Results. The MultiPath ID method specifically detected a range of common CAUTI pathogens including E. coli, K. pneumoniae, E. faecium, E. faecalis, and P. aeruginosa. The limit of detection for E. coli was 27 CFU in a 100 µL assay in 10% urine. We present data demonstrating target inclusivity, specificity, and dynamic range. Our AST feasibility study results show excellent correlation with the broth micro dilution reference test for 5 antibiotics. Variable inoculum levels had little impact on MICs in the study.

Conclusion. The data presented demonstrate the potential of the rapid ID/AST technology to achieve excellent analytical and clinical performance. Thus, combined with the method’s simplicity, robustness to sample matrix, and ease-of-use may make the method valuable for rapid syndromic infection diagnostics.

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1514. Clinical Decision Making in Suspected Urinary Tract Infection in Hospitalized Patients: Which Factors Lead to Treatment, and How Would Reflex Urine Cultures Impact Diagnosis?

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Background. While urinary tract infections (UTIs) are frequently encountered in clinical practice, the clinical decision-making involved in the diagnosis of hospital-acquired infections (HAI) is not well described in the literature. The purpose of our study was to identify the clinical data most commonly used to diagnose hospitalized patients with UTI and to investigate the potential impact that a reflex urine culture model (whereby urine cultures are only performed if a specific urinalysis [UA] or microscopy threshold is reached) could have on diagnosis.

Methods. We performed a retrospective chart review of adult patients admitted to an urban university hospital with positive urine cultures >48 hours after admission between January 1, 2015 and February 28, 2015. Patient demographics, clinical symptoms, urine studies, and adverse effects were collected. We then applied a reflex urine culture model to our data using two thresholds: (1) any abnormality in leukocyte esterase, nitrite, blood, or protein on UA, and (2) urine microscopy with >10 white blood cells per high-power field (WBC/hpf).

Results. In total 588 patients with positive urine culture were reviewed. Eighty patients were treated for UTI. The strongest predictors of treatment were the presence of >100k colony-forming units (CFUs) in culture (OR 7.75, P = 0.0001) and an abnormal UA (OR 5.40, P = 0.002). Seven treated patients (9%) experienced an adverse reaction. Applying the reflex culture model requiring abnormal UA, 9% of treated patients would not have been cultured. Moving the threshold to >10 WBC/hpf, the number rose to 41%.

Conclusion. At our institution, clinicians relied on high colony counts and abnormal urinalyses to guide UTI treatment in hospitalized patients. Though pyuria alone is not diagnostic of a UTI, it can be supportive, and a large proportion of treated patients did not have significant pyuria. These findings highlight areas for clinician education. Additionally, our study suggests reflex urine cultures in the hospital setting may reduce the number of urine cultures performed on samples with lower likelihood of true infection. This in turn could improve diagnostic accuracy and decrease laboratory costs, antibiotic usage, and adverse effects, making it a potentially useful antimicrobial stewardship tool.

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1515. Patient-Based Stratification of Weighted-Incidence Syndromic Antibiogram (WISCA) for Empiric Antibiotic Prescribing

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Background. Antibiotics are often prescribed to outpatients based on the clinician’s perception of likely pathogens. The weighted-incidence syndromic antibiogram (WISCA) may be more useful for empiric prescribing than its traditional counterpart (UTI). A recent study used a weighted syndromic antibiogram (WISCA) in a multi-specialty EMEDC to describe the prescribing patterns for UTIs among varied provider groups and clinic subspecialties, in order to improve targeted interventions to improve antibiotic use.

Methods. This retrospective study included patients from January 2016 through December 2016 with a diagnosis of UTI (ICD-10 codes N30.90–91). Inclusion criteria included pregnancy, prophylaxis prior to urology procedure, antibiotics not prescribed, or antimicrobial prophylaxis. Patients were categorized as unselected vs. uncomplicated based on additional ICD-10 codes for uncontrolled diabetes, urinary obstruction, flank pain, renal failure, gender, and receiving immunosuppression. Additionally, patient allergies were evaluated to assess adherence to guidelines (Figure 1). The primary objective was to describe prescribing adherence with institutional UTI guidelines for both drug selection and duration.

Results. From 30 clinics, 1,488 patient encounters for UTI were included. The overall compliance rate was 9.5% for appropriate drug selection and duration of therapy, with appropriate drug selection (22.8%) being much lower than appropriate duration (84.9%). The most commonly prescribed antibiotics included trimethoprim/ sulfamethoxazole (31.8%), FQs (23.2%) and nitrofurantoin (21.7%). Compliance rates varied widely between prescriber types (Figure 2).

Conclusion. Management of UTIs in outpatient clinics is suboptimal, and would benefit from antimicrobial stewardship interventions. Stewardship efforts in outpatient clinics should target both appropriate drug selection and duration, and de-emphasize FQ use.

Figure 1. Michigan medicine guidelines for empiric outpatient UTI treatment.
1517. Evaluation of Antibiotic Prescribing Practices for Lower Urinary Tract Infections in the Emergency Department
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**Background.** Evaluation of antibiotic prescribing practices in the emergency department (ED) for urinary tract infections (UTI) is needed given new accreditation standards for outpatient antimicrobial stewardship. Prescribing practices in the ED for UTIs have not been well defined. We aimed to describe the prescribing patterns for UTIs among varied provider types in the ED, with the goal of targeting interventions to minimize the use of broad-spectrum antibiotics and avoid unnecessarily long antibiotic durations.

