

## Specimen Collection and Transportation of Microbiology Specimens

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### Revision Insight

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#### Revision Note:

adding covid sample collection, transport, and storage requirements to general micro sop for specimen collection and transport

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# SOP: SPECIMEN COLLECTION AND TRANSPORTATION OF MICROBIOLOGY SPECIMENS

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## PROCEDURE SUMMARY/INTENT

It is critical that the laboratory provide complete guidelines for the proper collection and transport of specimens to ensure quality patient care. All diagnostic information from the microbiology laboratory is contingent on the quality of specimen received. Consequences of a poorly collected and/or poorly transported specimen include failure to isolate the causative microorganism and recovery of contaminants or normal microbiota, which can lead to improper treatment of the patient. Often, direct specimen smears are utilized to determine the quality of the specimen, to provide rapid information for diagnosis and therapy, and to allow the physician to determine if additional, better-quality specimens should be collected. This procedure addresses instructions for physicians, nurses, and laboratory assistants on collecting and transporting samples.

## AFFECTED DEPARTMENTS/SERVICES:

1. Laboratory Services
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## PROCEDURE: COMPLIANCE – KEY ELEMENTS

### A. SPECIMEN

#### 1. Specimen Safety considerations

- a. Follow universal precaution guidelines. Treat all specimens as potentially bio-hazardous .
- b. Laboratory workers should use appropriate barrier protection (such as gloves and laboratory coat or gown) when collecting or handling specimens. If splashing may occur, protective eyewear, face masks, and aprons may be necessary.
- c. Do not contaminate the external surface of the collection container and/or its accompanying paperwork.
- d. Minimize direct handling of specimens in transit from the patient to the laboratory. Use plastic sealable bags with a separate pouch for the laboratory requisition orders or transport carriers (for example, small buckets with rigid handles).
- e. CSF (cerebrospinal fluid) from patients that are suspected of having Creutzfeldt-Jacob disease will be processed under the bio-safety hood.
  - i. **NOTE:** Specimens obtained by a physician using needle aspiration should be transferred to a sterile tube or anaerobic transport vial prior to transport of the specimen to the laboratory. If there is little material in the syringe, the physician should draw a small amount of sterile nonbacteriostatic 0.85% NaCl or sterile broth through the syringe and then transfer the specimen to a sterile tube. Alternatively, and only if the specimen will be compromised by transferring it from the syringe, a small amount of sterile 0.85% NaCl or broth may be drawn into a syringe prior to removal of the needle. The physician should use a protective device while removing the needle to avoid injury and should cap the syringe with a sterile cap prior to transporting it to the laboratory.

#### 2. General guidelines for proper specimen collection

- a. Collect specimen before administering antimicrobial agents when possible.
- b. Collect specimen with as little contamination from indigenous microbiota as possible to ensure that the sample will be representative of the infected site.
- c. Utilize appropriate collection devices. Use sterile equipment and aseptic technique to collect specimens to prevent introduction of microorganisms during invasive procedures.
- d. Clearly label the specimen container with the patients name and identification number or date of birth (DOB). Always include date and time of collection and your initials. LINK
- e. Collect an adequate amount of specimen. Inadequate amounts of specimen may yield false-negative results. LINK
- f. Develop an understanding of the microbiology laboratory's source identification schemes. Know when to include "rule-out" request. For example, the laboratory may routinely screen for *Shigella*, *Salmonella*, and *Campylobacter* species in stool cultures but not for *Yersinia* or *Vibrio* species.
- g. Consider geographic location and season when notifying the laboratory of rule-out requests. For example, *Coccidioides immitis* is endemic in the southwestern United States, and rotaviruses are more commonly found in infants and children in winter.

- h. Identify the specimen source and/or specific site correctly so that proper culture media will be selected during processing the laboratory.
- i. If a specimen is to be collected through intact skin, cleanse the skin first. For example, use 70% alcohol followed by iodine solution (1 to 2% tincture of iodine or 10% solution of povidone-iodine). Prevent burn by tincture of iodine by removing excess after specimen has been collected.
- j. Before collection the specimen, consider the risk/benefit ration of the collection procedure to the patient.
- k. Collect specimens in sturdy, sterile, screw-cap, leak proof containers with lids that do not create an aerosol when opened.

**3. General guidelines for proper specimen transport**

- a. Transport all specimens to the laboratory promptly.

**4. PLACING ORDERS**

**a. Placing inpatient orders**

- i. An order must be placed in the HIS (Hospital Information System). A requisition is generated. When the specimen is collected on the floor a verification slip is generated. The specimen with a separate collection verification form for each test ordered for all body fluids or stool specimen for *C. difficile* toxin (*C. difficile* Decision Guide form) must be transported to the lab as soon as collection has been verified. The verification form should include the following information: Refer to [Acceptance or Rejection of Samples and Requisitions](#) for additional information.

- I. Patient name
- II. Patient age and sex
- III. Patient room number
- IV. Physician name
- V. Specific anatomic culture site
- VI. Date and time of specimen collection
- VII. Initials of person obtaining specimen
- VIII. Antimicrobials, if any, patient is receiving
- IX. When appropriate, include clinical diagnosis, special culture request, relevant patient history
- X. Test or procedure requested

- ii. A separate order is needed for each test, including anaerobic cultures. For example, if sputum is collected for AFB, Fungus and routine culture, a total of three orders must be entered: one for AFB, one for fungus, and one for routine microbiology.
- iii. Special requests for culture of unusual isolates (i.e., *C. diphtheriae*, *Leptospira*, *Actinomyces*, *Nocardia*, *Brucella*, *Hemophilus ducreyi*, *B. pertussis*, etc.) require prior notification of the laboratory in addition to ordering the tests.

