Microbiology Sample Collection Instructions

General Notes

- All specimen containers must be appropriately labeled with two patient identifiers. If possible, note the date and time of collection.
- Prior to transport, specimens must be sealed and without leaks.
- Avoiding contamination by the organisms on the skin is essential when collecting samples for culture.
- Although any small volume can be cultured, the probability of obtaining a “positive” culture increases in proportion to the size of the sample obtained. Sub-optimal samples, whether from blood culture, throat swab or other samples may provide a false negative result which can result in the patient not receiving the appropriate therapy.
- Please refer to the MercyOne Test Catalog for further information on test requirements, specimen stability, and transport.

Aerobic/Anaerobic Culture Swab

- The use of the Eswab Collection and Transport System is recommended for most body sites for which a swab of such size is a suitable method to collect the specimen. Collect one swab for aerobic, anaerobic, and fungal cultures. Collect a second swab if AFB culture is requested.
- Whenever possible, specimens should be pus or fluid obtained by needle aspiration through intact skin or mucosa, which has been cleansed carefully with antiseptic. Do not transport material for culture in the needle and syringe, transfer material to Eswab or sterile container.

Aerobic/Anaerobic Culture Collection and Transport

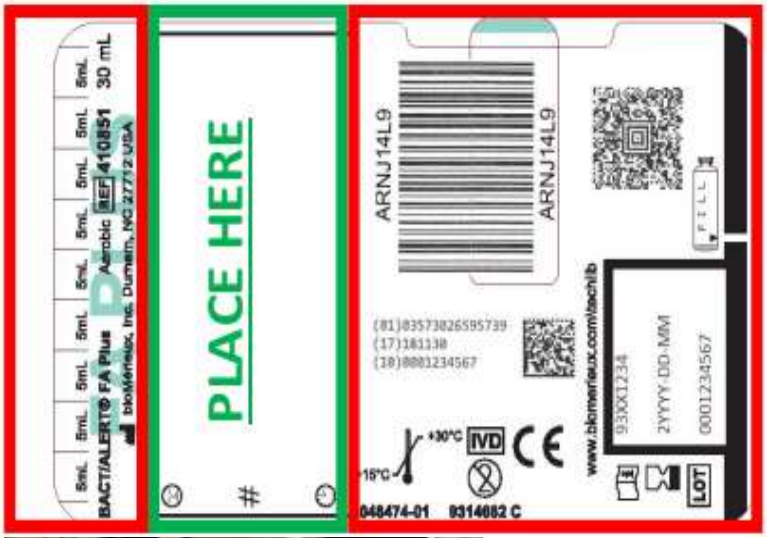
1. The sample should be collected from the active site of infection and precautions should be taken to exclude surface contamination and the aeration of the sample.
2. In situations where material must be obtained from an open foci of infection, sinus tracts or drainage tracts, it is best to aspirate purulent material with a syringe attached to a sterile plastic catheter. The assembly can be passed deeply into the sinus tract or wound after the surface opening has been mechanically cleaned with a non-germicidal agent.
3. If irrigation is required to obtain an adequate specimen, lactated Ringer’s or non-bacteriostatic normal saline (sterile) may be used. Broth should not be used.

4. Swabs may be submitted in an ESwab system. As much specimen as possible must be taken up on the swab so that the tip is saturated.
5. Tissue suspected of containing anaerobes should be placed in a sterile screw-cap container. If the tissue sample is small it may be placed in an ESwab vial.

