

#### 742. Impact of an antimicrobial stewardship intervention on antibiotic prescribing practices for community-acquired acute uncomplicated cystitis in the emergency department

Carolyn Toy, PharmD<sup>1</sup>; Gary Peksa, PharmD, BCPS<sup>2</sup>; Sheila Wang, PharmD, BCPS AQ-ID<sup>3</sup>; Christy Varughese, PharmD, BCPS<sup>4</sup> and Sarah Won, MD, MPH<sup>5</sup>; <sup>1</sup>Rush University Medical Center, Chicago, California, <sup>2</sup>Pharmacy & Emergency Medicine, Rush University Medical Center, Chicago, Illinois, <sup>3</sup>Chicago College of Pharmacy, Midwestern University, Rush University Medical Center, Downers Grove, Illinois, <sup>4</sup>Department of Pharmacy, Rush University Medical Center, Chicago, Illinois, <sup>5</sup>Rush University, Chicago, Illinois

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**Background.** In the emergency department (ED) acute cystitis is often treated empirically. It is recommended that fluoroquinolones (FQs) be reserved for those who do not have alternative treatment options. The purpose of this study was to assess an antimicrobial stewardship intervention on prescribing practices for community-acquired acute uncomplicated cystitis in the ED.

**Methods.** A controlled quasi-experimental antimicrobial stewardship education and quality improvement intervention study in the ED consisting of three phases: (1) pre-intervention- historical data collection (7 months), (2) pharmacists' provision of provider education (2 months), and (3) post-intervention observational data collection (7 months). Patients included were >18 years of age with diagnosis of acute uncomplicated cystitis in the ED and urine culture positive for *E. coli*. Patients were excluded if diagnosed with pyelonephritis, received intravenous antibiotics, or treated for health-care-associated infection. The primary outcome was incidence of FQ prescriptions before-and-after the antimicrobial stewardship intervention. Secondary outcomes were incidence of *E. coli* susceptibility to empiric treatment, ED specific treatment algorithm adherence, and 30-day revisit to the ED. Chi-square and Fisher's exact statistical tests were used to analyze outcomes.

**Results.** The study included 174 patients, 90 in the pre-intervention and 84 in the post-intervention groups. Patients were predominantly young African-American females. Upon provision of pharmacists' education, empiric FQ prescribing for acute uncomplicated cystitis decreased from 38.9% to 13.1%, pre and post-intervention, respectively ( $P < 0.001$ ). Adherence to the ED specific antibiogram and treatment algorithm improved from 35.6% to 74% in the pre and post-intervention groups, respectively ( $P < 0.001$ ). There was no difference pre and post-intervention for incidence of *E. coli* susceptibility to empiric antimicrobial treatment and 30-day revisit to the ED.

**Conclusion.** An antimicrobial stewardship intervention in the ED significantly reduced fluoroquinolone use for the treatment of acute uncomplicated cystitis and increased adherence to acute uncomplicated cystitis treatment guidelines.

**Disclosures.** All authors: No reported disclosures.

#### 743. Quality Assessment of Process Measures in Antimicrobial Stewardship: Concordance of Cefepime Indication Without Automatic Prospective Approval in Computerized Provider Order Entry

Tiffany Lee, PharmD; Christopher McCoy, PharmD, BCPS-AQ ID and Monica V. Mahoney, PharmD, BCPS-AQ ID; Department of Pharmacy, Beth Israel Deaconess Medical Center, Boston, Massachusetts

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Thursday, October 5, 2017: 12:30 PM

**Background.** The Infectious Diseases Society of America (IDSA) and the Society for Healthcare Epidemiology of America (SHEA) recommend computerized decision support at the time of prescribing as an antimicrobial stewardship (AST) tool. Providing antimicrobial indications during prescribing can optimize infection-specific therapy through appropriate antimicrobial selection, dosing, and frequency. The Leapfrog group identifies this as a quality measure for their report card system. At Beth Israel Deaconess Medical Center, indication-based dosing has been incorporated in the computerized provider order entry (CPOE) system since 2006. Accuracy validation of the selected indications has not been formally performed.

**Methods.** A retrospective chart review was performed of the first 50 patients receiving  $\geq 1$  cefepime dose during May 2016. Electronic medical records, laboratory reports, and pharmacy records were reviewed to identify the suspected/confirmed infection. The primary outcome was the concordance rate of selected CPOE cefepime indication compared with suspected/confirmed infection at the time of ordering. The secondary outcome was assessment of dosing agreement between CPOE-selected indication and institutional renal dosing recommendations. With the exception of febrile neutropenia, all other cefepime indications require AST approval for dispensing.

**Results.** Patients had a median age of 64 years, 24 (48%) were female, 21 (42%) were located in an intensive care unit (ICU), and 22 (44%) orders were indicated for pneumonia. Concordance of indication selection was 78%. Discordance was largely driven by differing pneumonia severity or ICU status. Combining pneumonia indications increased the concordance rate to 86%. Dosing agreement between CPOE selection and renal dosing recommendations was 72%. Most dosing discrepancies occurred among pneumonia patients, mainly based on defined severity or ICU status and differed by 1 or 2 grams per day.

**Conclusion.** The selected CPOE cefepime indication and subsequent dosing recommendations had high concordance rates with suspected/confirmed infections at our institution. This study lends support for the IDSA/SHEA recommendation of incorporating computerized decision support as an AST tool.