**b. Placing Outpatient orders**

- i. Orders are placed and received in the LIS (Laboratory Information System) using Department Order Entry and Specimen Log In. Refer to the Outpatient order guidelines for details.

**5. LABELING**

- a. Each sample must have a label firmly attached to the specimen container bearing the following information: Refer to [Acceptance or Rejection of Samples and Requisitions](#)
  - i. Date & Time of Collection
  - ii. Patient name
  - iii. Hospital number or DOB
  - iv. Culture site
  - v. Initials of Collector

**6. SPECIMEN COLLECTION (ACCEPTANCE AND REJECTION CRITERIA)**

- a. All clinical specimens must be collected in clean sterile containers, which must be properly sealed. The outer portion of the container must not be contaminated.
- b. Optimal specimens are aseptically obtained fresh pus, fluid, or tissue that is rapidly and safely transported to the laboratory. Direct aspiration into a syringe is recommended. Swabs should not be used if fluid can be obtained.
- c. Swabs without transport medium are not satisfactory since they allow drying of the specimen and loss of viability. All specimens should be transported to the laboratory in a sealed zip lock bag.
- d. The following are reasons for rejection of specimens. For additional information refer to previous link to Acceptance or Rejection of Samples

PROBLEM	ACTION

Unlabeled or improperly labeled specimen	Laboratory personnel can handle minor outpatient corrections such as, date, time of collection, source and site with a call to the doctor's office. For inpatients; a nurse must come to the laboratory and identify the specimen before it is processed. Specimens that are easy to obtain should be recollected. Invasive specimens (e.g. CSF) should be processed but do not publish results until doctor has been consulted. If the problem can not be resolved with the nursing staff, the doctor should be called.
<p>Prolonged transport:</p> <p>Urine – 1 hr at rm temp</p> <p>Stools for trophozoites – 1 hr since collection for soft formed, hr since collection for fluid specimens</p> <p>Gonorrhea specimens – ½ hr without transport Medium</p>	Alert submitter of the discrepancy and request a repeat collection of specimen. Note problem in the LIS: "Received after prolonged delay"
PROBLEM	ACTION
Improper container (nonsterile)	Do not process. Call submitter and request repeat specimen
Leaking container	<p>Do not process sputum, blood, and viral specimens. Call submitter for repeat specimen collection and dispose of the leaking one.</p> <p>Other specimens – call submitter and ask for repeat a collection. Hold specimen.</p>
Oropharyngeal contaminated sputum	See respiratory culture quality assessment procedure.
Obvious foreign contamination	Alert submitter of discrepancy. Request repeat specimen collection.
Duplicate specimens submitted at the same time	Select the one of best quality for culture. Report by note in the LIS
Duplicate specimens on same day for the same request (except blood)	Place specimen in refrigerator. Call submitter and indicate duplicity. Culture only one specimen.
Specimen unsuitable for culture request; i.e. anaerobe request from aerobic transport	Call submitter, indicate discrepancy. Request proper specimen for the work requested.
Quantity not sufficient (QNS)	<p>Body Fluids: If QNS for multiple requests, call doctor and determine priority of testing.</p> <p>Process, note problem on report.</p>
Collection/Verification sheet not completely filled out or patient information doesnt match sample.	Hold specimen. Return slip to floor with note: "This specimen will be further processed when this requisition is completely filled out and returned to the laboratory".

## 7. COLLECTION OF ANAEROBIC SPECIMENS

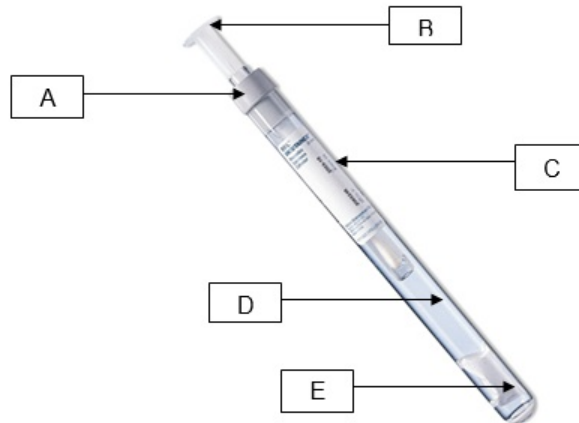
- Anaerobic cultures are best collected by aspirating abscess fluid with a sterile syringe and needle. Syringes can be capped and submitted, or the aspirated fluid can be injected into a vacutainer anaerobic specimen collection. The submission of swabs for anaerobic culture is discouraged, but if swabs must be used, they should be placed immediately into anaerobic transport tubes.
- Anaerobic bacteriology is time-consuming and expensive. Thus, it will be done only on appropriate and properly handled specimens. Specimens should be delivered to the lab ASAP.
- Through the HIS, Order "anaerobic" culture. Be sure to specify the source. When both the anaerobic and aerobic cultures are to be ordered on one specimen, two separate orders must be placed through the HIS, one request for anaerobic culture and a second order for aerobic culture must be placed. Anaerobic cultures are not routinely set up unless specifically ordered.

