1112. Improving Urine Culturing Practices in a Neurocritical Care Unit through a Multidisciplinary-Based Approach

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Background. Asymptomatic bacteriuria is common in hospitalized patients with urinary catheters. Inappropriate urine culturing as part of reflexive response to fever contributes to unnecessary and excessive antibiotic use, selection for resistant organisms, and increased risk for Clostridium difficile infections, and false elevation in catheter-associated urinary tract infection (CAUTI) rates. This project aimed to implement an expert-based urine culturing algorithm at a neurocritical care unit, a unit with a historically elevated CAUTI rate due to a high prevalence of noninfectious fever.

Methods. A multidisciplinary quality improvement project was initiated in August 2018 by the Infection Prevention, Quality and Safety, Neurocritical Care, Trauma, and Nephrology in teams of an academic health center. This group implemented a urine culture algorithm that was adapted from the Infectious Diseases Society of America (IDSA) guidelines that clearly highlighted appropriate indications for sending urine cultures. The team agreed to utilize a urinalysis with reflex to culture when the primary care provider ordered a urine culture. The urine cultures were ordered by the primary care provider. A abbreviated algorithm was implemented in September 2018. Outcomes were compared for pre-implementation (March-August 2018) and post-implementation (September 2018-February 2019).

Results. The NHSN CAUTI rate decreased from 4.52/1,000 Foley days to 1.27/1,000 Foley days in 1206.007 as a result of the intervention. The number of urine cultures ordered decreased by 82% after implementation. No cases of bacteremia or mortality secondary to a urinary source were identified during the project. Total days of antibiotic therapy for the unit was similar between the pre- and post-implementation time periods (P = 0.631).

Conclusion. Implementation of a urine culture algorithm in a neurocritical care unit resulted in reduced CAUTI rate with less financial and operational waste in unnecessary orders and treatment, without resulting in adverse events to patients as a result of missed diagnosis. Disclaimers. All authors: No reported disclosures.

1113. Outpatient Antimicrobial Stewardship: Targets for Urinary Tract Infections
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Background. Urinary tract infections (UTIs) remain one of the most commonly diagnosed infectious diseases in the United States in both the inpatient and outpatient settings, accounting for 10.5 million outpatient visits in 2007. Of these visits, 5.4 million were seen in primary care offices. Outpatient antimicrobial stewardship programs are emerging and a focused approach to UTIs is needed to help guide these programs.

Methods. Data were collected by retrospective chart review of outpatient male patients at the VA Western New York Healthcare System using encounters from January 2005 to March 2018. Appropriate treatment was defined as antimicrobial prescribing in the setting of at least 2 signs/symptoms of UTI. Categorical data were analyzed using the chi-square test and continuous data using the Student t-test. Factors that differed significantly (P < 0.05) between the comparator groups were built into a multivariate logistic regression model to determine factors associated with inappropriate prescribing, which were presented as an Odds Ratio (OR) and 95% Confidence Interval (CI).

Results. A total of 607 outpatient UTIs met criteria for inclusion, of which 40% were treated inappropriately. Of the 60% treated appropriately (therapy was indicated and empiric drug choice was correct), 95% of patients received a correct dose and 57% received total treatment duration. Several risk factors were identified for inappropriate prescribing. Female patients were more likely to be treated inappropriately, OR 4.7 (95% CI, 2.4–9.1). Patients with a higher Charlson Comorbidity Index of 5–10 were 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. 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 as these providers are often inappropriately treated.

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1114. Oral β-lactams for the Treatment of Escherichia coli Bacteremia Secondary to Complicated Urinary Tract Infections Including Pyelonephritis
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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-optional 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 microbicidal failure, nephrotoxicity and/or microbiocidal-resistant readmission. 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 duration of therapy 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 blood stream 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 Multistudied Intervention Strategy
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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 multistudied antimicrobial intervention targeting reduction in one BSA, ceftriaxone, and promoted narrow-spectrum antibiotics (NSA) such as cefazolin and cephalexin for uncomplicated UTIs.

