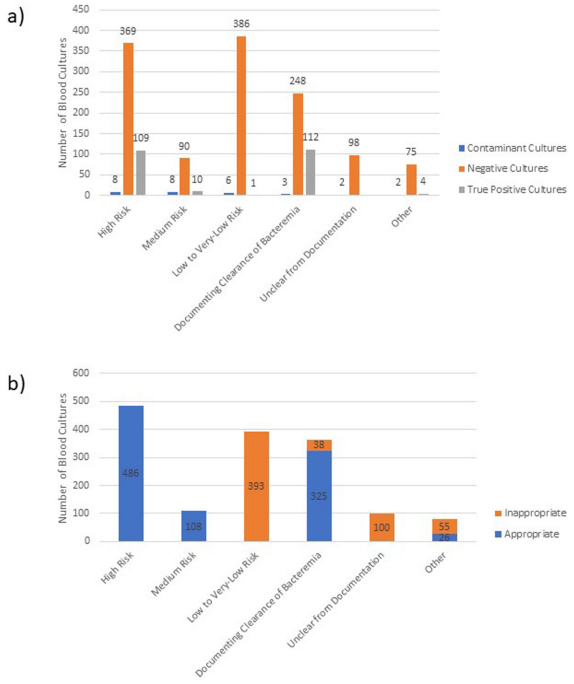
Figure 2. (a) Clinical scenario risk of bloodstream infection stratified by blood culture results as either a true positive, contaminant or negative culture. (b). Clinical scenario risk of bloodstream infection stratified by appropriate or inappropriate culture.



High-risk clinical scenarios included severe sepsis or septic shock, infection endocarditis/endovascular infection, catheter-associated bloodstream infections, discitis/native vertebral osteomyelitis, epidural abscess, meningitis, non-traumatic septic arthritis, ventriculo-atrial shunt infection. ***Medium-risk clinical scenarios*** included acute pyelonephritis, cholangitis, non-vascular shunt infections, prosthetic vertebra osteomyelitis, rigors, severe community acquired pneumonia (pneumonia severity index V or IV), ventilator-associated pneumonia, severe soft tissue infection, or intra-abdominal infection. ***Low- or very-low-risk clinical scenarios*** included isolated fever without rigors and/or leukocytosis, non-severe sot tissue infection, lower urinary tract infection, non-severe community-acquired pneumonia or healthcare-associated pneumonia, and post-operative fever within 48 hours of surgery.

inappropriate resulted in a true positive, which isolated Streptococcus infantarius in an LVAD patient receiving active chemotherapy for colorectal cancer and was felt to represent gastrointestinal translocation. **Discussion:** We retrospectively applied a BCx algorithm to LVAD recipients to determine the clinical impact of applying such an algorithm to a high-risk patient population. We found that the BCx algorithm missed only 1 true positive bloodstream infection in a patient with additional risk factors. This study provides preliminary support that a BCx algorithm could reduce BCx testing in LVAD recipients without compromising clinical safety. Future studies on BCx diagnostic stewardship in this population should prospectively collect data and monitor for additional adverse events, such as readmission, mortality, length of stay, and antibiotic days of therapy.

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Subject Category: Diagnostic Stewardship

Optimizing Urine Culture Utilization in the Emergency Department, a Study from South India

Krishna Suresh[1], Dheeraj Mohan[1], Rajalakshmi Ananthanarayanan[1], Vettakkara Kandy and Muhammed Niyas[1]
[1]KIMSHEALTH

