# Department of Microbiology
# Wound Culture Procedure

## I. SPECIMEN TYPES

Exogenous wound infections include those associated with traumatic injury, bites, or burns. Endogenous wounds and abscesses are associated with appendicitis, cellulitis, dental infection, osteomyelitis, empyema, septic arthritis, sinusitis, and their internally related sites.

## II. POTENTIAL PATHOGENS

Anaerobic bacteria
Beta hemolytic streptococcus
*Corynebacterium jeikeium*
*Enterococcus*
Gram negative rods
*Staph aureus*
Yeast

Any organism is considered a potential pathogen if the organism(s) was seen in the direct Gram stain.

## III. OTHER FLORA

A. Mixed flora includes any of the following organisms from non-sterile body sites other than oropharyngeal sites, if not seen in the direct Gram stain (see note below concerning exceptions):

*Bacillus* spp.
*Corynebacterium* spp.
*Micrococcus* spp.
Coag-neg staph
*Strep* (other than beta strep or *Enterococcus)*

1. Report: **Mixed flora**. Do not perform further work-up or AST on these isolates.

Note: These organisms may be involved in opportunistic infections in patients that have undergone an invasive procedure (e.g., sternum incision). Normally, the significance of these isolates in culture is determined by whether or not they are seen in the direct smear. However, there may be specific cases where a singular morphotype grows and may represent a significant isolate even though it was not seen in the direct smear. These isolates may warrant identification and susceptibility testing. Consult Rounds.

B. Mixed flora includes any of the following organisms from non-sterile face, mouth, jaw, or neck specimens, if not seen in the direct Gram stain.

*Fusobacterium* spp.
*Neisseria* spp.
*Strep* (other than beta strep or *Enterococcus*)
*Peptostreptococcus* spp.
Coag-neg staph sp.
*Corynebacterium* spp.

1. Report: **Mixed flora**. Do not perform further work-up or AST on these isolates.

## IV. WORK-UP AND REPORTING

A. At 24 h incubation:

1. Note the quality of the specimen (Q score) and the bacteria seen in the Gram stain.
2. Determine the number of potential pathogens. (To determine the number of potential pathogens, exclude bacteria included as mixed flora, refer to III. above.)
   a. If the plates are sterile:
      i. Re-incubate the plates.
      ii. Report: **No growth to date**.
   b. If the number of potential pathogens are $\leq$ Q:
      i. Speciate and report the presumptive isolate(s) according to the identification charts and document in the computer.
      ii. Perform susceptibility testing on organisms, if appropriate.
      iii. Re-incubate the plates.
   c. If the number of potential pathogens are >Q, the potential pathogens are correlated with the direct smear.
      i. If the correlating potential pathogens do not exceed the score, correlating potential pathogens are worked up (refer to IV.A.2.b.) and a gross generic report is given for non-correlating isolates by reporting those isolates as: **Mixed flora including (list non-correlating potential pathogens)**.
         a) Attach the comment: **This is a mixed culture of potential pathogens. Correlation of the culture results with the gram stained direct smear indicates one or more isolate is more significant than others. The organisms seen only in culture may not relate to infection and may represent colonization or contamination. [MXSIG]**
         b) Hold the plates for 7 days.
      ii. If the potential pathogens that correlate exceed the Q score, a gross generic report of isolates is given.
         a) Identify and report group A beta hemolytic strep only, if present, according to the identification charts. Include canned susceptibility comment [BSAS].
         b) Report the isolates generically: **Mixed flora including (list potential pathogens)**.
         c) Attach the comment: **This is a mixed culture of potential pathogens. Correlation of culture results with the gram stained direct smear does not identify any isolate as more significant than another. Bacteria may not relate to infection and may represent colonization or contamination. [MXNSIG]**
         d) Hold the plates for 7 days.
      iii. If Q0, a “gross” report is given.
         2. Identify and report group A beta hemolytic strep, if present, according to the identification charts. Include canned susceptibility comment [BSAS].
         3. Identify and report *Staph aureus* if present in pure culture or with mixed flora. Perform antimicrobial susceptibility testing. If *Staph*

*aureus* is present with other potential pathogens, include in generic list and do not perform AST.

4. Identify and report *P. aeruginosa* from ears if present in pure culture or with mixed flora. Perform antimicrobial susceptibility testing. If *P. aeruginosa* is present with other potential pathogens, include in generic list and do not perform AST.
5. Report other potential pathogens generically: **Mixed flora including (list potential pathogens)**. Identification testing should be limited to tests that can be completed on that same day (e.g., gram stain, motility, spot tests, etc.). After listing potential pathogens, add the comment: **This is a mixed culture suggesting the probability of contamination. Collection of another specimen is suggested, avoiding superficial sources of contamination. [SWCONT]**
6. Hold the plates for 7 days.

B. At 48 h incubation:
   1. If the plates are sterile, report: **No growth.** Discard the plates.
      a. Hold the anaerobic BAP on specimens from sterile sites including surgical sites for 5 days.
   2. If the plates have growth, see IV.A.