5th ANNUAL OHIO PHARMACY RESIDENT CONFERENCE

Welcome!

May 19, 2017

OHIO NORTHERN UNIVERSITY

Ada, OH

OPRC
Fifth Annual Ohio Pharmacy Resident Conference  
Ohio Northern University  
Raabe College of Pharmacy  
May 19, 2017

Welcome to Ohio Northern University, Ada, Ohio and the fifth Ohio Pharmacy Resident Conference (OPRC). This conference provides an opportunity for residents to present their projects to peers, preceptors, and other colleagues. In addition to the educational opportunities, this conference provides a chance for all to meet residents and preceptors from a variety of programs within Ohio.

There are a total of 125 presentations scheduled today. Residents will have 22 minutes to present their project followed by a brief question and answer period. Presentations must be kept within the time frames allotted to facilitate the entire conference. The program booklet is designed to provide the time and location of conference events. We encourage you to familiarize yourself with the contents of the booklet to best plan your day.

Each presenter will be provided written feedback from evaluators who have attended their session. This feedback will be given to the preceptors at the completion of the conference.

We encourage all attendees to provide feedback on areas of improvement and suggestions to help us grow and develop the conference.

Thank you for your participation.

Sincerely,

Michael J. Rush, PharmD, BCACP, CDE, TTS  
Planning Committee Chair  
Ohio Pharmacy Resident Conference
OPRC Committee

Michael Rush, PharmD, BCACP, CDE, TTS
Amy Fanous, PharmD, BCACP, TTS
Karen Kier, PhD, BCPS, BCACP, TTS
Christina Myers, PharmD, BCPS
Pat Parteleno, PharmD
Steve Smith, MS, RPh, BCACP
Mate Soric, PharmD, BCPS
Dustan Briley
Chandra Dunbar
Gary Long
General Information

Meeting Headquarters:

The meeting headquarters is located in the Pharmacy Skills Center located on the 1st floor of the Pharmacy College. Members of the planning committee and college will be available to assist person throughout the day.

Speaker Ready Room:

The Speaker Ready Room is the Drug Information Center (Pharmacy room 110) located adjacent to the meeting headquarters on the 1st floor of the college.

Presentation Rooms:

All rooms are equipped with a LCD projector, computer screen, and podium. Presentations will be preloaded on the computers in each room. Laser pointers and advancers may not be provided.

Evaluations:

Completed evaluation forms from the audience will be available for pick-up upon the completion of the last session.
# Schedule of Events

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:00 am – 8:30 am</td>
<td>Registration</td>
<td>Pharmacy Skills Lab</td>
</tr>
<tr>
<td>8:00 am – 8:30 am</td>
<td>Welcome and Orientation</td>
<td>Pharmacy Room 151</td>
</tr>
<tr>
<td>8:30 am – 12:00 pm</td>
<td>Residency Presentations</td>
<td>Pharmacy/Mathile Classrooms</td>
</tr>
<tr>
<td>12:00 pm – 1:30 pm</td>
<td>Lunch/Keynote</td>
<td>McIntosh Activities Room/Ballroom</td>
</tr>
<tr>
<td>1:45 pm – 5:15 pm</td>
<td>Residency presentations</td>
<td>Pharmacy/Mathile Classrooms</td>
</tr>
<tr>
<td>5:15 pm -5:30 pm</td>
<td>Closing Session</td>
<td>Pharmacy Room 151</td>
</tr>
</tbody>
</table>

## Sessions Attended – Personal Tally Form

<table>
<thead>
<tr>
<th>Time</th>
<th>Session Code</th>
<th>CE Claimed</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:30-9:00</td>
<td></td>
<td></td>
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<tr>
<td>9:00-9:30</td>
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<td>12:30-1:30</td>
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<td>1:45-2:15</td>
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<td>4:15-4:45</td>
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<tr>
<td>4:45-5:15</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TOTAL** /0.8
Continuing Education

Accreditation:

All programs for the 2017 Ohio Pharmacy Residency Conference are accredited by the Raabe College of Pharmacy at Ohio Northern University. Ohio Northern University is accredited by the Accreditation Council for Pharmacy Education as providers of continuing pharmacy education. All program credit is delineated in the individual program summary and is knowledge-based, unless otherwise noted.

Disclosure:

All persons participating in any Ohio Northern University continuing education programs are expected to disclose any real or apparent conflict(s) of interest that may have any bearing on the subject matter of the continuing education programs. Disclosure pertains to relationships with any pharmaceutical companies, biomedical device manufacturers, or other corporations whose products or services are related to the subject matter of the presentation topic. The intent of this disclosure is not to prevent a speaker with a potential conflict of interest from making a presentation, but to let the audience know about the relationship before the presentation. It is intended that financial interest or affiliations be openly identified so that, with the full disclosure of the facts, the attendees may form their own judgments about the presentation.

Statement for 2017 OPRC – No Speaker or Program Faculty have any pertinent conflicts of interest or disclosures to report.

CPE Credit Requirements:

All pharmacist participants that wish to be awarded continuing pharmacy education (CPE) credit must be registered with CPE Monitor, which is a national collaborative between the National Association of Boards of Pharmacy (NABP) and the Accreditation Council for Pharmacy Education (ACPE). To receive credit, the pharmacist participant must have their NABP e-profile number (CPE Monitor number) and their date of birth in MM/DD format. Once registered, any ACPE-approved CPE will be available via a comprehensive list within the CPE Monitor website. If you do not yet have an active NABP e-profile number through the CPE Monitor website, you may do so at the following website:

http://www.nabp.net/programs/cpe-monitor/cpe-monitor-service. Any specific problems with accessing CPE Monitor or setting up your NABP e-profile number can be addressed directly to NABP through their customer service phone number (847-391-4406) or via their e-mail (custserv@nabp.net).

To receive CPE credit for the programs attended, participants must copy down the session codes announced during each program and save them for access to the online evaluations system. After or during the conference, all attendees will need to access ONU online CPE system for the 2017 OPRC at http://raabecollegeofpharmacy.org/oprc to complete all program evaluations. Instructions for accessing and enrolling into the system are clearly delineated on the website. You may choose to initiate your profile in the system prior to the OPRC, but you will be unable to access specific evaluations as session codes will not be announced until the time of the scheduled session. The deadline for
submitting your evaluations is Monday June 12th, 2017. Statements of participation will be available to you on your CPE Monitor profile after all credit has been uploaded. Please allow 4 weeks after the program for the upload to occur. Any questions subsequent to the deadline date about credit should be directed to the Director of Continuing Education, Andrew Roecker, at a-roecher@onu.edu.

**Keynote Speaker**

In addition to scheduled residency presentations, we are pleased to announce the following keynote presentation.

**Spotlight on the Coaching and Mentoring Roles of the Pharmacy Preceptor**

John Armitstead, MS, RPh, FASHP  
System Director of Pharmacy  
Lee Health  
Fort Myers and Cape Coral, Florida  
Immediate Past President - ASHP

**Learning Objectives**

UAN 0048-0000-17-171-L04-P  
1. Define characteristics of an excellent coach.  
2. List methods of improving your pharmacy precepting coaching skills.  
3. Establish a strategy to become a mentor in pharmacy practice.  
4. Identify how coaching and mentoring can improve educational outcomes.  
5. Identify at least two methods of adapting precepting styles to the individual learner.

Pharmacy precepting incorporates teaching and instructing while serving as a practitioner and educator in a practice setting. The finer details of precepting include serving as a coach, encourager and mentor for students and residents, such that the students and residents can fully develop their potential in the pharmacy practice. This presentation will focus on coaching and mentoring roles of the pharmacy preceptor.

Coaching characteristics will be explored along with discussing methods by which preceptors can improve their coaching skills. The 30/60/10 strategy for effective precepting will be discussed. Methods of providing substantive feedback will be described. Improved educational outcomes can be obtained with effective precepting and mentoring techniques.

Mentoring as an advanced developmental relationship will be discussed along with some practical methods of assessing individual strengths and developmental opportunities for pharmacy students and residents.
Toby Clark Resident Research Award

Ohio Northern University’s Raabe College of Pharmacy, in partnership with the Ohio Pharmacy Resident Conference, has announced the creation of the Toby Clark Resident Research Award, which will be awarded annually during the Ohio Pharmacy Resident Conference to a resident demonstrating excellence in pharmacy practice research. The recipient will receive a plaque at the Ohio Pharmacy Resident Conference and will have their name and year inscribed on an award to be displayed inside ONU’s College of Pharmacy.

Abstracts from all resident-research projects to be presented at the Ohio Pharmacy Resident Conference will be reviewed prior to the conference by the conference planning committee. From these abstracts, the committee will select between six and 12 finalists. A subsection of the planning committee will then critique the finalists’ research presentations the day of the conference and select a winner to be announced at the conference’s closing session.

In creating this award, ONU’s College of Pharmacy recognizes alumnus Toby Clark’s contributions to the profession and his dedication to developing leaders in pharmacy.

Clark was born in Indiana and received his bachelor’s degree in pharmacy from Ohio Northern University in 1967. He completed an American Society of Health-System Pharmacists (ASHP)-accredited general residency at Bronson Methodist Hospital in Kalamazoo, MI., and earned a Master of Science in clinical pharmacy from the Schools of Medicine and Pharmacy at Wayne State University.

Clark was dedicated to pharmacy leadership and the education of students and residents. He served as director of pharmacy at the University of Missouri at Kansas City and the Chicago Medical Center. He served as a faculty member of the University of Missouri, the University of Illinois College of Pharmacy, the University of Houston College of Pharmacy, the University of Illinois at Chicago and the South Carolina College of Pharmacy. Additionally, he held multiple leadership positions in pharmacy organizations, including North American vice president and treasurer of the Section of Hospital Pharmacy of the International Pharmacy Federation (FIP), past officer of the Southeastern Michigan Society of Hospital Pharmacists and the Society of Hospital Pharmacists of Greater Kansas City, and lead residency accreditation surveyor for ASHP.

In 2003, Clark was awarded the Donald E. Francke Medal for his contributions to international pharmacy, and in 2013, he was awarded fellowship in FIP. In 2012, he was awarded the John W. Webb Lecture Award and named visiting professor at the Northeastern University School of Pharmacy. In 2007, he was recognized for distinguished service by the ASHP Section of Informatics, and in 2013 he received the Distinguished Service Award from the ASHP Section of Practice Managers.
Instructions for Evaluators, Preceptors and Room Moderators

Evaluators

Please review the presentations evaluation form and instructions before the first session.

The format is designed to allow for written comments and suggestions for improvement. The preferred timing for the presentation is 18-22 minutes. No presentation including questions and answers session may run longer than 25 minutes. All evaluations should attend the orientation session to discuss the evaluation format and preceptor responsibilities.

Evaluators should arrive in their assigned rooms early and check with the preceptor who will be distributing and collecting the evaluation forms. Please complete the entire form.

Preceptors

It is very important for the preceptor to keep the session on time both beginning and ending.

The preceptor has a number of functions during the presentation:

1. Try to relax the presenter
2. The resident’s preceptor will introduce the resident.
3. Introduce the resident’s name and practice location/institution.
4. Do not announce the resident’s presentation title. (Allow the resident to state as part of their introduction)

Room Moderators

Each room will be assigned a room moderator. The role of the room moderator is to:

1. Orient the presenter to the room, PowerPoint, and podium
2. Help set-up the PowerPoint and make sure it is functioning properly and focused throughout the presentations.
3. Evaluation forms for each presentation will be provided to you at the beginning of the session block. The evaluation forms should be passed out to each scheduled evaluator before the presentation begins and the white evaluations forms be given to the other residents and preceptors in the audience.
4. Announce the CE code for the presentation at the beginning and the end of each presentation, (Code will be provided)
5. Maintain the official time for the presentation.

Upon completion of the session:

6. Collect the evaluation forms
7. Place forms in envelope labeled with resident’s name
8. Program staff will pick up at end of session
5th Annual Ohio Pharmacy Resident Conference

OPRC

Resident Presentation Schedule
(By Time and Room)
<table>
<thead>
<tr>
<th>Time</th>
<th>Room</th>
<th>Name-Institution</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:30</td>
<td>122 P</td>
<td>Marilee Clemons, OSU</td>
<td>Health Care Insecurity: Effect of a Charitable Pharmacy Model</td>
</tr>
<tr>
<td>8:30</td>
<td>157 P</td>
<td>Tyler Jauss, Grandview Medical Center</td>
<td>Analysis on the efficacy of intravenous to oral antibiotic therapy transition in IV drug abusers with Staphylococcus aureus bacteremia</td>
</tr>
<tr>
<td>8:30</td>
<td>158 P</td>
<td>Rachel Muhlenkamp, St. Rita’s Medical Center</td>
<td>Alert fatigue reduction: The impact of dosage alert changes in a large health system</td>
</tr>
<tr>
<td>8:30</td>
<td>161 P</td>
<td>Sebastian Al-Saiegh, The University of Toledo Medical Center</td>
<td>Effect of a sedation protocol revision on sedative use in the medical intensive care unit (MICU)</td>
</tr>
<tr>
<td>8:30</td>
<td>207 M</td>
<td>Mitchell Howard, The University of Toledo</td>
<td>Impact of implementing a sports-focused supplement section on pharmacist-patient relationships and sales in a community pharmacy</td>
</tr>
<tr>
<td>8:30</td>
<td>210 M</td>
<td>Insaf Mohommad, Detroit Medical Center- Harper University Hospital</td>
<td>Outcomes of Chronic Care Management (CCM) in Primary Care Practice</td>
</tr>
<tr>
<td>8:30</td>
<td>212 P</td>
<td>Kaitlynn Napholz, Firelands Regional Medical Center</td>
<td>Implementing a pharmacy-led medication reconciliation program for patients in a community hospital emergency department</td>
</tr>
<tr>
<td>9:00</td>
<td>122 P</td>
<td>Claudia Rondon, OSU</td>
<td>Evaluation of Clinical Pharmacists’ After-hours Consults for Hospice Patients</td>
</tr>
<tr>
<td>9:00</td>
<td>157 P</td>
<td>Rachel Gresko, Mercy Medical Center</td>
<td>Pharmacist management of vancomycin dosing in the critical care unit of an acute care urban hospital</td>
</tr>
<tr>
<td>9:00</td>
<td>158 P</td>
<td>Niketa Patel, The University of Toledo Medical Center</td>
<td>Analysis of potentially inappropriate medication (PIM) use in the older adult population at an academic medical center</td>
</tr>
<tr>
<td>9:00</td>
<td>161 P</td>
<td>Corey Groff, Aultman Hospital</td>
<td>Cost-avoidance with administering oritavancin in the ED</td>
</tr>
<tr>
<td>9:00</td>
<td>162 P</td>
<td>Derek Gyori, Mercy Health St Vincent Medical Center</td>
<td>Comparison of Vancomycin Regimens and Resultant Trough Concentrations in a Pediatric Population</td>
</tr>
<tr>
<td>9:00</td>
<td>207 M</td>
<td>Corey Coffey, OSU</td>
<td>Implementing a Systematic Approach to Deprescribing Proton Pump Inhibitor Therapy in the Elderly</td>
</tr>
<tr>
<td>9:00</td>
<td>209 M</td>
<td>Taylor Hermiller, Promedica Toledo Hospital</td>
<td>Evaluating the prevalence of antibiotic prescribing in patients with upper respiratory infections in a family medicine practice setting</td>
</tr>
<tr>
<td>9:00</td>
<td>210 M</td>
<td>Bree Meinzer, ONU Healthwise</td>
<td>Effectiveness of a pharmacist-directed Tdap immunization program for a university campus</td>
</tr>
<tr>
<td>9:00</td>
<td>212 M</td>
<td>Brian Joslin, Blanchard Valley Hospital</td>
<td>Implementation of a pharmacist driven oral chemotherapy counseling service in an outpatient cancer care center</td>
</tr>
<tr>
<td>9:00</td>
<td>212 P</td>
<td>Amanda Lanker, Lima Memorial Hospital</td>
<td>Impact of utilizing rapid pathogen identification with pharmacist intervention on time to appropriate antimicrobial agents</td>
</tr>
<tr>
<td>9:30</td>
<td>122 P</td>
<td>Deanna Ruble, OSU</td>
<td>Characterizing Heart Failure in an Underserved Population</td>
</tr>
<tr>
<td>9:30</td>
<td>157 P</td>
<td>Brittany Snyder, University Hospitals Geauga Medical Center</td>
<td>Comparison of adherence to manufacturer dosing recommendations with apixaban, dabigatran, and rivaroxaban therapy</td>
</tr>
</tbody>
</table>

P = Pharmacy building  
M = Mathile building
<table>
<thead>
<tr>
<th>Time</th>
<th>Room</th>
<th>Name, Institution</th>
<th>Presentation Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:30</td>
<td>158 P</td>
<td>Sarah Eisho, Beaumont-Royal Oak Hospital</td>
<td>Major bleeding with apixaban in atrial fibrillation: patient characteristics, management, and outcomes</td>
</tr>
<tr>
<td>9:30</td>
<td>161 P</td>
<td>Kyle Bailey, The University of Toledo Medical Center</td>
<td>Evaluation of PlasmaLyte on intraoperative acidosis in patients who undergo cardiopulmonary bypass</td>
</tr>
<tr>
<td>9:30</td>
<td>162 P</td>
<td>Ellisa Baddour, Cleveland Clinic Fairview Hospital</td>
<td>Valproic Acid (VPA)-induced hyperammonemia: Incidence, clinical significance and treatment management</td>
</tr>
<tr>
<td>9:30</td>
<td>207 M</td>
<td>Monica Johnson, OSU</td>
<td>Assessment of school nurses’ attitude toward collaboration with community pharmacists in Ohio</td>
</tr>
<tr>
<td>9:30</td>
<td>209 M</td>
<td>Jangus Whitner, Promedica Toledo Hospital</td>
<td>Assessing appropriateness of NSAID prescribing in patients with hypertension, heart failure, or chronic kidney disease in a Family Medicine practice setting</td>
</tr>
<tr>
<td>9:30</td>
<td>210 M</td>
<td>Gregory Hauler, Mercy Medical Center</td>
<td>Implementation of two follow-up interactions between a pharmacist and patient after hospital discharge to reduce 30-day readmission rate</td>
</tr>
<tr>
<td>9:30</td>
<td>212 M</td>
<td>Marcus Bergman, Blanchard Valley Hospital</td>
<td>Impact of pharmaceutical bedside deliveries on 30 day readmission rates in a community hospital</td>
</tr>
<tr>
<td>9:30</td>
<td>212 P</td>
<td>David Jordan, St. Rita's Medical Center</td>
<td>Decreasing duration of antimicrobial therapy in patients with hospital-acquired pneumonia</td>
</tr>
<tr>
<td>10:00</td>
<td>122 P</td>
<td>Janet Wu, Detroit Medical Center</td>
<td>Risk factors for colonization or infection with cefepime resistant, piperacillin-tazobactam susceptible Gram-negative bacilli</td>
</tr>
<tr>
<td>10:00</td>
<td>157 P</td>
<td>Elizabeth Crish, Beaumont-Royal Oak Hospital</td>
<td>Evaluation of Major Bleeding in Patients Receiving Triple Therapy with Dual Antiplatelet Therapy and Oral Anticoagulation</td>
</tr>
<tr>
<td>10:00</td>
<td>158 P</td>
<td>Jason Moran, Cleveland Clinic Marymount Hospital</td>
<td>Evaluation of hyperglycemic crises management in the medical intensive care unit.</td>
</tr>
<tr>
<td>10:00</td>
<td>161 P</td>
<td>Eric Betka, The University of Toledo Medical Center</td>
<td>Impact of a continuous local anesthetic pain ball on post-operative pain in kidney transplant recipients</td>
</tr>
<tr>
<td>10:00</td>
<td>162 P</td>
<td>Karim Mouabbi, Detroit Medical Center-Harper University Hospital</td>
<td>Evaluation of anticoagulation treatment in patients with massive or submassive pulmonary embolism and concurrent deep vein thrombosis</td>
</tr>
<tr>
<td>10:00</td>
<td>207 M</td>
<td>Ayoung Kim, OSU</td>
<td>Impact of pharmacist-led interventions in the management of prediabetes in medically underserved patients</td>
</tr>
<tr>
<td>10:00</td>
<td>209 M</td>
<td>Kevin Williams, University of Cincinnati COP</td>
<td>Clinical Outcomes Associated with the Implementation of an Antimicrobial Stewardship Program Focused on Treatment of Urinary Tract Infections in a Long Term Care Facility.</td>
</tr>
<tr>
<td>10:00</td>
<td>210 M</td>
<td>Meghan Hackerson, University of Cincinnati</td>
<td>Addressing Primary Nonadherence: A Collaboration between a Community Pharmacy and a Large Pediatrics Clinic</td>
</tr>
<tr>
<td>10:00</td>
<td>212 M</td>
<td>Aimrie Ream, Mercy Health</td>
<td>Evaluation of pharmacist monitoring of direct oral anticoagulant therapy</td>
</tr>
<tr>
<td>10:00</td>
<td>212 P</td>
<td>Samantha Hartings, Mary Rutan Hospital</td>
<td>Implementation of a medication assistance program</td>
</tr>
<tr>
<td>10:30</td>
<td>122 P</td>
<td>Lauren Wolf, Detroit Receiving Hospital</td>
<td>Impact of Intermittent versus Continuous Infusion of Fentanyl after Rapid Sequence Intubation on ICU Delirium</td>
</tr>
</tbody>
</table>

