tesoro,[1]; [1]Department of Pharmacy Practice, University of Illinois Hospital and Health Sciences System, Chicago, IL, Chicago, IL [2]College of Pharmacy, University of Illinois at Chicago, Chicago, IL, Chicago, IL [3]University of Illinois at Chicago College of Pharmacy, Department of Pharmacy Practice, Chicago, IL
Presented at the Society of Critical Care Medicine, San Antonio, Texas, February 25–28, 2018.

F-23E. Randomized, Double-Blind Trial of Ferumoxytol Compared to Ferric Carboxymaltose for Treatment of Iron Deficiency Anemia: Safety and Efficacy. Michael Auerbach,[1] William Strauss,[2] Iain Macdougall,[3] Kristine Bernard,[2] Robert Kaper,[2] Glenn Chertow,[4] Zhu Li,[2] Anton Trochanov,[2] *Naomi Dahl,*[2] Julie Krop,[2]; [1]Georgetown University School of Medicine, Washington, DC [2]AMAG Pharmaceuticals, Inc., Waltham, MA [3]King's College Hospital, London, United Kingdom [4]Stanford University, Stanford, CA
Presented at the American Society of Hematology, 59th Annual Meeting, Atlanta, GA, December 9–12, 2017.

HIV/AIDS

F-16E. Implementation of a Pharmacist-Led Human Immunodeficiency Virus (HIV) Pre-Exposure Prophylaxis (PrEP) Clinic. Sarah Michienzi,[1] *Paul Stranges,*[2] Renata O. Smith,[1]; [1]Department of Pharmacy Practice, Section of Infectious Diseases, University of Illinois at Chicago College of Pharmacy, Chicago, IL [2]University of Illinois at Chicago College of Pharmacy, Chicago, IL
Presented at the Midyear Clinical Meeting of the American Society of Health-System Pharmacists, Orlando, FL, December 4–8, 2018.

F-15. Evaluation of HIV Curricular Content in Schools of Pharmacy Across the United States. *Spencer Durham,*[1] R. Chris Rathbun,[2] Autumn D. Bagwell,[3] Kevin Farmer,[4] Melissa Badowski,[5]; [1]Department of Pharmacy Practice, Auburn University Harrison School of Pharmacy, Auburn, AL [2]University of Oklahoma College of Pharmacy, Oklahoma City, OK [3]Vanderbilt Specialty Pharmacy, Vanderbilt University Medical Center, Nashville, TN [4]Department of Clinical and Administrative Sciences, College of Pharmacy, University of Oklahoma Health Sciences Center, Oklahoma City, OK [5]College of Pharmacy, University of Illinois at Chicago, Chicago, IL
INTRODUCTION: HIV is an important topic of education for student pharmacists as patients with HIV now have a similar life expectancy to those without the infection. However, the characteristics of curricular content and faculty dedicated to HIV didactic and experiential training in United States (US) schools of pharmacy have not been defined.
RESEARCH QUESTION OR HYPOTHESIS: What is the quantity and diversity of topics devoted to HIV content in

didactic and experiential teaching environments for student pharmacists?
STUDY DESIGN: Cross-sectional, population-based sample.
METHODS: A 15-question email-based survey using Qualtrics® was distributed to faculty who were pre-identified as being knowledgeable about HIV content areas at 135 different 4-year, accredited pharmacy schools across the US. The survey was distributed in September 2016, with data collection completed in February 2017.
RESULTS: Thirty-seven responses were received from schools in the Northeast (26%), South (26%), Midwest (34%), and West (14%). Didactic HIV content ranged from 0.5–60 hours (mean total contact hours = 9.8 ± 10.8 hr). The amount of HIV content increased as students progressed through each professional year. Of the primary HIV teaching faculty, over half (54%) of respondents reported that <4 hours per week were devoted to care of HIV patients. Sites for HIV care in experiential training were variable, though the majority (80%) included an outpatient ID/HIV clinic. Eighty percent of respondents reported that students received ≤25 HIV patient encounters during experiential training.
CONCLUSION: Wide diversity in the amount of time devoted to HIV didactic teaching existed among reporting US pharmacy schools, with some schools having minimal didactic teaching devoted to HIV and low rates of exposure to HIV patients in experiential training. Few schools have faculty who spend a substantial amount of time in direct care of HIV patients. Standards for the provision of HIV education in pharmacy schools should be established.

