**Microbiology Laboratory Specimen Collection Manual**

**NOTE:** Because microbiology involves culturing and isolation of various pathogens, the proper specimen collection, media transport, and timely delivery to the laboratory are all essential to quality results. Please follow the instructions for proper collection, transportation, and handling of microbiology culture specimens.

**HOURS OF OPERATION**

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>MAIN LABORATORY HOURS</th>
<th>MICROBIOLOGY DEPARTMENT HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sharp Chula Vista Medical Center</td>
<td>24 hours a day, 7 days a week</td>
<td>7:00 am - 3:30 pm</td>
</tr>
<tr>
<td>Sharp Coronado Hospital</td>
<td>24 hours a day, 7 days a week</td>
<td>7:00 am - 3:30 pm</td>
</tr>
<tr>
<td>Sharp Grossmont Hospital</td>
<td>24 hours a day, 7 days a week</td>
<td>7:00 am - 3:30 pm</td>
</tr>
<tr>
<td>Sharp Memorial Hospital</td>
<td>24 hours a day, 7 days a week</td>
<td>M-F 6:00 am - 10:00 pm&lt;br&gt;S-S 6:00 am - 2:30 pm</td>
</tr>
<tr>
<td>Sharp Pathology Laboratory</td>
<td>24 hours a day, 7 days a week</td>
<td>M-F 5:30 am – 11:30 pm&lt;br&gt;Sa 5:30 am – 3:30 pm / Su 7:00 am - 4:30 pm</td>
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</tbody>
</table>

**SPECIMEN COLLECTION**

A. **SWABS:**
   1. A dry swab would be adequate only for a throat, specifically for Group A streptococcus.
   2. *Swabs should never be used to sample fluids or exudates;* instead, submit the entire specimen in as large a volume as possible.

B. See below for detailed specimen collection directions listed by body site.

**SPECIMEN HANDLING AND LABELING**

A. All specimens are considered to be infectious, use Universal Precautions.
B. All specimens submitted to the laboratory must be transported inside a sealed, leak-proof container.
C. The container must be enclosed in a sealed transport bag.
D. Never transport syringes with needles to the laboratory. Instead transfer the contents to a sterile tube, or remove the needle (with a protective device), recap the syringe, and place the syringe in a sealable, leakproof plastic bag.
E. Do not transport leaking specimen containers to the laboratory.
F. All specimens must be labeled properly to include:
   1. Patients first and last name, an addressograph label or computer label is preferred.
   2. Source of Specimen
   3. Date and time of collection
G. Specimens must be accompanied by a requisition, see below for requirements.
SPECIMEN REQUISITIONS

A. **Inpatient Requisitions:**
   1. Requests are ordered through the hospital or laboratory information system.
   2. Be sure the correct order is placed, confer with the following specimen test list to select the appropriate test(s).
   3. Orders should never be placed into the computer until the specimen has actually been collected. The exception to this is: BLOOD CULTURES or other blood work that needs to be drawn by laboratory personnel.

B. **Manual Requisitions:**
   1. Use the General Laboratory Requisition Form to order tests when the computer ordering system is not available. Fill in all the appropriate information to include:
      - Patient Name
      - Date of Birth
      - Requesting physicians’ name
      - Date of request
      - Source of specimen
      - Date and time of collection
      - Test(s) requested

C. **SPECIMENS TO BE SHARED WITH OTHER DEPARTMENTS, i.e., Histology, Chemistry, Cytology, etc., MUST BE RECEIVED WITH ALL THE APPROPRIATE REQUESTS ATTACHED.** Failure to include all requests may result in irreversible loss of specimen.

SPECIMEN STORAGE

The detailed specimen requirements are listed for each test below. Please note the temperate ranges are as follows:

- **FROZEN specimens:** -20°C or colder
- **REFRIGERATED specimens:** 2-8°C
- **AMBIENT or Room Temperature specimens:** 18 to 26°C

SPECIMEN TRANSPORT

A. All specimens are to be transported to the laboratory from the floors as soon as possible (within 2 hours of collection.)

B. Because of the nature of certain cultures/organisms the following transport times must be followed.
   1. Specimens with STAT orders must be delivered to the laboratory IMMEDIATELY.
   2. **SPINAL FLUID** specimens must be delivered to the laboratory IMMEDIATELY.
   3. Wounds, tissues, body fluids and specimens for anaerobic culture must be delivered within 1 hour of collection.
   4. Amniotic fluid specimens must be delivered to the laboratory immediately.
   5. Liquid stool specimens for ova and parasite exam must be delivered to the laboratory within one hour of passage or placed into preservative within one hour.
SPECIMEN REJECTION

A. General Rejection Criteria:
   1. Unlabeled Specimens
   2. Leaking Specimens
   3. Inadequate specimens
   4. Gross external contamination of specimen container
   5. Dried swabs
   6. Incorrect use of transport media
   7. Long delays in delivery to laboratory
   8. Incorrect storage temperatures that would affect results.

In all cases, the laboratory will make every effort to salvage a specimen that is difficult or impossible to replace. In specific cases, with the physicians’ approval, a specimen may be processed that is sub-optimal for culture. This will be noted on the final report.

B. Specific Rejection Criteria:
See detailed specimen requirement below.

REPORTS

A. STAT REPORTS:
The nature of microbiology is such that few procedures can be done on an emergency basis, essentially only primary stains, wet mounts and rapid antigen testing. When a STAT order is received, the assumption is that the results of the initial microscopic examination are to be reported as soon as possible. Reporting is to be done via the computer whenever possible, and otherwise by telephone.

B. TELEPHONE REPORTS:
   1. Certain microbiological findings could be critical to the management of the patient or could significantly affect hospital isolation procedures. Examples of results that are reported by telephone.
      • First evidence of bacteremia or infection of any normal sterile body sites
      • First evidence of tuberculosis
      • First evidence of MRSA (methicillin-resistant Staph aureus)
      • First evidence of VRE (vancomycin-resistant enterococcus).
      • Group A streptococcus from a non-pharyngeal body site.
      • Any isolate with nosocomial significance.
   2. All results are reported in the computer as soon as they are available.
   3. Additional telephone reports of any result will be made upon request.

C. PUBLIC HEALTH REPORTS:
   1. The microbiology laboratory is required to forward patient information and some isolates from new cases of certain diseases to the Department of Public Health. Refer to the Reportable Diseases policy for specific instruction.
OVERVIEW

The reference Laboratory offers comprehensive viral cultures, as well as cultures for a particular virus. When a routine comprehensive culture is requested, attempts will be made to isolate culturable viruses. The different substrates or viral isolation include up to ten different cell lines. Not all cell lines will be included in all cases; determining factors include the time of year, patient history and current epidemiology relevant to the area of the country from which the specimen originated. Specific viral cultures are usually done for HSV, CMV, and HIV. Also, many techniques for rapid diagnosis of viral disease have been developed for routine laboratory application.

TEST REQUEST INFORMATION

Whenever possible, the virology laboratory requests as much information as possible. This should include: source, date collected, date of onset of symptoms, and the clinical background. It is especially important to advise us when LCM, Poxvirus, Herpes B virus, Rubella, Measles, Rhinoviruses or Arboviruses are suspected.

COLLECTION TIME AND VIRAL RECOVERY

Specimens should be collected early in the acute phase of infection. Herpes Simplex virus and Varicella-Zoster virus may not be recovered from lesions beyond 5 days after onset of clinical manifestations of disease. Respiratory viruses are recovered during the 3-7 day viral shedding period following infection. Isolation of an enterovirus (Coxsackie virus, Echovirus) from the CSF is most productive within 2-3 days after onset of the CNS manifestations.

REPORTING

Final and preliminary reports vary according to the type of culture. Preliminary negative reports on routine virus cultures are sent out after two weeks; final negative reports are sent out at the end of three weeks. Herpes culture reports are reported routinely after 48-hour test procedure. Cultures for CMV are stained for presence of early nuclear antigen, reported in 48 hours.

COLLECTION, TRANSPORTATION AND STORAGE GUIDELINES

- Most viral specimens should be held at 2-8°C rather than frozen for short term, <48 hours, transit and storage. For delays exceeding 48 hours, freeze viral specimens at -70°C or below. Do not freeze at -20°C.
- Sterile body fluids such as cerebrospinal fluid do not require any transport medium and should not be diluted.
- Many suitable holding media for use with swabs and washings are commercially available as an immediate alternative to in-house transport media.
- Avoid calcium alginate swabs with Herpes and Chlamydia cultures. The fibers may inactivate these agents.
- Avoid any wooden shafted swabs, which may be inhibitory to viruses.
- It is usually not possible to isolate Arboviruses from clinical specimens. In such cases, serological studies are helpful.
- Chlamydial specimens should be held at 2-8°C for short term, <48 hours, transit and storage. For delays exceeding 48 hours, freeze at -70°C or below.
GENERAL STATEMENTS

Some samples can be submitted without utilizing a transport media, with a reasonable expectation of virus viability. Specimens in this category include, sterile fluids such as; cerebrospinal fluid, pleural fluid, blood submitted in EDTA, urine, as well as some non-sterile specimens such as; nasopharyngeal washings, sputum, bronchoalveolar lavage, and feces. Whenever there is a question of stability, the specimen should be placed into viral transport media, the laboratory uses Universal Viral Transport Media (UVT).

Swabs that are made of calcium alginate and wood are known to interfere with the recovery of some viruses and are not accepted for viral culture. These can also act as PCR inhibitors and are not appropriate for this type of testing. Dry swabs and swabs in gel transport are also not accepted for viral culture.

- Specimens for Viral Culture must not be frozen.
- Specimens for Chlamydia culture are accepted in UVT media, transported at 2-8°C.
- Specimens for Chlamydia culture are accepted in UVT media, but if transport time will exceed 24 hours, the sample must be frozen and shipped on dry ice.

COLLECTION GUIDELINES

1. Tissue and biopsy material can be placed directly into the UVT media. Each sample need not be more than 1-2 cm in diameter.

2. Abscess material, bullae, pustules, vesicles, lesions, and skin scrapings can be collected a swab and placed directly into the UVT media. If the material has been aspirated, place no more than 3 mL (equal to the amount of transport media) in the vial of UVT.

3. CSF should be submitted in a sterile container or no more than 3 mL added to the UVT media.

4. Urine should be submitted in a sterile container or no more than 3 mL added to the UVT media.

5. Bronchoalveolar washings, nasopharyngeal washings, sputums, and other sterile body fluids can be submitted in sterile containers or no more than 3 mL added to the UVT media.

6. Stool should be submitted in a sterile container, or a small aliquot the size of a walnut can be placed in the UVT tube.

7. Blood should be submitted in an EDTA tube. Do not extract the buffy coat.
### Viral Specimen Collection and Transport Temperature

<table>
<thead>
<tr>
<th>Specimen Type</th>
<th>Collection Procedure</th>
<th>Optimum Transport</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLOOD</td>
<td>Collect 5 mL of EDTA blood.</td>
<td>2-8°C</td>
</tr>
<tr>
<td>BONE MARROW</td>
<td>Collect sample in EDTA.</td>
<td>2-8°C</td>
</tr>
<tr>
<td>BODY FLUIDS other than BLOOD or URINE</td>
<td>Collect 2-3 mL in a sterile container or no more than 3 mL added to the UVT tube.</td>
<td>2-8°C</td>
</tr>
<tr>
<td>CSF</td>
<td>Collect at least 1 mL in a sterile container or no more than 3 mL added to the UVT tube.</td>
<td>2-8°C</td>
</tr>
<tr>
<td>EYE SCRAPING or SWAB</td>
<td>Swab the inflamed conjunctiva or corneal lesion. Place swabs or scraping in UVT Viral Transport Media.</td>
<td>2-8°C</td>
</tr>
<tr>
<td>NASOPHARYNGEAL</td>
<td>Collect 2 swabs. Place both swabs in one UVT-Viral Transport Media.</td>
<td>2-8°C</td>
</tr>
<tr>
<td>SPUTUM</td>
<td>Collect in a sterile container.</td>
<td>2-8°C</td>
</tr>
<tr>
<td>STOOL</td>
<td>Collect 1-2 grams of fresh stool and place in sterile container.</td>
<td>2-8°C</td>
</tr>
<tr>
<td>SWAB</td>
<td>Collect on swab and place in UVT –Viral Transport Media.</td>
<td>2-8°C</td>
</tr>
<tr>
<td>THROAT</td>
<td>Collect on sterile swab and place in UVT- Viral Transport Media.</td>
<td>2-8°C</td>
</tr>
<tr>
<td>TISSUE</td>
<td>Place sample in UVT – Viral Transport Media.</td>
<td>2-8°C</td>
</tr>
<tr>
<td>URINE</td>
<td>Collect at least 5mL in a sterile container.</td>
<td>2-8°C</td>
</tr>
<tr>
<td>VESICLE FLUID</td>
<td>Collect fluid from several fresh vesicles. Place in UVT-Viral Transport Media.</td>
<td>2-8°C</td>
</tr>
</tbody>
</table>

### Virology Specimen Selection

<table>
<thead>
<tr>
<th>Disease</th>
<th>Associated Viruses</th>
<th>Recommended Specimen</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONGENITAL AND NEONATAL INFECTIONS</td>
<td>Rubella, Cytomegalovirus, Herpes Simplex Virus, Enterovirus</td>
<td>CSF, throat, urine, Urine, throat, blood, tissue, CSF, throat, brain biopsy, vesicle, CSF, throat, stool, brain biopsy, autopsy</td>
</tr>
<tr>
<td>ACQUIRED IMMUNODEFICIENCY SYNDROME (AIDS)</td>
<td>HIV-1</td>
<td>CSF, blood, body fluid, tissue</td>
</tr>
<tr>
<td>CONJUNCTIVITIS AND CORNEAL LESIONS</td>
<td>Adenovirus, Cytomegalovirus, Enterovirus, Herpes Simplex Virus, Varicella-Zoster Virus</td>
<td>Eye swab, Corneal or conjunctival scrapings</td>
</tr>
<tr>
<td>Disease</td>
<td>Associated Viruses</td>
<td>Recommended Specimen</td>
</tr>
<tr>
<td>---------------------------------------------</td>
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</tr>
<tr>
<td>ENCEPHALOPATHIES ASEPTIC MENINGITIS AND ENCEPHALITIS</td>
<td>Adenovirus, Arbovirus, Cytomegalovirus, Enterovirus, Herpes Simplex Virus, HIV LCM, Measles, Mumps, Varicella-Zoster Virus</td>
<td>CSF, brain biopsy, blood, CSF, brain biopsy, blood, Brain biopsy, CSF, throat swab, stool, CSF, brain biopsy, blood, CSF, blood, Serological testing only, CSF, urine, CSF, urine, CSF, brain biopsy, skin lesions</td>
</tr>
<tr>
<td>EXANTHEMS AND ENANTHEMS</td>
<td>Herpes Simplex Virus, HHV-6, Enterovirus, Parvovirus B19, Rubella, Varicella-Zoster Virus</td>
<td>Vesicle swab, Serological testing only, Vesicle swab, throat swab, stool, Serology/PCR, Throat swab, CSF, urine, Scrapings from fresh vesicle</td>
</tr>
<tr>
<td>GASTROENTERITIS</td>
<td>Adenovirus, Rotavirus</td>
<td>Stool, Stool-EIA</td>
</tr>
<tr>
<td>GENITAL INFECTIONS</td>
<td>Herpes Simplex Virus</td>
<td>Genital swab, vesicle swabs, vesicle fluid</td>
</tr>
<tr>
<td>MALAISE SYNDROME</td>
<td>Cytomegalovirus, Epstein-Barr Virus</td>
<td>Blood, urine throat swab, Serological testing only</td>
</tr>
<tr>
<td>MYOCARDITIS AND PERICARDITIS</td>
<td>Coxsackie B 1-5, Echovirus</td>
<td>Pericardial fluid, throat swab, Serological testing only</td>
</tr>
<tr>
<td>PNEUMONIA</td>
<td>Adenovirus, Cytomegalovirus, Herpes Simplex Virus, Influenza A/B, Parainfluenza 1/2/3, RSV, Varicella-Zoster Virus</td>
<td>Throat swab, nasopharyngeal (NP), bronchial wash, tissue, Urine, throat swab, lung tissue, blood bronchial wash, Throat swab, bronchial wash, lung tissue, oral lesion, blood, Throat wash, sputum, lung tissue, NP, bronchial wash, Throat wash, sputum, lung tissue, NP, bronchial wash, NP, bronchial wash, lung tissue, Lung tissue, bronchial wash, skin lesions, blood</td>
</tr>
<tr>
<td>RESPIRATORY TRACT INFECTIONS</td>
<td>Adenovirus, Enterovirus, Influenza A/B, Parainfluenza 1/2/3, Rhinovirus, RSV</td>
<td>NP swab, transtracheal aspirate, throat swab, NP swab, throat swab, NP, throat swab, sputum, NP, throat swab, NP, throat swab, NP swab, aspirate or wash</td>
</tr>
</tbody>
</table>
# Routine Bacteriology and Mycology Specimen Collection

