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**Lab Dept:** Microbiology

**Test Name:** URINE CULTURE

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***General Information***

**Lab Order Codes:** UC

**Synonyms:** Culture, Urine

**CPT Codes:** 87086 – Culture, bacterial; quantitative colony count, urine

The following testing may be added if appropriate based on findings for organism identification (multiple additions are possible if more than one organism is identified) and to aid in patient treatment management.

87077 – Aerobic isolate, additional methods required for definitive identification, each isolate (if appropriate)

87106 – Culture, fungi, definitive identification, each organism, yeast (if appropriate)

87107 – Culture, mold, definitive identification, each organism, mold (if appropriate)

87147 – Culture, typing; immunologic method, other than immunofluorescence (e.g., agglutination grouping), per antiserum (if appropriate)

87184 – Susceptibility studies, disk method, per plate (if appropriate)

87186 – Susceptibility studies, microdilution or agar dilution, each multi-antimicrobial, per plate (if appropriate)

87206 – Smear, primary source with interpretation, fluorescent and/or acid fast stain for bacteria, fungi or cell types (if appropriate)

**Test Includes:** Culture of aerobic flora from 1000 to >100,000 organisms/mL. Colony counts between 100 and >100,000 organisms/mL will be performed on cystostomy, intraoperative, nephrostomy, suprapubic, and vesicostomy specimens.

If anaerobes are suspected, an anaerobic culture must be ordered separately. Refer to [Anaerobic Culture](#).

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***Logistics***

**Lab Testing Sections:** Microbiology

**Phone Numbers:** MIN Lab: 612-813-5866

STP Lab: 651-220-6555

**Test Availability:** Daily, 24 hours

**Turnaround Time:** Preliminary report available at 1 day, final report within 1 - 5 days.

- Special Instructions:**
- **Specimen site** and **date/time of collection** are required for specimen processing.
  - If anaerobes are suspected, obtain a suprapubic aspirate.
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### ***Specimen***

**Specimen Type:** Urine

**Container:** Sterile container.

If anaerobes are suspected, use an anaerobic transport system (available in Microbiology).

**Volume:** 1 mL – 10 mL of urine from a first morning specimen

**Collection:** **Catheterized specimen:**

Straight Catheter, **Female:**

1. Place the infant supine, with the thighs in a frog-leg position.
2. Separate the labia and cleanse the area around the meatus with povidone-iodine swabs. Use anterior-to-posterior strokes to prevent fecal contamination. Rinse area with sterile water using cotton balls or sponges.
3. Aseptically insert catheter into the bladder.
4. Allow about 10 mL to pass, then collect 1 - 10 mL into sterile tube, or sterile container.
5. After urine is collected, pull catheter out of the cap of the centrifuge tube, tighten cap (and depress spout, if using the kit).

Straight Catheter, **Male:**

1. Place the infant supine, legs extended.
2. Cleanse the penis with povidone iodine swabs in a spiral motion from meatus outward, one sponge per stroke. Rinse area with sterile water.
3. Aseptically insert catheter, holding the penis perpendicular to the body to straighten the urethra.
4. Allow about 10 mL to pass, then collect 1 - 10 mL into sterile tube, or specimen container.
5. After urine is collected, pull catheter out of the cap of the centrifuge tube, tighten cap (and depress spout, if using the kit).

**Vesicostomy:**

1. Gather supplies (lubricant, sterile gloves, sterile specimen container, and appropriate catheter).
2. Don sterile gloves.
3. Swab stoma site with povidone iodine.
4. Open catheter. Any catheter is appropriate to use, including a sterile self cath, or a Foley cath. The catheter should be larger than what would be placed in the urethra (10-16Fr.) Lubricate tip.
5. Insert only 1-2 inches, until you see urine. Collect/transfer into sterile

specimen container. You may need to leave catheter in place for a few minutes, as urine normally dribbles out slowly.

**Indwelling catheter:**

1. Do not collect urine from drainage bag.
2. Disinfect catheter collection port with 70% alcohol.
3. Use a syringe to aseptically collect 1 - 10 mL of urine and transfer into a sterile container.

**Clean catch, Mid stream Specimen:**

**Males:**

1. Clean glans with soap and water.
2. Rinse area with wet gauze pads.
3. While holding foreskin retracted, begin voiding.
4. After several mL have passed, collect midstream portion without stopping flow of urine.
5. Transfer specimen to a leak proof sterile container.

