

<b>BLACK HILLS HEALTH CARE SYSTEM PATHOLOGY AND LABORATORY MEDICINE</b>		Document #/Version #: <b>548/5</b>	<b>This document applies to the following location(s):</b>	
Author/Date Created: <b>Connie Udell 2007</b>	Editor/ Date: <b>CAMILLA KUHL 12/2016</b>	Replaces Doc #/Version #: <b>548/4</b>	X	<b>FORT MEADE VAMC</b> 113 Comanche Road, Fort Meade, SD 57741
		Effective Date: 01/04/17		
<b>TITLE: Microbiology Specimen Collection and Handling</b>			X	<b>HOT SPRINGS VAMC</b> 500 North 5 <sup>th</sup> Street, Hot Springs, SD 57747

## GENERAL INFORMATION

In their efforts to help the clinician in diagnosing and managing their patients, the laboratory service offers extensive services which include in-house and referral testing. The test result may be subject to many variables including the manner in which the specimen has been collected or transported. This manual is intended to minimize such variables and ensure the best possible specimen for the tests requested.

Specimens for cultures should be obtained before antimicrobial agents have been administered. If the culture has been taken after the initiation of antibacterial therapy, it should be noted in the "comment" portion of the initial request.

Specimens should be collected using universal blood and body fluid precautions. All specimens should be properly labeled with patient name, full social security number, source, and date/time of collection. They should be collected in an appropriate fashion for analysis requested (see below), and promptly transported to the laboratory in a tightly sealed container or culturette placed within a biohazard bag. Specimens which may be delayed in transporting should be refrigerated. If this effort has been made to preserve the specimen, then transportation should be made within 1 hour of collection and processing within 1 hour of laboratory arrival.

**NOTE: CSF should never be refrigerated since some microorganisms are susceptible to cold.**

Unacceptable specimens include those which are unlabeled, grossly contaminated, of insufficient quantity, or incorrectly collected or transported.

The laboratory should be notified of requests for viral cultures, since these require a special transport/collection media. These requests must also include the source and the suspect agent or disease. Viral serologies usually require paired serum (blood) samples collected two weeks apart.

## COLLECTION BY SOURCE

### Blood Cultures

1. Blood cultures are drawn by laboratory personnel from two different sites. They can also be drawn by nursing personnel while starting a new sterile IV site. Blood cultures are processed and cultured at Fort Meade laboratory; if collected at other laboratories the bottles should be incubated at 35-37C until they can be transported to Fort Meade.
2. FM stocks vials for detecting aerobic and anaerobic bacteria, and also stocks a vial used for fungus, yeast, and AFB. Fungus, yeast and AFB blood cultures are sent same day of collection to the current reference laboratory, directly from the laboratory where the specimen was collected.

3. Refer to document 770, Blood Culture Procedure, for detailed collection process.

## Body Fluids

Percutaneous aspiration of spinal, pleural, pericardial, synovial, peritoneal or other body fluids must be performed aseptically by physician to avoid contamination and prevent the introduction of organisms into these spaces. Some collection "kits" will have adequate tubes for chemistries, serologies, etc. but will need to have a portion of the specimen aliquoted as follows:

1. Collection of specimens for cell counts should be collected in EDTA (lavender top) tubes.
2. Specimens for crystal analysis must be collected in heparin (green Top) tubes.
3. Specimens for all other tests, chemistries and cultures, should be collected in a sterile tube (red top with no gel on bottom) taking care to maintain anaerobic conditions to facilitate the recovery of anaerobes in culture.

**NOTE: Transporting specimens in syringes with attached needles is not a safe mechanism and should not be accepted.**

## Ear Cultures

1. Material from the inner ear especially that obtained after perforation of the eardrum is best aspirated by the physician using sterile equipment or by using a culturette collection kit.
2. When collecting from the external otitis, the external ear should be cleansed with a detergent to free the skin of contaminating bacterial flora before a culture is taken.

## Eye Cultures

Eye infections are categorized as conjunctivitis, keratitis (inflammation of the cornea), endophthalmitis and periocular infections. Bacteria are the most common infectious agents; however fungi or viruses may also cause infections. Bacterial cultures are routinely done at Fort Meade. Fungal and viral testing is available at the physician's request and sent directly to current reference laboratory.

1. Conjunctivitis: The specimen of choice is purulent material from the lower conjunctival sac and inner canthus of the eye collected with a culturette.
2. Keratitis: An ophthalmologist should obtain scraping of the cornea. The scraping tool is then used to inoculate the media.
3. Endophthalmitis: Specimens obtained by the ophthalmologist would be from the eye chamber, Vitreous fluid, or wound abscess.
4. Viruses: Material should be collected at patient's side using current viral transport collection kits that are obtained from the laboratory.

## Feces

Testing fecal specimens includes various enteric pathogens, ova and parasites, *Clostridium difficile*, qualitative fecal fat, occult blood, and fecal lactoferrin. Infection Control Officer may also order VRE screening as indicated for infection control purposes.