<table>
<thead>
<tr>
<th>SPECIMEN TYPE</th>
<th>COLLECTION PROCEDURE</th>
<th>VOLUMES</th>
<th>TRANSPORT CONTAINER</th>
<th>STORAGE AND TRANSPORT TO LAB</th>
<th>STORAGE PRIOR TO PROCESSING</th>
<th>COMMENTS</th>
</tr>
</thead>
</table>
| ABSCESS       | OPEN ABSCESS         | As much fluid as possible, ≥ 1 ml | 1. eSwab  
2. Syringe WITHOUT needle attached. | ≤ 2 hours, RT | Plate immediately upon receipt.  
Max ≤ 24 hours, RT | Tissue or fluid is always superior to swab specimens. |
|               | CLOSED ABSCESS       | As much fluid as possible, ≥ 1 ml | 1. eSwab  
2. Syringe WITHOUT needle attached. | ≤ 2 hours, RT | ≤ 24 hours, RT | Sampling of surface area can introduce colonizing bacteria not involved in infectious process. |
<p>| BITE WOUND    | See ABSCESS          |         |                     |                             |                             | Do not culture animal bite wounds ≤ 12 h old (agents are not usually recoverable) unless they are on face or hand or unless signs of infection are present. |
| BIOPSY        | Physician will aseptically perform biopsy. | Entire specimen | Use eSwab, 0.5mL saline or submit in sterile container without formalin. | ≤ 1 hours, RT | ≤ 24 hours, RT | Keep specimen moist with a small amount of sterile physiological saline or the eSwab kit. |</p>
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<tr>
<td>BLOOD CULTURE</td>
<td>Disinfection of culture bottle: Apply 70% isopropanol to rubber stoppers and wait 1 min. <strong>Adult site Prep:</strong> 1. Remove the Chloraprep from the package. Pinch the wings on the applicator to break the ampule and release Chloraprep antiseptic into the sponge pad. Be careful not to touch the sponge pad. 2. Press the sponge against the skin to be cleaned until liquid is visible on the skin. Use a back and forth motion and gently scrub the area for 30 seconds. Allow the area to dry for about 30 seconds. Do not blow or fan the area to hasten drying. 3. <strong>Do not palpate the vein at this point.</strong> 4. Collect blood.</td>
<td><strong>Adult:</strong> 16 to 20 ml/set for bacteria/yeast <strong>Peds:</strong> 1-3 ml/bottle for bacteria/yeast <strong>Isolator:</strong> 10 ml for Fungi or Adult Colony Count 1.5 ml for Infant Colony Count <strong>Mycobacteria Lytic:</strong> 3-5 ml for AFB</td>
<td>Send blood culture to the laboratory as soon as possible. Bottles have a delayed entry capability but still must be placed into the Bactec instrument in ≤ 48 hours if bottles have been held at room temperature. Although drawing blood cultures before the fever spike is optimal, <strong>volume is more important than timing for recovery.</strong></td>
<td>≤ 2 hours, RT</td>
<td>DO NOT Refrigerate</td>
<td>Acute Sepsis, meningitis, etc. requiring immediate institution of therapy: Two blood cultures of max vol drawn before therapy from separate sites FUO, SBE or other continuous bacteremia/fungemia: Three sets total, two sets are drawn consecutively from separate sites, and the third set can be drawn an hour or more later. “Culture negative” or patient on therapy: Maximum of an additional 2-3 sets drawn on day 2 or 3.</td>
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<td></td>
<td><strong>Infant site Prep:</strong> 1. For patients under 2 months of age, do not use the Chloraprep scrub. Use Medi Flex Blood Culture Prep Kit II containing iodine. 2. Break the ampule in the sponge. 3. Scrub the area using a back and forth motion for 60 seconds. Allow area to dry. 4. Break iodine ampule. 5. Swab iodine onto the drawing site in a concentric circle. 7. Allow this to dry before collecting specimen. 8. <strong>Do not palpate the vein at this point.</strong> 9. Collect blood. 10. After venipuncture, remove iodine from skin with alcohol.</td>
<td></td>
<td>Send blood culture to the laboratory as soon as possible. Although drawing blood cultures before the fever spike is optimal, <strong>volume is more important than timing for recovery.</strong></td>
<td>≤ 2 hours, RT</td>
<td>DO NOT Refrigerate</td>
<td>Acute Sepsis, meningitis, etc. requiring immediate institution of therapy: Two blood cultures of max vol drawn before therapy from separate sites FUO, SBE or other continuous bacteremia/fungemia: Three sets total, two sets are drawn consecutively from separate sites, and the third set can be drawn an hour or more later. “Culture negative” or patient on therapy: Maximum of an additional 2-3 sets drawn on day 2 or 3.</td>
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<tr>
<td>BONE MARROW</td>
<td>Physician aseptically obtains the specimen via standard protocol</td>
<td>0.5 to 1.5 ml</td>
<td><strong>Bacteria:</strong> 1.5ml in Isolator Vial</td>
<td>≤ 2 hours, RT</td>
<td>≤ 24 hours, RT</td>
<td>DO NOT allow marrow to clot.</td>
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<td></td>
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<td></td>
<td><strong>Fungus:</strong> 1.5ml in Isolator Vial</td>
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<td></td>
<td></td>
<td></td>
<td><strong>AFB:</strong> 1.5ml in Isolator Vial</td>
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<td></td>
<td></td>
<td></td>
<td><strong>Viral:</strong> M4 Transport (no min. vol.)</td>
<td></td>
<td></td>
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<tr>
<td>BONE</td>
<td>Obtain bone specimen in surgery</td>
<td>Entire specimen</td>
<td>Submit in sterile container without formalin.</td>
<td>≤ 30 min, RT</td>
<td>Plate immediately upon receipt. Max ≤ 24 hours, 2-8°C</td>
<td>Keep specimen moist with a small amount of sterile physiological saline.</td>
</tr>
<tr>
<td>CATHETER</td>
<td>Cleanse skin around catheter site with alcohol. Aseptically cut the section of line which was immediately beneath the skin, (not necessarily the tip)</td>
<td>2-inches (5 cm) of catheter</td>
<td>Sterile, dry container</td>
<td>≤ 30 min, RT</td>
<td>Plate immediately upon receipt. Max: ≤ 24 hours, 2-8°C</td>
<td>Acceptable I.V. catheters: central, CVP, Hickman, Broviac, peripheral, arterial, umbilical, hyperalimentation, Swan-Ganz Unacceptable: Foley</td>
</tr>
<tr>
<td>CSF</td>
<td>Spinal Fluid, Physician aseptically collects the specimen via conventional aspiration, or ventricular shunt.</td>
<td>≥ 1 ml</td>
<td><strong>Bacteria:</strong> never refrigerate: ≤ 15 min, RT <strong>Viral:</strong> transport on ice: ≤ 15 min, 2-8°C</td>
<td>Plate immediately upon receipt. Max: ≤ 24 hours, 2-8°C</td>
<td>Samples that need to be shared with other departments must have ALL paperwork included with the specimen</td>
<td></td>
</tr>
<tr>
<td>DECUBITUS ULCER</td>
<td>Cleanse surface with sterile saline. Vigorously swab base of lesion. Place swab in appropriate transport system.</td>
<td>≥ 1 ml</td>
<td><strong>Bacteria:</strong> 2 ml <strong>Fungi:</strong> 2 ml <strong>AFB:</strong> 2 ml <strong>Virus:</strong> 1 ml Molecular testing: ≥ 1 ml</td>
<td></td>
<td>≤ 24 hours, RT</td>
<td>Tissue biopsy sample or needle aspiration is specimen of choice. Swab: Dubious microbiological value.</td>
</tr>
<tr>
<td>DENTAL SPECIMENS</td>
<td>1. Carefully cleanse gingival margin and supragingival tooth surface to remove saliva, debris and plaque.</td>
<td>Min volumes accepted</td>
<td>eSwab</td>
<td>≤ 2 hours, RT</td>
<td>≤ 24 hours, RT</td>
<td></td>
</tr>
<tr>
<td>GINGIVAL</td>
<td>2. Using periodontal scaler, carefully remove subgingival lesion material and transfer it to anaerobic transport system.</td>
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<tr>
<td>PERIODONTAL</td>
<td>3. Prepare smears (fusospirochaetal disease) collected in same manner.</td>
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<tr>
<td>PERIAPICAL</td>
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| **EAR**       | Inner:  
Tympanocentesis is reserved for complicated, recurrent or chronic persistent otitis media.  
1. For intact eardrum, clean ear canal, and collect fluid via syringe aspiration technique.  
2. For ruptured eardrum, collect fluid on flexible-shaft swab via auditory speculum. |         | 1. eSwab with Mini-Tip swab  
2. Syringe WITHOUT needle attached | ≤ 2 hours, RT | ≤ 24 hours, RT | Throat or nasopharyngeal cultures are not predictive of agents responsible for otitis media. |
|               | Outer:  
Use moistened swab to remove any debris or crust from ear canal. Obtain sample by firmly rotating swab in outer ear canal. |         | eSwab | ≤ 2 hours, RT | ≤ 24 hours, 2-8°C ≤ 24 hours, RT | For otitis externa, vigorous swabbing is required because surface swabbing may miss streptococcal cellulitis |
| **EYE**       | Conjunctiva:  
Sample both eyes with separate swabs (pre-moistened with sterile saline) by rolling swab over each conjunctiva. | Direct inoculation or swab transport. | 1. eSwab with Mini-Tip swab | Plates: ≤ 15 min, RT  
Swabs: ≤ 2 hours, RT | ≤ 24 hours, RT | Sample both conjunctiva to determine indigenous microflora. Uninfected eye serves as control. |
|               | Corneal Scrapings:  
1. Obtain conjunctival specimen first.  
2. Instill local anesthetic.  
3. Using sterile spatula, scrape ulcers or lesions and inoculate directly onto media.  
4. Prepare slide. | Direct inoculation:  
Bacteria: BAP, CA, ABA  
Fungi: BHI, IMA | ≤ 15 min, RT | Plate immediately upon receipt ≤ 24 hours, RT | Take conjunctival swabs prior to anesthetic application; corneal scrapings can be obtained after. |
| **FECES**     | Routine Culture  
Fecal Lactoferrin:  
1. Pass stool directly into a container OR pass stool into clean bedpan, and transfer the specimen into a container.  
2. Transport to the laboratory within 1 hour of collection. | Unpreserved,  
≥ 2 grams or  
≥ 2 ml minimum | Sterile, leak-proof container with tight fitting lid. | Unpreserved: ≤ 1 hour, RT  
Swab transport: ≤ 24 hours, RT | ≤ 24 hours, 2-8°C ≤ 48 hours, RT or 2-8°C | Stool cultures are not routinely performed for workup of diarrhea developing after three days of hospitalization. Clostridium difficile is the most common bacterial agent of diarrhea in hospitalized patients. |
|               | Occult Blood:  
Pass stool directly into a container OR pass stool into clean bedpan, and transfer the specimen into a container. | Unpreserved,  
≥ 2 grams or  
≥ 2 ml minimum | Sterile, leak-proof container with a tight fitting lid. | Unpreserved: ≤ 1 hour, RT | ≤ 24 hours, 2-8°C | Interfering Substances: Blood from menstrual cycle or hemorrhoids. Avoid aspirin and other anti-inflammatory 7 days |
<table>
<thead>
<tr>
<th>SPECIMEN TYPE</th>
<th>COLLECTION PROCEDURE</th>
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<tbody>
<tr>
<td>CLOSTRIDIUM DIFFICILE TOXIN:</td>
<td>Pass liquid or soft stool directly into clean, dry container. Soft stool is defined as stool assuming the shape of its container. Sample must be received in the laboratory within 24 hours of the test order time or the order will be automatically canceled.</td>
<td>Unpreserved, ≥ 5 grams or ≥ 5 ml minimum</td>
<td>Sterile, leak-proof container with a tight fitting lid.</td>
<td>≤ 1 hour, RT 1-24 hours, 2-8°C &gt; 24 hours, -20°C</td>
<td>3 days, 2-8°C &gt; 72 hours, 70°C</td>
<td>Patients often are passing ≥5 stools with liquid or soft consistency per 24 hours. Formed stools are rejected. More than one sample per 24 hour period is rejected.</td>
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<tr>
<td>OVA AND PARASITE EXAM:</td>
<td>1. Have patient pass stool directly into a container 2. OR pass stool into clean bedpan, and transfer the specimen into a container. 3. Transport to the laboratory within 1 hour of collection or immediately place into preservative</td>
<td>Unpreserved, ≥ 10 grams or ≥ 10 ml min 5 grams or 5 ml into each preservative vial</td>
<td>1. Sterile, leak-proof container with a tight fitting lid. 2. O&amp;P: Total Fix single vial collection kit.</td>
<td>Liquid stool: &lt; 1 hour RT before being placed into preservative Soft or Formed stool: &lt; 2 hours RT before being placed into preservative</td>
<td>Place into preservative within 1 hour of passage Place into preservative within 2 hours of passage</td>
<td>Outpatient: Collect 3 specimens over 6 days. Infections with E. histolytica may require up to six specimens for detection. Inpatient: Seldom useful for patients hospitalized &gt; 3 days.</td>
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<tr>
<td>RECTAL SWAB:</td>
<td>1. Pass the tip of a sterile swab approximately 1-inch beyond the anal sphincter. 2. Carefully rotate the swab to sample the anal crypts. 3. Remove the swab and place in transport system.</td>
<td></td>
<td></td>
<td>&lt; 2 hours, RT</td>
<td>&lt; 24 hours, RT</td>
<td>Reserved for detecting gonorrhoea, enteric pathogens, and for anal carriers of Group B strep and VRE. Feces should be evident on the swab. (Minimum 3-4 mm pellet)</td>
</tr>
<tr>
<td>FLUIDS</td>
<td>Abdominal amniotic ascites bile joint pericardial peritoneal pleural synovial thoracentesis</td>
<td>Send as much fluid as possible. Bacteria: ≥ 1 ml Fungus: ≥ 10 ml Mycobacteria: ≥ 10 ml</td>
<td>Syringe WITHOUT needle attached</td>
<td>≤ 30 min, RT</td>
<td>Plate immediately upon receipt. Max: ≤ 24 hours, RT Fluids for fungal cultures: ≤ 24 hours, 2-8°C</td>
<td>Transport to laboratory immediately. Synovial fluid specimens received in Isolator tubes are acceptable. Reject all samples received in heparin EDTA or any other anti-coagulant.</td>
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<td>GANICROUS TISSUE</td>
<td>See TISSUE Instructions</td>
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<td><strong>GASTRIC</strong></td>
<td>Wash or lavage fluid</td>
<td>Entire specimen</td>
<td>Sterile leakproof container</td>
<td>≤ 30 min, RT, Neutralize within 1 hour of collection</td>
<td>Neutralize within 1 hour of collection with sodium carbonate</td>
<td>≤ 24 hours, 2-8°C</td>
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<tr>
<td><strong>GENITAL MALE</strong></td>
<td>PROSTATE:</td>
<td>Entire specimen</td>
<td>Sterile screw cap tube</td>
<td>&lt; 2 hours, RT</td>
<td>Plate immediately upon receipt Max; &lt; 24 hours, RT</td>
<td>More relevant results may be obtained by also using urine specimens collected immediately before or after massage.</td>
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<td>1. Clean glans with soap and water.</td>
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<td>2. Massage prostate through rectum.</td>
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<td>3. Collect fluid in sterile tube</td>
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<td><strong>URETHRA:</strong></td>
<td>1. Insert appropriate swab 2-4 cm into urethral lumen, rotate swab and leave it in place for at least 2 seconds.</td>
<td>Routine culture/GC Screen: eSwab</td>
<td>&lt; 2 hours, RT</td>
<td>&lt; 24 hours, RT</td>
<td>Chlamydia/GC PCR: Collect first voided urine for CT/NG PCR testing.</td>
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<td>2. Remove swab and place in appropriate transport media.</td>
<td>eSwab w/ Mini-Tip swab For HSV use Viral Transport Media</td>
<td>&lt; 2 hours, RT</td>
<td>&lt; 24 hours, RT</td>
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<tr>
<td><strong>GENITAL FEMALE</strong></td>
<td><strong>AMNIOTIC FLUID:</strong></td>
<td>≥ 1 ml fluid</td>
<td>eSwab Syringe without needle Sterile container</td>
<td>&lt; 30 minutes, RT</td>
<td>Plate immediately upon receipt. Max: &lt; 24 hours, RT</td>
<td>Swabbing or aspiration of vaginal membranes is not acceptable because of vaginal contamination.</td>
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<td>Aspirate via amniocentesis, cesarean section, or intrauterine catheter</td>
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<td><strong>BARTHOLIN:</strong></td>
<td>≥ 1 ml fluid</td>
<td>eSwab Syringe without needle Sterile container</td>
<td>&lt; 2 hours, RT</td>
<td>&lt; 24 hours, RT</td>
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<td>Disinfect skin, Aspirate fluid from ducts</td>
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<td>CERVIX:</td>
<td>Visualize cervix with speculum. Remove mucus from cervix with swab, discard swab. Firmly sample endocervical canal with sterile swab.</td>
<td>Swabs</td>
<td>Culture: eSwab CT/NG: PCR media</td>
<td>&lt; 2 hours, RT</td>
<td>&lt; 24 hours, RT</td>
<td>Best specimen for GC or Chlamydia.</td>
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<td>ENDOMETRIUM:</td>
<td>Collect transcervical aspirate via telescoping catheter.</td>
<td>≥ 1 ml fluid</td>
<td>eSwab Syringe without needle Sterile container</td>
<td>&lt; 2 hours, RT</td>
<td>&lt; 24 hours, RT</td>
<td>Likelihood of external contamination is high for cultures obtained through vagina</td>
</tr>
<tr>
<td>IUD:</td>
<td>Submit entire device</td>
<td>Sterile container</td>
<td>&lt; 2 hours, RT</td>
<td>&lt; 24 hours, RT</td>
<td>Submit ASAP at room temperature</td>
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<tr>
<td>PLACENTA:</td>
<td>Submit a portion of tissue, NOT a swab</td>
<td>Sterile container</td>
<td>&lt; 2 hours, RT</td>
<td>&lt; 24 hours, RT</td>
<td>Do not process Lochia</td>
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<td>PRODUCTS OF CONCEPTION</td>
<td>Submit a portion of tissue, NOT a swab</td>
<td>Sterile container</td>
<td>&lt; 2 hours, RT</td>
<td>&lt; 24 hours, RT</td>
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<tr>
<td>URETHRA:</td>
<td>Remove exudate from urethral orifice Collect discharge material on swab by massaging urethra against pubic symphysis through vagina.</td>
<td>eSwab</td>
<td>&lt; 2 hours, RT</td>
<td>&lt; 24 hours, RT</td>
<td>If no discharge can be obtained, wash external urethra, then insert urethrogenital swab 2-4 cm into urethra and rotate for 2 sec.</td>
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<tr>
<td>VAGINA:</td>
<td>Wipe away excess amount of secretion or discharge. Obtain secretions from mucosal membrane of vaginal vault with sterile swabs</td>
<td>Ambient Temperature Transport System (ATTS) for Bacterial Vaginosis DNA panel CT/NG: PCR Media Group B Strep Culture: eSwab</td>
<td>&lt; 2 hours, RT</td>
<td>&lt; 24 hours, RT</td>
<td>Vaginal specimens on adult women is used for detection of trichomonads and Candida, to diagnose bacterial vaginosis and to screen for chlamydia and gonorrhoea.</td>
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<td>VAGINAL/RECTAL:</td>
<td>Use for Group B strep screening of pregnant women only. Collect specimen at 35-37 weeks gestation. Swab lower vagina (vaginal introitus), followed by the rectum (i.e., insert a swab through the anal sphincter) using the same swab or two different swabs. Place both swabs into the same transport medium.</td>
<td>VOLUMES</td>
<td>eSwab</td>
<td>&lt; 2 hours, RT</td>
<td>&lt; 4 days, RT</td>
<td>This procedure is to be used for the universal prenatal screening for GBS colonization and recommended for all pregnant women 35-37 weeks gestation. Indicate if patient is allergic to penicillin (clindamycin and erythromycin susceptibility testing will be performed)</td>
</tr>
<tr>
<td>RESPIRATORY TRACT- LOWER:</td>
<td>Place aspirate or washing into sterile container. Place bronchial brush or biopsy in 0.5 BHI Broth or .85% saline, available through microbiology.</td>
<td>Routine Bacteriology: &gt;1 ml AFB and Fungus: &gt; 10 ml</td>
<td>Sterile container</td>
<td>&lt; 2 hours, RT</td>
<td>&lt; 24 hours, 2-8°C</td>
<td>For isolation of Candida.</td>
</tr>
<tr>
<td>TRACT - UPPER: ORAL:</td>
<td>1. Rinse mouth with sterile saline. 2. Wipe lesion with dry sterile gauze. 3. Swab or scrape areas of ulceration or exudation.</td>
<td>eSwab</td>
<td>&lt; 2 hours, RT</td>
<td>&lt; 24 hours, RT</td>
<td>For isolation of staphylococcus</td>
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<tr>
<td>NASAL:</td>
<td>1. Insert a pre-moistened sterile swab into the nose. 2. Rotate against nasal mucosa.</td>
<td>eSwab</td>
<td>&lt; 2 hours, RT</td>
<td>&lt; 24 hours, RT</td>
<td>For detection of Bordetella and Viral Respiratory Pathogens of the upper respiratory tract.</td>
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<tr>
<td>NASOPHARYNX:</td>
<td>1. Gently insert swab into posterior nasopharynx via nose. 2. Rotate swab slowly for 5 s to absorb secretions. 3. Remove swab and place in transport media.</td>
<td>eSwab with Mini-Tip swab for bacteria (except Bordetella). Use Viral Transport Media for Bordetella or Viral Respiratory Pathogen</td>
<td>&lt; 2 hours, RT</td>
<td>&lt; 24 hours, RT</td>
<td>For detection of Group A strep, N. meningitidis, and A. haemolyticum.</td>
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<tr>
<td>THROAT:</td>
<td>1. Depress tongue with tongue depressor. 2. Sample posterior pharynx, tonsils, and inflamed areas with sterile swab.</td>
<td>eSwab</td>
<td>&lt; 2 hours, RT</td>
<td>&lt; 24 hours, RT</td>
<td>For detection of Group B strep screening of pregnant women only. Collect specimen at 35-37 weeks gestation. Swab lower vagina (vaginal introitus), followed by the rectum (i.e., insert a swab through the anal sphincter) using the same swab or two different swabs. Place both swabs into the same transport medium.</td>
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<td>SINUS WASHINGS</td>
<td>Physician aseptically collects the specimen via standard protocol.</td>
<td>Entire specimen</td>
<td>Sterile container</td>
<td>&lt; 2 hours, RT</td>
<td>&lt; 24 hours, 2-8°C</td>
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<tr>
<td>SPUTUM</td>
<td>EXPECTORATED: Rinse mouth and gargle with water. Collect specimen resulting from deep cough. <em>Saliva is unacceptable.</em></td>
<td>Routine Bacteriology: &gt; 2ml</td>
<td>Sterile specimen collection container</td>
<td>&lt; 2 hours, RT</td>
<td>&lt; 24 hours, 2-8°C</td>
<td>The best specimens should have &lt;10 squamous cells per 100X oil field. Sub-optimal specimens will be rejected</td>
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<td>INDUCED: Usually collected by respiratory therapists using ultrasonic nebulizer.</td>
<td>Routine Bacteriology: &gt; 2ml</td>
<td>Sterile specimen collection container</td>
<td>&lt; 2 hours, RT</td>
<td>&lt; 24 hours, 2-8°C</td>
<td>Dimorphic yeast survive for only short periods of time once specimen is collected. Fungal recovery is primarily for Cryptococcus sp. and some filamentous fungi; other yeasts rarely cause lower respiratory tract infection.</td>
</tr>
<tr>
<td>TISSUE</td>
<td>Physician aseptically collects tissue. For small samples, use 0.5 ml BHI Broth or add several drops of sterile non-bacteriostatic saline to keep moist. Do not drown the tissue in liquid. <em>Do not allow tissue to dry out. Do not submit tissue sample in the grey-capped anaerobic swab transport device.</em></td>
<td>Sterile container. A small amount of saline may be added to keep tissue moist</td>
<td>eSwab</td>
<td>&lt; 30 minutes, RT</td>
<td>Plate immediately upon receipt. Max: &lt; 24 hours, RT if properly preserved</td>
<td>Always submit as much tissue as possible. Never submit swabs that have simply been rubbed over the surface.</td>
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<tr>
<td>URINE</td>
<td>MIDSTREAM CLEAN CATCH: 1. Thoroughly clean urethral/glans area with soap and water. 2. Rinse area with wet gauze pads. 3. While holding labia/foreskin apart, begin voiding. 4. After several ml have passed, collect midstream portion without stopping flow of urine.</td>
<td>Routine Bacteria: ≥ 4 ml AFB and Fungus: min. 40 ml first morning voided</td>
<td>Sterile screw-cap container. BD vacutainer urine C&amp;S tube (grey top)</td>
<td>&lt; 2 hours, 2-8°C</td>
<td>&lt; 24 hours, 2-8°C</td>
<td>Do not submit 24 hours collection for any culture.</td>
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<td>FIRST VOID CLEAN-CATCH</td>
<td>1. Patient must not have voided for the previous 2 hours. 2. Thoroughly clean urethral/glans area with soap and water. 3. Rinse area with wet gauze pads. 4. While holding labia/foreskin apart, begin voiding. 5. Collect the first 10-50 mLs of the urine stream in a clean collection cup.</td>
<td>Chlamydia and GC nucleic acid testing (PCR): 10 – 50 mLs</td>
<td>Collect in sterile screw-cap container. Transfer to PCR urine tube.</td>
<td>Room Temperature</td>
<td>Room Temperature</td>
<td>The first part of the stream is used for Chlamydia and GC nucleic acid testing (PCR)</td>
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<tr>
<td>STRAIGHT CATH:</td>
<td>1. Thoroughly clean urethral area with soap and water. 2. Rinse the area with wet gauze. 3. Aseptically insert catheter into bladder. 4. Allow about 15 ml to pass; then collect urine to be submitted.</td>
<td>Routine Bacteria: ≥ 4 ml AFB and Fungus: submit entire collection</td>
<td>Sterile screw-cap container. BD vacutainer urine C&amp;S tube (grey top)</td>
<td>&lt; 2 hours, 2-8°C &lt; 2 hours, RT</td>
<td>&lt; 2 hours, RT</td>
<td>Do not submit urine from collection bag.</td>
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<tr>
<td>INDWELLING CATH:</td>
<td>1. Disinfect catheter collection port with 70% alcohol. 2. Use needle and syringe to aseptically collect 5-10 ml of urine. 3. Transfer sample to sterile container.</td>
<td>Routine Bacteria: 5-10 ml AFB and Fungus: submit entire collection</td>
<td>Sterile screw-cap container. BD vacutainer urine C&amp;S tube (grey top)</td>
<td>&lt; 2 hours, 2-8°C &lt; 2 hours, RT</td>
<td>&lt; 2 hours, RT</td>
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<tr>
<td>ILEAL CONDUIT:</td>
<td>1. Remove urinary appliance and discard contained urine. 2. Swab the stomal opening with an alcohol wipe or iodophor. 3. Aseptically insert a catheter into the stoma and catheterize the ileal conduit to a depth beyond the fascial level. 4. Collect the urine drained from the catheter into a sterile container.</td>
<td>Routine bacteria: &gt; 4 ml AFB and Fungus: submit entire collection</td>
<td>Sterile screw-cap container BD vacutainer urine C&amp;S tube (grey top)</td>
<td>&lt; 2 hours, 2-8°C &lt; 2 hours, RT</td>
<td>&lt; 2 hours, RT</td>
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<td>SUPRAPUBIC ASPIRATE:</td>
<td>1. Decontaminate and anesthetize the skin.</td>
<td>routine bacteria: &gt; 4 ml</td>
<td>Sterile screw-cap container</td>
<td>&lt; 2 hours, 2-8°C</td>
<td>&lt; 24 hours, 2-8°C</td>
<td>This is an acceptable urine specimen for anaerobic culture. These specimens are frequently collected from pediatric patients and patients with spinal cord injuries.</td>
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<td>2. Introduce a 22 gauge needle into the full bladder between the symphysis pubis and the umbilicus/2 cm above the symphysis.</td>
<td>AFB and Fungus: submit entire collection</td>
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<td>3. Aspirate about 20 ml of urine from the bladder.</td>
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<td>4. Transfer the urine aseptically into a sterile container.</td>
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<td>NEPHROSTOMY:</td>
<td>Surgically Collected Specimen</td>
<td>routine bacteria: &gt; 4 ml</td>
<td>Sterile screw-cap container</td>
<td>&lt; 2 hours, 2-8°C</td>
<td>&lt; 24 hours, 2-8°C</td>
<td>This is an acceptable urine specimen for anaerobic culture when collected surgically as the catheter is placed.</td>
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<td>AFB and Fungus: submit entire collection</td>
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<td>WOUND CLOSED OPEN</td>
<td>See ABSCESS or TISSUE instructions</td>
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<td>WOUND OPEN</td>
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## Common Orders For Specimens From Genital Sources