**Females:**

1. Thoroughly clean urethral area with soap and water.
2. Rinse area with wet gauze pads.
3. While holding labia apart, begin voiding.
4. After several mL have passed, collect midstream portion without stopping flow of urine.
5. Transfer specimen to a sterile leak proof container.

**Bagged Specimen:** (Caution: contamination rates may run as high as 70%):

1. Clean glans or urethral area with soap and water.
2. Rinse area with wet sponges.
3. Place sterile urine bag over labia or penis.
4. After 30 minutes, observe for presence of urine. If no urine is present, re-clean patient and attach a new bag.
5. If impossible to obtain urine or if culture results yield a mixture of organisms, collect a catheterized specimen or collect urine by suprapubic aspiration.

**Suprapubic Aspiration:**

1. Expose area above pubis.
2. Scrub area with povidone iodine. Allow to dry.
3. Using a sterile needle and syringe, aspirate 1 mL of urine from bladder.
4. Transfer into a sterile container. If anaerobic culture is desired, expel air bubbles and inject urine into an anaerobic transport device.

**Transport/Storage:**

**Onsite collections:** Transport to the laboratory immediately.

If unpreserved specimens cannot be processed within one hour of collection, specimens can be refrigerated up to 24 hours.

**Offsite collections:** Refrigerate specimen if Gray Boric acid tube cannot be immediately filled or if culture cannot be inoculated immediately. Transport to laboratory within 24 hours, refrigerated.

**Gray Boric acid tube:** (Available from Materials Item# 24063)  
Fill with urine, shake vigorously.

**Note:** Gray top minimum fill is 3.5 mL.

Store and transport at refrigerated or room temperature for up to 48 hours.

Unpreserved specimens must be promptly transported to the laboratory refrigerated, with the next available courier, not to exceed 24 hours from the time of collection. Preserved specimens should be transported to the laboratory, not to exceed 48 hours from the time of collection. However, delayed transport causes a delay of test results.

**Sample Rejection:**

Unrefrigerated/unpreserved specimen with a transit time exceeding 1 hour after collection; improperly labeled specimen; specimens with prolonged transit time (see [Transport/Storage](#) for requirements); specimen not submitted in appropriate transport container; insufficient volume; external contamination; preserved specimens exceeding 48 hours. If an unacceptable specimen is received, the physician or nursing station will be notified and another specimen will be requested before the specimen is discarded.

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***Interpretive***

**Reference Range:**

No growth

**Alert Value:**

- Gram-negative rods identified as ESBL or Carbapenemase producers will be called to the physician or patient's nurse. Infection Prevention will be notified.
- If MRSA is isolated for the first time, and the patient location is not Emergency department, the result will be called to the physician or patient's nurse.

**Limitations:**

Clean catch or catheterized specimens are not acceptable for anaerobic culture. Anaerobic organisms inhabit the anterior urethra. The only satisfactory urine specimen for anaerobes is a suprapubic aspirate.

**Methodology:**

Quantitative culture

**Additional Information:**

Although bag collection of urine from children has the advantage of being noninvasive, contamination associated with this collection method increases the chances of adverse clinical outcomes. The contamination rates may run as high as 70%. Researchers have concluded that the risks of bag urine cultures "appear to exceed its benefits". *Journal of Pediatrics* 2000; 137:221 - 226.

**References:**

Cook, JH, and M Pezzlo (1992). Specimen receipt and accessioning. Section 1. Aerobic bacteriology, 1.2.1-4. In HD Isenberg (ed) Clinical Microbiology Procedures Handbook. American Society for Microbiology, Washington DC

Miller, J Michael (1999) A Guide to Specimen Management in Clinical Microbiology, American Society for Microbiology, Washington DC

Miller, J Michael, and HT Holmes (1999) Specimen Collection, Transport, and Storage in PR Murray et al, (ed), Manual of Clinical Microbiology, 7<sup>th</sup> edition, American Society for Microbiology, Washington DC, pp 33-104

**Updates:**

3/22/2010: CPT updates

11/30/2011: Added information regarding anaerobes.

6/20/2012: Addition of Alert Value

11/18/2013: Transport/Storage time increased from 12 to 24 hours.

11/20/2014: Offsite information added.

7/16/2015: Vesicostomy collection instructions updated.

7/1/2016: Plated specimens instructions removed.

10/18/2018: Updated CPT coding.

3/9/2021: Updated temperature storage/transport for boric acid tubes and specimen rejection criteria.

3/31/2023 Added further instructions for storage/transport of unpreserved and preserved specimen.