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M = Mathile building
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<thead>
<tr>
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<th>Room</th>
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<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:30</td>
<td>157 P</td>
<td>Richard Chan</td>
<td>University Hospitals Geauga Medical Center</td>
<td>Prevalence and predictors of antipsychotic prescribing in adults with Parkinson's disease. A national cross-sectional study</td>
</tr>
<tr>
<td>10:30</td>
<td>158 P</td>
<td>Jacob Radcliff</td>
<td>Summa Health</td>
<td>Outcomes Resulting from Three-Day Tramadol Taper for Acute Opioid Withdrawal at Summa Health System</td>
</tr>
<tr>
<td>10:30</td>
<td>161 P</td>
<td>Sarah Elhalis</td>
<td>The University of Toledo Medical Center</td>
<td>Implementation of Matrix-Assisted Laser Desorption/Ionization Time-of-Flight (MALDI-TOF) and Antimicrobial Stewardship Intervention at an Academic Medical Center</td>
</tr>
<tr>
<td>10:30</td>
<td>162 P</td>
<td>Samuel Boateng</td>
<td>Cleveland Clinic Marymount Hospital</td>
<td>Evaluation of a pharmacist-driven darbepoetin optimization protocol</td>
</tr>
<tr>
<td>10:30</td>
<td>207 M</td>
<td>Lindsay Tsai</td>
<td>OSU</td>
<td>Impact of a Smartphone Application on Medication Adherence in the Community Care Setting</td>
</tr>
<tr>
<td>10:30</td>
<td>209 M</td>
<td>Olivia Huprich</td>
<td>The Jewish Hospital - Mercy Health</td>
<td>Impact of a pharmacist-led transitions of care model in patients with a primary admission diagnosis of congestive heart failure exacerbation</td>
</tr>
<tr>
<td>10:30</td>
<td>210 M</td>
<td>Brittany Harbert</td>
<td>Aultman Hospital</td>
<td>Analysis of a consult agreement in a federally qualified health center (FQHC) Look-Alike: a pharmacist-physician approach to managing uncontrolled diabetes</td>
</tr>
<tr>
<td>10:30</td>
<td>212 M</td>
<td>Rachel Maxwell</td>
<td>MetroHealth</td>
<td>Clinical and Humanistic Outcomes of Face-to-Face and Telehealth Warfarin Management</td>
</tr>
<tr>
<td>10:30</td>
<td>212 P</td>
<td>Chantale Daifi</td>
<td>Beaumont Hospital</td>
<td>Evaluation of the dosing appropriateness of erythropoietin stimulating agents (ESAs)</td>
</tr>
<tr>
<td>11:00</td>
<td>122 P</td>
<td>Rachel Wein</td>
<td>Detroit Medical Center</td>
<td>Management of Alcohol Withdrawal in Medical Intensive Care Unit Patients</td>
</tr>
<tr>
<td>11:00</td>
<td>157 P</td>
<td>Kayla Joyner</td>
<td>University Hospitals Geauga Medical Center</td>
<td>Comparison of Narrow versus Broad Spectrum Antibiotics in Elderly Patients with Acute Exacerbations of Chronic Obstructive Pulmonary Disease</td>
</tr>
<tr>
<td>11:00</td>
<td>158 P</td>
<td>Claudia Hanni</td>
<td>Detroit Medical Center-Harper University Hospital</td>
<td>Bleeding risk with apixaban versus warfarin in patients with kidney dysfunction</td>
</tr>
<tr>
<td>11:00</td>
<td>161 P</td>
<td>Lisa Hayes</td>
<td>The University of Toledo Medical Center</td>
<td>Implementation of an antimicrobial restriction policy: Is the “paper” more persuasive?</td>
</tr>
<tr>
<td>11:00</td>
<td>162 P</td>
<td>Melody Smith</td>
<td>Cleveland Clinic Medina Hospital</td>
<td>Evaluation of an electrolyte replacement protocol in critically ill patients at a community hospital</td>
</tr>
<tr>
<td>11:00</td>
<td>207 M</td>
<td>Nicole Chamberlain</td>
<td>University of Cincinnati</td>
<td>The Implementation of a Community Pharmacist-Led Targeted Monitoring Program for Patients at High Risk for Hypothyroidism</td>
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<td>11:00</td>
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<td>Kenneth Furdich</td>
<td>Northeast Ohio Medical University</td>
<td>Utilization of a Community-Pharmacy Based Algorithm to Triage Pharmacist Care in an Underserved Population.</td>
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<tr>
<td>11:00</td>
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<td>Kyle Weslosky</td>
<td>Firelands Regional Medical Center</td>
<td>Reducing readmissions through pharmacist-led chronic obstructive pulmonary disease (COPD) education at a rural, community hospital</td>
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<td>Retrospective evaluation of proton pump inhibitor prescribing within a community teaching hospital</td>
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<td>Danny Salem, Detroit Medical Center</td>
<td>Effect of cefepime versus piperacillin/tazobactam on hospital-acquired Clostridium difficile infections (CDI)</td>
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<td>Mallory Houtchens, The Jewish Hospital</td>
<td>Vancomycin dosing in obese patients: A retrospective case-control study</td>
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<td>Rachel Wilde, UC Health - West Chester Hospital</td>
<td>Efficacy of low-dose ketamine for acute pain in a community hospital emergency department</td>
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<td>Kim Walker, Cleveland Clinic</td>
<td>Evaluation of qSOFA criterion and derivation of new variables.</td>
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<td>Pilot study of the effectiveness of a pharmacist-led tobacco cessation mobile health clinic in a rural setting</td>
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<td>Jerome Pasquale, Mercy Health - St. Charles Hospital</td>
<td>Evaluation of a Pharmacist-Led Medication Reconciliation Program in a Psychiatric Population</td>
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<td>Impact of Vancomycin Concentration Change on Incidence of Red-Man Syndrome in Pediatric Patients</td>
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<td>Incidence and risk factors for cefepime-induced neurotoxicity in end stage renal disease patients</td>
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<td>Evaluation of pharmacy interventions in an academic outpatient transition of care clinic</td>
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<td>William Kirsch, The University of Toledo Medical Center</td>
<td>Identifying perceptions of adherence in Human Immunodeficiency Virus (HIV)-positive patients through individual elicitation interviews</td>
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<td>Lindsey Rayhill, University Hospitals Cleveland Medical Center</td>
<td>Characterization of therapies used for post-operative pulmonary hypertension: Phase I</td>
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<td>Lisa Mueller, OSU</td>
<td>Impact of Pharmacist-Provided Spirometry Service on Access to Results in Primary Care Setting</td>
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<td>1:45</td>
<td>212 P</td>
<td>Maeve Kallenbach, Summa Health Akron City</td>
<td>Treatment Choice and Outcomes for Oncology Patients Diagnosed with Venous Thromboembolism</td>
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<td>Sean Hackett, Louis Stokes Cleveland VA Medical Center</td>
<td>Evaluation of a pain, agitation, and delirium order-set protocol</td>
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<td>Leah Schomburg, University Hospitals Richmond Medical Center</td>
<td>Incidence of falls in hospitalized elderly patients prescribed potentially inappropriate medications</td>
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<td>Lydia Suchecki, UC Health - West Chester Hospital</td>
<td>Incidence of hypoglycemic episodes in hospitalized patients on a sulfonylurea versus an insulin regimen: an evaluation of therapy and management</td>
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<td>Implementation and evaluation of pharmacist managed vancomycin per hospital protocol: A pre and post analysis</td>
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<td>Jasmini Patel, Beaumont Hospital</td>
<td>Compliance to United States Pharmacopeia (USP) 800: A gap-analysis</td>
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<td>Jennifer Ward, Alliance Community Hospital</td>
<td>Enhanced medication awareness in hospice patients through a medication perception survey and individualized patient and caregiver education: a pharmacist-led initiative.</td>
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<td>Priyasha Patel, OSU</td>
<td>Incidence and Monitoring of Drug-Induced QTc Prolongation in a Primary Care Setting</td>
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<td>Tiffany Kneuss, Aultman Hospital</td>
<td>Analysis of the incidence of hypoglycemia upon initiation of tramadol</td>
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<td>Joseph Johnson, Detroit Receiving Hospital</td>
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<td>Shaina Kalasho, Beaumont-Royal Oak Hospital</td>
<td>Vancomycin for the Treatment of Coagulase-Negative Staphylococcus Bacteremia: Does MIC Matter?</td>
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<td>Kimberly Perkins, The Christ Hospital Health Network</td>
<td>Retrospective review of the comparative effectiveness between antipsychotics used to treat delirium in the intensive care unit</td>
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<td>Derek Michalski, University Hospitals Cleveland Medical Center</td>
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<td>Comparative evaluation of pharmacist managed vancomycin dosing in a community hospital following implementation of a system-wide vancomycin dosing guideline</td>
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<td>Joshua Harold, Mercy health-Regional Medical Center</td>
<td>Effects of an Outpatient Immunization Clinic on Hospital Revenue and Hospital Associated Physician Practices</td>
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<td>Rebecca Prewett, Aultman Hospital</td>
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<td>Frances Shuk Kwan Fu, Summa Health Akron Campus</td>
<td>Assessment of the impact of an antibiotic allergy protocol at Summa Health System</td>
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<td>Nouran Salem, Beaumont-Royal Oak Hospital</td>
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<td>Effect of pharmacist education on methylnaltrexone prescribing habits</td>
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<td>Brian Lauer, University Hospitals Cleveland Medical Center</td>
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<td>A 30-day Hospital Readmission Prediction Index with Quarterly Iterative Adjustment</td>
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<td>Marwa Amer, The University of Toledo Medical Center</td>
<td>Identification and management of early sepsis: who does it better?</td>
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<tr>
<td>Megan Foreman, Mercy health-Regional Medical Center</td>
<td>161 P</td>
<td>3:45</td>
<td>Evaluation of inpatient tolvaptan use in a 338-bed hospital with post-evaluation prescriber education and assessment</td>
</tr>
<tr>
<td>Colin Frank, ONU Healthwise</td>
<td>212 M</td>
<td>11:30</td>
<td>Pilot study of the effectiveness of a pharmacist-led tobacco cessation mobile health clinic in a rural setting</td>
</tr>
<tr>
<td>Dustin Freshwater, MetroHealth</td>
<td>158 P</td>
<td>3:15</td>
<td>Use of dalbavancin as an alternative to traditional agents for the treatment of ABSSSI</td>
</tr>
<tr>
<td>Jennifer Froomkin, Detroit Medical Center</td>
<td>122 P</td>
<td>4:15</td>
<td>Length of stay in heart failure patients hospitalized with acute exacerbations of chronic obstructive pulmonary disease treated with beta-blockers</td>
</tr>
<tr>
<td>Frances Shuk Kwan Fu, Summa Health Akron Campus</td>
<td>122 P</td>
<td>3:15</td>
<td>Assessment of the impact of an antibiotic allergy protocol at Summa Health System</td>
</tr>
<tr>
<td>Kenneth Furdich, Northeast Ohio Medical University</td>
<td>210 M</td>
<td>11:00</td>
<td>Utilization of a Community-Pharmacy Based Algorithm to Triage Pharmacist Care in an Underserved Population.</td>
</tr>
<tr>
<td>Whitney Gibson, Detroit Medical Center</td>
<td>122 P</td>
<td>3:45</td>
<td>Evaluation of the Efficacy of Combination Dual Antiplatelet Therapy with Oral Anticoagulant Therapy</td>
</tr>
<tr>
<td>Rachel Gresko, Mercy Medical Center</td>
<td>157 P</td>
<td>9:00</td>
<td>Pharmacist management of vancomycin dosing in the critical care unit of an acute care urban hospital</td>
</tr>
<tr>
<td>Corey Groff, Aultman Hospital</td>
<td>161 P</td>
<td>9:00</td>
<td>Cost-avoidance with administering oritavancin in the ED</td>
</tr>
<tr>
<td>Derek Gyori, Mercy Health St Vincent Medical Center</td>
<td>162 P</td>
<td>9:00</td>
<td>Comparison of Vancomycin Regimens and Resultant Trough Concentrations in a Pediatric Population</td>
</tr>
<tr>
<td>Meghan Hackerson, University of Cincinnati</td>
<td>210 M</td>
<td>10:00</td>
<td>Addressing Primary Nonadherence: A Collaboration between a Community Pharmacy and a Large Pediatrics Clinic</td>
</tr>
<tr>
<td>Sean Hackett, Louis Stokes Cleveland VA Medical Center</td>
<td>122 P</td>
<td>2:15</td>
<td>Evaluation of a pain, agitation, and delirium order-set protocol</td>
</tr>
<tr>
<td>Claudia Hanni, Detroit Medical Center-Harper University Hospital</td>
<td>158 P</td>
<td>11:00</td>
<td>Bleeding risk with apixaban versus warfarin in patients with kidney dysfunction</td>
</tr>
<tr>
<td>Brittanay Harbert, Aultman Hospital</td>
<td>210 M</td>
<td>10:30</td>
<td>Analysis of a consult agreement in a federally qualified health center (FQHC) Look-Alike: a pharmacist-physician approach to managing uncontrolled diabetes</td>
</tr>
<tr>
<td>Joshua Harold, Mercy health-Regional Medical Center</td>
<td>210 M</td>
<td>2:45</td>
<td>Effects of an Outpatient Immunization Clinic on Hospital Revenue and Hospital Associated Physician Practices</td>
</tr>
<tr>
<td>Samantha Hartings, Mary Rutan Hospital</td>
<td>212 P</td>
<td>10:00</td>
<td>Implementation of a medication assistance program</td>
</tr>
<tr>
<td>Gregory Hauler, Mercy Medical Center</td>
<td>210 M</td>
<td>9:30</td>
<td>Implementation of two follow-up interactions between a pharmacist and patient after hospital discharge to reduce 30-day readmission rate</td>
</tr>
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<tbody>
<tr>
<td>Lisa Hayes</td>
<td>The University of Toledo Medical Center</td>
<td>161 P</td>
<td>11:00 Implementing an antimicrobial restriction policy: Is the “paper” more persuasive?</td>
</tr>
<tr>
<td>Taylor Hermiller</td>
<td>Promedica Toledo Hospital</td>
<td>209 M</td>
<td>9:00 Evaluating the prevalence of antibiotic prescribing in patients with upper respiratory infections in a family medicine practice setting</td>
</tr>
<tr>
<td>Hoan Hoang</td>
<td>Beaumont-Royal Oak Hospital</td>
<td>207 M</td>
<td>1:45 Utilization of Data Analytics for Investigating</td>
</tr>
<tr>
<td>Courtney Hochman</td>
<td>University Hospitals Richmond</td>
<td>162 P</td>
<td>4:15 COPD Discharge Consult Service: Pharmacist intervention in reducing hospital readmissions</td>
</tr>
<tr>
<td>Nicholas Horsfall</td>
<td>Summa Health Systems</td>
<td>158 P</td>
<td>4:15 Impact of FilmArray Technology on Patient Outcomes in Intensive Care Unit Bacteremias</td>
</tr>
<tr>
<td>Mallory Houchens</td>
<td>The Jewish Hospital</td>
<td>157 P</td>
<td>11:30 Vancomycin dosing in obese patients: A retrospective case-control study</td>
</tr>
<tr>
<td>Mitchell Howard</td>
<td>The University of Toledo</td>
<td>207 M</td>
<td>8:30 Impact of implementing a sports-focused supplement section on pharmacist-patient relationships and sales in a community pharmacy</td>
</tr>
<tr>
<td>Joseph Huenecke</td>
<td>The University of Toledo Medical Center</td>
<td>161 P</td>
<td>11:30 Assessment of Glycemic Control in Diabetic Patients While Unable to Eat</td>
</tr>
<tr>
<td>Olivia Huprich</td>
<td>The Jewish Hospital - Mercy Health</td>
<td>209 M</td>
<td>10:30 Impact of a pharmacist-led transitions of care model in patients with a primary admission diagnosis of congestive heart failure exacerbation</td>
</tr>
<tr>
<td>Adam Ingram</td>
<td>MetroHealth</td>
<td>210 M</td>
<td>11:30 Evaluating the Impact of a Pharmacist on Guideline Directed Medical Therapy in Patients with Reduced Ejection Fraction Heart Failure</td>
</tr>
<tr>
<td>Tyler Jauss</td>
<td>Grandview Medical Center</td>
<td>157 P</td>
<td>8:30 Analysis on the efficacy of intravenous to oral antibiotic therapy transition in IV drug abusers with Staphylococcus aureus bacteremia</td>
</tr>
<tr>
<td>Monica Johnson</td>
<td>OSU</td>
<td>207 M</td>
<td>9:30 Assessment of school nurses’ attitude toward collaboration with community pharmacists in Ohio</td>
</tr>
<tr>
<td>Joseph Johnson</td>
<td>Detroit Receiving Hospital</td>
<td>122 P</td>
<td>2:45 Azithromycin and Septic Shock Outcomes</td>
</tr>
<tr>
<td>David Jordan</td>
<td>St. Rita’s Medical Center</td>
<td>212 P</td>
<td>9:30 Decreasing duration of antimicrobial therapy in patients with hospital-acquired pneumonia</td>
</tr>
<tr>
<td>Brian Joslin</td>
<td>Blanchard Valley Hospital</td>
<td>212 M</td>
<td>9:00 Implementation of a pharmacist driven oral chemotherapy counseling service in an outpatient cancer care center</td>
</tr>
<tr>
<td>Kayla Joyner</td>
<td>University Hospitals Geauga Medical Center</td>
<td>157 P</td>
<td>11:00 Comparison of Narrow versus Broad Spectrum Antibiotics in Elderly Patients with Acute Exacerbations of Chronic Obstructive Pulmonary Disease</td>
</tr>
<tr>
<td>Shaina Kalasho</td>
<td>Beaumont-Royal Oak Hospital</td>
<td>157 P</td>
<td>2:45 Vancomycin for the Treatment of Coagulate-Negative Staphylococcus Bacteremia: Does MIC Matter?</td>
</tr>
<tr>
<td>Maeve Kallenbach</td>
<td>Summa Health Akron City</td>
<td>212 P</td>
<td>1:45 Treatment Choice and Outcomes for Oncology Patients Diagnosed with Venous Thromboembolism</td>
</tr>
<tr>
<td>Ayoung Kim</td>
<td>OSU</td>
<td>207 M</td>
<td>10:00 Impact of pharmacist-led interventions in the management of prediabetes in medically underserved patients</td>
</tr>
<tr>
<td>William Kirsch</td>
<td>The University of Toledo Medical Center</td>
<td>161 P</td>
<td>1:45 Identifying perceptions of adherence in Human Immunodeficiency Virus (HIV)-positive patients through individual elicitation interviews</td>
</tr>
<tr>
<td>Tiffany Kneuss</td>
<td>Aultman Hospital</td>
<td>212 P</td>
<td>2:15 Analysis of the incidence of hypoglycemia upon initiation of tramadol</td>
</tr>
<tr>
<td>Kathryn Koliba</td>
<td>University Hospitals St. John Medical Center</td>
<td>209 M</td>
<td>2:45 Comparative evaluation of pharmacist managed vancomycin dosing in a community hospital following implementation of a system-wide vancomycin dosing guideline</td>
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<thead>
<tr>
<th>Presentor &amp; Affiliation</th>
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<tbody>
<tr>
<td>Laura Kuhn, University of Cincinnati</td>
<td>209 M 11:30</td>
<td>Targeting Self-Efficacy in a Charitable Pharmacy Smoking Cessation Program for the Underserved Population</td>
</tr>
<tr>
<td>Amanda Lanker, Lima Memorial Hospital</td>
<td>212 P 9:00</td>
<td>Impact of utilizing rapid pathogen identification with pharmacist intervention on time to appropriate antimicrobial agents</td>
</tr>
<tr>
<td>Brian Lauer, University Hospitals Cleveland Medical Center</td>
<td>162 P 3:45</td>
<td>Evaluation of hypertonic sodium solution guideline compliance at a large academic medical center</td>
</tr>
<tr>
<td>Alison Lobkovich, Detroit Medical Center-Harper University Hospital</td>
<td>210 M 4:15</td>
<td>Validation of a checklist to evaluate student performance in a problem based learning group</td>
</tr>
<tr>
<td>Meredith Martin, Cleveland Clinic Medina Hospital</td>
<td>207 M 3:45</td>
<td>Impact of pharmacist-driven post-discharge medication reconciliation on 30-day readmission rates: a retrospective chart review.</td>
</tr>
<tr>
<td>Daraoun Mashrah, Beaumont Hospital</td>
<td>157 P 4:45</td>
<td>Evaluation of Adjunctive Therapy in the Management of Alcohol Withdrawal Syndrome in Critically Ill Patients</td>
</tr>
<tr>
<td>Taylor Mathis, University of Cincinnati</td>
<td>209 M 4:15</td>
<td>Phamily Matters: A look at the role social support plays in improving the outcomes of pharmacist-delivered disease state management services</td>
</tr>
<tr>
<td>Rachel Maxwell, MetroHealth</td>
<td>212 M 10:30</td>
<td>Clinical and Humanistic Outcomes of Face-to-Face and Telehealth Warfarin Management Programs</td>
</tr>
<tr>
<td>Sean McConachie, Detroit Medical Center-Harper University Hospital</td>
<td>210 M 3:45</td>
<td>A 30-day Hospital Readmission Prediction Index with Quarterly Iterative Adjustment</td>
</tr>
<tr>
<td>Carly McKenzie, University Hospitals St. John Medical Center</td>
<td>162 P 3:15</td>
<td>Impact of a Pilot, Pharmacy-led Tobacco Cessation Medication Protocol at Discharge in a Community Hospital</td>
</tr>
<tr>
<td>Bree Meiner, ONU Healthwise</td>
<td>210 M 9:00</td>
<td>Effectiveness of a pharmacist-directed Tdap immunization program for a university campus</td>
</tr>
<tr>
<td>Derek Michalski, University Hospitals Cleveland Medical Center</td>
<td>162 P 2:45</td>
<td>Evaluating hemodynamic effects of clevidipine in cardiothoracic surgery patients with reduced ejection fraction</td>
</tr>
<tr>
<td>Insaf Mohommad, Detroit Medical Center-Harper University Hospital</td>
<td>210 M 8:30</td>
<td>Outcomes of Chronic Care Management (CCM) in Primary Care Practice</td>
</tr>
<tr>
<td>Jason Moran, Cleveland Clinic Marymount Hospital</td>
<td>158 P 10:00</td>
<td>Evaluation of hyperglycemic crises management in the medical intensive care unit.</td>
</tr>
<tr>
<td>Karim Mouabbi, Detroit Medical Center-Harper University Hospital</td>
<td>162 P 10:00</td>
<td>Evaluation of anticoagulation treatment in patients with massive or submassive pulmonary embolism and concurrent deep vein thrombosis</td>
</tr>
<tr>
<td>Lisa Mueller, OSU</td>
<td>210 M 1:45</td>
<td>Impact of Pharmacist-Provided Spirometry Service on Access to Results in Primary Care Setting</td>
</tr>
<tr>
<td>Rachel Muhlenkamp, St. Rita’s Medical Center</td>
<td>158 P 8:30</td>
<td>Alert fatigue reduction: The impact of dosage alert changes in a large health system</td>
</tr>
<tr>
<td>Kaitlynn Napholz, Firelands Regional Medical Center</td>
<td>212 P 8:30</td>
<td>Implementing a pharmacy-led medication reconciliation program for patients in a community hospital emergency department</td>
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<tr>
<td>Khang Nguyen, The University of Toledo Medical Center</td>
<td>161 P 2:15</td>
<td>Comparison of standard vs extended durations of antimicrobial therapy for hospital-acquired pneumonia</td>
</tr>
<tr>
<td>Jerome Pasquale, Mercy Health - St. Charles Hospital</td>
<td>212 P 11:30</td>
<td>Evaluation of a Pharmacist-Led Medication Reconciliation Program in a Psychiatric Population</td>
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<tr>
<td>Niketa Patel</td>
<td>The University of Toledo Medical Center</td>
<td>158 P</td>
<td>9:00</td>
<td>Analysis of potentially inappropriate medication (PIM) use in the older adult population at an academic medical center</td>
</tr>
<tr>
<td>Jasmini Patel</td>
<td>Beaumont Hospital</td>
<td>207 M</td>
<td>2:15</td>
<td>Compliance to United States Pharmacopeia (USP) 800: A gap-analysis</td>
</tr>
<tr>
<td>Priyasha Patel</td>
<td>OSU</td>
<td>210 M</td>
<td>2:15</td>
<td>Incidence and Monitoring of Drug-Induced QTc Prolongation in a Primary Care Setting</td>
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<tr>
<td>Kimberly Perkins</td>
<td>The Christ Hospital Health Network</td>
<td>158 P</td>
<td>2:45</td>
<td>Retrospective review of the comparative effectiveness between antipsychotics used to treat delirium in the intensive care unit</td>
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<tr>
<td>Keith Pohlman</td>
<td>St. Rita’s Medical Center</td>
<td>212 P</td>
<td>3:15</td>
<td>Effect of pharmacist education on methylnaltrexone prescribing habits</td>
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<tr>
<td>Benjamin Pontefract</td>
<td>MetroHealth</td>
<td>207 M</td>
<td>4:15</td>
<td>Impact of pharmacist lead disease state management in a primary care clinic</td>
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<tr>
<td>Josh Postolski</td>
<td>The University of Cincinnati</td>
<td>209 M</td>
<td>3:45</td>
<td>Pharmacist Incorporated Discharge Planning in Skilled Nursing Facilities as a Means of Decreasing Rehospitalizations</td>
</tr>
<tr>
<td>Ulyana Povrozni</td>
<td>University Hospitals Parma Medical Center</td>
<td>162 P</td>
<td>2:15</td>
<td>Implementation and evaluation of pharmacist managed vancomycin per hospital protocol: A pre and post analysis</td>
</tr>
<tr>
<td>Rebecca Prewett</td>
<td>Aultman Hospital</td>
<td>212 P</td>
<td>2:45</td>
<td>The ONESCOP study: The pharmacist’s impact on acute ischemic stroke care</td>
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<tr>
<td>Jelena Radan</td>
<td>The University of Toledo Medical Center</td>
<td>161 P</td>
<td>2:45</td>
<td>Association between Tacrolimus Levels in the first 12 months post-operatively and Long Term Graft loss in Renal Transplant Patients</td>
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<tr>
<td>Jacob Radcliff</td>
<td>Summa Health</td>
<td>158 P</td>
<td>10:30</td>
<td>Outcomes Resulting from Three-Day Tramadol Taper for Acute Opioid Withdrawal at Summa Health System</td>
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<tr>
<td>Lindsey Rayhill</td>
<td>University Hospitals Cleveland Medical Center</td>
<td>162 P</td>
<td>1:45</td>
<td>Characterization of therapies used for post-operative pulmonary hypertension: Phase I</td>
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<tr>
<td>Aimrie Ream</td>
<td>Mercy Health</td>
<td>212 P</td>
<td>10:00</td>
<td>Evaluation of pharmacist monitoring of direct oral anticoagulant therapy</td>
</tr>
<tr>
<td>Paulina Reizian</td>
<td>Detroit Medical Center</td>
<td>122 P</td>
<td>1:45</td>
<td>Impact of Vancomycin Concentration Change on Incidence of Red-Man Syndrome in Pediatric Patients</td>
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<tr>
<td>Claudia Rondon</td>
<td>OSU</td>
<td>122 P</td>
<td>9:00</td>
<td>Evaluation of Clinical Pharmacists’ After-hours Consults for Hospice Patients</td>
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<td>Deanna Ruble</td>
<td>OSU</td>
<td>122 P</td>
<td>9:30</td>
<td>Characterizing Heart Failure in an Underserved Population</td>
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<tr>
<td>Danny Salem</td>
<td>Detroit Medical Center</td>
<td>122 P</td>
<td>11:30</td>
<td>Effect of cefepime versus piperacillin/tazobactam on hospital-acquired Clostridium difficile infections (CDI)</td>
</tr>
<tr>
<td>Nouran Salem</td>
<td>Beaumont-Royal Oak Hospital</td>
<td>157 P</td>
<td>3:15</td>
<td>Tranexamic acid (TXA) use in Level 1 trauma patients who receive massive transfusion protocol</td>
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<tr>
<td>Jacklyn Sampson</td>
<td>University of Cincinnati COP</td>
<td>209 M</td>
<td>3:15</td>
<td>Impact of Pharmacist-Managed Educational Visits on Hypertension in an Underserved Population</td>
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<tr>
<td>Leah Schomburg</td>
<td>University Hospitals Richmond Medical Center</td>
<td>157 P</td>
<td>2:15</td>
<td>Incidence of falls in hospitalized elderly patients prescribed potentially inappropriate medications</td>
</tr>
<tr>
<td>Melody Smith</td>
<td>Cleveland Clinic Medina Hospital</td>
<td>162 P</td>
<td>11:00</td>
<td>Evaluation of an electrolyte replacement protocol in critically ill patients at a community hospital</td>
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<tr>
<td>Brittany Snyder</td>
<td>University Hospitals Geauga Medical Center</td>
<td>157 P</td>
<td>9:30</td>
<td>Comparison of adherence to manufacturer dosing recommendations with apixaban, dabigatran, and rivaroxaban therapy</td>
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<tr>
<td>Katie Stollar,</td>
<td>Beaumont-Royal Oak Hospital</td>
<td>157 P 3:45</td>
<td>Evaluation of a pharmacist-led patient controlled analgesia (PCA) dosing service</td>
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<tr>
<td>Lydia Suchecki,</td>
<td>UC Health - West Chester Hospital</td>
<td>158 P 2:15</td>
<td>Incidence of hypoglycemic episodes in hospitalized patients on a sulfonylurea versus an insulin regimen: an evaluation of therapy and management</td>
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<tr>
<td>Alexandra Ting,</td>
<td>The Christ Hospital Health Network</td>
<td>158 P 1:45</td>
<td>Evaluation of pharmacy interventions in an academic outpatient transition of care clinic</td>
</tr>
<tr>
<td>Katie Tourjee,</td>
<td>Lima Memorial Hospital</td>
<td>212 P 3:45</td>
<td>Effect of Patient Medication Counseling by a Pharmacist at Hospital Discharge on Patient Satisfaction Survey Results in a Community Hospital Setting</td>
</tr>
<tr>
<td>Lindsay Tsai,</td>
<td>OSU</td>
<td>207 M 10:30</td>
<td>Impact of a Smartphone Application on Medication Adherence in the Community Care Setting</td>
</tr>
<tr>
<td>Laine Vicarel,</td>
<td>St. Rita's Medical Center</td>
<td>212 P 4:15</td>
<td>Impact of pharmacist intervention on Primary Care 10 (PC10) measures in primary care practices</td>
</tr>
<tr>
<td>Matthew Walker,</td>
<td>Grandview Medical Center</td>
<td>212 P 11:00</td>
<td>Retrospective evaluation of proton pump inhibitor prescribing within a community teaching hospital</td>
</tr>
<tr>
<td>Kim Walker,</td>
<td>Cleveland Clinic</td>
<td>162 P 11:30</td>
<td>Evaluation of qSOFA criterion and derivation of new variables.</td>
</tr>
<tr>
<td>Kirsten Wallskog,</td>
<td>Beaumont-Royal Oak Hospital</td>
<td>157 P 4:15</td>
<td>Effect of induction immunosuppression selection on three year opportunistic infections and safety outcomes in adult renal transplant recipients</td>
</tr>
<tr>
<td>Jennifer Ward,</td>
<td>Alliance Community Hospital</td>
<td>209 M 2:15</td>
<td>Enhanced medication awareness in hospice patients through a medication perception survey and individualized patient and caregiver education: a pharmacist-led initiative.</td>
</tr>
<tr>
<td>Rachel Wein,</td>
<td>Detroit Medical Center</td>
<td>122 P 11:00</td>
<td>Management of Alcohol Withdrawal in Medical Intensive Care Unit Patients</td>
</tr>
<tr>
<td>Kyle Weslosky,</td>
<td>Firelands Regional Medical Center</td>
<td>212 M 11:00</td>
<td>Reducing readmissions through pharmacist-led chronic obstructive pulmonary disease (COPD) education at a rural, community hospital</td>
</tr>
<tr>
<td>Jangus Whitner,</td>
<td>Promedica Toledo Hospital</td>
<td>209 M 9:30</td>
<td>Assessing appropriateness of NSAID prescribing in patients with hypertension, heart failure, or chronic kidney disease in a Family Medicine practice setting</td>
</tr>
<tr>
<td>Rachel Wilde,</td>
<td>UC Health - West Chester Hospital</td>
<td>158 P 11:30</td>
<td>Efficacy of low-dose ketamine for acute pain in a community hospital emergency department</td>
</tr>
<tr>
<td>Kevin Williams,</td>
<td>University of Cincinnati COP</td>
<td>209 M 10:00</td>
<td>Clinical Outcomes Associated with the Implementation of an Antimicrobial Stewardship Program Focused on Treatment of Urinary Tract Infections in a Long Term Care Facility.</td>
</tr>
<tr>
<td>Lauren Wolf,</td>
<td>Detroit Receiving Hospital</td>
<td>122 P 10:30</td>
<td>Impact of Intermittent versus Continuous Infusion of Fentanyl after Rapid Sequence Intubation on ICU Delirium</td>
</tr>
<tr>
<td>Janet Wu,</td>
<td>Detroit Medical Center</td>
<td>122 P 10:00</td>
<td>Risk factors for colonization or infection with cefepime resistant, piperacillin-tazobactam susceptible Gram-negative bacilli</td>
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Residents Abstracts

All knowledge-based activities are targeted for all pharmacists and is acceptable for 0.5 hour (0.05 CEU) of continuing education credit. All courses requires attendance at the entire program and completion of the program evaluation.
Effect of a sedation protocol revision on sedative use in the medical intensive care unit (MICU)

Sebastian Al-Saiegh, PharmD - The University of Toledo Medical Center
Kellie Buschor, PharmD, BCPS, BCCCP - The University of Toledo Medical Center

UAN: 0048-0000-17-045-L01-P

Learning Objectives:
1. Discuss the advantages and disadvantages of a daily sedation interruption protocol
2. Identify patients whom would not be appropriate candidates for interruption of their sedation

Purpose:
Patients in the intensive care setting requiring mechanical ventilation often receive sedatives to manage their pain, anxiety, or agitation. Studies have identified sedative medications as risk factors for extended mechanical ventilation duration, intensive care unit length of stay, and increased incidence of ventilator-associated events (VAE). This project aims to evaluate the impact of daily sedation interruption (DSI) and education on sedative use in the MICU. The primary endpoint compares sedative use after implementing an automatic DSI protocol and pharmacist education to physicians and nurses about targeting lighter levels of sedation. Secondary endpoints include evaluating effects on MICU length of stay and time on ventilator.

Methods:
An IRB-approved retrospective cohort study was conducted pre- and post-sedation protocol implementation. All patients over 18 years of age, admitted to the MICU of an academic medical center, and mechanically ventilated from August 1, 2013 to November 30, 2014 (pre-implementation) and December 1, 2015 to May 31, 2016 (post-implementation) were included. Exclusion criteria include: pregnancy, life-sustaining support withdrawn, expired

Results: A total of 595 patients screened, of which 246 met inclusion criteria (125 pre-implementation; 121 post-implementation). Baseline demographics were similar between the groups. For the primary endpoint, preliminary findings show a significant decrease in mean propofol dose in the post-implementation group (83 mg/kg vs. 59.2 mg/kg; p=0.03); however no significant difference was found for mean fentanyl usage (144.9 mcg vs. 126.3 mcg; p=0.35).

Conclusions: The preliminary results indicate that a DSI protocol results in a reduction in sedative usage, which has been shown decrease time on mechanical ventilation time, MICU length of stay, and VAEs. Final results will be presented at the conference.
Identification and management of early sepsis: who does it better?

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UAN: 0048-0000-17-046-L01-P

Learning Objectives:

1. Define the component of Centers for Medicare and Medicaid Services (CMS) 3 hours bundle and 6 hours bundle for severe sepsis and septic shock
2. Identify potential factors for non-adherence to 3 hours bundle and 6 hours bundle for severe sepsis and septic shock

Purpose:
In October 2015, the Centers for Medicare and Medicaid Services (CMS) implemented a national core measure addressing the management of patients with sepsis and septic shock. To identify target areas of improvement, the objective of this study is to compare the overall compliance to the core measure based on the location of sepsis presentation. The secondary outcomes are to assess the risk factors for non-compliance and the level of practitioners’ baseline knowledge during the study period.

Methods:
This is a retrospective, single-center, cohort study included patients 18 years and older admitted with sepsis, severe sepsis, and septic shock between January 1, 2016 and June 30, 2016. Patients were excluded for age less than 18 years, pregnancy, the presence of other types of shock, admission/transfer from outside hospital, and expiration within 6 hours or admission to hospice. Patient information was accessed via electronic medical records. Data collected included demographic data, components of the Acute Physiology and Chronic Health Evaluation score (APACHE II), Modified Early Warning Score (MEWS), and Sequential Organ Failure Assessment score (SOFA). Medical records were evaluated to retrieve the 3 hours and 6 hours bundle components.

Results: A total of 271 encounters were screened for eligibility with 121 being excluded. The 150 remaining subjects were distributed in a 2:1 fashion between ED and inpatient presentations, respectively. The preliminary analysis for demographic data showed the median age 63.35 years; the median APACHE II score 15, 59.2% male and 73.7% white. A total of 95 survey responses were evaluated for secondary outcomes.

Conclusions: Utilizing such data will guide targeted efforts for improvement of compliance to 3 hours and 6 hours bundle for severe sepsis and septic shock. Based on one institution’s experience, it appears that compliance with CMS core measures for sepsis is higher when sepsis first presents in ED.
Assessment of an educational intervention and its impact on medical resident knowledge and comfort level with urine drug testing

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UAN: 0048-0000-17-047-L04-P

Learning Objectives:

1. Describe the prescription drug abuse epidemic in the US and the Centers for Disease Control and Prevention (CDC) recommendations for urine drug tests (UDTs)
2. Assess the impact of pharmacist-led education on UDTs to medical residents

Purpose:
Increasing concern surrounding the opioid abuse epidemic has led the CDC to release recommendations for safe opioid prescribing. These guidelines recommend that clinicians UDTs before starting opioid therapy and at least annually thereafter to assess for prescribed medications or illicit substances. However, UDTs can be difficult to interpret and subject to misinterpretation as other medications taken by patients may cause false positive results. The purpose of this study is to assess the impact of a pharmacist educational intervention on medical resident’s knowledge and comfort in UDT interpretation in clinical practice.

Methods:
This prospective educational intervention study will utilize survey responses to assess the impact of an educational intervention on medical resident knowledge and comfort level with UDTs. All internal medicine (IM) and internal medicine/pediatric residents currently training at our facility will be eligible for inclusion. Residents will be offered a survey consisting of 15 multiple choice questions assessing their knowledge and comfort with interpreting UDTs before, immediately following, and two months after attending an educational lecture given by a pharmacist. The 20 minute lecture will be given monthly for four consecutive months to allow all medical residents to be included. Topics covered will include: types of UDTs, initial and confirmatory testing, sample adulteration, dilution and substitution, and potential causes of false positives in UDTs screening for controlled substances. The primary outcome will assess the impact of pharmacist UDT education on the medical resident’s correct interpretation of UDTs and comfort in UDT interpretation. Secondary outcomes include: composite impact of pharmacist education on medical resident knowledge and comfort in UDT interpretation, level of knowledge retention post pharmacist education, and differences in comfort and knowledge of UDTs by residency year. Descriptive statistics will be utilized to analyze data. Exploratory analysis will be conducted to determine any associations within collected data.

Results: Data collection is complete and results are currently being analyzed. Results and conclusions will be presented at the 2017 Ohio Pharmacy Residency Conference.

Conclusions: Data collection is complete and results are currently being analyzed. Results and conclusions will be presented at the 2017 Ohio Pharmacy Residency Conference.
Evaluation of Pharmacists’ and Pharmacy Interns’ Knowledge and Comfort with Dispensing Naloxone without a Prescription in a Community Pharmacy

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UAN: 0048-0000-17-048-L01-P

Learning Objectives:
1. Describe the opioid epidemic and the use of naloxone in opioid-related overdose
2. Review Ohio laws regarding dispensing naloxone without a prescription

Purpose:
The United States is in the midst of a death by drug overdose epidemic largely due to abuse and misuse of prescription opioids and heroin addiction. On a state level, Ohio has the highest overdose rate in the country. In 2015, over 3,500 Ohioans died from a drug overdose with 84.9% being opioid-related. Due to this epidemic, community-based programs to dispense naloxone have become increasingly important, and in Ohio, community pharmacists are able to dispense naloxone with a prescription. The purpose of this study is to evaluate pharmacists’ and pharmacy interns’ knowledge about naloxone and assess their comfort level of dispensing naloxone without a prescription before and after a naloxone education program.

Methods:
A group of pharmacists and pharmacy interns from selected pharmacies within one division of a grocery-store based community pharmacy chain will be included in the study. An initial pre-education survey will be sent out via an online survey platform. The survey will contain five sections which will ask about knowledge of naloxone, policies regarding dispensing naloxone without a prescription, comfort with dispensing, demographic information, and additional information and/or education received. This survey will be distributed via email and remain open for three weeks with weekly reminder emails sent to participants. Gaps identified from this survey will be used to guide creation of an education program that will be required training for all included in the study. After the education program, a post-education survey will be distributed. This survey will contain similar content as the pre-education survey, and it will be used to evaluate changes in knowledge and comfort by the pharmacists and pharmacy interns.

Results: Research in progress.

Conclusions: The results of this study will be used to provide insight on the level of knowledge and comfort community pharmacists and pharmacy interns have regarding dispensing naloxone without a prescription.
Valproic Acid (VPA)-induced hyperammonemia: Incidence, clinical significance and treatment management

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UAN: 0048-0000-17-049-L01-P

Learning Objectives:

1. Discuss the clinical implications of monitoring ammonia levels in potentially asymptomatic patients on valproic acid
2. Identify the most effective treatment modality for valproic acid-induced hyperammonemia

Purpose:
Valproic acid (VPA)-induced hyperammonemia poses several clinical challenges in psychiatric medicine. The reported incidence of this adverse effect varies widely across the literature. Furthermore, many practitioners order ammonia levels and treat hyperammonemia in asymptomatic patients although studies suggest this practice is unnecessary. This project’s primary objective is to determine the incidence of hyperammonemia in psychiatric patients on VPA that had at least one ammonia level drawn during admission. The secondary objectives are to evaluate the incidence of symptomatic hyperammonemia and to evaluate the incidence and efficacy of various treatments for hyperammonemia.

Methods:
This study has been approved by the Institutional Review Board. Patients will be retrospectively identified through a database query from June 2011-June 2016. Patients will be included if they were admitted to a psychiatric unit, received at least one dose of VPA, and had at least one ammonia level drawn during admission. Exclusion criteria include a diagnosis of cirrhosis at admission. Hyperammonemia will be defined as > 47µmol/L. Symptomatic hyperammonemia will be defined based on symptoms, such as lethargy and altered mental status. Only patients with multiple ammonia levels drawn will be used to assess efficacy of treatment modalities; the treatment modality will be deemed successful if the ammonia level was within normal range (17-47µmol/L) at discharge. Additionally, the average length of stay (in days) will be calculated for each subgroup, in order to determine if those patients with hyperammonemia stay significantly longer than those without.

Results: At the time of abstract submission, sufficient data had not been collected to determine the preliminary results.

Conclusions: It is hypothesized that the results will demonstrate the measurement of ammonia blood levels in asymptomatic patients taking VPA is unnecessary and can lead to diagnostic confusion, discontinuation of VPA, and increased length of stay for unwarranted treatment.
Evaluation of PlasmaLyte on intraoperative acidosis in patients who undergo cardiopulmonary bypass

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UAN: 0048-0000-17-050-L01-P

Learning Objectives:

1. Describe the differences in electrolyte content between PlasmaLyte and normal saline (NS)
2. Discuss the difference in intraoperative acidosis between PlasmaLyte and NS

Purpose:

Fluid management plays an important role in patients undergoing cardiopulmonary bypass. Due to normal saline (NS) having a pH of 5.4 and an unbalanced electrolyte profile (Na 154 mEq/L and Cl 154 mEq/L) compared to human serum, questions have arisen regarding the prevalence of hyperchloremic acidosis with NS administration. PlasmaLyte contains electrolyte concentrations and pH (Na 140 mEq/L, Cl 98 mEq/L, acetate 27 mEq/L, gluconate 23 mEq/L, K 5.0 mEq/L, Mg 3.0 mEq/L, pH 7.4) similar to plasma. The objective of this study is to compare incidence of acidosis on the last intraoperative arterial blood gas for PlasmaLyte and NS.

Methods:

This study is approved by the University of Toledo Medical Center Institutional Review Board. The Society of Thoracic Surgeons database will identify patients who have undergone cardiothoracic surgery requiring cardiopulmonary bypass. The following data will be collected: patient age, gender, weight, height, comorbid conditions, type of surgery, duration of surgery, time on cardiopulmonary bypass, postoperative length of stay, intraoperative fluid balance, 24 hour fluid balance, arterial blood gases, systolic blood pressures, central venous pressure, amount of bicarbonate administered, albumin administration, basic metabolic panel, lactate, serum osmolality, intubation duration, vasopressor duration, mortality data, new-onset atrial fibrillation, and acute renal failure. Base excess of less than -2 will be used to define acidosis on the last intraoperative arterial blood gas. Appropriate statistical analysis will be performed. Differences in postoperative length of stay, duration of vasopressors, time to extubation, in-hospital mortality, 30-day mortality, incidence of new-onset atrial fibrillation, and acute renal failure will also be compared between groups.

Results: At the time of abstract submission, sufficient data analysis has not been performed to determine preliminary results.

Conclusions: At the time of abstract submission, sufficient data analysis has not been performed to determine conclusions from this study.
Impact of Emergency Medicine Pharmacists on Follow-up of Positive Microbiological Culture

Results

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Learning Objectives:

1. Describe the need for a pharmacist led ED culture follow-up program
2. Discuss the 2010 Infectious Diseases Society of America guideline recommendations for the management of acute uncomplicated cystitis and pyelonephritis

Purpose:
Urinary tract infections (UTIs) and skin and soft tissue infections are commonly diagnosed in the emergency department (ED). The 2010 Infectious Diseases Society of America guideline states empiric antibiotic selection for UTI should be based on local and national antibiograms. However, isolated pathogens are not always susceptible to the antimicrobial regimen prescribed at discharge from the ED. This can lead to therapy failure, ED revisits and hospitalizations. The objective of this study was to assess the impact of a pharmacist led ED culture follow-up program.

Methods:
We conducted a retrospective chart review from August 1, 2015 to August 1, 2016 of discharged ED patients with positive urine, blood, abscess, or wound cultures. The primary endpoint was the percent of cultures that required an intervention. Secondary endpoints included follow-up method, appropriateness of empiric UTI antibiotic regimen classified as optimal, appropriate or inappropriate, and UTI ED revisit rate. Optimal therapy was defined as a urinary isolate susceptible to the empiric antibiotic and a preferred agent based on the local and national antibiograms. Appropriate therapy was an isolate susceptible to the empiric antibiotic but not a preferred agent. Inappropriate therapy was an isolate not susceptible to the empiric antibiotic, lack of an antibiotic, or antibiotic that does not cover a UTI.

Results: Interventions were required in 16% (95% CI: 13.5-18.5%) of 814 positive cultures. The most common method of patient follow-up was by phone (51%). Subgroup analysis of the 646 urine cultures showed 76% (95% CI: 73-80%) of the regimens were optimal, 9% (95% CI: 7-11%) were appropriate, and 14% (95% CI: 12-17%) were inappropriate. The pharmacist led ED culture follow-up program, decreased the ED revisit rate within 30 days of a UTI diagnosis to 8.47% from 13% (p=0.0267).

Conclusions: Pharmacists’ involvement leads to improvements in appropriate antibiotic regimens on culture follow-up.
Impact of pharmaceutical bedside deliveries on 30 day readmission rates in a community hospital

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UAN: 0048-0000-17-052-L04-P

Learning Objectives:

1. Identify the potential outcomes and costs associated with medication delivery service at discharge
2. Discuss the effectiveness of the current bedside delivery program
3. Highlight the impact of a pharmacy-led medication delivery program

Purpose:
Blanchard Valley Hospital offers counseling by a pharmacist prior to discharge. It has been a goal to counsel patients about their medications in order for the patient to be educated and understand their medications. The intent is to reduce complications with medications and improve patient compliance in order to reduce 30 day readmission rates. Limiting readmission is critical to the overall well-being of the patient and ensures reimbursement. The objective of this study is to evaluate the impact of pharmaceutical bedside deliveries on 30 day readmission rates as well as detecting additional benefits from this pharmacy delivery program.

Methods:
This study was approved by the Institutional Review Board at Blanchard Valley Health System. The electronic medical record system was used to identify patients who had received medication bedside delivery counseling. The following data was collected: patient age, disease state, admission date, bedside delivery participation, readmission date, location of stay within the hospital, and the medications on which the patient was discharged. This study was conducted at a single center. It included patients greater than or equal to 18 years of age, who participated in the bedside delivery program and admitted to Blanchard Valley Hospital located in Findlay, Ohio. Data was collected from January 1, 2015 to December 31, 2016. Patients placed on the pediatric, labor and delivery floors, and surgery patients were excluded. Patients discharged through the program only on pain medications and laxatives were also excluded, along with patients who were observational. The primary outcome of this study was the pharmaceutical bedside delivery service impact on 30 day readmission rates. Secondary outcomes: types of medications delivered through the bedside delivery service, growth of the bedside delivery service, income the service brings to the outpatient pharmacy, and trends in medication communication scores as reported through the Press Ganey Patient Survey.

Results: Currently in progress and will be presented at the Ohio Pharmacy Residency Conference.

Conclusions: Currently in progress and will be presented at the Ohio Pharmacy Residency Conference.
**Impact of a continuous local anesthetic pain ball on post-operative pain in kidney transplant recipients**

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**UAN: 0048-0000-17-053-L01-P**

**Learning Objectives:**

1. Review primary literature on post-operative pain management in renal transplant (RT) recipients
2. Discuss the 2016 American Pain Society guidelines on post-operative pain management

**Purpose:**

A multimodal approach for the management of post-operative pain utilizing a local anesthetic pain ball has gained momentum over the last decade. This multimodal approach has proven to be efficacious for reducing post-operative opioid consumption and opioid related complications in procedures involving the abdominal wall. However, data are controversial in regards to this multimodal approach for renal transplant (RT) recipients. The objective of this study is to determine the effectiveness of a continuous local anesthetic pain ball on post-operative opioid requirements compared to traditional post-operative pain management in RT recipients.

**Methods:**

This retrospective cohort study was approved by the Institutional Review Board at The University of Toledo Medical Center (UTMC). Patients 18 years and older admitted to UTMC from July 1, 2006 through July 30, 2016 with an ICD 9 or 10 code correlating to end stage renal disease or kidney transplantation were screened for inclusion into the study. Eligible patient will have undergone kidney transplantation during the specified time period. During this time the patients will have received one of the following post-operative pain management regimens: a pain ball (PB) containing a local anesthetic running continuously for 48-72 hours or the standard of care (SOC) utilizing intravenous (IV) and/or oral (PO) opioids. The patients receiving the local anesthetic PB also had standing orders for IV/PO opioids for breakthrough pain. The primary endpoint is the cumulative opioid requirements in IV morphine equivalents at 48 hours following transplantation. Secondary outcomes include the difference in post-operative pain scores at 24 and 48 hours following transplantation, hospital length of stay, and a sub-group analysis of recipients of living donor versus deceased donor transplants.

**Results:** Information on baseline characteristics and study endpoints were collected for 102 patients meeting the inclusion criteria for the study. Prior to calculating propensity scores there were 46 patients in the SOC group and 56 patients in the PB group Propensity scores were then utilized to match the patients in the two groups based on the following potential confounders: age, sex, race, BMI, baseline opiate use, previous abdominal procedure, repeat transplantation, type of transplant, and intra-operative morphine requirements. After matching the study subjects based on propensity scores, 38 subjects remain in each group. The median (IQR) IV morphine equivalent dose at 48 hours was 19.85 mg (14.85-42.18) in the SOC group and 17.65 mg (4.95-30.56) in the PB group (p=0.120). There was no significant difference in median pain scores at 24 hours (p=0.059) or 48 hours (p-value=0.139) in those receiving the PB versus those receiving the SOC. Also, there was no effect on hospital length of stay in those receiving the PB versus those receiving the SOC (p=0.449).

**Conclusions:** This retrospective cohort study demonstrates that the use of a local anesthetic PB as a primary alternative to IV/PO opioids did not reduce the post-operative opioid requirements in RT recipients following transplantation. Although the current literature regarding the use of local anesthetic PB for the management of post-operative pain for abdominal procedures outside of kidney transplantation remains positive, the literature supporting the use in RT recipients still remains controversial. In 2015, one retrospective trial and one prospective randomized control trial showed preliminary evidence of a beneficial effect on the reduction in post-operative opioids requirements in those receiving local anesthetic PB compared to the SOC in RT recipients following transplantation. The data obtained from this trial supports the need for further randomized control trials that heavily control for confounding factors.
Evaluation of a pharmacist-driven darbepoetin optimization protocol

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Learning Objectives:
1. Review the role of erythropoietin-stimulating agents (ESAs) in the management of anemia of chronic diseases
2. Discuss potential clinical and economic impact of a pharmacist-driven ESA optimization protocol
3. Review guidelines for anemia of chronic kidney disease
4. Outline the study rationale, objectives and methodology

Purpose:
Darbepoetin alpha (Aranesp®) is an erythropoietin-stimulating agent (ESA) that is FDA-approved for the management of anemia of chronic disease. Given the long onset of activity, darbepoetin is unlikely to be beneficial during an acute inpatient admission. Additionally, this agent is associated with cardiovascular events and stroke. Due to safety and cost concerns, a pharmacist-driven darbepoetin optimization protocol was implemented at our institution. The purpose of this study was to evaluate the impact of this pharmacy protocol

Methods:
This was a pre and post-study. The pre-protocol phase was a retrospective evaluation of darbepoetin use between October 7, 2014 and January 17, 2015. The post-protocol implementation phase was a prospective evaluation of darbepoetin use from October 1, 2016 through January 07, 2017. All inpatients ≥ 18 years old with darbepoetin orders within the study period were included. Primary objective was to compare cost of usage between pre- and post-implementation phases. Secondary objectives included evaluation of adherence to the protocol, safety, efficacy and all-cause 30-day readmission rates. Data collection included patient demographics, indication and dose of darbepoetin, hemoglobin levels, as well as prescribing service. Number of packed red blood cell transfusions prior to and during therapy, change in hemoglobin from baseline, and 30-day readmission rates were reviewed to assess safety of the protocol. Student t-test and descriptive statistics were used to analyze primary and secondary outcomes, respectively.