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<td><strong>Chlamydia trachomatis</strong>&lt;br&gt;Molecular Amp (CHLAM PCR)</td>
<td><strong>ROCHE PCR COLLECTION KITS</strong>&lt;br&gt;&lt;br&gt;<em>Urine Collection</em>: consists for PCR media and sterile pipette. Patient should not urinate <strong>1 hour prior to collection!</strong></td>
<td><strong>Urine collection:</strong>&lt;br&gt;- Instruct patient to collect <strong>first 10-50 mls</strong> in a sterile container (larger volumes decrease sensitivity of test, i.e., false negatives.)&lt;br&gt;- Use pipette to transfer urine into PCR tube, add urine to bring the volume of sample to between the 2 urine fill lines as indicated by the arrows on the tube.&lt;br&gt;- Re-cap tube then invert X5 to mix.&lt;br&gt;<strong>Female Vaginal:</strong>&lt;br&gt;- Insert woven swab about 5 cm into vaginal opening.&lt;br&gt;- Gently turn swab for 30 seconds against wall of vagina.&lt;br&gt;- Withdraw swab and immediately lower swab into tube until the dark line on shaft is aligned with the tube rim.&lt;br&gt;- Break off shaft at dark line and re-cap tube.&lt;br&gt;<strong>Female Endocervical:</strong>&lt;br&gt;- <strong>Use woven swab</strong> to clean excess mucus from cervical os (<em>mucus interferes with test and will result in an Invalid result.</em>)&lt;br&gt;- <strong>DISCARD WOVEN SWAB!</strong>&lt;br&gt;- Use flocked swab to collect sample by inserting swab into endocervical canal and gently rotating 5 times in one direction.&lt;br&gt;- Lower swab into tube until the dark line on shaft is aligned with the tube rim.&lt;br&gt;- Break off shaft at dark line and re-cap tube.</td>
<td><img src="image1" alt="Urine Kit" />&lt;br&gt;<strong>Urine Kit</strong>&lt;br&gt;Female Swab Kit</td>
</tr>
<tr>
<td><strong>Neisseria gonorrhoeae</strong>&lt;br&gt;Molecular Amp (GC PCR)</td>
<td><strong>Female Collection Kit</strong>: consists of PCR Media and one sterile woven swab and one sterile flocked swab&lt;br&gt;Female sample tubes submitted with 2 swabs in the tube will be rejected. Please follow instructions for proper collection!</td>
<td><img src="image2" alt="Female Swab Kit" /></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>NO MALE Collection kit for urethral samples; submit First voided Urine</strong></td>
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<tr>
<td>Bacterial Vaginosis DNA Panel (BACT VAG DNA)</td>
<td>The Bacterial Vaginosis DNA Panel using the Affirm™ VPIII Test simultaneously detects and identifies <em>Gardnerella vaginalis</em>, <em>Trichomonas vaginalis</em>, and <em>Candida</em> species organisms from a single vaginal swab.</td>
<td>Collect vaginal specimens Ambient Temperature Transport System (ATTS)</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>• Open entire ATTS kit, tear foil pouch and break ampoule by squeezing the sides of the plastic until the glass breaks. Express the contents into the provided sample tube. Dispose of glass ampoule in a safety container.</td>
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<tr>
<td></td>
<td></td>
<td>• Use sterile swab supplied with this kit to obtain sample from posterior vaginal fornix. Roll swab against vaginal wall two to three times, ensuring entire circumference of swab makes contact. Swab lateral vaginal wall while removing swab.</td>
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<tr>
<td></td>
<td></td>
<td>• Place swab into vial containing stabilizing solution and break off shaft at scored area. Cap securely for transport to lab. \ Follow appropriate labeling procedures at bedside.</td>
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<td>Group B Strep Culture (C STREP B)</td>
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<td>Collect vaginal/cervical specimen using eSwab.</td>
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<tr>
<td>Yeast Culture (C YEAST)</td>
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<td>Collect vaginal/cervical or urethral specimen using eSwab.</td>
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</tr>
<tr>
<td>Genital Culture (C GENITAL)</td>
<td>Used to screen for Staph, toxic shock or Listeria pathogens. The order requires a comment stating the specific pathogen to culture for.</td>
<td>Collect genital specimen using eSwab.</td>
<td></td>
</tr>
<tr>
<td>Herpes Simplex Culture (C HERPES)</td>
<td></td>
<td>Collect lesion scraping using a UVT kit.</td>
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## Microbiology Specimen Rejection Criteria

