opportunities for improvement in health equity before our patients develop an HAI. Further evaluations should also focus on assessing the clinical relevance of statistical findings to better inform intervention strategies. Separately, efforts are needed to improve completeness and integrity of demographic data in the electronic medical record.

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Subject Category: Diagnostic Stewardship
Diagnostic Stewardship Opportunities for Emergency Department Evaluation of Children with Suspected Urinary Tract Infection
Rachel Wattier, University of California San Francisco; Prachi Singh, UCSF Benioff Children's Hospital Oakland; Israel Green-Hopkins, University of California San Francisco; Adam Hersh, University of Utah; Andrew Auerbach, University of California San Francisco and Sunitha Kaiser, University of California San Francisco

Background: Among children who start antibiotics for suspected urinary tract infection (UTI) in emergency departments (EDs), 40-60% have negative urine cultures or other results inconsistent with UTI. Practices contributing to excess antibiotic exposure are not well understood. The goal of this study was to understand diagnostic and post-encounter follow-up processes in children who received antibiotics, in order to define targets for intervention. **Methods:** We identified encounters by children evaluated in two pediatric EDs, over 2 months in the first ED and 9 months in the second ED, to balance different visit volumes. Children 2 months-17 years old were included if they had a urinalysis (UA) and/or urine culture performed, were assigned a primary or secondary diagnosis code for UTI, and initiated antibiotics. Patients were excluded if they received antibiotics prior to the encounter, had prior urologic surgery or device placement, or were immunocompromised or pregnant. Data abstracted by chart review included demographics, documented symptoms, test results, and documented urine culture review and management. Possible UTI symptoms per pediatric criteria included fever, dysuria, urinary frequency, urgency, or hesitancy, suprapubic, abdominal or flank pain, foul smelling urine, or new urinary incontinence. In both EDs, nurses review urine cultures and document changes to treatment plans. Final urine culture results were considered inconsistent with UTI if there was 1) no growth or 2) only mixed growth reported with quantity < 1 00,000 colony forming units/ml. **Results:** Of 150 eligible children, 146 (97%) had at least one UTI symptom and 146 (97%) had abnormal UA **Results:** Urine cultures were not performed in 27 (18%) children. Of 123 encounters with urine cultures performed, 71 (58%) had results inconsistent with UTI. Though 67/71 cultures were marked as reviewed, 43/67 (64%) of the patients who could have stopped antibiotics per guideline recommendations did not have documented plans to stop. In those who had documented plans to stop antibiotics, nurses reached 20/23 (87%) caregivers by phone to communicate these recommendations. **Conclusion:** Many children suspected to have UTI at the time of ED evaluation do not meet criteria for UTI. We found that the most frequent departures from evidence-based practice recommendations were 1) not sending urine cultures, and 2) not stopping antibiotics when culture results did not support the suspected UTI diagnosis. Further investigation should explore barriers and facilitators to these evidence-based practices to develop population- and context-specific diagnostic stewardship strategies.

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Impact of Streptococcus pneumoniae Urinary Antigen Testing in a Large Academic Medical Center
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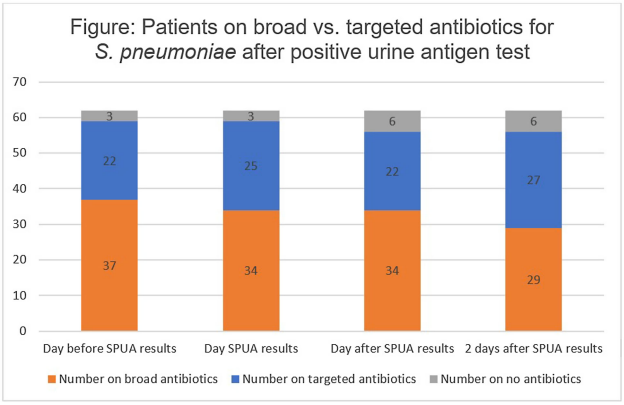
Background: The Streptococcal pneumoniae urine antigen (SPUA) test was developed to increase microbiologic diagnosis of pneumonia. Concerns have been raised about the test's low sensitivity and failure to alter outcomes by de-escalating antibiotics (PMID:31956656). However, the cost-effectiveness and real-world clinical utility of the test remain unclear. **Methods:** From June 1, 2022 - May 31, 2023, all patients with a SPUA test in the MUSC Health System were identified via Epic SlicerDicer. Those with a positive test underwent chart review. Antibiotics were classified as a "broad" or "targeted" regimen for S. pneumoniae. Targeted regimens included penicillins without beta-lactamase inhibitors, 1st-3rd generation cephalosporins, doxycycline, levofloxacin or moxifloxacin (with or without azithromycin), as well as azithromycin monotherapy. Broad regimens included 4th generation or higher cephalosporins, carbapenems, penicillins with beta-lactamase inhibitors, and vancomycin. **Results:** In one year, 1,518 patients had a SPUA test ordered. 62 (4%) patients had a positive test. Of those 62 patients, 14 patients were discharged before the test resulted (Table). The average turnaround time for the test was 2.2 days. When comparing antibiotic therapy on the day before the SPUA test resulted to two days after the test resulted, only 7 additional patients were switched to a targeted regimen (Figure). **Conclusion:** Of 1,518 SPUA tests ordered in a year, most (1,456 or 96%) were negative, with minimal changes to antibiotic therapy based on positive **Results:** These results are similar to other real-world studies, which showed a positive test prevalence between 4-8% (PMID:30265290) with 15-30% of patients changed to targeted antibiotics following a positive result

