Session: P-05. Antimicrobial Stewardship: Diagnostics/Diagnostic Stewardship

Background. In the acute care setting, urinary tract infections (UTIs) may be over diagnosed in up to 40% of cases. In most scenarios, asymptomatic bacteriuria (ASB) is not an indication for antibiotic therapy; inappropriate therapy is associated with a higher incidence of antibiotic-resistant bacteria and adverse drug reactions. Limiting inappropriate collection of urine cultures may decrease unnecessary treatment of ASB. The objective of this study is to assess the impact of a urine culture best practice advisory (BPA) on collection of unnecessary urine cultures.

Methods. This retrospective, observational, single-center study included adult inpatients with an order for urinalysis/urine culture. Those who were pregnant, had a concomitant infection other than UTI and/or were taking antimicrobials for a non-UTI indication, and were undergoing urological procedures were excluded. Duplicate urine culture collections and/or admissions were excluded. Incorporation of a BPA into computerized provider order entry, allowing providers to assess need and document indication for urine culture collection, was implemented on July 2019. The following clinical outcomes were assessed: number of unnecessary urine cultures collected, number of antibiotic treatments, and antibiotic-associated adverse reactions.

Results. Two hundred met criteria for inclusion; 96 in the pre-BPA group (Aug – Oct 2018) and 104 in the post-BPA group (Aug – Oct 2019). Seventy-four (37%) were male and the mean age was 64 and 70 years (p=0.249), respectively. The Charlson Comorbidity Index (CCI) was similar between groups (4 vs. 5, p=0.162) and majority were admitted to a general medical ward (94.5%). Seventy patients (72.9%) in the pre-BPA group and 47 (51.6%) in the post-BPA group had inappropriately ordered urinalysis/urine cultures (OR 0.40; 95% CI 0.22-0.73; p=0.003). Of these patients, 15 (21.4%) and 9 (19.1%) from the pre- and post-BPA groups, respectively, were treated (p=0.077). Among those treated, only two adverse drug reactions were reported.

Conclusion. Implementation of a BPA significantly reduced the number of inappropriate urinalysis/urine culture orders. There was a trend towards decreased antibiotic use for ASB. Future studies are warranted to assess sustainability of these results.

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

84. A Survey Based Assessment of Provider Practice Around Obtaining Repeat Blood Cultures

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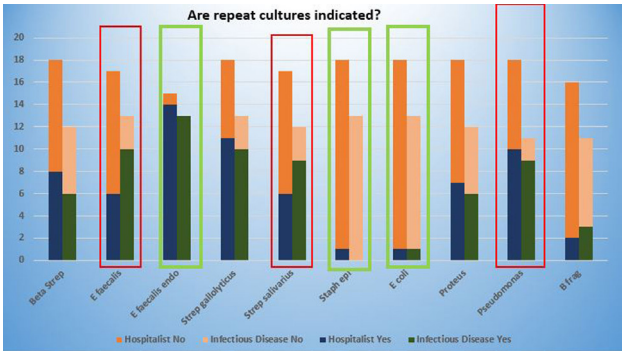
Session: P-05. Antimicrobial Stewardship: Diagnostics/Diagnostic Stewardship

Background. Apart from *Staphylococcus aureus* and *Candida* species, there is little guidance on whether to obtain repeat blood cultures after an initial positive set. We have noted heterogeneity in practice amongst our Infectious Disease (ID) group at Oregon Health and Science University (OHSU) and suspect there is heterogeneity amongst adult hospitalist providers as well.

Methods. We created a survey using clinical vignettes encompassing commonly encountered scenarios among hospitalized patients on medical wards to assess provider practices in obtaining repeat blood cultures. The survey was sent to adult ID providers and adult hospitalist providers at OHSU. These vignettes represented 9 of the most common bacteria seen in positive blood cultures and asked the question of whether providers would obtain repeat blood cultures after an initial positive set. The organisms included beta hemolytic streptococcus, *Enterococcus faecalis*, *Streptococcus gallolyticus,* coagulase-negative staphylococci, alpha hemolytic strep, *E coli*, *Proteus mirabilis*, *Pseudomonas aeruginosa,* and *Bacteroides fragilis*. We then asked questions around repeat blood culture practices for *Staphylococcus aureus* and *Candida* species, understanding that while repeat blood cultures for these organisms is recommended, the manner in which individual providers implement this may vary.