Infectious Diseases

F-10. Impact of Procalcitonin Monitoring on Duration of Antibiotics in Patients with Sepsis and/or Pneumonia. *Elizabeth Covington,*[1] Stephen Eure,[2] Doug Carroll,[2] Christen Freeman,[2]; [1]Department of Pharmacy Practice, Samford University McWhorter School of Pharmacy, Birmingham, AL [2]DCH Regional Medical Center, Tuscaloosa, AL
INTRODUCTION: Procalcitonin (PCT) is a biomarker specific for bacterial infections versus viral or non-infectious causes. Utilizing PCT as a guide for antibiotic duration could have benefit in limiting antimicrobial overuse.
RESEARCH QUESTION OR HYPOTHESIS: Does procalcitonin monitoring reduce antibiotic duration for pneumonia and sepsis in a community hospital?
STUDY DESIGN: This study utilized a quasi-experimental design, with a retrospective control group prior to the availability of procalcitonin testing and a prospective intervention group after the availability of procalcitonin testing at a community hospital.
METHODS: Non-binding PCT algorithms were developed, approved by the infectious disease physician and Pharmacy and Therapeutics committee, and distributed to providers to provide guidance on interpreting PCT levels. The investigators actively followed PCT patients and made recommendations if necessary for prescribers to discontinue or de-escalate antibiotic therapy. The primary outcome was duration of antimicrobial therapy.
RESULTS: A total of 102 patients (51 retrospective and 51 prospective) were included in the analysis. There was no difference in mean duration of inpatient antibiotics (6.1 ± 3.9 vs. 4.7 ± 2.9 days, p=0.499). Additionally, there was no difference in the average time to antibiotic de-escalation, average hospital length of stay, or intensive care unit (ICU) LOS. PCT monitoring resulted in a 41% reduction in discharge antibiotics (63% vs 37%, p=0.009) and a 2.2 day reduction in duration of overall inpatient and post-discharge antibiotics (9.5 ± 4.5 vs. 7.3 ± 4.1 days, p=0.013). There was no difference in mortality, relapse of infection, or 30-day readmission.
CONCLUSION: Procalcitonin monitoring in patients with suspected pneumonia and/or sepsis in the community setting failed to show a reduction in duration of inpatient antibiotics after the introduction of procalcitonin monitoring. However, PCT resulted in significantly fewer discharge antibiotics and overall inpatient plus post-discharge antibiotic duration, with no detrimental effect on mortality or readmission.

S-35. Assessing the Impact of Antimicrobial Stewardship Program on Urinary Tract Infections at a Long-Term Acute Care Facility Based on the Revised McGeer Criteria. *Edoabasi McGee,*[1] Samuel John,[1] Kumar Mukherjee,[2] Erish Malonzo,[2] Marilyn Swindall,[3]; [1]School of Pharmacy, Philadelphia College of Osteopathic Medicine- GA Campus, Suwanee, GA [2]PCOM school of Pharmacy, Suwanee, GA [3]Gwinnett Medical Center, Lawrenceville, GA
INTRODUCTION: The McGeer Criteria provides standardized guidance in long-term care facilities (LTCFs) for infection surveillance. Revisions were made in 2012, making the criteria specific for both residents with and without an indwelling catheter. An informal review showed frequent lack of supporting elements for testing or treatment of UTI's at Gwinnett Extended Care Center (GECC)- Gwinnett Medical Center (GMC) LTCF.
RESEARCH QUESTION OR HYPOTHESIS: Examine antibiotic utilization of UTIs at GECC and assess the percentage of antibiotic initiation based on the revised McGeer Criteria.
STUDY DESIGN: A cross-sectional, retrospective chart review performed at an 89 bed LTCF.
METHODS: Patients were selected from the infection control practitioner's (ICP) surveillance data. These were cases qualified or excluded by application of the 2012 revised McGeer Criteria. Residents with and without an indwelling catheter were included if they had at least one sign or symptom with a positive urine culture. Also included were residents with an indwelling catheter that meet previous criteria with no alternate diagnosis and an infectious presentation. Patient were excluded if there were being treated for other infectious disease. Outcomes were the number of patients receiving antibiotics for UTI, antibiotic administered and duration of treatment, interventions performed, and number of patients not meeting criteria for antibiotic as defined by the McGeer Criteria.
RESULTS: About 75 patients were reviewed from the ICP surveillance data from March to November 2016 and two were excluded. About 93% of patients received at least one antibiotic. Various antibiotics were administered with most patients (n=23) receiving nitrofurantoin. Average treatment duration was 7.6 days. Approximately 21% of patients had an intervention performed. Over half of patients (n=42) did not meet criteria for antibiotics.
CONCLUSION: Less than half of the patients (n=31) had antibiotics initiated appropriately; therefore, utilizing the revised McGeer Criteria along with other stewardship efforts would improve appropriate use of antibiotics in LTCF patients.