### General Microbiology

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<td>Specimen received in fixative (formalin, CytoLyt, or Saccomano.)</td>
<td>Notify physician or patient’s nurse and request a new specimen; indicate “received in fixative” on requisition or in computer.</td>
</tr>
<tr>
<td>Incorrect technique or method of collection: i.e., swab instead of fluid, or 24-hour urine collection etc.</td>
<td>Notify the physician or patient’s nurse and request a new specimen.</td>
</tr>
<tr>
<td>Improper or non-sterile containers</td>
<td>Notify the physician or patient’s nurse and request a new specimen. If physician or nurse insists specimen be processed, refer to supervisory personnel/pathologist.</td>
</tr>
<tr>
<td>Unpreserved urines held in refrigerator &gt;24 hours</td>
<td>Notify the physician or patient’s nurse and request a new specimen properly submitted in appropriate transport device.</td>
</tr>
<tr>
<td>Inappropriate or incorrectly used transport system i.e., non-sterile container, dry swab, UA tube submitted for urine culture, etc.</td>
<td>Notify the physician or patient’s nurse and request a new specimen properly submitted in appropriate transport device.</td>
</tr>
<tr>
<td>Dry Swab</td>
<td>Notify the physician or patient’s nurse and request a new specimen properly submitted in appropriate transport device. If physician insists dry swab be cultured, make a note on the laboratory record.</td>
</tr>
<tr>
<td>More than one specimen of urine, stool, sputum, wound or routine throat specimen submitted on the same day from the same source.</td>
<td>Notify the physician or patient’s nurse that as stated in collection manual, only one specimen will be processed per day.</td>
</tr>
<tr>
<td>Inadequate specimen quantity or volume for multiple requests for various organisms (bacteria, AFB, fungi, virus, etc.).</td>
<td>Notify the physician or patient’s nurse and request additional material. If additional material is unavailable, ask physician to prioritize.</td>
</tr>
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### Anaerobes

| Specimens for anaerobes not received in appropriate container. | Notify the physician or patient’s nurse and request properly handled specimen. If the physician insists the specimen be processed, refer to supervisory personnel or alternatively make a note on the laboratory record. |
| Specimens for C. Diff testing received in the laboratory >24 hours after the order was placed. | Order is automatically rejected. |
| Anaerobic cultures requested on improper specimen type: e.g., autopsy material, bronch wash, decubitus (not punch Bx), drain site, environmental, exudates, feces (ex C diff), gastric washings (other than newborns), urine, mouth, nose, prostatic secretions, sputum, fistula, intestinal contents, throat, vaginal secretion | Inform physician or patient’s nurse that these specimens are not cultured for anaerobic bacteria since these anatomic sites harbor anaerobes normally and usually. If physician insists, refer to supervisory personnel or pathologist. |

### Aerobic Bacteriology

| Gram stain for Neisseria gonorrhoeae on specimen from cervix, vagina and crypts | Notify physician or patient’s nurse that these smears are not examined for GC since these anatomic loci may harbor nongonococcal neisseriae. |
| Specimens for GC and or Chlamydia culture received in GenProbe Aptima or Roche PCR transport media | Notify physician or patient’s nurse that the specimen is in a fixative that kills bacteria; only molecular testing may be offered with this fixed specimen. |
| Foley catheter tips | Notify physician or patient’s nurse that the specimen is inappropriate and needs to be recollected correctly. |
| Foley catheter urines collected from collection bags | Notify physician or patient’s nurse that the screening culture for group A streptococci only will be performed. Exceptions are transplant, cystic fibrosis and head and neck clinic patients. |
| Respiratory culture requested on throat specimens of patients older than 10 years | Notify physician or patient’s nurse that specimen is mostly saliva and is not appropriate for culture. Exception: Immunocompromised patients. |
| Sputum specimens with <25 WBC and >10 epithelial cells/lpf | Notify physician or patient’s nurse that specimen is mostly saliva and is not appropriate for culture. Exception: Immunocompromised patients. |
| Rectal swab received with less than minimum material (3-4 mm pellet) | Notify physician or patients nurse and request a new specimen. |

### Mycobacteriology / Mycology

| 24 hour collection of urine or sputum for AFB or fungus culture | Notify physician or patient’s nurse that as per collection manual, three separate first morning specimen of sputum or urine are the best samples for analysis; reject 24-hour specimens. |
| Swabs for AFB. Swabs are sub-optimal for AFB Culture. Tissue or fluid has a much higher yield. When using eSwab collection kits a separate eSwab vial is required exclusively for AFB Culture. | Notify physician or patient’s nurse that specimen is inadequate in quantity for the isolation of AFB. Request properly collected specimen. |

### Parasitology

| O&P received in formalin, PVA, or SAF. | Notify physician or patient’s nurse that specimen has been improperly collected. Request new specimen collected in Total Fix vial. |
| Stool for Cryptosporidium and or Isospora spp. received in PVA only. | Notify physician or patient’s nurse that specimen has been improperly collected. Request new specimen collected in Total Fix or 10% formalin vial. |
| Excess barium or oil noted in stool submitted for ova & parasite examination. | Recollect specimen after stool has cleared. |

Last revised July 2017
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**AFB CULTURE**

**METHODOLOGY**
Standard reference procedures for stain, culture and identification of AFB, including fluorescent stains, continuous monitoring liquid media system, solid culture media, DNA Probes when appropriate and molecular testing when appropriate. The first smear positive specimen received from a patient will automatically reflex to an MTB MOL AMP test.

**REPORTED**

**Smears:**
Within 24 hours

**Preliminary:**
At 24 hours and updated when appropriate

**Final:**
After 6 weeks incubation, if negative. Positive reports generated as soon as information is available.

**SPECIMEN REQUIRED:**

**Shared Specimens:**
A separate specimen should be submitted to microbiology with an accompanying requisition for all culture work requested (including routine bacteriology, AFB culture, virology, etc.)

*If cytology, cell count, chemistry, or other laboratory work is requested on the same specimen, they must be ordered separately and a copy of all orders must accompany the specimen to the laboratory.*

**Collect:**
Sputum, min 5 ml, early morning expectorated
Bronch Wash, BAL, etc., volume as large as possible, min 5 ml
Gastric Lavage, min 5 mls
Urine, min 40 ml, first morning voided specimen
Stool, min 5 grams
Spinal Fluid, volume as large as possible, min 2 ml
Body Fluid, volume as large as possible, min 5 ml
Tissue, sterile
If a swab specimen is to be submitted, use the eSwab collection kit. A separate collection must be submitted to be used exclusively for AFB Culture.

**Transport:** Sterile, leak proof container to the laboratory within 2 hours of collection.

**Remarks:**
Early morning collections of urine or sputum – 3 consecutive days optimal.
Gastric samples to be neutralized with sodium carbonate in lab within 1 hour of collection.

**Unacceptable Conditions:**
Multiple same-site specimen, dry material, non-sterile or leaking containers, improper volume of sputum (< 5 ml), body fluid collected on swab.

**REFERENCE**
Negative for Mycobacteria after 6 weeks.
Identification performed on all positives.
Susceptibilities performed on all isolates of *Mycobacterium tuberculosis*.
Susceptibilities performed on other isolates by written request only.

**NOTES**
Includes AFB Stain except Blood, Bone Marrow and Urine specimens. See also Nocardia Culture, Nocardia Stain, AFB Blood Culture.
AFB STAIN

**METHODODOGY**
Auramine O – Rhodamine B Stain

**REPORTED**
Within 24 hours of receipt of specimen

**SPECIMEN REQUIRED - See AFB Culture**
When a STAT DIRECT AF stain is required in addition to the conventional AFB Stain and Culture, it will be performed on the unconcentrated specimen (a “direct” stain) using a Kinyoun’s stain. Unless the specimen volume is inadequate, the direct smear will be confirmed by the more sensitive fluorescent smear and a culture done on the concentrated material.

**REFERENCE**
No acid-fast bacilli observed.

ANAEROBIC CULTURES

Anaerobic cultures are done routinely on all specimens which are appropriate for the recovery of anaerobic bacteria, and for which such information might be useful. Specimens which are routinely processed for anaerobes include: tissue, surgically collected material, aspirates, abscess material, deep wounds, certain specimens from the female reproductive tract (not to include cervical, vaginal or lochia specimens), body fluids other than urine and CSF, and protected bronchial brushes.

**Unacceptable Conditions:**
Specimen from site with normal anaerobic microflora
Non-anaerobic collection and transport conditions
Leaking containers
Delayed transport to the laboratory

BACTERIAL VAGINOSIS DNA PROBE

**METHODODOGY**
Direct DNA Probe Assay using the AFFIRM test system.

**REPORTED**
ED specimens: 4 hour TAT.
Routine Specimen: reported on same day.

**SPECIMEN REQUIRED**
Collect: Collect vaginal sample using ATTS (Ambient Temperature Transport System).

**Transport:**
Take to the laboratory within 2 hours of collection.
Specimens may be stored at room temperature for up to 72 hours.

**Remarks:**
The specimen MUST be collected using the ATTS transport tube.
The total time between sample collection and sample preparation cannot exceed 72 hours.
The test includes three separate probes which detect clinically significant levels of Candida sp, Gardnerella, and trichomonas

**REFERENCE**
Not detected

BK VIRUS QUANTITATIVE MOLECULAR AMP

**BKV VIRAL LOAD TEST**

**METHODODOLOGY**
Quantitative Real Time Polymerase Chain Reaction (RT-PCR)

REPORTED
Due to the technical nature of the test, specimens are batched into larger runs. Turnaround time is variable but the laboratory strives to have results within one week of collection.

SPECIMEN REQUIRED
Collect:
8.5 mL EDTA Plasma tube (Purple)
Store whole blood at 2-25°C for no longer than six hours before processing
Separate and transfer plasma within six hours of collection
Plasma may be stored at 2–8°C for up to 72 hours or frozen at -70°C.
2 mLs of plasma is required with 1 mL as a minimum.
Random Urine
Urine may be stored at 2–8°C for up to 72 hours or frozen at -70°C.
2 mLs of urine is required with 1 mL as a minimum.

Transport:
Usually laboratory personnel draw blood. Keep processed specimens frozen.

Remarks:
In order to assure the quantity of the virus in the specimen, follow collection, processing, storage, and transportation guidelines.

Unacceptable Conditions:
Specimens not taken off of the red blood cells within 6 hours.
Plasma/urine stored at room temperature for longer than 6 hours
Plasma/urine stored at 2-8°C for more than 72 hours
Heparinized whole blood specimens.

REFERENCE
The quantitative range of this assay is 2.7 - 6.7 log copies/mL (500 - 5,000,000 copies/mL).

BLOOD CULTURE – ROUTINE BOTTLE SYSTEM

METHODOLOGY
BACTEC FX instrument, a continuously monitoring liquid media system.

REPORTED
Preliminary:
Reports are generated as soon as information is available and updated as appropriate.

Final:
Negatives are reported after 5 days incubation.
Positive reports are generated as soon as completed information is available.
Identification and susceptibilities (when appropriate) are performed on positive cultures.

SPECIMEN REQUIRED
Collect:
ADULTS: 10 ml in each bottle, one aerobic (blue top, Bactec Plus Aerobic/F) and one anaerobic (purple top, Bactec Lytic Anaerobic/F) per set.
ADULT MINIMUM DRAW: >3 ml in one aerobic bottle
PEDIATRIC, children less than 6 years old: 3 ml in Bactec Peds Plus/F bottle
PEDIATRIC MINIMUM DRAW; 1.0 ml in Bactec Peds Plus/F bottle.
NEONATES: admission to 48 hours old: 1.0 to 3.0 ml in Bactec Peds Plus/F bottle
NEONATES MINIMUM DRAW: 0.5 ml in Bactec Peds Plus/F bottle
It is better to draw an Pediatric Isolator for Neonates; see below

Transport:
Take Bactec bottles to the laboratory within 2 hours of collection.

Remarks:
Timing of blood cultures is per the request of the physician. In general, two sets of blood cultures are drawn from separate sites before therapy is started.

Unacceptable Conditions:
Specimens received with less than the minimum allowed volume of blood.

REFERENCE
No growth after 5 days incubation.

BLOOD CULTURE – ISOLATOR SYSTEM

METHODOLOGY
Isolator System, blood is cultured on solid media and incubated for 5 days.

Pediatric Isolators: These are used for colony counts of aerobic organisms.
Adult Isolator: These are cultured for both aerobic and anaerobic organisms.

REPORTED
Preliminary:
Reports are generated as soon as information is available and updated as appropriate.

Final:
Negatives are reported after 5 days incubation.
Positive reports are generated as soon as completed information is available.
Identification and susceptibilities (when appropriate) are performed on positive cultures.

SPECIMEN REQUIRED
Collect:
ADULT ISOLATOR: 10 ml of blood in Isolator tube, minimum 9.5 ml.
PEDIATRIC ISOLATOR: 1.5 ml with a minimum of 0.5ml blood

Transport:
Take Isolator to the laboratory within 2 hours of collection.

Remarks:
The Isolator tube must be thoroughly mixed immediately after blood is added to prevent clotting. Note any special requests on the memo that accompanies the specimen to the laboratory.

Unacceptable Specimens:
Clotted specimens, specimens received with less than minimum volumes.

REFERENCE
No growth after 5 days incubation.

NOTES
Special requests, such as culturing Malassezia, Bartonella, Legionella, “culture negative Endocarditis,” and obtaining colony counts (quantitative blood cultures) must be so noted so the laboratory can choose the appropriate culture media.

BLOOD CULTURE – FUNGUS

METHODOLOGY
Isolator

C Blis
REPORTED
Preliminary:
Reports are generated as soon as information is available and updated as appropriate.

Final:
Negatives are reported after 4 weeks incubation.
Positive reports are generated as soon as completed information is available.

SPECIMEN REQUIRED
Collect:
Adult 10 ml Isolator

Transport:
Take Isolator to the laboratory within 2 hours of collection.

Remarks:
The Isolator tube must be thoroughly mixed after blood is added to prevent clotting. Note any special requests on the memo that accompanies the blood to the laboratory.

Unacceptable Conditions:
Clotted specimens, specimens received with less than minimum volume of blood.

REFERENCE
Negative for pathogenic fungus after 4 weeks.

BLOOD CULTURE – ACID FAST BACILLI

METHODOLOGY
MycoF/Lytic bottles are drawn and read in a BACTEC FX instrument, a continuously monitoring system.

REPORTED
Preliminary:
Reports are generated as soon as information is available and updated as appropriate.

Final:
Negatives are reported after 6 weeks incubation.
Positive reports are generated as soon as completed information is available.

SPECIMEN REQUIRED
Collect:
5 mls of blood in a MycF/Lytic bottle

Transport:
Take MycoF/Lytic bottle to the laboratory within 2 hours of collection.

Remarks:
The MycoF/Lytic bottle contains specialized media that is optimal for the recovery of mycobacteria.

Unacceptable Conditions:
Clotted specimens, specimens received with less than minimum volume of blood.

REFERENCE
Negative for Mycobacteria after 6 weeks.

BLOOD CULTURE – VIRAL

See Viral Cultures

BODY FLUID CULTURE

METHODOLOGY
Standard reference methods for stain, culture, identification and susceptibilities of bacteria.
Body fluid cultures are confined to those fluids that would usually be sterile.

**REPORTED**

**Preliminary:**
Reports are generated within 24 hours and updated as appropriate.

**Final:**
Negatives are reported after 4 days incubation.
Positive reports are generated as soon as growth is observed and updated in a timely manner. Identification and susceptibilities (when appropriate) are performed on positive cultures.

**SPECIMEN REQUIRED:**

**Shared Specimens:**
A separate specimen should be submitted to microbiology with an accompanying requisition for all culture work requested (including routine bacteriology, AFB culture, virology, etc.)

*If cytology, cell count, chemistry, or other laboratory work is requested on the same specimen, they must be ordered separately and a copy of all orders must accompany the specimen to the laboratory.*

**Collect:**
Send as much fluid as possible. Fluid will be concentrated for a better yield of organisms. Minimum volume required is 2 mls for the bacterial culture, more is required if other testing is ordered.

Appropriate specimens include the following:
- Abdominal Fluid (including pancreatic fluid)
- Bile
- Cardiac Fluid; Pericardial Fluid
- Dialysis Fluid; CAPD
- Joint Fluid; Synovial Fluid
- Peritoneal Fluid including abdominal and ascites
- Pleural Fluid including thoracentesis and empyema

**Transport:**
Syringe without needle attached; anaerobic transport media.
Take to the laboratory within 30 minutes of collection, store at room temperature.

**Remarks:**
Exudates and Aspirates are ordered as C WD DEEP (Deep Wound Cultures)
Amniotic Fluids are ordered as C REPRO (Reproductive Cultures)
Spinal Fluids are ordered as C CSF (CSF Cultures)
Eye Fluid is ordered as Eye Culture
Bone Marrow is ordered as C TIS (Tissue Culture)

**Unacceptable Conditions:**
Body Fluids collected on swabs are not acceptable if fluid is available.
Synovial Fluids: Specimens received in heparin, EDTA or any other anti-coagulant will be rejected. Specimens in Isolator tubes are acceptable.

**REFERENCE**
No growth after 4 days.
All isolates are identified.
Clinically significant isolates have susceptibility tests performed.

---

**BORDETELLA MOLECULAR AMPLIFICATION**

**METHODOLOGY**
Polymerase Chain Reaction with microarray hybridization
Assay detects and discriminates between the most common pathogenic Bordetella species: Bordetella pertussis, B. holmesii, and B. parapertussis/bronchiseptica.
PERFORMED
Results available within 24 hours of receipt of specimen at performing laboratory.

