

Specimens for Microbiology

In order to aid the laboratory in the proper examination of the specimen, some indication of the suspected disease should be noted on the laboratory request.

SPECIMENS FOR TB CULTURE:

SPUTUM specimens should be a series of 3 to 5 single, early-morning specimens. A volume of 5 mL to 10 mL is adequate for each specimen. There is no advantage in collecting a larger volume.

INDUCED OR NEBULIZED SPUTUM is usually very watery and should be labeled as “induced.”

GASTRIC LAVAGE must be processed within 4 hours of collection.

URINE should be submitted in a series of single, mid-stream specimens voided in the early-morning into sterile containers.

TISSUE to be processed must be collected aseptically and transported to the laboratory at once.

OTHER SPECIMENS include aseptically collected specimens such as blood, pleural fluid, pus, joint fluid, fecal, and laryngeal swabs.

SPECIMEN FOR PARASITOLOGY:

COLLECTION OF SPECIMEN:

- A. Fecal specimens should be collected in a clean, wide-mouth container with a tight-fitting lid which prevents spillage as well as dehydration of the specimen.
- B. Stool specimens for parasitological examination should always be collected before the patient is given barium sulfate. The intestinal protozoa may be undetectable for 1 week or more after the use of barium.
- C. Certain medications (mineral oil, bismuth, antibiotics, anti-malarials, and non-absorbable anti-diarrheal preparations) also interfere with the detection of intestinal protozoa. Specimens may not reveal organisms for several weeks after medication is stopped.
- D. Fecal specimens collected past fourth day of hospital stay will be processed only after consultation with Microbiology Medical Director.

NUMBER OF SPECIMENS:

- A. A minimum of 3 specimens collected prior to treatment is recommended.
- B. Fecal specimens should be collected on separate days, every second or third day, for a total of 3 specimens.

LABELING OF SPECIMENS:

Refer to Proper Labeling of Laboratory Specimens Policy in this Directory of Services.

PRESERVATION OF SPECIMENS:

Freshly passed specimens are mandatory for the detection of trophic amoebae or flagellates. The examination of liquid specimens should be carried out within 30 minutes of passage, or the specimen must be placed in SAF FIXATIVE (Sodium acetate-formaldehyde). This is done by the Microbiology Laboratory.

REJECTION OF SPECIMENS:

- A. Fecal specimens for parasitic studies will be rejected if the containers are contaminated.
- B. Fecal specimens for parasitic studies will be rejected if they are improperly labeled.
- C. Fecal specimens for parasitic studies will be rejected if they contain barium, urine, or toilet water.

COLLECTION AND TRANSPORT:

- A. Specimens should be obtained before antimicrobial agents have been administered.
- B. Specimens should be promptly delivered to the laboratory.
- C. Specimens should be collected in sterile containers.
- D. Antimicrobials should be noted on the request when possible.

HANDLING OF SPECIMENS:

