67. Transitioning from Permissive to Restrictive Urine Reflex Criteria: Compiling the Data
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Session: P-05. Antimicrobial Stewardship: Diagnostics/Diagnostic Stewardship
Background. Urine reflex criteria (UCx) are a diagnostically stewardship practice that limits the progress of UCx to specimens that meet pre-defined urinary criteria, but there is no widely recommended threshold for culture. At our institution, urinalyses (UAs) are reflexed to UCx for positive nitrites, leukocyte esterase, presence of bacteria, or ≥5 white blood cells per high powered field (WBC/hpf). Our aim is to reassess a more restrictive criteria of >10 WBC/hpf would result in missed UTI diagnoses.

Methods. We performed a retrospective chart review of a systematic sampling of urine specimens collected from July 2018 to June 2019 in the emergency department and adult inpatient units with a WBC/hpf of 5-10 - samples that would not reflex to culture under our proposed criteria - and a UCx. We recorded signs, symptoms and antibiotic use via chart review. Positive UCx were defined as ≥100 cfu/mL of bacterial growth (BG) and these cases were assessed using standard UCx UTI criteria.

Results. 486 urine specimens with <100 cfu/mL and 96 with ≥100 cfu/mL BG met inclusion criteria. Chart review was performed on 99 cases. 81 (82%) specimens had negative UCx and 18 (18%) were positive. 45% had documented localizing UTI symptoms. 26% of all urine studies were sent for an indication of fever, 15% for altered mental status (AMS), and 8% for malaise. Among the 18 patients with positive UCx, 11 (61%) met UTI criteria. Among the 81 patients with negative UCx, 33/81 (41%) had a local symptom consistent with UTI. 7/81 (9%) patients had positive tests from other body sites; all 7 of these UCx were for a new or worsening fever.

Conclusion. Of the 99 UCx reviewed, less than half had a urinary symptom consistent with UTI, and almost half of studies were sent for non-specific indications such as fever, which suggests reflex UCx are overutilized at our institution. However, we demonstrate that a more restrictive UCx criteria may not be the solution, as at least 11 clinically significant UTIs would have been missed under the new criteria. We recommend improved clinical decision support tools and more data to validate restrictive reflex UCx criteria before their implementation.

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68. Impact of Streptococcus pneumoniae Urinary Antigen Testing in Patients with Community-Acquired Pneumonia Admitted Within a Large Academic Medical System
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Session: P-05. Antimicrobial Stewardship: Diagnostics/Diagnostic Stewardship
Background. Limited data support the use of pneumococcal urinary antigen testing (PUAT) for patients admitted with community-acquired pneumonia (CAP) as a stewardship tool to curtail the use of broad-spectrum antimicrobials. At NYULH, CAP guidelines and admission order set were developed to standardize diagnostic testing, including PUAT. In this study we describe patients with positive versus negative PUAT and evaluate de-escalation and patients’ outcomes.

Methods. This was a retrospective study of adults admitted with diagnosis of CAP between January-December 2019 who had a PUAT performed. The primary outcome was incidence and timing of de-escalation of antimicrobials followingPUAT result. Among patients with a positive PUAT we compared hospital length of stay (LOS), incidence of Clostridioides difficile infection (CDI), infection-related readmission within 30 days, and in-hospital mortality among those who were de-escalated versus those who were not de-escalated/required escalation.

Results. We evaluated 910 patients, of which 121 (13.3%) were PUAT positive. No difference in baseline characteristics, including severity of illness as represented by the Pneumonia Severity Index (97 [IQR 76-117] vs 89 [IQR 67-115], p=0.083) and Charlson Comorbidity Index, were observed between PUAT positive and negative groups. Time to PUAT testing occurred shortly after presentation to the hospital in both cohorts (16h [IQR 16-27] vs 13h [IQR 8-22], p=0.140). Initial de-escalation occurred in 97/117 (82.9%) and 629/775 (81.2%) of PUAT positive and negative patients, respectively (p= 0.749). Median time to de-escalation was shorter in the PUAT positive cohort (1 [IQR 0-2] vs 1 [IQR 1-2] day, p = 0.018). Among the PUAT positive patient group, hospital LOS stay was shorter in patients who were de-escalated compared to those who were not de-escalated/required escalation (6 days [IQR 4-10] vs 8 days [IQR 7-12], p = 0.006) with no difference in the rate of CDI (2 [1.2%] vs 1 [3.7%], p=0.535), in-hospital mortality (4 [4.3%] vs 3 [11.1%], p=0.185), or 30-day infection-related readmission (2 [2.1%] vs 1 [3.7%], p=0.535).

Conclusion. PUAT positivity resulted in quicker time to targeted therapy for CAP. Among patients with a positive PUAT, initial de-escalation of antimicrobials did not lead to worse patient outcomes.