SPECIMEN REQUIRED
Collect: Nasopharyngeal swab in UVT transport media (available from Microbiology Lab)

Transport: Specimen can be held at 2-8°C for up to 48 hours.

Unacceptable Conditions: Calcium-alginate swabs (shown to inhibit PCR). Transport media other than UVT media.

REFERENCE
Negative for Bordetella.
Bordetella molecular amplification testing has been found to be more sensitive than culture and stain.

CATHETER TIP CULTURE

METHODOLOGY

REPORTED
Gram Stains are NOT performed.

Preliminary:
Reported within 24 hours and updated as appropriate.

Final:
Positives are reported as soon as growth is observed and updated in a timely manner. Identification and Susceptibilities (when appropriate) are performed on positive cultures. Negatives are reported after 3 days incubation.

SPECIMEN REQUIRED
Collect: The following is a list of acceptable catheter tips for culture.
Central Line
CVP
Hickman
Broviac
Peripheral
Arterial
Umbilical
Hyperalimentation
Swan-Ganz

Transport:
Use sterile, dry container.
Take to the laboratory within 30 minutes of collection.

Unacceptable Conditions:
FOLEY CATH TIPS are NOT accepted.

REFERENCE
No growth after 3 days incubation.
All isolates are identified
Clinically significant isolates have susceptibility tests performed
CHLAMYDIA TRACHOMATIS MOLECULAR AMPLIFICATION

METHODOLOGY
Real-time Polymerase Chain Reaction/cobas 4800

REPORTED
Specimens received at the performing laboratory by 7:00 am are resulted on the same day.

SPECIMEN REQUIRED
Collect:
Female vaginal or endocervical swabs collected and placed into Roche cobas PCR Media
Male or Female Urine: Must abstain from urinating for 1 hour, then collect FIRST 10-50 ml of voided urine specimen, NOT MID-STREAM. Immediately transfer urine to Roche cobas PCR Media adding urine to bring the volume of sample to between the 2 urine fill lines as indicated by the arrows on the tube.

Transport:
Take to the laboratory within 2 hours of collection.
Once sample is placed into the Roche PCR Media, the specimens may be stored at room temperature for up to 1 year.

Remarks:
The swab or urine MUST be placed into the transport tube.
Can be run on the same specimen used for GC Molecular Amplification.

Unacceptable Conditions:
Swab specimens will be rejected if they do not contain a swab or if they contain two swabs. Swabs collected in EIA, Gen-Probe or bacterial collection tubes will be rejected. Urine specimens will be rejected if the volume of sample if not between the two fill lines on the tube.

REFERENCE
Not detected

CHLAMYDIA PNEUMONIAE CULTURE

METHODOLOGY
Cell Culture
Test is sent to reference lab.

SPECIMEN REQUIRED
Collect:
Nasopharyngeal aspirate/wash, bronchial alveolar lavage, or throat swab.
Source of specimen is required.
Preserve specimen in Chlamydia transport media (UVT) immediately.

Transport:
Sample/swab in UVT media. Take to the laboratory within 2 hours of collection, keep specimen cold (2-8°C) to ensure organism viability.

Remarks:
This test is sent out and must be received at the reference lab within 48 hours of collection.
Do not freeze. Please notify laboratory if Chlamydia psittaci is suspected.

Unacceptable Conditions:
Delay in transport of specimens
Samples not collected in Chlamydia transport media (UVT).

Stability:
Ambient: 1 hour; Refrigerated: 2 days; Frozen: Unacceptable
CHLAMYDIA TRACHOMATIS CULTURE

METHODOLOGY
Cell Culture
Test is sent to reference lab.

SPECIMEN REQUIRED
Collect:
Cervix, urethral, or rectal swab or eye swabs. Infants – nasopharyngeal aspirate/washing/swab.
Preserve specimen in Chlamydia transport media (UVT) immediately.

Transport:
Sample/swab in UVT media. Take to the laboratory within 2 hours of collection, keep specimen cold (2-8°C) to ensure organism viability.

Remarks:
This test is sent out and must be received at the reference lab 48 hours of collection. Do not freeze. This culture is for isolating C. trachomatis only. Other Chlamydia species can also be isolated from respiratory secretions but require additional incubation time. Order Chlamydia pneumoniae culture for respiratory sources.

Unacceptable Conditions:
Delay in transport of specimens

Stability:
Ambient: 1 hour; Refrigerated: 2 days; Frozen: Unacceptable

REFERENCE
Culture negative for Chlamydia trachomatis.

CLOSTRIDIUM DIFFICILE ANTIGEN AND TOXIN

CDIF AGTOX

METHODOLOGY
Clostridium Difficile Antigen and Toxin membrane EIA testing; discrepant samples are reflexed to molecular testing for confirmation of results

REPORTED
Reported as soon as results are available. Discrepant results are reflexed to molecular testing before a final report is issued.

SPECIMEN REQUIRED
Shared Specimens:
The specimen should be submitted to Microbiology with an accompanying requisition for all microbiology work requested (including routine bacteriology, O&P, Fecal Wet Mount, etc.)

Collect:
Stool, minimum 5 grams or 5 mls. Only liquid and soft stool specimens (specimens that take the shape of the container) from symptomatic patients are acceptable

IMPORTANT NOTE: Stool samples must be received in the laboratory within 24 hours of the test order time or the order will be automatically canceled.

Transport:
Sterile leak proof container with a tight fitting lid.
Take to the laboratory within one hour of collection.

Unacceptable Conditions:
Leaking containers
Formed stool specimens
More than one specimen sent for testing within 24 hours

REFERENCE
Negative for Clostridium difficile antigen and toxin.

**COCCI SEROLOGY**

**METHODOLOGY**
Testing by Immunodiffusion is performed at Sharp Pathology Laboratory. Positives are sent to a reference laboratory for Complement Fixation confirmatory testing and titer.

**REPORTED**
Preliminary reports are generated after 24 hours from start time
Positives are reported as soon as possible.
Negatives are reported after 72 hours incubation.
CF and TP reactions are reported separately.

**SPECIMEN REQUIRED**

Collect:
Serum, a minimum of 0.5 ml (Whole Blood 1 ml)
CSF, a minimum of 0.2 ml

Transport:
Usually blood is drawn by laboratory personnel. Keep processed specimens refrigerated.

Remarks:
Known Positive patients need not have a repeat Cocci Serology performed. Only order a Cocci Complement Fixation test (Cocci CF) on a known positive patient.

Unacceptable Conditions:
Unlabeled specimens, leaking specimens, specimens with less than minimum volumes are rejected.

**REFERENCE**
TP: Negative
CF: Negative

**CRYPTOCOCCAL ANTIGEN**

**METHODOLOGY**
Latex agglutination, positive samples are titered.

**PERFORMED**
Test is performed daily.

**REPORTED**
Test is reported in the computer within 24 hours of receipt at testing laboratory.

**SPECIMEN REQUIRED**

Collect:
Serum, a minimum of 250 ul (whole blood 1 ml)
CSF, a minimum of 200 ul

Transport:
Usually blood is drawn by laboratory personnel. Keep processed specimens refrigerated.
Transport CSF to the laboratory within 15 minutes of collection.

Unacceptable Conditions:
Unlabeled specimens, leaking specimens, specimens with less than minimum volumes are rejected.

**REFERENCE**
TP: Negative
CF: Negative
<table>
<thead>
<tr>
<th><strong>REFERENCE</strong></th>
<th><strong>CRYPTOSPORIDIUM/GIARDIA RAPID ANTIGEN</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>METHODOLOGY</strong></td>
<td>Membrane EIA; both Cryptosporidium and Giardia antigens are detected with the procedure.</td>
</tr>
<tr>
<td><strong>REPORTED</strong></td>
<td>Final reports are available within 72 hours from time of receipt at performing laboratory.</td>
</tr>
<tr>
<td><strong>SPECIMEN REQUIRED</strong></td>
<td>Collect: Fresh stool; place into Total Fix or 10% Formalin vial within one hour after passage. Transport: Once the stool is placed into the preservative, the specimen is stable. Transport to the laboratory as soon as possible. If preservative is not available, transport the specimen within one hour to the laboratory so that it may be placed into the preservative.</td>
</tr>
<tr>
<td><strong>REFERENCE</strong></td>
<td>Cryptosporidium: None seen Giardia: None seen.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>CSF CULTURE</strong></th>
<th><strong>METHODOLOGY</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>METHODOLOGY</strong></td>
<td>Spinal fluid Cultures are always considered STAT. Standard reference methods for stain, culture and identification and susceptibilities of bacteria.</td>
</tr>
<tr>
<td><strong>REPORTED</strong></td>
<td><strong>GRAM STAINS ARE CONSIDERED STAT</strong></td>
</tr>
<tr>
<td>Preliminary:</td>
<td>Reported within 24 hours and updated as appropriate.</td>
</tr>
<tr>
<td>Final:</td>
<td>Positives are reported as soon as growth is observed and updated in a timely manner. Identification and susceptibilities (when appropriate) are performed on positive cultures. Negatives are reported after a minimum of 3 days incubation.</td>
</tr>
<tr>
<td><strong>SPECIMEN REQUIRED</strong></td>
<td><strong>Shared specimens:</strong> A separate specimen should be submitted to Microbiology with an accompanying requisition for all culture work requested (including routine bacteriology, AFB culture, virology, etc.) <em>If cytology, cell count, chemistry, or other laboratory work is needed on the same specimen, they must be ordered separately and a copy of all orders must accompany the specimen to the laboratory.</em></td>
</tr>
<tr>
<td>Collect:</td>
<td>≥ 1ml of fluid is required for gram stain and culture</td>
</tr>
<tr>
<td>Transport:</td>
<td>Sterile spinal fluid collection tube is transported STAT (&lt;15 min) to the laboratory for processing.</td>
</tr>
<tr>
<td>Remarks:</td>
<td>If other microbiology tests requested (AFB Culture, fungus culture, etc.) please see the minimum volume required for each.</td>
</tr>
<tr>
<td>Unacceptable Conditions:</td>
<td></td>
</tr>
</tbody>
</table>
Unlabeled specimens, leading specimens, specimens with insufficient volume to process.

**REFERENCE**
No growth after 4 days incubation.

### CYCLOSPORA/ISOSPORA STAIN

**METHODOLOGY**
Modified acid fast stain on concentrated specimen.

**REPORTED**
Final:
Results are available within 72 hours of receipt of specimen.

**SPECIMEN REQUIRED**
Collect:
Fresh stool, min 5 grams. Place into Total Fix vial or 10% formalin within one hour after passage.

Transport:
Once the stool is placed into the preservative, the specimen is stable. Transport to the laboratory as soon as possible.

If preservative is not available, transport the specimen within one hour to the laboratory so that it may be placed into the preservative.

Unacceptable Specimen
Stool specimen containing barium, bismuth, laxative, or mineral oil.
Stool specimens contaminated with urine, dirt or water.
Unlabeled, mislabeled or leaking specimens.

**REFERENCE**
Negative

### CYTOMEGALOVIRUS PCR – QUALITATIVE TESTING

**METHODOLOGY**
Real-time Polymerase Chain Reaction, test is sent to a reference lab.

**REPORTED**
Finals are reported within 72 hours of receipt in performing laboratory.

**PERFORMED**
As needed

**SPECIMEN REQUIRED**
Collect:
One 7 or 10 ml yellow top (ACD) or EDTA tube for Plasma, min. 2 ml
Infants: Minimum 0.3 mL EDTA plasma
10 ml of random urine, minimum 5 ml
1 ml of CSF (minimum)
10 ml of Amniotic Fluid, minimum 5 ml
1 ml of Respiratory Fluid (minimum)
Fresh tissue, frozen

Transport:
Store and transport specimens at 2-8°C
Usually blood is drawn by laboratory personnel.
The laboratory must separate the plasma from whole blood within 24 hours and then freeze the plasma.
Remarks:
The Lower Limits of Detection of this assay has been shown to be 500 copies /ml of CMV DNA in plasma. If a viral load is requested order CMV QT MOL AMP

Unacceptable Conditions:
Unlabeled, leaking, or contaminated specimens.

REFERENCE
Not detected.

CYTOMEGALOVIRUS MOLECULAR AMPLIFICATION – QUANTITATIVE TESTING

METHODOLOGY
Quantitative Real-time Polymerase Chain Reaction, TaqMan Analyzer

REPORTED
Finals are reported within 72 hours of receipt in performing laboratory.

PERFORMED
As needed

SPECIMEN REQUIRED
Collect:
One 8 ml EDTA (Large purple) tube
Plasma, min. 2 ml
Infants: Minimum 0.5 mL EDTA plasma

Transport:
Store and transport specimens at 2-8°C
Usually blood is drawn by laboratory personnel.
The laboratory must separate the plasma from whole blood within 6 hours and then refrigerate at 2-8°C the plasma.

Remarks:
The Linear Range has been determined to be between 2.1 to 6.9 Log 10 IU/mL (137 to 9,100,000 IU/mL) CMV DNA in plasma.
The Lower Limits of Detection of this is 1.9 Log 10 IU/mL (91 IU/mL) of CMV DNA. This test is performed on plasma specimens only.

Unacceptable Conditions:
Unlabeled, leaking, or contaminated specimens.

REFERENCE
Not detected.

CYTOMEGALOVIRUS CULTURE (CMV)

See Viral Culture Section

EAR CULTURE

METHODOLOGY
Standard reference methods for stain, culture, identification and susceptibilities of bacteria.

REPORTED
Preliminary:
Reported within 24 hours and updated as appropriate

Final:
Positives are reported as soon as growth is observed and updated in a timely manner Identification and susceptibilities (when appropriate) are performed on positive cultures.
Negatives are reported after 3 days incubation.

**SPECIMEN REQUIRED**

**Collect:**
Inner Ear, Middle Ear Fluid, Outer Ear

**Transport:**
Transport surgically collected specimens to the laboratory STAT.
Transport routinely collected specimens to the laboratory within 2 hours of collection.

**Unacceptable Conditions:**
Dry Swabs
Unlabeled specimens

**REFERENCE**
No growth

**ENTEROVIRUS MOLECULAR AMPLIFICATION**

**METHODOLOGY**
Real-time Reverse-transcriptase Polymerase Chain Reaction

**REPORTED**
Within 3 hours of receipt at testing laboratory (SPL)

**Final:**
Turnaround time: Less than 24 hours

**SPECIMEN REQUIRED**

**Collect:**
CSF: 0.5 mL (Minimum volume: 0.2 mL)

**Transport:**
Transport to the laboratory within 15 minutes after collection.

**REFERENCE**
Not Detected

**EYE CULTURE**

**METHODOLOGY**
Standard reference methods for stain, culture, identification and susceptibilities of bacteria.

**REPORTED**

**Preliminary:**
Reported within 24 hours and updated as appropriate

**Final:**
Positives are reported as soon as growth is observed and updated in a timely manner
Identification and susceptibilities (when appropriate) are performed on positive cultures.
Negatives are reported after 3 days incubation.

**SPECIMEN REQUIRED**

**Collect:**
Cataract, Conjunctiva, Cornea, Corneal Scrapings, Eyelid, Eye Fluid, Donor Cornea, Donor Cornea Media

**Transport:**
Transport surgically collected specimens to the laboratory STAT.
Transport routinely collected specimens to the laboratory within 2 hours of collection.
**Unacceptable Conditions:**
- Dry Swabs
- Unlabeled specimens

**REFERENCE**
No growth

### FACTOR V LEIDEN MUTATION ANALYSIS

**METHODOLOGY**
Real Time Polymerase Chain Reaction (RT-PCR)

**PERFORMED**
Weekly

**REPORTED**
Finals are reported the same day the test is performed.

**SPECIMEN REQUIRED**
**Collect:**
One 7 or 10 ml yellow top (ACD tube for Buffy Coat or Plasma, min. 2 ml; EDTA also acceptable)
Usually blood is drawn by laboratory personnel.

**Transport:**
Store and transport specimens at 2-8°C

**REFERENCE**
Normal Genotype, Heterozygous Genotype, Homozygous Mutant Genotype

### FECAL LACTOFERRIN

**METHODOLOGY**
Immunochromatographic assay

**REPORTED**
Within 8 hours of receipt in the performing laboratory

**SPECIMEN REQUIRED**
**Collect:**
Random stool, minimum 5 gm

**Transport:**
Sterile leak proof container within 1 hour of collection.

**REFERENCE**
Negative

### FUNGAL CULTURE

**METHODOLOGY**

**REPORTED**
**Preliminary:**
At 24 hours and updated when appropriate.

**Final:**
After 4 weeks incubation if negative
Positive reports generated as soon as information is available.

**SPECIMEN REQUIRED**
Shared Specimens:
A separate specimen should be submitted to Microbiology with an accompanying requisition for all culture work requested (including routine bacteriology, AFB culture, virology, etc.).

If cytology, cell count, chemistry, or other laboratory work is needed on the same specimen, they must be ordered separately and a copy of all orders must accompany the specimen to the laboratory.