- A. Any specimen intended for culture should be collected under strictly sterile conditions, placed in a sterile container properly labeled (including patient's name, room number, or patient type) and brought to the laboratory immediately.
- B. Special Instructions.
 1. Body Fluids (pleural, pericardial, ascetic, joint, amniocentesis):
 - a. Fluid should be submitted in screw-capped, sterile tubes or bottles or sterile red-top tubes.
 - b. Specimen for anaerobic cultures should be submitted within 20 minutes, unless placed in anaerobic transport media. See section on wounds.
 2. Bone Marrow:
 - a. Collect in BHI or CMG tube obtained from the Microbiology Laboratory.
 - b. Bone marrow that has been anticoagulated will be accepted, but physician should be notified that this is an incorrect procedure leading to inadequate culturing. Heparin is unsatisfactory, because it inhibits certain bacteria and fungi.
 3. CSF:
 - a. CSF should be submitted immediately in a screw-capped, sterile, plastic spinal fluid tube preferably or a sterile tube of any sort. Never refrigerate.
 - b. If CSF is not of the current date, do not discard. Contact the physician and tell him/her that an out-dated specimen is not satisfactory for routine culture, but fungus and AFB cultures can be done. If the physician insists on a routine culture, do it and document reason, date and physician contacted on the report.
 4. Sputum and Tracheostomy:
 - a. Must be collected properly in sputum collection kits or tracheostomy jar.
 - b. If specimen is leaking or on outside of inner container of sputum kit, discard specimen. Contact unit requesting another specimen.
 - c. No 24-hour sputum collections-fresh, preferably early-morning specimens are collected for AFB processing and fungus culture.
 - d. Microbiology will check quality of specimen before plating bacterial culture and request new one if found inadequate.
 5. Stool:
 - a. Collect approximately 5 mL fresh stool in a plastic container or rectal swab in a culture swab.
 - b. Collect only liquid of loose stool specimens. Formed stools should not be cultured for bacterial pathogens nor processed for *Clostridium difficile* PCR testing.
 6. Swabs:
 - a. Collect in Culture swab or anaerobic transport media. Anaerobic transport tubes may be obtained from the Microbiology Laboratory.
 - b. Dry swabs are not acceptable. Notify floor or physician about incorrect procedure. If the swab is from a vital area where another specimen cannot be obtained (ie, surgery), process the swab but make a note on the report.
 7. Tissue:
 - a. Collect in screw-capped, sterile jar or tube (with no preservatives i.e. cytolyte or formalin).
 - b. Place in anaerobic transport media which may be obtained from the Microbiology Laboratory.
 - c. See specific instructions for brain and open lung biopsy.
 8. Urines:
 - a. Collection Clean-Catch Kit (Sterile Processing and Distribution). b. No 24-hour collections. Discard and notify unit.
 - c. No leaking specimens. Discard and notify unit for fresh specimens.
 - d. Process within 2 hours of collection, if specimen is held at ambient temperature or within 48 hours if held at 2° C to 8° C.
 - e. Urine specimens from Outreach which do not meet criteria-call office or nursing home contact person or physician.
 - f. Urines for pyogenic culture are held in Microbiology for 1 week before being discarded.
 9. Wound or Abscess Material:
 - a. Collect and submit in a capped, sterile syringe with all air bubbles displaced.
 - b. Collect and submit in anaerobic transport media which may be obtained from the Microbiology Laboratory.
 - c. Collect in screw-capped, sterile tube or jar.

10. Viral Cultures:
 - a. All specimens for viral cultures and viral PCR testing are set to a suitable reference laboratory according to their specifications.
 - b. Swab specimens of cervix, urethra, vagina, and other genital sites are collected using appropriate collection device. Call 377-3066 and request Mail Off area for proper collection container.
 - c. Spinal fluid and urine specimens are collected in a leakproof, sterile vial.
 - d. For requirements of other microbiological specimens, refer to the Reference Laboratory Requirement book.
11. Nasopharyngeal Swab Collection:
 - a. Insert the swab into either nostril, passing it into the posterior nasopharynx. Rotate swab by firmly brushing against the nasopharynx several times.
 - b. Remove and place the swab into a viral transport tube or saline tube (2-3 mL).
 - c. Break swab at the indicated break line and cap the specimen collection tube tightly.
12. Nasal Swab Collection:
 - a. Carefully insert the swab (flocked nasal swab) into the nostril that presents the most secretion under visual inspection.
 - b. Using gentle rotation, push the swab until resistance is met at the level of the turbinates (less than one inch into the nostril). Rotate the swab several times against the nasal wall.
 - c. Remove and place swab into a viral transport media or saline tube.
 - d. Break swab at indicated break line and cap the specimen collection tube tightly.
13. Place bronchial lavage specimen in a sterile container and transport to the lab as soon as possible. Specimen should be labeled with 2 patient identifiers, source, date, time, and any other appropriate collection information.

CULTURES:

<u>Type</u>	<u>Minimum Incubation</u>	<u>Notes</u>
Blood	5 days	The doctor is notified when culture grows.
Fungus	6 weeks	Yeasts are identified as soon as growth is visible. Microbiology should be notified if dimorphic fungus is suspected.
Acid-Fast Bacilli (AFB) (TB Culture)	8 weeks	The doctor is notified as soon as AFB growth is noted.
Pyogenic (routine)	48 hours to 5 days	Pathogens are identified.