Blood Culture Collection Procedure

1. Remove plastic bottle top from top of vial. Swab septum of blood culture bottle(s) with 70% alcohol (NO IODINE) and allow to dry.
2. Locate an appropriate vein for phlebotomy.
3. Use the Prevantics swabstick to clean the skin at the venipuncture site by placing one flat side of the foam tip on the skin and vigorously scrubbing vertically for 30 seconds. Flip the foam tip over to the other flat side and vigorously scrub horizontally for another 30 seconds.
4. Let the site air dry for 2 minutes. The venipuncture site should not be touched unless the gloved fingers have been decontaminated in the same manner as the patient's arm.
5. There are two phlebotomy methods to collect blood cultures based on the location, stability, and frailty of the vein. If the vein is stable and strong, use the butterfly and blood culture hub collection method. If the vein is fragile or less stable regardless of the location, use the butterfly with a syringe collection method.
6. Using the butterfly and blood culture hub collection method, perform venipuncture using standard venipuncture technique and push the blood culture hub over the aerobic blood culture bottle first, ensuring hub and bottle are below the puncture site and bottle is in upright position. Once the ideal amount of blood is obtained (8-10 ml) in the aerobic bottle, remove the hub and repeat with the anaerobic bottle. After completion of the blood collection, release the tourniquet and withdraw the needle. Activate the needle safety device and immediately discard the butterfly in a sharps container. Apply gauze to the venipuncture site, applying pressure for 2-3 minutes until bleeding stops. Apply a bandage to the site. Invert bottles 3-5 times.
7. Using the butterfly with syringe collection method, perform venipuncture using standard venipuncture technique. Aspirate the ideal amount of blood. After completion of the blood collection, release the tourniquet and withdraw the needle. Activate the needle safety device and immediately discard the butterfly in a sharps container. Apply gauze to the venipuncture site, applying pressure for 2-3 minutes until bleeding stops. Apply a bandage to the site. Attach a safety transfer device to the syringe and push it down over the anaerobic bottle first, then the aerobic bottle with a minimum of 5 mL in each bottle. If less than 4 mL was collected, inoculate only the pediatric bottle. Invert bottles 3-5 times.
8. Label the bottles with the patient's first name, last name, date of birth, collection date and time, collector ID, and collection site. Do not cover the barcode on the bottle.

Red areas are not appropriate for label placement.



Barcodes placed vertically on correct spot on bottle to ensure bottle label not covered

Each bottle labeled with site, collector, date and time of collection

Two orders - two draws
Each order/draw has orange and green bottle
Each order/draw has unique accession number

Cerebral Spinal Fluid Collection and Transport

If you do not indicate certain tests are to be performed on specific tubes, the laboratory will allocate specimens according to the table below.

CSF Testing on Specific Tubes

TUBE	TEST GROUP	RATIONALE
# 1	Chemistry or Cytology	Chemistry tests are least likely to be affected by blood contamination during procedure, compared to Hematology (cell counts).
# 2	Microbiology	This tube is less likely to be subject to skin contamination than is tube # 1
# 3 or Last Tube	Hematology	This tube is less likely to have cell counts increased than tube #1 or #2.
# 4	Hematology	This tube is least likely to have cell counts increased.
Various tubes	CSF Serology	These tests are performed on any combination of tubes having sufficient combined volume after all other tests are completed.

Please note:

- Laboratory staff will make every attempt to comply with specific orders for specific tubes.
- All CSF specimens should be transported to the laboratory immediately following collection to ensure accurate testing.

CSF Specimens

- All spinal fluids submitted for culture are processed for routine aerobic culture.
- AFB culture and/or CSF panel on CSF specimens will be performed if any one of these criteria are met:
  - Patient is immunocompromised.
  - Patient is less than 2 years of age.
  - CSF cell count is greater than 10/cu.mm.

CSF Cultures for Immunocompromised Patients

Immunocompromised patients should have CSF Cultures ordered as:

CSF CULTURE FOR IMMUNOCOMPROMISED HOST

These specimens will be processed for Routine, Anaerobic, AFB and Fungus Cultures even if the specimen does not meet the routine laboratory criteria for AFB culture

Chlamydia/Gonorrhea Collection and Processing

1. Chlamydia/Gonorrhea testing is performed on urines collected in Cobas PCR Urine Sample Kit. This is the recommended method of collection.

2. Female vaginal swabs may be collected into Cobas PCR Female Swab Kit.

3. Female endocervix/cervix and male urethra swabs may be collected into Aptima Unisex Swab Collection kit.

4. Oropharynx/Pharynx/Throat/Rectal/Anal/Ocular swabs may be collected into Aptima Multitest Swab Collection Kit.

Fungus Culture Collection

Most specimens are collected in the same manner, as they would be for a bacteriological culture. Additional specimens that are used for fungal testing should be collected in the following manner.