APPROPRIATE SPECIMENS FOR ANAEROBIC CULTURE	INAPPROPRIATE SPECIMENS FOR ANAEROBIC CULTURE
PULMONARY: Percutaneous transtracheal aspirate, thoracentesis fluid, direct needle puncture aspirate of lung infiltrate or abscess, and bronch brush (Bartlett cath) collected through plugged double lumen catheter	Expectorated sputum, tracheal tube suctioning, bronchoscopy aspirate or wash, N-P, throat or mouth swab.
URINARY: Percutaneous suprapubic aspirate of urine, nephrostomy specimens	Voided urine or catheterized specimen
ABCESS: Needle and syringe aspirate of closed abscess after decontamination of surface	Swab from surface of abscess or swab after incision and drainage
APPROPRIATE SPECIMENS FOR ANAEROBIC CULTURE	INAPPROPRIATE SPECIMENS FOR ANAEROBIC CULTURE
UTERINE: Culdcentesis after decontamination of vagina with povidone iodine or aspirate into syringe through IV type catheter passed through the cervical opening under direct visualization	Vaginal or cervical swabs

OTHER: Joint fluid, spinal fluid, blood and biopsy tissue collected with ordinary care

Superficial wound, feces, or rectal swab.

d. Instructions for Vacutainer anaerobic specimen collector:



ESwab collector: for both anaerobic and aerobic

- i. Do not use if package is damaged.  
**collection**
- ii. Do not use if indicator (E) is pink.
- iii. Do not remove stopper (A) during collection.

e. Anaerobic Collection by swab

- i. Peel apart package and remove specimen collector.
- ii. Remove plunger with sterile swab attached (B).
- iii. Obtain specimen.
- iv. Replace swab through hole and into inner tube (C).
- v. Press down on disc portion of plastic plunger (B) until disc rests against top of rubber stopper (A) forcing the inner tube (C) into outer tube (D). Hold tube at a 45° angle while depressing plunger.
- vi. Hold tube at 10° – 30° angle to floor and rotate with a swirling motion.

f. Collection of liquid or purulent specimens

- i. Collect specimen with sterile syringe and needle. Air trapped in syringe should be expelled by holding syringe and needle upright.
- ii. Remove swab plunger unit (B) and expel material into inner tube (C).
- iii. Proceed with step 5 and 6 as stated above.
- iv. Transport upright if liquid specimen.

B. BLOOD, EAR, AND EYE SPECIMENS

1. Blood Specimens: For systemic and localized infections the following is recommended.

- a. In suspected acute sepsis, meningitis, osteomyelitis, arthritis, or acute untreated bacterial pneumonia, obtain two blood cultures (from two separate venipuncture sites) before starting therapy.
- b. For fever unknown origin (e.g., occult abscess, typhoid fever, or brucellosis), obtain two separate blood cultures initially; 24 to 36 hours later, obtain two more just before the expected (usually afternoon) temperature elevation. The yield beyond four cultures is virtually nil.

2. For suspected infective endocarditis the following is recommended:

- a. Acute – Obtain 3 blood cultures with 3 separate venipunctures during the first 1 to 2 hours of evaluation and begin therapy.
- b. Subacute – Obtain 3 blood cultures on day 1 (ideally 15 minutes or more apart); if all are negative, 24 hours later, obtain three more. From undiagnosed patients who have received antimicrobial agents in the week or two before admission, obtain two separate blood cultures on each of 3 successive days.
- c. The major pitfall in interpretation of blood cultures is their contamination by microbial flora of the skin. The site of the venipuncture should be swabbed with 70% alcohol followed by 2% tincture of iodine for children 2 months of age and younger or Choroprep Frepp for adults, swabbed concentrically, starting at the center. The disinfectant should be allowed to dry before blood is aspirated. If further palpation of the vein is necessary during aspiration, the finger must be similarly disinfected. Draw patient specimens aseptically into a sterile syringe. 16 – 20 ml of inoculum should be obtained from adult patients. 1 to 5 ml should be obtained from pediatric patients.

- d. For adult patients, prepare one aerobic Bactec Plus aerobic/F vial and one Bactec lytic/10 anaerobic/F vial by removing the plastic flip cap from each vial and cleaning the exposed rubber septum with 70% isopropyl alcohol. Inoculate the Bactec Plus aerobic/F vial with 8 – 10 ml of blood. Inoculate the Bactec lytic vial with 8 10 ml of blood. Always note the volume of blood inoculated into the vial.
- e. For pediatric patients use the Bactec Peds Plus/F vials. Inoculate with 1 – 5 ml of blood. Always note the volume of blood inoculated into the vial.
- f. Label all vials with the patient's name, ID number, date and time drawn. Transport to the laboratory immediately.
- g. Order blood culture through the HIS for outpatients. Receive all cultures in the LIS Refer to [Receiving Specimens Through LIS in Microbiology](#) . Routine blood cultures are held for 5 days with preliminary reports daily. All positive blood cultures are phoned to the physician.
- h. Bottles are held longer in some situations if the laboratory is notified, e.g.; brucellosis, *Mycobacterium avium-intracellulare* and systemic fungal infections.
- i. A second order must be placed when these organisms are to be cultured.