Results: Total number of patients initiated on darbepoetin decreased by 54.4% (90 vs. 41, p< 0.001) post-protocol implementation. Difference in cost of usage between pre- and post-implementation phase was $40,367.58 (p = 0.0048). Mean change in hemoglobin from baseline was 0.48 ± 0.36 mg/dL during post-protocol phase. Pharmacy protocol did not impact transfusion requirement.

Conclusions: Implementation of the darbepoetin optimization protocol led to a significant reduction in darbepoetin usage, with no clinically significant adverse effects.
Evaluation of a Heparin Anti-Xa Monitoring Protocol

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UAN: 0048-0000-17-055-L01-P

Learning Objectives:

1. Identify the concerns associated with using aPTT to monitor heparin therapy.
2. Review the advantages of anti-Xa monitoring.

Purpose:
On July 12, 2016, the Louis Stokes Cleveland Veterans Affairs Medical Center (LSCVAMC) implemented an anti-Xa heparin monitoring protocol in place of a prior aPTT monitoring protocol. This quality assurance (QA) project evaluates the nurse driven heparin anti-Xa protocol initiated by the LSCVAMC.

Methods:
A retrospective chart review was performed on 100 patients who had been on the heparin anti-Xa protocol for at least 24 hours, up to 4 days or until heparin was stopped or interrupted. Patients who were already included in the study during a prior admission, patients on the anti-Xa protocol for less than 24 hours, patients with a ventricular assist device (VAD), and patients on a physician-managed heparin protocol were excluded. The primary objective was to determine the time to first therapeutic anti-Xa level. Secondary objectives evaluated the compliance to the protocol, correlation between anti-Xa and PTT drawn together, and safety.

Results: In the total population (n = 100), the average time to first therapeutic anti-Xa level was 10.82 hr (median 9.47 hr). Seventy-five patients (75%) achieved two consecutive therapeutic anti-Xa levels within 24 hrs. Overall, 94% of patients were on the correct intensity protocol, 96% of patients received the correct initial dose, and 92% of patients received correct dose adjustments. In the total population, there were 12 critical anti-Xa levels (12%). There was no correlation found between anti-Xa and aPTT levels drawn together (r² = 0.1). There were no major bleeds or incidences of HIT. There was 1 documented minor bleed.

Conclusions: Overall, the implementation of the nursing-driven anti-Xa heparin monitoring protocol has been successful at the LSCVAMC. Therapeutic heparin levels have been attained quicker with few subtherapeutic, supratherapeutic, and critical levels. The protocol has been proven to be safe and effective. The next steps will be to conduct a cost-analysis and nursing satisfaction survey.
The Implementation of a Community Pharmacist-Led Targeted Monitoring Program for Patients at High Risk for Hypothyroidism

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Learning Objectives:

1. Discuss different high-risk populations for hypothyroidism and screening recommendations.
2. Describe the implementation of a thyroid-stimulating hormone (TSH) screening program for patients at high risk for hypothyroidism at a community pharmacy.

Purpose:
Approximately twenty million Americans have some form of thyroid disease while sixty percent are unaware they have the condition. Community pharmacies have successfully offered a variety of different screening programs, including thyroid-stimulating hormone (TSH) screenings services, but a targeted monitoring program for patients at high risk for hypothyroidism has not been implemented. The purpose of this study is to develop and implement a targeted monitoring program for patients at high risk for hypothyroidism at a community pharmacy, and determine whether the monitoring program increases the identification and treatment of hypothyroidism in patients with autoimmune disorders and/or taking lithium or amiodarone.

Methods:
Pharmacy personnel trained to provide point-of-care TSH testing at several large chain community pharmacies are identifying and enrolling patients 18 years and older at high risk for hypothyroidism defined as having an auto-immune disorder and/or taking amiodarone or lithium. Patients who are less than 18 years of age, pregnant, non-English speaking, cognitively impaired and/or taking thyroid medications currently or within the past six are excluded. During the initial appointment, demographic and baseline disease state and medication information is collected, the symptoms and duration of symptoms of hypothyroidism are assessed, the point-of-care device is used to determine any abnormality in the TSH, and results are analyzed and reviewed with the patient. If a positive result is obtained on the TSH test, the patient is referred to their physician for further testing, and the pharmacist follows up with the patient after one month to determine the outcome of the appointment and obtain test results. Descriptive statistics are used to report baseline patient demographics and the incidence of elevated TSH, stratified based on patient specific high risk factors.

Results: This study is still ongoing; therefore, final results have not been obtained.

Conclusions: Conclusions will be presented at the Ohio Pharmacy Residency Conference.
Prevalence and predictors of antipsychotic prescribing in adults with Parkinson's disease. A national cross-sectional study

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UAN: 0048-0000-17-057-L01-P

Learning Objectives:

1. Define the risk associated with the prescribing of antipsychotics in patients with Parkinson’s disease
2. Evaluate the methods of the study presented

Purpose:
The objective of this study is to evaluate the prevalence of and factors that are associated with prescribing antipsychotic medications in patients with Parkinson’s disease in an outpatient population.

Methods:
This national cross-sectional study will use data from the National Ambulatory Medical Care Survey (NAMCS) from 2005 through 2013. This study will be submitted to the Institutional Review Board for approval. Upon IRB approval, data sets for the years 2005 through 2013 of the NAMCS will be obtained through the Centers for Disease Control and Prevention website. The de-identified data sets will be combined and evaluated to include patients that are at least 65 years old with diagnosis of Parkinson’s disease. Patients who have a diagnosis of bipolar disorder, schizophrenia, Lewy body dementia or secondary Parkinsonism will be excluded from the study. The primary outcome will be the rate of antipsychotic prescribing, as well as the classification of the antipsychotic prescribed, in patients who have Parkinson’s disease. Multivariate logistic regression will be used to identify variables that may be associated with prescribing antipsychotics in this patient population, including: patient demographics, payer type, co-morbid conditions and prescriber characteristics.

Results: Results are pending data analysis.

Conclusions: Conclusions are pending data analysis
Incidence and risk factors for cefepime-induced neurotoxicity in end stage renal disease patients

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Learning Objectives:

1. Describe the incidence of cefepime-induced neurotoxicity in end stage renal disease patients on hemodialysis
2. Identify and discuss potential risk factors for cefepime-induced neurotoxicity

Purpose:
This retrospective cohort study aims to determine the incidence of cefepime-induced neurotoxicity in end stage renal disease patients on hemodialysis, to identify potential risk factors, and to quantify the number of patients requiring transfer to the intensive care unit due to encephalopathy. As cefepime is 80-90% removed unchanged by the kidneys, it can accumulate and lead to neurotoxicity in patients with impaired renal function. Cefepime-induced neurotoxicity is of particular concern due to providers’ potential unfamiliarity with its clinical presentation and numerous confounding factors.

Methods:
Through retrospective chart review, patients 18 years or older on intermittent hemodialysis, who received at least three cefepime doses while inpatient from July 1, 2015 to July 1, 2016, will be identified. The following data will be collected: demographics, history of central nervous system disease, hemodialysis total run time and filter type, cefepime administration information, blood urea nitrogen, albumin, white blood count, ammonia level, Glasgow coma scores, and diagnostic testing results such as electroencephalogram reports, magnetic resonance imaging and computed tomography of the head. Any new transfers to the intensive care unit or neurology consultations for altered mental status will be assessed. The Naranjo Adverse Drug Reaction Probability Scale will be used to help identify cases of cefepime-induced neurotoxicity. Patient-specific factors, including hours of dialysis received and total cefepime doses, will be compared using Wilcoxon Rank-Sum test between those experiencing neurotoxicity and those who did not experience neurotoxicity. This analysis will determine whether there is an association between these factors and the likelihood of developing cefepime-induced neurotoxicity and can identify any potential areas for improvement in this institution’s cefepime dosing and monitoring protocol in hemodialysis patients.

Results: Data collection and analysis is in progress. Results and conclusions will be presented at the Ohio Pharmacy Resident Conference.

Conclusions: Data collection and analysis is in progress. Results and conclusions will be presented at the Ohio Pharmacy Resident Conference.
Code stroke alert: a streamlined process for IV tPA
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UAN: 0048-0000-17-059-L01-P

Learning Objectives:

1. Describe current recommendations for treatment of acute ischemic stroke and potential barriers to timely tPA administration
2. Identify opportunities for pharmacist contribution to stroke alert interdisciplinary response

Purpose:
Treatment of acute ischemic stroke (AIS) with IV tissue plasminogen activator (tPA) within 3 to 4.5 hours of symptoms has been shown to drastically improve patient recovery. The American Heart Association/American Stroke Association (AHA/ASA) recommend a goal tPA door-to-needle (DTN) time for a patient admitted with stroke-like symptoms of ≤60 minutes. Our stroke committee determined our institutional DTN time was suboptimal and attributed delays to pharmacy. However, DTN time is multifactorial and metrics collected by the stroke committee did not adequately capture all potential gaps. Currently, our pharmacy mixes and delivers tPA to the bedside and we are committed to continuing this service. Therefore, we developed a new Stroke Alert procedure to assure tPA ordering, delivery and administration is uniform across all pharmacist shifts. The purpose of this study was to evaluate the new Stroke Alert process through these objectives: (1) reduce DTN time to ≤60 min (2) reduce tPA order to infusion time to ≤15 min, and (3) identify institution-specific barriers to timely administration of tPA.

Methods:
The new process started Dec 1st, 2016 and data was collected through Mar 31st, 2017. Pharmacists were engaged in documentation of discrete time-points during code Stroke Alert not previously captured by the institutional stroke response committee. Variables analyzed were either pharmacy-dependent or pharmacy-independent, as some aspects of the tPA process can be influenced by pharmacy and others cannot. Data points include time of stroke alert, patient registration, last known well, order entry, reconstitution, delivery, and administration. Collected data points will be analyzed and compared to available historic data. Potential barriers to timely administration of tPA will be identified.

Results: Analysis in progress.

Conclusions: To be presented at OPRC.
Health Care Insecurity: Effect of a Charitable Pharmacy Model

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UAN: 0048-0000-17-060-L04-P

Learning Objectives:

1. Describe how medication access affects patient health care insecurity
2. Recognize disparities related to medication access experienced in an underserved population

Purpose:
The objectives of this study are to assess how a charitable pharmacy model affects patient perception of health care insecurity, physical and emotional functioning, and medication access in an underserved population. Despite legislation and health system efforts to improve care for underserved patients in the United States, many underserved patients do not have health insurance or are unable to pay the premiums or co-pays for medical appointments or medications. Similar to food or job insecurity, health care insecurity implies concern or anxiety over the ability to have access to health care. These measurements are important in the charitable pharmacy setting as we aim to increase patient access to medical care and medications, while ensuring a positive and meaningful experience with the healthcare system.

Methods:
Patients who present to Charitable Pharmacy of Central Ohio for their initial visit will be administered a survey consisting of demographic information, Health Care Insecurity measure (HCI), and Veterans RAND 12-Item Health Survey (VR-12). A follow up survey consisting of HCI and VR-12 will be administered to these same patients when they come for medication refills at least 14 days later. Descriptive statistics will be used to analyze results. Patient interview questions will yield qualitative data related to health care insecurity, physical and emotional functioning, and medication access. Information from this study will be used to assess the potential impact of a charitable pharmacy model on health care insecurity of patients. In addition, data will be used to inform strategic planning for services at the charitable pharmacy.

Results: Data collection and analysis are currently being conducted.

Conclusions: Results and conclusions will be presented at the 2017 Ohio Pharmacy Residency Conference.
Implementing a Systematic Approach to Deprescribing Proton Pump Inhibitor Therapy in the Elderly

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UAN: 0048-0000-17-061-L01-P

Learning Objectives:

1. Identify the risks associated with prolonged proton pump inhibitor use
2. Describe the role a pharmacist can have in population health management in a patient-centered medical home

Purpose:
Findings suggest elderly patients on long-term PPI therapy are at increased risk of C. difficile and pneumonia infections, as well as bone fractures, and low magnesium, iron, and vitamin b12 levels. Furthermore, studies have linked PPI use to the development of dementia and CKD. Due to these concerns, the American Geriatric Society updated the Beers criteria in 2015 to include PPI’s as high-risk therapy. The purpose of this project is to evaluate and enhance the process of population management to improve patient safety in the ambulatory care setting. The primary objective is to (1) determine the percentage of patients that initiate the PPI taper through population management. Secondary objectives are to (2) determine the percentage of pharmacists’ discontinuation recommendations accepted by the provider, and (3) determine the number of patients > 65 years with undocumented indication or unknown indication on PPI therapy for > 8 weeks.

Methods:
This is a prospective interventional pilot study at a tier 3 patient-centered medical home within a major academic medical center with multiple sites. A report will be generated using the EHR to identify patients > 65 years on PPI therapy. Each patient on long-term PPI therapy without an appropriate indication will meet eligibility criteria for participation in this study. Patients will be contacted via secure portal or phone. Patients will be provided with information on PPI use including risks and benefits by use of an educational online tool from RxFiles. Each agreeable patient will be given an individualized taper plan based on the recommendation from the RxFiles document. PPI use, or lack thereof, will be monitored at weeks 3 and 6. Data will be analyzed using descriptive statistics.

Results: At the pilot site, a total of 585 elderly patients were identified with an active PPI prescription. Of those, it was determined that 263 (45%) were eligible for intervention. A total of 53 patients (20.2%) were taking a PPI without a documented indication. The provider approval rate of the pharmacist recommended intervention is 87%. More extensive, updated data will be presented at OPRC.

Conclusions: Expected Significance: The implementation of an EHR based process may improve practice and standards of care for adhering to updated guidelines and improving patient safety. Findings specific to the process will be applied to future population management projects. The promotion of a collaborative population management approach may further increase the value of a pharmacist on the healthcare team.
Utilization of clotting factor concentrates for bleeding disorders at a tertiary medical center

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UAN: 0048-0000-17-062-L01-P

Learning Objectives:

1. Identify common bleeding disorders and the pathophysiology of bleeding
2. Discuss the standard of therapy for management of bleeding disorders

Purpose:
Hemostasis is a mechanism to arrest blood flow initiated at a site of vascular injury. Deficiency or absence of clotting factors is associated with deficits in the pathway responsible for thrombus formation leading to bleeding complications. The standard of care for management of clotting factor deficient conditions, such as hemophilia, is prevention and/or treatment of bleeding through replacement of deficient clotting factors. Institutions have implemented factor stewardship programs in order to balance efficacy, safety, and fiscal responsibility of factor products. The primary objective of this project was to characterize the current usage of clotting factor concentrate products at a tertiary medical center in order to identify areas of opportunity for formulary optimization. Secondary objectives included evaluation of efficacy, safety, and pharmacoeconomic analysis of clotting factor products.

Methods:
This was a single-center, retrospective cohort study of patients who received at least one dose of a clotting factor concentrate product during an inpatient hospitalization from August 1, 2015 to July 31, 2016. Patients were identified through the electronic medical record. Patients with a factor deficient condition who received factor VIIa, VIII, IX, X, or XIII, anti-inhibitor coagulant complex, or fibrinogen concentrate were included in the study. Patients

Results: Final results will be presented at Ohio Pharmacy Residency Conference.

Conclusions: Conclusions will be presented at Ohio Pharmacy Residency Conference.
Evaluation of Major Bleeding in Patients Receiving Triple Therapy with Dual Antiplatelet Therapy and Oral Anticoagulation

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UAN: 0048-0000-17-063-L01-P

Learning Objectives:

1. Define dual antiplatelet therapy (DAPT) and triple antithrombotic therapy.
2. Discuss existing literature and guidelines regarding triple antithrombotic therapy in clinical practice.

Purpose:
Triple antithrombotic therapy consisting of dual antiplatelet therapy (DAPT) and anticoagulation is commonly prescribed in clinical practice. Although triple therapy may be warranted in certain clinical scenarios, the risk of bleeding has been shown to be 3-fold higher than warfarin therapy alone. There is a lack of data comparing the bleeding rate of triple antithrombotic therapy with warfarin versus triple therapy with a direct oral anticoagulant (DOAC). The primary objective of this study is to evaluate the rate of major bleeding events in patients receiving triple therapy with warfarin compared to triple therapy with a DOAC.

Methods:
This multicenter, retrospective study included patients from six Southeastern Michigan hospitals. Electronic medical records were used to identify patients 18-89 years old who were initiated on triple antithrombotic therapy in the hospital and subsequently discharged on triple therapy from January 1, 2013 to December 31, 2015. Triple antithrombotic therapy included patients on aspirin, an oral anticoagulant, and an oral P2Y12 platelet inhibitor. The primary outcome is the rate of major bleeding events in patients receiving triple therapy with warfarin compared to triple therapy with a DOAC. The secondary outcomes include the rate of all bleeding events, the type of bleed, time to bleed from the initiation of triple therapy, and the risk factors associated with bleeding events. Outcomes will be evaluated up to 6 months from the initiation of triple therapy. Additional outcomes, including the rate of thrombosis and the risk of thrombosis and bleeding events stratified by oral anticoagulant and indication for anticoagulation, will be evaluated and reported by other participating medical centers.

Results: Data is currently being collected and analyzed. Results and conclusions will be presented at the Ohio Pharmacy Residency Conference.

Conclusions: N/A
Sulfamethoxazole/trimethoprim associated acute kidney injury: Real or a mirage?
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UAN: 0048-0000-17-064-L01-P

Learning Objectives:
1. Discuss weaknesses of the available literature in regards to the association of acute kidney injury and sulfamethoxazole/trimethoprim.
2. Describe the mechanisms by which sulfonamides can lead to acute kidney injury.

Purpose:
Sulfamethoxazole/trimethoprim (SMX/TMP) is a first-line option for urinary tract infections, skin and soft tissue infections, and pulmonary infections due to Pneumocystis jirovecii and Stenotrophomonas maltophilia. SMX/TMP use is sometimes limited because of nephrotoxicity concerns. Evidence supporting these concerns is largely limited to small, noncomparative case reports/series and historical concerns with less soluble sulfonamides. These concerns are further complicated by small rises in serum creatinine caused by trimethoprim due to inhibition of tubular secretion of creatinine. The primary objective is to determine if there is a true association between SMX/TMP use and acute kidney injury (AKI).

Methods:
A retrospective matched cohort study of 600 patients within the Detroit Medical Center who received treatment with SMX/TMP or a non-nephrotoxic comparator agent (300 patients in each group) will be performed. Patients will be eligible for inclusion if they received a target antimicrobial for at least 48 hours from January 1, 2014 to September 30, 2016. Patients will be excluded if creatinine clearance at onset of therapy was less than 30 mL/min, or they had a pre-existing need for renal replacement therapy. Each SMX/TMP patient will be matched 1:1 to a patient receiving an alternative, non-nephrotoxic, antimicrobial therapy for the same indication. Matching parameters will consist of severity of illness, number of concomitant nephrotoxic agents, duration of therapy with targeted antibiotic, and intensive care unit status at the commencement of therapy. Data collection will include demographics, co-morbid conditions, severity of illness, dose and duration of all antimicrobial exposures, ICU admission, relevant laboratory parameters, microbiology data, and receipt of concomitant nephrotoxic agents. AKI will be defined as meeting the "Injury" classification of the Risk, Injury, Failure, Loss, and End-stage kidney disease criteria (a 2-fold increase in the serum creatinine to avoid misclassification due to insignificant rises in creatinine caused by trimethoprim).

Results: Data collection is in progress.

Conclusions: Data collection is in progress.
Dosing of enoxaparin in morbidly obese individuals: A retrospective cohort

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Cristal Exline, PharmD, BCPS

UAN: 0048-0000-17-065-L01-P

Learning Objectives:

1. Review existing literature regarding enoxaparin weight based dosing in morbidly obese individuals
2. Discuss the impact of using a less than standard dose of enoxaparin in a morbidly obese patient on bleeding and thrombosis.

Purpose:
Studies investigating the pharmacokinetics of non-standard doses of enoxaparin in a morbidly obese population have had mixed results, and there is a paucity of evidence analyzing thrombosis and bleeding risk in this population. The primary objective of this study was to evaluate incidence and risk of major bleeding between different enoxaparin dosage strategies in patients weighing greater than or equal to 120 kilograms receiving treatment doses of enoxaparin. Secondary objectives include evaluating incidence and risk of minor bleeding, thrombosis, ischemic stroke, and mortality.

Methods:
This study was completed using patient medical records stored in Epic®, the shared medical record system for all Cleveland Clinic Hospitals. Patient data was extracted for three community hospitals from the past five years. Patients were included in the primary analysis if they received enoxaparin with the intent of full anticoagulation for more than 24 hours, weighed greater than or equal to 120 kg at the time of treatment, and had outcomes data documented throughout the course of therapy. Data was collected for patients with a creatinine clearance less than 30 mL/min (including dialysis patients) for the purposes of an ad-hoc subgroup analysis, but this data was excluded from the primary analysis. Patients less than 18 years old, patients with no creatinine or weight data, and patients with documented heparin induced thrombocytopenia were excluded. The incidence of the primary and secondary outcomes occurring within seven days of the last known dose of enoxaparin were compared between patients receiving an enoxaparin dose less than 90% of the standard recommended dose and greater than or equal to 90% of the standard dose. An identical comparison was made between patients weighing greater than or equal to 150 kg and less than 150 kg.

Results: At the time of abstract submission, sufficient data has not been collected to determine the preliminary results.

Conclusions: At the time of abstract submission, sufficient data has not been collected to determine the preliminary results.
Evaluation of the dosing appropriateness of erythropoietin stimulating agents (ESAs)

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UAN: 0048-0000-17-066-L01-P

Learning Objectives:

1. Recognize the importance of initiating or converting darbepoetin to the appropriate dose in accordance with FDA-approved labeling
2. Identify the potential safety concerns and cost effects of not dosing darbepoetin in accordance with FDA-approved labeling

Purpose:
ESAs are FDA-approved for the treatment of anemia in chronic kidney disease (CKD). Dosing of ESAs not in accordance with FDA-approved labeling can lead to major adverse events such as myocardial infarction, stroke, and thromboembolism. The current ESA guideline at our institution focuses on the use of ESAs alongside the Risk Evaluation and Mitigation Strategy program for oncology patients. Further guideline development may be beneficial for the CKD inpatient population. ESA dosing in accordance with FDA recommendations would be expected to maximize treatment success and minimize adverse outcomes.

Methods:
An Institutional Review Board-approved, randomized, retrospective chart review was conducted of patients prescribed darbepoetin for anemia in CKD. Inclusion criteria: >18 years old; admitted to Beaumont Hospital, Troy between October 2015 and August 2016 with an active order for darbepoetin. Exclusion criteria: active chemotherapy within the last six months; pregnancy; prescribed zidovudine for Human Immunodeficiency Virus. The primary endpoint was to evaluate ESA dosing in accordance with FDA-labeling in CKD patients with anemia. The secondary endpoint was to identify possible safety concerns and to determine cost-saving potential of dosing in accordance with FDA recommendations. Data collected at baseline and up to 24 hours after darbepoetin administration included patient characteristics, past medical history, CKD staging, darbepoetin dosing and pertinent lab values.

Results: Darbepoetin was not initially dosed in accordance with FDA-labeling in the majority (add %) of patients. A quarter of patients admitted to the hospital on epoetin alfa were not converted to darbepoetin in accordance with FDA-approved recommendations. There was no clinically significant difference between hemoglobin and blood pressure prior to and post darbepoetin administration during hospitalization. Dosing in accordance with FDA-labeling has the potential drug cost savings of $20,000 annually at our institution.

Conclusions: ESA dosing in accordance with FDA-recommendations is important to decrease the potential for adverse outcomes and promote cost savings.
Optimizing Central Pharmacy Workflows using Automated Dispensing Cabinets’ Percentage Trigger Threshold Refill Technology

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UAN: 0048-0000-17-067-L04-P

Learning Objectives:
1. Describe how percentage trigger thresholds provide a similar medication stock out incidence compared to scheduled fills
2. Explain the efficiency optimizations to pharmacy technician workflows with the implementation of percentage trigger thresholds

Purpose:
The proper use of medication automated dispensing cabinets (ADC) may enhance patient safety, reduce medication errors and optimize pharmacy processes and procedures. Hillcrest Hospital utilizes PyxisTM medication cabinet technology, which is capable of assigning maximum and minimum drug levels. PyxisTM ADCs can be refilled with a scheduled fill or a percentage trigger threshold. Both methodologies refill ADCs based upon minimum par levels, but differ in the time of day in which the refills occur. The purpose of this study was to demonstrate how percentage trigger thresholds were similar to scheduled fills in reducing the incidence of medication stock outs. We hypothesized that percentage trigger threshold refill methodology would adjust pharmacy technician workflows by moving refills earlier in the day. We also sought to show that this convention permitted technicians to focus on other tasks such as unit dose packaging, cart fill and other assignments later in the day because of the workflow change to the refill process.

Methods:
The study was conducted at Hillcrest Hospital which is a 510-bed acute, tertiary care hospital. Data was collected over a 14 day period in all adult patient beds including general medicine, critical care and intensive care units, emergency department, and labor and delivery floors. The primary endpoint was to compare stock out rates between scheduled fills and percentage trigger thresholds. Percentage trigger threshold stock out incidences were simulated from scheduled fills. Classification of percentage trigger threshold stock out consisted of less than a 2 hour interval from the previous medication vend to when the stock out occurred during a scheduled fill. Adjustment in technician workflows were determined by comparing hourly medication fill rates. All primary and secondary outcomes were reported using descriptive statistics.

Results: Results will be presented at the Ohio Pharmacy Residency Conference.

Conclusions: Conclusions will be presented at the Ohio Pharmacy Residency Conference.
Assessment of Current Trends in the Provision of Patient Care Services and Billing Practices Among Community Based Pharmacists

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UAN: 0048-0000-17-068-L04-P

Learning Objectives:

1. Discuss current trends in community based pharmacy practice
2. Explain billing options pharmacists utilize in outpatient setting and incidence of use in current practice
3. Describe past trends in community based pharmacy practice and future directions for community based practice

Purpose:
The primary objectives of this study are: 1) to evaluate the services of pharmacists in community-based settings and 2) describe billing techniques utilized by pharmacists in community-based settings. The secondary objectives are to describe pharmacist perceived utilization and value. As the role of the pharmacist is changing nationally, this study will describe how pharmacists are practicing across the country and what services they provide. In addition we will assess the components of their services and how they built those services.

Methods:
A random sample of 10,000 pharmacists from APhA’s community/ambulatory care based practice email lists will be sent an electronic survey to complete. Participants will have one month to complete the survey and there will five $50 gift cards raffled for incentives to complete the survey. The questions on the survey will focus on the following concepts: describing the type of practice site, services of the pharmacist, the billing patterns of the pharmacist, the pharmacist perceptions of their utilization and incorporation into practice, components of their services, how pharmacists built their services and demographic information of the pharmacist. The survey will be sent in October 2016, with data being collected and analyzed in November 2016. Data will be analyzed using descriptive and inferential statistics.

Results: Results are pending. The results will to evaluate the services of pharmacists in community-based settings and describe billing techniques utilized by pharmacists in community-based settings.

Conclusions: Will be presented once results are finalized. The purpose of this research is to understand the services pharmacists are providing in community based settings as well as their methods for billing for services. From the findings of the survey we will describe trends in practice and billing as well as ways to expand services.
Major bleeding with apixaban in atrial fibrillation: patient characteristics, management, and outcomes

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UAN: 0048-0000-17-069-L01-P

Learning Objectives:
1. Describe patient characteristics associated with apixaban major bleeding
2. Discuss opportunities to improve safety of apixaban use in the inpatient clinical setting

Purpose:
Increased apixaban use in practice requires clinicians to be aware of major bleeding events. Clinical trial and claims data suggest major bleeding events with apixaban do not pose an increased safety concern. This study seeks to further elucidate the significance of major bleeding in atrial fibrillation patients taking apixaban. The study objectives were to identify patient characteristics, bleed management, bleed outcomes, and safety improvement opportunities in these patients.

Methods:
This was a retrospective cohort study. Internal adverse events and an electronic medical record search identified apixaban patients with hemorrhage, atrial fibrillation, and transfusion from January 2013 to May 2016. Patients meeting the International Society on Thrombosis and Haemostasis’s major bleeding criteria, with a temporal relationship to apixaban, were included. Descriptive statistics were used to report patient characteristics, bleed management, and bleed outcomes.

Results: Fifty patients were identified with an average age of 78.9 ± 9.8 years. Additional patient characteristics included hypertension (94%), anemia (68%), concomitant antiplatelet use (68%), and renal impairment (10%). Gastrointestinal bleeding and intracranial hemorrhage occurred in 72% and 14% of patients, respectively, with most bleeds occurring prior to admission (78%). Diagnostic testing for the bleed was performed in 82%, procedures were required in 20%, packed red blood cells were used in 82%, and reversal agents were administered in 6% of patients. Transition to hospice occurred in 6% of patients, while mortality during the index admission was 0%. Anticoagulation remained on hold at discharge for 64% of patients.

Conclusions: Patients with apixaban major bleeding events were elderly, had a history of hypertension and anemia, and were on concomitant antiplatelet therapy. Major bleeding events were not life-threatening and rarely required a reversal agent. Ensuring a need for combination anticoagulant/antiplatelet therapy, avoiding use in renal impairment, and improved documentation of the anticoagulation plan during transitions of care were identified opportunities to improve safety.
Implementation of Matrix-Assisted Laser Desorption/Ionization Time-of-Flight (MALDI-TOF) and Antimicrobial Stewardship Intervention at an Academic Medical Center

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UAN: 0048-0000-17-070-L01-P

Learning Objectives:

1. Describe the process of rapid diagnostic testing and its role in clinical practice
2. Review the literature behind rapid diagnostic testing and antimicrobial stewardship in bloodstream infections

Purpose:
Prompt organism identification is vital for optimizing antimicrobial therapy in patients with bloodstream infections (BSIs). Rapid diagnostic tests (RDTs), such as Matrix-Assisted Laser Desorption/Ionization Time-of-Flight, have been shown to improve time to effective therapy and positively impact patient outcomes when used with antimicrobial stewardship team (AST) intervention in this setting. The objective of this study is to assess the impact of this combined approach on management of BSIs at our institution.

Methods:
Single-center, pre-post quasi-experiment including all patients treated for documented BSI at the University of Toledo Medical Center between December 19, 2015 and December 31, 2016. Patients transferred with documented BSI, expired prior to organism identification, or had blood cultures with Mycobacterium, Nocardia, anaerobes, or filamentous fungi were excluded. Primary endpoint: time to effective antimicrobial therapy. Secondary endpoints: time to optimal antimicrobial therapy, 30-day readmission and all-cause mortality, hospital and intensive care unit length (ICU) of stay, and recurrent bacteremia. All statistical analyses performed using SPSS software.

Results: (Preliminary) 483 blood cultures screened, 203 included; 101 pre- and 102 post-MALDI-TOF implementation. Baseline characteristics were similar between groups except for age. Median (IQR) time to effective therapy was 6.4 h (2.6, 23.68) in the pre-MALDI group and 5.8 h (2.06, 23.16) in the post-MALDI group, p=0.701. Median (IQR) time to optimal therapy was 66.6 h (48.4, 92.7) in the pre-MALDI group and 66.8 h (39.9, 94.4) in the post MALDI group, p=0.582. There was also no significant difference between groups in 30-day readmission, 30-day all-cause mortality, and length of stay metrics.

Conclusions: Implementation of MALDI-TOF and AST intervention did not significantly improve an already prompt time to effective therapy in patients with BSIs at our institution. Time to optimal therapy was also similar, thus highlighting the need for more rapid susceptibility tests in order to support earlier de-escalation of therapy.
Implementation of pharmacist led medication reconciliation and education in the emergency department; a pilot project at a small, Planetree community hospital

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Christopher Shelby, PharmD, BCPS; Patrick Divoky, PharmD, BCPS; Dustin Carneal, PharmD

UAN: 0048-0000-17-071-L04-P

Learning Objectives:
1. Identify the different activities an Emergency Department Pharmacist may perform
2. Discuss the role of a follow up phone call post Emergency Department visit

Purpose:
Readmission rates for chronic diseases are elevated and it can be partially contributed to noncompliance or misunderstanding about medications. In addition, medication lists for patients may be incomplete or outdated. Therefore, the objective of this study is to examine the effectiveness a pharmacist has on medication reconciliation and education in the Emergency Department (ED) by examining readmission rates at 30 and 90 days post initial visit.

Methods:
Prior to initiation, IRB approval was obtained. Upon patient admission to the Emergency Department from November 1-30, 2016, the pharmacist completed a medication reconciliation and provide medication counseling to patients. Upon conclusion of the visit, patients that were discharged with any new prescription or diagnosis of a chronic disease were counseled by the pharmacist. In addition, the pharmacist provided a follow up phone call for patients within 48-72 business hours after the initial visit to review changes, answer questions, and reinforce education topics. Daily ED activity reports were collected via the hospital’s electronic medical record system to track patients the pharmacist counseled, patients that were missed, patients that received a standard of care medication reconciliation, and patients that were admitted to the ED when the pharmacist was not available. In February 2017, readmission rates at 30 and 90 days post initial presentation to ED were examined to determine if the patients that received counseling by the pharmacist had lower readmission rates compared to those patients that did not receive counseling. Other information that was collected include the number of interventions, number of patients that left the ED without being seen, number of Outcomes MTM™ opportunities for patients, age, number of medications on admission and discharge, and number of medications that are scheduled and as needed.

Results: Data is being analyzed. Results and conclusions will be presented at the Ohio Pharmacy Residency Conference.

Conclusions: N/A
Evaluation of inpatient tolvaptan use in a 338-bed hospital with post-evaluation prescriber education and assessment

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UAN: 0048-0000-17-072-L01-P

Learning Objectives:

1. Describe differences in efficacy and outcomes between tolvaptan therapy and alternative methods used to treat hyponatremia.
2. Identify the limitations of an institution discouraging tolvaptan therapy selection in the treatment of hyponatremia.

Purpose:
Tolvaptan is a vasopressin V2-receptor antagonist indicated for the treatment of clinically significant hypervolemic or euvolemic hyponatremia, including those with heart failure and Syndrome of Inappropriate Antidiuretic Hormone (SIADH). Clinically significant hypervolemic or euvolemic hyponatremia is defined as a serum sodium level less than 125 mEq/L or less marked hyponatremia that is symptomatic and refractory to fluid restriction. Hyponatremia can lead to severe neurological issues, including cerebral edema, and is also associated with increased morbidity and mortality in patients with concomitant heart, liver, and neurological disease. Mercy Health- Regional Medical Center provides access to low-cost therapies to correct hyponatremia; however, this hospital has a high rate of tolvaptan usage compared to other institutions within the Mercy Health System. With the average price of tolvaptan therapy estimated at $1,200 per patient, this represents a considerable expenditure for the hospital and patient.

The purpose of this study is to evaluate the usage of tolvaptan therapy and design institution-specific education to guide usage.

Methods:
This study was approved by the Institutional Review Board at the University of Findlay. The electronic medical record was used to identify patients who received tolvaptan during their inpatient stay from October 1, 2016 to January 31, 2017. Data gathered from patient profiles included the following: gender, demographics, etiology of hyponatremia, baseline serum sodium, tolvaptan dosing regimen, serum sodium levels at discontinuation of therapy, prior and/or concomitant treatment modalities of hyponatremia, and prescriber name/specialty. Prescriber documentation was also examined to determine if reasons for selecting tolvaptan therapy were recorded. Following completion of the drug use evaluation, institution-specific prescriber education will be created to guide tolvaptan usage.

Assessment of education provided to prescribers will consist of a questionnaire determining if education has changed their practice and repeat analysis of tolvaptan usage.

Results: Final results to be presented at the Ohio Pharmacy Resident Conference.

Conclusions: Conclusions to be presented at the Ohio Pharmacy Resident Conference.
Pilot study of the effectiveness of a pharmacist-led tobacco cessation mobile health clinic in a rural setting

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UAN: 0048-0000-17-074-L01-P

Learning Objectives:
1. Review data regarding tobacco use in adults in rural settings.
2. Discuss the process of establishing tobacco cessation services in a rural setting.

Purpose:
To establish a pharmacist-led tobacco cessation service through a mobile health clinic in a rural setting.

Methods:
The IRB-approved pilot program was developed in collaboration with the regional health department. All health care providers within the county were contacted by phone. An educational presentation was provided to the Chamber of Commerce businesses. Tobacco users meeting inclusion criteria are recruited from five rural communities in Hardin County. Participants are required to have an initial appointment at a mobile clinic event or the ONU HealthWise clinic where data is collected on tobacco use, medical history, medications, and vital signs. At the initial visit, pharmacists and participants choose a quit date and select appropriate therapy. Participants complete a survey assessing the effectiveness of various tobacco cessation marketing strategies, reasons for tobacco cessation, and perceived barriers. Participants receive a phone follow up on their set quit date followed by appointments at weeks one, four, eight, and twelve of therapy. Follow-up appointments are by a phone or onsite appointment. At each appointment, an assessment of tobacco use, symptoms of nicotine withdrawal, and side effects are evaluated. Program effectiveness defined as no tobacco used for two weeks after ending treatment. Data will be de-identified and presented in aggregate form. Descriptive and non-parametric inferential statistics will be utilized.

Results: All independent health care providers and 3 local health systems in the county were informed of the program. 103 local businesses were mailed information on the program. 22 patients with a PMH of tobacco use were contacted by phone. 2 patients have been referred from physicians.