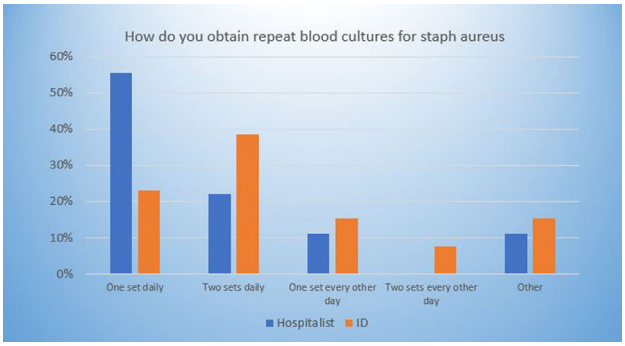
Results. The survey response rate was ~45%. Results were heterogenous with only 3 questions having inter- and intra- group agreement. Those 3 questions represented a case of *E faecalis* bacteremia without known source, a case of asymptomatic *Staphylococcus epidermidis* blood culture positivity, and a case of *E. coli* bacteremia from a pyelonephritis. All other vignettes had inter- and intra- group differences signifying clinical uncertainty around the practice of obtaining repeat blood cultures. There was similar heterogeneity among the responses asking how providers obtain repeat blood cultures around *S. aureus* and *Candida* bloodstream infections.

Clinical vignette survey answers

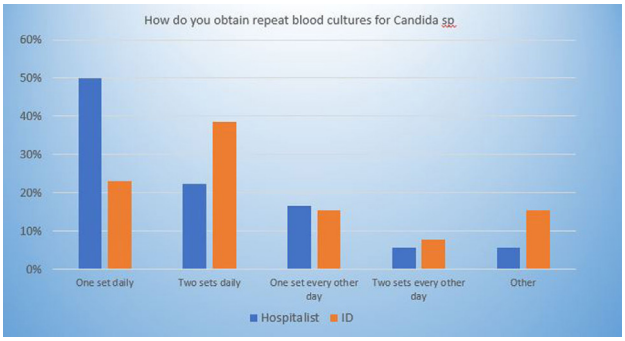


Answers from 10 clinical vignettes on obtaining repeat blood cultures after an initial positive set for stable patients on medical wards.

Staphylococcus aureus



Candida sp



Conclusion. There is significant heterogeneity amongst adult ID and hospitalist providers on what organisms and situations should prompt repeat blood cultures. There are differences around how repeat blood cultures should be obtained, including for *Staphylococcus aureus* and *Candida* sp.

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

85. Evaluation of Urinalysis and Urine Culture Use at a Community Health-system

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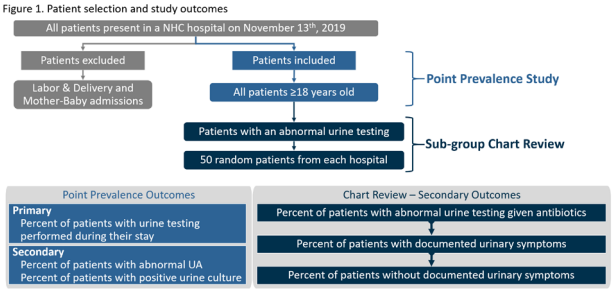
Background. The Infectious Diseases Society of America asymptomatic bacteriuria (ASB) guidelines recommend against screening for or treating ASB in most patients without symptoms of a urinary tract infection (UTI). The purpose of this study was to characterize current urine testing practices and their potential impact on identification and treatment of asymptomatic bacteriuria on hospitalized adults.

Methods. This retrospective, point prevalence study conducted at a 4 hospital community health-system that included all inpatients ≥ 18 years old present on November 13th, 2019. Patients were excluded if they were admitted or transferred to either a labor & delivery or mother-baby unit. A chart review was performed for a sub-group of patients with abnormal urine testing, with a target sample size of 200 (n=50 from each hospital). The primary outcome was the prevalence of patients with a urinalysis, urine culture, or both performed during their admission. Secondary outcomes included abnormal urine testing in the overall cohort and symptomatology and antibiotic use in the sub-group (Figure 1).