SENSITIVITIES:

- A. Sensitivities to antimicrobial are performed on suspected pathogens.
- B. Sensitivities to newer antimicrobials are done at the physician's request and when the organism is resistant to routine panel of antimicrobials.
- C. Sensitivities for group A beta-streptococcus and *Neisseria gonorrhoeae* are performed only when requested or when isolated from blood or CSF.

STAINS:

- A. Gram stains are routinely performed on all CSF that have a pyogenic culture ordered.
- B. Acid-fast stains may be requested with or without a culture request.
- C. Wright's stain and KOH preparations for fungi may be requested with or without culture requests.
- D. Wet preparations are performed for suspected yeast, hyphae, or parasites such as strongyloides.

CRITERIA FOR UNACCEPTABLE SPECIMENS:

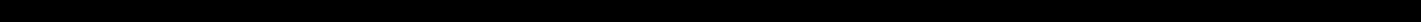
- A. Any specimen received in an unsterile container will be rejected.
- B. Any sputum specimen which is obviously saliva rather than "deep cough" sputum will not be accepted for bacterial culture. Specimens with more than 10 epithelial cells per low power field will be rejected.
- C. Any specimen which is not properly labeled will be rejected.
- D. Any specimen showing gross external contamination will be rejected.
- E. Any swabs which appear to be dried out or which lack contact with transport medium will be rejected.
- F. Specimens transported by culture swab must be received in the wrapper with the product's expiration date on it.
- G. Twenty four-hour sputum specimens are not acceptable.
- H. Foley catheter tips are not acceptable for culture.
- I. Urines that are not processed within 2 hours of collection must be recollected, unless stored at 2° C to 8° C.
- J. Clean-catch urine showing growth of more than 2 organisms must be recollected.
- K. 24-Hour urine specimens are not acceptable for culture.
- L. Specimens that may have been commingled during transport will be rejected. Only 1 specimen per transport bag.
- M. Formed stool specimens for *Clostridium difficile* PCR testing will be rejected.
- N. Nasal specimens for MRSA PCR testing should be collected using COPAN swabs. Other swab types will be rejected.
- O. Specimens for DNA testing for GC/CT will be rejected if incorrect swab is used, if urine specimen is more than 72 hours old before preservation. Contact Microbiology lab for correct transport containers.

REJECTION OF SPECIMENS:

- A. INHOUSE:
 - 1. Notify nursing unit of unacceptable specimen. If a sputum specimen, proceed with sputum screen procedure. Explain why specimen is unacceptable and offer additional instructions.
- B. OUTREACH:
 - 1. Notify the nursing home or office contact person of the unacceptable specimen and ask them to recollect. Explain why the specimen is unacceptable and offer additional instructions.
 - 2. If it is impossible to recollect the specimen, process the specimen and discuss the problem with the contact person and the patient's physician and note conditions on the report.

SPECIAL MICROBIOLOGY SUSCEPTIBILITY TESTING:

- A. Some organisms have predictable susceptibility to antimicrobial agents. Susceptibility tests are seldom necessary when the infection is due to a microorganism that is susceptible to a highly effective drug (eg, the apparently universal susceptibility of *Streptococcus pyogenes* and *Neisseria meningitidis* in the United States to penicillin). When the nature of the infection is not clear and the specimen contains mixed growth or normal flora, in which the organisms probably bear little relationship to the infectious process being treated, susceptibility tests are often unnecessary and the results may be grossly misleading.
- B. At NMMC sensitivities are not performed unless requested by the physician on the following:
 - 1. *Streptococcus pyogenes* from respiratory specimens.
 - 2. *Neisseria gonorrhoeae* from any source except CSF.
 - 3. *Corynebacterium* species from any source (mailed to reference lab)
 - 4. *Bacillus* species from any source (mailed to reference lab).
 - 5. *Lactobacillus* species (mailed to reference lab).

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6. *Micrococcus* species (mailed to reference lab).
- C. If physician requests a sensitivity on a fungal isolate, it will be mailed to a reference laboratory.
 - D. If *Propionibacterium acnes* is isolated from a single blood culture, the physician may choose whether or not a sensitivity is performed.
 - E. All mycobacterial susceptibility testing is performed at the Mississippi State Health Laboratory or National Jewish Hospital, Denver, CO.