Table: Characteristics of patients with a positive *Streptococcal pneumoniae* urine antigen test

Total patients with positive SPUA test	**62**
Male sex	33 (53%)
Average age	62
Time to SPUA result (days)	2.2
Patients with cultures positive for Streptococcus pneumonia	13 (21%)
Patients discharged before test resulted	14 (23%)
Patients with result mentioned in A&P	18 (29%)
Patients on targeted antibiotic regimen day before test result	22 (35%)
Patients on targeted antibiotic regimen two days after test result	29 (48%)

Abbreviations: SPUA (Streptococcus pneumoniae urine antigen test); A&P (Assessment and Plan)



Abbreviations: SPUA (Streptococcus pneumoniae urine antigen test)

(PMID:23111919, PMID: 28053969). The SPUA test cost approximately $44,022 (based on $29 test price) but has limited utility in a real-world setting.

Disclosure: Krutika Hornback: Speaker's Bureau - Cepheid Diagnostics

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Utilization of multiplex molecular panels for urinary tract infections, Medicare claims, 2016 – 2022

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Background: Multiplex molecular tests for infectious diseases can provide highly sensitive results rapidly; however, these tests may more readily detect asymptomatic colonization. There are reports of non-FDA approved laboratory-developed multiplex tests for the diagnosis of urinary tract infections (UTI). Differentiating UTI from asymptomatic bacteriuria is challenging, especially in older adults. The increased sensitivity of multiplex tests may exacerbate this challenge. We sought to describe the use of multiplex testing for UTIs in Medicare claims. **Methods:** Multiplex testing was identified using carrier claims submitted by non-institutional providers using the Chronic Conditions Warehouse for 2016 – 2022. Because there are no CPT-4 codes specifying UTI multiplex testing, we included claims as described in Figure 1 and categorized claims based on the primary ICD-10-CM diagnosis. The payment amounts for line items related to testing for infectious agents were summed. Laboratories were counted using CLIA numbers listed on corresponding claims. Beneficiaries residing in a nursing home at the time of their claim were identified using stay information derived from the Minimum Dataset 3.0. For comparison, similar characteristics among carrier claims with a CPT-4 code indicating urine culture were also described. **Results:** Claims for unspecified multiplex molecular tests overall have increased, driven by increases in claims with a primary UTI diagnosis (from 8,521 in 2016 to 386,943 in 2022), while urine cultures have not (Figure 1). In 2022, 65% of all unspecified multiplex tests were linked to a diagnosis of UTI; UTI multiplex claims were associated with 647 laboratories. For UTI claims, the median cost per claim for line items related to multiplex testing was $589 compared to $13 for urine culture-related line items. Overall, 8% of UTI multiplex claims were for beneficiaries residing in a nursing home. **Conclusions:** Claims for non-FDA approved unspecified multiplex tests associated with a primary diagnosis of UTI have increased >45-times between 2016-2021 and have >45-times higher median costs than urine cultures. The use of this testing in the Medicare population, including nursing home residents, is of potential concern given that inappropriate treatment of asymptomatic bacteriuria has been described to be common in older adults. Research is needed to outline use cases where UTI multiplex testing may be beneficial. Appropriate use of diagnostic testing is important to minimize diagnostic errors and avoid unnecessary antibiotic use.

Figure 1. Overview of method to identify Medicare carrier claims for unspecified multiplex tests.

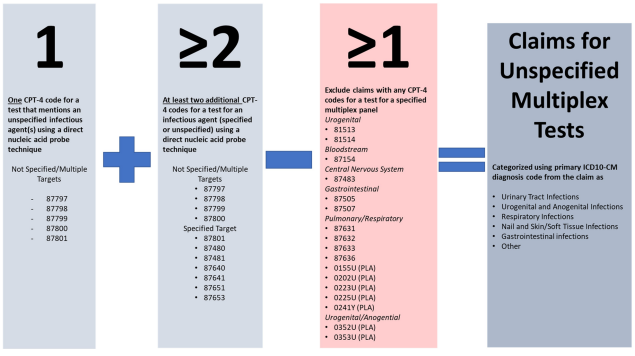
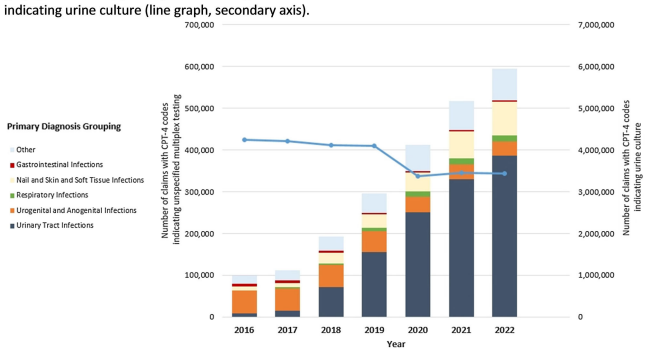


Figure 2. Annual number of carrier claims with CPT-4 codes indicating unspecified multiplex tests (bar graph) stratified by primary infection diagnosis and annual number of carrier claims with CPT-4 codes indicating urine culture (line graph, secondary axis).



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High Prevalence of Laxative Use Among Those Tested for Clostridioides difficile Infection in VA Hospitals

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Background: Clostridioides difficile infection (CDI) is associated with 500,000 infections and 30,000 deaths per year. Inappropriate testing and treatment of patients with asymptomatic colonization occurs frequently (between 15% and 41%). The VA CDI guidelines emphasize avoidance of CDI testing in patients with laxative use within the previous 48 hours due to the high likelihood of non-infectious diarrhea. The objective of this

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