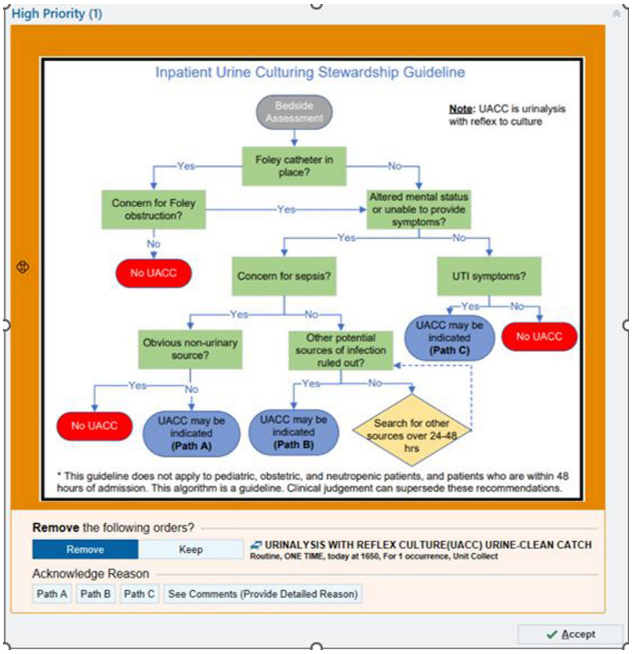

in ordering practices for comparison units which did not implement the intervention. Pre-and-post intervention cohorts were analyzed using median two sample tests and Exact Poison Method, as appropriate. **Results:** On intervention units there was a 41.0% reduction in the median number of UACC and UC 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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Subject Category: Diagnostic Stewardship
Assessment of the FilmArray Gastrointestinal Pathogen PCR Panel at a Tertiary Cancer Center

Jerin Madhavappallil, Memorial Sloan Kettering Cancer Center; Justin Laracy, Memorial Sloan Kettering Cancer Center; Mini Kamboj, Memorial Sloan Kettering Cancer Center; Judy Yan, Memorial Sloan Kettering Cancer Center and Shauna Usiak, Memorial Sloan Kettering Cancer Center

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 (≤2 inpatient days) and late (≥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 ≥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

Sky Cupid Douglas, Beth Israel Deaconess Medical Center; Anne Matsko, Beth Israel Deaconess Medical Center; Dana Pepe, Beth Israel Deaconess Medical Center; Patrick Gordon, Beth Israel Deaconess Medical Center and Matthew Lee, Beth Israel Deaconess Medical Center

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 pericardiocenteses 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 ≥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

had white blood cell counts (WBC) >12 K/uL. The remaining 82% (23/28) of patients were deemed not to have an infection. Of these 23 patient without infection, organisms isolated were 16 CoNS (70%) and seven Cutibacterium species (30%). None of these patients had a fever, one (4%) was receiving pre-pericardiocentesis antibiotics, and three (9%) had WBC >12 K/uL. 70% (16/23) of these patients were started on antibiotics after gram-stain results; all were eventually discontinued (mean antibiotic days = 2, range 1-5 days). 83% (19/23) of these patients had a concomitant negative routine fluid culture. **Conclusion:** The majority of patients with an organism isolated from PF-BCxBs had either CoNS or Cutibacterium species and were deemed not to have a clinical infection. Within the small cohort limitations, clinical utility of blood culture bottle inoculation seems highest for patients with pre-procedural concern for infection. IPC teams should be aware of the non-pathogenic skin flora frequency and potential implication on SSI surveillance.

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A One-year Hospital System Review of Plasma Next-Generation Sequencing in a Mixed Population
Ty Drake, Memorial Hermann Hospital; Jessica Babic, Memorial Hermann-Texas Medical Center; Audrey Wanger, UT Health McGovern Medical School and Violeta Chavez, UT Health McGovern Medical School

Objective: To describe whether detecting plasma microbial cell-free DNA by next-generation sequencing (NGS) provided additional information compared to routine cultures or led to change in antimicrobial management. Design and setting: This is a retrospective cohort study evaluating NGS tests performed on patients who were admitted to an 11-acute care hospital health system in the greater Houston area between May 2022 and May 2023. Repeat tests on the same patient encounter were included if >7 days from previous test. Routine microbiology data was compared if test was collected within 7 days before or after NGS testing. **Results:** During the study period there were 135 unique patient encounters identified with an NGS order. Of which, 74.1% were ≥18 years of age and 46.7% were immunocompromised. A total of 143 NGS tests were ordered, with 4 not being run due to quality control issues. Out of 139 NGS tests completed, 76 (54.7%) were positive for at least one organism. When compared to routine testing, NGS alone was positive in 29 (20.9%) instances, routine testing alone was positive in 17 (12.2%) instances, both were positive in 44 (31.7%) instances, and both were negative in 49 (35.3%) instances. In the 44 instances that both NGS and routine testing were positive, 15 (34.1%) were concordant for all organisms. In total, NGS identified 92 more organisms (69 bacterial, 8 fungal, and 15 viral) compared to routine testing and routine testing identified 42 more organisms (28 bacterial, 6 fungal, 11 viral, and 1 parasite) compared to NGS. Fifty-six changes to antibiotic therapy were made within 48 hours of the NGS test resulting, with 16 of these changes being directly attributed to NGS test. Nine of these changes being escalations and seven being de-escalations. **Conclusion:** NGS may aid in determining further testing, earlier detection of pathogens, and detection of pathogens outside of routine testing resulting in direct changes to antimicrobials. However, results need to be interpreted with caution. NGS can miss pertinent pathogens and is difficult to interpret when commensal organisms are detected, both of which can lead to unnecessary testing or treatment. There is an absence of a clear algorithm for the use of NGS testing and the test comes with a high price and unclear utility. Further studies are needed to determine which patients may most benefit from NGS testing.