F-14E. Investigating the Best Active Learning Techniques Used in Antimicrobial Stewardship Program Education. *Rasha Abdelsalam Elshenawey,*[1] Heba-t-Allah Matar Ali Matar,[2] Fatma Elzahraa Ahmed,[3] Mahmoud Gamal Hassib,[4] Heba Sayed Yousef,[5]; [1]FADIC, Makkah, Saudi Arabia [2]FADIC, Cairo, Egypt [3]FADIC, Abu-Dhabi, United Arab Emirates [4]FADIC, Jeddah, Saudi Arabia [5]Dubai, United Arab Emirates
Presented at Cleveland Clinic Pharmacy Symposium, Abu Dhabi, UAE, November 19-20, 2016.

Medication Safety

F-27E. Analysis of the Use of Heparin and the Related Incidence of Heparin-Induced Thrombocytopenia in a Turkish Hospital. *Nibal Abunahlah,*[1] Aisha Abimbola,[2] Yildiz Okuturlar,[3] Meltem Breen,[2] Hakan Kocoglu,[3]; [1]Altinbas University, Istanbul, Turkey [2]Clinical Pharmacy, Altinbas University, Istanbul, Turkey [3]Internal Medicine, Dr. Sadi Konuk Education and Research Hospital, Istanbul, Turkey.

Published in The Journal of Clinical and Experimental Investigations.

Nephrology

S-28E. Occurrence of Hypophosphatemia Following IV Iron Treatment: Results from a Randomized Controlled Trial. Myles Wolf,[1] William Strauss,[2] Kristine Bernard,[2] *Naomi Dahl,*[2] Robert Kaper,[2] Julie Krop,[2]; [1]Duke University, Durham, NC [2]AMAG Pharmaceuticals, Inc., Waltham, MA
Published in J Am Soc Nephrol 2017;28:55.

Pain Management/Analgesia

F-34. Evaluation of Concurrent use of Lidocaine and Ketamine Infusions as Adjunctive Analgesia in the ICU. *Alex Ebied,*[1] Abigail Antigua,[2]; [1]Pharmacotherapy and Translational Research, University of Florida College of Pharmacy, Gainesville, FL [2]Department of Pharmacy, North Florida Regional Medical Center, Gainesville, FL
INTRODUCTION: Ketamine and lidocaine have promising roles in pain management in the intensive care unit (ICU) due to a lack of respiratory depression. The safety and effectiveness of concurrent infusions as an adjunct for pain in the ICU setting have not been well studied.
RESEARCH QUESTION OR HYPOTHESIS: The aim of this study was to evaluate concurrent use of ketamine and lidocaine for the treatment of pain in postsurgical ICU patients.
STUDY DESIGN: This is a retrospective case series of ICU patients who received ketamine and lidocaine for any duration as an adjunct to opioids during ICU stay from March 2014 to March 2015.
METHODS: The primary outcomes included the time measurement to achieve a ≥20% reduction in pain scores after the initiation of lidocaine and the difference in opioid requirements pre and post concurrent pain therapies. Ketamine/lidocaine dosage, duration, and adverse events were also collected.
RESULTS: A total of 7 postsurgical ICU patients with a mean age of 51 years were included. Patients received lidocaine at an average rate of 0.85 mcg/min for a mean duration of 35 hours and ketamine at an average rate of 7.35 mcg/kg/min for a mean duration of 77.86 hours. The mean time to a ≥20% reduction in pain scores from the start of lidocaine was 5.14 hours and 15.35 hours for ketamine. The median IV morphine dose equivalents required during 6 hours pre-lidocaine/ketamine were higher than posttreatment time at 6 hours (69.9 mg vs. 59.59 mg). Adverse events were noted in five patients and therapy was stopped or rates were decreased in three patients.
CONCLUSION: This report suggests that ketamine and lidocaine effectively decreased pain scores, but adverse effects were noted in five out of seven patients. Additional and larger studies are warranted to confirm the safety and efficacy while using concurrent lidocaine and ketamine infusions.

