Background. Antimicrobials are often inappropriately initiated for asymptomatic bacteriuria (ASB). At our institution, urinary (U/A) and urine culture (UCs) are ordered simultaneously, leading to an increased rate of catheter-associated UTI (CAUTI) diagnosis and antimicrobial initiation. A UCx algorithm was implemented in the medical intensive care unit (MICU) to guide the appropriate ordering of UCs in patients with Foley catheters. The purpose of this study was to assess the impact of this UCx algorithm paired with nursing and prescriber education on overall patient outcomes.

Methods. This was a single-center, pre- and post-analysis of patients admitted to the MICU with an order for a U/A and/or UCs for suspected UTI. Patients were excluded if they had a suspected co-infection from another source, absence of Foley catheter or UCs drawn prior to MICU admission. The pre-implementation phase was November 1, 2017 to April 31, 2018, and the post-phase was May 1, 2018 to October 31, 2018. The primary objective was to compare the incidence of CAUTI between pre- and post-implementation phases. Secondary objectives included rate of adherence to the algorithm, number of UCs ordered, rate and days of antimicrobial therapy for ASB, duration of catheterization and 30-day mortality between pre- and post-implementation phases.

Results. There were 94 patients in the pre-phase and 77 patients in the post-phase. Baseline characteristics were similar between groups, except a greater proportion of patients in the pre-phase had a catheter prior to admission (12.8% vs. 2.6%; P = 0.02). Incidence of CAUTI decreased following algorithm implementation (16% vs. 6.5%; P = 0.05). Complete algorithm adherence was 2.6%, whereas partial adherence was 49.4%. Number of UCs ordered were 126 (comprising 100% of patients) and 76 (comprising 86% of patients) in the pre- and post-phase, respectively. Antimicrobial therapy for ASB was initiated in 55.3% of patients in the pre-phase vs. 37.7% in the post-phase; P = 0.02. There were no differences in duration of ASB treatment, catheterization or 30-day mortality.

Conclusion. Implementation of UCx algorithm paired with educational intervention resulted in a significant decrease in CAUTI and ASB treatment. Additional interventions may be necessary to optimize adherence to the algorithm.

Disclosures. All authors: No reported disclosures.

1111. Characterization of Antibiotic Ordering in Patients with Mental Status Changes and Presumed Urinary Tract Infection in Patients 65 and Older

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Session: 136. Antibiotic Stewardship: Urine Cultures
Friday, October 4, 2019: 12:15 PM

Background. Altered mental status (AMS) is the most common diagnosis among those 65 and older who present to the emergency department (ED). Urinary tract infections (UTIs) account for 15.5% of hospitalizations in this population. The purpose of this study was to determine the incidence of initiation of antibiotics in the ED in patients 65 years and older with mental status changes and asymptomatic bacteriuria or negative urine cultures.

Methods. A retrospective chart review was performed to evaluate patients aged 65 and older from January 1, 2017 through June 30, 2018 who presented to the ED from home with AMS, a urinalysis that reflexed to culture, and were admitted to an internal medicine unit. The primary outcome was defined as the percentage of patients with AMS who received antibiotics in the ED with asymptomatic bacteriuria or negative urine cultures. Secondary outcomes included adherence to the CCHS UTI antibiotic guideline, incidence of early discontinuation of antibiotics, culture sensitivity to ordered antibiotic, and disposition after discharge.

Results. A total of 91 patients were included in this study. Seventy-five patients had asymptomatic bacteriuria and antibiotics were started in the ED in 63 (84%) of these patients. Fourteen patients had no growth on culture and seven of these patients (50%) had antibiotics initiated in the ED. Of those who received antibiotics (n = 82), there was 81.7% adherence to the Christiana Care UTI antibiotic selection guideline. Sensitivities were available for 41 isolates and 65.9% were sensitive to the

Disclosures. All authors: No reported disclosures.
initial antibiotic administered. Antibiotics were discontinued early in 29/82 (35.4%) of patients. Thirty-one patients (33.7%) were discharged to a skilled nursing facility.

Conclusion. Outpatient antibiotic prescribing for UTIs is suboptimal. Outpatient stewardship programs may wish to educate providers on symptoms of UTI. Interestingly, those with signs and symptoms consistent with UTI were more likely to have a urine culture and/or imaging completed suggesting that providers were aware of a true diagnosis of a UTI. Stewardship programs should pay special attention to patients with numerous comorbidities who are often inappropriately treated.