Conclusions: The tobacco cessation clinic was well received by physicians, businesses, health agencies, and by patients. This clinic model may be applied in other rural settings as a method of treating tobacco use in a medically under-served population.
Use of dalbavancin as an alternative to traditional agents for the treatment of

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UAN: 0048-0000-17-075-L01-P

Learning Objectives:

1. Identify the most common organisms observed in acute bacterial skin and skin structure infections
2. Recall key characteristics of dalbavancin

Purpose:
Dalbavancin is a lipoglycopeptide antimicrobial given as a one-time intravenous (IV) dose for the treatment of ABSSSI. The advantages of dalbavancin are one time dosing, no therapeutic drug monitoring and potential avoidance of hospital admission. The disadvantages of dalbavancin are high cost and potential overuse in settings where less expensive options exist or antimicrobial therapy is not warranted. The purpose of this study is to determine the number (%) of patients with an ABSSSI diagnosis admitted to a level 1 trauma center who would have qualified for dalbavancin treatment using predefined use criteria.

Methods:
This is a prospective and retrospective chart review of adult patients admitted to a level 1 trauma center with a primary diagnosis of cellulitis (ICD10 L03) and/or local skin and soft tissue infections (ICD10 L08.9). Inclusion criteria are presence of greater than or equal to 2 local signs/symptoms of complicated ABSSSI and greater than or equal to 1 systemic sign or complicating factor requiring IV therapy. The following data will be collected from the electronic medical record: patient age, gender, ethnicity, antibiotic allergies, length of stay, local signs/symptoms of infection, temperature, laboratory results (white blood cell count, vancomycin levels, microbiology results), antibiotic therapy, adverse effects related to antibiotic therapy, peripherally inserted central catheter placement, need for surgical intervention, development of a deep seated infection during hospitalization, intravenous drug use, and 30 day readmission. Patients will qualify for dalbavancin if the following criteria are met: requirement of IV therapy for at least 3 days but less than 14, no gram negative organisms or anaerobic organisms isolated, no need for operative interventions, linezolid therapy contraindicated, and no need for hospital management of other comorbidities. All data will be de-identified and maintained confidentially. Descriptive statistics will be utilized to analyze results.

Results: To be presented at the Ohio Pharmacy Resident Conference.

Conclusions: To be presented at the Ohio Pharmacy Resident Conference.
Length of stay in heart failure patients hospitalized with acute exacerbations of chronic obstructive pulmonary disease treated with beta-blockers

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UAN: 0048-0000-17-076-L01-P

Learning Objectives:

1. Describe the GOLD guideline recommendations as they relate to patients with COPD and concomitant HFrEF
2. Identify proposed reasons for underutilization of beta-blockers in patients with COPD and concomitant HFrEF

Purpose:
Although current literature has shown the benefit and safety of cardioselective beta-blockers in patients with chronic obstructive pulmonary disease (COPD) and concomitant heart failure with reduced ejection fraction (HFrEF), there is a paucity of data surrounding hospital length of stay (LOS) for COPD exacerbations. It is pertinent to evaluate LOS for patients with HFrEF on metoprolol or carvedilol admitted with a COPD exacerbation. Determining if beta-blocker cardioselectivity impacts this patient population could lead to better drug selection, cost savings, and improved outcomes.

Methods:
This multicenter, retrospective, observational study evaluated adult patients 40 years of age and older over a two-year period admitted for at least 48 hours to non-intensive care unit (ICU) medical services at Sinai-Grace, Harper University, and Detroit Receiving Hospitals who had a primary diagnosis of acute exacerbation of COPD on admission and a past medical history of HFrEF. The primary objective was to determine if a hospital LOS difference existed between patients on cardioselective versus non-cardioselective beta-blockers. Secondary outcomes included: in-hospital mortality, late mechanical ventilation (day 3 or later), or patients switched from carvedilol to metoprolol during admission or upon discharge. Additional data collected included: age, sex, left ventricular ejection fraction, home oxygen requirements, chest x-ray results, bicarbonate and/or arterial blood gas carbon dioxide levels, total steroid doses administered (standardized to prednisone-equivalents), total inpatient days of steroids, discharge prescription for chronic steroids, total days of antibiotic use, doses of metoprolol tartrate and succinate and carvedilol, and non-invasive bilevel positive airway pressure requirement.

Results: Data collection is currently ongoing.

Conclusions: n/a
Assessment of the impact of an antibiotic allergy protocol at Summa Health System
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UAN: 0048-0000-17-077-L01-P

Learning Objectives:
1. Recognize the incidence of penicillin allergy and its cross reactivity with cephalosporin antibiotics
2. Describe the Summa Health System antibiotic allergy protocol and assessment tool
3. Explain the importance of determining a patient's allergy status and its impact on antibiotic expenditures

Purpose:
B-lactam antibiotics are the first line agents for the treatment of many common bacterial infections within the hospital setting. Approximately 8% of the population is reported to have a penicillin allergy in the United States. A formal allergy assessment was developed to determine patient’s antibiotic allergy status at Summa Health System. The protocol was reviewed and approved by the P&T Committee on November 9th, 2016. The purpose of this project was to assess the safety and validity of the assessment tool at Summa Health System.

Methods:
Patients were screened for B-lactam antibiotic allergies in the electronic medical record. Once patients were identified, the pharmacist performed a face-to-face evaluation with either the patient or family members. The pharmacist used an optional medication allergy assessment form, which was developed by the Summa Health Department of Pharmacy to determine the patient’s allergy status. Recommendations were made by contacting providers using the paging system, telephone, in-person or via pharmacist note left on the patient chart. The patient was followed for clinical outcomes and adverse reactions up to seven days, beginning on first day of transitioning to B-lactam antibiotics.

Results: 84 patients were included in the study. The percentage of patients with a listed B-lactam allergy who tolerated B-lactam antibiotics in the intervention and control groups was 75.9% and 56.4 % respectively (P=0.078). The incidence of adverse reactions and length of hospital stay were similar between the groups. The total cost of antibiotics per day for each patient was $21.20 in the intervention, and $61.00 in the control group (P

Conclusions: Utilize a standardized antibiotic allergy assessment tool along with pharmacist interventions promote the appropriate use of antibiotics in the health system, and significantly reduce the cost of antibiotic expenditure.
Utilization of a Community-Pharmacy Based Algorithm to Triage Pharmacist Care in an Underserved Population.

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UAN: 0048-0000-17-078-L04-P

Learning Objectives:

1. Recognize pharmacist’s limited ability to see every patient which might benefit from their care
2. Discuss ways pharmacists can determine who would benefit most from Medication Therapy Management (MTM)
3. Describe factors which may increase the likelihood of a patient's medication regimen having multiple drug therapy problems
4. Prioritize patients who may benefit more from MTM over others

Purpose:
To determine if pharmacist-led medication therapy management (MTM) services can decrease the risk of hospital admission in patients identified by a community-pharmacy based risk assessment tool. Also, to determine which patients may benefit most from MTM services.

Methods:
A quasi-experimental study is underway in a federally qualified health center in Akron, Ohio. The clinic’s pharmacy dispensing software calculates patient-specific risk scores utilizing community pharmacy data to determine the likelihood of a hospital admission in the next 30 days. Medicaid patients with a risk score of ≥75 will be targeted for a 1:1 MTM visit with the pharmacist. The pharmacist providing the service will assess the patient’s drug therapy and resolve any drug therapy problems identified including any issues identified by the algorithm such as non-adherence and medication discrepancies. An intention to treat analysis will be conducted comparing hospital admission rates 30 days prior and 30 days post-intervention via a paired samples McNemar’s test. At 30 days post-intervention, patient risk scores will be assessed to determine if the score has been lowered and an effect size will also be calculated. Medicaid’s claim database will also be evaluated at this time to determine if the patient experienced a hospital admission. The number of drug therapy problems identified by the pharmacist will also be assessed at this time. This data will be re-assessed at 3 months post-intervention to determine if the pharmacist interventions have long-term benefit.

Results: Beginning in February of 2017, 150 patients were identified as having a risk score of ≥ 75 in the pharmacy dispensing software. Of these, 46 patients met inclusion criteria of having Medicaid insurance and not being seen by pharmacy in the previous three years. To date, 6 of these patients have been seen by the pharmacy team, with more appointments scheduled in the future. Data collection is on-going, and will continue through April of 2017

Conclusions: Results from this study and continuations of this study may help facilitate better identification of patients who will benefit from pharmacist care.
Evaluation of the Efficacy of Combination Dual Antiplatelet Therapy with Oral Anticoagulant Therapy

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UAN: 0048-0000-17-079-L01-P

Learning Objectives:
1. Recall current recommendations regarding anticoagulant use with dual antiplatelet therapy in triple therapy
2. State the risk of thrombosis events in patients receiving dual antiplatelet therapy with warfarin compared to dual antiplatelet therapy with direct oral anticoagulants

Purpose:
The combination of dual antiplatelet therapy (DAPT) (aspirin plus a P2Y12 inhibitor) with an oral anticoagulant (OAC) is colloquially referred to as “triple therapy” and is used for various indications to reduce the risk of thromboembolic events. Previous triple therapy studies evaluated warfarin containing combinations in patients with a long-term indication for anticoagulation undergoing percutaneous intervention and found that patients receiving triple therapy have a higher risk of bleeding than antiplatelet therapy alone or dual therapy (antiplatelet therapy plus an anticoagulant). More recently, triple therapy combinations with a direct oral anticoagulant (DOAC) have been assessed, however lower, non-FDA approved, doses were evaluated in order to reduce the risk of bleeding. The primary endpoint of most triple therapy studies to date has been focused on bleeding events. Since the pathophysiology of thromboembolic events is multifactorial, efficacy of prevention may vary over triple therapy combinations. This study aims to investigate efficacy of triple therapy with warfarin containing combinations versus DOAC containing combinations using FDA approved DOAC doses for all indications.

Methods:
This is a multicenter, retrospective, chart review which included six institutions within the metro Detroit area. Patients who were initiated on triple therapy consisting of dual antiplatelet therapy with aspirin plus a P2Y12 inhibitor plus a direct oral anticoagulant between January 2013 and December 2015 were collected at each site. Each patient was assigned a unique identifier prior to de-identification to allow for identification of cross site readmission. The primary outcome was time to thrombosis event. Accuracy of extracted data was verified through chart review of a sample of patients. Tests used for statistical analysis will be utilized as follows: descriptive data will be used to analyze prescribing patterns, chi-squared tests will be used to evaluate all nominal data, the Student’s t test will be used to analyze continuous data, hazard ratios will be used to analyze events over time, log-rank tests will analyze time to events, survival will be analyzed using Kaplan-Meier, and sensitivity analyses will be performed using logistic regression.

Results: Data collection and analysis are in progress. Results and conclusions will be presented at the 2017 Ohio Pharmacy Resident Conference.

Conclusions: Data collection and analysis are in progress. Results and conclusions will be presented at the 2017 Ohio Pharmacy Resident Conference.
Pharmacist management of vancomycin dosing in the critical care unit of an acute care urban hospital

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UAN: 0048-0000-17-080-L01-P

Learning Objectives:

1. Identify the importance of monitoring vancomycin
2. Describe the significance of pharmacist management of vancomycin therapy

Purpose:
Vancomycin is a glycopeptide antibiotic with effective coverage against gram-positive bacteria, and is the primary antibiotic in the treatment of methicillin resistant Staphylococcus aureus (MRSA). When given intravenously, there is a potential for harmful adverse events including nephrotoxicity. Monitoring trough concentrations allows clinicians to minimize adverse effects, while ensuring efficacy. The purpose of this study was to assess the number of therapeutic first troughs obtained from pharmacist managed vancomycin compared to non-pharmacist vancomycin management, with the ultimate goal to implement pharmacy-to-dose vancomycin at Mercy Medical Center hospital-wide.

Methods:
Pharmacy managed all vancomycin dosing and monitoring for patients admitted to the intensive care unit (ICU) during the months of November 2016 and January 2017. Management included ordering appropriate initial vancomycin doses, measuring and assessing troughs, making dosing adjustments, monitoring cultures, and providing recommendations for changes in therapy when necessary. Data collected from current patients were retrospectively compared with patients who were prescribed vancomycin in the ICU in November 2015 and January-April 2016. The primary outcome of the study was the percentage of troughs therapeutic at first draw. Secondary outcomes of this study included percentage of subtherapeutic troughs (20 mcg/mL).

Results: 26 patients were included in the pharmacist management, and 21 patients were included in the non-pharmacist management of vancomycin. 18 (69.2%) of patients had therapeutic troughs at first draw in the pharmacist management group compared to 10 (47.6%) in the non-pharmacist management group (P=0.133). Supratherapeutic troughs were reported in 4 (15.4%) and 2 (9.5%) (P=0.678) and subtherapeutic troughs were reported in 4(15.4%) and 9(42.9%) (P=0.036) in pharmacist and non-pharmacist management groups, respectively.

Conclusions: Pharmacist management of vancomycin showed no statistical significance in therapeutic first troughs, but showed a statistically significant decrease in subtherapeutic troughs.
Cost-avoidance with administering oritavancin in the ED

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UAN: 0048-0000-17-081-L01-P

Learning Objectives:
1. Identify the utility of using a single-dose IV antibiotic to treat acute bacterial skin and skin-structure infections (ABSSSI)
2. List selection criteria for patients with ABSSSI that qualifies them for treatment with a single-dose IV antibiotic
3. Recall benefits of using a single-dose IV antibiotic
4. Recall potential negatives of using a single-dose IV antibiotic

Purpose:
The objective of this study is to determine cost-avoidance, in dollars, 30-days post treatment using oritavancin in eligible patients with cellulitis (an ABSSSI) administered in the ED against the average cost of admission for patients with cellulitis. Using cost-avoidance as an outcome allows real-world assessment of whether treating patients with oritavancin has reduced healthcare costs. By assessing if cost-avoidance was achieved with oritavancin, the potential exists to increase its utility in the outpatient setting and prevent healthcare spending.

Methods:
This study was submitted to the Institutional Review Board for approval. Patients presenting to the emergency department (ED) will be categorized based on drug protocol to be eligible to receive oritavancin infusion. Patients identified as potential candidates by ED team and if insurance coverage is validated, patients may receive oritavancin if decision to treat is made. Primary outcome will be cost-avoidance. Secondary outcomes will measure admission rate, patient satisfaction, and reimbursement percentage from third-party payers. The following data will be collected from the electronic medical record: third party billing information, reimbursement decision/amount from third party, status of coverage, thirty-day admission data following infusion, age, race, sex, race, principle diagnosis, and laboratory reports. All data will be collected and de-identified, and private health information will be stored in a password protected document. The data will remain on an encrypted and secure laptop that will be in the possession of the PI. No other investigator will have full-access to patient information. Patients who received oritavancin will be followed-up to determine cost to patient and health system. Cost-avoidance will be determined by analyzing reimbursement versus previous year average cellulitis cost of admission

Results: In process

Conclusions: In process
Comparison of Vancomycin Regimens and Resultant Trough Concentrations in a Pediatric Population

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UAN: 0048-0000-17-082-L01-P

Learning Objectives:
1. Review current guideline recommendations for pediatric vancomycin dosing
2. Discuss goal trough concentrations based on type of infection

Purpose:
The Infectious Diseases Society of America currently recommends a vancomycin dose for pediatric patients of 40 mg/kg/day divided every six hours for minor infections and 60 mg/kg/day divided every six hours for more complicated infections. Recent studies have shown the current dosing strategies are not consistently achieving the recommended target vancomycin troughs of 10 to 20 mcg/mL for minor infections and 15 to 20 mcg/mL for complicated infections. The objective of this study is to evaluate initial and subsequent vancomycin dosing regimens to compare the frequency of therapeutic trough levels and nephrotoxicity in pediatric patients.

Methods:
A single center, retrospective chart review began after approval from the Institutional Review Board. Subjects between the ages of 29 days to 17 years admitted to the general pediatrics or pediatric intensive care units who received intravenous vancomycin from September 1, 2013 to August 31, 2016 were identified via the electronic medical record. For inclusion, a subject must have received more than three vancomycin doses and had a trough level drawn one hour prior to vancomycin. Neonates, subjects receiving vancomycin via continuous infusion or without a documented trough concentration, and subjects with a history of renal replacement therapy were excluded. The following data was collected: demographics, history of cystic fibrosis, burn, or cancer, recent antimicrobial therapy, infection type and pathogen, vancomycin regimens and trough levels, renal function measures, and concomitant nephrotoxic medications. Initial intravenous vancomycin doses were categorized as 40 to 45 mg/kg/day or 60 mg/kg/day and the percent of subjects who reached a target vancomycin trough level were compared. Secondary analysis of dose adjustments, doses stratified by age group and admitting service, common dosing intervals, and nephrotoxicity were assessed.

Results: Data collection is currently ongoing.

Conclusions: Results and conclusion will be presented at the Ohio Pharmacy Resident Conference.
**Addressing Primary Nonadherence: A Collaboration between a Community Pharmacy and a Large Pediatrics Clinic**

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Heidi R. Luder, PharmD, MS, BCACP; Andrew F. Beck, MD, MPH; Pamela C. Heaton, PhD, RPh; Joseph M. Wedig, PharmD, BCACP; Stacey M. Frede, PharmD, BCACP, CDE

**UAN: 0048-0000-17-083-L04-P**

**Learning Objectives:**

1. Define primary nonadherence of prescription medications.
2. Identify benefits of a collaborative relationship between a community pharmacy and primary provider to address primary nonadherence.

**Purpose:**

This study aims to determine the impact of increased communication between the primary care provider and the community pharmacy, as well as, targeted patient specific interventions prior to initial fill of medications on primary nonadherence rates and secondary nonadherence rates. This study also aims to document adherence barriers in relation to primary nonadherence.

**Methods:**

Medication adherence research to date focuses on secondary nonadherence and a limited number of quality improvement studies addressing primary nonadherence at community pharmacies exist. Through an existing relationship between a chain community pharmacy and a pediatric clinic, pharmacists identified clinic patients for intervention and clinic providers communicated ICD indications. Patients randomized to the control group will receive standard automated reminder phone calls and patients selected for intervention will receive a personalized call from a pharmacist at the time of prescription verification. The initial call will provide specific prescription information with related diagnosis, reinforce importance to health and communicate timing of prescription return to stock and subsequent communication to clinic providers. When a prescription is not picked up at 48 hours, a pharmacist will initiate a second phone call to administer a short survey of open-ended questions addressing barriers and concerns. Clinic providers will be notified when patients do pick up prescriptions at 10 days for follow-up and continuity of care. Patients that pick up medications will be offered counseling focused on medication adherence as well as adherence aids. Secondary adherence will be addressed with follow-up calls from a pharmacist 3-5 day for acute and at 7 days for chronic medications. The incidence of primary nonadherence in intervention and control groups will be collected and secondary adherence will be reported by proportion of days covered. The results will be analyzed by descriptive and inferential statistics as appropriate.

**Results:** In progress.

**Conclusions:** Research in progress.
Evaluation of a pain, agitation, and delirium order-set protocol

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UAN: 0048-0000-17-084-L04-P

Learning Objectives:

1. Identify the current documentation and patient assessments under the protocol.
2. Discuss future directions to ameliorate the pain, agitation, and delirium protocol

Purpose:
Pain, agitation, and delirium (PAD) are serious issues in the intensive care unit (ICU), leading to increased morbidity and mortality. PAD is scored on the Critical Care Pain Observation Tool (CPOT), the Richmond Agitation and Sedation Scale (RASS), and the Confusion Assessment Method (CAM), which are widely used and validated assessments. The Cleveland VA implemented an ICU order-set to facilitate the selection of medications and increase the documentation of patient assessments. The purpose of the study is to assess the impact of the implemented order-set in the ICU.

Methods:
This is a retrospective chart review of mechanically ventilated patients in the ICU. Patients intubated for >24 hours between July 1st 2016 and January 30th 2017 were included. Patients intubated for seizures or alcoholic withdrawal were excluded. Patients were identified by the “Respiratory Airway Management Note” or “Ventilator Oral Care” order. Definition of PAD goals: CPOT scores of 0 to ≤2, RASS scores of -2 to 0, and CAM scores of negative. The primary endpoint was the percentage of documented CPOT, RASS, and CAM scores that are at goal for the first 72 hours of intubation or until extubation.

Results: A total of 151 patients were identified as being intubated in the ICU. After exclusion, 50 patients remained for data collection. Intubation

Conclusions: The implemented PAD delirium order-set in the ICU showed patient’s CPOT, RASS, CAM were mostly at goal. Although the CPOT score is one of the most validated assessments in the ICU, it was used less than half of the time. The numerical scale was the most used pain scale (46.6%).
Bleeding risk with apixaban versus warfarin in patients with kidney dysfunction

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UAN: 0048-0000-17-085-L01-P

Learning Objectives:

1. Discuss oral anticoagulants options approved in patients with kidney dysfunction
2. Identify evidence to support the use of apixaban in patients with kidney dysfunction

Purpose:
The use of apixaban in patients with impaired kidney function has not been extensively studied. Large clinical trials evaluating apixaban in patients with atrial fibrillation and/or acute venous thromboembolism excluded patients with creatinine clearance less than 25 mL/min. Small pharmacokinetic/pharmacodynamic studies have reported limited data, but did not include efficacy and safety outcomes. Furthermore, patients with impaired kidney function are at increased risk of bleeding without the presence of anticoagulation. This study will evaluate the risk of bleeding and the time to first bleeding event in patients on apixaban versus warfarin with creatinine clearance less than 25 mL/min.

Methods:
This is an Institutional Review Board approved retrospective study. The study was conducted at three tertiary academic medical centers. Chart review performed on all adult patients 18 to 89 years old admitted from January 1, 2013 through December 31, 2015. Patients were included who were initiated on apixaban or warfarin for at least 45 days of treatment with a creatinine clearance less than 25 mL/min. The target sample size was 1,000 patients. Data collected includes comorbidities, past medical history, social history, indication for anticoagulation, concomitant medication, stroke and bleeding risk scores, renal function, bleeding events, thrombosis events, complete blood count, and coagulation blood testing. Patients were identified through each site’s electronic medical record database, then de-identified data combined to create one database for analysis. This data will be analyzed to determine rate of bleeding and time to first bleeding event of apixaban versus warfarin. The Chi-squared test will be used to evaluate all nominal data, student’s t test will be used to analyze continuous data, and log-rank test to analyze time-to-event.

Results: Data is currently being collected and analyzed. Results will be presented at the Ohio Pharmacy Residency conference

Conclusions: Data is currently being collected and analyzed. Conclusion will be presented at the Ohio Pharmacy Residency conference
Analysis of a consult agreement in a federally qualified health center (FQHC) Look-Alike: a pharmacist-physician approach to managing uncontrolled diabetes

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UAN: 0048-0000-17-086-L01-P

Learning Objectives:

1. Describe the process of creating and implementing a consult agreement
2. Describe the role of a pharmacist within a Federally Qualified Health Center (FQHC) Look-Alike
3. Discuss the potential impact of pharmacy services in a Federally Qualified Health Center (FQHC) Look-Alike on patient and provider satisfaction

Purpose:
The addition of a pharmacist to an interprofessional healthcare team can improve patient care and satisfaction. As of 08/31/2016, the Ohio revised code 4729.39 for consult agreements between physicians and pharmacists was revised. The revision permits pharmacists to expand their scope of practice and provide optimal patient care services in collaboration with physicians. The purpose of this study was to evaluate the implementation of a consult agreement within the family practice clinic of a newly developed FQHC Look-Alike. The primary outcome is patient and physician satisfaction following pharmacist-directed patient.

Methods:
This retrospective study evaluated the integration of a pharmacist into the healthcare team in order to optimally manage diabetic patients. Care provided by the pharmacist will fall under the scope specified within the newly contracted consult agreement and occur during the months of November 2016 to April 2017. Inclusion criteria consist of age > 18 years, type 2 diabetes mellitus, and a hemoglobin A1c >9%. The clinical pharmacist could modify diabetic therapy and order blood and urine tests as specified within the protocol section of the consult agreement. Each patient was asked to complete a 10-item paper satisfaction survey evaluating the care provided by their clinical pharmacist. Physicians were requested to complete a 12-item assessment evaluating the service. Secondary outcomes included the number and types of interventions made by the pharmacist. Other data collected included: baseline demographics, medications, and co-morbid conditions.

Results: Data analysis is currently in progress. Final results and conclusions will be presented at the Ohio Pharmacy Resident Conference.

Conclusions: Data analysis is currently in progress. Final results and conclusions will be presented at the Ohio Pharmacy Resident Conference.
Effects of an Outpatient Immunization Clinic on Hospital Revenue and Hospital Associated Physician Practices

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UAN: 0048-0000-17-087-L04-P

Learning Objectives:

1. Describe the impact of a pharmacist-driven immunization clinic on hospital associated physician practices.
2. Identify the amount of revenue and financial efficacy of pharmacist administered immunizations in a hospital outpatient clinic.

Purpose:
The number of immunizations administered by pharmacists has grown immensely over the past 20 years. Currently, all 50 states allow pharmacists to administer vaccines in some capacity. Patients can now receive immunizations at many different locations including physician offices, hospitals, Centers for Disease Control and Prevention (CDC), and retail pharmacies. Despite the increase in availability of vaccines, immunization rates still remain below CDC and other national goals. Mercy Health- Regional Medical Center recognizes the opportunity to provide patients with increased access to vaccinations and better preventative care. By implementing a pharmacist-driven outpatient immunization clinic, the hospital attempts to provide better care for patients and an additional source for patients to receive recommended vaccinations. Outpatient and retail pharmacies have begun a large initiative to administer vaccines due to opportunities for new and increased revenue for services provided by pharmacists. Mercy Health- Regional Medical Center recognizes this service as a potential new source of revenue. By providing outpatient immunizations possible gains include; increased adherence to recommended vaccinations, a reduction in preventable hospital admissions, and increased revenue. Therefore, further investigation into the financial implications of pharmacists providing immunizations and the impact the clinic might have on hospital associated physician offices currently offering immunizations is warranted.

Methods:
Data will be collected through a retrospective chart review of patients who received immunizations through the Mercy Health- Regional Medical Center Immunization Clinic from October 1, 2016-March 31, 2017. Data collected will include: vaccine, dose, cost of vaccine to hospital, charge of vaccine to patient, charge paid by insurance, total amount paid to Mercy from any source, pharmacist wage, pharmacist hours worked, physician questionnaire responses (include physician satisfaction rating, percent of patients vaccinated when immunization clinic started, percent of patients vaccinated at the end of study, percent of patients who received immunizations at any Mercy site, recommendation for clinic, and comments). Expected results include: number of vaccinations administered, total amount billed, percent paid by insurance, percent paid by patients, percent paid from any source, total cost of pharmacist wage, net revenue gained, percent change in vaccinations at physician offices, physician satisfaction, physician recommendation, and projected revenue gained.

Results: Data collection and analysis is ongoing. Interim results and recommendations for program continuance will be presented at the Ohio Pharmacy Resident Conference.

Conclusions: Same as results
Implementation of a medication assistance program

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UAN: 0048-0000-17-088-L04-P

Learning Objectives:

1. Recognize barriers to medication adherence that medication assistance programs eliminate or lessen.
2. Identify potential benefits of medication assistance programs.

Purpose:
In 2010, the Logan County Census reports approximately 15% of the population is below the poverty line. The 2014 Small Area Health Insurance Estimates (SAHIE) estimates nearly 11% of Logan County are uninsured. Cost may be one of the biggest, if not the biggest, barrier for participants to access their medications, and therefore, a medication assistance program could greatly benefit the needs of the community and the hospital. Improving medication access could have a significant impact on adherence rates, which could reduce emergency department visits and hospital re-admission rates. The purpose of this study is to describe the process of establishing a medication assistance program to assist participants in acquiring their medications either free or at a discounted cost through drug manufacture assistance programs.

Methods:
All eligible patients will be identified by ER and hospital personnel. Pharmacy will receive a referral and a pharmacy technician will set up an appointment to collect the participant’s medication list, identify eligible medications, and acquire the necessary demographic information, such as a W-2 form, social security statement, disability benefit verification statement, and a bank statement/check stub to meet the requirements of the manufactures’ programs. A pharmacist will counsel the patient on their medication(s) and provide an index card with important prescription information. The pharmacist will perform a medication review and then contact the participant’s health provider to obtain his/her signature or make therapeutic substitution recommendations regarding medications that are ineligible and a new prescription when required. After receiving the signed application back from the provider, the pharmacy will complete the application and, if approved, the medications will be shipped directly to the patient.

Results: Data collection and analysis are currently being conducted. Results and conclusions will be presented at the 2016 Ohio Pharmacy Residency Conference.

Conclusions: Data collection and analysis are currently being conducted. Results and conclusions will be presented at the 2016 Ohio Pharmacy Residency Conference.
Implementation of two follow-up interactions between a pharmacist and patient after hospital discharge to reduce 30-day readmission rate

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UAN: 0048-0000-17-089-L04-P

Learning Objectives:

1. Describe the process of implementing two post-discharge interactions between a pharmacist and patient
2. Discuss the benefits of pharmacy involvement with patient care post-discharge

Purpose:
The purpose of this study was to evaluate the impact of pharmacy involvement in the hospital follow-up appointment and subsequent phone call on 30-day readmission rate.

Methods:
The study was conducted from October 6th to December 31st, 2016. Patients discharged from the Mercy Medical Teaching Service were scheduled for a hospital follow-up appointment within ten days in the Ambulatory Care Clinic. The pharmacist contacted the patients prior to their scheduled appointment to serve as a reminder call and encouraged patients to bring their medications with them. At the appointment, patients completed an optional adherence screen using the 4-item Morisky Medication-Taking Adherence Scale, and the pharmacist completed a medication history/reconciliation assessing for any interventions. Patients completed an optional pharmacist satisfaction survey. The pharmacist contacted the patient seven days later, via telephone, to reiterate the face-to-face findings. Physicians were also provided an optional pharmacist satisfaction survey. The primary outcome was 30-day readmission rate. Secondary outcomes included adherence score, pharmacist interventions, time spent with patient, patient satisfaction, and physician satisfaction.

Results: A total of 28 patients were included. Three patients (10.7%) were readmitted within 30 days. The average adherence score was 2.7. The pharmacist made a total of 31 recommendations to the physicians, with an acceptance rate of 80.6%. Additionally, the pharmacist educated 26 patients (92.9%) on adherence, medications, and/or their disease state. The pharmacist spent an average of 17.9 minutes per patient. Twenty four patients completed the survey and 95.8% were satisfied with the pharmacist. Fourteen physicians completed the survey and 100% were satisfied with the pharmacist.

Conclusions: Pharmacy involvement in patient care post-discharge potentially may help reduce 30-day readmission rate. When compared to the overall hospital 30-day readmission rate of 11.731%, rates were lower in the study group. According to the satisfaction surveys, pharmacist interactions were valued by patients and physicians.
Implementation of an antimicrobial restriction policy: Is the “paper” more persuasive?

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UAN: 0048-0000-17-090-L01-P

Learning Objectives:

1. Describe the various interventions recommended by the Infectious Diseases Society of America when implementing an Antimicrobial Stewardship Program.
2. Recognize the clinical implications of poor antibiotic stewardship including the overuse of antibiotics.

Purpose:
Two core interventions recommended by the Infectious Diseases Society of America (IDSA) for antimicrobial stewardship are pre-authorization (PA) and prospective audit and feedback (PAF). The objective of this study is to examine the impact of implementation of a PA method in the form of a restrictive antimicrobial policy compared to PAF alone.

Methods:
IRB-approved, single-center, pre-post quasi-experiment including all inpatients at the University of Toledo Medical Center between September 1, 2015 – April 30, 2016 who received > 1 dose of meropenem, linezolid, or micafungin. Patients readmitted in the study period who received additional doses of the same study drug were excluded. Primary endpoint: rate of meeting hospital-approved criteria for use at or before 72 hours. Secondary endpoints: length of therapy (LOT), incidence of C. difficile, in-hospital mortality, and 30-day all-cause mortality. All statistical analyses performed using SPSS V.21.

Results: 244 antibiotic courses screened, 188 included 105 pre-, 83 post-policy, representing 155 unique patients: 55% male, median age 61.7 years (51.7-71.0), and 42% ICU. Baseline characteristics were similar between groups, except recent hospitalization and presence of indwelling device. Course distribution: meropenem (64.4%), linezolid (27.7%), and micafungin (8%). Rate of meeting policy criteria at 72 hours was 59% pre- vs 65% post-policy (p=0.425) and rate of discontinuation/de-escalation at 72 hours was 21% vs. 26.5%, respectively (p=0.235). Length of therapy, incidence of C. difficile, and mortality metrics were not significantly different between groups.

Conclusions: Although not statistically significant, implementation of a PA policy led to an increase in meeting hospital-approved criteria for use at or before 72 hours of therapy. The number of orders discontinued or de-escalated at 72 hours increased also. No additional harm was seen, evidenced by similar rates of mortality and C. difficile. Further investigation is warranted to determine if these differences are sustainable and will reach significance.
Evaluating the prevalence of antibiotic prescribing in patients with upper respiratory infections in a family medicine practice setting

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UAN: 0048-0000-17-091-L01-P

Learning Objectives:

1. Discuss the prevalence and impact of inappropriate antibiotic prescribing and how pharmacist-provided education can influence physician prescribing habits of these medications
2. Identify appropriate treatment options for patients with a variety of upper respiratory infections

Purpose:
Uncomplicated upper respiratory infections account for 25 million visits to family physicians each year and according to a study in an outpatient ambulatory network, it is estimated that around 65% of these patients walk away with a prescription for an antibiotic. However, it is estimated that around 90% of upper respiratory infections are viral, rather than bacterial, in etiology. This would not only render antibiotics ineffective but also pose the risk of unnecessary adverse effects, allergic reactions, and the development of antimicrobial resistance, an increasing health concern worldwide. The purpose of this quality improvement project is to assess current antibiotic prescribing at WW Knight Family Medicine Center and educate physicians on appropriate treatment of these patients in order to positively influence prescribing habits, decrease unnecessary antibiotic use and as a result, avoid unnecessary costs, side effects, and resistance.

Methods:
Retrospective data will be obtained via chart review from two months (1/24/16 - 3/24/16) to assess current family medicine prescribing patterns of antibiotics in upper respiratory infections. Education to physicians on appropriate use of antibiotics in upper respiratory infections will be delivered through a noon conference presentation in January 2017. Following the education intervention, retrospective data via chart review will be collected from the two months following (1/24/17 – 3/24/17). We will utilize ICD codes for various upper respiratory infections to identify patient charts and then use these charts to collect additional information such as patient age, gender, race/ethnicity, allergies, smoking status, specific upper respiratory infection, date of onset, associated symptoms, antibiotic name, dose, and duration. This data will be collected to determine how pharmacist education influences physician antibiotic prescribing patterns in patients with upper respiratory infections.

Results: Data collection is in process with results to be presented at the Ohio Pharmacy Resident Conference.

Conclusions: Data collection is in process with conclusions to be presented at the Ohio Pharmacy Resident Conference.
Utilization of Data Analytics for Investigating

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UAN: 0048-0000-17-092-L04-P

Learning Objectives:

1. Discuss the significance of a multi-disciplinary controlled substance diversion prevention steering committee
2. Identify pharmacy-driven strategies to improve accountability of controlled substance use

Purpose:
Controlled substances diversion by healthcare workers can lead to serious gaps in patient safety and create liability risk to the organization. American Society of Health-System Pharmacists (ASHP) has published guidelines that provide guidance to health systems on establishing a multi-disciplinary approach to protect patients, employees, and the organization. These guidelines also offer recommendations for best practices to health-system pharmacies as a strategic player in the medication use process. A proactive approach using data analytics identifies an opportunity for improvement and ensures a timely intervention. The purpose of this study is to evaluate the impact of a pharmacy-driven surveillance system in monitoring trends and variances and improving accountability in handling controlled substances.

Methods:
The study has been submitted to the Institutional Review Board for approval. At Beaumont Hospital – Royal Oak, a multi-disciplinary controlled substance diversion prevention steering committee has been established to provide oversight to all aspects of hospital-wide use of controlled substances. Code N designates a timely and confidential response by the steering committee within 48 hours of any high-alert activity. Currently controlled substances use is reviewed on a daily basis by the auditing technicians. A pharmacy reporting site has been created to submit reports of full-dose wasting and time-to-waste (more than 1, 6, and 12 hours) to nurse managers for additional follow-up with the employees. Change in full-dose wasting over total dispenses ratio will be measured to assess for improved accountability. Furthermore, the number of pharmacy-driven investigations that are elevated to Code N will also be collected.

Results: Data is currently being collected and analyzed.

Conclusions: Conclusions will be presented at the Ohio Pharmacy Residency Conference.
COPD Discharge Consult Service: Pharmacist intervention in reducing hospital readmissions

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UAN: 0048-0000-17-093-L01-P

Learning Objectives:

1. Describe the impact that readmissions within 30 days has on hospital reimbursement for Medicare beneficiaries with COPD related illness.
2. Discuss the impact of pharmacist-provided discharge medication counseling services on patient care and outcomes.

Purpose:
Chronic Obstructive Pulmonary Disease (COPD) is a major health and economic burden in the United States. Resources aimed at smoking cessation, COPD education, and early detection will be of utmost importance in reducing morbidity and mortality. This study is a quality improvement project aimed at evaluating the impact of pharmacist-led COPD disease state and inhaler education. The primary outcome of this study is the 30 day readmission rate in patients admitted for COPD exacerbation who received pharmacist counseling at discharge versus those who received standard of care (no pharmacist counseling at discharge). Secondary outcomes include 30 day readmission for reasons other than COPD, presence of respiratory therapist inhaler education, emergency department visits for COPD within 30 days of discharge, patient satisfaction, adherence, and side effects.