Collect:
In general, a minimum of 1 ml of fluid is required for a Fungal Culture.
If a swab specimen is to be submitted, use the eSwab collection kit.
The following is an abbreviated list of specimens for fungal culture and their requirements:
- **Sputum/Bronchial Washings, etc.**, minimum 3ml
- **Spinal Fluid**, minimum > 1ml, the larger the amount, the better the yield of organisms.
- **Skin, Hair, Nails**: Clippings and scrapings are collected in a sterile container and promptly transported to the laboratory.
- **Oral lesions, esophagus**: Those specimens submitted specifically for the identification of Candida. (Thrush) are best ordered as a routine culture. Order as C EENT.
- **Blood**: See Blood Culture (Fungus)
- **Urine**: For a random specimen for Candida UTI 0 order a routine Urine Culture, with the comment “Yeast.” For a systemic Fungus infection work-up- a large volume (preferably 300 ml) of freshly collected urine must be submitted. Three consecutive morning specimens are optimal, and these must be separate and distinct from a work-up for AFB, cytology, or chemistry testing.

Transport:
Sterile, leak proof containers to the laboratory within one hour of collection unless otherwise noted in the Specimen Collection Guideline.

Remarks:
Stains and Wet Mounts are performed only upon request
Indicate suspected organism(s). Additional patient history may be helpful (occupation, travel history, animal contacts, etc.)

Unacceptable Conditions: Unsterile or leaking containers

**REFERENCE**
No pathogenic fungi isolated.

---

**GC MOLECULAR AMPLIFICATION (NEISSERIA GONORRHOEAE) GC MOL AMP**

**METHODOLOGY**
Real-time Polymerase Chain Reaction/cobas 4800

**REPORTED**
Specimens received by 7:00 AM are resulted on the same day.

**SPECIMEN REQUIRED**
Collect:
Female vaginal or endocervical swabs collected and placed into Roche cobas PCR Media
Male or Female Urine: Must abstain from urinating for 1 hour, then collect FIRST 10-50 ml of voided urine specimen, NOT MID-STREAM. Immediately transfer urine to Roche cobas PCR Media adding urine to bring the volume of sample to between the 2 urine fill lines as indicated by the arrows on the tube.

Transport:
Take to the laboratory within 2 hours of collection.
Once sample is placed into the Roche PCR Media, the specimens may be stored at room temperature for up to 1 year.
Remarks:
The swab or urine MUST be placed into the transport tube. Can be run on the same specimen used for Chlamydia trachomatis Molecular Amplification.

Unacceptable Conditions:
Swab specimens will be rejected if they do not contain a swab or if they contain two swabs. Swabs collected in EIA, Gen-Probe or bacterial collection tubes will be rejected. Urine specimens will be rejected if the volume of sample if not between the two fill lines on the tube.

REFERENCE
Not detected.

GC SCREEN

METHODOLOGY
Standard reference methods for stain, culture, and identification of Neisseria gonorrhoeae

REPORTED
Preliminary:
Reported within 24 hours and updated as appropriate.

Final:
Positives are reported as soon as growth is observed and updated in a timely manner. Negatives are reported after 3 days incubation.

SPECIMEN REQUIRED
Collect:
Cervical, urethral, pharyngeal swabs and swabs of the anal crypts.

Transport:
Swabs in transport media or fluid in sterile containers to the laboratory within 2 hours of collection.

Remarks:
This is a screening culture only for Neisseria gonorrhoeae, no other organisms will be reported. Order C GENITAL if evaluation for organisms, in addition to N. gonorrhoeae, is needed. Beta-lactamase screen is performed on all Neisseria gonorrhoeae isolates.

Unacceptable Conditions:
Dry swabs

REFERENCE
No Neisseria gonorrhoeae isolated.

GENITAL CULTURE

METHODOLOGY
Standard reference methods for stain, culture, and identification and susceptibilities of bacteria.

REPORTED
Preliminary:
Reported within 24 hours and updated as appropriate.

Final:
Positives are reported as soon as growth is observed and updated in a timely manner. Identification and susceptibilities (when appropriate) are performed on positive cultures. Negatives are reported after minimum of 3 days incubation.
SPECIMEN REQUIRED
Collect:
Cervical, vaginal, genital discharge, labia, penis, and urethral

Transport
Swab in transport medium to the laboratory within 2 hours of collection.

Remarks:
All pathogens are reported with susceptibility tests when appropriate.

Unacceptable Conditions:
Dry swabs

REFERENCE
No growth or normal vaginal or cutaneous flora.

GIARDIA ANTIGEN

METHODOLOGY
EIA
Test is sent to reference lab.

SPECIMEN REQUIRED
Collect:
Fresh stool, minimum 1 gram

Transport:
Sterile container to the laboratory within one hour of collection.

Remarks:
This is a send out test, a CRYPTOSPORIDIUM/GIARDIA RAPID AG can also be done. See CRYPTOSPORIDIUM/GIARDIA RAPID AG

REFERENCE
Negative

GRAM STAIN

METHODOLOGY
Standard reference method

SPECIMEN REQUIRED
Collect:
Any body site, see collection procedures for details.

Transport:
Take sterile container, eSwab, fluid, etc. to the laboratory within 2 hours of collection unless otherwise noted for a particular body site in the Specimen Collection section.

Remarks:
A gram stain is included in certain microbiology cultures. A Gram Stain order does not include a culture.

Cultures that include a gram stain automatically:

C BF        C GC SCRN
C CF        C REPRO
C CSF (always STAT)        C RESP
C EENT (eye and ear specimens only)  C TIS
C GASTRIC (always STAT)    C WD DEEP
C GENITAL      C WD SUPFC
REFERENCE
No organisms seen

HEPATITIS C VIRUS MOLECULAR AMPLIFICATION HEP C MOL AMP

HCV SCREENING TEST

METHODOLOGY
Real Time Polymerase Chain Reaction (RT-PCR), TaqMan Analyzer

REPORTED
Due to the technical nature of the test, specimens are batched into larger runs. Turnaround time is variable but the laboratory strives to have results within one week of collection.

SPECIMEN REQUIRED

Collect:
10 ml sterile clot tube
Store whole blood at 2-25°C for no longer than six hours before processing
Separate and transfer serum within six hours of collection
Serum may be stored at 2-8°C for up to 72 hours or frozen at -70°C.
2 mLs of serum is required with 1 mL as a minimum.

Transport:
Usually blood is drawn by laboratory personnel. Keep processed specimens refrigerated.

Remarks:
In order to assure the quantity of the viral RNA in the specimen, follow collection, processing, storage, and transportation guidelines.
The Lower Limit of Detection for the Hepatitis C Virus screening test is 43 IU/mL.

Unacceptable Conditions:
Specimens not taken off of the red blood cells within 6 hours.
Serum stored at room temperature.
Serum-stored at 2-8°C for more than 72 hours.
Heparinized or plasma specimens

REFERENCE
Not detected

HEPATITIS C RNA QUANTITATION MOLECULAR AMPLIFICATION HEP C QUAN

HCV VIRAL LOAD TEST

METHODOLOGY
Real Time Polymerase Chain Reaction (RT-PCR), TaqMan Analyzer

REPORTED
Due to the technical nature of the test, specimens are batched into larger runs. Turnaround time is variable but the laboratory strives to have results within one week of collection.

SPECIMEN REQUIRED

Collect:
10 ml sterile clot tube
Store whole blood at 2-25°C for no longer than six hours before processing
Separate and transfer serum within six hours of collection
Serum may be stored at 2-8°C for up to 72 hours or frozen at -70°C.
2 mLs of serum is required with 1 mL as a minimum.

Transport:
Usually laboratory personnel draw blood. Keep processed specimens refrigerated.
Remarks:
In order to assure the quantity of the viral RNA in the specimen, follow collection, processing, storage, and transportation guidelines.

Unacceptable Conditions:
Specimens not taken off of the red blood cells within 6 hours.
Serum stored at room temperature.
Serum stored at 2-8°C for more than 72 hours.
Heparinized or plasma specimens.

REFERENCE
The Analytical Measurement Range (AMR) is 43 to 2069,000,000 IU/mL of HCV RNA.

HERPES CULTURE AND SHELL VIAL
See Viral Culture Section

HERPES SIMPLEX 1&2 MOLECULAR AMPLIFICATION
HSV 1&2 MOL AMP

METHODOLOGY
Polymerase Chain Reaction
Test is sent to reference lab.

SPECIMEN REQUIRED
Collect:
Spinal Fluid, minimum 5 ml
Lesion/vesicle; collect swab in UVT transport media

Transport:
Transport to the laboratory within 15 minutes after collection.

REFERENCE
Not detected

HIV RNA QUANTITATION MOLECULAR AMPLIFICATION
HIV QUANT MOLEC

HIV VIRAL LOAD TEST

METHODOLOGY
Real Time Reverse Transcriptase Polymerase Chain Reaction (RT-PCR), TaqMan Analyzer

REPORTED
Due to the technical nature of the test, specimens are batched into larger runs. Turnaround time is variable but the laboratory strives to have results within one week of collection.

SPECIMEN REQUIRED
Collect:
8.5 mL EDTA Plasma tube (Purple)
Store whole blood at 2-25°C for no longer than 24 hours before processing
Separate and transfer plasma within 24 hours of collection
Plasma may be stored at 2–8°C for up to 6 days or frozen at -70°C for 6 weeks.
2.2 mLs of plasma is required with 1.1 mL as a minimum.

Transport:
Usually laboratory personnel draw blood. Keep processed specimens refrigerated.

Remarks:
In order to assure the quantity of the viral RNA in the specimen, follow collection, processing, storage, and transportation guidelines.

Unacceptable Conditions:
Specimens not taken off of the red blood cells within 24 hours.
Plasma stored at room temperature.
Plasma stored at 2-8°C for more than 6 days.
Heparinized whole blood specimens.

REFERENCE
The Linear Range for this assay is 1.3 to 7.0 Log 10 copies/mL (20 to 10,000,000 copies/mL) HIV-1 RNA.
The Lower Limit of Detection (LOD) of this assay is 1.3 Log 10 copies/mL (20 copies/mL) HIV-1 RNA.

INDIA INK STAIN
Test is no longer performed. Please order a Cryptococcal Antigen test, which has shown to be as rapid and more sensitive than the India Ink test.

INFLUENZA A & B RAPID ANTIGEN TEST
METHODOLOGY
Membrane EIA

REPORTED
Within 4 hours of receipt of specimen.

SPECIMEN REQUIRED
Collect: Nasopharyngeal wash, nasopharyngeal aspirate, or nasopharyngeal swabs.

Transport: Take specimens to the laboratory within 1 hour of collection. Store refrigerated.

Remarks: Negative antigen tests are not backed up by viral culture unless specifically requested. Separate specimen required for viral culture.

Unacceptable Conditions: Unlabeled, leaking or contaminated specimens.

REFERENCE
Negative for Influenza A+B

INFLUENZA A MOLECULAR AMPLIFICATION
METHODOLOGY
Real-Time Polymerase Chain Reaction

REPORTED
Within 24 hours of receipt at performing laboratory.

SPECIMEN REQUIRED
Collect: Nasopharyngeal (NP) swab collected using flocked mini-tip swab transported in 1 mL UVT media or 3 mL UVT media.

Transport: Refrigerated.

Remarks: This test can be ordered alone or as an order set. This order set contains Influenza A, Influenza B, and RSV Molecular Amplification tests. Only one collection is required regardless of whether it is ordered individually or as an order set.

REFERENCE
Not Detected

INFLUENZA B MOLECULAR AMPLIFICATION
METHODOLOGY
Real-Time Polymerase Chain Reaction

REPORTED
Within 24 hours of receipt at performing laboratory.
**SPECIMEN REQUIRED**
Collect: Nasopharyngeal (NP) swab collected using flocked mini-tip swab transported in 1 mL UVT media or 3 mL UVT media.

Transport: Refrigerated.

Remarks: This test can be ordered alone or as an order set. This order set contains Influenza A, Influenza B, and RSV Molecular Amplification tests. Only one collection is required regardless of whether it is ordered individually or as an order set.

**REFERENCE**
Not Detected

### LEGIONELLA SCREENING CULTURE

<table>
<thead>
<tr>
<th>METHODOLOGY</th>
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**REPORTED**

Preliminary:
Reported within 24 hours and updated as appropriate.
Positives are reported as soon as growth is observed and updated in a timely manner.

Final:
Negatives are reported after 5 days.

### SPECIMEN REQUIRED

**Collect:**
Collect any lower respiratory tract specimen, pleural fluid or fresh tissue.

**Transport:**
Transport sterile container to the laboratory within 2 hours of collection.

**Remarks:**
This is a screening culture for Legionella species only.

**Unacceptable Conditions:**
Saliva collected instead of sputum.

**REFERENCE**
No growth after 5 days.

### LEGIONELLA FA STAIN

<table>
<thead>
<tr>
<th>METHODOLOGY</th>
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</thead>
<tbody>
<tr>
<td>Fluorescent antibody stain</td>
</tr>
</tbody>
</table>

**REPORTED**

Final reports available within 24 hours of receipt of specimen at performing laboratory.

### SPECIMEN REQUIRED

**Collect:**
Collect any lower respiratory tract specimen, pleural fluid or fresh tissue.

**Transport:**
Transport sterile container to the laboratory within 2 hours of collection.

**Unacceptable Conditions:**
Unlabeled or contaminated containers.
**LEGIONELLA URINARY ANTIGEN**

**METHODOLOGY**
Membrane EIA

**REPORTED**
Within 4 hours of receipt of specimen.

**SPECIMEN REQUIRED**
Collect:
Collect clean catch urine, 2 ml minimum, place in sterile container.

Unacceptable Conditions
Unlabeled, leaking or contaminated specimens.

**REFERENCE**
Negative

---

**MODIFIED AFB STAIN (NOCARDIA STAIN)**

**METHODOLOGY**
Modified Kinyoun’s AFB Stain

**PERFORMED**
As needed

**REPORTED**
Results are reported within 24 hours of receipt of specimen at the performing laboratory.

**SPECIMEN REQUIRED**
See AFB Culture

**REFERENCE**
Negative

---

**MOLECULAR AMPLIFICATION TESTING**

See individual molecular amplification procedures available:
- BKV Vial Load
- Chlamydia trachomatis
- CMV Quantitative (Viral Load)
- Enterovirus
- Factor V Leiden Mutation Analysis
- Prothrombin II Mutation Analysis
- GC (Neisseria gonorrhoeae)
- Hepatitis C Virus, Qualitative (Screening)
- Hepatitis C Virus, Quantitative (Viral Load)
- HIV Quantitative, (Viral Load)
- Herpes simplex (HSV)
- MRSA (Methicillin resistant Staph aureus)
- Staph aureus
- Mycobacterium tuberculosis complex
- Respiratory Infection Molecular Panel
  - Influenza with Subtyping
RSV with Subtyping  
Adenovirus hMetapneumovirus  
Parainfluenza and Rhinovirus  
Bordetella  
Influenza A  
Influenza B  
RSV

**MRSA MOLECULAR AMPLIFICATION**  
**METHODOLOGY**  
Real Time Polymerase Chain Reaction (RT-PCR)

**PERFORMED**
Monday – Friday: 2 runs per day (morning and early afternoon)  
Saturday – Sunday: 1 run per day

**SPECIMEN REQUIRED**
Collect:  
Nares swabs  
Perineum swab  
Axilla/perineum combo swab.

**REFERENCE**
Negative for methicillin resistant Staphylococcus aureus.

**MYCOBACTERIUM TUBERCULOSIS COMPLEX MOLECULAR AMPLIFICATION**  
**METHODOLOGY**  
Polymerase Chain Reaction

**PERFORMED**
As needed

**REPORTED**
Finals are reported within 48 hours of receipt of specimen in performing laboratory.

**SPECIMEN REQUIRED**
Collect:  
This test is FDA approved for AFB Smear Positive Respiratory Specimens only. Respiratory specimens must first be submitted for AFB Culture for evaluation. To add this test to a previously positive specimen, call SPL at 858-262-8623 during business hours. A faxed request must be submitted to SPL.

Transport:  
See AFB Culture requirements.

Remarks:  
This test has been validated by Sharp Pathology Lab for other specimen types (BAL, Bronch Wash, Pleural Fld). All specimens submitted for MTB MOL AMP testing must also have an order for AFB Culture.

Unacceptable Conditions:  
Unlabeled, leaking, or contaminated specimens.

**REFERENCE**
Not Detected

**MYCOPLASMA CULTURE (M. HOMINIS-GENITAL)**  
**METHODOLOGY**  
Standard reference method. Test is sent to reference lab.
PERFORMED
As needed

SPECIMEN REQUIRED
Collect:
Genital swab or on infants collect CSF, urine or Tracheal Asp in transport media (UVT)

Transport:
Specimens must be transported to the laboratory as soon as possible.

Unacceptable Conditions:
Specimens stored at room temperature.

REFERENCE
No Ureaplasma urealyticum or genital Mycoplasma isolated.

**MYCOPLASMA CULTURE (M. PNEUMONIAE-RESPIRATORY)**

METHODOLOGY
Standard reference method.
Test is sent to reference lab.

