

treated for UTI that were ASB decreased from 28.4% (range 0-63%) to 18.6% (range, 0-33%;  $p=0.055$ ) (Figure 5). **Conclusions:** Case abstraction with use of the ID-UTI measure was feasible and reliable to implement with modifications for CAHs. Data collection by untrained staff was as reliable as physician adjudication. Though the ID-UTI standard definition undercounted ASB cases (low sensitivity), cases reported as ASB were always ASB when adjudicated (high specificity). The program, including performance feedback using the ID-UTI measure, was associated with a trend toward lower treatment of ASB.

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**Subject Category:** Diagnostic Stewardship

**Does Serial Procalcitonin Monitoring predict Clinical Outcomes in Children with Sepsis? A diagnostic stewardship study**

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**Background:** In the management of children with sepsis, inflammatory markers are often obtained upon admission and repeated frequently. It is unclear if serial monitoring of procalcitonin is useful for predicting patient outcomes. The focus of our study is to identify if the trend of procalcitonin levels was predictive of the clinical outcomes in children with sepsis. **Methods:** We performed a retrospective diagnostic study to evaluate the association between change in procalcitonin levels and clinical outcomes. Encounters for children 1 to 8 years old with a sepsis ICD 10 diagnosis code and meeting the clinical sepsis criteria from May 2020 to May 2022 at one quaternary care pediatric hospital were included. Encounters with fewer than two procalcitonin values and children with autoimmune diseases, trauma, new onset malignancy, and fungal infections were excluded. Procalcitonin clearance at 48 hours (CL-PCT48) was defined as the difference in procalcitonin values drawn on admission and at 48 hours divided by initial procalcitonin value. The primary outcome was good early clinical response, defined as composite measure of temperature, hemodynamic stability, supplemental oxygen requirement, and need for renal replacement therapy at 120 hours of admission. All-cause in-hospital mortality was a secondary outcome. ROC analysis was performed to measure the correlation of CL-PCT48 and initial procalcitonin value (PCT0) with the outcome. **Result:** There were 320 unique encounters for children who met the clinical criteria of sepsis. The median number of procalcitonin measurements was 4 (Range 2 – 111). Of these encounters, 187 had procalcitonin measurements done at eligible times. The mean age of the study participants was 9 years and 8 months, 103 (55%) were male, and the majority (54%) were Caucasian. Fifty-seven

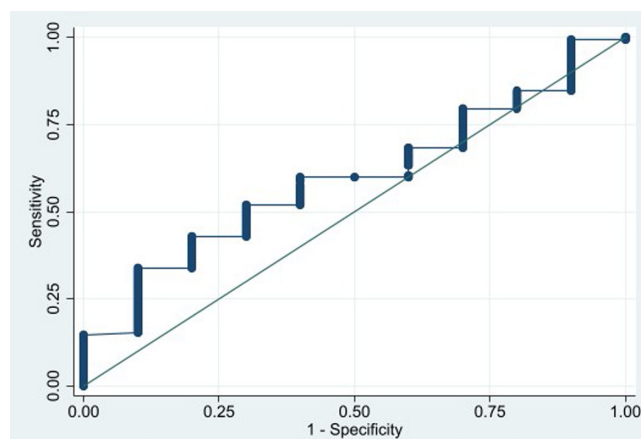


Figure 2: ROC curve for procalcitonin clearance at 48 hours predicting in hospital mortality

(30%) individuals had bacterial growth from a culture from sterile body fluid or urine. 78 (41.7%) individuals had good early clinical response and 177 (94.7%) survived to hospital discharge. There was no correlation identified between CL-PCT48 and good early clinical response (area under ROC curve [AUC] = 0.57, 95% CI 0.48-0.65, Figure 1) or mortality (AUC = 0.60, 95% CI 0.43-0.76, Figure 2). There was also no correlation between PCT0 and good early clinical response (AUC = 0.47, 95% CI 0.39-0.56) or and mortality (AUC = 0.50, 95% CI 0.29-0.72). **Conclusion:** Procalcitonin clearance at 48 hours after admission did not predict early clinical response in children with sepsis.

