

**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. This, 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 UTIs 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, 258 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 7.55, 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 Antibigram (WISCA) for Empiric Antibiotic Prescribing**

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**Background.** Antibigrams are often stratified by location (e.g., ICU) to better assess resistance risk of patients in those locations (1). A weighted-incidence syndromic antibiogram (WISCA) may be more useful for empiric prescribing in that it stratifies on syndrome (e.g., urinary tract infection (UTI)) and calculates coverage over all organisms (i.e., weighted incidence). Here we explore the impact of stratification by admission location and patient-specific factors. We suggest that with the availability of patient data from EHRs historic microbiology data can be stratified by syndrome and patient-level factors, making them available for empiric decision support.

**Methods.** The cohort included patients admitted from November 1, 2011 to July 1, 2016, with a positive urine culture in the first 48 hours and a diagnosis of UTI. Data on admission from a nursing facility (SNF), intensive care unit (ICU) stay in the first 24 hours of admission and antibiotic use in the last 30 days were extracted from the local data warehouse. Expert consensus enriched the susceptibility information that was not reported for organism-antibiotic pairs. The most recent admission for each patient was included. Antibiotic coverage was compared between strata by a chi-square test.

**Results.** Of the 6,366 patients with UTI, 13% were admitted to an ICU; 8% were admitted from an SNF and 44% had exposure to antibiotics in the last 30 days. Antibiotic coverage did not significantly differ between ICU and non-ICU patient admissions. However, those admitted from an SNF and those admitted with antibiotic exposure in the past 30 days had lower levels of coverage to all antibiotics under study.

**Conclusion.** Our findings suggest that stratifying by patient factors, easily obtainable from the EHR, may provide more useful empiric prescribing information than stratifying by ICU location.

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**Reference**

1. Clinical Infectious Diseases 2007; 44:867-73

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**1516. Evaluating Appropriate Antimicrobial Selection and Duration of Therapy for Urinary Tract Infections in Outpatient Clinics**

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**Background.** Each year in the United States, ~97 million outpatient visits result in the prescription of an antibiotic. However, there is limited data describing prescribing practices for urinary tract infections (UTIs) in outpatient clinics. We aimed 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 within a large academic healthcare system presenting to 30 clinics, including family medicine, general medicine, urology, geriatric, and OB/GYN. Patients were included if they had a diagnosis of a lower tract UTI (ICD-10 codes for acute cystitis (N30) and cystitis with or without hematuria (N30.90-91)). Exclusions included pregnancy, prophylaxis prior to urology procedure, antibiotics not prescribed, or antibiotic prophylaxis. Patients were categorized as complicated 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 prescriber compliance 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.