Methods:
A pharmacist-led COPD discharge consult service was started at UHRMC in October 2016. Once a consult was placed, pharmacists provided education on COPD and inhaler counseling on indication, directions, side effects, special considerations, and correct usage for all discharge inhalers. If patients went home on hospital formulary agents, they received a short supply of the medication from the inpatient pharmacy. Two weeks post-discharge, a pharmacist called patients to deliver a 7-question phone-based survey to assess their satisfaction with the service provided, side effects, and compliance. An electronic medical record query spanning October through February of 2010 through 2015 was used to find patients meeting study criteria at UHRMC with a discharge diagnosis of COPD exacerbation. These patients served as the control group. An electronic medical record query spanning October 2016 through February 2017 was used to find all patients who received completed pharmacist consults with or without respiratory therapist inhaler education. These patients served as the intervention group.

Results: Will be presented at the Ohio Pharmacy Residency Conference.

Conclusions: Will be presented at the Ohio Pharmacy Residency Conference.
Impact of FilmArray Technology on Patient Outcomes in Intensive Care Unit Bacteremias

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Matthew Leffew, DO; Robert Pantaleon Vasquez, MD; Paula Politis, PharmD, BCPS; Philip K. King, PharmD, BCPS; George Kallstrom, PhD; Thomas File, MD, MSc, MACP, FIDSA, FCCP

UAN: 0048-0000-17-094-L04-P

Learning Objectives:

1. Discuss the effect of FilmArray PCR technology on time to identification of pathogens at Summa Health System
2. Describe the effect of FilmArray PCR technology on patient outcomes at Summa Health System

Purpose:
Bacteremias in the intensive care unit (ICU) are associated with increased mortality and length of stay in the ICU. Effective therapy is achieved by targeting antibiotics to the specific causative pathogen. However, there is often a delay of approximately 24-72 hours for blood cultures to yield a result. The FilmArray Multiplex Polymerase Chain Reaction (PCR) rapid diagnostic tool provides accurate test results in about one hour for 24 blood pathogens and 3 genes known to confer antibiotic resistance. Two retrospective studies showed significant reductions in the time to organism identification, to de-escalation of therapy, and to effective therapy in patients with Staphylococcus aureus and vancomycin resistant Enterococcus bacteremias using this technology. A prior retrospective QI project completed at Summa Health showed no difference in length of ICU stay and a slight reduction in inpatient mortality after FilmArray PCR implementation. This quality improvement (QI) project aims to build upon data from the previous QI project by increasing the sample size. The primary objective is to determine the effect of FilmArray technology implementation on time to optimal therapy, specifically in the ICU. Secondary objectives include: length of ICU stay, inpatient mortality, time to effective therapy, time to identification of the organism, time to clinical stability, cost of hospital stay, hospital length of stay, 30-day readmission, 30-day all-cause mortality, and 60-day all-cause mortality.

Methods:
The design of this IRB-designated QI project is a retrospective chart review of ICU patients with confirmed bacteremias. The QI project encompasses data one year pre- and post-implementation of the FilmArray PCR technology at Summa Health.

Results: To be determined.

Conclusions: To be determined.
Vancomycin dosing in obese patients: A retrospective case-control study

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UAN: 0048-0000-17-095-L01-P

Learning Objectives:
1. Recognize that obesity is an ever-growing patient population that may need more individualized care when dosing medications
2. Review current vancomycin dosing guidelines and relate them to the obese population

Purpose:
Currently, there is no standardized guideline or clear recommendation for dosing vancomycin in obese patients. Because of this, there is high inter-clinician variability in dosing vancomycin in obese patients. The purpose of this study was to determine if current efforts in dosing vancomycin in the obese population at our institution are sufficient by comparing time to therapeutic trough with that of non-obese patients.

Methods:
This study was a single-center case-control retrospective chart review. Using the electronic medical record as the source of patient data, patients were included until power was met. Of the 1,901 charts that were reviewed, 61 non-obese and 120 obese patients met inclusion criteria (at least 18 years of age, received at least 3 doses of vancomycin, trough drawn at most 75 minutes prior to, at earliest, fourth dose). Patients were matched based on type of infection, comorbidities, age, concomitant nephrotoxic medications, and presence of renal dysfunction at baseline.

Results: There was no difference in time to therapeutic trough for obese versus non-obese patients (65.5±48.4 hours versus 75.6±62.1 hours), respectively (p=0.11). Although, when comparing pharmacist-managed versus physician-managed vancomycin dosing, the mean time to therapeutic trough was 59.3±36.1 hours and 88.4±74.4 hours, respectively (p

Conclusions: As vancomycin is hydrophilic and volume of distribution may be reduced in obese patients, it is no surprise that less vancomycin per kilogram of body weight is needed to achieve a therapeutic level. These results parallel those of other studies and further confirm that body mass index should be considered when dosing vancomycin.
Impact of implementing a sports-focused supplement section on pharmacist-patient relationships and sales in a community pharmacy

Mitchell Howard, PharmD - The University of Toledo/Kroger Pharmacy
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UAN: 0048-0000-17-096-L04-P

Learning Objectives:

1. Identify patients’ needs of sports supplements and their interests in receiving products and advice from a pharmacist in a supermarket setting
2. Describe pharmacists’ knowledge, confidence, and enthusiasm for providing counseling on various sports supplements

Purpose:
In our society, there is now a greater emphasis on preventative health. A growing specialty area is sports pharmacy. As a community health professional, a pharmacist is an excellent resource for individuals engaged in various sports and exercises as individuals may ask for counseling on the use of dietary supplements in addition to their other medications. There is little documented evidence of a sports-focused pharmacy program in a community pharmacy setting and sports medicine education in pharmacy programs. The objective of this study is to evaluate the impact of implementing a sports-focused supplement section and sport supplement training for pharmacists on: (1) the number and quality of pharmacist-patient interactions and (2) supplement sales

Methods:
Two surveys were developed, distributed by investigators, and completed voluntarily by community members and pharmacists in supermarket pharmacies. Patient surveys identified factors influencing a patient’s supplement needs and product selection as well as where they receive their information. Pharmacist surveys identified pharmacists’ willingness to provide supplement counseling and their educational needs to provide such counseling. Based on survey feedback and product availability, a supplement section will be created and pharmacist educational resources will be developed about commonly used supplements. To track program impact, supplement sales and number of pharmacists’ interactions will be evaluated 3 months pre- and every 3 months post-intervention for 12 months. Patients will be asked to voluntarily complete a satisfaction survey about the service and pharmacists will use 5-point Likert scales to rank their confidence. Descriptive and nonparametric statistical analyses will be performed using SPSS. The study will take place February 2017 to February 2018 with Institutional Review Board approval.

Results: Research is in progress

Conclusions: Data will be used to explore novel sports health opportunities for pharmacists by engaging health conscious groups and improving pharmacists’ knowledge and confidence about sports supplements.
**Assessment of Glycemic Control in Diabetic Patients While Unable to Eat**

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Natalie Tuttle, PharmD, BCPS, Jeremy Patton, PharmD Candidate, Sarah Petite, PharmD, BCPS

**UAN:** 0048-0000-17-097-L01-P

**Learning Objectives:**

1. Evaluate an insulin regimen for a NPO inpatient with diabetes based on current recommendations
2. Recognize independent risk factors for inpatient hypoglycemia

**Purpose:**
Hypoglycemia in general medicine patients is associated with increased in-hospital mortality, length of stay, and one-year mortality. The 2017 American Diabetes Association treatment guidelines recommend a basal plus correction or basal insulin regimen for diabetic patients that are unable to eat (NPO) in the non-critical care setting. In the perioperative period, 60-80% of long-acting insulin or half doses of morning insulin NPH is recommended. Both recommendations are based on limited evidence. The study objective is to assess glycemic control of NPO patients with type 2 diabetes.

**Methods:**
This is an institutional review board approved retrospective cohort study. Adult patients admitted to a non-critical care setting with type 2 diabetes, prescribed outpatient basal insulin and were NPO during hospital admission were included. The primary outcome is the difference in hypoglycemic events (BG

**Results:** A total of 258 patient encounters were included, of which 85 and 173 patients received

**Conclusions:** No difference in hypoglycemic events was observed between basal insulin adjustments. Further analysis of secondary outcomes and risk factors for hypoglycemia is ongoing and will be presented at the Ohio Pharmacy Resident Conference.
Impact of a pharmacist-led transitions of care model in patients with a primary admission diagnosis of congestive heart failure exacerbation

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UAN: 0048-0000-17-098-L01-P

Learning Objectives:

1. Review relevant literature surrounding transitions of care interventions in patients with heart failure
2. Discuss opportunities for pharmacist involvement in transitions of care

Purpose:
Transitions of care programs have been implemented across the country to improve outcomes in the transition between different levels of care. Although the types of interventions that reduce readmission rates are not well established, some studies suggest pharmacist involvement in such programs significantly decreases rates of readmission. The purpose of this study was to identify the impact of pharmacist-led interventions on 30-day readmission rates in patients admitted with a primary diagnosis of congestive heart failure exacerbation.

Methods:
The study population included patients admitted under the care of The Jewish Hospital’s cardiology group in November 2016 with a primary diagnosis of congestive heart failure exacerbation. Patients were identified according to their primary admission diagnosis in the electronic medical record. Within 48 hours of admission, patients in the intervention group had home medications reconciled with the medication list in the electronic medical record by a pharmacy intern, pharmacy resident, or pharmacist. Patients were followed peripherally by the pharmacy resident throughout the hospital stay with the intent to optimize adherence with guideline based therapy. At discharge, the resident reconciled the physician’s discharge summary with the after visit summary and the discharge medication orders. The resident provided discharge counseling and offered to fill and deliver the patient’s new medications to their bedside through the hospital’s outpatient pharmacy. Finally, the resident ensured the patient had an appointment for outpatient follow-up within 7-10 days after discharge. The resident also followed-up with the patient via telephone within 3 days of discharge to ensure there were no acute issues with medications or changes in overall clinical status.

Results/Conclusions: Data is currently being analyzed. Results and conclusions will be presented at the Ohio Pharmacy Residency Conference.

Conclusions:
Evaluating the Impact of a Pharmacist on Guideline Directed Medical Therapy in Patients with Reduced Ejection Fraction Heart Failure

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UAN: 0048-0000-17-099-L01-P

Learning Objectives:
1. Describe the pharmacist’s role in medication titration process in patients with reduced ejection fraction heart failure in an outpatient clinic setting.
2. Discuss the ability of a pharmacist working in an outpatient medication titration setting to impact heart failure related outcomes and healthcare related costs.

Purpose:
The current heart failure (HF) guidelines emphasize the use of guideline directed medical therapy. This pilot study aims to investigate the impact of a pharmacist-run, outpatient heart failure clinic on heart failure outcomes and healthcare related costs.

Methods:
A retrospective chart review was conducted on 37 patients. The primary endpoint was the average time to achieve individualized target doses. Secondary endpoints included percentage of patients titrated to target beta-blocker doses, reasons for inability to fully titrate, percentage of patients with a left ventricular ejection fraction (LVEF) > 35% after maximal beta-blocker titration, total and per-visit revenue generated. Others included the change in all cause and heart failure-specific hospital admissions (HA) and emergency department (ED) visits. Continuous variables were evaluated using a Wilcoxon signed rank test.

Results: The average time to complete medication titration was 4.89 visits over 12.8 weeks. 81% (n=30) achieved full beta-blocker titration, with fatigue (n=1), bradycardia (n=4), and hypotension (n=3) being the reason for inability to titrate. Twenty-two patients completed repeat echocardiogram following titration. 36% (n=8) had LVEF >35% at baseline compared with 77% (n=17) after titration. Respectively, the total all cause and heart failure ED visits were 16 and three prior to enrollment and two and two during the study period (p

Conclusions: Pharmacist managed medication titration clinics are effective at completing titration, improving LVEF, and generating revenue. The length of time required to complete titration was dependent on the doses of these therapies at the time of enrollment into the clinic.
Analysis on the efficacy of intravenous to oral antibiotic therapy transition in IV drug abusers with Staphylococcus aureus bacteremia

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UAN: 0048-0000-17-100-L01-P

Learning Objectives:

1. Discuss the therapeutic benefits of transitioning IV Drug abusers (IVDA) from intravenous to oral antibiotic therapy for complicated Staphylococcus aureus bacteremia and infections.
2. Identify the oral antibiotic medications used in the long term treatment of Staphylococcus aureus bacteremia and/or endocarditis in this patient population

Purpose:
Illegal intravenous drug abuse (IVDA) is trending upwards in the U.S., and is often associated with acute bacteremia and endocarditis. Approximately 60% of these infections involve Staphylococcus aureus. Current IDSA guidelines recommend 4-6 weeks of intravenous antibiotic therapy. Practitioners are often hesitant to discharge IV drug abusers with peripherally inserted central catheters (PICC) due to risks of subsequent illegal drug administration through PICC lines. Other possible outcomes of long-term intravenous antibiotic therapy include reinfections, increased healthcare spending, overdose, and/or death. The local standard of treatment for IVDA with complicated Staphylococcus aureus infections is to transition from intravenous to oral antibiotic therapy once clinically stable and upon negative blood culture growth. The purpose of this study is to evaluate this standard of treatment by assessing clinical cure of IV drug abusers transitioned to oral antibiotics prior to discharge.

Methods:
A retrospective chart review will occur on patients admitted to Kettering Health Network hospitals from January 1, 2015 through December 31, 2016. Study patients will be identified by confirming active drug abusers who require long-term antibiotic therapy for complicated, Staphylococcus aureus bacteremia and/or endocarditis. Study patients must be transitioned from intravenous to 4-6 weeks of oral antibiotic therapy prior to discharge to be included in analysis. Oral antibiotic regimens include Fluoroquinolones with Rifampin for methicillin-susceptible Staphylococcus aureus (MSSA) infections, and Bactrim DS for methicillin-resistant Staphylococcus aureus (MRSA) infections. Baseline characteristics, culture & sensitivity results, and antibiotic therapies will be collected for each patient. An intention-to-treat analysis will be used to assess clinical cure rates for this study. Clinical cure is defined as no reinfection and readmission to KHN institutions within 90 days of antibiotic therapy completion. Therapeutic outcomes will be confirmed through follow-up chart review and phone conversations with each patient.

Results: Data collection is ongoing. Results and conclusions will be presented at OPRC.

Conclusions: Data collection is ongoing. Results and conclusions will be presented at OPRC.
Azithromycin and Septic Shock Outcomes

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Learning Objectives:

1. Explain the physiological processes that take place in patients with sepsis and recognize the desired clinical endpoints of current treatment strategies.
2. Describe the proposed mechanisms of action that contribute to azithromycin’s potential role in the treatment of septic shock

Purpose:
The macrolide antibiotics possess unique mechanisms of action that are independent of their antimicrobial effects. Azithromycin is a macrolide that exhibits anti-inflammatory effects, potent inhibition of quorum sensing, and facilitation of neutrophil apoptosis leading to pus clearance from airways. Although there is evidence to support these immunomodulatory effects of macrolides, there is limited literature exploring the effects these properties may have in the clinical setting. The primary objective of this study is to determine whether azithromycin added to empiric nosocomial coverage for septic shock shortens time to shock resolution. Secondary outcomes include hospital mortality, days on mechanical ventilation, and ICU and hospital lengths of stay.

Methods:
This is retrospective study of patients with septic shock in the ICUs of the Detroit Medical Center (DMC). Patients were eligible if they were 18 to 89 years of age, admitted between June 1, 2012 and June 1, 2016, diagnosed with septic shock (defined as treatment with norepinephrine as the first-line vasopressor for at least 4 hours), and received at least 48 hours of empiric antimicrobial treatment from the time of shock onset (defined as the time of norepinephrine initiation). Two techniques, Mahalanobis distance matching and propensity score matching, were utilized to match azithromycin patients to those without azithromycin treatment on the basis of age, infection type (pneumonia vs. UTI vs. others), presence of ICD-diagnosis of “septic shock”, and concomitant antimicrobials (vancomycin and ceftriaxone). These two separate series of matched pairs will then be analyzed separately after confirming all inclusion and exclusion criteria are met.

Results: Data collection and analysis are in progress.

Conclusions: Results and conclusions will be presented at the Ohio Pharmacy Resident Conference.
Assessment of school nurses’ attitude toward collaboration with community pharmacists in Ohio

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UAN: 0048-0000-17-102-L04-P

Learning Objectives:

1. Discuss the need for evaluation of school nurse’s engagement with community pharmacists
2. Identify services that school nurses would like pharmacy involvement

Purpose:
This research explored a partnership that has potential to expand team-based healthcare and reduce medication-related concerns, connecting community pharmacists to school nurses. The objectives were to assess school nurses’ willingness to collaborate with pharmacists by evaluating school nurses’ a) knowledge and understanding of clinical services offered by pharmacists, b) desire to collaborate with pharmacy, and c) to determine if a correlation exists between desire to collaborate with pharmacists and school settings.

Methods:
A cross-sectional, descriptive study was developed by the online survey panel, Qualtrics. The survey utilized a combination of 5-point Likert rating (Never(1) to Always(5)), rank order scaling, with dichotomous, multiple choice, and open-ended questions. Surveys were distributed by the Ohio Association of School Nurses via an anonymous link to their members. Participants had 6 weeks to complete the survey. Reminder alerts were sent to everyone at weeks 1, 3 and 5 of the data collection period.

Results: There were 160 survey responses collected. There was a significant difference in the utilization of pharmacist-provided services between school nurses who knew about these services and those who did not. However, once the nurses were aware pharmacists could provide these services, all nurses would use pharmacy services in the future, with no statistically significant difference. The top three services school nurses would like pharmacy involvement are in 1) providing general drug information, 2) providing additional prescription containers, and 3) administering immunizations.

Conclusions: School nurses need to be educated on all services community pharmacists can provide. School nurses have identified pharmacist-provided services that they deem valuable to meet local needs. Results and preliminary conclusions will be presented at the Ohio Pharmacy Residency Conference.
Decreasing duration of antimicrobial therapy in patients with hospital-acquired pneumonia

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Jessica A Walles, PharmD, BCPS, St. Rita’s Medical Center

UAN: 0048-0000-17-103-L01-P

Learning Objectives:

1. Discuss updates published in the 2016 IDSA guidelines for the treatment of hospital-acquired pneumonia
2. Describe a retrospective and prospective review of patients of patients with hospital-acquired pneumonia at St. Rita’s Medical Center

Purpose:
The Infectious Disease Society of America (IDSA) and the American Thoracic Society (ATS) recently published updated guidelines regarding the management of adults with hospital-acquired pneumonia in July 2016. The primary objective of this study is to decrease the total duration of antimicrobial therapy for hospital-acquired pneumonia for inpatients at St. Rita’s Medical Center from November 1, 2016 to February 28, 2017 compared to duration of therapy from November 1, 2015 to February 29, 2016.

Methods:
This study was submitted to the Institutional Review Board and was approved on September 19, 2016. Adult patients who develop pneumonia at least 48 hours after admission to St. Rita’s Medical Center will be selected and analyzed for inclusion into this study. Information from the patient chart will be reviewed, and the following data will be collected: duration of antimicrobial therapy in the hospital, duration of antimicrobial therapy at discharge, time to de-escalation of antimicrobial therapy, and if discharge medication reconciliation was performed by a clinical pharmacist. This data will be recorded in a spreadsheet where the patients will be de-identified. The data collected will include a patient assigned number and the unit in which the patient resided while at St. Rita’s Medical Center. Physicians and pharmacists will be educated on the updated guidelines through clinical pearls, flyers, and newsletters. The data from November 2015 to February 2016 will be compared to the data from November 2016 to February 2017 to see if the duration of antimicrobial therapy in patients with hospital-acquired pneumonia has decreased.

Results: Data collection and analysis are currently being conducted; results will be presented at the 2017 Ohio Pharmacy Resident Conference.

Conclusions: N/A (research in progress)
Implementation of a pharmacist driven oral chemotherapy counseling service in an outpatient cancer care center

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UAN: 0048-0000-17-104-L01-P

Learning Objectives:

1. Describe and analyze common challenges patients face with oral chemotherapy regimens
2. Highlight the importance of pharmacist led oral chemotherapy counseling

Purpose:
As oral chemotherapy drugs are being used more frequently it is important that patients receive effective counseling in order to ensure they are able to use the drugs in a safe and effective way. Patients who receive their oral chemotherapy from a mail order pharmacy or directly from a medical office often do not get the opportunity to speak to a pharmacist in person to address questions and concerns they may have regarding their oral chemotherapy. The purpose of this service is to provide patients with the opportunity to receive counseling by a pharmacists about their oral chemotherapy.

Methods:
This study has been approved by the Institutional Review Board. This service was offered to patients who were prescribed oral chemotherapy by their oncologist at Armes Family Cancer Care Center (AFCCC) in Findlay, Ohio. Both patients who have taken oral chemotherapy prior and those who are new to oral chemotherapy were offered this service. A pharmacist provided chemotherapy counseling to these patients regarding their oral agents either in person or via telephone. Patient age, gender, diagnosis, time on oral chemotherapy, and oral chemotherapy agents prescribed were assessed at baseline. Counseling sessions lasted approximately 15 minutes and included dosing, indication, storage, adverse effects and how to manage them. Patients were given an opportunity to ask the pharmacists questions; the category of questions were recorded. They received handouts that summarized key information covered during the counseling session. For those patients who were counseled via telephone, an offer was made to send the handouts by mail. Patients were contacted for follow-up via telephone by the pharmacist who conducted the initial education two weeks after their initial oral chemotherapy counseling session. Information collected at follow up included effectiveness of counseling, patient compliance, frequency and management of adverse effects. Questions and/or concerns the patient had at follow up were addressed and the categories of questions asked were recorded. All data was recorded without patient identifiers and maintained confidentially.

Results: Currently in progress and will be presented at the Ohio Pharmacy Residency Conference

Conclusions: Currently in progress and will be presented at the Ohio Pharmacy Residency Conference
Comparison of Narrow versus Broad Spectrum Antibiotics in Elderly Patients with Acute Exacerbations of Chronic Obstructive Pulmonary Disease

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Mate M. Soric, Pharm.D., BCPS

UAN: 0048-0000-17-105-L01-P

Learning Objectives:

1. Define acute exacerbations of chronic obstructive pulmonary disease (AECOPD)
2. Evaluate the methods of the study presented.

Purpose:
Little guidance is provided regarding the selection of antibiotic therapy for acute exacerbations of chronic obstructive pulmonary disease (AECOPD). Clinical opinion, epidemiological studies, and post-hoc analysis of major clinical trials have supported utilizing a risk stratification approach in selecting antimicrobial therapy. Most of this data suggests broader spectrum antibiotics in four groups of patients at higher risk for poor outcomes, including the elderly (age >65 years), though, no study has specifically evaluated broad versus narrow spectrum antibiotics in elderly patients hospitalized with AECOPD. The purpose of this study is to compare outcomes of elderly patients receiving broad versus narrow spectrum antibiotics during a hospitalization for AECOPD.

Methods:
A retrospective observational study was performed using electronic medical records of patients >65 years old admitted with a primary diagnosis of AECOPD or a primary diagnosis of acute respiratory failure and a secondary diagnosis of AECOPD. The primary outcome is a composite of mechanical ventilation within 48 hours of admission, transfer to intensive care status after 48 hours of admission, readmission within 30 days for COPD exacerbation, and oxygen saturation less than 90% on room air or increased oxygen requirements from baseline after 48 hours. Secondary outcomes included individual components of the primary outcome, hospital length of stay, 10-day and 90-day readmission for AECOPD, all-cause 30-day and 90-day readmission, and clinical decompensation after 48 hours based on systolic blood pressure, respiratory rate, heart rate, oxygen saturation, and increased supplementary oxygen needs. Data to be collected and analyzed includes patient baseline demographics, risk factors for multidrug resistant bacteria, home medications, concomitant hospital treatments, and antibiotics used.

Results: Results are pending data collection and will be presented at the Ohio Pharmacy Residency Conference.

Conclusions: Conclusions are pending data collection and will be presented at the Ohio Pharmacy Residency Conference.
Vancomycin for the Treatment of Coagulase-Negative Staphylococcus Bacteremia: Does MIC Matter?

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Christine Yost, PharmD and Prakash Shah, PharmD

UAN: 0048-0000-17-106-L01-P

Learning Objectives:

1. Discuss the significance of the vancomycin MIC and its effect on treatment failure when treating S. aureus bacteremia compared to CoNS bacteremia
2. Identify risk factors for nephrotoxicity when administering vancomycin therapy

Purpose:
Staphylococcus aureus (S. aureus) and coagulase-negative staphylococcus (CoNS) have vancomycin MIC susceptibility breakpoints of 2mcg/mL and 4mcg/mL, respectively, as defined by the Clinical and Laboratory Standards Institute. An increased risk of treatment failure with vancomycin has been reported in S. aureus infections with MIC>1mcg/mL. Research is mostly limited to S. aureus infections, but some physicians extrapolate this data to CoNS. It is unknown if CoNS species with higher vancomycin MICs impact treatment success. The objective of this study is to determine if vancomycin MIC affects outcomes in patients with CoNS bacteremia. The incidence of nephrotoxicity will also be assessed based on initial trough levels of vancomycin.

Methods:
This is a multi-center retrospective chart review of CoNS bacteremia patients admitted between January 2013 and December 2016. Patients are identified using vancomycin administration data and positive blood cultures with CoNS. Eligible patients must be>18 years of age with a diagnosis of CoNS bacteremia and have received > 5 days of inpatient IV vancomycin. Patients are excluded if neutropenic or no documented trough within 5 days of vancomycin initiation. Information collected includes: patient baseline characteristics, microbiology results, and details of vancomycin therapy. The primary clinical endpoint is to compare treatment failure rates in patients with CoNS bacteremia treated with vancomycin with an MIC2mcg/mL. Treatment failure will be defined as mortality within 30 days, recurrence of CoNS bacteremia, or persistent bacteremia. The secondary endpoint is to determine the incidence of nephrotoxicity in patients treated with vancomycin with an initial trough15mcg/mL. Data analysis will include descriptive statistics for continuous variables, Students t-test for comparative statistics, and Chi-squared or Fishers exact tests for nominal data. A p-value

Results: Data collection and analysis currently in progress. Results will be presented at the Ohio Pharmacy Resident Conference.

Conclusions: Data collection and analysis currently in progress. Results will be presented at the Ohio Pharmacy Resident Conference.
Treatment Choice and Outcomes for Oncology Patients Diagnosed with Venous Thromboembolism

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Rhianna Godios, PharmD, BCACP – Summa Akron City Hospital, Kathleen Robinson, RPh, BCOP – Summa Akron City Hospital

UAN: 0048-0000-17-107-L01-P

Learning Objectives:
1. Discuss the risk and impact of venous thromboembolism in patients with cancer
2. Review current recommendations and ongoing research for anticoagulation therapy in patients with cancer

Purpose:
Venous thromboembolism (VTE) represents a major cause of morbidity and mortality for patients with active cancer. The best choice for anticoagulation therapy in this population is not clearly defined in current literature. This project will describe physician prescribing patterns and clinical outcomes for oncology patients diagnosed with VTE at Akron City Hospital (ACH).

Methods:
A retrospective chart review will examine all patients with a cancer diagnosis who presented to the Emergency Department and were diagnosed with VTE from January 2012 through August 2016. The proportion of patients prescribed apixaban, dabigatran, dalteparin, enoxaparin, rivaroxaban, and/or warfarin will be collected. Rates of bleeding and episodes of VTE recurrence will be assessed.

Results: Of the 372 patients included, the most common treatment choice was warfarin with 174 patients or 47%. The proportion of patients treated with enoxaparin, rivaroxaban, apixaban, dalteparin, and dabigatran were 30%, 11%, 6%, 5%, and 1% respectively. There were no significant differences in overall survival or rate or adverse effects associated with anticoagulant therapy. Patients on enoxaparin, warfarin, and rivaroxaban were significantly more likely to switch to another anticoagulant. Twenty-nine patients treated with warfarin switched to another anticoagulant (p

Conclusions: At ACH the most commonly prescribed anticoagulant for patients with VTE and cancer is warfarin. Anticoagulant choice was not shown to impact rate of adverse events in this patient population. Further research is needed to determine the best anticoagulant for these patients. Anticoagulation treatment for oncology patients with VTE should continue to be individualized based on patient preference, prescription coverage, and ability to adhere to therapy.
Impact of pharmacist-led interventions in the management of prediabetes in medically underserved patients

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UAN: 0048-0000-17-108-L04-P

Learning Objectives:
1. Define and state the significant of prediabetes as a healthcare concern in the United States.
2. Identify opportunities for pharmacists’ intervention in prediabetes management
3. Evaluate and assess the results of a pharmacist-led prediabetes interventions in a network of two federally qualified health centers.

Purpose:
To evaluate the impact of pharmacist-led, face-to-face interventions on A1c, weight, and rates of diabetes diagnoses in patients with prediabetes seen in a network of two federally qualified health centers.

Methods:
Patients who have an elevated A1c (5.7% to 6.4%) are referred by their primary care providers to the pharmacy team for prediabetes management. Pharmacist interventions include therapeutic lifestyle changes and recommendation of metformin therapy. Patients can see the pharmacist for one or multiple visits based on patient preference. This retrospective study will identify patients who were seen by pharmacy team for prediabetes education and management for at least one face-to-face office visit or attended a group prediabetes education course over a 22 month period. 283 patient charts will be reviewed for eligibility for the pharmacy intervention group. Patients who are eligible for the pharmacy group will be matched 1:1 based on age and gender to patients who received usual care for their prediabetes from their primary care provider only with a target of 100 pairs (n=200). A1c values, weight, and diagnoses of diabetes (A1c >6.5%) before and after prediabetes interventions will be documented. The primary outcome is difference in changes in A1c between pharmacist and provider groups. Secondary outcomes include differences in weight changes and incidence of diabetes between pharmacist and provider groups. Chi-square or Fisher’s exact tests will be used for categorical variables; paired Student’s t test will be used for normally distributed continuous variables. Appropriate statistical analysis will be conducted with the assistance of a biostatistician.

Results: 282 patients were identified as being seen by the pharmacy team. After review, 72 patients were deemed eligible for the study. These 72 patients were matched on gender and age (+/- 3 years) with 72 patients who saw only their primary care provider for prediabetes management.
87% of patients that were seen for prediabetes management were male. The average age was 48 years old. Average baseline A1c was 6.0%. The average BMI was higher in the pharmacist intervention group than the primary care provider group (38.0 kg/m2 to 34.0 kg/m2, respectively. p=0.16)
Patients who saw the pharmacist saw a decrease in A1c of 0.11% (p

Conclusions: Pharmacist intervention may be beneficial in the management of prediabetes for patients who are medically underserved.
This study was a retrospective chart review and causation cannot be determined. Confounding factors such as race, socioeconomic status, BMI may have impacted A1c results. Furthermore, the report pulled may have missed patients seen for prediabetes without a prediabetes diagnosis.
A study with a more rigorous design such as a randomized control trial would be beneficial in defining the relationship between pharmacist intervention and diabetes prevention.
Future plans at the clinic include expansion and increased recruitment for prediabetes group classes and improved tracking of patients for follow-up A1c values.
Identifying perceptions of adherence in Human Immunodeficiency Virus (HIV)-positive patients through individual elicitation interviews

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UAN: 0048-0000-17-109-L01-P

Learning Objectives:

1. Recall the current state of viral suppression among HIV-positive patients living in the United States
2. Identify the components of the Health Belief Model (HBM) that influence health behavior

Purpose:
Near-perfect adherence with antiretroviral therapy (ART) is associated with improved virological suppression and immunological recovery in HIV-infected patients. Among patients who are prescribed ART, only 76% achieve viral suppression, a figure likely influenced by non-adherence. Many studies have assessed adherence as it relates to individuals already prescribed ART; however, little is known about the ability to predict adherence in newly-diagnosed and newly-treated HIV individuals. This study aims to identify themes and predictors of adherence by evaluating perceptions of HIV-positive patients. A brief questionnaire will subsequently be developed that can prospectively predict adherence in treatment-naïve HIV-infected individuals.

Methods:
This IRB-approved, prospective, qualitative study is being conducted at The University of Toledo Medical Center’s Ryan White Program. HIV-positive adult patients were identified based on “expected” adherence (via previously identified risk factors for adherence) and actual adherence (via current viral loads) with four groups established – expected/adherent, expected/non-adherent, not expected/adherent, and not expected/non-adherent. Five to ten subjects in each group were invited to participate in an individual elicitation interview conducted by a trained interviewer. Each session follows a structured interview format using predetermined questions related to the Health Belief Model and patient perceptions of disease state, social support, and medication management. Subjects’ responses are audio recorded and transcribed, and themes will be extracted and summarized. Responses will be compared between groups, and factors that influence the likelihood to be adherent to antiretroviral therapy will be determined.

Results: A total of 73 subjects were selected for potential inclusion in the study from 522 initially screened. Average age was 45.4 years. 72.6% (53/73) of subjects identified were male, 60.3% (44/73) were Caucasian, and 61.6% (45/73) achieved viral suppression during most recent viral load. Interviews are ongoing and results will be presented at the 2017 Ohio Pharmacy Resident Conference.

Conclusions: To be presented at the 2017 Ohio Pharmacy Resident Conference.
Analysis of the incidence of hypoglycemia upon initiation of tramadol

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UAN: 0048-0000-17-110-L01-P

Learning Objectives:

1. Describe the mechanisms of action of tramadol
2. Identify disease states, conditions, and medications associated with fluctuations in blood glucose levels

Purpose:

The use of tramadol has steadily increased worldwide since its approval. While there are many well-studied safety concerns with tramadol such as sedation, respiratory depression, risk of seizure, and serotonin syndrome, tramadol continues to be perceived and utilized as a “safer” option than other opioid analgesics. In addition to known safety concerns, there are lesser known safety concerns associated with tramadol including risk of hypoglycemia. To date, literature assessing the incidence of hypoglycemia associated with tramadol use has focused on hospitalized hypoglycemia and has found the highest incidence of hypoglycemia in the early days of tramadol initiation (in the first 10-30 days). The purpose of this study is to analyze the incidence of hypoglycemia upon initiation of tramadol in the post-acute care setting, including time to development of hypoglycemia, number of hypoglycemic events per patient, and severity of the blood glucose decrease.

Methods:

A 24-month retrospective chart review was conducted consisting of patients receiving post-acute care between August 2014 and August 2016 in a rehabilitation and transitional care unit facility. Patients eligible for analysis included all patients 18 years of age and older with tramadol initiated within the last 30 days. Patients with and without diabetes and/or anti-diabetic medications will be included in analysis. Exclusion criteria included use of tramadol as a home medication (prescription within the last 6 months), inability to determine the initiation date of tramadol, concurrent codeine use, and use of the extended-release formulation of tramadol. Data was collected via electronic medical records and included age, sex, initiation date of tramadol, all blood glucose levels during post-acute care stay, number of hypoglycemic events per patient, number of tramadol doses received prior to hypoglycemic event, number of days since initiation of tramadol at time of hypoglycemic event, potentially confounding medical conditions and medications, and renal function based on a calculated creatinine clearance. This study protocol was approved by the Institutional Review Board (IRB).

Results: Data analysis is currently in progress. Final results and conclusions will be presented at the Ohio Pharmacy Resident Conference.

Conclusions: Data analysis is currently in progress. Final results and conclusions will be presented at the Ohio Pharmacy Resident Conference.
Comparative evaluation of pharmacist managed vancomycin dosing in a community hospital following implementation of a system-wide vancomycin dosing guideline

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Julie Falk, PharmD; Rachana Patel, PharmD, BCPS; Karen Kier, Ph.D. M.Sc., BCPS, BCACP, TTS; Shannon Smiderkal, PharmD Candidate 2017

UAN: 0048-0000-17-111-L01-P

Learning Objectives:

1. Discuss the impact of pharmacists on vancomycin dosing and monitoring
2. Review the differences between two pharmacist managed vancomycin dosing protocols

Purpose:

Vancomycin is one of the most commonly-used antimicrobials in the treatment of gram positive infections. Due to its complex pharmacokinetic and pharmacodynamic properties, dosing vancomycin in the elderly, young, and obese is challenging.1,2 Previous studies have shown that pharmacist vancomycin management results in an increased number of patients optimally dosed and a shorter duration of vancomycin therapy. Even with pharmacist managed vancomycin dosing, actual practices are not universal between hospitals.3 At University Hospitals St. John Medical Center (UHSJMC), pharmacists are consulted to dose and monitor vancomycin. While utilizing the established protocol, pharmacists have hypothesized that adjustments may be necessary in the young, renally impaired, and elderly populations. Upon incorporation into University Hospitals (UH), UHSJMC implemented UH’s vancomycin dosing guideline. The purpose of this study is to evaluate the implementation of a large hospital system vancomycin dosing guideline in a community hospital with pharmacist managed vancomycin dosing.

Methods:

A retrospective review of patients on vancomycin dosed by pharmacists was conducted from November 2015 to March 2016 (pre-UH guideline). This data was compared to patients on vancomycin dosed by pharmacists from November 2016 to March 2017 (post-UH guideline). A sample size of 84 patients per study group was required to achieve a power of 90%. The primary objective of this study was to evaluate the time to goal serum trough concentration and the total days of vancomycin therapy. Additional data documented and analyzed included patient’s age divided into categories (young: < 40 years, middle-age: 40-64 years, and elderly: > 65 years), weight, serum creatinine, creatinine clearance divided into categories (normal > 50 mL/min, mild impairment 30-50 mL/min, and severe impairment < 30 mL/min), and vancomycin indication. Patients were excluded if they were receiving dialysis at the time of vancomycin dosing or less than 18 years of age. Data was analyzed using student t-test, descriptive, and inferential statistics.

Results: Data is currently being collected and analyzed. Results and conclusions will be presented at the Ohio Pharmacy Residency Conference.

Conclusions: Data is currently being collected and analyzed. Results and conclusions will be presented at the Ohio Pharmacy Residency Conference.
Targeting Self-Efficacy in a Charitable Pharmacy Smoking Cessation Program for the Underserved Population

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UAN: 0048-0000-17-112-L01-P

Learning Objectives:
1. Identify which form(s) of nicotine replacement therapy (NRT) would be most appropriate for given a patient case.
2. Interpret exhaled carbon monoxide (CO) level in smoking cessation appointment.