## C. COVID

### 1. Abbott

- a. Nasopharyngeal Swab
  - i. Use sterile rayon, foam, polyester or flocked flexible-shaft NP swabs to collect a nasopharyngeal sample
  - ii. To collect a nasopharyngeal swab sample, carefully insert the swab into the nostril exhibiting the most visible drainage, or the nostril that is most congested if drainage is not visible. Pass the swab directly backwards without tipping the swab head up or down. The nasal passage runs parallel to the floor, not parallel to the bridge of the nose. Using gentle rotation, insert the swab into the anterior nare parallel to the palate advancing the swab into the nasopharynx, leave in place for a few seconds, and then slowly rotate the swab as it is being withdrawn.
  - iii. To ensure proper collection, the swab should be passed a distance that is halfway of that from the nose to the tip of the ear. This is about half the length of the swab. DO NOT USE FORCE while inserting the swab. The swab should travel smoothly with minimal resistance; if resistance is encountered, withdraw the swab a little bit without taking it out of the nostril. Then elevate the back of the swab and move it forward into the nasopharynx.
- b. Nasal Swab
  - i. For optimal test performance, use the swabs provided in the test kit. Alternatively, rayon, foam, HydraFlock® Flocked swab (standard tip), HydraFlock® Flocked swab (mini tip), Copan Mini Tip Flocked Swab, or Copan Standard Flocked swabs can be used to collect nasal swab samples.
  - ii. Puritan PurFlock Standard Tip Ultra Flocked Swabs, Puritan PurFlock Mini Tip Ultra Flocked Swabs and Copan Standard Rayon Tip Swabs are not suitable for use in this assay.
  - iii. To collect a nasal swab sample, carefully insert the swab into the nostril exhibiting the most visible drainage, or the nostril that is most congested if drainage is not visible. Using gentle rotation, push the swab until resistance is met at the level of the turbinates (less than one inch into the nostril). Rotate the swab several times against the nasal wall then slowly remove from the nostril. Using the same swab, repeat sample collection in the other nostril.
- c. Nasal or Nasopharyngeal swabs should be tested as soon as possible after collection.
  - i. If immediate testing is not possible, and to maintain best performance, it is highly recommended the nasal or nasopharyngeal swab is placed in a clean, unused tube labeled with patient information, and capped tightly **at room temperature (15-30°C) for up to one (1) hour prior to testing**. Ensure the swab fits securely within the tube and the cap is tightly closed.
    - l. **If greater than one (1) hour delay occurs, dispose of sample. A new sample must be collected for testing .**
  - ii. If the swab is to be returned to its package for transport, carefully return to allow the swab head to only come into contact with the lower portion of the packaging. Avoid touching the outside of the wrapper with the swab.

### 2. GeneXpert

- a. Specimens will be collected and transported with the Xpert Nasopharyngeal Sample Collection Kit for Viruses, Cepheid catalog # SWAB/B-100, for the collection of nasopharyngeal swab specimens, or equivalent. Specimen must be collected and tested before expiration date of the Viral Transport Medium tube.
- b. Nasopharyngeal Swab Collection Procedure
  - i. Insert the swab into either nostril, passing it into the posterior nasopharynx. Rotate swab by firmly brushing against the nasopharynx several times. Remove and place the swab into a viral transport tube (3 mL). Break swab at the indicated break line and cap the specimen collection tube tightly.
- c. Nasopharyngeal swab specimens can be stored at room temperature (15–30 °C) for up to 8 hours and refrigerated (2–8 °C) up to seven days until testing is performed on the GeneXpert Instrument Systems.

## D. EYE

1. Do not touch external skin. Obtain maximum material. Culture both eyes. Use Star swabs with modified Stuarts.
2. Eye for Chlamydia use M4 media.
3. Eye for GC collect with Star Swab modified Amies charcoal.

## E. EAR

1. For otitis media aspirate from tympanocentesis. For external ear, clean the external ear surface and swab drainage. Star swab with modified Stuarts.

## F. GENITAL SAMPLE

### 1. Routine and GC cultures

- a. In general, vaginal cultures are of minimal value. Cultures for gonorrhea should be obtained directly from the uterine cervix. Anaerobic cultures should not be performed except on abscess fluid aspirated by syringe and needle from a paravaginal abscess. Other infections such as trichomonas, candidiasis, or those caused by Gardnerella vaginalis may be diagnosed by direct wet mounts. Wet mounts should be submitted in a 3 ml re cap vacutainer tube containing 0.5 ml saline. Keep warm and transport immediately to the lab. Presence or absence of yeast, trichomonas, clue cells and amine odor will be reported.
- b. All genital cultures should be directly inoculated onto a prewarmed Jembec MTM agar. Place the Jembec into the provided ziplock bag and drop the tablet into the well in the dish.
- c. **Transport it and the swab immediately** to the laboratory. N. gonorrhoeae is sensitive to cold and needs 5 – 10% CO<sub>2</sub> soon after collection. Alternately use Star swab modified Amies charcoal swab.
- d. Order either "genital culture" or GC screen only. Gram stains are not routinely performed on "GC only screens". Order separately and send swab.
- e. Preparation of patient and collection:
  - i. Cervix – wipe the cervix clean of vaginal secretion and mucus. Use a speculum without lubricant. Under direct vision, gently compress cervix with blades of speculum and use a rotary motion with a swab obtain exudates from endocervical glands.
  - ii. Urethra – collect specimen one hour or more after urinating. Wipe urethra clean with sterile gauze or swab. If discharge cannot be obtained by "milking" the urethra, use a swab to collect material from about 1 cm inside the urethra.
  - iii. Vagina – use a speculum without lubricant. Swab mucosa high in the vaginal canal under direct visualization.
  - iv. Throat for GC – order GC screen; send swab and inoculated Jembec plate.
  - v. Anal for GC – order GC screen; send swab and inoculated Jembec plate.