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69. Implementation of a Pharmacist-Driven Blood Culture Communication Process in a Non-Profit Community Hospital
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Session: P-05. Antimicrobial Stewardship: Diagnostics/Diagnostic Stewardship
Background. Rapid diagnostic testing allows for faster identification of culture results and quicker time to targeted antimicrobial therapy. For this to be effective, however, the clinician needs to see the test results and their capabilities applied. Pharmacists are well-positioned to assist providers in interpreting rapid diagnostic test results and in the selection of optimal antimicrobial therapy. This study aims to determine if implementing a process in which pharmacists communicate positive blood culture and rapid diagnostic test results improves time to optimal antimicrobial therapy in a community-based hospital.

Methods. In November 2020, Mercy Medical Center implemented a new process in which positive blood culture and rapid diagnostic test results are communicated to a pharmacist instead of a nurse on the patient care unit. The pharmacist is responsible for interpreting the results, assessing patient information, and providing the culture results along with drug therapy recommendations to the appropriate licensed independent practitioner. This study was a single-center, pre-post, quasi-experimental study (Pre: November 2019-March 2020; Post: November 2020-March 2021). The electronic medical record was used to identify admitted patients 18 years and older with positive blood cultures in which treatment was provided. Time from culture positivity to optimal antimicrobial therapy was collected and compared pre-post intervention.
Secondary outcomes included hospital length of stay and mortality.

Conclusion. A total of 480 patients were identified during the study period, of which 247 met inclusion criteria (n = 125 in 2019-2020; n = 122 in 2020-2021) with comparable baseline characteristics. There was no statistical difference in time to appropriate therapy between the groups (p = 0.796). Time to optimal therapy was 6.12 hours shorter in the post-intervention cohort (p = 0.0492). No difference was found for both secondary outcomes of hospital length of stay and inpatient mortality (p = 0.2958, p = 0.096, respectively).

Conclusion. A pharmacist-led blood culture communication process improved the care of hospitalized patients in a non-academic, community-based hospital by shortening time to optimal antimicrobial therapy.

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70. Impact of the Accelerate Pheno™ System on Clinical and Antimicrobial Outcomes among Inpatients with Gramegative Bacteria at a 528-bed Community Teaching Hospital
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Session: P-05. Antimicrobial Stewardship: Diagnostics/Diagnostic Stewardship
Background. Traditional methods in blood culture analysis require 24-72 hours to yield identification (ID) and antimicrobial susceptibility testing (AST) results, which may contribute to the use of empiric broad-spectrum antibiotic therapy. Hence, the primary objective of this study was to determine the impact of rapid blood culture analysis with the Accelerate Pheno™ system (AXDX) on time to antibiotic de-escalation.

Methods. This was a single center, case-control analysis of adult inpatients with E. coli or Klebsiella spp. bacteremia. Cases were prospectively identified by the antimicrobial stewardship team between August and October 2020 after the implementation of AXDX in July 2020. Subjects were matched to historical controls (July 2018-July 2020) based on age (≥ 3 years), gender, source of infection, and identified organism. The primary outcome was time to antibiotic de-escalation and time to oral antibiotic therapy from the time of positive blood cultures. Secondary outcomes included hospital length of stay, 30-day mortality, 30-day readmission, and 60-day C. difficile infection. Outcomes were compared using descriptive and inferential statistics.

Results. Of 33 cases identified, 30 (91%) were matched with historical controls. E. coli bloodstream infection was identified in 24 (80%) subjects while Klebsiella spp. was identified in 6 (20%) subjects. The average age was 66 years (SD ± 19) and there was an even distribution of males and females in both groups. Other demographics were similar between groups. The median time to species identification [14 hours [IQR 13 – 18] vs 34 hours [29 – 39], p< 0.001] and AST [20 hours (19 – 37) vs 45 hours (38 – 51), p< 0.001] from laboratory registration was significantly shorter in cases. The average time to antibiotic de-escalation was 1.7 (±1.2) days for cases compared to 2 (±1.1) days for controls (p=0.046). The median time to oral antibiotic therapy from positive blood cultures was 2.9 (1.8 – 4.7) days for cases and 3.4 (2.5 – 5.1) days for controls (p=0.166). There were no significant differences in the secondary outcomes.
Conclusion. AXDX did not appear to have a significant impact on time to anti-biotic de-escalation and time to oral antibiotic therapy. However, time to organism ID and AST results were significantly shorter in the AXDX cohort.

Disclosures. All Authors: No reported disclosures

71. Diagnostic Stewardship of Clostridioides difficile Testing
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Session: P-05. Antimicrobial Stewardship: Diagnostics/Diagnostic Stewardship

Background. C. difficile (CD) testing is frequently ordered inappropriately. Highly sensitive polymerase chain reaction (PCR) tests can detect CD colonization leading to misdiagnosis. Providers often overlook other causes of diarrhea, notably laxatives. To improve diagnostic stewardship, our hospital introduced an electronic medical record (EMR)-based order set (OS).