**Methods.** This retrospective, single-center study included adults presenting to the ED and discharged home from September 2015 through August 2017 with a primary diagnosis of UTI. Included patients had a diagnosis of a lower tract UTI (ICD-10 codes for acute cystitis (N30) and cystitis with or without hematuria (N30.90–91)). Excluded patients were not prescribed antibiotics or had an additional ICD-10 code for pyelonephritis (N10). Data from the electronic health record was used to categorize patients as uncomplicated or complicated. Allergies, recent antibiotic use and prior urine cultures were utilized when determining compliance with first-line (nitrofurantoin or fosfomycin) and second-line (cephalexin or trimethoprim/sulfamethoxazole (TMP/SMX)) recommendations. The primary objective was to describe prescriber compliance with institutional UTI guidelines for both drug selection and duration.

**Results.** Of 658 UTI encounters included, the compliance rate for both appropriate drug selection and duration for uncomplicated UTIs was 11.6%, with 1.0% median compliance for UTIs among varied provider types in the ED, with the goal of targeting interventions to minimize the use of broad-spectrum antibiotics and avoid unnecessarily long antibiotic durations.

**Conclusion.** In the ED, both appropriate drug selection and duration for UTIs are low. Excessive durations of therapy and higher rates of FQs were common. Stewardship efforts in the ED should target both appropriate drug selection and duration as well as de-emphasize FQ use.

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1518. Assessment of Antibiotic Prescribing in the Outpatient Setting for Uncomplicated Urinary Tract Infection in Pediatrics (UTIP Trial) with a Review of Local E. coli Susceptibilities
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**Background.** The IDSA recommends the use of sulfamethoxazole-trimethoprim (SXT) as empiric therapy (E/T) for uncomplicated urinary tract infections (UTI) in areas where the resistance rate is <20%. We sought to describe the susceptibility patterns of urinary E. coli isolates from an urban pediatric outpatient centers/schools and analyze antibiotic (ABX) prescribing to encourage use of cephalexin (LEX) as E/T for uncomplicated UTI.

**Methods.** This is a retrospective analysis of outpatient UTI management from December 2016 to April 2017. Patients were identified using ICD-10 codes related to UTI or associated symptoms, and chart review was performed by electronic medical record (EMR). Demographic, clinical and laboratory data were collected. The primary endpoint was the choice of ABX for E/T for UTI. Fisher’s Exact, and χ² tests were used for data analysis.

**Results.** We identified 1,138 patients with appropriate ICD-10 codes and a retrievable EMR. Of those 1,138, 882 (78%) received no ABXcs, 14 (1%) received an ABX for other indications, and 242 (21%) were prescribed an ABX for UTI E/T. There were 834 (73.3%) female patients and the median age was 11 years (range: 1 week to 21 years). The top 4 ABXcs prescribed for E/T were SXT 83/242 (34.3%), nitrofurantoin 44/242 (18.2%), LEX 27/242 (11.2%), and ciprofloxacin 21/242 (8.7%). LEX was prescribed 64.3% in the youngest and 8.8% in the oldest age groups for E/T UTIs, P < 0.001 (Table 1). The rate of return to the clinic or emergency room with recurrent UTI symptoms for patients prescribed SXT at 6 months was 13.6% compared with LEX was 0%, P = 0.03. The 3-month clinic or emergency room rate for recurrent UTI symptoms with nitrofurantoin E/T was 25% vs. SXT 8.4%, P = 0.01 (Table 2). There were 108 E. coli isolates and susceptibility percentages were calculated. E. coli susceptibility to LEX in children aged 0–3, 4–12, 13–21 years was 100%, 77.8%, 95.5%, respectively, P = 0.02 (Table 3).

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| Table 1: Top 4 empiric antibiotics prescribed among different age groups |
| n (%) | p value* |
|-------|----------|
| Total Cohort, N=175 |
| cephalexin | 27 (15.43%) |
| sulfamethoxazole-trimethoprim | 83 (47.43%) |
| nitrofurantoin | 44 (25.14%) |
| ciprofloxacin | 21 (12.12%) |

| Ages 0-3, N=14 |
| cephalaxin/oral cephalosporin | 9 (64.29%) |
| sulfamethoxazole-trimethoprim | 4 (28.57%) |
| nitrofurantoin | 1 (7.14%) |
| ciprofloxacin | 0 (0%) |

| Ages 4-12, N=45 |
| cephalaxin/oral cephalosporin | 26 (57.78%) |
| sulfamethoxazole-trimethoprim | 15 (33.33%) |
| nitrofurantoin | 2 (4.44%) |
| ciprofloxacin | 1 (2.22%) |

| Ages 15-21, N=136 |
| cephalaxin/oral cephalosporin | 12 (8.82%) |
| sulfamethoxazole-trimethoprim | 63 (46.32%) |
| nitrofurantoin | 41 (30.15%) |
| ciprofloxacin | 20 (14.71%) |

*comparison of percent prescribing of the same antibiotic between different age groups using ages 0-3 as reference*