

PURPOSE: To provide standardized guidelines for ordering, collecting, and interpreting urinalysis and urine culture tests across inpatient and ambulatory settings. It consolidates best practices for test selection, outlines specific reflex testing criteria, highlights appropriate and inappropriate circumstances for culture ordering, details proper specimen collection protocols, and offers troubleshooting guidance to ensure optimal diagnostic accuracy and promote antibiotic stewardship.

On December 13, 2023, based on comprehensive review of health system data and clinical literature, the laboratory revised urine culture reflex criteria to enhance the sensitivity and specificity for detecting clinically significant cultures, and to support diagnostic and antibiotic stewardship. These updates were reviewed and endorsed by a multidisciplinary team of physician, laboratory, pharmacy, and infection prevention experts across the health system. Additional guidance on appropriate clinical indications and contraindications was incorporated into the urinalysis and urine culture test orders. These best practice recommendations are intended to support clinical decision-making and existed prior to changes made to the reflex criteria.

Ordering:

- **Urinalysis Panel** is available in the Inpatient and Ambulatory settings to consolidate the common urinalysis orders and urine culture in one location.
 - [Inpatient Urinalysis Panel mSL Change Bulletin](#): Includes information about the Urine Culture sidebar report.
 - [Ambulatory Urinalysis Panel mSL Change Bulletin](#)
- **Urinalysis Reflex to Microscopic WITH Reflex to Culture:** Reflex testing is not indicated for use and may be unreliable in the following patients:
 - Pregnant patients
 - Patients with a urinary catheter
 - Patients with a recent urological procedure
 - Bacteriuria screening prior to urologic procedures
 - Pediatric patients less than 2 months old
 - Patients with severe neutropenia (ANC <100)
 - **See suggested indications for culture below.**
- **Urinalysis Reflex to Microscopic WITHOUT Reflex to Culture**
 - Per policy, a urine microscopic is not an orderable test and is only performed if the urine macroscopic meets reflex criteria. This policy was established based on best practice guidelines and is reviewed periodically with our Laboratory Medical Directors. Negative urine macroscopic results do not correlate with clinically significant findings in the urine microscopic, and thus a urine microscopic is only orderable if reflexed from the urine macroscopic.
- **Urine Culture:** If culture is desired not based on reflex criteria and identification and sensitivity of any resulting microbial growth is required for patient care, order a urine culture.
 - Appropriate reasons for ordering a Urine Culture:
 - UTI signs/symptoms: suprapubic tenderness, costovertebral angle pain or tenderness, urinary urgency, urinary frequency, dysuria
 - Evaluation of sepsis without a clear source

Culture Reflex Criteria

Any one of the paired criteria:

- WBC ≥ 6-10 and Nitrite positive
- WBC ≥ 6-10 and Bacteria ≥ 2+
- Leukocyte Esterase ≥ 2+ and Nitrite positive

- Bacteriuria screening prior to urologic procedures
- Bacteriuria screening in pregnant women
- Patients with a urinary catheter if changed within the last 48 hours
- Pediatric patients less than 2 months old
- Patients with severe neutropenia (ANC <100)
- When a Urine Culture may not be necessary:
 - For a low-risk patient with an uncomplicated UTI, treatment may be empiric without culture.
- **Add-On Urine Culture**
 - DO NOT use the Microbiology Add On order to add urine cultures. Instead, order the Urine Culture and add to the existing specimen (the (Extra) Gray Urine Culture Tube or urinalysis). Using the Microbiology Add On will cause delays in testing and may result in a sample past stability to perform a culture.

Specimen Collection: All specimens collected for culture OR that may reflex to culture OR if an add-on culture might be ordered MUST be collected as if it will be cultured. The quality of the results depends on the quality of the sample! Collection resources:

- [Patient Collection Instructions Midstream \(Clean Catch\) Urine Collection - English:](#) Comprehensive Test Directory (CTD) Sidebar
- [Patient Collection Instructions Midstream \(Clean Catch\) Urine Collection - Spanish:](#) CTD Sidebar
- [Urine Test Processing Guides:](#) CTD Sidebar
- Patient clean-catch midstream collection instructions through [HealthWise](#) – Urine Test: About This Test
- For catheter collection, follow SLHS policies on nurse collections

Urine Culture Result Interpretation and Treatment Recommendations:

- **Preliminary Urine Culture Results:**
 - Culture results are preliminary until the status is “Final result,” and the report may change with each read of the cultures. This may include, but not be limited to, the addition or removal of organisms, changing from specific identified organisms to “mixed periurethral flora present” if three or more organisms are identified, and/or addition or cancellation of susceptibility testing.
- **Consult local antibiogram, antimicrobial stewardship team, or Infectious Disease for advice with empiric treatment.**
- **For empiric treatment of uncomplicated cystitis, consider the following:**
 - Nitrofurantoin 100mg PO BID x 5 days
 - TMP/SMX 1 DS tablet PO BID x 3 days
 - Fosfomycin 3gm x 1
 - Cefuroxime 250mg PO BID x 5 days

Troubleshooting:

- **My urinalysis with reflex order did not result in a culture, but there are positive findings on the urinalysis, why?**
 - The reflex criteria help to identify specific signs of inflammation or infection present in the urine which are indication that bacteria may be a cause of infection.
 - The presence of a single positive finding on urinalysis such as nitrites, leukocyte esterase, white blood cells, or bacteria does not have a good positive predictive value for a significant urine culture. By using paired criteria the positive predictive value is improved, promoting diagnostic and antibiotic stewardship.
 - The sample was not collected correctly and is contaminated.
- **My urinalysis with reflex order did not result in a culture, but my independently ordered Urine Culture has growth, why?**
 - The growth of bacteria in any urine culture is common due to the presence of commensal bacteria in the distal urethra.
 - Many symptoms can mimic a urinary tract infection, and the lack of significant findings on urinalysis to trigger a reflex culture might indicate an alternate diagnosis.
 - The presence of bacteria alone does not indicate an infection, and the reflex criteria did not identify clinically significant findings of inflammation.
 - The culture may represent asymptomatic bacteriuria.
 - The culture results are indicative of a contaminated sample.
- **I ordered a Urinalysis and it meets criteria but did not reflex to a culture, why?**
 - A urine culture was ordered separately and rules prevent duplication of a second urine culture from the urinalysis order. A comment appended to the urinalysis results will state: “Reflex to culture criteria met, however a separate urine culture has already been ordered and collected within the last 4 hours. Duplicate culture not ordered.”
 - The incorrect order was placed that did not include the “WITH Reflex to Culture”. It may be possible a custom name was used for that Urinalysis test on a Preference List which ties to the “WITHOUT Reflex to Culture” order. It is advisable to use the Urinalysis Panel to ensure that correct orders are being placed, and manual name overrides are not impacting ordering.
- **In Epic, I cannot add the Urine Culture to a previously collected Urinalysis even though the collection is less than 48 hours old, what do I do?**
 - Contact the Laboratory Client Services at (208) 381-8829 or your local hospital laboratory.