POLICY STATEMENT	Acute wound infections are normally caused by external damage to intact skin, such as those produced during surgery or by trauma and bites. Conversely, chronic infections, such as decubiti or foot and leg ulcers, are normally due to complications related to impaired vascular flow or metabolic disease. Wound colonization and/or infection is often polymicrobic, with both aerobes and anaerobes involved. The accumulation of inflammatory cells and pus within an abscess or a sinus tract are the hallmarks of local infection. Evidence of this process can be documented by the presence of WBCs in the Gram stained smear. Therefore, the quality of a wound specimen can be assessed by Gram stain, which should be used to guide the extent of microbiology testing. The presence of epithelial cells indicates contamination of the specimen with skin or mucous membrane flora and may compromise the significance of the culture results.
PURPOSE	This procedure provides technical instruction for the performance of the Wound Cultures.
SCOPE	This procedure applies to testing personnel authorized to perform testing. This group includes, but is not limited to Laboratory Technologists as well as leads and supervisory personnel.
RESPONSIBILITY	All the above personnel are responsible for following the Wound Culture procedure without exception. In addition, testing personnel are also responsible for evaluating the results and taking proper remedial action.
RELATED DOCUMENTS	MICR 6140 R Specimen Processing MICR 6305 R Bacterial Cultures

SPECIMEN HANDLING

See *MICR 6140 R Specimen Processing*

The best specimen for culture is tissue, biopsy and aspirates collected with a needle and syringe. Swabs should be discouraged. However if they must be used, a culturette containing Aimes gel with two swabs should be used.

Specimens received in formalin are unacceptable for culture.

CULTURE WORK UP

1. Examine all plates for macroscopic growth at 24 and 48 hours.
2. Do not identify normal flora to genus or species level
    - Normal Skin Flora
        - Staphylococcus coagulase negative
        - diphtheroids,
        - alpha streptococci
        - Low numbers of Enterococcus
    - Urogential flora
        - Lactobacilli
        - Diphtheroids
        - Gardernella
        - Streptococcus viridians
        - Low numbers of Gram negative rods
        - Low numbers of Enterococcus
    - Normal fecal flora
        - Staphylococcus
        - Streptococcus viridians
        - Enterococcus
        - diphtheroids
        - Lactobacilli
        - Enterobacteriaceae

- Respiratory flora
  - Staphylococcus coagulase negative
  - alpha streptococci
  - Neisseria
  - Enterococcus
  - diphtheroids
  - Low numbers of Gram negative rods
  - Yeast

3. Identify organisms and perform antimicrobial susceptibility testing (AST) according to the following criteria utilizing the Q/2-3-4 system.
   - Gram stains are utilized to evaluate the quality of the specimen and guide the work up of the culture.
     - WBCs indicate infection or inflammation
     - SEC indicate superficial contamination
   - Potential Pathogens (PP)
     - Any organism growing in culture of a good quality specimen and seen on the Gram stain with WBCs may be the cause of the infection and a potential pathogen.
     - Any organism growing in a culture of a poor quality specimen and not seen on the gram stain has a greater chance of being a colonizer or normal flora contamination and not the cause of the infection.
   - Culture work up is based on number potential pathogens (PP) present:
     - 1 or 2PP = full work up with ID and AST
     - 3 PP = refer to gram stain
       - 1 or 2 PP seen on gram stain full work up with ID and AST
       - 3 PP are seen on gram stain; minimal ID all 3 PPs
     - 4 PP = minimal ID
     - If mixed/normal flora > PPs = minimal ID all PPs
     - Gram-negative rods - If gram negative rods are seen on Gram stain and there

is more then one morphology, work up the predominant morphology. If there is not a predominant morphology, report as mixed gram negative rods.

4. Physicians may request additional work up by ordering “MICRO ADD ON TO CULTURE WORKUP” and specifying their request.

REPORTING

- Enter preliminary reports daily until final at 48 hours.
- Enter preliminary report of “No growth after <24 hours” or “Culture in Progress” if the culture was processed after 4pm.
- Report all normal flora with quantitation.
- Report potential pathogens with quantitation and AST according to work up guidelines.
- Enter all results in the appropriate spot in the Meditech workcard.

REFERENCES

Garcia, Lynne, *Clinical Microbiology Procedure Handbook,* 3rd Edition, 2010, Volume 1, Section 3.13; Wound cultures

Susan Sharp and Yvette McCarter, ASCP (American Society for Clinical Pathology) Workshop, Clinical Microbiology- Review and Update, 2011

Carol Matkoski, Susan E. Sharp and Deanna L. Kiska, Journal Clinical Microbiology, May 2006 vol. 44 no. 5 1869-1872, *Evaluation of the Q Score and Q234 Systems for Cost-Effective and Clinically Relevant Interpretation of Wound Cultures*