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Moving Beyond the Reflex: Effect of a Clinical Decision Support Tool on Urine Culture Ordering Practices
Elizabeth Kim, Emory University School of Medicine; Julianne Kubes, Emory Healthcare; Shanza Ashraf, Emory Healthcare; Krystle Johnson, Emory Healthcare; Lisa Reif, Emory University Hospital; Kathryn Garcia, Emory Healthcare; Jesse Jacob, Emory University and Jessica Howard-Anderson, Emory University School of Medicine

Background: Interventions targeting urine culture stewardship can improve diagnostic accuracy for urinary tract infections (UTI) and decrease inappropriate antibiotic treatment of asymptomatic bacteriuria. We aimed to determine if a clinical decision support (CDS) tool which provided guidance on and required documentation of the indications would decrease inappropriately ordered urine cultures in an academic healthcare

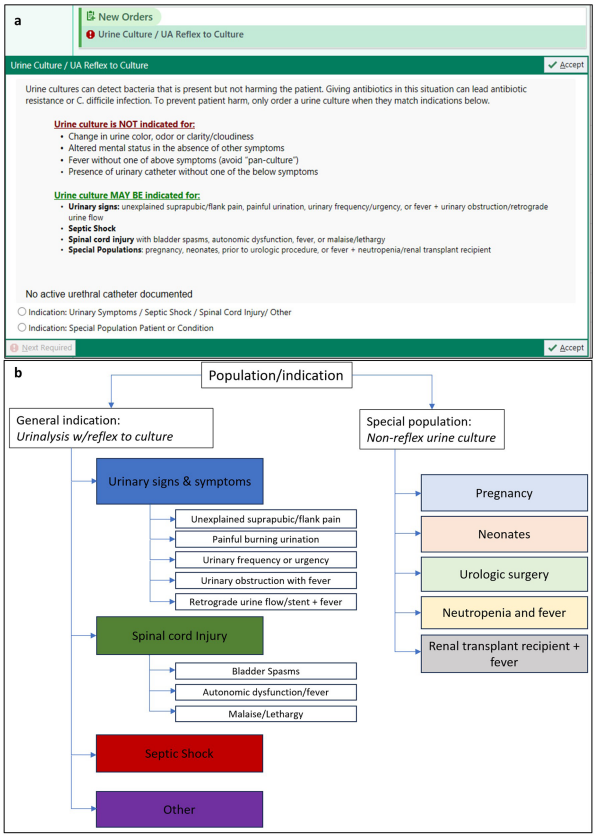

Figure 1| An overview of the clinical decision support (CDS) tool. (**a**) Screenshot of the CDS tool for urinary testing (**b**) Flow diagram for urine test orders with associated testing indications. Providers first determine if their patient meets "special population" criteria (right side of flow diagram). If so, then a non-reflex urine culture is recommended. If not, the provider must select an indication to order a urinalysis with reflex to culture (left side of flow diagram). The threshold for performing a reflex culture on the urine sample is ≥20 white blood cells per high-power field on urine microscopy.

Figure 2| Medians and change in order rates pre-/post- intervention per 1000-patient-days for urinalysis (UA) with reflex to culture, non-reflex urine cultures, and total urine cultures

Urine Test	Pre-intervention Median/1000 patient-days (IQR)	Post-Intervention Median/1000 patient-days (IQR)	P-value*	Change in rate/1000 patient-days with intervention[a]	P-value[a]
UA with reflex to culture	36.7 (31.0, 39.7)	35.4 (32.8, 37.0)	0.25	-1.9	0.76
Non-reflex urine cultures	8.5 (8.1, 9.1)	4.9 (4.7, 5.1)	< 0.001	-4.8	<0.001
Total urine cultures	20.0 (18.9, 20.7)	14.4 (14.0, 14.6)	< 0.001	-5.0	<0.001

IQR: interquartile range. *Wilcoxon 2-sample test was used to test differences in medians between pre- and post- intervention urine test order rates. [a] Change in rates before and intervention and p-values were calculated using autoregressive interrupted time series analyses.