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**It Takes a Village: Leveraging a Multidisciplinary Team and Technology for Urine Culturing Stewardship**

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**Background:** Patients without urinary tract infection (UTI) symptoms but with a positive urine culture are considered to have asymptomatic bacteriuria (ASB). This often represents colonization and treatment is not recommended or clinically beneficial. Treatment of ASB can promote antimicrobial resistance and increased rates of *Clostridies difficile* infections. Many cases of ASB are incorrectly assigned as CAUTIs due to over-culturing practices. We hypothesized that a urine culture algorithm, embedded within a best practice alert (BPA) in the electronic medical record (EMR), would reduce urine culturing practices for ASB. **Methods:** From Feb 2022 through May 2023, a multidisciplinary team implemented an Inpatient Urine Culturing Stewardship Guideline. A BPA fired when a provider placed a urinalysis with reflex to culture (UACC) or urine culture (UC) order for patients who met criteria (Image 1). The BPA directed providers to remove the order, select the appropriate pathway from the guideline, or provide a rationale for placing the order. The intervention was piloted on three intensive care units and two progressive care units, containing both medical and surgical patients. Monthly ordering practices, CAUTI rates, and gram-negative rod (GNR) bacteremia rates from a 13-month pre-intervention baseline period were compared to a 16-month intervention period. Over the same time periods, we also assessed changes

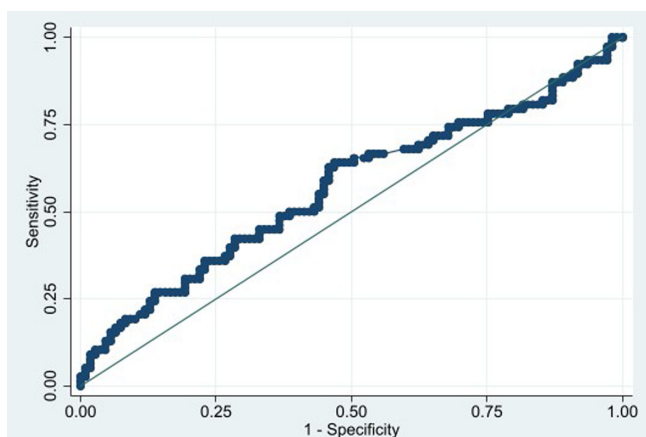
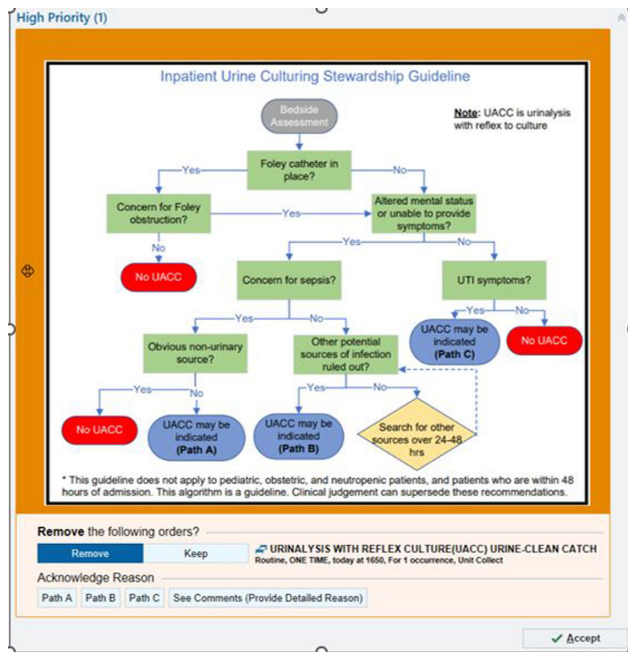


Figure 1: ROC curve for procalcitonin clearance at 48 hours predicting early clinical stability



in ordering practices for comparison units which did not implement the intervention. Pre-and-post intervention cohorts were analyzed using median two sample tests and Exact Poisson Method, as appropriate. **Results:** On intervention units there was a 41.0% reduction in the median number of UACC and UC orders per 1000 patient days from 16.31 during the baseline period to 9.62 in the intervention period ( $p=0.0036$ ). Pan cultures per 1000 patient days in which one of the orders was a UACC or UC fell by 42.2% from a median of 10.20 per 1000 patient days to 5.90 ( $p=0.0008$ ). The comparison units saw no significant reductions in UACC and UC orders ( $p=0.21$ ) or pan cultures ( $p=1.0$ ). On the intervention units, the CAUTI rate for the baseline period was 1.31 per 1000 catheter days versus 0.79 in the intervention period ( $IRR = 1.65$ ;  $p=0.44$ ). GNR bacteremias remained stable on the intervention units between the baseline and intervention periods ( $p=0.82$ ). **Conclusion:** This multidisciplinary intervention, leveraging EMR clinical decision support, reduced urine and pan culturing practices while demonstrating a trend towards a reduced CAUTI rate. The prevalence of GNR bacteremias remained consistent with baseline levels, suggesting the intervention did not cause harm.