### Enteric Pathogens Panel (Replaces Stool Culture, Ova and Parasites, and enteric viral culture):

1. 25 grams of **fresh liquid or runny** fecal specimen should be collected in a clean plastic container. Stool must be transferred to Cary Blair transport within 1 hour of collection.
2. Specimen must reach the testing site within 4 days of collection. Specimens are sent to reference lab Monday through Friday.
3. This is a nucleic acid PCR test. Only one specimen should be submitted. Serial specimen submission is not indicated.
4. Retesting as “proof of cure” is not acceptable. DNA can remain long after symptoms have resolved.
5. Test includes *C. difficile*, although in-house testing for *C. difficile* alone is available at Fort Meade.

### *Clostridium difficile*

1. 25 grams of **fresh liquid or runny** fecal specimen should be collected in a clean plastic container. The patient should be symptomatic, which is defined by  $\geq 3$  liquid stools within a 24 hour period.
2. Asymptomatic patients will NOT be “screened” for *C. difficile*.
3. Only liquid/runny specimens are to be tested. The specimen must conform readily to the container. If unsure perform the stick test:
  - a. Place a wooden stick perpendicular in the center of the specimen.
  - b. The stick must fall readily and rest against the side of the container in order to be an acceptable specimen.
4. Specimen should be less than 24 hours old whenever possible. Specimens should be stored at 2- 8°C if not tested immediately upon collection.
5. No more than 1 specimen per patient will be tested per 7 days. If test is positive, no further testing will be performed.
6. Unacceptable specimens include:
  - a. Formed stools
  - b. Specimens over 72 hours old
  - c. Frozen specimens
  - d. Specimens preserved in 10% Formalin, merthiolate formalin, sodium acetate formalin, or polyvinyl alcohol
7. The patient should never be re-tested as proof of being cured of *C. difficile* or to assess the cause of continuing diarrhea since the toxin may persist for a prolonged time without causing disease. If diarrhea continues, a consult with a gastroenterologist for a colonoscopy may be warranted.

8. If a patient is suspected of having *C. difficile*, all staff will be required to gown up before entering the patient's room (contact precautions).

Qualitative Fecal Fat:

Stool collected in clean plastic container.

Occult Blood:

Stool collected in clean plastic container or placed on occult blood cards.

Fecal Lactoferrin:

Stool collected in clean plastic container. Transfer to Cary Blair transport container within 1 hour of collection. Specimen is stable in Cary Blair indefinitely, whether at room temperature or refrigerated.

VRE Screening (Vancomycin Resistant Enterococcus):

Stool collected in clean plastic container, or a rectal swab.

**Genital (Urethral, vaginal or cervical)**

Genital specimens are collected by the physician. Testing may include routine cultures, wet mounts for yeast or trichomonas, Chlamydia and GC PCR, and herpes and viral cultures sent to reference laboratory.

Genital cultures:

1. Collected with a culture swab in transport medium and transported as soon as possible. Do NOT refrigerate!
2. If *Chlamydia trachomatis* or *Neisseria gonorrhea* are suspected, please order PCR testing (see below).

Wet mounts:

1. Swabs are collected by the physician and placed in a culture tube containing approximately one-half mL of saline. These must be transported to the laboratory ASAP, preferably within 30 minutes of collection.
2. If extended transport time is anticipated (as in specimens collected at CBOC), consider Trichomonas PCR testing (vaginal or urine) which requires an Aptima collection kit supplied by the laboratory and is sent to current reference laboratory.

Chlamydia and GC PCR:

1. Testing performed at Fort Meade laboratory.
2. Collect vaginal/cervical specimen in Cepheid Vaginal/Cervix collection kit, or male/female urine specimen may be submitted.
3. If collecting urine, only collect the first "dirty" 20-50 mL of urine. **Do not use a cleaning wipe.** The urine is stable refrigerated for 8 days. If a testing delay is anticipated the urine can be placed in Cepheid Urine Transport tube, which is stable for 45 days refrigerated.

- 4. Note that this urine specimen cannot be used for routine urinalysis or culture since it will be contaminated with normal skin and urethral flora.**

#### Herpes and Viral cultures:

Obtain BD Viral Transport media from the laboratory, collect specimen and place directly in this viral transport at the patient's side. This is sent to current reference laboratory.

#### **Nasal swab / Nasal Washes**

1. Nasal swab specimens for Influenza A/B antigen testing are collected by a physician, an RN or respiratory therapy on a special foam tipped applicator swab supplied by the laboratory.
  - a. With the patient's head firmly held, the swab is gently rotated as the swab is inserted into nostril until resistance is met (less than 1 inch into the nostril).
  - b. Rotate the swab a few times against the nasal wall.
  - c. Place the swab back into the paper, label and seal in biohazard bag.
  - d. Specimens may be refrigerated or room temperature for up to 8 hours prior to testing
2. Nasal *washings* are required for Bordetella DFA testing, and are collected by the respiratory therapy department. These are sent to a reference laboratory for testing.
  - a. With patients head hyper-extended, instill about 2.5 mls of sterile normal saline into one nostril with a syringe.
  - b. Place a clean dry specimen container directly under the nose with slight pressure on the upper lip.
  - c. Tilt the patient's head forward and allow the fluid to run out of the nostril into the container. Repeat with the other nostril, collecting the fluid in the same specimen container.
  - d. Label the container and place in a biohazard bag.
  - e. Specimen should be brought to laboratory immediately and refrigerated.
3. Please check with the laboratory if extended transport time is needed or if in doubt concerning proper specimen requirements.