PERFORMED
As needed

SPECIMEN REQUIRED
Collect:
Throat swab or sputum in mycoplasma transport media (UVT)

Transport:
Specimens must be transported to the laboratory as soon as possible.

Unacceptable Conditions:
Specimens stored in room temperature.

REFERENCE
No Mycoplasma pneumoniae isolated.

**NOCARDIA CULTURE**

METHODOLOGY
Standard reference methods of culture and identification.

REPORTED
Preliminary:
Reported within 24 hours and updated as appropriate.
Positives are reported as soon as growth is observed and updated in a timely manner.

Final:
Negatives are reported after 5 days.

SPECIMEN REQUIRED
See AFB Culture.

REFERENCE
No growth after 5 days.
OVA AND PARASITES (O&P)

**METHODOLOGY**
Standard references methods.

**REPORTED**
Results available with 72 hours of receipt of specimen in performing laboratory.

**SPECIMEN REQUIRED**

Collect Stool:
Fresh, min 5 gm - only one specimen per day is accepted
Rectal Bx: call parasitology laboratory for collection instructions
CSF, Min 5 ml – keep at room temperature
Sigmoidoscopy, send entire available specimen
Duodenal washing, send entire available collection
Liver aspirate, send both portions (first yellowish-white aspirate and second reddish aspirate)
Biopsy, entire specimen – moisten with saline to prevent drying out
Sputum, expectorated, minimum 5 ml
Urine, Midday clean catch or 24 hour collection
Urogenital: Collect via swab or speculum, use small amount of saline to prevent drying out.

**Transport:**
Fresh liquid stool to laboratory within 30 minutes of passage or place immediately into Total Fix (Black Top) Vial.
Fresh-formed stool to laboratory within one hour of passage or place immediately into Total Fix.
All other sources must be transported to the laboratory within one hour of collection.

**Remarks:**
Three stool specimens collected 2 to 3 days apart permit detection of most infections. Order separate tests if Microsporidium or Cyclospora/Isospora is suspected.
EcoFix Vial (Green Top) is also acceptable.

**Unacceptable Conditions:**
Stool specimens containing barium, bismuth, laxative or mineral oil.
Stool specimens contaminated with urine, dirt or water.

**REFERENCE**
No ova or parasites seen.

PARASITE EXAM (ECTOPARASITE EXAM)

**METHODOLOGY**
Microscopic examination

**REPORTED**
Results are available within 72 hours of receipt in the performing laboratory.

**SPECIMEN REQUIRED**

Collect:
Suspected parasite in sterile container with a small amount of 10% formalin.

**Remarks:**
Many suspected parasites are found to be mucus strands, artifacts, undigested food particles, or debris.

**Unacceptable Conditions:**
Dried out specimen.
## PINWORM EXAM

**METHODOLOGY**
Microscopy

**REPORTED**
Presence or absence of Enterobius vermicularis eggs (pinworm) within 48 hours of receipt of specimen.

**SPECIMEN REQUIRED**

**Collect:**
Clear cellulose scotch tape prep or Swube (sticky paddle) from perianal folds

**Remarks:**
The specimen is best collected early in the morning.

**Unacceptable Conditions:**
Frosted scotch tape

**REFERENCE**
No Enterobius vermicularis eggs seen.

## PROTHROMBIN II MUTATION ANALYSIS

**METHODOLOGY**
Real Time Polymerase Chain Reaction (RT-PCR)

**PERFORMED**
Weekly

**REPORTED**
Finals are reported the same day as the test is performed.

**SPECIMEN REQUIRED**

**Collect:**
One 7 or 10 ml yellow top (ACD tube for Buffy Coat or Plasma, min. 2 ml, EDTA also acceptable)
Usually blood is drawn by laboratory personnel.

**Transport:**
Store and transport specimens at 2-8°C

**REFERENCE**
Normal Genotype, Heterozygous Genotype, Homozygous Mutant Genotype

## RAPID UREA

**METHODOLOGY**
Detection of urease activity using CLO Test.

**PERFORMED**
As needed

**REPORTED**
Final reports are available 24 hours after time of inoculation.

**SPECIMEN REQUIRED**

**Collect:**
Gastric Biopsy. Place into CLO Test gel, label the test packet. Incubate 3 hours.
Transport:
Transport to the Microbiology laboratory after the three hour reading.

REFERENCE
Negative for urease activity.

**REPRODUCTIVE CULTURE C REPR**

**METHODOLOGY**
Standard reference methods for stain, culture, and identification and susceptibilities of bacteria.

**REPORTED**
**Preliminary:**
Reported within 24 hours and updated as appropriate. Positives are reported as soon as growth is observed and updated in a timely manner. Identification and susceptibilities (when appropriate) are performed on positive cultures.

**Final:**
Negatives are reported after 4 days.

**SPECIMEN REQUIRED**
**Collect:**
Send as much specimen as possible, fluids and tissue are better specimen than swabs.
- Amniotic Fluid
- Bartholin Cyst
- Cul-de-sac fluid or swab
- Endometrium
- Fallopian tube
- Ovary
- Placenta
- Uterus
- IUD

**Transport:**
Fluid in syringe with needle removed, or anaerobic fluid transport media. Transport Amniotic Fluid to the laboratory within 30 minutes of collection. Transport other specimens to the laboratory within 2 hours of collection.

**Remarks:**
Gram stains on Amniotic Fluid are considered STAT.

**Unacceptable Conditions:**
Specimens collected on swabs are not acceptable if fluid is available.

**REFERENCE**
No growth after 4 days incubation.

**RESPIRATORY CULTURE C RESP**

**METHODOLOGY**
Standard reference methods for stain, culture and identification and susceptibilities of bacteria.

**REPORTED**
**Preliminary:**
Reported within 24 hours and updated as appropriate. Positives are reported as soon as growth is observed and updated in a timely manner. Identification and susceptibilities (when appropriate) are performed on positive cultures.

**Final:**
Negatives (or normal flora) are reported after up to 4 days.

**SPECIMEN REQUIRED**

**Collect:**
Bronchial alveolar lavage (BAL)
Bronchial brushing
Bronchial washings
Esophageal aspirate/brushing
Endotracheal aspirate; tracheal aspirate
Sputum; Expectorated, induced

**Transport:**
Sterile container to the laboratory within 2 hours of collection.

**Remarks:**
For specimens to be shared with separate department make sure there is enough volume collected to perform all ordered test. See collection procedure.

**Unacceptable Conditions:**
Leaking or contaminated containers
*Saliva is not acceptable for culture*
More than one specimen within 24 hours

**REFERENCE**
No growth or normal flora

**RESPIRATORY INFECTION MOLECULAR PANEL**

**METHODOLOGY**
Polymerase Chain Reaction with microarray hybridization
Assay detects and discriminated the most common viral pathogens and Bordetella species. Tests can be ordered separately or in any combination. Any of the tests can be added to the original collection. Call the Micro Dept at the Sharp Pathology Lab at 858-262-8623 or use the Micro Add-on order in Cerner.

**PowerPlan: Respiratory Infection Molecular Panel**
Contains the following test options:
- Influenza w/subtyping by Molecular Amp (not recommended for routine molecular testing, instead order Influenza A Mol, Influenza B Mol)
- RSV with subtyping by Mol Amp (not recommended for routine molecular testing, instead order RSV Mol)
- Parainfluenza & Rhinovirus Mol Amp
- Adenovirus & hMetapneumovirus Mol Amp
- Bordetella Molecular Amplification

**REPORTED**
Within 24 hours of receipt of specimen at performing lab.

**SPECIMEN REQUIRED**

**Collect:**
Nasopharyngeal (NP) swab in UVT transport media (available from the Microbiology lab)
Only one collection is required regardless of how many of the tests listed are ordered.

**Transport:**
Specimen can be held at 2-8°C for up to 48 hours.

**REFERENCE**
Not Detected
### RSV Molecular Amplification

**METHODOLOGY**
Real-Time Polymerase Chain Reaction

**REPORTED**
Within 24 hours of receipt at performing laboratory.

**SPECIMEN REQUIRED**
*Collect:* Nasopharyngeal (NP) swab collected using flocked mini-tip swab transported in 1 mL UVT media or 3 mL UVT media.

*Transport:* Refrigerated.

*Remarks:* This test can be ordered alone or as an order set. This order set contains Influenza A, Influenza B, and RSV Molecular Amplification tests. Only one collection is required regardless of whether it is ordered individually or as an order set.

**REFERENCE**
Not Detected

### RSV Rapid Antigen

**METHODOLOGY**
Membrane EIA

**REPORTED**
Within 4 hours of receipt of specimen.

**SPECIMEN REQUIRED**
*Collect:* Nasopharyngeal wash, nasopharyngeal aspirate, and nasopharyngeal swabs.

*Transport:* Take specimens to the laboratory within 1 hour of collection. Store refrigerated.

*Remarks:* Negative antigen tests are not backed up by viral culture unless specifically requested. Separate specimen required for viral culture.

**Unacceptable Conditions:**
Unlabeled, leaking or contaminated specimens. Calcium alginate swabs.

**REFERENCE**
Negative for RSV antigen

### Schlichter

**METHODOLOGY**
Standard reference methods. Test is sent to reference lab.

**REPORTED**
Within six days of receipt of isolate and sera.

**SPECIMEN REQUIRED**
*Collect:* Blood must be collected (and identified) at timed “trough” and “peak” antibiotic levels.
Co-ordinate collection with the laboratory in order to ensure drawing the patient at the correct time to ensure a true “peak” or “trough” level is obtained.

*Remarks:*
The microbiology laboratory must be notified so that the patient’s organism can be retrieved for testing. The patient’s organism must be sent to the reference laboratory along with the patient’s serum. Consult with physician.

### SINUS CULTURE

**METHODOLOGY**
Standard reference methods for stain, culture, identification and susceptibilities of bacteria.

**REPORTED**
- Preliminary: Reported within 24 hours and updated as appropriate
- Final:
  - Positives are reported as soon as growth is observed and updated in a timely manner
  - Identification and susceptibilities (when appropriate) are performed on positive cultures.
  - Negatives are reported after 3 days incubation.

**SPECIMEN REQUIRED**
- **Collect:**
  - Surgically collected sinus specimens, i.e., aspirates, or intraoperative specimens.
  - Sinus discharge and drainage are accepted for culture but are not optimal sources for culture.
- **Transport:**
  - Transport surgically collected specimens to the laboratory STAT.
- **Remarks:**
  - Nasal drainage does not correlate well with the true etiologic agent of sinus infection.
- **Unacceptable Conditions:**
  - Dry Swabs
  - Unlabeled specimens

**REFERENCE**
- No growth.

### STAPH AUREUS MOLECULAR AMPLIFICATION

**METHODOLOGY**
Real Time Polymerase Chain Reaction (RT-PCR)

**PERFORMED**
- Monday – Friday: 2 runs per day (morning and early afternoon)
- Saturday – Sunday: 1 run per day

**SPECIMEN REQUIRED**
- **Collect:**
  - Nares swabs
  - Perineum swab
  - Axilla/perineum combo swab.

**REFERENCE**
- Negative for Staphylococcus aureus.

### STAPH AUREUS SCREENING CULTURE

**METHODOLOGY**

**REPORTED**
Preliminary:
Reported within 24 hours and updated as appropriate.

Final:
Negatives are reported after 2 days

**SPECIMEN REQUIRED**

**Collect:**
A patient can be cultured from virtually any body site.

**Remarks:**
This culture screens for both Methicillin-resistant Staphylococcus aureus (MRSA) and Methicillin-sensitive Staphylococcus aureus (MSSA).

**REFERENCE**
Negative for Staphylococcus aureus (Methicillin-sensitive and Methicillin-resistant)

**STOOL CULTURE**

**METHODOLOGY**

**REPORTED**

**Preliminary**
Reported within 24 hours and updated as appropriate.
Positives are reported as soon as growth is observed and updated in a timely manner.

**Final**
Negatives (or normal flora) are reported after 2 days.

**SPECIMEN REQUIRED**

**Shared Specimens**
Stool specimens are often used for both routine culture and ova and parasite exam. A minimum of 5 grams is recommended for shared specimens.

**Collect:**
Duodenal aspirate, brushing, swab or washing
Feces/ Stool
Rectal Swab

**Transport:**
Fresh specimens to the within one hour of passage.

**Remarks:**
Please note if physician’s request includes “R/O Salmonella carrier.”
Routine culture rules out Salmonella, Shigella, E.coli 0157, and Campylobacter.
The laboratory must be notified in advance to look for other pathogens such as Vibrio, Yersinia, Aeromonas, etc.

**Unacceptable Conditions:**
Leaking containers.
More than one specimen within 24 hours.

**REFERENCE**
Normal enteric flora isolated

**STREP A ANTIGEN SCREENING**

**METHODOLOGY**
Membrane EIA

**PERFORMED**
As needed

**REPORTED**
Results are usually available within one hour

**SPECIMEN REQUIRED**
Collect:
Throat swab

Remarks:
Group A Strep culture will be performed on all specimens which have a negative result for Step A antigen screen.

**REFERENCE**
Negative.

### STREP A SCREENING CULTURE

**METHODOLOGY**

**REPORTED**
Preliminary:
Reported within 24 hours and updated as appropriate.
Positives are reported as soon as growth is observed and updated in a timely manner.

Final:
Negatives are reported after 2 days.

**SPECIMEN REQUIRED**
Collect:
Throat swab

Remarks:
This culture screens for Group A Strep only. If other etiologic agents are suspected order C EENT

**REFERENCE**
No beta hemolytic streptococci isolated.

### STREP B SCREENING CULTURE

**METHODOLOGY**

**REPORTED**
Preliminary:
Reported within 24 hours and updated as appropriate.
Positives are reported as soon as growth is observed and updated in a timely manner.

Final:
Negatives are reported after 2 days.

**SPECIMEN REQUIRED**
Collect:
Vaginal /Rectal swabs

Remarks:
This is a screening culture for Group B Strep only.
**STREP PNEUMONIAE ANTIGEN**

**METHODOLOGY**
Membrane EIA
Culture is essential for evaluation of bacterial meningitis and must be performed on all CSF specimens. Please order C CSF in addition to SPNEUMO AG when meningitis is suspected.

**REPORTED**
Within 4 hours of receipt of specimen.

**SPECIMEN REQUIRED**
Collect:
Collect clean catch urine, 2 ml minimum, place in sterile container.
Collect CSF, minimum 0.5 mL.

**REFERENCE**
Negative

**THROAT CULTURE**

**METHODOLOGY**

**REPORTED**
Preliminary:
Reported within 24 hours and updated as appropriate

Final:
Positives are reported as soon as growth is observed and updated in a timely manner
Identification and susceptibilities (when appropriate) are performed on positive cultures.
Negatives are reported after 3 days incubation.

**SPECIMEN REQUIRED**
Collect:
Throat

Transport:
Transport specimens to the laboratory within 2 hours of collection.

Remarks:
Note if any special etiological agents are suspected i.e., diphtheria, or gonorrhoeae.
Order STREP A SC when looking for Group A beta-hemolytic strep only.

**REFERENCE**
Normal oropharyngeal flora.

**TISSUE CULTURE WITHANAEROBES**

**METHODOLOGY**
Standard reference methods for stain, culture and identification and susceptibilities of bacteria.

**REPORTED**

Preliminary:
Reported within 24 hours and updated as appropriate.
Positives are reported as soon as growth is observed and updated in a timely manner.
Identification and susceptibilities (when appropriate) are performed on positive cultures.

Final:
Negatives are reported after 4 days.

**SPECIMEN REQUIRED**

Shared Specimens:
If the tissue is to be shared with other laboratory departments such as Histology, it is vital that complete orders accompany the microbiology requisition; otherwise the entire specimen will be expended for culturing purposes.

Collect:
Biopsy – any site
Bone
Bone Marrow
Heart tissue, heart valve
Virtually any organ

Transport:
Best transported in a sterile container without a carrier medium and transported to the laboratory immediately to prevent drying. Small amounts of saline (a few drops) may be added to the container with the tissue. Small pieces of tissue can be added to an eSwab vial.
Exception - Bone Marrows: It is best to place Bone Marrow samples into Pediatric Isolator tubes.

Remarks:
Please make note and have appropriate orders if other departments need to share the specimen.

Unacceptable Conditions
Dried out specimens.
Formalinized specimens.

**REFERENCE**

No growth after 4 days.

**URINE CULTURE**

**METHODOLOGY**

Standard reference methods for quantitated culture, identification and susceptibilities of bacteria.

**REPORTED**

Preliminary:
Reported within 24 hours and updated as appropriate.
Positives are reported as soon as growth is observed and updated in a timely manner.
Identification and susceptibilities (when appropriate) are performed on positive culture.

Final:
Negatives are reported after 2 days.

**SPECIMEN REQUIRED**

Collect:
Minimum of 4 ml for routine bacterial cultures.
Minimum of 300 ml of first morning voided specimen for AFB or Fungus cultures.
Identify the method of collection:

Clean-Catch Midstream Urine: The specimen must be collected in a manner that prevents contamination by organisms colonizing the distant urethra, vagina, and perineum.