Pediatrics

F-36. Evaluation of Pediatric Dosing Recommendations in the Food and Drug Administration (FDA) Approved Labeling of Anti-Infective Products. *Farah Raheem,*[1] Maria Voronina,[2] Xiaomei Liu,[3] Gilbert Burckart,[4] Jason Moore,[5]; [1]University of Arizona College of Pharmacy, Tucson, AZ [2]Massachusetts College of Pharmacy and Health Science, Boston, MA [3]Office of Clinical Pharmacology, Office of Transnational Sciences, Federal Food and Drug Administration, Silver Spring, MD [4]Pediatric Clinical Pharmacology Staffs, Food and Drug Administration, Silver Spring, MD [5]Office of Clinical Pharmacology, Federal Food and Drug Administration, Silver Spring, MD
INTRODUCTION: In the past 15 years, three significant Acts have been passed affecting pediatric drug development: FDA Modernization Act (FDAMA), FDA Amendments Act (FDAAA), and FDA Safety and Innovation Act (FDASIA). The aims of this study were to analyze trends in pediatric labeling during this time period, to identify gaps in FDA-approved products in pediatric subpopulations, and to assess whether FDA pediatric dosing recommendations were adopted into contemporary practice.
RESEARCH QUESTION OR HYPOTHESIS: How did the passage of FDA pediatric regulations affect pediatric labeling?
STUDY DESIGN: This is a retrospective study.
METHODS: Anti-infective products studied under FDAMA, FDAAA, and FDASIA were reviewed. Products were excluded if they did not receive FDA approval and had no dosing recommendations. Antiviral products were also excluded. FDA label information was extracted using Drugs@FDA, DailyMed, and the FDA Pediatric Labeling Information Database. Dosing recommendations provided in Micromedex were used because it is a common resource for drug information in contemporary practice. Descriptive statistics was utilized to analyze the data.
RESULTS: Twenty-eight drugs met the criteria for analysis, some of which were studied under multiple Acts. The products included 20 antibacterial agents, seven antifungal agents, and one antiparasitic agent. Seven drugs had pediatric indications approved under FDAMA, 12 under FDAAA, and 14 under FDASIA. There were 38 examined therapeutic uses of which only six included neonates. Micromedex differed from FDA labeling for six drug products: atovaquone/proguanil, levofloxacin, fluconazole, amoxicillin/clavulanate, doxycycline, and gatifloxacin.
CONCLUSION: This study showed an increase in the number of approved anti-infective products and indications in pediatrics during the studied time period. However, there is still a gap in pediatric studies in younger subpopulations, especially neonates. In general, dosage recommendations provided by Micromedex agreed with FDA labeling. When there was a difference, it was mainly due to recommendations from practice guidelines.

Pharmacoeconomics/Outcomes

S-34. Cost-Benefit Analysis of Pharmacist-led Anticoagulation Clinic. *Daniel Jenkins,* Lodge Bliznesky, Jacob Ferguson, Aubrie Gaydosh, Aaron Stewart, Dillon Buechel; Trinity Medical Center, Steubenville, OH
INTRODUCTION: Bleeding is the primary concern in patients on warfarin therapy with bleeding rates being influenced by a variety of factors. Maintaining a therapeutic level of anticoagulation requires monitoring of patients' PT/INR and making appropriate changes in therapy. Management of warfarin use is associated with decreased length of stay and complications from therapy, including hemorrhages and thromboembolic events.
RESEARCH QUESTION OR HYPOTHESIS: The primary objective of this study was to determine the reimbursement rates from third parties for patients that have their PT/INR tested in the Coumadin clinic versus patients that are tested in the outpatient laboratory with consideration of cost savings.
STUDY DESIGN: No randomization or control groups were used because of the ethical dilemma of withholding treatment to patients that require strict monitoring. The measured outcomes of the provided service will be compared to the outcomes obtained from care received in the outpatient laboratory.
METHODS: A cost-benefit analysis will be utilized to assess the benefit of implementing the Warfarin clinic at the Heart Center of Trinity Medical Center. A comparison of the costs of running the service at the clinic versus laboratory testing will be made to the reimbursement from third parties of each testing site.
RESULTS: The average reimbursement from Medicare for the anticoagulation clinic vs the outpatient laboratory reimbursement was $90.30 and $8.12, respectively. Based upon the 45 patients included in the analysis, the potential benefit was $82,866.91 for the anticoagulation clinic. Decreasing the length of stay for

patients admitted for myocardial infarction by 1 day was estimated to save $4,236.46.
CONCLUSION: The pharmacist-led anticoagulation clinic can be used to help decrease readmissions to the hospital, therefore decreasing healthcare costs. Normalized reimbursement from third party payers for these services incentivizes hospitals to maintain these services and decrease 30-day readmission rates as well as length of stay.