Figure 1. Patient selection and study outcomes



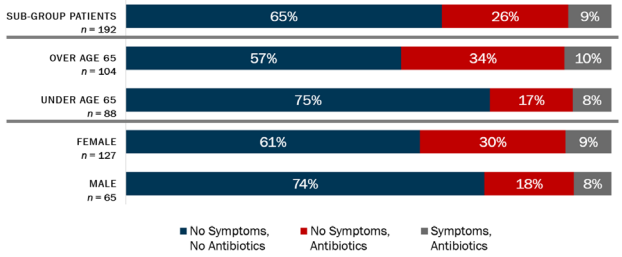
Results. 947 patients met inclusion criteria. Of those patients, 516 (54%) had urine testing performed during their admission. 322 (34%) patients had abnormal urine testing results (Table 1). In the sub-group, 192 patients with abnormal urine tests were included. Antibiotics with a documented indication of UTI were administered to

66 (34%) patients. Of those given antibiotics with a UTI indication, 49/66 (74%) did not have documented signs or symptoms of a UTI (Figure 2).

Table 1. Testing and abnormality rates of point prevalence arm

Total patients	N =947
Any urine testing performed, n (%)	516 (54%)
had UA performed, n (%)	504 (53%)
had urine culture performed, n (%)	275 (29%)
had UA & urine culture performed, n (%)	263 (28%)
Any abnormal result, n (%)	322 (34%)

Figure 2. Sub-group patients by antibiotics and presence of symptoms



Conclusion. Urine testing was performed on the majority of admitted adult patients. Unnecessary testing likely contributes to guideline discordant screening and treatment of ASB. Future studies are needed to identify effective diagnostic stewardship interventions to decrease screening and treatment of ASB.

Disclosures. **Ashley Wilde, PharmD, BCPS-AQ ID**, Nothing to disclose

86. Access to Antimicrobial Susceptibility Testing for Novel Gram-Negative Antibiotics

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Session: P-05. Antimicrobial Stewardship: Diagnostics/Diagnostic Stewardship

Background. Antimicrobial susceptibility testing (AST) is critical in identifying the optimal antimicrobial regimen for individual patients with serious gram-negative infections. Limitations to AST for newly developed antibiotics include the lack of commercially available AST methods, challenges of implementation due to regulations, and delays in obtaining results. The purpose of this study was to evaluate the access to AST for cefiderocol (FDC), imipenem-relebactam (IPR), meropenem-vaborbactam (MEV), and eravacycline (ERV) in hospitals across the U.S.

Methods. An electronic survey was distributed to the American College of Clinical Pharmacist Infectious Diseases Practice and Research Network in May 2021. Hospital baseline demographics and current practices were collected.

Results. Based on 50 responses, specimens were sent to in-house microbiology labs (37, 74%), core microbiology labs (8, 16%), and 3rd party reference microbiology labs (5, 10%). AST for FDC was performed by 13 (35%) in-house labs, 4 (50%) core labs, and 1 (20%) reference lab. AST for IPR was performed by 11 (30%) in-house labs, 2 (25%) core labs, and 1 (20%) reference lab. AST for MEV was performed by 25 (68%) in-house labs, 3 (37.5%) core labs, and 1 (20%) reference lab. AST for ERV was performed by 1 (20%) in-house lab, 1 (20%) core lab, and 0 reference labs. 15 (30%) respondents were not able to get AST for any of the novel agents at their respective microbiology labs. Turn-around-times (TATs) for FDC, IPR, MEV, and ERV were ≥72 hours for 33 (66%), 35 (70%), 21 (42%), and 35 (70%) hospitals, respectively. When compared with 3rd party reference labs, in-house labs with the ability to perform AST for these novel agents had significantly shorter TATs ($p < 0.05$). The average number of requests for AST for these novel agents was 20 times a year with an average of 113 minutes spent per patient on the coordination of AST.

Conclusion. Access to AST for these novel agents varied across hospitals in the U.S. Nearly 1/3 of the respondents were not able to obtain AST for these agents at all. Long TATs exist and a great deal of time is spent per patient for coordinating AST for these novel agents. There is a crucial need for a multidisciplinary, collaborative approach to resolve the challenges in obtaining AST for newly developed antibiotics to provide patient care.

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

87. Effectiveness of a Best Practice Advisory in Reducing Inappropriate Urine Cultures

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Session: P-05. Antimicrobial Stewardship: Diagnostics/Diagnostic Stewardship

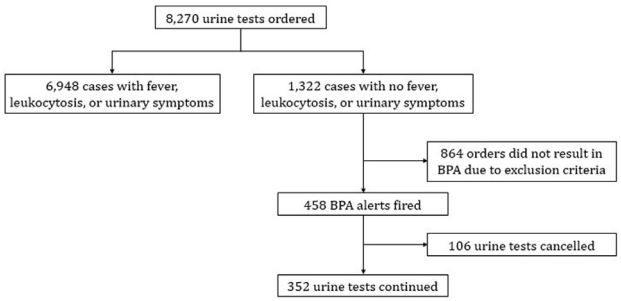
Background. Inappropriate urine cultures can contribute to overutilization of antibiotic treatment for asymptomatic bacteriuria. The objective of this study was to evaluate the appropriateness of urine cultures and the impact of a clinical decision support (CDS) intervention.