Background: Inappropriate urine culture can lead to unnecessary antibiotic use, antimicrobial resistance, increased healthcare costs, and resource strain. Ensuring the appropriate use of urine cultures aligns with principles of diagnostic stewardship. **Methods:** Urine cultures ordered from ED in our hospital, for patients who were admitted during July and August 2024 were retrieved from the electronic medical records. Symptoms score based on IDSA guideline (Figure 1) and BLADDER score (Figure 2) were correlated with urine analysis (URE) and cultures for appropriateness. **Results:** Among 267 urine culture orders that were reviewed, 61 patients were excluded due to indwelling catheter, high-risk neutropenia, recent urological procedures, pregnancy, or recent renal transplantation. The median age of study population (n=206) was 64 years. 50.50% were women. 97 (47.3%) had significant pyuria, and 105 (50.97%) had a positive leukocyte esterase (LE), nitrite positivity was low 13 (6.3%). LE had better correlation with pyuria and culture positivity when compared to urine nitrites. Only 46 patients (22.3%) had culture positivity. Imaging evidence supportive of urinary tract infection was noted in 18 patients. Among 206, only 102 cultures (50.48%) were appropriate as per IDSA guidelines. Inappropriate cultures were ordered for fever (59.6%) without localisation, abdominal discomfort (8.6%), urinary frequency (2.8%), haematuria (1.9%), incontinence (0.9%). 10% were sent as part of order sets, who were asymptomatic and had no significant pyuria or cultures positivity. Among 87 patients with a BLADDER score ≥2, 95.4% of cultures were appropriate, 64.3% had significant pyuria, 36.8% had culture positivity. Among 119 patients with a score < 2, 15.9% of cultures were appropriate, 34.5% had significant pyuria, 11.8% had culture positivity. Positive predictive value (PPV) of BLADDER score for UTI was 77.0%, 89.3% along with pyuria and 88.23 % when combined with pyuria and positive LE. Negative predictive value (NPV) of BLADDER score for UTI was 88.2%, 100% along with absence of pyuria and 100% when combined with absence of pyuria and negative LE (Table 1). Based on our study the proposed algorithm for ordering urine culture, after excluding the high risk group is depicted in the Figure 3. **Conclusion:** Our study showed 50% of urine culture as inappropriate. BLADDER score can be a useful bedside screening tool for deciding urine culture, PPV and NPV increase when combined with presence or absence of pyuria and LE. Implementing a diagnostic stewardship protocol

APPROPRIATE USES OF URINE CULTURE	INAPPROPRIATE USES OF URINE CULTURE
• Dysuria, urgency, frequent urination, flank pain, hematuria, pelvic discomfort.	• Odorous, cloudy, or discolored urine without other symptoms
• New or worsening sepsis with no identifiable source.	• Reflex cultures based solely on urinalysis (e.g., pyuria)
• Fever or altered mental status without another obvious cause.	• Monitoring therapy response unless symptoms persist
• Special populations (e.g., spinal cord injuries, severe burns, kidney transplant failure).	• Routine screening for asymptomatic bacteriuria in most cases
• Screening for asymptomatic bacteriuria: Early pregnancy, before urology procedures	• Preoperative evaluation in most groups

Nicolle LE, et al. Infectious Diseases Society of America guidelines for the diagnosis and treatment of asymptomatic bacteriuria in adults, Clin Infect Dis. 2005 Mar 1; 40 (5): 643-54

Fig 1. IDSA guidelines on urine culture appropriateness

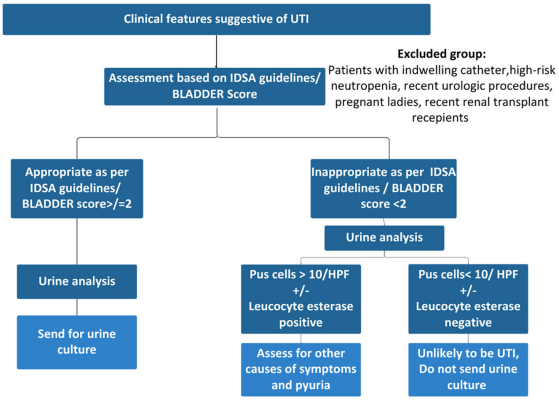
'BLADDER' SCORE		
B	Blood in urine	1 point
L	Loss of urinary contol	1 point
A	Abdominal or suprapubic pain	1 point
D2	Dysuria	2 points
E	Elevated temperature	1 point
R	Repeated urination	1 point

Loeb M, et al. Development of minimum criteria for the initiation of antibiotics in residents of long-term care facilities: results of a consensus conference. Infection control and hospital epidemiology. 2001 Feb 1;22(2):120-4

Fig 2. 'BLADDER' Score: A bedside clinical tool for UTI risk assessment

Positive predictive value		Negative predictive value	
Bladder score >/2:	77%	Bladder score<2:	88%
Bladder score + pyuria >10cells/ hpf:	89.28%	Bladder score + pyuria< 10 cells/hpf :	100%
Bladder score + pyuria >10 cells/hpf + Leucocyte esterase positive:	88.23%	Bladder score + pyuria<10 cells/hpf + Lecocyte esterase negative:	100%

Table 1. Performance of clinical score and urine analysis for diagnosis of UTI



in urine culture has the potential to improve culture appropriateness, reduce unnecessary antibiotic use.

