## Lab Dept: Microbiology

## Test Name: EAR CULTURE AND GRAM STAIN

### *General Information*

**Lab Order Codes:** EARC

**Synonyms:** Culture, Ear

**CPT Codes:** 87070 – Culture, bacterial; any other source except urine, blood or stool, with isolation and presumptive identification of isolates
87205 - Smear, primary source with interpretation; Gram or Giemsa stain for bacteria, fungi or cell types

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.

87075 – Culture, bacterial; any source, except blood, anaerobic with isolation and presumptive identification, each isolate
87076 – Anaerobic isolate, additional methods required for definitive identification of isolates
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)
87185 – Enzyme detection (eg, beta lactamase), per enzyme (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:** Gram stain and culture for aerobic microorganisms. Organisms will be characterized or identified depending on the nature of the culture. Susceptibilities will be performed if requested. If anaerobes are suspected as a cause of chronic otitis media, specifically request an Anaerobic Culture.

### *Logistics*

**Lab Testing Sections:** Microbiology

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| **Phone Numbers:** | MIN Lab: 612-813-5866<br><br>STP Lab: 651-220-6555 |
| **Test Availability:** | Daily, 24 hours |
| **Turnaround Time:** | Preliminary reports are available at 24 hours; final results reported within 5 days. |
| **Special Instructions:** | ● **Specimen site** and **date/time of collection** are required for specimen processing.<br>● Cultures for specific organisms such as *Pseudomonas*, *Haemophilus*, *Mycobacterium,* yeast or anaerobes should be stated upon requisition. |

## *Specimen*

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| **Specimen Type:** | Aspirate (tympanocentesis) for otitis media; moist swab for otitis externa. In cases of otitis media in which the eardrum has ruptured, a swab may be used to collect the exudates. |
| **Container:** | Sterile container, swab in transport media |
| **Volume:** | 0.5 mL aspirate or a swab |
| **Collection:** | **Inner:**<br><br>**1.** For intact eardrum, clean ear canal with soap solution and collect fluid via syringe aspiration technique.<br>**2.** For ruptured eardrum, collect fluid on flexible shaft swab via an auditory speculum.<br>**3.** Transport in sterile container or swab transport medium.<br><br>**Outer:**<br><br>**1.** Use moistened swab to remove any debris or crust from the ear canal.<br>**2.** Obtain a sample by firmly rotating swab in outer canal. For otitis externa, **vigorous** swabbing is required since surface swabbing may miss streptococcal cellulitis.<br>**3.** Transport in swab transport system. |
| **Transport/Storage:** | **Onsite collections:** Transport to the Microbiology Laboratory immediately.<br><br>**Offsite collections:** Refrigerate specimen. Specimens must be promptly transported to the laboratory, with the next available courier, not to exceed 24 hours from the time of collection. However, delayed transport causes a delay of test results. |
| **Sample Rejection:** | Improperly labeled specimen; specimens with prolonged transit time (see Transport/Storage for requirements); specimen not submitted in |

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| | appropriate transport container; insufficient volume; external contamination. 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. |

***Interpretive***

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| **Reference Range:** | Normal flora of the skin |
| **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.<br><br>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:** | Results for throat or nasopharyngeal swab cultures are not predictive of agents responsible for otitis media and should not be submitted for that reason. |
| **Methodology:** | Aerobic culture |
| **Additional Information:** | A number of microbial species populate the skin of the healthy ear including *Staphylococcus epidermidis, Corynebacterium*, and *Micrococcus*. External ear infections are frequently caused by *S. aureus,* group A streptococci and *P. aeruginosa.* Otitis media (middle ear infections) in children is usually caused by pneumococci, *H. influenzae*, group A streptococci, and less frequently *B. catarrhalis, S. aureus,* gram negative bacilli, and anaerobes. Chronic otitis media yields predominately anaerobic flora and less commonly present are *S. aureus*, *P. aeruginosa*, *Proteus* sp., and *Mycobacterium* sp. |
| **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<br><br>Miller, J Michael (1999) A Guide To Specimen Management in Clinical Microbiology, American Society for Microbiology, Washington DC<br><br>Miller, J Michael, and HT Holmes (1999) Specimen Collection, Transport, and Storage In PR Murray et al, (ed), Manual of Clinical Microbiology, 7th edition, American Society for Microbiology, Washington DC, pp 33-104 |
| **Updates:** | 3/7/2011: CPT Update<br>6/19/2012: Added Alert Value<br>11/12/2014: Added offsite collection information.<br>10/18/2018:CPT update<br>11/14/2018: Updated information on anaerobes |