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**Assessment of the FilmArray Gastrointestinal Pathogen PCR Panel at a Tertiary Cancer Center**

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**Background:** The FilmArray gastrointestinal (GI) pathogen panel (BioFire Diagnostics, Salt Lake City, UT) is a multiplex PCR assay for syndromic diagnosis of infectious gastroenteritis. This highly sensitive assay has been widely adopted as a preferred testing modality for infectious diarrhea among hospitalized patients. However, in the era of diagnostic stewardship, concerns have been raised that this approach risks unexpected findings of questionable significance. Following an increase in GI pathogen

panel testing, the infection control department reviewed results among hospitalized patients at different stages of admission. **Methods:** From October 2022 to May 2023, we retrospectively reviewed all GI pathogen panels sent in a large tertiary cancer hospital. Count of tests ordered and positivity trends were studied by unit and organism among inpatients. We categorized an admission course into early ( $\leq 2$  inpatient days) and late ( $\geq 3$  inpatient days) stages and compared results across these stages. Finally, we compared reproducibility of multiple tests sent during a single admission. **Results:** From October 2022 to May 2023, a total of 2,763 tests were sent across the institution with 2,113 tests from inpatient units. Tests were most commonly sent on the Pediatrics and Hematology -Oncology inpatient units and together these units accounted for 60% of tests. These two units also had the highest rate of test positivity and together accounted for 60% of positive tests among hospitalized patients. The most frequently detected organisms were Norovirus (7%) and Enteropathogenic E. coli (3%) (Figure 1). Patients tested in the early stage of hospital admission were more likely to have a positive result for any target (93/509, 18.3%) compared to patients tested in the late stage (202/1604, 12.5%). Patients with a positive test in the early stage of admission were less likely to have a subsequent negative test (3/93, 3%) compared to patients who were positive in late stage of admission (39/202, 19.3% (Figure 2). **Conclusions:** Our findings suggest that the utility of the FilmArray GI PCR panel is highest in the early stages of a patient’s hospital admission. Testing of patients hospitalized  $\geq 3$  days is likely to be inappropriate. These findings support implementation of diagnostic stewardship standards on when syndromic testing for potentially infectious diarrhea is appropriate. Figure 1: FilmArray gastrointestinal pathogen PCR panel positivity by organism. Figure 2: FilmArray gastrointestinal pathogen PCR panel positivity by organism comparing early vs late stage of hospital admission.

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**Evaluation of Inoculating Sterile Pericardial Fluid into Blood Culture Bottles**

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**Background:** There is limited data regarding the benefits of direct inoculation of sterile pericardial fluid into blood culture bottles. We discovered widespread adoption of this practice at our institution during pericardiocentesis and became concerned about over-capturing of skin flora contaminants. We aimed to understand how organisms detected in pericardial fluid inoculated into blood culture bottles were interpreted clinically. **Methods:** We investigated a cluster of four patients with coagulase-negative Staphylococcus (CoNS) isolated in pericardial fluid inoculated blood culture bottles (PF-BCxBs) over a 2-week period; three of these patients had recent cardiac surgery and were initially flagged as potential SSIs. We further expanded to a retrospective review and identified 28 patients with  $\geq 1$  organism isolated from PF-BCxBs from 7/2021 to 6/2023. Clinical, microbiological, and pharmacy data were abstracted. The primary outcome was the proportion of patients with a clinically diagnosed infection. **Results:** Investigation into the initial cluster revealed a pseudo-outbreak - three of four patients had no clinical evidence of infection (CoNS was deemed a contaminant); one was treated for a potential infection. All patients had concomitant negative routine fluid cultures. Discussions with the cardiology teams revealed areas for improvement in the process for inoculating fluid into blood culture bottles. From the two-year review, 18% (5/28) of patients were clinically diagnosed with an infection (two Staphylococcus aureus; two CoNS; one Candida rugosa). Of the patients without Staphylococcus aureus, all three had a concomitant negative routine fluid culture, were receiving antibiotics prior to pericardiocentesis, and