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#### 744. Antimicrobial Stewarding with a Unique Pharmacist-Managed Penicillin Skin Testing (PST) Service

Rebekah Wrenn, PharmD<sup>1,2</sup>; Christina Sarubbi, PharmD<sup>1,2</sup>; Renee Kleris, MD<sup>3</sup>; Richard Drew, PharmD, MS, FCCP<sup>4</sup>; Rebekah Moehring, MD, MPH<sup>4</sup>; Patricia Lugar, MD<sup>5</sup> and Deverick Anderson, MD, MPH, FSHEA, FIDSA<sup>2,6</sup>; <sup>1</sup>Pharmacy, Duke University Hospital, Durham, North Carolina, <sup>2</sup>Duke Center for Antimicrobial Stewardship and Infection Prevention, Durham, North Carolina, <sup>3</sup>Department of Pediatrics, Division of Allergy and Immunology, Durham, North Carolina, <sup>4</sup>Division of Infectious Diseases, Duke University Medical Center, Durham, North Carolina, <sup>5</sup>Department of Medicine, Division of Pulmonary, Allergy, and Critical Care Medicine, Durham, North Carolina, <sup>6</sup>Duke University Medical Center, Durham, North Carolina

**Session:** 75. Stewardship: Program Implementation  
Thursday, October 5, 2017: 12:30 PM

**Background.** Penicillin allergy has emerged as a key focus area for antimicrobial stewardship programs (ASP) due to the negative consequences this label can have on patient care. PST is a tool to determine allergy status and thus improve care by optimizing effective antimicrobial therapy in patients who are not likely to be allergic. Novel strategies for implementation of PST are needed as time, expertise, and follow-up are required to successfully implement a PST program.

**Methods.** We performed this prospective observational study of the implementation of a unique ASP pharmacist-led PST consult service. Eligible inpatients were identified through prospective audit, pharmacy-led allergy assessments, and consultation from providers. PST training was completed through collaboration with allergy staff. Two ASP pharmacists and 1 allergy fellow performed testing on qualifying inpatients. Data were collected on the specifics of allergy history, PST results, antibiotic indication, and antibiotics received before and after testing.

**Results.** A total of 1540 unique patients admitted at Duke University Hospital from 11/1/17 to 3/31/17 were labeled as "allergic to penicillin" on admission. Allergy assessments were completed on 107 patients. A total of 49 PST consults were performed and 23 of these patients (47%) underwent PST. Progress notes and allergy flags were updated on all PST patients. PST was negative for 21 (91%) patients; of these, 16 (76%) had their current antimicrobial therapy discontinued or de-escalated.-resistant pathogens or appropriate empiric coverage limited de-escalation in all 5 patients continued on broad coverage during study admission. One patient tested positive and one had an equivocal PST. No adverse effects related to PST or antimicrobials received following PST were observed. Allergy colleagues aided PST decision-making as needed.

**Conclusion.** Stewardship pharmacist-led PST service is a unique approach that led to the removal of penicillin allergies for 91% of patients tested and to the safe use of  $\beta$ -lactam therapy at an academic medical center. This is a feasible and an effective additional ASP activity, particularly in settings where allergy consultation is not available.

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#### 745. Implementation of a Carbapenem Prescribing Algorithm at a Community Hospital

Stacy Shimata, PharmD<sup>1</sup>; Christine Antczak, PharmD<sup>1</sup>; Phillip S. Yu, MD<sup>1</sup> and Kavita K. Trivedi, MD<sup>2</sup>; <sup>1</sup>Sutter Tracy Community Hospital, Tracy, California, <sup>2</sup>Trivedi Consults, LLC, Berkeley, California

**Session:** 75. Stewardship: Program Implementation  
Thursday, October 5, 2017: 12:30 PM

**Background.** Carbapenem (CAR) antibiotics have broad-spectrum activity against both Gram-positive and Gram-negative bacteria. Unrestricted use can lead to limited susceptibility profiles. Imipenem-cilastatin was also identified as the antipseudomonal  $\beta$ -lactam with the lowest susceptibility to *Pseudomonas aeruginosa* (88% at our 79-bed community hospital). The Antimicrobial Stewardship Committee (ASC) developed an initiative to decrease overall CAR usage by improving prescribing habits and promoting the appropriate use of these antibiotics.

**Methods.** A CAR Prescribing Algorithm (Figure 1) was developed as guidance to prescribers to promote appropriate CAR use; it was implemented in December 2015. Pharmacists utilized the prospective audit and feedback strategy for new orders that failed to meet the algorithm's CAR use criteria and recommended alternative therapy when appropriate. A three-part Medication Use Evaluation was conducted to evaluate the impact of implementing the algorithm: Pre-intervention (P1: January to March 2015), Post-intervention (P2: January to March 2016), and six months Post-intervention (P3: July to September 2016). Frequency of appropriate prescribing, antimicrobial days of therapy per 1,000 patient-days (DOT) and cost savings utilizing pharmacy purchasing data were evaluated.

**Results.** In P1, 107 patients received CARs with only 21 (20%) of patients meeting algorithm use criteria. In P2, patients receiving CARs decreased to 31 with 11 (35%) of patients meeting algorithm use criteria. In P3, 27 patients received CARs with 19 (70%) meeting algorithm use criteria. A three-fold decrease in DOT was observed from P1 to P2, 131.8 to 40.2; DOT remained low in P3 at 42.9 (Figure 2). Using 2015 as a baseline, we calculated a \$75,000 pharmacy cost saving in 2016 attributed to the CAR Algorithm.

**Conclusion.** The implementation of a Pharmacy-driven CAR Prescribing Algorithm at a small community hospital improved prescribing habits and led to a three-fold reduction in overall use. Success with the algorithm continued 6 months after implementation and led to cost-savings for the hospital.