240. Estimated Clinical and Economic Impact Through Use of an Initial Specimen Diversion Device to Reduce Blood Culture Contamination: A Cost-benefit Analysis
Erik Skoglund, PharmD; Casey Dempsey, PharmD; Kevin W. Garey, PharmD, M.S.; University of Houston College of Pharmacy, Houston, TX, Memorial Hermann Southwest Hospital, Houston, Texas, Texas A&M University of Houston College of Pharmacy, Houston, Texas
Session: 51. Antimicrobial Stewardship: Interventions to Improve Outcomes
Thursday, October 4, 2018: 12:30 PM
Background. Blood culture contamination results in increased hospital costs and unnecessary patient-exposure to antimicrobials. We sought to evaluate the potential clinical and economic benefits of a novel blood culture diversion device when routinely utilized for blood culture collection in the emergency department (ED) of a quaternary care medical center.

Methods. A decision analysis model was created. Probabilistic costs were determined from published literature and direct observation of pharmacy/microbiology staff. The primary outcome was the expected per-patient cost savings (microbiology, pharmacy, and indirect hospital costs) after initial specimen diversion device (i.e., SteriPath) implementation in the ED using a hospital perspective. Indirect hospital costs included increased hospital length of stay, additional procedures, adverse drug reactions, and hospital-acquired infections. Models were created for hospitals that routinely or do not routinely use rapid diagnostic tests (RDT) on positive blood cultures.

Results. The routine implementation of an initial specimen diversion device for blood culture collection in the ED was cost-beneficial compared with conventional blood culture collection methods and was also associated with a reduction in antibiotic usage, adverse drug reactions, and hospital-acquired infections. When implemented in a hospital utilizing RDT with a baseline contamination rate of 6%, initial specimen diversion device use was associated with a cost savings of $272 (3%) per bloodstream infection in terms of overall hospital costs and $28 (5.4%) in direct-only costs. Main drivers of cost included the baseline rate of contamination in the ED and the duration of antibiotic use given to patients with negative blood cultures.

Conclusion. Implementation of an initial specimen diversion device is estimated to be a cost-beneficial strategy to reduce the clinical and economic impact of blood culture contamination in terms of microbiology, pharmacy, and wider indirect hospital costs.

Disclosures. K. W. Garey, Merck & Co.: Grant Investigator, Grant recipient.

241. Reducing Fluoroquinolone Use Through Implementation of a Urinary Tract Infection (UTI) Treatment Pathway and Healthcare Provider Education: A Pre- and Postintervention Study
Erica Little, PharmD; Nikki Land, RPh; Brian Peters, PharmD, MSc; and Tracey Ikerd, MD; ProHealth Care Waukesha Memorial Hospital, Waukesha, Wisconsin, Riverview Health, Noblesville, Indiana
Session: 51. Antimicrobial Stewardship: Interventions to Improve Outcomes
Thursday, October 4, 2018: 12:30 PM
Background. Fluoroquinolones are associated with significant adverse effects, including tendinitis, Clostridium difficile infection, and central nervous system side effects, especially when used in older adults. Additionally, there is a trend of increasing resistance of Escherichia coli and other Gram-negative organisms to fluoroquinolones. The objective of this study was to decrease the inappropriate use of fluoroquinolones for treatment of urinary tract infections in patients either admitted to or seen in the outpatient setting of this institution through implementation of a UTI treatment pathway and targeted provider education.

Methods. A retrospective chart review was conducted. A query of the electronic medical record was used to identify patients with a diagnosis of UTI who were prescribed fluoroquinolones. Data collected included baseline demographics, antibiotic allergies, culture data, days of therapy, and reported adverse events. A letter to healthcare providers focusing on fluoroquinolone avoidance in UTI treatment was distributed, and a new UTI treatment pathway was published in a newsletter sent to healthcare providers and posted throughout the institution. The primary endpoint of the study was the appropriateness of fluoroquinolone use for treatment of UTI before and after the intervention. Secondary endpoints included duration of therapy and percentage of patients prescribed a fluoroquinolone for UTI vs. other antibiotics.

Results. A total of 212 patient charts were reviewed, 159 patients in the preintervention group and 53 in the postintervention group. In the preintervention group, use was appropriate in 19% (30/159) of patients who received a fluoroquinolone vs. 47.2% (25/53) in the postintervention group (P < 0.001). In the inpatient setting, appropriate use increased from 24.1% in the preintervention group to 57.1% in the postintervention group (P = 0.007). In the outpatient setting, appropriateness of use increased from 16% to 40.6% (P = 0.005).

Conclusion. Implementation of a clinical pathway, along with provider education, demonstrated a statistically significant reduction in the inappropriate use of fluoroquinolones for the treatment of UTI in both the inpatient and outpatient setting.

Disclosures. All authors: No reported disclosures.

242. Evaluating the Effectiveness of Antimicrobial Restriction at an Academic Medical Center
Andrew Kirk, BS; Kimberly Lee, PharmD; John Markley, DO; Amy Pacyz, PharmD, MS, PhD; Gonzalo Bearman, MD, MPH, FSHEA; Michelle Dell, MD, MPH; and Michael Stevens, MD, MPH; Virginia Commonwealth University, Richmond, Virginia, Virginia Commonwealth University Health System, Richmond, Virginia, Infectious Diseases, Virginia Commonwealth University Health System, Richmond, Virginia, Department of Pharmacotherapy and Outcomes Science, Virginia Commonwealth University, Richmond, Virginia, Division of Infectious Diseases, Virginia Commonwealth University Medical Center, Richmond, Virginia
Session: 51. Antimicrobial Stewardship: Interventions to Improve Outcomes
Thursday, October 4, 2018: 12:30 PM
Background. Antimicrobial Stewardship Programs (ASPs) promote the optimal use of antimicrobial agents with the goal of preserving the effectiveness of existing drugs. One core ASP strategy is formulary restriction and preauthorization (PA). We evaluated restricted antimicrobial use at an academic medical center in Virginia; our program has a comprehensive restriction program that applies to adults only.