Pulmonary

S-36. Epac Role in Regulating Asthmatic Airway Smooth Muscle Proliferation. *Musaab Gari,*[1] Alice Gardner,[1] Rana Alsaffar,[2]; [1]School of Pharmacy, MCPHS University, Worcester, MA [2]MCPHS University, Worcester, MA
INTRODUCTION: In asthma, remodeling of airway smooth muscle (ASM) occurs with consequent increased proliferation and hypertrophy of the muscle, causing irreversible airflow limitation and poor clinical outcomes. cAMP, a second messenger regulated by PDE enzymes, is known for controlling cellular functions such as cell proliferation. Epac, a protein with high cAMP affinity. Previously, we found that proliferation signaling pathways were inhibited when treating with Epac-agonist. We aim to determine the influence of cAMP-elevating agents on Epac expression on asthmatic ASM-cells.
RESEARCH QUESTION OR HYPOTHESIS: Epac is a potential ASM proliferation regulator.
STUDY DESIGN: Asthmatic ASM-cells were grown to 80–85% confluency and growth-arrested for 24 hours. Serum-starved asthmatic ASM-cells were treated with 5%FBS for 48 hours in the absence or presence of rolipram(10 mM), albuterol(2 μm), 8-CPT-2Me-cAMP(100 μm), or CE3F4(100 μm).
METHODS: Proteins 15 μg were separated by PAGE. After transfer, the membranes were incubated overnight at 4°C with the primary-antibody for Epac(1:500) and subsequently probed with proper secondary-antibody(1:1000) for 1 hour at room temperature. Membranes were stored in the stripping buffer and re-probing with housekeeping-gene GAPDH(1:3000).
RESULTS: Treating the asthmatic ASM-cells with cAMP-elevating agents including albuterol, beta2-adrenergic-agonist, and the PDE4-inhibitor rolipram, significantly increased Epac expression compared with basal (78.4%, p-value<0.001). Epac-activator in the presence of albuterol alone or albuterol and rolipram showed a significant increase Epac expression comped with basal (56.3%, p-value<0.05; 86.1%, p-value<0.001). Pretreatment of asthmatic ASM-cells with Epac-inhibitor with albuterol showed a slight decrease in Epac expression compared with basal (28.6%, p-value<0.06). These data suggest the influence of cAMP-elevating agents including stimulation of beta2-adrenergic receptor, activation of Epac, and PDE inhibition, on Epac expression.
CONCLUSION: The molecular mechanisms of airway remodeling suggest a role for Epac. These data indicate the involvement of Epac in regulating asthmatic ASM-cell proliferation via a cAMP-mediated pathway through the beta2-adrenergic receptor. Overall, targeting Epac may have the therapeutic potential to control airway remodeling in asthma and improve lung function.

Rheumatology

F-32. The Safety and Efficacy of Lesinurad in Combination with Allopurinol versus Allopurinol Alone in Patients with Gout: A Systematic Review and Meta-Analysis. *Haya Almalag*; Clinical Pharmacy, King Saud University, Riyadh, Saudi Arabia
INTRODUCTION: Lesinurad is a selective uric acid reabsorption inhibitor approved by FDA for treatment of gout in 2015; however, its place in treatment is still unclear. The objective of this study was to assess the efficacy and safety of lesinurad and allopurinol treatment (combined treatment) in patients with gout who are non-responsive to allopurinol alone.
RESEARCH QUESTION OR HYPOTHESIS: In gout patient with inadequate control of serum uric acid (sUA), does combined treatment lead to improved efficacy and safety outcomes when compared with allopurinol only treatment?
STUDY DESIGN: Systematic review and meta- analysis.
METHODS: We systematically searched MEDLINE, EMBASE, CINAHL, and the Cochrane Central Register of Controlled Trials from inception to October 2017. We included peer-reviewed, randomized controlled trials of lesinurad 400 mg in combination with allopurinol versus allopurinol alone in patients with gout and an inadequate response to standard care. Two investigators independently screened, extracted, and assessed risk of bias in included studies.
RESULTS: Three studies ($n_{patients}$=1422) met our inclusion criteria. Compared with allopurinol only treatment, combined regimen showed significantly higher rates of reductions in sUA level <6 mg/dL (Pooled risk ratio [RR]=2.50, 95% confidence interval [CI]=2.06- 3.06, I^2=25%). Two studies reported significant reductions in gout flares in combined treatment, and a non-significant difference in tophus resolution (mean difference=−0.06, 95% CI=−0.08 to −0.05, I^2=59% and RR=0.79, 95%CI=0.42–1.49, I^2=83%, respectively). Compared with allopurinol only treatment, combined treatment showed a significantly increased proportion of adverse events in all three studies (RR=1.84, 95%CI=1.09–3.17, I^2=64%), however the number of withdrawals was similar across groups.
CONCLUSION: Combined lesinurad and allopurinol treatment showed a significant improvement in uric acid levels and number of gout flares compared to allopurinol only. However, the proportion of adverse events was higher in the combined regimen. This suggests that adding lesinurad to allopurinol could be useful in subjects not responding to allopurinol monotherapy.