### f. Chlamydia and GC Detection By PCR

#### i. Specimen Collection

I. *Note: Handle all specimens as if they are capable of transmitting infectious agents.*

II. **Note: The test is not intended for use with throat, rectal, or other types of specimens.**

III. *Urine is the specimen of choice for both male and female patients*

A. If a urine specimen is to be collected, the patient must not have urinated for the last two hours.

B. Urine specimens: Collect 10 to 50 mL of the first catch urine (first part of the stream) into a clean, polypropylene container without preservatives. Seal the specimen container. (Foley cath and midstream urines are unacceptable)

C. Swab specimens: **(female only) The only acceptable collection for male patients is urine.** Collect and transport endocervical or vaginal specimen using the Xpert CT/NG Vaginal/Endocervical Specimen Collection Kit Use recommended methods to sample columnar and squamo-columnar cells after removing cervical mucus. Use only the swab supplied with the kit. Leave one swab in the transport media after collection. Do not place the swab used to clean the mucus in the transport media.

#### ii. Specimen Transport

I. Urine specimens may be transported at 18 – 25°C. They are stable for 24 hours at this temperature.

II. Urine specimens that require shipment to off-site testing centers must be shipped overnight with guaranteed delivery within 24 hours. In this case, the specimen may be shipped at 18 – 25°C. If the specimen will not reach the testing site within 24 hours, it should be stored at 2 – 8° C until it is shipped to ensure that the specimen storage time at 18 – 25°C does not exceed 24 hours.

#### iii. Specimen Handling and Storage by laboratory personnel

I. Urine specimens that will not be processed within 24 hours of collection must be stored at 2 – 8°C. Storage of urine specimens at 18 – 25°C for more than 24 hours may result in specimen degradation. These specimens should not be used for testing.

II. Specimens stored at 2 – 8°C must be processed within seven days of collection. Specimens that cannot be processed within seven days may be stored at –20°C or colder, and may be stored this way for up to two months.

III. Swab specimens that will not be processed upon receipt at the laboratory must be stored at 2 – 8°C and should be processed within seven days. Specimens that cannot be processed within seven days may be stored at –20°C or colder, and may be stored this way for up to 30 days.

#### iv. Other sources for Chlamydia culture (sent to reference Laboratories)

I. Use a Dacron or rayon tipped swab with a plastic or aluminum shaft. Inoculate multimicrobe test media. Sent to

reference lab.

## 2. GC detection by PCR:

### a. Specimen Collection

i. *Note: Handle all specimens as if they are capable of transmitting infectious agents.*

I. If a male urine specimen is to be collected, the patient must **not** have urinated for the last two hours. The only acceptable specimens are: male urine specimen collected in a clean, polypropylene container without preservatives; endocervical or vaginal (symptomatic or asymptomatic) swab specimens collected and transported in acceptable media.

II. Note: The test is not intended for use with throat, rectal, eye or other types of specimens.

III. Urine specimens: Collect 10 to 50 mL of the first catch urine (first part of the stream) into a clean, polypropylene container without preservatives. Seal the specimen container. (Foley cath and Midstream urines are unacceptable)

IV. Swab specimens: Collect and transport using Xpert CT/NG Vaginal/Endocervical Specimen Collection Kit. Use recommended methods to sample columnar and squamo-columnar cells after removing cervical mucus. Leave swabs in the transport media after collection.

### b. Specimen Transport

i. Urine specimens may be transported at 18 – 30°C. They are stable for 24 hours at this temperature.

ii. Urine specimens that require shipment to off-site testing centers must be shipped overnight with guaranteed delivery within 24 hours. In this case, the specimen may be shipped at 18 – 30°C. If the specimen will not reach the testing site within 24 hours, it should be stored at 2 – 8°C until it is shipped to ensure that the specimen storage time at 18 – 30°C does not exceed 24 hours.

iii. Collect and transport endocervical or urethral swab specimens in M4 Culture Transport Medium. The swab should be left in the media to provide visual evidence of specimen inoculation.

iv. Swab specimens may be transported at 18 – 30°C only if the total transport and testing time is less than one hour. Transport the specimens at 2 – 8°C if testing will be more than one hour from time of collection.

v. Swab specimens that require shipment to off-site testing centers should be shipped at 2 – 8°C and should be shipped as soon as possible after collection.

### c. Specimen Handling and Storage

i. Urine specimens that will not be processed within 24 hours of collection must be stored at 2 – 8°C. Storage of urine specimens at 18 – 30°C for more than 24 hours may result in specimen degradation. These specimens should not be used for testing.

ii. Specimens stored at 2 – 8°C must be processed within seven days of collection. Specimens that cannot be processed within seven days may be stored at –20°C or colder, for up to thirty days.

iii. Swab specimens that will not be processed upon receipt at the laboratory must be stored at 2 – 8°C and should be processed within seven days. Specimens that cannot be processed within seven days may be stored at –20°C or colder, and may be stored this way for up to thirty days.