Methods. Data from August 2012 to June 2017 were evaluated at the hospital unit level by month in days of therapy (DOT) per 1,000 patient-days. Ordinary least squares regression was used to compare the trend of restricted use with that of nonrestricted agents within the same unit.

Results. Across the study period significant decreases in restricted antibiotic use were detected for medical and pediatric units with no significant increases in use. However, significant increases were identified for surgical units.

Table 1: Results of Time Trend Analysis by Unit for Restricted Drugs.

| Type            | Unit       | Time Trend | P     |
|-----------------|------------|------------|-------|
| Medical         | Oncology   | 0.64       | 0.0924|
| Medical         | Cardiac ICU| 0.39       | 0.4058|
| Medical         | Medical ICU| -0.37      | 0.1057|
| Medical         | Bone Marrow Transplant | -2.06 | 0.0002 |
| Medical         | Digestive Health | -0.14 | 0.3004 |
| Medical         | Prostate Care | -0.03    | 0.0002 |
| Pediatric       | General Pediatrics | -0.36 | 0.1363 |
| Surgical        | Neonatal ICU | -0.29    | 0.0007 |
| Surgical        | Pediatric ICU | -0.12    | 0.7849 |
| Surgical        | Progressive Care | -0.28   | 0.0993 |
| Surgical        | Acute Care Surgery | -0.30  | 0.1574 |
| Surgical        | Burn ICU     | 0.84      | 0.0021 |
| Surgical        | Cardiac Surgery ICU | -0.50    | 0.2786 |
| Surgical        | Surgical Trauma ICU | -0.52   | 0.1019 |

Table 2: Significant Increases/Decreases in Restricted Antimicrobials by Unit Type.

| Unit Type       | Increase    | Decrease   |
|-----------------|-------------|------------|
| Medical         | 0/7 (10%)   | 2/7 (29%)  |
| Pediatric       | 0/1 (0%)    | 1/1 (25%)  |
| Surgical        | 0/1 (25%)   | 0/1 (0%)   |

Conclusion. These data suggest that the PA strategy for medical wards was effective across the time period whereas the PA strategy for surgical wards was suboptimal. However, it is unclear why pediatric wards (that were not subject to PA activities) also saw reductions in use; more research into this is needed. These data will help us to refine our PA strategy by targeting use on surgical wards. We believe that this type of analysis may be useful in other ASPs utilizing the PA strategy.

Disclosures. All authors: No reported disclosures.

243. Prioritization of Antibiotic Administration for STAT Orders in the Septic Patient: A Retrospective Analysis
Stefanie Lam, MSc, PharmD; Zong Heng Shi, PharmD candidate; Nikkia Kompouris, BPharm, MSc; Renaud Roy, PharmD, MSc; and Marty Telscher, MDCM, FRCP(C); Pharmacy, Jewish General Hospital, Montreal, QC, Canada, Pharmacy, University of Montreal, Montreal, QC, Canada, Infectious Diseases, Jewish General Hospital, Montreal, QC, Canada
Session: 51. Antimicrobial Stewardship: Interventions to Improve Outcomes
Thursday, October 4, 2018: 12:30 PM
Background. Appropriate antibiotic (AB) therapy is crucial in sepsis and septic shock. Two central factors govern patient survival: adequate empiric coverage and rapid initiation of therapy. The administration of broad-spectrum antibiotics in sepsis and septic shock play an important role diminishing patient morbidity and mortality. The sequence of antibiotic administration has been suggested to affect patient outcomes.

Methods. This is a retrospective study to assess the impact of a pictogram (Figure 1) in the emergency department medication rooms on nurses’ antibiotic administration order in the septic patient. The study population included patients prescribed at least two concomitant AB between January 2017 and January 2018. Each patient’s AB regimen, indication and administration sequence were reviewed using a standardized form. Sequence of administration was deemed appropriate if the sequence followed the pictogram: broad to narrower spectrum AB, and was deemed
inappropriate if the sequence differed from the pictogram. Ethics approval was obtained before starting the chart review.

Results. A total of 120 patients were identified pre-/postintervention. 20% (10/51) had received AB in an incorrect sequence prior to the pictogram implementation compared with 11% (8/70) postintervention. AB prescribed were piperacillin/tazobactam (24%), azithromycin (24%) and vancomycin (18%), ceftriaxone (15%) for sepsis arising from pneumonia, urinary tract, and intra-abdominal infections.

Conclusion. The availability of a pictogram to guide the sequence of antibiotic administration in the septic patient can assure its correct administration sequence and potentially affect patient outcomes. An improvement (45%; P = 0.2) was seen post implementation suggesting the pictogram to be a helpful visual aid for nurses. Although not statistically significant, the difference implies a tendency that may be explored in a larger sample size to search for a potential effect.

References
1. Rhodes A, et al. Surviving Sepsis Campaign: International Guidelines for Management of Sepsis and Septic Shock 2016. Crit Care Med 2017(45)146-S-552.
2. Roberts K, et al. Impact of Antibiotic Initiation Sequence on Outcomes in Patients with Septic Shock. Poster 652. Crit Care Med 2016(44) Suppl.

Disclosures. All authors: No reported disclosures.