#### **Skin scrapings (hair and nails)**

1. Skin scrapings, hair samples, or nails samples are collected by the physician or nursing staff in a sterile container.
2. Tests which may be ordered routinely are KOH preps performed at Fort Meade, and fungus cultures which are sent to current reference laboratory.
3. Other rarely ordered tests may also require larger amounts of hair or nail specimens (Ex: arsenic testing).

#### **Sputum (bronchial/tracheal)**

1. Sputum specimens are collected in a sterile screw cap container at the bedside by nursing or respiratory therapy personnel.
2. Bronchial washings should be collected by physician in a suction trap and transported to the lab.

3. Tracheal aspirates or suction are collected by physicians, nursing staff or respiratory therapy and are submitted to lab in a suction trap.
4. Tests include routine culture performed at Fort Meade, and Fungus, AFB, Legionella, and cytology which are sent to current reference laboratories.

## **Throat**

1. Specimens for throat cultures are collected by the physician or nursing staff using a culturette system.
2. With the patient's tongue depressed and the throat well exposed, rub the swab over the back of the throat, both tonsils and any areas of inflammation, exudation, or ulceration.
3. Avoid touching the tongue, cheeks, or lips with the swab.

## **Urine**

Urine specimens may be collected for routine urinalysis, various chemistries (such as amylase or creatinine), and urine toxicology, all of which are performed at both Fort Meade and Hot Springs campuses; urine culture (performed at Fort Meade only), AFB, and Legionella antigen can also be ordered and sent to current reference laboratory.

### For Routine Urinalysis:

Urine is best collected by a clean-catch, midstream method in a sterile screw cap container, or nursing personnel may collect urine by aspirating urine from the catheter tubing and transporting it to the lab in a sterile container. Please indicate specimen type when ordering in computer.

### Urine Culture:

1. Use same collection methods as for routine analysis. Other acceptable specimens would be straight catheter or a suprapubic aspirate which would be collected by the physician. Please indicate if specimen is a true catheterized specimen when placing the order in the computer.
2. Note that both Fort Meade and Hot Springs laboratories have reflex criteria which enable the respective laboratory to order urine culture if the urinalysis results imply possible infection.

### AFB (acid fast bacillus):

A general voided urine specimen collected in a sterile screw-capped container is acceptable, and is sent to current reference laboratory.

### Urine Legionella:

A voided urine sample must be collected and shipped to current reference laboratory within 24 hours of collection. These specimens are best collected in the morning.

### Urine chemistries:

Most urine chemistries are timed collections (Ex: 2 hour or 24 hours collection) Contact the lab or SPD for collection containers. See specific test in ward collection manual for required preservatives and storage temperature.

1. Have patient void and discard the urine. This is the collection start time.
2. Instruct the patient to save all the urine for the desired time period.

3. At the end of the time period, have the patient void and save the urine adding it to the total collection.
4. Submit entire collection to the lab. Label specimen as to collection period.

For toxicology testing:

1. Routine drug screening is performed at both Fort Meade and Hot Springs laboratories.
2. Confirmation or compliance testing is performed by current reference laboratory.
3. Stat drug screening for suspected overdose in non-responsive patients in the emergency department is also available.
4. New employees who require drug screens are scheduled by personnel to come to the laboratory for collection, and these are sent to Minneapolis VAMC for testing.

**Wounds and Tissues (aerobic and anaerobic)**

1. Wound cultures are collected by the physician or nursing staff utilizing culturette system.
2. Other acceptable specimens would be a needle aspirate or tissue specimen collected in a sterile container by the physician.
3. KOH preps or fungal cultures may also be done on these collections.
4. Miscellaneous specimens such as IV catheter tips, drainage tubing, etc. may also be submitted for culture in a sterile container- please specify the source.

**COLLECTION PROCEDURE USING CULTURETTE TRANSPORT SWAB**

1. Make sure culture/wound site is cleaned and prepped properly.
2. Peel open culturette package.
3. Remove the swab keeping it sterile.
4. Collect culture.
5. Place swab in transport tube.
6. Label specimen with full name, full SSN, site/source, date/time of collection.
7. Place in a sealed biohazard bag.
8. Deliver to laboratory as soon as possible.

If you have any questions concerning collection or transportation of specimens please call the laboratory for assistance at extension 7715 at Fort Meade or extension 2209 at Hot Springs.