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Diagnostic Stewardship of Gastrointestinal Pathogen Panels: Impact on Test Utilization and Hospital Costs

Aaron Pathak[1], Todd Lasco[2], Mayar Al Mohajer[3] and Rogers Kisame
[1]Baylor College of Medicine; [2]Baylor College of Medicine and [3]Baylor College of Medicine

Background: While broad gastrointestinal (GI) multiplex polymerase chain reaction (PCR) panels can test for various bacterial, viral, and parasitic pathogens, their overuse may yield a high financial burden on hospital systems without clear clinical relevance of all covered organisms. This study aims to assess whether a multifaceted quality improvement intervention directing clinicians to a more limited panel and requiring several restriction criteria would reduce direct hospital costs for patients with suspected infectious diarrhea. **Methods:** Our quasi-experimental study included patients from a quaternary academic medical center in Texas. In the pre-intervention period (March 2024-June 2024), the Biofire® FilmArray® Gastrointestinal Panel (BioFire Diagnostics, Salt Lake City, UT) was the preferred test for patients presenting with suspected infectious diarrhea and had minimal ordering restrictions (Figure 1). In the post-intervention period (August 2024- November 2024), a second narrower panel (GI Common Pathogen PCR panel) was introduced as the preferred test with some restrictions, while the Biofire® FilmArray® GI Panel was only available to severely immunosuppressed patients and required Infectious Diseases consultation. The restriction criteria were built in the Epic electronic health system (Epic System Corporation, Verona, WI). Information on the intervention was distributed through email memorandums and an internal secure clinical messaging platform. Count control charts were used to visualize the number of FilmArray® GI Panels conducted, while individual control charts were used for the direct laboratory costs of both GI panels. **Results:** 893 patients had suspected infectious diarrhea in the study period (451 pre-intervention, 442 post-intervention). The average number of weekly FilmArray® GI Panel tests performed dropped from 24.8 to 1.9 (Figure 2), and an average of 21.9 GI Common Panel tests per week were performed in the post-intervention period. The average weekly testing cost decreased from $3,418.10 to $940.40 after the intervention (Figure 3). The two control charts demonstrated the presence of special cause variation for both outcomes (weekly FilmArray® GI Panel tests and combined costs), indicating a change after the intervention. **Conclusion:** Although the total number of tests did not change after adjusting the restriction criteria, this intervention significantly reduced the direct laboratory costs of the GI Panels after guiding clinicians to a more economical test (GI Common Panel), with an estimated annual savings of $128,840. This study provides a diagnostic stewardship opportunity for cost reduction in healthcare systems. Future evaluation

Figure 1. Overview of Quality Improvement Restrictions

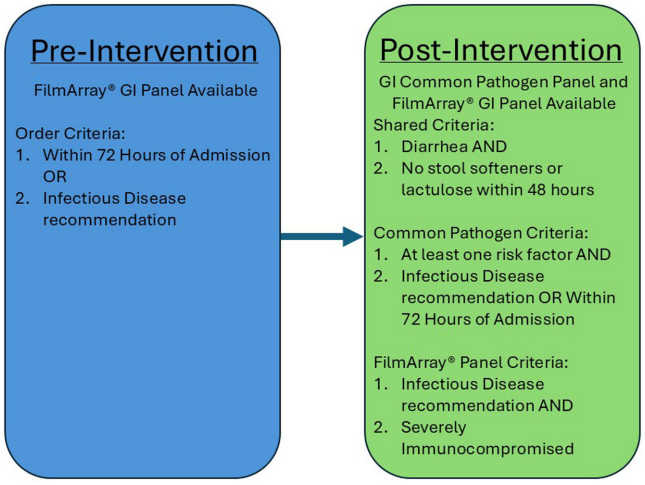

Figure 2. Number of FilmArray® GI Panels per Week