1. Hair
    A. Pluck out hair by the roots with sterile forceps. Choose hairs that are broken and scaly. Submit the basal portion of the infected hair.
    B. Place the specimen in a sterile petri dish for processing. Transport to the lab.

2. Nails
    A. Clean with 70% alcohol
    B. With a sterile blade, scrape away and then dispose of the outer layers of the nail. Scrape bits of the inner infected nail into a sterile petri dish. Transport to the lab.
3. Skin
    A. Clean with 70% alcohol to remove surface contaminants
    B. If ringworm is present, scrape the outer portions of the red ring with a sterile scalpel or the end of a microscope slide. If there is no ring, scrape the area that looks most infected.
    C. Place the scrapings into a sterile petri dish. Transport to the lab.
    D. Submit visible material.

Genital Tract (Female) Culture Collection and Transport

Vagina

1. Use a speculum without lubricant.
2. Wipe away excessive amount of secretion or discharge
3. Collect secretions from the mucosa high in the vaginal canal with Eswab.

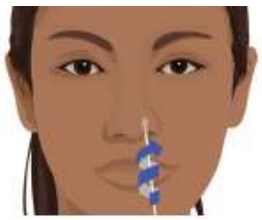
Genital Tract (Male) Culture Collection and Transport

Urethra

1. Collect specimens at least 2 hours after the patient has urinated.
2. Insert a thin urethrogenital swab 2 to 4 cm into the endourethra, gently rotate it, leave it in place for 1 to 2 seconds, and withdraw it.

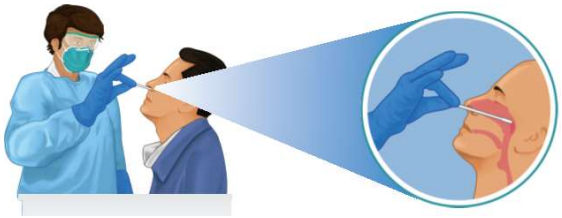
Nasal Swab Collection

1. With the patient's head tilted back, gently insert sterile swab into the nares approximately 2cm.
2. Rotate the swab in a circular motion in both directions 2-5 times. Remove the swab.
3. Using the same swab, repeat the process on the other side.
4. Remove swab from 2nd nostril and immediately place in a sterile culture tube or transport media if required.



Nasopharyngeal Swab Collection

1. With the patient's head tilted back, gently and slowly insert a mini-tip swab with a flexible shaft through the nostril parallel to the palate until resistance is encountered.
2. Rotate the swab axially, leaving in place for several seconds to absorb secretions.
3. Slowly remove the swab while rotating it. Specimens can be collected from both nostrils, but it is not necessary if the mini-tip swab is saturated with fluid from the first nostril.
4. Place the swab back into the culture tube or transport media if required.



Parasite/Worm Collection

External parasites such as worms, proglottids, and arthropods may be submitted for identification. Parasite must be collected in a clean, leak proof, shatterproof container.

Perianal Swab for Pinworm Collection and Transport

Collection Device Required: SWUBE disposable paddle.

1. Remove the paddle from the plastic tube.
2. Press sticky surface against several areas of the perianal region.
   NOTE: Specimens are best obtained a few hours after the person has retired (perhaps at 11 or 12 midnight), or the first thing in the morning, before a bowel movement.
3. Return paddle to the plastic tube.

Sputum Culture Collection and Transport

1. First morning specimens prior to eating are recommended. It is also best if the patient rinses their mouth with water prior to collection.
2. If three sputum cultures are ordered, it is best to collect early morning sputum on three consecutive days.
3. Instruct the patient to cough deeply and bring up material from within the lung. Do not have the patient expectorate saliva or post-nasal drip into the container.
4. Place the specimen in a sterile screw-cap container with no tubing attached.