## 3. Herpes Detection - sent to reference lab

a. Obtain cellular scrapings from the base of vesicles with a scalpel, swab or applicator stick.

b. Rupture a young vesicle, absorb vesicular fluid with a swab and scrape the base of the lesion. Do not draw blood. Do not prepare the specimen collection site with alcohol or iodophors.

c. If pus is present, clean lesion and discard swab prior to taking the specimen. Place the scrapings or break the swab off into a vial of viral transport medium (blue cap tube labeled "viral transport" or multi microbe media.

d. Replace cap so swab stick will insert into enter of hole of cap. Return to laboratory. Specimens are processed at an outside reference lab.

e. Group B Streptococcus culture screen

i. a. Collect specimen at 35 to 37 weeks' gestation. Using a single swab or two separate swabs, swab the distal vagina, followed by the rectum.

## G. **RESPIRATORY CULTURES**

### 1. Expectorated sputum

a. All sputum samples are contaminated to varying degrees with Oropharyngeal secretions. Mechanical rinsing of the mouth immediately before expectoration will reduce the number of contaminating bacteria.

b. The patient should rinse his mouth with water. The patient should be instructed to cough up material from deep in the lungs and expectorate a single bolus into a sterile, wide-mouth container. This should be done under direct supervision, preferably when the patient first awakens in the morning. If unable to get specimen by expectoration, contact respiratory therapy. Methods used to facilitate an adequate specimen from patients with non-productive coughs include: ultrasonic nebulization with 10% saline, hydration, chest physiotherapy and postural drainage.

c. Cap the container and deliver to the laboratory immediately, as there is no effective transport medium. Order resp culture. If ASAP results are desired on the Gram stain, it must be noted in the comment section (a call to the lab is helpful).

d. Upon receipt in the laboratory, a Gram-stained preparation is examined microscopically for the presence of inflammatory and epithelial



cells. Specimens with  $\geq 10$  squamous epithelial cells are rejected for culture. The nursing unit will be notified by telephone when the sample is unacceptable so that another can be collected without delay.

## 2. Bronchoscopy, Endotracheal aspirates, and transtracheal aspirates

- a. Bronchoscopy specimens include brushing, transbronchial biopsies, or bronchial secretions that are aspirated through the inner channel of the bronchoscope with or without an irrigating solution. In the transtracheal aspiration procedure, a large-bore intravenous catheter is inserted through anesthetized skin and the cricothyroid membrane into the trachea. After the catheter is advanced several centimeters into the trachea, the needle is carefully withdrawn leaving the catheter in place. Material is obtained by applying suction to the catheter with a syringe.
- b. Specimens will be cultured regardless of cellular components. Anaerobic culture will be set up on properly collected and transported transtracheal aspirate specimens. A separate order should be entered for an anaerobic culture.
- c. Clearly indicate all other collection methods (e.g., transtracheal aspirates, etc.) These will be prompted for when an order for respiratory culture is ordered.

## H. THROAT CULTURES

1. Generally, throat cultures will be routinely processed for the recovery of beta hemolytic Strep only. Bacteria other than beta hemolytic Streptococci do not cause primary acute pharyngitis. Staphylococci may cause tonsillar abscesses. *H. influenzae* constrictive epiglottitis and *Corynebacterium diphtheriae* will cause a membranous pharyngitis
2. A well taken throat swab is essential. Use the Star swab with modified Stuarts. The tongue should be depressed while the swab is rubbed vigorously over each tonsillar area and the posterior pharynx. Any exudates should be touched, and care should be taken to avoid the tongue and uvula. Do not break the transport media ampule.
3. The laboratory offers two screening tests for beta Strep detection. If rapid results are required (within ½ hour), order the "Rapid Beta Strep screen". Since only a 70% sensitivity rate is achieved with the rapid test, all negative screens will be backed up by the culture method. All other Strep screens will be done by the culture method. Results are available within 24 – 48 hours.
4. Cultures for recovery of *Corynebacterium diphtheriae* require special media. Arrangements must be made with the laboratory before ordering this culture. Culture recovery of *Bordetella pertussis* requires prior laboratory notification. Nasopharyngeal swab is recommended instead of a "cough plate". Regan Lowe plates must be inoculated immediately at bedside.

## I. THROAT FOR GC – see Genital

## J. SPINAL FLUID SPECIMENS

1. Surgical prep and collection by physician required. Lumbar puncture must be performed under conditions of strict asepsis. Specimens are transported in sterile screw-cap tubes. Handle as Emergency specimen: hand carry to laboratory.
2. At least one tube (second or third collection) must be sent to bacteriology first, before other studies such as cell count and chemistries are done. Obtain "as much as possible": 4 – 5 ml is optimal for adults, 0.5 – 1.0 ml in children (additional fluid may be required if other tests are ordered).
3. Order routine culture and specify CSF as the source. A Gram stain will be done STAT on all spinal fluids.
4. If cryptococcal antigen or viral studies are desired, order the appropriate tests.