Catheterization, Straight
Catheterization, Indwelling
Bladder Washings
Ileal Conduit
Nephrostomy
Suprapubic Aspirate: This is the only acceptable urine specimen for anaerobic culture.

Transport:
Specimen should be received in the laboratory within two hours of collection.

Unacceptable Conditions
More than one request within 24 hours.
Delayed transport to the laboratory (>2 hours at room temperature or >24 hours at 2-8°C.)
24 hour collections.
Urinary catheter tips (Foley tips)
Material from drainage bags, other than initial specimen from a new system.
UA tube (yellow/red top) submitted for culture.

REFERENCE
No growth after 2 days

VIRAL CULTURES
All Viral Cultures are sent to a reference laboratory.
See the following Virology Collection and Transport Guide.
Record the suspected viral agent when available.
Rapid viral cultures (Shell Vials) are available for CMV and Herpes cultures. Indicate when requested.

VRE SCREEN
METHODOLOGY

REPORTED
Preliminary:
Reported within 24 hours and updated as appropriate.
Positives are reported as soon as growth is observed and updated in a timely manner.

Final:
Negatives are reported after 2 days.

SPECIMEN REQUIRED
Collect:
Specimens can be collected from virtually any body site.

Remarks:
This is a screening culture for Vancomycin Resistant Enterococcus only.

REFERENCE
Negative for Vancomycin Resistant Enterococcus.

WET MOUNT FUNGUS
METHODOLOGY
Standard reference method
REPORTED
Results are usually available within one hour.

SPECIMEN REQUIRED
Collect:
Tissue, sputum, skin scrapings, hair, nail clippings, corneal scrapings

Transport:
Transport to the laboratory within 2 hours of collection.

REFERENCE
No fungal elements seen.

WOUND – DEEP - CULTURE

METHODOLOGY
Standard reference methods for stain, culture and identification and susceptibilities of bacteria.

REPORTED
Preliminary:
Reported within 24 hours and updated as appropriate.
Positives are reported as soon as growth is observed and updated in a timely manner.
Identification and susceptibilities (when appropriate) are performed on positive cultures.

Final:
Negatives are reported after 4 days.

SPECIMEN REQUIRED
Collect:
Abscess
Appendix
Bite
Burn
Bursa
Cellulitis
Cyst (from surgery)
Intraoperative wound/swab
Mediastinum
Lesion
Penrose Drain
Fistula
Polyp

Transport:
Sterile container or aspirate in anaerobic transport container to the laboratory within 2 hours of collection.

Unacceptable Conditions:
Leaking or unsterile containers
Swabs are never acceptable when fluid is available.

REFERENCE
No growth after 4 days

WOUND – SUPERFICIAL – CULTURE
Preliminary:
Reported with 24 hours and updated as appropriate.
Positives are reported as soon as growth is observed and updated in a timely manner.

Final:
Negatives are reported after 4 days.

SPECIMEN REQUIRED
Collect:
Burn
Decubitis
IV Site
Lesion
Lip
Perianal swab
Perineum swab
Rash
Scratch
Skin

Transport:
Sterile container or aspirate in sterile transport containers to the lab within 2 hours of collection.
Swabs are never acceptable when fluid is available.

REFERENCE
No growth after 4 days

**YEAST CULTURE**

**METHODOLOGY**

**REPORTED**
Preliminary:
At 24 hours and updated when appropriate.

Final:
After 4 days incubation if negative
Positive reports generated as soon as information is available.

SPECIMEN REQUIRED
Collect:
A minimum of 1 ml of fluid, when appropriate, is required for a Yeast Culture.
Swab are acceptable.

Transport:
Sterile, leak proof containers to the laboratory within one hour of collection unless otherwise noted in the Specimen Collection Guideline.

Remarks:
Stains and Wet Mounts are performed only upon request

Unacceptable Conditions:
Unsterile or leaking containers

REFERENCE
No Candida isolated.
Specimen Collection and Transport Devices

Suitable containers are usually supplied by the hospital or stocked at nursing stations. Certain specialized or less commonly used transport containers are available only from the Microbiology Laboratory. Refer to the pictures and instructions below for use of approved transport devices.

Aerobic and Anaerobic Specimen Collector – eSwab w/Regular flocked swab (White Cap)

**When to Use:** For all routine aerobic and anaerobic swab collections for bacterial and fungal culture (throat, nasal, ear, genital, superficial wound). Liquid media allows additional material for routine and fungus culture. If AFB culture is ordered, a separate eSwab collection is required due to volume requirements.

**Description:** System consists of clear liquid Amies medium in a flat-bottomed tube with a white cap. The outfit also contains a regular flocked swab. The uninoculated kits are stored at room temperature.

**How to Use:** Peel apart protective sleeve and take out tube. Remove flocked swab and use to collect sample. Carefully place swab into original tube, break off the swab shaft at colored breakpoint indicator mark. Recap the tube tightly.

Aerobic and Anaerobic Specimen Collector – eSwab w/Mini-tip flocked swab (Dark Blue Cap)

**When to Use:** For all routine and anaerobic swab collections of specimens from small orifices or difficult to reach areas such as nasopharyngeal, urethral, and conjunctival.

**Description:** System consists of clear liquid Amies medium in a flat-bottomed tube with a dark blue cap. The system also contains a mini-tip flocked swab. The uninoculated kits are stored at room temperature.

**How to Use:** Peel apart protective sleeve and take out tube. Remove flocked swab and use to collect sample. DO NOT POUR OUT LIQUID FROM TUBE! Carefully place swab into original tube, break off the swab shaft at colored scored indicator mark. Recap the tube tightly.

Molecular Specimen Collector – MsSwab w/Regular flocked swab (Light Blue Cap)

**When to Use:** For MRSA Molecular and Staph aureus molecular specimens only. Is not acceptable for specimens for routine culture.

**Description:** System consists of liquid molecular preservation medium in a flat-bottomed tube with a light blue cap. The system also contains a regular flocked swab. The uninoculated kits are stored at room temperature.

**How to Use:** Peel apart protective sleeve and take out tube. Remove flocked swab and use to collect sample. DO NOT POUR OUT LIQUID FROM TUBE! Carefully place swab into original tube, break off the swab shaft at colored scored indicator mark. Recap the tube tightly.
**Roche cobas™ PCR Media**

**When to Use:** For testing specimens collected for chlamydia, and gonorrhea testing, by molecular methods. Designed for transporting urine and female vaginal/endocervical swab.

**Description:** Urine collection kit consists of a round-bottomed yellow-top tube with clear fluid and a sterile plastic pipette to be used for transferring patients’ urine into the tube. Female swab collection kit consists of a round-bottomed yellow-top tube with clear fluid and 2 sterile swabs.

**How to Use:**

**Urine (Male and Female)**
- Patient should not urinate 1 hour prior to collection.
- Instruct patient to collect first 10-50 mL of urine in sterile container (larger volumes decrease sensitivity of test, i.e., increase false negative results.)
- Use pipette to transfer urine into PCR Media tube, adding urine to bring the volume of sample to between the 2 urine fill lines as indicated by the arrows on the tube.
- Re-cap tube then invert X5.

**Vaginal**
- Insert ONE swab about 5 cm into vaginal opening. (Use woven swab.)
- Gently turn swab for 30 seconds against wall of vagina. Withdraw swab and immediately lower swab into tube until the dark line on shaft is aligned with the tube rim.
- Break off shaft at dark line and re-cap tube.
- Tubes received with 2 swabs will be rejected.

**Endocervical**
- Use first swab (woven swab) to clean excess mucus from cervical os (mucus interferes with test and will result in an Invalid result.) DISCARD FIRST SWAB!
- Use second swab (flocked swab) to collect sample by inserting swab into endocervical canal and gently rotating 5 times in one direction.
- Lower swab into tube until the dark line on shaft is aligned with the tube rim.
- Break off shaft at dark line and re-cap tube.
- Tubes received with 2 swabs will be rejected.

**Urethral**
- No MALE collection kit for urethral samples; submit First voided Urine.

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**Universal Viral Transport Medium (UVT) with Flexible Flocked Mini-tip Swabs**

**When to Use:** For collection and transportation of nasopharyngeal (NP) swabs for Influenza and Respiratory Syncytial Virus (RSV) rapid antigen testing, Influenza and RSV molecular testing; other Viral Respiratory Pathogen; and Bordetella by Molecular Amplification.

**Description:** System consists of a vial of medium (pink fluid with glass beads for macerating cells) in a flat-bottomed centrifuge tube with a red cap. The outfit also contains a single swab packet with a flexible flocked mini-tip swab. The uninoculated kits are stored at room temperature.

**How to Use:** Collect NP specimen, insert into the transport medium, break off shaft (leave swab in transport), tighten lid securely and refrigerate or freeze.
Stool Culture Transport (Para-Pak® C&S)

**When to Use:** Inpatient stool specimens should be collected in clean container and promptly delivered to laboratory within two hours. The pictured container is recommended for Outpatients as there may be a significant delay in transit. **Note:** Collection for Clostridium difficile toxin must be in a clean container without preservative. **Do not use this container.**

**Description:** Device consists of a single vial with an orange cap containing non-nutritive stool transport solution. A sample spoon is attached to the underside of the lid.

**How to Use:** Fill vial with stool to red line using a tongue depressor or the spoon attached to lid of vial. Cap tightly and mix or shake until stool is well emulsified.

Ova & Parasite (O&P) Transport (MCC® Total-Fix)

**When to Use:** All patient stool collections for Ova and Parasite examinations must be placed in this container.

**Description:** Consists of a single vial with a black cap containing a proprietary and ecological fixative (no mercury, formalin, or PVA) designed to preserve specimens for staining and concentration.

**How to Use:** Fill vial with stool to red line using a tongue depressor or the spoon attached to lid of vial. This will ensure the required three to one ratio of fixative to sample. Cap tightly and mix or shake until stool is well emulsified.

Blood Culture Collection Vials (Mycobacteriology - AFB)

**When to Use:** The timing of blood cultures is a clinical decision. Each set of blood cultures is a separate order and should be collected via a separate venipuncture.

**Description:** Vials contain nutrient broth and lysing agents designed to optimize recovery of mycobacteria (AFB).

**How to Use:** Prior to injection of blood sample, remove colored cap from vial and prep septum with a 70% isopropyl alcohol wipe.

**Venipuncture:** Prep arm with ChloraPrep® antiseptic scrubbing gently with a back and forth motion for 30 seconds and allow to dry for 30 seconds.

**Volume Recommendations:**
3 to 5 mL optimum, 1 mL minimum volume into one Myco/F Lytic vial
Blood Culture Collection Vials (Fungus, Isolator, and Bone Marrow)

**Blood Cultures:** The timing of blood cultures is a clinical decision. Each set of blood cultures is a separate order and should be collected via a separate venipuncture.

**Description:** Vials contain a small amount of lysing agent.

**How to Use:** Prep septum with a 70% isopropyl alcohol wipe, fill with blood and invert to mix.

**Venipuncture:** Prep arm with ChloraPrep antiseptic scrubbing gently with a back and forth motion for 30 seconds and allowing to dry for 30 seconds.

**Volume Recommendations:**
- 10 mL into a 10 mL Isolator tube (minimum volume 5.0 mL)
- 1.5 mL into a 1.5 mL Isolator tube (minimum volume 0.5 mL)

**Bone Marrow:** Use 1.5 mL Isolator tube.

Blood Culture Collection Vials (Routine Bacteriology)

**When to Use:** The timing of blood cultures is a clinical decision. Each set of blood cultures is a separate order and should be collected via a separate venipuncture.

**Description:** Vials contain nutrient broth with anticoagulant, resins or lysing additives designed to optimize growth of pathogens.

**How to Use:** Prior to injection with blood sample, remove colored cap(s) from vials and prep septa with 70% isopropyl alcohol wipes.

**Venipuncture:** Prep arm with ChloraPrep antiseptic scrubbing gently with a back and forth motion for 30 seconds and allow to dry for 30 seconds.

**Volume Recommendations:**
- **Adults:** 16 to 20 mL blood distributed between two vials
  - 8 to 10 mL into Aerobic vial
  - 8 to 10 mL into Anaerobic Lytic vial
- **Difficult Adult and Older Pediatric Patients (> 6 yrs):**
  - 5 to 10 mL blood into Aerobic vial
  - 3 mL to 5 mL blood into Aerobic vial – **Label as suboptimal**
  - Less than 3 mL blood - **Specimen rejected; re-collect**
- **Infant and Young Pediatric Patients:**
  - 1 to 3 mL into 1 vial into Peds vial
  - Less than 1 mL blood into one Peds vial – **Label as suboptimal**

**Note:** Collection of blood through intra-arterial or central venous lines is discouraged unless a concurrent set is collected peripherally.

**Important:** Multiple blood cultures collected from one venipuncture are considered one large-volume blood culture set.

**Bone Marrow:** Use 1.5 mL Isolator tube.
Sticky Paddle for Pinworm Collection

**When to Use:** For pinworm examination specimens.

**Description:** Individually packaged tubes contain a one-sided sticky paddle attached to the lid.

**How to Use:** Ideal collection time is early morning. Peel plastic wrap to remove tube and cap. Spread patient buttocks and apply sticky side of paddle to anal folds. Replace paddle in tube and twist to seal well. Label and deliver tube to laboratory.

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Scabies Collection Kit

**When to Use:** For collection of skin scrapings for scabies examination.

**Description:** Each kit contains a tube containing 0.5 mL of mineral oil plus a sterile scalpel and pipet to collect and submerge the parasite-infested skin scrapings.

**How to Use:** Using the attached pipet, place drop of mineral oil from the tube on the sterile scalpel blade and allow oil to flow onto the papule. Scrape vigorously to remove the top of the papule (there should be flecks of blood in the oil.) Using the same pipet, transfer oil and scalpel material to test tube. Tap material down to submerge scrapings in remaining oil. Cap tube securely, label and deliver to laboratory.

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Ambient Temperature Transport System (ATTS) for Affirm Bacterial Vaginosis/Vaginitis DNA Panel

**When to Use:** For collection of vaginal specimens for Affirm™ Bacterial Vaginosis/Vaginitis DNA Panel.

**Description:** Kit includes swab, stabilizing solution (dropper), transport tube and cap plus instructions.

**How to Use:**
- Open entire ATTS kit. Tear foil pouch, break ampoule by squeezing the sides of the plastic until the glass breaks. Express the contents into the provided sample tube. Dispose of glass ampoule in a safety container.
- Place patient in position for pelvic examination
- Insert speculum into vagina to permit visualization of posterior vaginal fornix
- Use sterile swab to obtain sample from posterior vaginal fornix. Roll swab against vaginal wall two to three times ensuring entire circumference of swab makes contact. Swab lateral vaginal wall while removing swab
- Place swab into vial containing stabilizing solution and break off shaft at scored area. Cap securely for transport to Laboratory.
- Follow appropriate labeling procedures at bedside.
Urine Culture for Microbiology Culture or Urinalysis

**When to Use:** For the collection of urine for microbiology culture or urinalysis.

**Description:** Urine Complete Cup Kit (3-part) -- Includes urine cup, two urine tubes, and soap towelette.

**How to Use:** The healthcare professional obtains the cup for the patient and cautions patient not to remove the cap label to protect against needlestick from the “sharp” contained in the integrated transfer device. If a kit is used, the healthcare professional should remove the tube(s) and place them in a protected location. If kits are provided to the patient, the patient should be directed to follow instructions on the bag for proper collection of a clean-voided, midstream urine specimen. Patient is instructed to give the urine specimen to the healthcare professional immediately after collection.

To transfer the specimen into evacuated tube(s):
- Place cup upright on clean, flat surface. Container may be tipped at an angle if specimen volume is limited.
- Peel back label on cap to expose the integrated transfer device.
- Place evacuated tube into cavity on cap, stopper down. Advance the tube over puncture point to pierce stopper. BD Vacutainer® C&S Preservative Urine Tubes should be filled first when collecting multiple tubes.
- Hold tube in position until filled.
- Remove tube from integrated transfer device.
- For all BD Vacutainer® Preservative Urine Tubes, mix tubes 8-10 times by inversion.
- Repeat steps if another tube is to be filled.
- Replace label over integrated transfer device cavity and reseal. Use caution to avoid contact with needle when replacing label.
- Label tube(s) or cup for transport to laboratory.
- Treat the screw cap of the cup as a contaminated sharp and discard in biohazard container approved for sharps disposal.

**IMPORTANT NOTE:** Do not use the UA tube (yellow/red top) for urine culture or it will be rejected when submitted to the lab for culture.
Specimens submitted in CytoLyt (for cytological examination) or in formalin (for histologic testing) are inappropriate for culture because the preservatives affect the viability of microorganisms. Stains can be performed on the specimens to detect bacterial or fungal pathogens but the specimens will be rejected for culture.

NOTE: SPILLS IN TRANSIT AND IN THE TUBE SYSTEM AFFECT THE INTEGRITY OF SPECIMENS AND THE SAFETY OF YOUR CO-WORKERS!

DO NOT USE THIS CONTAINER FOR ANY LIQUID SPECIMENS!

USE THESE SCREW-CAP CONTAINERS

NO

YES