Methods. The CDS intervention involved embedding three questions in the urine culture order: whether the patient has fever, leukocytosis or urinary symptoms. When the answer to all three questions is no, a best practice advisory (BPA) alerts the provider that the patient may not meet criteria for a urine culture and suggests cancellation of the order. Cultures obtained in patients experiencing fever, leukocytosis, or urinary symptoms, and those who were pregnant, undergoing invasive urologic procedure, or < 3 years old were classified as appropriate. We performed a quasi-experimental study assessing appropriateness of urine cultures before and after implementation of the BPA. The pre-intervention period was 5/9/19 to 7/31/20 and the intervention period was 2/3/21 to 4/27/21. Random samples of 100 cases from pre- and post-intervention were reviewed to assess appropriateness.

Results. There were 12,679 and 8,270 urine cultures performed pre-intervention and post-intervention, respectively. In 100 cases reviewed pre-intervention, 74% of the cultures were appropriate. Of these, 54% were ordered due to fever or leukocytosis, 50% due to urinary symptoms, and 12% in pregnant women.

Post-intervention, the BPA fired on 458 orders and 106 (23%) were subsequently discontinued. Of the 100 cases reviewed post-intervention, 5 orders were discontinued after the BPA fired. Of the remaining 95 cultures, 78% were appropriate. Of these, 41% were ordered for fever or leukocytosis, 69% for urinary symptoms, and 11% in pregnant women. The change in the proportion of appropriate cultures pre- and post-intervention was not statistically significant (74% vs 78%, respectively, p=0.906).

Figure 1: Effect of the BPA on urine culture practices



Conclusion. In nearly one quarter of urine cultures performed, there was not an appropriate indication. Our intervention led to cancellation of 23% urine culture orders and resulted in an absolute increase in 4% of the cultures being ordered appropriately. However, the change in appropriateness was not statistically significant.

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

88. Effect of an MDR *Enterobacterales* Screening Tool on Antibiotic Prescribing for Abdominal Infections Caused by Mixed Bacteria

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Session: P-05. Antimicrobial Stewardship: Diagnostics/Diagnostic Stewardship

Background. Background: Choosing antibiotics for infections caused by mixed *Enterobacterales* is challenging. Our microbiology lab implemented a multi-drug resistance (MDR) screen for cultures with mixed gram-negative to direct clinicians to use 3rd generation cephalosporins for screen neg. pathogens, and to use broader beta-lactams for screen-pos. pathogens. Here we report the effect of MDR screen on final antibiotic choice.

Methods. Methods: We retrospectively reviewed cases with abdominal infections caused by mixed bacteria at UNC Medical Center between August and November 2020. Cultures with non-*Enterobacteraeles* gram negatives were excluded. MDR screen was done by plating mixed *Enterobacterales* on HardyCHROM™ ESBL agar. Screen-pos. cases were updated "MDR *Enterobacterales* present" and pathogens were identified with full susceptibilities. Screen-neg. cases were labeled "MDR *Enterobacterales* not present". Definitely covering antibiotics were defined by the use of 3rd generation cephalosporins for screen neg. cases, or based on susceptibilities in case of screen pos. organisms or concomitant bacteremia. Possibly covering antibiotics included regimens whose susceptibility could not be predicted based on the screen (e.g., amox/clav or quinolone+metronidazole).

Results. Results: 51 cases were identified. Median age was 51 years (range 10 to 87). 54.9% were female and 45.1% male. Infections included intra-abdominal abscesses (n =35), perirectal or scrotal abscesses (10), abdominal wound infections (4), perineal necrotizing fasciitis (1), and cholecystitis (1). Sample types were abscess fluid (43), wound purulence (4) or tissue (3). MDR screen was pos. in 7.8%. Antibiotics were adjusted in 17.6% as a result of the screen report. 31.5% of final antibiotics definitely covered the isolated bacteria, 56.9% possibly covered, and 5.9% did not have an active