## K. STERILE BODY FLUID SPECIMENS

1. Skin contamination for all specimens obtained by needle aspiration should follow the procedure outlined for blood culture.
2. Fluids which collect in pericardial, pleural, peritoneal and synovial spaces must be aspirated with the utmost precaution to avoid introducing microorganisms and to avoid contamination of the specimen. Direct aspiration into a syringe is recommended. If the material cannot be aspirated into a syringe, it should be placed into a sterile tube or container. Labeled specimens must be transported without delay to the laboratory.
3. Order the aerobic culture. Clearly indicate the specific source. Anaerobic culture will be performed only upon request. A second order for the anaerobic culture must be entered if anaerobic culture desired. A STAT Gram stain will be done on all normally sterile body fluids.

## L. STOOL SPECIMENS

1. For culture
  - a. Feces should be passed directly into a clean, wide mouth container with a tight, leak-proof cover. Feces may also be collected from a sterile bedpan; however, the specimen is unsatisfactory if there is any contamination with urine or water. Those portions of the stool which contain pus, blood, or mucus should be submitted for examination. Fecal specimens should be at least 50 grams (walnut sized) if solid, 20 ml if fluid. Transport feces in a screw-capped specimen cup.
  - b. If the specimen is collected off site, it should be transferred immediately to a Cairy Blair vial.
  - c. If stool is not readily obtainable, a rectal swab may be submitted. The swab is passed beyond the anal sphincter, carefully rotated and withdrawn.
  - d. Order a stool culture. If a stool for WBC is needed, a separate order must be entered.
  - e. Stools will be cultured for the presence of *Salmonella sp.*, *Shigella sp.*, *Campylobacter sp.*, *Aeromonas*, *Plesiomonas* and *Escherichia coli* H7:0157. Stool will not be checked for *Yersinia enterocolitica* or vibrios unless specifically requested. If other organisms are suspected, that fact must be noted under comments so appropriate techniques can be employed.
  - f. Stool specimens for culture should be transported immediately at room temperature to the laboratory.
  - g. It is recommended no more than one specimen per day be submitted for culture. It is not recommended to culture stool specimens from patients who have been hospitalized for more than 3 days.

## 2. Clostridium difficile

- a. If a *Clostridium difficile* toxin test is ordered, it must also be ordered separately. Only fresh non preserved liquid or soft stools are acceptable. The interval for repeat testing of negative stools is 7 days. Duplicate testing is not necessary due to the sensitivity of our test method.

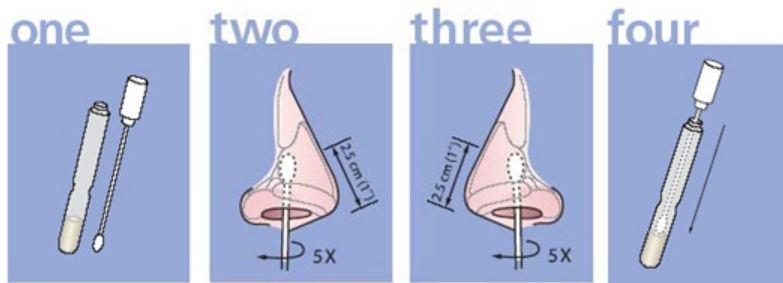
### M. ANAL SWAB FOR GC – see GENITAL CULTURE

#### VRE SCREEN

- A. Obtain rectal swab with aerobic collections kit.

#### MRSA Screen

- A. Open the Cepheid Collection Device by peeling back the outer packaging.
- B. Ask the patient to tilt his/her head back. Insert dry swabs approximately 1–2 cm into each nostril.
- C. Rotate the swabs against the inside of the nostril for 3 seconds. Apply slight pressure with a finger on the outside of the nose to help assure good contact between the swab and the inside of the nose.
- D. Using the same swabs, repeat for the second nostril, trying not to touch anything but the inside of the nose.
- E. Remove the plastic transport tube. Twist off the tube cap and discard it. Place the bswabs into the plastic transport tube. The swabs should go all the way into the tube until they rest on top of the sponge at the bottom of the tube. Make sure the red cap is on tightly.
- F. Label the plastic transport tube with patient ID and send to the laboratory.
- G. Store swab specimen at room temperature (15–30 °C) if it will be processed within 24 hours. The swab specimen is stable up to 5 days when stored at 2–8 °C