Transplant/Immunology

F-30. The Impact of Opioid Use on Kidney Transplant Rejection: Different Sources Provide Different Answers. *Zana Elmaasarani,*[1] Nicole Pilch,[2] Rachael Gilbert,[3] Zachary Martin,[3] Lytani Wilson,[4] Dave Taber,[5] Prabhakar Baliga,[6] Neha Patel,[7] Caitlin Mardis,[2] James Fleming,[7]; [1]College of Pharmacy, Medical University of South Carolina, Charleston, SC [2]Division of Transplant, Medical University of South Carolina, Charleston, SC [3]College of Pharmacy, Medical University of South Carolina, Charleston, SC [4]College of Medicine, Medical University of South Carolina, Charleston, SC [5]Medical University of South Carolina, Charleston, SC [6]Department of Surgery, Medical University of South Carolina, Charleston, SC [7]Department of Pharmacy Services, Medical University of South Carolina, Charleston, SC
INTRODUCTION: The opioid epidemic has been associated with deleterious outcomes after KTx. However, the identification of opioid users has varied. We sought to understand the impact of the source of opioid data on rejection.
RESEARCH QUESTION OR HYPOTHESIS: Differing definitions of opioid users will impact their association with rejection outcomes in KTx.
STUDY DESIGN: Retrospective, single center, cohort analysis evaluating the impact of opioid use on KTx rejection between 1/2010 and 12/2016.
METHODS: Data was collected via retrospective chart review and the SureScripts pharmacy claims database. Subjects were placed into cohorts based on presence of an opioid on medication reconciliation (MR) at the time of transplant (Analysis 1) or report of an opioid Rx within 3 months prior to transplant via SureScripts (Analysis 2). Categorical variables were analyzed with Chi Square and continuous variables were analyzed using Student's t test or Mann Whitney U, with p<0.05 indicating statistical significance.
RESULTS: Opioid use data was available for 1,129 patients using the SureScripts database and 1,112 patients using MR. Each cohort of opioid users (n=139 (MR) and 188 (SureScripts)) were compared to non-opioid users in their analyses.

On comparing baseline demographics between cohorts using MR and SureScripts definitions, differences in statistical significance were identified in race, cPRA, length of stay, and DGF. When analyzing primary outcomes, patients with MR opioids had significantly more rejection at 6 months (7 vs 12%, p=0.030), while there was no difference in 1 year rejection rates (10 vs 14%, p=0.243). When performing the analysis using SureScripts opioid users, there were no differences between cohorts in 6 month (8 vs 7%, p=0.936) or 1 year acute rejection (11 vs 11%, p=0.985).
CONCLUSION: When comparing the same cohort of KTx using 2 different definitions for opioid users, both demographics and outcomes differ. There is a need for a true definition of opioid users for clinical outcomes analyses.