Purpose:
According to the CDC, underserved populations bear a disproportionate share of the health burden of tobacco. These groups form the core patient base at St. Vincent de Paul Charitable Pharmacy (SVDPCP). Approximately 35% of SVDPCP patients served in 2015 reported tobacco use. This pilot study targets self-efficacious patients in order to allow for efficient allocation of limited pharmacy resources.

Methods:
This service utilizes an adapted version of a screening tool validated by Spek et al called the Smoking Abstinence Self-Efficacy Questionnaire (aSASEQ). This questionnaire determines a tobacco user’s self-efficacy, which may indicate a higher likelihood of tobacco cessation. Patients receive NRT to relieve withdrawal symptoms in addition to counseling from pharmacy team members on the behavioral aspects of quitting smoking. Exhaled carbon monoxide tests are conducted at each visit to provide an objective measure of how quitting smoking impacts health. Follow up appointments occur every 2 weeks for a total of five appointments.

Results: During enrollment, 43 patients were screened and 7 were enrolled. Females account for 29% of the study population and 71% are male. Four of the enrolled patients had a high SASEQ, with an average score of 18.25. Three scored low on the questionnaire, with an average SASEQ of 8.33. The average baseline CO level was 25.71 parts per million (range 10-53). Three patients have attended at least two follow up visits. Average CO levels at subsequent appointments are 10.5 ppm (range 1-36). All three reported lapses and smoking at least one cigarette between appointments.

Conclusions: The primary objective of this research is to successfully pre-identify current smokers who have a high likelihood of success in a pharmacist-assisted quit attempt. Early data show that patients have experienced barriers in attending follow up. All patients, regardless of level of self-efficacy, smoked at least one cigarette between appointments. Resident research in progress.
Impact of utilizing rapid pathogen identification with pharmacist intervention on time to appropriate antimicrobial agents

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UAN: 0048-0000-17-113-L01-P

Learning Objectives:
1. Identify how laboratories utilize rapid diagnostic technology of pathogens including polymerase chain reaction (PCR)
2. Discuss the impact that rapid pathogen identification of positive blood cultures with real-time results to pharmacist had on antimicrobial selection at Lima Memorial Hospital

Purpose:
Mortality is higher for patients with bloodstream infections that receive inadequate initial therapy. Current laboratory practices for incubation, identification, and resolution of sensitivity of offending organism can take 3-5 days or longer. Lima Memorial Hospital recently implemented a blood culture identification (BCID) panel, which uses PCR to identify pathogens in approximately one hour. The purpose of the study is to determine if pharmacist intervention with real-time rapid identification results of microbes from positive blood cultures decreased the time to appropriate antimicrobial agents.

Methods:
This is an IRB approved, historical controlled, multi-phase, single-center, interventional study. Electronic medical records were retrospectively reviewed for patients with positive blood cultures in three study arms. The two control arms were patients with positive blood cultures (1) prior to the use of BCID panel and (2) with BCID results without pharmacist notification. In the intervention arm, pharmacist received real-time notification of BCID results and made recommendations according to treatment algorithms created. Other outcomes measured include overall days of therapy, length of stay, doses of broad-spectrum antimicrobials given, and recommendations accepted. Inferential parametric statistics (ANOVA) will be used for continuous data while nonparametric statistics will be used to analyze categorical data. A power calculation identified a sample size of 35 per group.

Results: Data collection and analysis will be presented at the 2017 Ohio Pharmacy Resident Conference.

Conclusions: Data collection and analysis will be presented at the 2017 Ohio Pharmacy Resident Conference.
Evaluation of hypertonic sodium solution guideline compliance at a large academic medical center

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UAN: 0048-0000-17-114-L01-P

Learning Objectives:

1. Review the differences in hyperosmolar therapy for reducing intracranial pressure and cerebral edema
2. Discuss the administration technique for HSS with the most literature supporting its use

Purpose:
Intracranial hypertension is defined as an intracranial pressure (ICP) of greater than 20 mmHg. Hypertonic sodium solution (HSS) induces an osmotic gradient to draw water from the interstitial space to the intravascular space reducing intracranial volume and ICP. HSS is typically administered as repeated bolus doses of up to 23.4% sodium chloride or as a continuous infusion. The majority of evidence is with the bolus administration of HSS compared to the continuous infusions. The current procedure for HSS at University Hospitals Cleveland Medical Center (UHCMC) is either bolus administration, continuous infusion or a combination of bolus with a continuous infusion. The objective of the study is to evaluate the guideline compliance rate among patients prescribed hypertonic sodium solutions at UHCMC.

Methods:
This retrospective study reviewed the use of HSS during the calendar year of 2015. Patients who received HSS ordered from the HSS order set will be eligible for inclusion into the study. Adult patients will be included if they received HSS for ICP management. Individuals were excluded if HSS was used for hyponatremia correction. The primary endpoint is compliance with the UHCMC HSS guideline defined as: neurocritical care team as primary or consult service, HSS IV bolus volume and administration rate within guideline recommendations, HSS IV continuous infusion volume and rate within guideline recommendations, and documentation in the electronic medical record. Secondary endpoints include increases in sodium concentration post bolus administration, ICP measuring device, median number of excursions of ICP > 20 mm Hg per day, median ICP measurement during HSS therapy, utilization of concomitant therapies to reduce ICP, hospital mortality, Modified Rankin Scale at discharge and 6-12 month follow-up, adverse events, and discharge status.

Results: Results will be presented at OPRC Spring Meeting 2017.

Conclusions: Results will be presented at OPRC Spring Meeting 2017.
Validation of a checklist to evaluate student performance in a problem based learning group

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UAN: 0048-0000-17-115-L04-P

Learning Objectives:

1. Describe the Problem-Based Learning (PBL) model and the goals students are expected to achieve
2. Explain the Angoff Method for Standard Setting in the development of a facilitator evaluation tool

Purpose:
Problem-Based Learning (PBL) is a student-centered pedagogy that uses authentic, ill-structured cases as the stimulus for learning pharmacotherapy. PBL is a course series in the Wayne State University-Eugene Applebaum College of Pharmacy curriculum. Evaluation of student performance in a group is one component of the PBL process. Standardization of the evaluation process using valid tools optimizes assessment of student learning. The objective of this study is to validate the checklist used in the PBL course series.

Methods:
In 2013 a standardized performance checklist was developed. The Angoff Method for Standard Setting was used to determine the weighted score of each checklist item. To evaluate the validity and reliability of the checklist, evaluation scores from 2015-2016 will be evaluated along with overall program GPA, and knowledge and problem solving exam scores. IBM Statistical Package for the Social Science (SPSS) predictive analytics software was used.

Results: Seventy facilitators generated 1506 evaluation reports for 191 (90 P3s and 101 P2s) students over eight cases. The mean total score was 40.6 +/- 2.5 (P3s) and 39.1 +/- 2.7 (P2s) out of 44.2. Scores improved each semester. The total score from the checklist did not correlate with knowledge or problem-solving exam scores. Seven items (18%, P3s) and 6 items (16%, P2s) were within 5% of the judges’ score. All items achieved by ≤79% of students were positively correlated. Of 13 P2 items (78 pairwise correlations), 73 were correlated, of those 57 were moderately or strongly correlated. Of 5 P3 items (10 pairwise correlations) all were correlated, of those 9 were moderately or strongly correlated.

Conclusions: The checklist is a unique evaluation tool which assesses skills that are not evaluated elsewhere in the PBL courses and helps to differentiate student performance within a small group.
Impact of pharmacist-driven post-discharge medication reconciliation on 30-day readmission rates: a retrospective chart review.

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UAN: 0048-0000-17-116-L05-P

Learning Objectives:

1. Identify areas for pharmacist involvement with discharge planning
2. Discuss successes and barriers to medication reconciliation postdischarge

Purpose:
Medication discrepancies have potential to prolong hospital length of stay and increase utilization of other healthcare resources, emergency department visits, and hospital admissions. Congress enacted a skilled nursing facility (SNF) readmission policy, where facilities will publicly report in October 2017. Previous studies demonstrate that medication reconciliation led by pharmacists postdischarge can decrease readmissions and provide cost savings. Cleveland Clinic Medina Hospital has a large percentage of inpatients admitted from nursing facilities and/or discharged to nursing facilities, which was the focus of this study. The primary outcome was readmission to a Cleveland Clinic inpatient facility within thirty days of discharge.

Methods:
This study was a randomized, retrospective chart review of patients discharged from Medina Hospital to SNFs and long term acute care facilities (LTACs). All patients discharged to a SNF or LTAC were randomized equally into two groups: patients who will receive post-discharge medication reconciliation and patients who will not. Nursing facilities were contacted to conduct a medication reconciliation within three days of discharge. The number of medication discrepancies, drug interactions, interventions, and length of the phone call were documented. Chart review determined 30-day readmission rate.

Results: A total of 121 patients were included, and medication reconciliation was attempted in 82 patients. Patients were included in the statistical analysis if pharmacy reconciled medications with the nursing home, equaling 46 patients (56.1% of original intervention group). There was no statistical significance regarding 30-day readmission rate between intervention (23.1%) and control groups (30.4%), p=0.474. At least one discrepancy was identified in 22 patients in the intervention group (47.8%), with a total number of identified discrepancies equaling 42.

Conclusions: This study brought to light several areas of the care transition process where it would be beneficial to have pharmacist involvement. Unsuccessful medication reconciliation attempts was identified as an area to improve upon with the continuation of this project.
Evaluation of Adjunctive Therapy in the Management of Alcohol Withdrawal Syndrome in Critically Ill Patients

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UAN: 0048-0000-17-117-L01-P

Learning Objectives:

1. Identify advantages and disadvantages of fixed schedule benzodiazepine regimen and symptom triggered management of alcohol withdrawal syndrome (AWS).
2. Describe the use of adjunctive therapy when used in addition to standard benzodiazepine therapy for AWS.

Purpose:
The prevalence of alcohol abuse in the United States is approximately 18%. AWS occurs when there is a cessation or reduction of alcohol use leading to severe withdrawal symptoms affecting patients overall quality of health. Inappropriate management of AWS can negatively impact the healthcare system and patient outcomes. Benzodiazepines are traditionally the treatment of choice for AWS; however, adjunctive medications have been utilized for treatment. Several studies and case reports, in which adjunctive therapies have been utilized, have evaluated unique patient populations including intubated patients, patients resistant to benzodiazepine doses, and patients requiring additional symptom specific therapy. These studies suggested improved outcomes and decreased hospital length of stay when adjunctive therapy was utilized. Our institutional protocol for AWS uses the Clinical Institute Withdrawal Assessment for Alcohol (CIWA-Ar) tool with standardized lorazepam doses. The purpose of this study is to compare outcomes in critically ill patients who received treatment for AWS. The comparative groups include patients treated for AWS with our protocol benzodiazepine of choice, lorazepam, as well as those treated with adjunctive therapy in addition to our protocol.

Methods:
This is a single-center retrospective study of adult patients treated for AWS from July 1, 2015 through June 30, 2016. The electronic medical record was used to identify patients treated for AWS. Pregnant patients were excluded from this study. Pertinent data was collected to characterize adherence to our institution’s protocol, adjunctive therapy and benzodiazepine use. Patient demographics and past medical history were collected and compared using descriptive statistics.

Results: Results from this data may help improve AWS treatment as well as provide better quality of care for patients. Data is currently being analyzed. Results and conclusions will be presented at the Ohio Pharmacy Residency Conference.

Conclusions: N/A
Phamily Matters: A look at the role social support plays in improving the outcomes of pharmacist-delivered disease state management services

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UAN: 0048-0000-17-118-L01-P

Learning Objectives:

1. Identify the need for social support in disease state management services.
2. Describe a current disease state management service offered in the community pharmacy setting.
3. Report the effect of social support on patient outcomes in a community pharmacy disease state management service.

Purpose:
The purpose of this project is to prospectively compare patients with and without social support enrolled in a community pharmacy Diabetes Coaching Program and examine the impact on clinical outcomes.

Methods:
This quasi-experimental study examines the impact of social support in diabetes coaching services provided by pharmacists at select Kroger Pharmacies within the Greater Cincinnati-Dayton Kroger Marketing Area (KMA). Patients newly or currently enrolled in the Diabetes Coaching Program have been given the option to include a member of their social support during coaching appointments. Patients who bring social support with them to appointments comprise the intervention arm. Patients who do not wish to bring an individual from their social support comprise the control arm. As appropriate, patients are assessed for clinical parameters, including: A1c, weight, and blood pressure. During appointments, pharmacists provide education regarding standards of care, nutrition, blood glucose monitoring, stress management, medication administration, or foot care. Appointments in the intervention arm differ only by the involvement of social support, who receive the same education and actively participate in the appointment. Patients and their social support, if applicable, create personal SMART (specific, measurable, attainable, relevant, and timely) goals at each appointment. Outcomes measured will be assessed at 3 and 6 months following baseline, as appropriate per clinical guidelines. The primary endpoint in this study will be improvement in A1c. Clinical secondary endpoints will include change in waist circumference, weight, and blood pressure readings at appointments, which will be included to determine the effect of social support on nutrition, exercise, and blood pressure.

Results: This research is currently in progress.

Conclusions: This research is currently in progress. Our hypothesis is that the involvement of social support will result in improved A1c, blood pressure, and body mass index (BMI) as well as decreased pharmacist burden as it relates to missed and re-scheduled appointments.
Clinical and Humanistic Outcomes of Face-to-Face and Telehealth Warfarin Management

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UAN: 0048-0000-17-119-L01-P

Learning Objectives:

1. Discuss benefits and limitations of telehealth (TH) and face-to-face (FTF) management of warfarin.
2. Describe the Rosendaal method of calculating time in therapeutic range (TTR).
3. Classify the quality of time in therapeutic range (TTR) as excellent, good, or poor.

Purpose:
Health systems are rapidly expanding to offer ambulatory services, including warfarin-management, throughout surrounding communities. This can lead to various warfarin-management approaches with lack of standardization from site to site. Evaluating clinical outcomes of face-to-face and telehealth warfarin management and assessing patient satisfaction can help health-systems select which modality to offer; telehealth vs face-to-face.

Methods:
This study was a retrospective, non-inferiority, repeated measures analysis of a select population that transitioned from a MetroHealth satellite anticoagulation clinic to the telephone-based Medication Management Clinic (MMC) for warfarin management during August or September, 2016. Data was collected from six months prior to transitioning to MMC through six months following the transition. Patients must be aged 18 years or older, prescribed warfarin, and managed by a MetroHealth satellite clinic at least six months prior to transitioning to MMC. Patients were excluded if warfarin was discontinued during the study period or if the patient used home INR testing or the face-to-face clinic instead of telehealth more than 25% of the time. The primary outcome was time in therapeutic range (TTR) calculated using the Rosendaal method. Secondary outcomes included extreme INR level (INR >/= 4.5 or INR </= 7 days late), hospitalizations/ER visits stratified by primary outcome and Bleeding Academic Research Consortium (BARC) bleeding score, and patient satisfaction with telehealth. Other data collected included demographics, goal INR range, use of chronic NSAIDs or antiplatelet medications, use of vitamin K, encounter type, INRs, procedural interruptions, and hospitalizations/emergency room visits. Satisfaction was assessed via mailed surveys. Seventy patients were required to meet 99% power.

Results: Data is currently being collected and analyzed. Results and conclusions will be presented at the Ohio Pharmacy Resident Conference.

Conclusions: Data is currently being collected and analyzed. Results and conclusions will be presented at the Ohio Pharmacy Resident Conference.
A 30-day Hospital Readmission Prediction Index with Quarterly Iterative Adjustment

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UAN: 0048-0000-17-120-L04-P

Learning Objectives:

1. Describe the process for statistically validating a 30-day hospital readmission index.
2. Identify the potential role for pharmacists in reducing 30-day hospital readmissions using a readmission prediction model.

Purpose:
Hospital readmissions are common, costly, and often preventable. Readmission prediction indices have the potential to stratify patients who are at higher risk for all-cause readmission in order to allocate resources and direct transitions of care interventions. The Hospital All-Cause Readmission IndeX (HATRIX) prediction model was previously derived and validated at the Detroit Medical Center (DMC). The objective of this study is to develop an ongoing iterative validation process for the HATRIX model to improve its predictive and discriminative capabilities.

Methods:
Retrospective data analysis and extraction were performed on patient admissions from January 2014 to September 2016. Backward stepwise logistic regression was performed using the 10 variables from the HATRIX prediction model. An ongoing iterative validation process was developed to readjust the model in three month increments. Visits were included if patients were 18 years or older and admitted to an adult DMC hospital. Visits were excluded if patients were discharged to a nursing home, long term care facility, or hospice, left against medical advice, were admitted to obstetrics, or died during the index admission.

Results: Of 220,477 eligible visits, 121,227 met full inclusion and exclusion criteria. The overall 30 day readmission rate in the included group was 13.7%. The factor most closely associated with 30 day readmission was a history of 3 or more previous admissions within the prior 12 months, resulting in an odds ratio of 4.57 (95% confidence interval 4.37-4.77) versus those with no prior admissions. This model demonstrated good calibration and attained an area under the receiver operating curve (AUCROC) of 0.717 with a negative predictive value of 89.7% and positive predictive value of 34.1%. A (Nagelkerke) pseudo-R-squared value of 0.127 was calculated.

Conclusions: The HATRIX model will be implemented into the DMC electronic medical record and used to guide transitions of care pharmacist interventions.
Impact of a Pilot, Pharmacy-led Tobacco Cessation Medication Protocol at Discharge in a Community Hospital

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UAN: 0048-0000-17-121-L01-P

Learning Objectives:

1. Review The Joint Commission’s Tobacco Treatment National Hospital Inpatient Quality Measures
2. Discuss the impact of a pharmacist-led tobacco cessation protocol in the hospital setting

Purpose:
Tobacco use has been well-established as a contributor to preventable disease and death. Providing support through healthcare interventions has been proven to help tobacco users quit more effectively. Pharmacists have the specific skill set required to share information about medication management options for quitting.1,2 The Joint Commission has created The Tobacco Treatment (TOB) measure set to address tobacco cessation for all hospitalized patients. The TOB-3 (Tobacco Use Treatment Provided or Offered at Discharge) and TOB-3a (Tobacco Use Treatment at Discharge) measures provide an optimal opportunity for pharmacy intervention.3 A tobacco cessation medication education initiative was implemented at UHSJMC. Per the approved pharmacy protocol, patients were given an education sheet reviewing available over the counter (OTC) nicotine replacement therapies (NRTs). The pharmacist was authorized to order the chosen NRT upon discharge. Follow-up phone calls occurred within 30-60 days of discharge for patients who had initial interest in tobacco cessation medications. The purpose of this study was to assess the impact of a pharmacy-led tobacco cessation protocol, based on medication and education interventions prior to discharge.

Methods:
A retrospective review was completed from November 2016 through April 2017. UHSJMC inpatients identified as current tobacco users were included in the study. Each tobacco cessation intervention was documented in the patient’s medical record. The total number of interventions was documented as the primary outcome. Percentage of patients meeting the TOB-3/3a quality measure, percentage of those referred to the tobacco cessation Quitline, and those who have purchased an NRT post-discharge were documented as secondary outcomes. Prior data from November 2015 through April 2016 will be analyzed against the study group using descriptive statistics.

Results: Data is currently being collected and analyzed. Results will be presented at the Ohio Pharmacy Residency Conference.

Conclusions: Data is currently being collected and analyzed. Conclusions will be presented at the Ohio Pharmacy Residency Conference.
Effectiveness of a pharmacist-directed Tdap immunization program for a university campus

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Learning Objectives:
1. Review recent data regarding national Tdap immunization rates.
2. Discuss the role of the pharmacist on increasing immunization rates.

Purpose:
Despite a slight increase in Tdap immunization rates, the total numbers are still low among adolescents and adults. The study’s purpose is to determine the impact of pharmacists on population health by assessing the effectiveness of a pharmacist-directed immunization program on a university campus in an ambulatory care clinic.

Methods:
The study is IRB approved. Employees and retirees will be screened to see if they meet the criteria for a Tdap vaccination. Patients who have a high risk of contracting pertussis were asked to schedule an appointment with a pharmacist. At the appointment, past medical history, current medications, demographics, and vaccine safety data were collected and the vaccine was administered. Anyone included in the study was also invited to attend an educational program that discussed the difference between the Tdap vaccine and the decennial tetanus booster, the indications for the Tdap vaccine, and the safety of vaccinations. Pre and post assessment data was collected on the educational segment. Data was de-identified, locked in a restricted room and in a password-protected document, and protected through HIPAA standards. A sample size of 44 was calculated for a power of 90% and alpha was set at 0.05. Outcome variables will be analyzed by descriptive and inferential statistics. Data will be presented in aggregate form.

Results: With 177 employees and retirees screened, 161 were eligible for vaccination. Since 59 reported previous vaccination, a total of 102 patients were indicated to receive Tdap through the study. The baseline Tdap vaccination rate for the university is 36.6%. To date, 53 patients have received Tdap vaccination. A total of 5 patients have completed pre-post assessment data. Final results are pending.

Conclusions: Pharmacists are effective in directing a Tdap vaccination clinic on a university campus, as evidenced by a 33% increase in the baseline Tdap vaccination rate at the university.
Evaluating hemodynamic effects of clevidipine in cardiothoracic surgery patients with reduced ejection fraction

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Learning Objectives:
1. Identify treatment options for afterload reduction in patients with heart failure with a reduced ejection fraction
2. Describe the effect clevidipine has on hemodynamic parameters (mean arterial pressure, cardiac index, and pulmonary artery pressures) in cardiothoracic surgery patients with reduced ejection fraction

Purpose:
The purpose of this study is to evaluate the impact clevidipine, a rapid-acting calcium channel blocker, has on hemodynamics in cardiothoracic surgery patients with a reduced ejection fraction. The primary objective is to characterize the pulmonary artery catheter monitored hemodynamic effects of clevidipine at defined time points after infusion initiation. Secondary objectives include evaluating the percentage of mean arterial pressure (MAP) readings at goal, intensive care unit (ICU) and hospital length of stay, presence of arrhythmias, and rehospitalization and mortality within one year of follow up.

Methods:
This study was a single center, retrospective chart review of cardiothoracic surgery patients at University Hospitals Cleveland Medical Center. Patients that received clevidipine between December 1, 2012 and November 30, 2016 were identified via the electronic medical record. Patients were included if they underwent cardiothoracic surgery, had invasive hemodynamic monitoring, left ventricular ejection fraction of 40% or less, and were 18 years of age or greater. Patients on extracorporeal membrane oxygenation or concomitant vasopressor therapy were excluded. Demographic variables collected included, age, gender, weight, body mass index, past medical history, type of surgery, and ejection fraction. Hemodynamic parameters were collected at time of clevidipine initiation and at 6 hour time points for up to 48 hours. The rate of the clevidipine infusion was recorded at each 6 hour time point as well. Additionally, the mean clevidipine infusion rate, maximum clevidipine infusion rate, and total duration of clevidipine infusion were recorded for each patient. Adverse effects were evaluated by trending change in renal function, and with the development of arrhythmias while on clevidipine. ICU and hospital length of stay, rehospitalization and mortality rates, and patient disposition were also recorded to evaluate secondary objectives.

Results: Data collection is in process. Results will be finalized and presented at the Ohio Pharmacy Residency Conference.

Conclusions: Data collection is in process. Conclusions will be finalized and presented at the Ohio Pharmacy Residency Conference.
Outcomes of Chronic Care Management (CCM) in Primary Care Practice

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Learning Objectives:

1. Identify two eligibility criteria for participation in Medicare’s CCM service
2. Describe the activities pharmacists can provide via a CCM service

Purpose:
The number of patients with chronic conditions continues to grow along with their utilization of health care and expenditures. Management of conditions such as diabetes, hypertension, and heart failure requires ongoing care delivered beyond that of a single primary care visit. Large practice gaps exist for the care of patients with chronic conditions. In 2015, Medicare began reimbursing non-face-to-face Chronic Care Management (CCM) services provided to patients with multiple chronic conditions. CCM focuses on care coordination, management at care transitions, and medication management. In August 2015, the pharmacy team in an urban patient-centered medical home serving geriatric patients implemented a CCM program that has enrolled over 150 patients. The purpose of this project is to evaluate the impact of a pharmacist-led CCM service on health outcomes, medication-related problems, patient satisfaction, and cost utility.

Methods:
This is a quasi-experimental study. The electronic medical record will be utilized to collect glycated hemoglobin, blood pressure, LDL cholesterol, vaccination status, preventative health care services provided, and acute care visits for patients who received the CCM service. These variables will be collected from one year prior to and one year after the provision of CCM. An interrupted time series analysis will be used to evaluate the impact of CCM. A validated survey will be used to assess patient satisfaction with pharmacist-led CCM services. A cost utility analysis will be conducted to determine if the CCM service is economically favorable.

Results: Data collection and analysis are currently ongoing. Complete results will be presented at the 2017 Ohio Pharmacy Resident Conference.

Conclusions: Conclusions will be presented at the 2017 Ohio Pharmacy Resident Conference.
Evaluation of hyperglycemic crises management in the medical intensive care unit.

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Learning Objectives:
1. Review the management of hyperglycemic crises using the American Diabetes Association consensus statement
2. Outline benefits of appropriate management of hyperglycemic crises

Purpose:
Diabetic ketoacidosis (DKA) and hyperglycemic hyperosmolar syndrome (HHS) are serious hyperglycemic crises that require accurate and timely management. The American Diabetes Association (ADA) consensus statement outlines recommendations for the treatment of DKA/HHS and includes fluid and electrolyte management along with guided insulin therapy. The purpose of this study was to evaluate whether the management of hyperglycemic crises in the medical intensive care unit (MICU) at our institution is consistent with the ADA recommendations.

Methods:
This was a single-center, retrospective chart review of patients 18 years or older admitted to the MICU on intravenous insulin infusion for the treatment of hyperglycemic crises between January 1st and June 30th 2016. Patients were excluded if they received an insulin infusion for another indication, were transferred to another hospital or had an incomplete electronic medical record. The primary objective was to assess adherence to the current DKA/HHS order set. Secondary objectives included time to resolution of hyperglycemic crises, MICU length of stay, incidence of hypoglycemia and hypokalemia, assessment of appropriate transition to subcutaneous insulin and incidence of recurrent hyperglycemic crises. Descriptive statistics were used to analyze data.

Results: Forty seven patients met the inclusion criteria. Prescriber utilization of the order set was 52.6% (n=20). Mean time from MICU admission to resolution of crises was 48.9 + 54.3 hours. MICU length of stay was 64.1 + 89.7 hours. Incidence of hypoglycemia or hypokalemia were 21.3% (n=10) and 17.0% (n=8), respectively. Mean time from discontinuation of intravenous insulin infusion to initiation of subcutaneous therapy was -0.11 + 5.06 hours. Recurrent hyperglycemic crises occurred in 29.7% of patients (n=14).

Conclusions: Overall prescriber adherence to the DKA/HHS order set was low. Regardless of order set utilization, the secondary outcomes identify several opportunities for improvement in the management of hyperglycemic crises at our institution.
Evaluation of anticoagulation treatment in patients with massive or submassive pulmonary embolism and concurrent deep vein thrombosis

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Learning Objectives:

1. Review the current literature regarding the various anticoagulation treatment options for patient with massive/submassive PE and concurrent DVT
2. Describe the safety and efficacy of these various anticoagulation treatment options in patient with massive/submassive PE and concurrent DVT

Purpose:
Treatment recommendations for submassive/massive pulmonary embolism (PE) and a concurrent deep vein thrombosis (DVT) are lacking in current guidelines. Available treatment options include: anticoagulants alone; endowave catheter-directed thrombolysis with low-dose alteplase plus anticoagulation; or systemic thrombolytics plus anticoagulation. To date there are no studies comparing all treatment options for DVT/PE; our study will evaluate the safety/efficacy of the various anticoagulation treatment options in patients with concurrent PE/DVT. The primary objective of the study is to assess the recurrence of PE or other thrombotic events within 90 days; as well as in-hospital mortality, 30 day mortality and major/minor bleeding.

Methods:
This is a retrospective study conducted in adult patients that presented with a massive or submassive PE and a concurrent DVT from July 2010 to August 2016. Data collected included patient demographics, length of stay (hospital stay and intensive care unit length of stay), prior history for venous thromboembolism, co-morbidities, vital signs, pertinent lab markers such as: right ventricle diameter/left ventricle diameter ratio, complete blood count, BUN/SCr, liver function tests, fibrinogen, D-dimer, BNP, N-terminal pro-BNP, troponin I, troponin T. In addition, the study also assessed the use of concomitant antiplatelet agents, concomitant systemic anticoagulation, total tPA dose infused, as well as start date/time, anticoagulant agent used, dose and start date/time, inferior vena cava filter placement, as well as vasopressor requirement. This study then evaluated minor bleeding, major bleeding, in hospital mortality, 30-day mortality, 30 day readmission, recurrent PE or any other thromboembolic event within 90 days. Data was grouped based on the treatment option used: Anticoagulants alone (parenteral and/or oral); endowave catheter-directed thrombolysis with low-dose alteplase plus anticoagulation; or thrombolytics plus anticoagulation. As for statistical analysis, the data was assessed using Chi-Squared tests for nominal data and Student’s T-tests for continuous data.

Results: To be presented at the Ohio Pharmacy Residency Conference

Conclusions: To be presented at the Ohio Pharmacy Residency Conference
Impact of Pharmacist-Provided Spirometry Service on Access to Results in Primary Care Setting

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Learning Objectives:

1. Recognize the gold standard for diagnosis of asthma and COPD
2. State the role pharmacists can have when completing spirometry in the primary care setting

Purpose:
Spirometry testing is the gold standard for diagnosis of asthma and chronic obstructive pulmonary disease (COPD.) Pharmacists within PrimaryOne Health began offering in-house spirometry screening in October 2015. Pharmacists evaluate the spirometry results and recommend medication changes as indicated to the ordering provider. The primary objective of this study is to determine the effect of implementing a pharmacist-provided spirometry service within a federally qualified health center (FQHC) on the percentage of spirometry referrals completed with results reviewed by the ordering provider. Secondary objectives will evaluate differences between referrals completed in clinics with and without the pharmacist-run spirometry service, medication recommendations made by the pharmacist, and to revenue brought in by the service.

Methods:
This is an IRB approved, retrospective chart review comparing data before and after the implementation of the pharmacist-provided spirometry service. Chart reviews were completed to collect patient demographics, type of provider ordering referral, location from where referral was ordered, referral diagnosis, and status of referral. For those who received spirometry screening from a pharmacist at PrimaryOne Health, chart reviews also included any medication recommendations made based on spirometry results and provider acceptance/denial of recommendation. Revenue was evaluated through a Revenue Detail Report provided by the billing department at PrimaryOne Health.

Results: Preliminary results show an increase in the percentage of spirometry referrals completed and reviewed by the ordering provider from 38.1% to 50.9% after initiation of the pharmacist spirometry screening. Preliminary results also show that pharmacists were able to provide 19 accepted medication recommendations. Final results will be presented at the Ohio Pharmacy Residency Conference.

Conclusions: Final conclusions will be presented at the Ohio Pharmacy Residency Conference
Alert fatigue reduction: The impact of dosage alert changes in a large health system

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Learning Objectives:

1. Define alert fatigue as it relates to computerized physician order entry
2. Identify one strategy that can be utilized to eliminate unnecessary alerts while minimizing the elimination of appropriate alerts

Purpose:
Alert fatigue is a known issue in today’s technology oriented healthcare field. The primary objective of this study is to reduce the number of dosage alerts provided to ordering users. The secondary objective is to improve physician and pharmacist perception of system alerts.

Methods:
Institutional Review Board approval has been obtained for this study. Dosage alerts registered throughout the health system during a two-day period were collected by the electronic record application coordinator. The five medications that most frequently registered dosage alerts were evaluated for appropriateness related to patient specific characteristics. Additionally, the ten most frequently fired alerts identified through the use of the ‘Inaccurate Warning’ option during alert override were evaluated for appropriateness. Recommendations were made for all alerts that were determined to be inappropriate or unnecessary when possible. The change in the number of alerts will be determined through percent change data before and after intervention. To evaluate the changes perceived by physicians and pharmacists, a pre-intervention survey was distributed and a post-intervention survey will be distributed to hospitalists and pharmacists at one facility within the system. Follow-up will occur with both parties to review actual interventions made after the post-intervention survey has been completed.

Results: Three dosage alerts and five alerts marked inaccurate were identified and changes recommended. Two alerts within the dose category overlapped with the inaccurate warning group, resulting in a total of six recommended changes. Two changes will be recommended to the alert provider for change and four have been presented to the clinical pharmacy team for review. It is anticipated that the four alerts being addressed independent of the alert provider will decrease dosage alerts by approximately 18%.

Conclusions: Final results and conclusion to be presented at Ohio Pharmacy Residency Conference.
Implementing a pharmacy-led medication reconciliation program for patients in a community hospital emergency department

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Learning Objectives:

1. Describe why accurate medication reconciliation is an important process to be completed in the emergency department
2. Discuss the impact that pharmacy-led medication reconciliation in the emergency department can have on patient safety, hospital workflow, and cost savings

Purpose:
Medication reconciliation (MR) is a vital hospital process that if not performed properly can negatively impact patient safety and employee efficiency. Conducting MR in the emergency department (ED) is optimal so that the most accurate medication history is recorded upon admission. Having a dedicated, trained pharmacist or pharmacy technician performing MR in the ED can refine MR processes thus reducing errors and streamlining hospital workflow. Studies have demonstrated that properly trained pharmacy technicians can complete medication histories as accurately and completely as pharmacists. This study was conducted to assess the potential impact of implementing a pharmacy-led MR program in the ED during peak admission hours.

Methods:
A pharmacist staffed in the ED for seven weeks during peak admission hours to provide MR services at a community hospital. MR was conducted by a pharmacist after the nurse had documented the patient's medications to compare the impact that the pharmacist made on the current process. The total number of MRs, types of errors, resources used, time spent per MR, number of medications evaluated, and hospital admission times were documented. Additionally, ED nurses were surveyed regarding time spent conducting MR and overall efficacy and accuracy without pharmacy involvement.

Results: Two hundred and one MRs were performed in the ED; 162 of these were for patients admitted to the hospital. Approximately 155 hours total were spent in the ED with 49 of those hours dedicated to performing MR. Overall, 2431 medications were evaluated resulting in 755 interventions, averaging 3.76 errors corrected per patient. Cost avoidance due to potential reduction in medication errors could save $333 per patient.

Conclusions: Pharmacy-led MR services in a rural, community hospital ED demonstrates potential for cost savings by streamlining hospital workflow while maximizing patient safety.
Comparison of standard vs extended durations of antimicrobial therapy for hospital-acquired pneumonia

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Learning Objectives:

1. Review the Infectious Diseases Society of America recommendations for duration of antimicrobial therapy for hospital-acquired pneumonia
2. Discuss consequences associated with extended durations of antimicrobial therapy

Purpose:
Purpose: The Infectious Diseases Society of America recommends a seven day duration of antimicrobial therapy for hospital-acquired pneumonia (HAP); however, this recommendation is based on low quality evidence. The majority of evidence supporting this recommendation is from ventilator-associated pneumonia clinical trials. Due to the lack of evidence regarding length of antimicrobial therapy for HAP, adherence to guideline recommendations is variable in clinical practice. The objective of this study is to determine the difference in clinical stability for patients with hospital-acquired pneumonia treated with less than or equal to seven days versus those treated with greater than seven days of antimicrobial therapy.

Methods:
Methods: This IRB-approved retrospective cohort study was conducted at the University of Toledo Medical Center. Electronic medical record and chart reviews of patients 18 years or older with a diagnosis of pneumonia who received at least 72 hours of antimicrobial therapy were included. Data describing baseline characteristics, antimicrobial therapy, and clinical stability were collected. The primary outcome was clinical stability at day 7 in patients treated with less than or equal to 7 days (standard duration) versus patients treated with greater than 7 days of antimicrobial therapy (extended duration). The secondary outcomes of this study include hospital and intensive care unit (ICU) length of stay (LOS), 30-day mortality, 30-day readmission rates and Clostridium difficile infection rate.

Results: Results: To date, 24 patients are included in the study and preliminary results were available at time of abstract submission. Duration of antimicrobial therapy was significantly shorter in the standard therapy group (7 days vs. 14 days; P

Conclusions: Conclusion: Data analysis is still ongoing. Results will be presented at the Ohio Pharmacy Resident Conference.
Evaluation of a Pharmacist-Led Medication Reconciliation Program in a Psychiatric Population

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UAN: 0048-0000-17-131-L01-P

Learning Objectives:

1. Describe why psychiatric patients are at an increased risk for medication discrepancies
2. Explain how appropriate medication reconciliation upon admission benefits psychiatric patients

Purpose:
Psychiatric patients are at an increased risk for medication discrepancies due to polypharmacy, poor adherence, and comorbid disease states. At Mercy St. Charles’ Behavioral Health Institute, there is no pharmacist-led medication reconciliation program upon admission. Although medications are reconciled, a pharmacist is not involved in these processes. The objective of the study is to evaluate if a pharmacist-led medication reconciliation program results in a decrease in the overall number of medication discrepancies.

Methods:
This single center pilot study will be conducted at Mercy St. Charles’ Behavioral Health Institute. All patients admitted to unit C or D of the Behavioral Health Institute will have a medication reconciliation review conducted as soon as possible after admission by the researcher. This up-to-date medication list will be compared with the list derived from the current nursing-led process and any discrepancies between the two lists will be documented. Each discrepancy will be categorized based on type of error made, and will be analyzed for potential for harm and potential severity. The primary objective is the overall number of medication discrepancies found. The secondary objectives are classification, potential severity and potential to harm of each medication discrepancy documented.