Methods. In a 926-bed, teaching hospital, we conducted a 3-step intervention to improve CD diagnostic stewardship. (1) A retrospective analysis of CD orders before and after OS implementation was done to assess its impact on inappropriate orders. The OS included two questions: (a) Did patient have ≥3 loose bowel movements in past 24 hours? and (b) No laxatives in past 24 hours? An appropriate order was defined if “yes” to both questions. It was still appropriate if “no” to either question but ≥2 unexplained following features: fever > 100.4 F, abdominal pain, megacolon, ileus or leukocytosis > 11,000 cells/mm³ in prior day. (2) After implementation of OS, house staff compliance with OS was surveyed via email. (3) Rationale for inappropriate orders was discussed with providers.

Results. Of 238 patients in retrospective analysis, 44% were ≥65 years and 37% had other potential causes of diarrhea. Common clinical features were leukocytosis (40%) and fever (31%). There was no significant difference in inappropriate testing: pre-OS 27/99 (27%) vs post-OS 44/139 (32%) (p=0.07). 43 house officers who participated in the survey; 75% indicated they over rode the OS. When asked to provide rationale of inappropriate CD testing, providers acknowledged inappropriate ordering but did not want to miss a CD diagnosis and frequently overlooked other causes of diarrhea.

Conclusion. Appropriate CD testing relies on providers’ appreciation of a clinical picture consistent with CD infection, confirmation of clinically significant diarrhea, and consideration of other causes of diarrhea. Providers order inappropriate tests, not due to lack of knowledge, but likely fear of missing diagnosis and overlooking other causes of diarrhea.

Disclosures. All Authors: No reported disclosures

72. Evaluation of Acclerate Pheno™ on Clinical and Antimicrobial Outcomes in Patients with Methicillin Susceptible Staphylococcus aureus Bloodstream Infections
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Session: P-05. Antimicrobial Stewardship: Diagnostics/Diagnostic Stewardship

Background. Anti-staphylococcal beta-lactams (BL) are treatment of choice for methicillin-susceptible Staphylococcus aureus bloodstream infections (BSI) as they have superior MSSA bacteremia clearance. Based on the hypothesis that earlier initiation of anti-staphylococcal BL may improve clinical outcomes, this study compared clinical and microbiologic features of patients with MSSA BSI pre-and post-initiation of anti-staphylococcal BL.

Methods. A total of 25 cases with MSSA BSI were identified, of which 18 (72%) were characterized if 1 or 2 signs or symptoms compose each category: abnormal laboratory findings: (OR: 1.86; 95% CI: 1.43-2.41), and a single, free text mention of a SIRS criteria (p = 0.129). There were no significant differences detected in hospital LOS, 30-day mortality or readmission, and 60-day C.diffuse infection.

Conclusion. Although time to organism identification and abs susceptibilities was significantly shorter in cases, AXDX was not associated with a statistically significant reduction in time to anti-staphylococcal BL initiation or a difference in associated clinical outcomes. A trend in shorter time to anti-de-escalation was observed and warrants further investigation in a larger reduction.

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73. Identification of Novice Factors Associated with Inappropriate Treatment of Asymptomatic Bacteriuria in Acute and Long-term Care
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Session: P-05. Antimicrobial Stewardship: Diagnostics/Diagnostic Stewardship

Background. Inappropriate treatment of asymptomatic bacteriuria (ASB) is a major driver of antibiotic overuse. Demographic and laboratory factors associated with inappropriate antibiotic treatment include older age, pyuria, leukocytosis and diabetes. To gain a deeper understanding of inappropriate ASB treatment, we performed an in-depth review of provider documentation capturing a broader range of misleading factors associated with ASB treatment.

Methods. We reviewed a random sample of 10 positive urine cultures per month per facility from 2017-2019 at eight Veteran’s Administration (VA) facilities from 2017-2019 (n=960). Trained chart reviewers classified cultures as UTI or ASB and as treated or untreated. Charts were searched specifically for mention of 8 categories of potentially misleading symptoms that often lead to overtreatment of ASB (e.g., “prior history of UTI”). We also created a ‘suspected systemic inflammatory response syndrome’ category that included any mention of leukocytosis, tachycardia, tachypnea, subjective or low-grade fever, or hypothermia. Generalized estimating equations logistic regression was used for analysis.

Results. Our study included 575 cultures from patients that were primarily white (71%) males (94%) from acute medical units (75.7%) with a mean age of 76. Twenty-eight percent (n=159) of ASB cases received antibiotics. In addition to the usual known predictors, multiple new misleading symptoms were found to be associated with ASB treatment.

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