F-29. Does Opioid Use Impact Readmissions after Kidney Transplant? The Source of Opioid Data Matters. *Rachael Gilbert,*[1] David Taber,[2] Nicole Pilch,[3] Lytani Wilson,[4] Prabhakar Baliga,[5] Neha Patel,[6] Caitlin Mardis,[3] Zana Elmaasarani,[7] Zachary Martin,[1] James Fleming,[6]; [1]College of Pharmacy, Medical University of South Carolina, Charleston, SC [2]Department of Surgery, The Medical University of South Carolina, Charleston, SC [3]Division of Transplant, Medical University of South Carolina, Charleston, SC [4]College of Medicine, Medical University of South Carolina, Charleston, SC [5]Department of Surgery, Medical University of South Carolina, Charleston, SC [6]Department of Pharmacy Services, Medical University of South Carolina, Charleston, SC [7]College of Pharmacy, Medical University of South Carolina, Charleston, SC
INTRODUCTION: The opioid epidemic has substantially increased healthcare utilization. Currently, there is no uniform source of accurate opioid use and limited data on the impact of opioids in kidney transplant (KTx) patient outcomes. Pharmacists should be at the forefront in the battle on opioids.
RESEARCH QUESTION OR HYPOTHESIS: Does using different sources of opioid use affect its association with 90-day readmissions in KTx?
STUDY DESIGN: Retrospective, single center, cohort analysis evaluating the impact of opioid use on readmissions post KTx between 1/2010 and 12/2016.
METHODS: Data was collected via chart review and the SureScripts database. Patients were placed into cohorts based on presence of an opioid on medication reconciliation (MR) at the time of transplant (Analysis 1) or report of an opioid Rx within 3 months prior to transplant via SureScripts (Analysis 2). Categorical variables were analyzed with Chi Square and continuous variables were analyzed using Student's t test or Mann Whitney U, with $p<0.05$ indicating statistical significance.
RESULTS: Opioid use data was available for 1,129 patients using the SureScripts database and 1,112 patients using MR. Each cohort of opioid users (n=139 (MR) and 188 (SureScripts)) were compared to non-opioid users in their analyses. On comparing baseline demographics between cohorts using MR and SureScripts definitions, differences in statistical significance were identified in race, sensitization, length of stay, and DGF. Patients with MR opioid use had more 90-day readmissions than the opioid naïve cohort (28 vs 38%, p=0.017), while patients identified as opioid users in SureScripts demonstrated no difference in 90-day readmissions compared to their opioid naïve cohort (29 vs 32%, p=0.0346).
CONCLUSION: The findings from this study demonstrate that different sources of opioid use data can impact its association with healthcare utilization. An accurate source of opioid use is needed for clinical outcomes analyses.

Women's Health

S-21. Korean Women's Awareness, Psychological Attitude, and Knowledge on Oral Contraceptive Use. Yun Jeong Lee, Bo Hee Lee; Dankook University, Cheonan, Korea, Republic of (South)
INTRODUCTION: The rate of reported oral hormonal contraceptive use for contraception in Korea is very low (~2%) compared to the US and Europe. This phenomena is due to fear of side effects as well as sociocultural misunderstanding surrounding oral contraceptives.
RESEARCH QUESTION OR HYPOTHESIS: In this study, we investigated to understand the current perception, attitude, and knowledge level of Korean women regarding oral contraceptives.
STUDY DESIGN: This was a prospectively cross-sectional study.
METHODS: We aimed to recruit Korean women in who are in their 20s to 40s who are willing to voluntarily respond to online surveys. The observation items consisted of demographic characteristics, social awareness and attitude, knowledge using Likert scale analysis. The data was analyzed using the SPSS Statistics 23.
RESULTS: A total of 853 women responded to the survey questionnaire. Sixty-three percent of respondents responded that there was social prejudice in Korea regarding the use of oral contraceptives. For psychological conception in the pharmacy, approximately 60% of women wanted to keep their privacy when purchasing oral contraceptives and more than 65% said they would like to receive medication counseling from female pharmacists rather than male pharmacist. In terms of knowledge regarding oral contraceptives, only half of the respondents correctly answered the questions regarding dosing instructions. More than 60% of women responded that they do not know the side effects of oral contraceptives and both users and non-users alike were most concerned about the side effects of the drug.
CONCLUSION: Many women acknowledged the social prejudice or misunderstanding regarding oral contraceptives. Pharmacists can play a big role as healthcare professionals to create an environment where women can safely use the oral contraceptives by improving the quality of medication counseling.