Results: Preliminary data included 50 patients and a total of 341 home medications. Of these home medications 213 discrepancies were found. 69% of the discrepancies discovered were due to medications added to the home medication list that the patient was not taking prior to admission. The average time taken to complete the medication reconciliation process was 16 minutes.

Conclusions: Preliminary results show that a pharmacist-led medication reconciliation program at the St. Charles Behavioral Health Institute can detect more discrepancies than the current standard of care. By instituting a pharmacist-led program improved care can be provided to our patients by avoiding potential adverse drug reactions.
Compliance to United States Pharmacopeia (USP) 800: A gap-analysis

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Learning Objectives:

1. Recognize the importance and impact of USP 800 in health systems
2. Identify the most common areas of non-compliance to USP 800 at a large academic medical center

Purpose:
The United States Pharmacopeia (USP) recently published new standards, USP 800, for compounding hazardous drugs, which go into effect July 2018. Compliance to USP 800 is imperative for patient and employee health safety, and environmental protection. Michigan law (Public Act 280 of 2014) requires hospitals that compound sterile pharmaceuticals to be accredited by a national accrediting organization, approved by the Michigan Board of Pharmacy, prior to June 2017. The objective of this study is to evaluate current compliance to USP 800 at a large academic hospital, and to develop and implement an action plan for areas of non-compliance.

Methods:
In order to identify compliance to USP 800 standards, current work-practices were evaluated. Gaps between desired and actual work-practices were analyzed. Interventions were developed and implemented for each area of non-compliance, accordingly. Once standards were identified, compliance was measured by evaluating policies, assessing equipment, and observing staff as it applied to each desired work-practice.
In regards to direct staff observations, 200 unannounced observations were performed to measure compliance for use of personal protective equipment, personnel conduct during sterile compounding, and cleaning and disinfecting procedures. In order to consistently observe staff, competency assessment forms were developed, which incorporated required work-practice components from the USP standards. Staff was included for observation if they were scheduled to work within the cleanroom or performed the observed activity (i.e. cleaning) during the unscheduled observation period. Percent compliance was calculated using the number of compliant observations over the number of total observations for each requirement. Noncompliance was defined as less than 100% compliance on any standard. An action plan was developed for each area of non-compliance. Example interventions included writing required policies and procedures, educating and training pharmacy staff, performing staff competencies, and obtaining equipment.

Results: Results are unavailable.

Conclusions: Conclusions are unavailable.
Analysis of potentially inappropriate medication (PIM) use in the older adult population at an academic medical center

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UAN: 0048-0000-17-133-L04-P

Learning Objectives:

1. Discuss the role of the updated 2015 Beers Criteria in determining appropriateness of medication use in the older adult population
2. Identify the prevalence of and types of potentially inappropriate medications (PIMs) in the older adult population at the University of Toledo Medical Center (UTMC)

Purpose:
The purpose of this study is to 1) determine the prevalence of and types of PIMs used in the older adult population at an academic medical center from January 1, 2016 through December 31, 2016, and 2) assess the prevalence of and categorize the adverse events due to PIMs.

Methods:
A retrospective cohort study of patients 65 years of age and older admitted to a non-intensive care unit inpatient setting was conducted. The two new categories added to the 2015 Beers criteria used to identify PIMs for this study include: potentially clinically important non-anti-infective drug-drug interactions that should be avoided in the elderly and non-anti-infective medications that require dose adjustments in elderly patients with varying degrees of kidney impairment. Medical records of patients who were identified to have an adverse event from a PIM were evaluated using the Drug Interaction Probability Scale (DIPS) and the Naranjo scale as applicable and were used for evaluating probability of adverse drug reaction. Data was analyzed using two-sided chi-square test, the Wilcoxon rank-sum test and the independent student’s t-test as appropriate. Results were considered statistically significant when p-value

Results: Based on review of 1705 patients, a PIM was identified for 521 patients (30.5%). Of these patients, 404 (77.5%) had a PIM related to a drug-drug interaction and 117 (22%) had a PIM related to renal dose adjustment. A total of 45 patients (8.6%) experienced an adverse event. The median score for both Naranjo and DIPS was four (possible).

Conclusions: PIMs related to drug-drug interactions are more prevalent than renal dose adjustments. The likelihood of a PIM causing an adverse event was possible.
Incidence and Monitoring of Drug-Induced QTc Prolongation in a Primary Care Setting

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Learning Objectives:

1. Identify medications utilized in the primary care setting that can increase the risk for QTc prolongation and subsequently torsades de pointes
2. Discuss appropriate monitoring parameters to mitigate risk of development of drug-induced torsades de pointes

Purpose:
Torsades de Pointes (TdP) is a life-threatening ventricular arrhythmia that can be precipitated by use of concomitant and/or high doses of QTc prolonging medications. Patients with drug-induced TdP have increased risk when the QTc interval exceeds 500 ms. The primary objectives of this study were to determine the frequency of QTc monitoring and incidence of QTc prolongation in patients taking two or more medications with risk for QTc prolongation in a primary care setting.

Methods:
A retrospective review of the electronic medical record was performed to identify all patients who had a primary care office visit and were prescribed two or more concomitant chronic QTc prolonging medications from 7/1/2015 through 6/30/2016. Patients with a diagnosis of congenital long QT syndrome, current implantable cardioverter defibrillator, active pacemaker or non-chronic use of QTc prolonging medications (defined as a prescribed medication with no refills) were excluded. Patient demographics, presence of risk factors for QTc prolongation and chronically prescribed medications with risk for QTc prolongation will be collected. Additionally, all charts will be reviewed to determine if electrocardiography (ECG) was performed within 1 year of initiation of the last prescribed QTc prolonging agent. The percentage of patients who do not have an ECG performed in the specified time frame and the percentage of patients with a prolonged QTc interval will be quantified. For those patients with a prolonged QTc interval, interventions made to address the prolonged QTc interval will be characterized.

Results: Data collection and analysis are ongoing.

Conclusions: The results of this project will be used to assess the incidence of QTc monitoring and prolongation in a primary care setting to determine if quality improvement initiatives are needed to improve medication safety.
Retrospective review of the comparative effectiveness between antipsychotics used to treat delirium in the intensive care unit

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Learning Objectives:

1. Recognize the negative outcomes associated with ICU-related delirium
2. Discuss anti-psychotic usage for ICU-related delirium and its associated clinical impact at a community teaching hospital

Purpose:
Delirium in critically ill patients contributes to prolonged intensive care unit (ICU) and hospital length of stays in addition to increased mortality. The effectiveness of many antipsychotic medications in treating ICU-related delirium has been evaluated in several clinical trials; however, results were inconclusive. The objective of this retrospective chart review is to examine the comparative effectiveness of ICU delirium resolution among antipsychotic medications. Secondary outcomes include time to delirium resolution, length of stay, mechanical ventilation use, mortality rates, and discharge disposition.

Methods:
A single-center retrospective chart review was performed at a large, community teaching hospital evaluating patients admitted to the medical, cardiovascular, and surgical ICUs between January 2015 and December 2016. Medications included were haloperidol, risperidone, valproic acid, olanzapine, quetiapine, and ziprasidone. Inclusion criteria were patients 18 years or older admitted to the ICU for > 72 hours prior to receiving a study medication. Patients must have had a negative Confusion Assessment Method for the ICU (CAM-ICU) score at admission followed by a positive score. Patients with a history of psychiatric illness that were restarted on home therapy (involving at least one study medication) within 48 hours of ICU admission were excluded. Additionally, patients were excluded if they were pregnant or received valproic acid for seizures. Data was collected via electronic medical records. Data collected includes: demographic data; past medical history; prior to admission medications; admission location; CAM-ICU scores; baseline QTc; APACHE score; evidence of metabolic acidosis; urea concentration at admission; sedative used if on mechanical ventilation; time to onset of delirium; signs and symptoms documented by medical staff; any psychiatric consults; discharge disposition; and documentation of supporting delirium subtype. For study medications: name, dose, frequency, route, and length of therapy were recorded.

Results: Data analysis is ongoing.

Conclusions: Results and conclusions will be presented at the 2017 Ohio Pharmacy Resident Conference.
Effect of pharmacist education on methylnaltrexone prescribing habits

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Learning Objectives:

1. Discuss the opioid-induced constipation (OIC) treatment algorithm
2. Describe pertinent pharmacology and other information regarding methylnaltrexone
3. Discuss the effectiveness of pharmacist-delivered education on methylnaltrexone prescribing habits

Purpose:
St. Rita’s Medical Center utilizes methylnaltrexone three to four times more frequently than any other institution within the Mercy Health System for the treatment of opioid-induced constipation (OIC). This may be due to inappropriate prescribing habits stemming from a lack of understanding of the OIC treatment algorithm and the pharmacokinetics of methylnaltrexone. The primary objective of this study is to determine the effect health care professional education has on the appropriate use of methylnaltrexone.

Methods:
Patients who received a dose of methylnaltrexone for OIC from November 1st, 2015 through February 29th, 2016 were reviewed through a retrospective drug utilization evaluation for appropriateness of use. Methylnaltrexone doses considered to be appropriate met all of the following criteria: patient was taking an opioid regimen; there is no documentation of a bowel movement for at least 48 hours prior to methylnaltrexone use; patient was receiving a stimulant laxative in combination with a stool softener, osmotic laxative, or magnesium salt for three days prior to methylnaltrexone use; and a bowel movement was recorded after the first dose of methylnaltrexone to indicate patient response prior to receiving any subsequent doses. Physician, pharmacist, and nursing education was performed in October 2016. A comparative drug utilization evaluation was then performed from November 1st, 2016 through February 28th, 2017 to assess the effect this education has on appropriate methylnaltrexone use.

Results: Retrospectively, 20/200 (10%) of assessed methylnaltrexone doses were deemed appropriate. Prospectively, 36/186 (19.4%) of methylnaltrexone doses were deemed appropriate. This increase was found to be statistically significant using a Pearson’s Chi-squared test with Yates’ continuity correction ($X^2 = 6.0666$; degree of freedom= 1; $p$-value= 0.01378). Overall methylnaltrexone use decreased by 35.2% following education.

Conclusions: Health care professional education delivered by pharmacists significantly increased appropriately utilized doses of methylnaltrexone and had a beneficial impact on decreasing overall use.
Impact of pharmacist lead disease state management in a primary care clinic

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Learning Objectives:

1. Describe areas where pharmacists can positively impact reimbursement for a health system through pharmacist lead disease state management
2. Assess the clinical benefit of pharmacist lead disease state management in primary care clinics

Purpose:
Healthcare reform places greater emphasis on quality metrics and patient satisfaction, which are now tied into reimbursement for the health system. Both HEDIS and the CMS Star Rating have metrics for diabetes management based on HbA1c and statin use. The purpose of this study is to assess the impact of pharmacists on diabetes management in primary care clinics compared to usual care. The primary endpoint was change in HbA1c over six months. Secondary objectives include percent of patients with HbA1c less than seven and nine percent, patient satisfaction, adherence to medications, percentage of patients on statin therapy, and the financial implications of pharmacy services.

Methods:
This two-part study includes a retrospective chart review of patients referred to the pharmacist versus usual care. The pharmacists collaborated under a consult agreement with primary care physicians. The second part of the study assessed patient satisfaction through an abbreviated CG-CAHPS survey administered directly following the patient’s encounter with the pharmacist.

Results: Preliminary data includes 206 patients with diabetes for an average of 12 years. The average patient age is 62 years with 60% of patients identifying as female and 81% as African-American. Patients were enrolled in a 2:1 fashion with 137 of 206 patients in the intervention group. Average baseline A1c was 10.1% in the intervention group and 9.3% in the control group. At 6 months, average A1c decreased to 7.7% in the intervention group and increased to 9.6% in the control group (p=0.0001 and p=0.515 respectively). Of the 79 patients who completed the CG-CAHPS survey, 90% scored the pharmacist as “always” or 10/10 for each question.

Conclusions: Further discussion is awaiting final results, but preliminary data shows that patients are highly satisfied with pharmacist services and are not adverse to pharmacist visits. Pharmacists also positively impact HbA1c results.
Pharmacist Incorporated Discharge Planning in Skilled Nursing Facilities as a Means of Decreasing Rehospitalizations

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Learning Objectives:
1. Describe the current discharge process at skilled nursing facilities
2. Recognize the problems involved with discharging a patient from a skilled nursing facility.
3. Identify concerns that facilities have and how to rectify them with a discharge program aimed at increasing adherence and reducing readmissions.

Purpose:
To assess the rate of hospital readmissions, medication adherence, and patient satisfaction at or before day 30 following a comprehensive discharge consultation performed by a pharmacist prior to a patient’s discharge from a skilled nursing facility.

Methods:
This prospective cohort with historical control pilot study will include one pharmacist providing discharge counseling at two SNFs. Once consent is received, a counseling session is scheduled. During the session, a computer is loaded with the webcam application. Then the pharmacist performs a comprehensive medication review (CMR). The session is followed-up with ensuring the patient saw his or her primary care provider, per the patient, and a satisfaction survey. At 30 to 40 days post-discharge from the facility, the patient will receive a one question survey by telephone, inquiring if he or she was readmitted to the hospital and a Morisky Medication Adherence Scale (MMAS) will be assessed. This service will be compared to the current hospital readmission rate at the facility, 12.7%.

Results: To date, five patient counseling sessions have been performed. The average time per discharge is 21.2 minutes and the average number of medications is 16. Patients have the following diagnoses: COPD, post-op knee replacement, pneumonia, gastrointestinal hemorrhage, total hip arthroplasty, diverticulitis, heart failure, syncope, urinary tract infection, and sepsis. Non-pharmacological recommendations have been focused on diet, blood glucose checks, and smoking cessation. All patient satisfaction surveys have been 7 out of 7. Readmission data is collected 30 days post-discharge from the SNF, of the 6 patients that have discharged 30 days ago, none have readmitted.

Conclusions: Patient satisfaction with the pharmacist discharge counseling process is high. No patients have been readmitted to date, however positive secondary benefits of ensuring post discharge follow up with providers and medication adherence was observed.
Implementation and evaluation of pharmacist managed vancomycin per hospital protocol: A pre and post analysis

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Learning Objectives:

1. Outline the process for initial dosing of vancomycin, follow-up troughs and dosing adjustments
2. Define and describe the significance of specific vancomycin trough values

Purpose:
The primary purpose of this study is to implement a pharmacy vancomycin consult service. The secondary purpose is to assess the outcomes of pharmacist-managed vancomycin regimens as compared to physician-managed vancomycin regimens. Outcomes studied for comparison will be percentage of therapeutic vancomycin troughs and adherence to the system-wide vancomycin dosing guideline. Secondary outcomes include correct timing of troughs, troughs within range, appropriateness of dose adjustments, and occurrence of side effects due to vancomycin.

Prior to implementation of the vancomycin consult service, pharmacist involvement in vancomycin dosing was limited to ordering a timed trough on behalf of the physicians, if one was not already ordered. In 2015, a vancomycin dosing guideline was approved system-wide. While used as a guide, full ownership of vancomycin dosing and monitoring by pharmacy was not implemented prior to the start of this study.

Methods:
This study was determined by IRB to be exempt as non-human subjects research. A system-wide vancomycin dosing guideline will be used to guide initial dosing, monitoring of levels, and dosing adjustments. A competency assessment will be developed for pharmacists to dose vancomycin prior to implementation of the consult service. A retrospective chart review will be performed to compare data results from pre-implementation and post-implementation of the vancomycin consult service. Pre-implementation charts will be reviewed from January 1, 2016 to February 28, 2016, while post-implementation charts will be reviewed from February 1, 2017 to March 31, 2017. Data to be collected includes: date of admission, date of discharge, reason for admission, age, gender, initial temperature, height, weight, past medical history, baseline renal function, WBC, indication, prescriber, culture results, dosing information, other nephrotoxic medications, appropriate first dose, trough, dose regimen changes, time to therapeutic trough, renal function, and other side-effects.

Results: Results are currently in progress.

Conclusions: Conclusions are currently in progress.
The ONESCOP study: The pharmacist’s impact on acute ischemic stroke care

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Learning Objectives:
1. Describe the role of a pharmacist in multidisciplinary acute ischemic stroke care
2. List the stroke metric outcomes potentially impacted by pharmacist involvement in acute ischemic stroke care

Purpose:
As a primary stroke center, the institution relies on an interdisciplinary team to provide acute ischemic stroke care. During regular business hours, this team includes a neurohospitalist, stroke coordinator, and pharmacist (ONESCOP team). This project seeks to determine if the presence of the ONESCOP team impacts acute ischemic stroke metrics (door to needle time) and patient outcomes (length of stay) when compared to off-hours stroke coverage.

Methods:
A retrospective chart review was performed for all subjects presenting to the emergency department (ED) under a stroke alert from January 1, 2015 to December 31, 2016. Subjects included in statistical analysis must have had an ischemic stroke. Subjects were excluded if their stroke was hemorrhagic, symptoms were determined to be from a cause other than stroke, presentation was more than 4.5 hours since last known well, or alteplase (t-PA) was administered before arrival. Patient outcome data was not analyzed for patients who expired, were transferred to another facility, or left against medical advice. Data was analyzed in two groups based on whether the full ONESCOP team participated in the acute stroke care of the subject. Primary outcomes assessed included door to needle time and length of stay. All data was tested for normality, and the appropriate statistical tests were used to determine if there was a difference in outcomes between subjects who received acute ischemic stroke care from the ONESCOP team and those treated by off-hours providers.

Results: It is anticipated that there will be significantly lower door to needle times when the ONESCOP team provides acute stroke care when compared to off-hours providers. It is also anticipated that length of stay will be shorter for patients treated by the ONESCOP team.

Conclusions: Pharmacists are vital members of the multidisciplinary team providing acute ischemic stroke care.
**Association between Tacrolimus Levels in the first 12 months post-operatively and Long Term Graft loss in Renal Transplant Patients**

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**UAN: 0048-0000-17-141-L01-P**

**Learning Objectives:**

1. Interpret the impact of tacrolimus trough concentrations on graft failure in patients with kidney transplant at the University of Toledo Medical Center
2. Explain the influence of tacrolimus concentrations as it relates to adverse effects

**Purpose:**

Specific calcineurin inhibitors (CNI) serum concentrations that minimize patient’s risk of rejection and graft loss have not been clearly identified in current literature. The objective of this study is to evaluate the influence of tacrolimus trough concentrations in the first 12 months following kidney transplant on long term graft loss.

**Methods:**

This Institutional Review Board retrospective cohort study identified patients that received a renal transplant between October 2009 to May 2015, who received alemtuzumab induction therapy, plus maintenance therapy with tacrolimus and mycophenolate at the University of Toledo Medical Center. Patients were placed into one of three groups based on their average tacrolimus concentrations during the first 12 post-operative months; < 8.0 mg/L, 8-10mg/L, and >10 mg/L. Kaplan-Meier curves were used to analyze the probability of graft loss over time as it relates to average tacrolimus concentrations. The primary endpoint is to compare the incidence of graft failure based on average tacrolimus concentrations. Secondary endpoints include the incidence of acute rejection episodes, and therapy-associated adverse outcomes.

**Results:** Of the 301 patients included in the study, graft failure occurred in 12 (12.2%) patients in the 10.0 mg/L group (p=0.263). Acute Rejection occurred in 32 (32.7%) patients in the 10 mg/L group (p=0.113). Additional secondary outcomes will be presented at The Ohio Pharmacy Residency Conference and data collection is ongoing.

**Conclusions:** To be presented at Ohio Pharmacy Residency Conference
Outcomes Resulting from Three-Day Tramadol Taper for Acute Opioid Withdrawal at Summa Health System

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UAN: 0048-0000-17-142-L01-P

Learning Objectives:

1. Explain the current regulations that limit tramadol tapers to no more than 3 days for non-DEA regulated Narcotic Treatment Programs, including Summa Health System
2. Identify commonly used medication treatments for acute opioid withdrawal relief

Purpose:
The purpose of the study was to describe patient outcomes with a 3-day tramadol taper on the detoxification unit at Summa Health System (SHS) for acute opioid withdrawal. The primary endpoint was the change in Clinical Institute Narcotic Assessment (CINA) score from the start of the taper until completion or discharge. Secondary endpoints were length of stay, use of adjuvant medications, detoxification completion rates, highest CINA score, adverse events, and 30-day readmission rates.

Methods:
A retrospective, chart review, quality improvement study was performed describing outcomes of opioid dependent patients in acute withdrawal admitted on the detoxification unit between September 2014 and September 2016 receiving the 3-day tramadol taper. All patients >18 years of age admitted for opioid dependence were included. Pregnant patients were excluded. Data collected included patient demographics, treatment dates, doses administered, drug abuse history, CINA scores, use of adjuvant medications, adverse events, 30-day readmission and 30-day emergency department visit rates.

Results: Forty-six patients were included in the analysis. Patient ages ranged from 18-67 and 25 (55.6%) were male. The full taper was completed in 67.7% of admissions and 75.8% of patients were discharged by the physician. The median pre-taper CINA score was 6, and there was a significant change from this pre-taper score until completion or discharge in the per protocol group (-1.58, p=0.010), but not in the intention to treat group (-0.76, p=0.106). There were no reported seizures or falls.

Conclusions: The truncated 3-day tramadol taper proved to be safe and effective therapy for treating acute opioid withdrawal. At SHS detoxification unit, patients treated with a 3-day tramadol taper for acute opioid withdrawal had their pre-taper CINA scores reduced by over 25% at the completion of the taper or discharge.
Characterization of therapies used for post-operative pulmonary hypertension: Phase I

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Learning Objectives:

1. Identify adverse events associated with the use of inhaled nitric oxide and inhaled epoprostenol
2. Describe the benefits and drawbacks associated with the use of inhaled nitric oxide and inhaled epoprostenol

Purpose:
Pulmonary hypertension is a complication encountered in patients following cardiothoracic surgery. Occurrence of post-operative pulmonary hypertension in this patient population is a poor prognostic indicator and is associated with increased morbidity and mortality. Two therapies that have been used to decrease mean pulmonary arterial pressure (mPAP) in patients who experience post-operative pulmonary hypertension are inhaled nitric oxide (iNO) and inhaled epoprostenol (iEPO). Both iNO and iEPO act as local vasodilators and increase blood flow to well ventilated areas of the lungs. Due to comparable efficacy and safety of the two agents and high costs associated with iNO use, many institutions have transitioned from the use of iNO to iEPO. This is phase one of a planned two phase study to evaluate the efficacy and safety of post-operative pulmonary hypertension management prior to and following implementation of a guideline for iEPO use.

Methods:
This study was approved by the Institutional Review Board. Phase one of this project was a single center, retrospective chart review examining use of iNO in patients with post-operative pulmonary hypertension. Patients treated in the surgical intensive care unit (SICU) with iNO for pulmonary hypertension following cardiothoracic surgery from April 1, 2015 through March 31, 2016 were included. Patients were excluded if they were less than 18 years of age or experienced pulmonary hypertension following heart or lung transplant. The primary outcome was a decrease in mPAP to less than 30 mmHg within 6 hours of SICU admission. Secondary outcomes were duration of mechanical ventilation, SICU and hospital length of stay, adverse events including bronchospasm and bleeding, and median daily milrinone requirement. Data has been analyzed using descriptive statistics.

Results: Final results will be presented at the Ohio Pharmacy Resident Conference.

Conclusions: Final conclusions will be presented at the Ohio Pharmacy Resident Conference.
Evaluation of pharmacist monitoring of direct oral anticoagulant therapy

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Learning Objectives:

1. Describe laboratory monitoring recommended for direct oral anticoagulant (DOAC) therapy
2. Identify potential opportunities for pharmacist involvement in monitoring of DOAC agents

Purpose:
Direct oral anticoagulant (DOAC) agents require less monitoring than warfarin, but still involve renal dose adjustments, monitoring for adverse effects and drug-drug interactions, and proper conversion from other anticoagulants. One study evaluating pharmacist-managed dabigatran therapy in the inpatient setting illustrated the importance of pharmacist interventions for safe and appropriate use. However, literature is lacking for pharmacist DOAC monitoring in the outpatient setting. While the American College of Chest Physicians guidelines have no specific recommendations for DOAC monitoring, the European Heart Rhythm Association recommends regular follow-ups for patients taking this class of medications. In 2016, three Mercy Health Northern Region pharmacist-run anticoagulation clinics expanded services to include DOAC monitoring. This service provides the patient with education, compliance assessment, laboratory monitoring, and assistance in determining insurance coverage of the agents. The purpose of this research is to evaluate current prescribing patterns and pharmacist interventions for DOACs in ambulatory anticoagulation clinics. Research objectives include assessing appropriateness of DOAC prescribing, evaluating pharmacist interventions, and reviewing safety data.

Methods:
After Institutional Review Board approval, a retrospective chart review began for patients referred to the new DOAC monitoring service between May 1, 2016 and January 31, 2017. Adults prescribed any DOAC agent (dabigatran, apixaban, edoxaban, or rivaroxaban) were included. Data collection is ongoing. Key information being collected includes demographics, medication and dose, pharmacist interventions, adverse effects, and readmission rates.

Results: Fifty-three patients were referred to the anticoagulation clinics during the study period. Of these, only four patients declined or canceled their initial appointment. Approximately 80% of patients were on apixaban and half of the patients were being treated for or on prophylaxis for venous thromboembolism. Of 24 scheduled follow-up visits, 17 patients completed the appointment. Further results pending completion of data collection and analysis.

Conclusions: Conclusions pending completion of data analysis.
Impact of Vancomycin Concentration Change on Incidence of Red-Man Syndrome in Pediatric Patients

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Learning Objectives:

1. Discuss the mechanism of Red Man Syndrome associated with vancomycin use.
2. Identify methods to decrease the risk of developing Red Man Syndrome.

Purpose:
Red Man Syndrome (RMS) is an infusion-related reaction produced in response to administration of vancomycin. The reported incidence of RMS in pediatric patients ranges from 16.8% to 48%. There is evidence that more highly concentrated vancomycin preparations for intravenous infusion are associated with RMS. In December of 2015, Children’s Hospital of Michigan reduced the concentration of vancomycin for infusion from > 5 mg/mL to 10 mg/mL (high concentration) to ≤ 5 mg/mL (low concentration) in hopes of reducing the development of RMS. The objectives of this study are to analyze the impact of this decreased concentration of vancomycin on the incidence of RMS, and to identify risk factors for RMS.

Methods:
This is a single center, retrospective case-control study of children aged 2 to 17 years who received vancomycin while hospitalized between July 1, 2015 to November 30, 2015 (Phase I, pre-intervention) and January 1, 2016 to May 31, 2016 (Phase II, post-intervention). Patients given high concentration vancomycin only were included in Phase I, and patients given low concentration vancomycin only were included in Phase II. The primary outcome is the incidence of RMS in each phase. The secondary outcomes are predictors of RMS. Red man syndrome was retrospectively defined as two or more of the following: documented clinical symptoms (erythema, flushing, rash, pruritis, angioedema, hypotension), administration of antihistamines or steroids after vancomycin infusion, slowed vancomycin infusion rate, discontinuation of vancomycin, or documentation of RMS in the medical record. Descriptive statistical analysis will be conducted using Mann Whitney U test for continuous data and either Chi-square or Fisher’s exact test for categorical data. Multivariate regression analyses will be performed to identify independent predictors of RMS.

Results: Data collection has been completed and is currently being analyzed.

Conclusions: Results and conclusions will be presented at the Ohio Pharmacy Conference.
Evaluation of Clinical Pharmacists’ After-hours Consults for Hospice Patients

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Learning Objectives:

1. Name common disease states that occur in patients receiving hospice services
2. List common symptoms occurring at the end of life

Purpose:
Most patients receiving hospice care prefer to remain at home. Uncontrolled symptoms are a common reason for unplanned transfers at the end of life. Access to nursing care and clinical consulting pharmacists, including after-hours services, allows patients to remain comfortable at home. Activities of after-hours telephone nursing support for hospice and palliative care services in the United States, Europe, and Australia have been reported. A hospice-specific pharmacy benefit manager provides 24-hour telephone support from clinical pharmacists with expertise in hospice care and presents a unique opportunity to describe the role of the clinical pharmacist in this setting.

Methods:
An IRB-exempt retrospective review of pharmacist symptom management consults for hospice patients occurring after-hours (weekdays 10 pm to 6 am EST, weekends, holidays) from July 1, 2015 through June 30, 2016 was conducted. Data include the number of consults and the symptom(s) addressed; the most prevalent symptoms and the most prevalent primary diagnoses; and the proportion of consults by primary diagnosis and by symptom. The temporal relationships between the consult and the time of hospice admission hospice discharge, if applicable, are reported. Data were analyzed using descriptive statistics.

Results: The most frequently reported symptoms were pain, delirium, anxiety, and dyspnea. Analysis of six months of data demonstrate a trend towards more frequent consult requests during the first 60 days and/or last seven days of hospice admission. Complete analysis of the twelve-month study period will be presented at the Ohio Pharmacy Residency Conference.

Conclusions: Based on preliminary analysis, hospice organizations used after-hours access to clinical pharmacist support to assist in managing a variety of symptoms that appear to peak in the beginning and end of hospice length of stay.
Characterizing Heart Failure in an Underserved Population

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Learning Objectives:

1. Describe the clinical and financial burden of heart failure in the community
2. Identify guideline-directed medication therapy for heart failure

Purpose:
Heart failure encompasses nearly $31 billion in healthcare-related expenses and lost productivity costs and has an approximate 50% mortality rate for patients within 5 years post-diagnosis. Due to limited data regarding heart failure characteristics in underserved populations, this study aims to describe clinical heart failure through a retrospective pharmacy chart review and corresponding data analysis. Specific objectives include: (1) Determine the site-specific prevalence of patients with heart failure or patients currently taking heart failure-related medications; (2) Describe baseline demographic and therapeutic characteristics of underserved patients with heart failure; (3) Analyze utilization of primary care providers and specialty care providers for heart failure-related medications; and (4) Compare identified patient characteristics to existing descriptive data in the literature regarding heart failure.

Methods:
Patients identified via medication fill history consistent with 2013 American College of Cardiology Foundation/American Heart Association (ACCF/AHA) heart failure guidelines will undergo a retrospective pharmacy chart review using a standardized data collection tool. Descriptive statistics will identify overarching themes and trends in heart failure management as it relates to current literature. Qualitative demographic data will include race, age, gender and primary care and/or specialty cardiovascular care provider utilization. Qualitative data regarding medication therapeutic class usage, comorbid chronic disease states, and social behaviors will also be collected. Aggregate data will be compared to current literature regarding heart failure in the community setting, as well as in an underserved population.

Results: Research in progress. Findings will facilitate enhanced identification and understanding of heart failure in the community setting, with an emphasis on care of underserved patients. Future project applications may include development of strategic education and targeted interventions leading to improved self-management of heart failure in an outpatient setting to potentially reduce morbidity and mortality associated with exacerbations and hospitalizations.

Conclusions: Conclusions will be presented at the Ohio Pharmacy Resident Conference.
Effect of cefepime versus piperacillin/tazobactam on hospital-acquired Clostridium difficile infections (CDI)

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UAN: 0048-0000-17-148-L01-P

Learning Objectives:

1. Identify risk factors that increase a patient's risk for CDI
2. Describe possible positive implications associated with identifying which antibiotic is associated with a lower incidence of CDI

Purpose:
Clostridium difficile is a major cause of healthcare-associated infections with studies demonstrating increased hospital length of stay (LOS) and healthcare expenditures. Identifying antibiotics associated with a higher incidence of CDI can be valuable in reducing hospital-acquired CDI and establishing hospital standards. The aim of this study is to evaluate the incidence of hospital-acquired CDI in patients receiving cefepime versus piperacillin/tazobactam.

Methods:
This retrospective study evaluated the incidence of CDI associated with the use of piperacillin/tazobactam and cefepime at the Detroit Medical Center (DMC). Patients 18 years of age or older receiving either cefepime or piperacillin/tazobactam for greater than 48 hours between January 1, 2014 and June 30, 2016 were included. Secondary objectives were the incidence of antibiotic-associated diarrhea (AAD), incidence of obtaining Clostridium difficile polymerase chain reaction (PCR) test, hospital LOS, and CDI severity. Data collected included patient age, gender, race, past medical history, medication history, admitting service, antimicrobial use, CDI severity, and hospital LOS. CDI was defined as 3 or more unformed stools within 24 hours plus a positive PCR test. Antibiotic-associated diarrhea was defined as 3 or more loose stools per day for 2 or more days with no positive stool PCR. CDI severity was defined based on the 2010 SHEA and IDSA guidelines for Clostridium difficile. A Chi-Squared test will be used to analyze categorical variables, Student’s t-test for continuous variables, a backwards binary logistic regression model for the primary endpoint, and a P-value less than 0.05 will be considered statistically significant. The incidence of CDI will be reported as the number of infections per 1000 exposure days. All statistical analyses will be performed using SPSS.

Results: Results will be presented at the Ohio Pharmacy Residency Conference.

Conclusions: Conclusions will be presented at the Ohio Pharmacy Residency Conference.
Tranexamic acid (TXA) use in Level 1 trauma patients who receive massive transfusion protocol

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Learning Objectives:
1. Describe the pathophysiology of trauma-induced coagulopathy and the impact on mortality
2. Review the currently published literature regarding the use of tranexamic acid (TXA) in severely injured adult patients

Purpose:
Tranexamic acid (TXA), an antifibrinolytic agent that competitively inhibits plasminogen activation, is included in some massive transfusion protocols (MTP) at Level I and II trauma centers. Clinical trials suggest mortality benefit with TXA use in severely injured patients, but applicability is limited due to varying study designs and patient populations. The objective of this study is to evaluate whether MTP plus TXA in severely injured Level I adult trauma patients reduces the incidence of mortality compared to those who are managed with MTP alone.

Methods:
A list of Level I trauma patients who presented to Beaumont Hospital – Royal Oak between February 1, 2013 and August 31, 2016 was generated using the institution’s Trauma Registry. Patients > 18 years of age with an injury severity score > 15 requiring MTP within 24 hours of injury were included and underwent retrospective chart review. The primary endpoint is in-hospital and 30-day all-cause mortality. Secondary endpoints include hospital and ICU lengths of stay, rates of adverse events, and readmission rates. Subgroup analyses will be conducted to evaluate differences between shocked versus non-shocked patients, blunt versus penetrating trauma incidents, and total units of blood products received. Investigators of this study postulated a specific subset of patients would benefit most from MTP plus TXA, and a subgroup analysis will be conducted based on this a priori criteria. Statistical analyses will include Pearson’s Chi-square tests and Fisher’s Exact tests for categorical variables. Continuous variables will be examined with either t-tests or Wilcoxon rank tests, dependent on the normality of the data.

Results: Data analysis is on-going.

Conclusions: Results and conclusions will be presented at the 2017 Ohio Pharmacy Resident Conference.
Impact of Pharmacist-Managed Educational Visits on Hypertension in an Underserved Population

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Learning Objectives:
1. Review JNC 8 Guidelines
2. Describe pharmacist-managed educational visits in an underserved population
3. Explain the impact of pharmacist-led educational visits.

Purpose:
The purpose of this research project is to implement an every 4-week visit with a pharmacist or student pharmacist for the purposes of hypertension education and possible medication intervention. The primary outcome is change in systolic and diastolic blood pressure over 6 months prior to initial appointment, baseline, and at each visit. The secondary outcomes are change in medication adherence by Morisky Medication Adherence Scale (MMAS) scores, calculated medication possession ratio (MPR), medication changes, change in body mass index (BMI), and tobacco use status.

Methods:
Patients will be identified through electronic medical records. They be offered the opportunity to enroll in the study to receive additional information and monitoring of their blood pressure. Patients will participate in one visit every 4 weeks, coordinated with the pickup of prescription medications. Educational topics include disease state education, diet change, exercise, medication education and adherence, medication side effects and potential adverse effects, and mindfulness practices to reduce stress. Data will be compared to patients receiving usual care, which will be provided by a hypertension specific report generated quarterly through the electronic medical record.

Results: There are 9 patients enrolled in the study currently. Each subject has been followed for up to 2 months, and the following data is collected at each visit: blood pressure, adverse effects, and ER visits or hospitalizations. As of March 17, the average change in systolic blood pressure between initial visit and visit 2 is -13 mmHg (initial average= 161±4.8 mmHg, visit 2 average= 148±8.5 mmHg). There has been one adverse reaction reported to date. There have been no hospitalizations or emergency room visits to date.

Conclusions: Among patient with uncontrolled hypertension, it is unknown if monthly educational visits with a pharmacist significantly impact systolic and diastolic blood pressure.
Incidence of falls in hospitalized elderly patients prescribed potentially inappropriate medications

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Learning Objectives:

1. Identify medications that are associated with fall risk in the elderly.
2. Recognize the impact of inpatient falls on the lives of older adults.

Purpose:
Falls occur in the inpatient setting in approximately 2% of patients.1 About 25% of falls in these patients result in injury.1 Medication classes that have been found to increase fall risk include benzodiazepines, opioids, sedatives, antidepressants, and antipsychotics, among many others2 The Beers criteria have recommendations on the avoidance of medications that increase fall risk in elderly patients.3,4 This retrospective chart review is to assess high-risk medication use in patients who had a fall during hospitalization. The primary outcome is to assess the number of patients who received one or more doses of high fall risk medication(s) within 24 hours of experiencing a fall during hospitalization.

Secondary outcomes include the number of high-risk medications patients with a fall were prescribed, fall risk category assigned upon admission, post-fall medication changes, and presence or absence of a pharmacy intervention note addressing medication changes.

Methods:
Patients who experienced a fall during hospitalization between January 2012 and December 2016 was identified using the PASS reporting system. Inclusion criteria include patients ≥ 65 years of age. Exclusion criteria include palliative care/hospice patients, post-orthopedic surgery patients, and patients with conditions compromising stability. A chart review was performed to identify the high-risk medications prescribed to patients who experienced a fall. The Beers criteria agents to be avoided in patients with a history of falls was utilized to identify medications for evaluation. After medications in the fall patients are identified from the review, additional patient factors affecting fall risk will be collected and evaluated. The incidence of falls with use of the specified medications will be assessed using the data from the two groups.