Methods. Phase 1: In February 2018, the ASP created a pocket card (Figure 1) containing (1) a urinary antibiogram 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 prescription 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 DOR (RR: 0.96, CI 1.03–1.09) and cefazolin orders for UTI (RR: 1.14, P < 0.001) and an increase in cefazolin DOR (RR: 0.89, P = 0.029) and orders for UTI (RR: 0.12, P < 0.001). It also resulted in a significant increase in cephalexin DOR (RR: 0.92, P = 0.002) and orders for UTI (RR: 0.58, P < 0.001). In phase 2, an additional significant reduction in ceftriaxone DOR (RR: 1.04, CI 1.01–1.08, P = 0.018) and orders for UTI (RR: 1.62, P < 0.001) and an increase in cefazolin DOR (RR: 0.92, P = 0.002).
program goals. A multimodal stewardship intervention using a pocket card with guidelines and urine antibiogram, and an EMR EPA successfully reduced HSA and increased NSA for treatment of uncomplicated UTIs.

Figure 1: Stewardship pocket card with urinary antibiogram (top) and narrow-spectrum antibiotic recommendations (bottom).

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1116. Impact of Antimicrobial Stewardship Incentive Goals for Pharmacists on Overall Antibiotic Use and Appropriate Duration of Therapy in Urinary Tract Infections Matthew A. Miller, PharmD3; Mattie Huffman1; Nichole Neville, PharmD2; Misha Huang, MD, MS3; Gerard Barber, RPh, MPH1; University of Colorado Hospital, Aurora, Colorado; Swedish Medical Center, Aurora, Colorado; University of Colorado Hospital, University of Colorado School of Medicine, Aurora, Colorado

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Background. Urinary tract (UTI), skin and soft tissue, and respiratory infections are among the most frequently reported indications for antibiotics, such that focusing stewardship efforts here would be expected to have dramatic effects. Antimicrobial stewardship (AMS) programs vary in structure and available resources. At the University of Colorado Hospital, a 740-bed academic medical center, dedicated resources for AMS oversight throughout target periods. Antibiotic use was calculated as days of therapy by indication. Our cohort included an average of 271,134 children per year and 1,767,652 antibiotic prescriptions. Over the 4 years, rates of antibiotic prescribing increased 4.5% (from 453 to 474 prescriptions per 1,000 population per year).

Results. The greatest increase, across all classes of antibiotics, was seen in children aged 0–2 years of age. By 2016, the greatest increase in prescribing, by class, was observed in J01X (e.g., nitrofurantoin, fosfomycin) with a 1360% increase for children aged 3–9. Across all ages, quinolones (J01M) increased 98%. Remaining classes, including β lactams (J01A), and other antibacterials (J01X) identify a new potential target for provincial antimicrobial stewardship efforts.

Disclosures. All authors: No reported disclosures.

1118. Trends of Paediatric Prescribing for Common Infections in British Columbia Ariana Saatchi, BASc2; David M. Patrick, MD, MHSc, FRCP(C)1; James McCormack, PharmD2; Andrew Morris, MD, SM(Epi), FRCP(C)2; Fawziah Marra, BSc(Pharm), PharmD1; University of British Columbia, Vancouver, BC, Canada; 3University of Toronto, Toronto, ON, Canada

Session: 137. Antibiotic Stewardship (Pediatric): Ambulatory Settings
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Background. Antibiotic prescribing in pediatric care is highly prevalent. Often children for conditions antibiotics that are commonly self-limiting and viral in etiology such as upper respiratory tract infections. The purpose of this study was to examine the scope of pediatric antibiotic prescribing in British Columbia from 2013 to 2016 and identify potential new provincial antimicrobial stewardship targets.

Methods. Antibiotic prescription data for children were extracted from a provincial prescription database, and linked to demographic files in order to obtain patient age, sex and geographic location. Prescription rates were then calculated, and trends were examined by major anatomical therapeutic chemical (ATC) classification.

Results. Our cohort included an average of 271,134 children per year and 1,767,652 antibiotic prescriptions. Over the 4 years, rates of antibiotic prescribing increased 4.5% (from 453 to 474 prescriptions per 1,000 population per year). The greatest increase, across all classes of antibiotics, was seen in children aged 0–2 years of age. By 2016, the greatest increase in prescribing, by class, was observed in J01X (e.g., nitrofurantoin, fosfomycin) with a 1360% increase for children aged 3–9. Across all ages, quinolones (J01M) increased 98%. Remaining classes, including β lactams (J01A), and other antibacterials (J01X) identify a new potential target for provincial stewardship.

Disclosures. All authors: No reported disclosures.

1119. Implementation of Pediatric Antimicrobial Stewardship Rounds in a Children's Hospital Natalie Tucker, PharmD, BCIDP3; Ezeldin Saleh, MBBS2; Marcela HSis St. Joseph’s Hospital, Springfield, Illinois; Southern Illinois University, Springfield, Illinois

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