F-26. Evaluation of Hyperemesis Gravidarum Pharmacotherapy Management in Obstetrics and Gynecology Ward. *Nibal Abunahlah,*[1] Zeynep Celik,[1] Cihan Kaya,[2] Levent Yasar,[2]; [1]Clinical Pharmacy, Altinbas University, Istanbul, Turkey [2]Obstetrics and Gynecology, Dr. Sadi Konuk Education and Research Hospital, Istanbul, Turkey
INTRODUCTION: Hyperemesis Gravidarum (HG) is defined as severe nausea and vomiting in pregnancy which sometimes requires hospitalization. HG can cause loss of more than 5% of body weight, dehydration, muscle wasting, electrolyte imbalance and ketonuria which negatively affect pregnancy outcomes.
RESEARCH QUESTION OR HYPOTHESIS: Determine the incidence of hyperemesis gravidum in the last 6 years and evaluate the protocols use to control nausea and vomiting.
STUDY DESIGN: A retrospective study was created in Bakirkoy Dr. Sadi Konuk Education and Research Hospital. Patients who admitted to the Obstetrics and Gynecology department with a diagnosis of HG between 2010 and 2016 were enrolled to the study.
METHODS: Data related to patients demographic variables, medical, medication history and laboratory tests were gathered. The protocols that used to treat HG were assessed and compared with the international guidelines at the time of the study. The impact of the use of different protocols on hospitalization days were also evaluated. SPSS 20.0 statistical software was utilised, the results were evaluated at 95% confidence interval with $p<0.05$
RESULTS: One hundred twenty pregnant women admitted with the diagnosis of HG in the period between years 2010–2016. Mean age was 28.7 ± 5.3 years and the mean gestational week was 10.4 ± 4.6. Ondansetron, dimenhydrinate, metoclopramide and combination therapy was given to 35%, 15.8%, 10% and 16.6% of the patients respectively. Significant differences were seen among antiemetic drugs regarding to the hospital length of stay ($p<0.0001$). IV Ondansetron was associated with the shortest length of stay, 83.3% of the patients received IV Ondansetron stay in the hospital for <3 days.

CONCLUSION: Different protocols were used to treat HG in the hospital. Among these protocols patients that were exposed to ondansetron has less hospitalization days with less impact on health outcome and economic. However, further studies with larger number of patients must be done to confirmed this result.

S-20. Inter-Pregnancy Interval among Post-partum Women Using Contraceptives within Qatar. Yehia El Khawly,[1] Tarek Ibrahim,[2] Wesam Smidi,[3] Rasha El Enany,[4] Amy Ann Mathew,[5]; [1]Department of Obstetrics & Gynecology, Hamad Medical Corporation (HMC) Qatar, Doha, Qatar [2]Clinical Pharmacy, Al-Wakra Hospital: Hamad Medical Corporation, Al-Wakra, Qatar [3]Department of Pharmacy, Hamad Medical Corporation (HMC), Qatar, Doha Qatar, Qatar [4]Pharmacy Department, Hamad Medical Corporation (HMC), Doha, Qatar [5]Department of Clinical Pharmacy, Hamad Medical Corporation (HMC), Qatar, Doha Qatar, Qatar

INTRODUCTION: Postpartum contraception is essential to prevent unintended and closely spaced pregnancies after childbirth. The time interval, between 2 consecutive pregnancies which is called inter-pregnancy interval (IPI), is viewed as an important and modifiable risk factor for adverse birth outcomes. The American College of Obstetricians & Gynecologists (ACOG) recommend a period of at least 18 months between subsequent pregnancies, in order to reduce both infant mortality (i.e. low birth weight & preterm birth) and maternal complications.

RESEARCH QUESTION OR HYPOTHESIS: Is the IPI amongst women using contraceptives in line with the recommended interval?

STUDY DESIGN: A prospective audit.

METHODS: The audit was conducted amongst women who delivered at secondary care Hospital in Qatar from March till July 2017. Past contraception data was obtained via the clinical pharmacist interviewing the patient after obtaining their consent. IPI is obtained from Patient medical files. IPIs were calculated by subtracting the date of conception of the current pregnancy from the previous delivery. Pregnancies conceived within 18 months were classified as having a short IPI.

RESULTS: A total of 238 post-partum patients used contraceptive were included in this audit. Within this population group 44% (n=106) were taking hormonal contraceptives such as oral pills, injectable, patch, implant and hormonal intrauterine device. 20% of patients on hormonal contraceptives had an IPI <18 months.

CONCLUSION: Despite the use of hormonal contraceptives, one in five patients had an IPI less than the recommended period. We believe the main two reasons behind the short IPI among hormonal contraceptive users within our audit, were either due to patient drug related issues (i.e. non-adherence, side effects, drug interactions, missed doses), or inadequate patient knowledge of when is the best time to conceive.