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Stool Testing Collection

1. Utilize a hat to collect stool from the patient.
2. Transfer specimen into sterile, screw-cap cup. Secure lid until it clicks.
3. Depending on the tests that are ordered, stool preservatives may be required. Fill preservative with stool up to fill line if applicable.
4. When multiple orders are present, it is best practice to aliquot stool into both Cary-Blair and SAF to ensure testing can be performed. Each aliquot must be labeled with patient identifiers.
5. Gastrointestinal panel by PCR orders must include both Cary-Blair preserved stool as well as unpreserved stool.

Preservative	Test Applicable	Collection notes	Container
Sterile, unpreserved stool	Clostridium difficile (C.diff), Lactoferrin, Rotavirus, Stool pH, Qualitative Fecal Fat, Calprotectin, H. pylori Stool Antigen	Sterile cup. No diaper material.	
Cary-Blair (orange top)	Gastrointestinal Panels by PCR, Ova and Parasite-Basic, Yersinia Culture, Vibrio Culture, and Yeast Culture	Must be placed in preservative within 2 hours. Fill to the indicated fill line using the collection spoon attached to the cap. Do not overfill.	
Total Fix (black top)	Ova and Parasite-Expanded	Must be placed in preservative within 2 hours. Fill to the indicated fill line using the collection spoon attached to the cap. Do not overfill.	
Occult Blood Cassette (OC-Auto Polymedco)	Occult Blood Immunoassay	Must be placed within 4 hours of collection. Remove green cap, place wand into stool until grooves are filled. Return cap to cassette.	

Throat (Pharyngeal Specimen) Collection

1. Depress tongue gently with tongue depressor.
2. Extend sterile swab between the tonsillar pillars and behind the uvula. (Avoid touching the cheeks, tongue, uvula, or lips.)
3. Sweep the swab back and forth across the posterior pharynx, tonsillar areas, and any inflamed or ulcerated areas to obtain sample.

Urine Mid-Stream or Clean-Catch Collection

Mid-Stream UA: Instructions for Female Patients

1. Wash hands thoroughly with soap and water, and dry them.
2. Remove towelette from foil packet.
3. With one hand, separate folds of the urinary opening with thumb and forefinger. Keep the folds separated continuously while cleaning and until urine is voided.
4. Clean the inside of the folds well, passing the towelette from front to back.
5. Discard the towelette.
6. Repeat the front to back cleaning with the two remaining towelettes, discarding each after it is used.
7. Begin urination into the toilet, keeping the urinary folds separated. While urination continues, bring the collection container into the urine stream and fill halfway full.
8. Screw the cap on, being careful not to touch the inside of the cap or collection container.

Mid-Stream UA: Instructions for Male Patients

1. Wash hands thoroughly with soap and water, and dry them.
2. Remove the towelette from the foil packet.
3. Thoroughly clean the head of the penis.
4. Begin urination into the toilet. While urination continues, bring the collection container into the urine stream and fill halfway full.
5. Screw the cap on, being careful not to touch the inside of the cap or collection container.

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Sample Submission to Laboratory

Routine Urinalysis
Urinalysis with reflex Culture
Urine Culture & Sensitivity

Urine volume ≥ 20 mL
Send to Lab:
8 mL yellow-top conical tube
4 mL gray-top tube
Discard remaining urine and screw-cap collection cup.
(Blue lid must be disposed in a designated sharps container.)

Urine volume < 20 mL
Send to Lab:
Screw-cap collection cup.

Lab staff will appropriately divide sample for testing.

For *any* other urine test orders (HCG, urine drug screens, etc.), please submit the screw-cap collection cup to the laboratory.

Transferring urine into preservative and/or plain tubes via transfer device:

1. Place urine cup on the counter.
2. Submerge the straw tip of the device in the urine specimen.
3. To fill each tube, push the desired tube into the holder, stopper down to puncture the tube. If multiple tubes are needed, fill them in this order: gray-top tube, yellow-top conical tube.
4. Once punctured, the tube(s) will automatically fill.
5. Hold the tube in position until the flow stops.
6. Remove the tube and invert 8-10 times until contents and preservative are dissolved (shake the culture preservative tube (gray top) vigorously to mix well).
7. Label the tubes with the patient's complete name, date and time of collection.
8. Refrigerate specimens for transport.
9. Discard the transfer straw into a sharps container. Replace the lid on the cup.