Disclosures. All authors: No reported disclosures.

1114. Oral β-lactams for the Treatment of Escherichia coli Bacteremia Secondary to Complicated Urinary Tract Infections Including Pyelonephritis
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Session: 136. Antibiotic Stewardship: Urine Cultures
Friday, October 4, 2019: 12:15 PM

Background. Complicated urinary tract infections (cUTI) including pyelonephritis may result in bacteremia, increasing the rate of morbidity and mortality. The Infectious Diseases Society of America recommends a fluoroquinolone as empiric therapy or trimethoprim/sulfamethoxazole as definitive therapy for acute pyelonephritis (AP). Oral β-lactams (BL) are considered sub-optimal based on historical efficacy data with aminopenicillins and variable bioavailability. Increasing resistance and toxicity with preferred agents, justifies further evaluation of oral BL for E. coli bacteremia secondary to urinary source.

Methods. This was a single-center, retrospective cohort study of patients with E. coli bacteremia secondary to AP or cUTI who received oral step-down therapy with a BL or non-BL. The primary outcome was the rate of clinical success defined by microbiologic cure, metronidazole or anti-microbial criteria in bacteremia or culture-positivity at follow-up. Secondary outcomes were time to oral step-down, total days of therapy, length of hospital stay, incidence of therapy escalation, 30-day readmissions, and antibiotic-associated adverse events.

Results. A total of 46 patients were included, with 23 patients in each group. The difference in antibiotic treatment in each group was 15 days. No patients required therapy escalation after oral step-down or had infection-related readmission within 30 days of discharge.

Conclusion. The observed clinical success rate of 91.3% remains consistent with previous studies evaluating oral BL as step-down therapy for Enterobacteriaceae bloodstream infections. The results of this study support the safety and efficacy of oral BL as step-down therapy for E. coli bacteremia due to cUTI, although larger studies may be beneficial.

Disclosures. All authors: No reported disclosures.

1115. Reducing Broad-Spectrum Antibiotics for Uncomplicated Urinary Tract Infections: A Multistaged Stewardship Intervention
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Session: 136. Antibiotic Stewardship: Urine Cultures
Friday, October 4, 2019: 12:15 PM

Background. Urinary tract infections (UTIs) are the second most common reason for antibiotics in hospitalized patients, with most receiving broad-spectrum antibiotics (BSA) regardless of infection severity. The antimicrobial stewardship program (ASP) conducted a multistaged stewardship intervention targeting reduction in one BSA, ceftriaxone, and promoted narrow-spectrum antibiotics (NSA) such as cefazolin and ciprofloxacin for uncomplicated UTIs.

Methods. Phase 1: In February 2018, the ASP created a pocket card (Figure 1) containing (1) a urinary antibiotic outlining the most common urine pathogens and their local susceptibility to NSA and (2) NSA guidelines for UTIs with 0–1 systemic inflammatory response syndrome (SIRS) criteria. ASP performed a daily prospective audit with feedback on all new orders of ceftriaxone and promoted pre-scription of NSA. Phase 2: In August 2018, a Best Practice Alert (BPA) in the electronic medical record (EMR) was designed to interrupt providers ordering ceftriaxone with the indication of a UTI, and prompted NSA prescription instead. Quarterly didactic sessions on UTI antibiotic use and BPA functionality were done. We compared antimicrobials usage rates across the 3 study phases (pre-intervention, phase I and phase II) by computing rate ratios (RRs) using Poisson regression.

Results. Compared with pre-intervention, phase 1 resulted in a significant decrease in ceftriaxone use (RR: 0.99, 1.03–0.97, P < 0.001). Furthermore, patients with a Charlson Comorbidity Index of 0–2 had a 2.9 times more likely to be treated inappropriately (95% CI, 1.8–5.0). Those patients who received a urine culture or imaging were more likely to be treated appropriately: OR 0.6 (95% CI, 0.4–0.9) and 0.5 (95% CI, 0.3–0.7), respectively.

Conclusion. Antibiotic stewardship for UTIs is suboptimal. Outpatient stewardship programs may wish to educate providers on symptoms of UTI. Interestingly, those with signs and symptoms consistent with UTI were more likely to have a urine culture and/or imaging completed suggesting that providers were aware of a true diagnosis of a UTI. Stewardship programs should pay special attention to patients with numerous comorbidities who are often inappropriately treated.

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