Results: In progress- To be presented at Ohio Pharmacy Resident Conference

Conclusions: In progress- To be presented at Ohio Pharmacy Resident Conference
Evaluation of an electrolyte replacement protocol in critically ill patients at a community hospital

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Learning Objectives:
1. Explain the purpose of an electrolyte replacement protocol for critically ill patients.
2. Describe the impact of this study on current practice.

Purpose:
Electrolyte imbalances in critically ill patients have been correlated with increased morbidity and mortality. Although the use of electrolyte correction protocols has become more common in critical care settings, minimal data exists pertaining to the safety and efficacy of these protocols. Cleveland Clinic Medina Hospital implemented a nursing-driven electrolyte replacement protocol for patients in the intensive care unit (ICU) in 2016, which targets hypokalemia, hypomagnesemia, and hypophosphatemia. This retrospective study evaluates the safety and efficacy of the new protocol.

Methods:
Adult inpatients admitted to the ICU receiving electrolyte replacement between April 1, 2015 through October 31, 2015 (pre-protocol period), and receiving protocol-driven electrolyte replacement between April 1, 2016 through October 31, 2016 (post-protocol period) were included. The primary efficacy outcome compared proportion of measured values of potassium concentration within the desired range (3.5 to 5.0 milliequivalents per liter) the morning after potassium replacement between groups. Secondary outcomes included assessment of magnesium and phosphate concentrations the morning after replacement, the average time from low electrolyte level to administration of electrolyte replacement, the incidence of cardiac arrhythmias during ICU admission, and in-hospital mortality. Fisher’s Exact and Student t-test were utilized in the statistical analysis, as appropriate.

Results: For the primary outcome, 47 patients in post-protocol group and 47 randomly-selected patients from the pre-protocol group were included. The post-replacement morning values for potassium concentration within normal range were similar between groups (68% versus 64%; p=0.83). There was no significant difference in mean time from low potassium concentration discovery to electrolyte replenishment (5.7 hours versus 4.6 hours; p=0.085). For all other safety and efficacy secondary outcomes, there was no difference between groups.

Conclusions: The current nursing-driven electrolyte replacement protocol showed no difference in safety and efficacy as the previous standard-of-care in electrolyte repletion.
Comparison of adherence to manufacturer dosing recommendations with apixaban, dabigatran, and rivaroxaban therapy

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Learning Objectives:
1. To review manufacturer recommended dosing strategies for apixaban, dabigatran, and rivaroxaban in patients with non-valvular atrial fibrillation
2. To identify predictors of nonadherence to manufacturer recommended dosing strategies

Purpose:
Among the non-warfarin oral anticoagulants, differences in manufacturer recommended dosing strategies may lead to inconsistencies in adherence to dosing guidelines between agents. This study will compare the relative incidence of nonadherence to manufacturer recommended dosing strategies for apixaban, dabigatran, and rivaroxaban in the treatment of non-valvular atrial fibrillation.

Methods:
A retrospective chart review spanning the dates of 1/1/2013-9/30/15 was performed using records from a large integrated health system and included patients ≥18 years of age receiving apixaban, rivaroxaban, or dabigatran with a diagnosis of non-valvular atrial fibrillation and admitted as inpatient or observation status for at least 24 hours. Exclusion criteria included treatment for deep vein thrombosis (DVT), pulmonary embolism (PE), secondary prevention of recurrent DVT or PE, or postoperative thromboprophylaxis. The primary outcome was the incidence of inappropriate dosing for apixaban compared to rivaroxaban and dabigatran therapy. Chi-Squared analysis with an alpha level of 0.05 was performed on the primary outcome. A logistic regression model was developed to identify predictors of nonadherent prescribing patterns. A total study population of 128 was required to meet power.

Results: Upon analysis of the primary outcome, a significant difference was observed in the incidence of nonadherence to manufacturer recommended dosing strategies when apixaban (15.5%) was compared to rivaroxaban (30.4%) and dabigatran (40%, p=0.035). Upon utilization of a logistic regression model to identify predictors of nonadherence to manufacturer recommended dosing strategies, it was found that when compared to patients receiving therapy adherent to dosing recommendations, those who did not receive correct doses were three times more likely to receive rivaroxaban (OR: 3.14, 95% CI: 1.04-9.45) or dabigatran therapy (OR: 3.53, 95% CI: 1.2-10.33).

Conclusions: A statistically significant increase in the incidence of nonadherence to manufacturer recommended dosing strategies was observed in patients receiving rivaroxaban or dabigatran therapy when compared to those receiving apixaban.
**Evaluation of a pharmacist-led patient controlled analgesia (PCA) dosing service**

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UAN: 0048-0000-17-154-L04-P

Learning Objectives:

1. List the endpoints evaluated to determine the safety of pharmacist-led PCA dosing
2. State the advantages of pharmacist involvement in PCA dosing

Purpose:
A pharmacist-led patient-controlled analgesia (PCA) dosing service was implemented in January 2015 at a 1,070-bed, private, non-profit, tertiary academic hospital. The objective of this study was to compare physician and pharmacist-led PCA dosing. Evaluation of the service was conducted to assess service efficacy and explore opportunities for service expansion.

Methods:
Each pharmacist-dosed PCA consult to date was retrospectively reviewed. A convenience sample of physician-dosed PCAs during the time frame were collected. Chart review was conducted to assess clinical and safety endpoints related to PCA dosing. The primary endpoint was time to sustained pain score defined as pain score

Results: Twenty-nine patients were identified in each group. There was a higher percentage of opioid tolerant patients in the pharmacist group compared to the physician group. (59% versus 17%, p=0.001) There was no difference in time to primary endpoint (22.1 hours versus 16.4 hours, p=0.741). No naloxone administration, CPR, RRT, or death was documented within either study group; three instances of oversedation were documented within the pharmacist-led PCA group with no negative sequelae documented. The average number of pharmacist interventions per patient was 7.9 with the most frequent being patient education.

Conclusions: No difference in time to sustained pain score was found between physician and pharmacist-led PCA dosing despite the increase in opioid tolerant patients in the pharmacist group. This evaluation demonstrated that pharmacists safely managed PCA therapy and made numerous pain-related interventions.
Incidence of hypoglycemic episodes in hospitalized patients on a sulfonylurea versus an insulin regimen: an evaluation of therapy and management

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Learning Objectives:

1. Discuss the pathophysiology and risk of sulfonylurea use in patients with diabetes mellitus in the hospital setting
2. Evaluate the effects of an inpatient sulfonylurea restriction on hypoglycemic events in hospitalized patients

Purpose:
Purpose: Appropriately managing blood glucose levels in patients with diabetes mellitus while hospitalized is crucial in preventing hypoglycemia. Hypoglycemia can lead to numerous complications for patients including increased hospital length of stay and mortality. In hospital hypoglycemic episodes result from multiple factors including change in caloric intake or medications, poor communication between health care providers, and lack of adjustments to glycemic therapy based on daily blood glucose levels. Medications most commonly causing hypoglycemia in hospitalized patients include insulin and sulfonylureas. Specifically, sulfonylureas require food with their administration and provide little titration opportunities in the hospital setting leading to an increased incidence of hypoglycemia. The purpose of this study is to evaluate the potential benefit of restricting oral antidiabetic agents during hospitalization on the incidence of hypoglycemia.

Methods:
Methods: This is a retrospective, single-center study in a community hospital evaluating the implementation of an oral antidiabetic medication restriction. Pre- and post-restriction data over two 6-month study periods was analyzed. The primary objective of this study is to evaluate if an inpatient restriction on oral antidiabetic medications, specifically sulfonylureas, leads to a decreased rate of hypoglycemia. Secondary objectives include evaluating inpatient glycemic control, adherence to the inpatient oral antidiabetic medication restrictions, and hypoglycemic episodes with emphasis on adherence to the inpatient hypoglycemia protocol. Each of the objectives will be evaluated with chi-square tests with a significance level of 0.05.

Results: Results: Data analysis is currently being conducted. Preliminary evaluation of the primary endpoint found the incidence of hypoglycemia in the pre-group was greater than the post-group (p

Conclusions: Conclusion: Preliminary results suggest implementation of an oral antidiabetic restriction does reduce incidence of hypoglycemia. Final conclusions will be presented at the 2017 Ohio Pharmacy Resident Conference.
Evaluation of pharmacy interventions in an academic outpatient transition of care clinic

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UAN: 0048-0000-17-156-L04-P

Learning Objectives:

1. Identify common examples of medication discrepancies that can lead to patient harm and potential readmissions
2. Discuss the impact of pharmacist interventions in a transition of care clinic

Purpose:
Pharmacist interventions in a patient’s transition between levels of care have been proven to directly impact clinical outcomes through the identification of medication-related problems. The Transition of Care (TOC) Clinic at The Christ Hospital (TCH) was established in November of 2015 in an effort to improve continuity of care for patients recently discharged from the hospital. The purpose of this study is to evaluate the impact of pharmacist interventions made in the TOC Clinic on the rate of hospital readmissions and emergency department visits.

Methods:
This is an IRB-approved, single-center, retrospective study of TCH Internal Medicine Clinic patients who were discharged from the hospital medicine service between November 1st, 2014 and October 31st, 2016. Patients were divided into groups based on pre- and post-implementation periods of the TOC Clinic (November 1st, 2014 through October 31st, 2015 and November 1st, 2015 through October 31st, 2016). Patients were excluded if they were not discharged home. Additionally, patients in the post-implementation group were excluded if they were not scheduled for a TOC appointment following discharge or were not seen by a pharmacist at their appointment. The primary endpoint of this study is the composite rate of 30-day readmissions and emergency department visits before and after the establishment of the TOC Clinic. Secondary endpoints include rates of 60-day readmissions and emergency department visits before and after implementation, rate of death at 30 and 60 days after discharge, frequency of phone calls to healthcare providers, and characterization of pharmacy interventions made in this clinic. Categorical baseline characteristics and readmission rates will be analyzed for significance utilizing the chi-squared or Fisher’s exact tests.

Results: Data collection is complete and results are currently being analyzed.

Conclusions: Results and conclusions will be presented at the Ohio Pharmacy Resident Conference.
Effect of Patient Medication Counseling by a Pharmacist at Hospital Discharge on Patient Satisfaction Survey Results in a Community Hospital Setting

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Learning Objectives:

1. Describe the purpose and distribution of the CMS HCAHPS survey
2. Discuss current and potential roles of the pharmacist in patient satisfaction in relation to the CMS HCAHPS survey
3. Identify benefits of medication discharge counseling provided by a pharmacist

Purpose:
Hospital pharmacists are beginning to provide patient discharge counseling as a way to improve patient satisfaction, lower readmission rates, and improve medication adherence in the transitions of care. Many hospitals utilize the Centers for Medicare and Medicaid Services (CMS) Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey in order to assess patient satisfaction. The purpose of this study is to determine the effect that medication counseling by a pharmacist prior to discharge has on the results of the medication-related questions in the CMS HCAHPS survey scores on the cardiac stepdown unit.

Methods:
The study is a historical control, interventional study with retrospective and prospective review of CMS HCAHPS scores for medication-related questions. The first intervention will be a continuation of the current discharge process of a pharmacist performing medication reconciliation at discharge. The second intervention will consist of providing medication discharge counseling to each patient on the cardiac stepdown unit. Areas addressed will include which prior medications should be continued and which should be stopped, as well as which medications are new and their indication. This reviewed list will be provided to the patient for reference. Inclusion criteria for the study are patients 18 years of age or older who speak English and are being discharged from the cardiac stepdown unit to return home or to an assisted living facility in which the patient will manage his/her own medications. The primary outcome is CMS HCAHPS survey results on the cardiac stepdown unit. A paired t-test will be used to analyze the pre-post HCAHPS results. Descriptive statistics will be used to analyze demographic data and medication interventions. A power calculation determined a sample size of 35 per group.

Results: Interim results will be presented at the Ohio Pharmacy Resident Conference.

Conclusions: Conclusions will be made following study completion in June 2017.
Impact of a Smartphone Application on Medication Adherence in the Community Care Setting

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Learning Objectives:

1. Discuss the prevalence of medication nonadherence and discuss strategies for impacting adherence
2. Recognize the Star Ratings performance measures for medication adherence implemented by the Centers for Medicare & Medicaid Services (CMS)

Purpose:
The issue of nonadherence to medication therapy is well recognized. With the growing popularity of smartphones, numerous applications have been developed to help improve adherence rates. Many applications that are available are difficult to set up, and some do not issue reminders to mitigate nonadherence. Furthermore, most applications are not able to track missed or taken doses. To date, quality data are sparse on the effectiveness of such applications. The limitations in the current applications on the market provide the opportunity to measure the effect of a pharmacist-developed, user-friendly smartphone application within a grocery-store chain community pharmacy. The purpose of this study is to assess the impact of a novel smartphone application on patient medication adherence.

Methods:
This prospective study will measure the effect of a smartphone application by directly comparing medication adherence rates 180 days prior to and 90 days after implementation of the application using descriptive and inferential statistics. The application will allow patients to scan the barcode on their medication bottle to verify that patients take the correct medication. It will also allow patients to set alerts to take their medication at the correct time. Inclusion criteria are adult patients that own an Android smartphone who are less than 75% adherent to at least one oral diabetes, hypertension, and/or cholesterol medication filled between June 1, 2016 and January 1, 2017. The Centers for Medicare & Medicaid Services (CMS) Star Ratings will be used to identify nonadherent patients. At the completion of the study, patients will be asked to complete a follow-up survey to assess patient satisfaction, usability, and feedback about the application.

Results: Data is currently being collected and analyzed. Preliminary results and conclusions will be presented at the Ohio Pharmacy Residency Conference.

Conclusions: Not applicable (research in progress).
Impact of pharmacist intervention on Primary Care 10 (PC10) measures in primary care practices

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Learning Objectives:

1. Explain the Primary Care 10 metrics for St. Rita’s Professional Services
2. Discuss the impact of pharmacist intervention on two of the Primary Care 10 measures (blood pressure control and pneumococcal vaccination status)

Purpose:
Primary Care 10 (PC10) metrics established for St. Rita’s Professional Services (SRPS) assess quality of care for outpatient practices. Practices not meeting standards are seeking methods to do so. Literature supports the incorporation of pharmacists within healthcare teams to improve patient outcome markers. This study seeks to determine the impact of pharmacist intervention on two PC10 measures: blood pressure control and pneumococcal vaccination status. This information will provide supporting evidence to current literature and may provide insight for practices to improve PC10 scores. It may also build a foundation to perform a future return on investment to assess the utility of pharmacists in outpatient practices.

Methods:
This was a descriptive, prospective cohort of patients seen between December 1, 2016 and January 31, 2017 in two of the SRPS outpatient practices. There were three study arms: blood pressure control, pneumococcal vaccination status, and diabetes clinic referral. Patients were included in each arm for which they met all of the inclusion and none of the exclusion criteria. Demographic and outcome data were collected for patients within each study arm and recommendations were documented by the pharmacist in each patient’s electronic medical record. Pharmacist interventions were based on the Eighth Joint National Committee guidelines and Centers for Disease Control recommendations. The primary outcome was the change in PC10 measure scores for blood pressure control and pneumococcal vaccination status from January, February, and March 2016 to January, February, and March 2017. The secondary objective was to identify the proportion of patients with an A1c greater than nine percent who accepted a diabetes clinic referral (and the reasons for declining such a referral). This study was approved by St. Rita’s Medical Center Institutional Review Board.

Results: Final results and conclusions will be presented at the 2017 Ohio Pharmacy Resident Conference.

Conclusions: N/A
**Evaluation of qSOFA criterion and derivation of new variables.**
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**UAN: 0048-0000-17-160-L01-P**

**Learning Objectives:**
1. Identify barriers to the use of qSOFA criterion to evaluate the risk of death from sepsis.
2. Discuss alternative variables that may be more sensitive for the identification of patients at risk of death from sepsis.

**Purpose:**
To determine the clinical utility of the qSOFA tool for identifying patients at risk of death from sepsis and, if invalidated, assess potential new criterion.

**Methods:**
Patients who presented to a single site, large community hospital during a one year period who received an antibiotic and had cultures obtained within a 24-hour period were included. The qSOFA score was determined for the study population at the time of initial presentation. We were unable to reproduce the results of the SEPSIS-3 study.1 To derive new variables, we obtained all laboratory and vital sign data for any patient admitted to a Cleveland Clinic Health System facility during the month of September, 2016, who was diagnosed with sepsis during the encounter. Using this cohort, variables were derived utilizing the area under the receiver operating curve to identify differences between patients who survived and those that did not. Finally, utilizing the identified criterion, another cohort of all patients admitted from October, 2016 – December 2016 is being utilized to validate the identified criterion.

**Results:** Initial analysis of qSOFA criterion in a single site failed to yield the predictive validity reported in SEPSIS-3 (0.60 vs. 0.81). The qSOFA assessment identified 12.3% of patients in the non-ICU setting who died from sepsis at our facility vs. 55% in the SEPSIS-3 study. Analysis of the system-wide derivation cohort yielded 32 potential criterion to be evaluated for incorporation into an assessment tool for the identification of patients at risk of death from sepsis. The analysis and validation of the potential criterion has not yet concluded.

**Conclusions:** Due to unintended confounding the recommendations from SEPSIS-3 may not be reproducible in the practice setting. Derivation of criterion that can identify patients at risk of death from sepsis when applied as a simple point-assessment is still needed for the non-ICU setting.
Retrospective evaluation of proton pump inhibitor prescribing within a community teaching hospital

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UAN: 0048-0000-17-161-L01-P

Learning Objectives:

1. Discuss current trends and patterns in PPI prescribing in the United States
2. Review acceptable indications for PPI use

Purpose:
Proton pump inhibitors (PPIs) have consistently been among the top ten most prescribed medications within the past 5 years. In many institutions, a significant portion of patients admitted are placed on a PPI with up to 70% of them with no indication for its use. This trend in overprescribing along with recent data linking PPIs to adverse outcomes leaves much to be desired. Among these serious adverse effects include increased risk of clostridium difficile diarrhea (CDAD), fractures, myocardial infarction, and others. The objective of this study is to quantify Grandview Medical Center’s own prescribing patterns over a 2-year period and to make recommendations to limit inappropriate use.

Methods:
This is a retrospective, single-center evaluation. Patients ≥18 years old admitted to Grandview Medical Center from July 1, 2014 - September 31, 2016 with active inpatient orders for pantoprazole are included. The primary outcome is incidence in prescribing before and after July 1, 2015 – when changes were made to the general hospitalization order set. Secondary outcomes include the appropriateness of PPI therapy and incidence of CDAD. Due to the large number of prescribed PPIs, we will only assess for appropriateness in the Grandview 6100 Medsurg floor. Factors such as baseline demographic data, relevant past medical history, presumed indication for PPI use (if documented), whether PPI was continued from outpatient medications, duration of PPI use/number of doses received, ventilator status/days, concurrent NSAID/steroid use and laboratory values will be collected. Appropriateness is then determined by comparing these factors to FDA approved indications, and current evidence-based literature. Trends will be assessed based on collected data.

Results: Data is currently being collected and analyzed. Results and conclusions will be presented at the Ohio Pharmacy Residency Conference.

Conclusions:
Effect of induction immunosuppression selection on three year opportunistic infections and safety outcomes in adult renal transplant recipients

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Learning Objectives:

1. Review the role of induction immunosuppression in preventing rejection in adult renal transplant recipients.
2. Describe how universal prophylaxis is used to reduce the risk of opportunistic infections in adult renal transplant recipients.

Purpose:
The purpose of this study was to assess the effect of induction immunosuppression selection on the incidence of opportunistic infections and safety outcomes in renal transplant recipients within three years of transplant. Studies completed at other transplant centers have limited applicability to our institution due to institution-specific protocols. An investigation to examine the differences in outcomes between the three induction immunosuppressants (alemtuzumab, basiliximab and rabbit anti-thymocyte globulin) has not been completed at our institution.

Methods:
After Institutional Review Board approval, a list of all patients who received a renal transplant at our institution between January 2011 and December 2013 was obtained from the transplant clinic. Patients who received induction immunosuppression with basiliximab, alemtuzumab, or rabbit anti-thymocyte globulin were included. Patients who were younger than 18 years of age at the time of transplant, received simultaneous liver-kidney transplant, or required pre-transplant desensitization were excluded. Electronic medical records were reviewed to assess eligibility criteria and collect data. A systematic data collection form was used to collect recipient demographics, available donor demographics, immunologic risk factors, induction immunosuppressant received, opportunistic infection prophylaxis and treatment, renal function, biopsy results, and treatment of rejection. The primary endpoint was the incidence of opportunistic infection(s) during the identified study period. Secondary endpoints included incidence of graft survival, patient survival, and re-hospitalization due to all causes and due to stratified causes (acute kidney injury, coronary artery disease, opportunistic infections, gastrointestinal complications, and surgical-related complications). Pearson chi-square tests and Fisher’s exact tests will be used for categorical data; Kruskal-Wallis tests will evaluate group differences for quantitative variables. Mantel-Haenszel chi-square tests and exact Mantel-Haenszel chi-square test may be utilized to assess the impact of treatments on outcomes, controlling for differences in patient characteristics by group.

Results: Results and conclusions will be presented at the Ohio Pharmacy Resident Conference.

Conclusions:
Enhanced medication awareness in hospice patients through a medication perception survey and individualized patient and caregiver education: a pharmacist-led initiative.

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UAN: 0048-0000-17-163-L01-P

Learning Objectives:
1. Describe common patient concerns related to hospice care
2. Identify barriers to pharmacists providing home hospice care

Purpose:
Background: Medicare requires that hospice patients receive care by an interdisciplinary team and employ/consult a licensed pharmacist. Recent surveys on the involvement of pharmacists in the hospice environment have suggested that typically the pharmacist is an actual member of the interdisciplinary team. Pharmacists can fulfill many roles, including promotion of cost-effective medication use, monitoring therapeutic outcomes and providing education to families and healthcare professionals. Up until this point, the assessment of the pharmacists' value has mostly been described solely through physician-based surveys and broader notes on the general subjective contribution of the pharmacist to the clinic.

Purpose: The objective of this study is to survey hospice patients and caregivers, allowing a pharmacist to provide individualized education that will safely enhance symptom control and provide better satisfaction with therapy.

Methods:
Methods: All patients enrolled in Alliance Community Hospice in November 2016 were evaluated for inclusion regardless of terminal diagnosis, comorbid conditions, and location of hospice care. Specialized hospice nurses were utilized to facilitate the consent process, as well as initial and follow-up medication related survey responses from patients and/or their caregivers. The initial survey asked the responders to evaluate their confidence in medication knowledge, their current symptom control and topics of concern regarding their care using Likert scales. A care meeting with the pharmacist was arranged, during which education was given on all medications with an emphasis on patient and/or caregiver identified areas of concern and empowering appropriate medication administration. Any additional concerns that were identified were communicated to the hospice care team and documented. Follow-up surveys were sent at two weeks following education to assess how perceptions and symptom control were impacted.

Results: Results: Research evaluation in progress. Descriptive statistics will be used to evaluate changes in patient and caregiver medication perceptions.

Conclusions: Conclusions: Conclusions will be presented at the Ohio Pharmacy Residency Conference.
Management of Alcohol Withdrawal in Medical Intensive Care Unit Patients

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Learning Objectives:

1. Recognize the time course for development of symptoms in patients presenting with alcohol withdrawal syndrome.
2. Identify the different strategies involved in treating patients presenting with alcohol withdrawal.

Purpose:
Benzodiazepines (BZDs) are the first line treatment for management of alcohol withdrawal syndrome (AWS). Scheduled and symptom-triggered dosing have been studied, but previous literature has concluded that symptom-triggered dosing is advantageous, leading to reduced doses of BZDs and shorter treatment duration. Little data exists regarding treatment of AWS in medical intensive care unit (MICU) patients who present with other acute co-morbidities. Order-sets utilizing symptom-triggered dosing with the Clinical Assessment for Alcohol Withdrawal (CIWA) scale may help standardize care. The aim of this study was to assess the management of AWS in MICU patients before and after the implementation of a symptom-triggered dosing AWS order-set.

Methods:
This is a retrospective review approved by the Wayne State University Investigational Review Board of patients aged 18 years or older that were admitted to the MICU at the Detroit Medical Center from January 1, 2013 to July 30, 2016 with an ICD-9/10-CM diagnosis of AWS. All patients received one dose of a BZD. Exclusion criteria included: allergy to BZDs, withdrawal from other substances, delirium unrelated to AWS, past medical history (PMH) necessitating the use of BZDs, and pregnancy. Data collected included: demographics, PMH, laboratory values, and pertinent scoring systems. The BZD dose, use of adjunctive agents, and occurrence of adverse events were also documented. The primary outcome was ICU length-of-stay (LOS). Secondary outcomes included: total dose of BZD, need for mechanical ventilation (MV), duration of MV, hospital LOS, mortality, and evaluation of adjunctive agents and adverse events. A Chi-Square or Fisher’s Exact test were used to assess categorical data and a student t-test or Mann-Whitney U test were used to assess continuous data. A p-value less than 0.05 was considered statistically significant.

Results: Final results will be presented at the Ohio Residency Conference.

Conclusions: Final conclusions will be presented at the Ohio Residency Conference.
Reducing readmissions through pharmacist-led chronic obstructive pulmonary disease (COPD) education at a rural, community hospital

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Learning Objectives:

1. Describe barriers, limitations, and potential advantages associated with implementation of a COPD education program
2. Illustrate future direction for improvement of the COPD education program and pharmacist’s role

Purpose:
Centers for Medicare and Medicaid Services (CMS) expanded their Hospital Readmissions Reduction Program in 2015 to include chronic obstructive pulmonary disease (COPD). Hospitals can be penalized up to 3% for high thirty-day readmission rates for COPD-presenting Medicare patients, further incentivizing hospitals to implement programs to decrease readmissions. The goal of this study was to reduce the thirty-day readmission rates of patients with COPD through pharmacist-led education.

Methods:
The study was approved by the University of Findlay institutional review board. Patients meeting inclusion criteria needed to attend the Transition of Care (TOC) appointment along with the COPD education session to be analyzed. Subjects completed a pre-test at the beginning of the appointment, and a post-test and patient satisfaction survey after the education. The primary outcome was thirty-day all-cause readmission rates. Secondary outcomes included: pre- and post-test scores, patient satisfaction survey scores, ninety-day readmission rate compared to the national average, and readmission rates compared to the Firelands Regional Medical Center COPD readmission rate from the year prior to study implementation.

Results: One hundred and thirteen patients were screened and 81 qualified for TOC referral. From those that qualified, four attended the TOC appointment along with COPD education. The thirty-day readmission rate for all qualifying patients screened was 17%; patients that attended only the TOC appointment were 14.3%. However, patients that came to TOC and COPD education was 0%. One patient was readmitted after the first TOC visit, but prior to COPD education. Complete final results are pending.

Conclusions: The thirty-day readmission rate trend for patients that attended the TOC appointment and COPD education is lower than that for patients who did not participate in the study. Additional subjects would be needed to form conclusions about the true effect of this additional education and its impact on 30-day readmission rates.
Assessing appropriateness of NSAID prescribing in patients with hypertension, heart failure, or chronic kidney disease in a Family Medicine practice setting

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Learning Objectives:

1. Describe the risk of inappropriate NSAID prescribing in patients with hypertension, heart failure, and/or chronic kidney disease
2. Discuss how pharmacist-provided education can influence physician prescribing habits in a family medicine setting
3. Identify high risk patients and describe appropriate alternative treatments in these specific patient populations

Purpose:
Non-steroidal anti-inflammatory drugs (NSAIDs) are one of the most commonly used pain medications among U.S. adults with close to 70 million people regularly taking NSAIDs every year. Despite clear recommendations from current clinical practice guidelines and recent supporting literature, NSAIDs are continually prescribed inappropriately in patients with chronic kidney disease (CKD), hypertension (HTN), and heart failure (HF). Subsequently, those patients are put at risk for greater morbidity and mortality. Alternative agents are available that may be safer and offer similar efficacy as NSAIDs for management of pain. The purpose of this quality improvement project is to assess current NSAID prescribing patterns and raise awareness, through provider education, of the percent of cases at ProMedica Toledo Hospital Family Medicine Residency that result in inappropriate therapy and the associated risks in order to positively influence prescribing habits and improve the safety of our patients.

Methods:
This is a single-center, retrospective chart review with pre- and post-education intervention comparisons. All adult patients with an ICD diagnosis of HTN, HF, or CKD within the specified time periods who are prescribed chronic NSAIDs (at least 90 days) will be included. NSAID use will be assessed for appropriateness through pre-specified criteria (i.e. indication, previous trial of alternative agent, allergy/contraindication to alternatives) and use of clinical judgment. There will be retrospective data collection for a 3 month period prior (Group A: 7/31/16-10/31/16) and a 3 month period after (Group B: 1/1/17-4/1/17) intervention. Provider education by a pharmacist was delivered in December 2016. The percentage of patients with stated diagnoses on long-term NSAID therapy will be determined for each group and group comparisons for appropriateness will be completed. Additional clinical measurements include: NSAID medication details, total number of medications on profile, any concomitant pain/anti-inflammatory medication, and the following, before and after initiation of NSAID: blood pressure, SCr, GFR, and hemoglobin A1c. This data will be collected to determine the impact of pharmacist education on provider prescribing patterns of NSAIDs in high risk patient populations.

Results: Data collection is in process with results to be presented at the Ohio Pharmacy Resident Conference.

Conclusions: Data collection is in process with conclusions to be presented at the Ohio Pharmacy Resident Conference.
Efficacy of low-dose ketamine for acute pain in a community hospital emergency department

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Learning Objectives:

1. Describe implications of current acute pain management strategies and risks associated with opioid therapy
2. Identify the potential role of low-dose ketamine therapy for acute pain management in a community hospital emergency department

Purpose:

Pain is one of the most common presenting complaints for emergency department (ED) visits in the United States. Currently, clinical practice and strategies to safely and effectively manage acute pain vary greatly between practitioners with opioid therapy being the standard of care for management of moderate to severe acute pain. Adverse effects associated with opioid use and the national epidemic of opioid medication misuse pose momentous challenges for ED providers treating pain. Alternative pain management strategies are necessary to appropriately treat patients and minimize adverse events. Recent data in out-of-hospital pain management and academic medical center EDs support the use of low-dose ketamine for analgesia in trauma. However, more information is needed regarding ketamine use in community hospital EDs treating a variety of painful conditions. The primary objective of this study is to assess the efficacy of low-dose ketamine for acute pain in community hospital ED patients.

Methods:

This is a single-center, investigator-initiated, retrospective chart review of patients who received ketamine for acute pain management in the West Chester Hospital ED between January 2015 and March 2017. Investigators will assess the efficacy of low-dose ketamine (0.1- 0.3 mg/kg) in achieving a clinically significant pain score reduction of greater than or equal to two points on an eleven-point scale. Identification of patient specific factors associated with ketamine failure when used in low doses for analgesia will be investigated through analysis of age, gender, race, pain type and severity, comorbid conditions, and the use of other analgesic medications. Adverse events associated with ketamine use will be collected including hypertension, tachyarrhythmia, respiratory depression, and emergence reactions. Provider compliance with a low-dose ketamine analgesia protocol will be assessed.

Results: Data collection and analysis are currently underway.

Conclusions: Results and conclusions of this study will be presented at the 2017 Ohio Pharmacy Residency Conference.
Clinical Outcomes Associated with the Implementation of an Antimicrobial Stewardship Program Focused on Treatment of Urinary Tract Infections in a Long Term Care Facility.

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Learning Objectives:

1. Discuss the current antimicrobial stewardship concerns within a long-term care facility
2. To identify the opportunities for pharmacist integration into care plans surrounding stewardship
3. To evaluate the effectiveness of pharmacist-driven antibiotic treatment protocols

Purpose:
Purpose: This analysis will evaluate the impact of the ASP as a means of decreasing total days on antibiotics. Secondarily, this analysis will evaluate medication cost, hospital admissions for urinary tract infection (UTI), mortality and compliance with the protocols.

Background: Nearly 50% of antimicrobial use is considered unnecessary or inappropriate1. Further, the length of treatment for numerous infections is poorly established and longer than clinically necessary2. The safe and effective use of antibiotics is paramount to patient care because improper use can be associated with drug toxicities, antimicrobial resistance, or collateral damage including Clostridium difficile infection(CDI)2. It is well-established that the implementation of antimicrobial stewardship programs (ASPs) is associated with positive clinical outcomes in addition to cost savings for the facility and patient3. The clinical outcomes associated with this could include improved microbial resistance patterns and a decrease in the rate of CDI4. This stewardship program is focused on providing physician and nursing education in conjunction with established diagnostic and treatment protocols.

Methods:
This is an IRB-approved prospective analysis with a retrospective comparator. Prior to the start of the study, a UTI diagnosis and treatment protocol was created in conjunction with the Medication Managers formulary. Nursing and physician inservice education was then provided. The historical comparator was chosen from January 2014 to January 2017. The study group was comprised of patients who were treated using the protocols. Data collected included: age, gender, diagnosis, total days on antibiotics, medication cost, readmission statistics, compliance with the protocol, appropriateness of therapy, incidence of CDI, and repeat episodes of UTI. Microsoft Excel was used to analyze the data.

Results: The average number of days on antibiotics in the control group was 11.44 (±18.76 n=25), with the average number of doses received being 18.24 (±17.96, n=25). There were three episodes of repeat UTI diagnosed, and two episodes of CDI. Five patients were treated in accordance with the protocol or deviated for appropriate indications. Patients in the study group are currently being enrolled.

Conclusions: Preliminary data obtained from the control arm suggest that antibiotic prescribing practices within the long-term care environment can be improved
Impact of Intermittent versus Continuous Infusion of Fentanyl after Rapid Sequence Intubation on ICU Delirium

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Learning Objectives:

1. Discuss the proposed benefits of intermittent sedation compared to continuous sedation for intubated patients.
2. Explain potential downfalls of continuous sedation and the consequences it may have in intubated patients.

Purpose:
Continuous sedative infusions in mechanically ventilated patients may result in over-sedation from drug accumulation. Over-sedation has been shown to prolong the duration of mechanical ventilation and intensive care unit (ICU) length of stay (LOS), which may lead to ICU delirium and increase overall healthcare costs. The aim of this study was to evaluate the impact of intermittent versus continuous infusion of fentanyl for analgosedation given post-rapid sequence intubation (RSI) on the incidence of ICU delirium.

Methods:
This is a multi-center, retrospective study of patients who underwent RSI and received either intermittent or continuous fentanyl for analgosedation at two emergency departments within the Detroit Medical Center between October 2011 and December 2015. Intubated patients admitted to the medical ICU were included if they were > 18 years of age and if they had an admission diagnosis of congestive heart failure, chronic obstructive pulmonary disorder, pneumonia, or sepsis. Patients were excluded if they were intubated for less than 48 hours. Data collected included patient demographics, past medical history, severity of illness scores, Richmond Agitation Sedation Score (RASS) and Intensive Care Delirium Screening Checklist (ICDSC) scores, cumulative opioid and benzodiazepine doses, and the use of adjunctive agents. Adverse events (e.g. self-extubation) and neurological tests (CT scan, EEG, lumbar puncture, or MRI) were also collected. The primary outcome was the incidence of ICU delirium. Other outcomes included ICU and hospital LOS, and hospital mortality. A Chi-Square or Fisher’s exact test was used to assess categorical data and a student t-test or Mann-Whitney U test were used to assess continuous data. Statistical analysis was performed using SPSS and a p-value less than 0.05 considered statistically significant.

Results: Final results and conclusions will be presented at the Ohio Pharmacy Resident Conference.

Conclusions: Final results and conclusions will be presented at the Ohio Pharmacy Resident Conference.
Risk factors for colonization or infection with cefepime resistant, piperacillin-tazobactam susceptible Gram-negative bacilli

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Learning Objectives:

1. Describe challenges of providing optimal empiric antimicrobials for hospitalized patients
2. Discuss potential risk factors for cefepime-resistant, piperacillin/tazobactam susceptible isolates

Purpose:
Recent literature has demonstrated increased nephrotoxicity in patients receiving vancomycin and piperacillin/tazobactam (VPT) combination therapy when compared to either vancomycin or cefepime (VC). Clinicians are currently faced with two conundrums: VPT therapy is associated with increased risk of nephrotoxicity while cefepime potentially affords inferior empiric coverage of Gram-negative bacilli when compared to PT. Strategies are urgently needed to further optimize empiric therapies for hospitalized patients. The primary objective of this study was to determine independent risk factors for cefepime-resistant, piperacillin/tazobactam susceptible GNB isolates.

Methods:
This is a retrospective case-case-control investigation from January 2014-December 2016. Patients with nosocomial or healthcare associated infections were eligible for inclusion if they had blood or respiratory cultures positive for GNB. Three study groups were included in this analysis. The three groups consist of isolates that are cefepime susceptible (CS), those which are cefepime-resistant and piperacillin/tazobactam susceptible (CRPTS), and those which are cefepime-resistant and piperacillin/tazobactam resistant (CRPTR). Risk factors that are present in model 1 (CRPTS vs. CS) but not in model 2 (CRPTR vs. CS) will be considered unique predictors for CRPTS isolates.

Results: An interim analysis was performed with 93 total patients. Baseline characteristics were similar between groups with the exception of more patients in the CRPTS group having congestive heart failure compared to the CS group (48.4% vs. 23.3%; p = 0.042). Many differences seen in model 1 such as presence of a central venous catheter were also seen in model 2, suggesting they are not unique to CRPTS isolates and rather just predictors of cefepime resistance.

Conclusions: Preliminary analysis suggests no discernable risk factors for CRPTS. However, only 20% of the study cohort has been analyzed to date and the data are currently underpowered to detect differences.