#### OVA AND PARASITE EXAM - Sent to reference Lab

- A. Procedures for recovery of intestinal parasites should always be performed before barium is used for radiological examination. Stool specimens containing barium are unacceptable for examination. There are also certain substances and medications that interfere with the detection of intestinal protozoa, such as mineral oil, bismuth, antibiotics, antimalarials, and nonabsorbable antidiarrheal preparations. After administration of any of these compounds, parasitic organisms may not be recovered for a week to several weeks.
- B. Fecal specimens should be collected in a clean container. The specimen should not be contaminated with water or urine because water may contain free-living organisms that can be mistaken for human parasites and urine may destroy motile organisms.
- C. ParaPaks are supplied by the laboratory. Collect stool specimen as described above. Collect stool specimens with the spoon, especially from an area that is bloody or slimy, and place stool specimen in vials until liquid reaches the "fill line". Mash the specimens in the vial until well mixed with the fluid. Replace the cap and spoon on vials. Be sure caps are tight. Shake hard until mixture looks like soup.
- D. Examination of liquid specimens should occur within 30 minutes of passage. If this is not possible, then the specimen should be placed in the ParaPak. Soft specimens should be examined within approximately one hour of passage or placed within the ParaPak.
- E. It is recommended that normal examination for stool parasites before therapy include three daily specimens. When a patient is suspected of having intestinal amebiasis, six specimens may be recommended. The number of specimens recommended for post-therapy examination is also three. However a patient who has received treatment for a protozoan infection should be checked 3 – 4 weeks after therapy and those treated for Taenia infections, 5 – 6 weeks after therapy.
- F. A series of three specimens, as indicated above, should be submitted on separate days, every other day if possible. It is inappropriate for multiple specimens to be collected on the same patient on the same day.
- G. The following summary is a guide to the types of samples which may be helpful in specific situations.
  1. Amebiasis – Loose, watery, mucous or bloody stool for Entamoeba histolytica requires immediate examination. Promptness is important because amoebic trophozoites lose motility progressively and degenerate within a short time. No specimen older than one hour will be examined for motile amoebae. Minimum number of adequate examination is 3 stool samples over a six day period.
  2. Cryptosporidium – Must be specifically requested. Use ParaPak kit.
  3. Duodenal Aspirate – For giardiasis or strongyloidiasis: Specimens must be kept warm and sent to the laboratory immediately. Prior notification is requested.
  4. Giardia – Minimum – 6 stool samples over a 4 week period. Use ParaPak kit.
  5. Helminths except Pinworm – Minimum – 3 stool samples over a 6 day period.
  6. Pinworm prep – Obtain a pinworm prep kit from the laboratory. Collect in early AM before rising. Place sticky paddle over perianal (anal folds)

region with adhesive side facing skin. Place exposed paddle in specimen container, label specimen and transport to lab. The sticky paddle collects the eggs deposited by the adult pinworm (*Enterobius vermicularis*) while the patient sleeps. Use gloves and wash thoroughly after collecting because the eggs are viable.

7. Sigmoidoscopic material – Collect in trap. Keep warm. Submit to laboratory immediately.

## URINE CULTURES

- A. Voided urine is often contaminated by bacteria from the urethra and from external genitalia. However, carefully collected, midstream, voided specimens from uninfected patients generally contain fewer than 10<sup>4</sup> bacteria per ml, whereas bacteria counts of 10<sup>5</sup> or more organisms per ml of urine are usually associated with infection.
- B. Urine specimens may be collected by clean-voided midstream technique, by diagnostic catheterization, by suprapubic aspiration, or from indwelling catheter.
- C. Urinary catheter tips are not cultured because the tip is contaminated as it is removed from the urethra. Urine samples collected from indwelling catheter bags are not accepted for culture. Stagnant urine in a catheter bag will be overgrown with bacteria, making culture results misleading and insignificant.
- D. Anaerobic cultures will not routinely be set up on clean-catch urine specimens. Urinary tract infections are rarely caused by anaerobic bacteria. If anaerobic infection is suspected, a suprapubic bladder aspiration should be performed.

### E. Preparation of Patient and Collection

1. Indwelling catheter – The catheter port on tubing should be cleaned with an alcohol pad. Collect using a sterile syringe and needle. Place in a sterile urine container. Label and deliver immediately to the laboratory. Order a urine culture using the collection code for catheter.
2. Clean Voided Urine – Collection must be the responsibility of an adequately trained individual. The cleansing procedures must remove contaminating organisms from the vulva, urethra meatus, and related perineal area so that bacteria found in urine can be assumed to have come from the bladder and urethra only.

### F. Collection Instructions

#### 1. General instructions

- a. Obtain midstream collection kit. (BD vacutainer with gray tube kit)
- b. Cleanse the penis or vagina area with both of the enclosed two towelettes.
- c. Use one forward to backward stroke per wipe and discard.
- d. Retract foreskin on males. Spread the labia on females and keep spread apart until urine is voided.
- e. The patient now voids.
- f. After the first 20 – 25 ml has been passed, a specimen (20 – 25 ml) is caught directly in the sterile container without stopping the stream.
- g. Transferring the urine to gray top preservative tube.
  - i. Peel back label on cap to expose the integrated sampling device
  - ii. Place the tube into the cavity on the cap with the stopper down. Advance tube over the puncture point to pierce the stopper. Fill the gray top tube to the fill line (3ml).
  - iii. Hold tube in position until filled. The tube vacuum will fill the tube.
  - iv. Replace label over the integrated sampling device entrance hole and reseal.
  - v. Label sample with patient identifiers, date & time of collection, method of collection (e.g. cath, midstream) and your initials.
- h. Order a urine culture. Transport the specimen immediately to the laboratory.

#### 2. Instructions for Infants

- a. Plastic bags may be attached after careful preparation, as above.
- b. The bags should then be attached so that the urine specimen can be collected immediately after it is voided.
- c. If the patient has not voided within 30 minutes after the collection apparatus has been attached, it should be removed, the patient rescrubbed and a new collection device attached.
- d. Order a urine culture. Indicate the specimen was collected using a urine bag – transport immediately to the laboratory.

3. Note: All urine specimens for culture must be delivered to the laboratory immediately. If transport is delayed place on ice or refrigerate.

## WOUND CULTURES

### A. Surface Lesions

1. To remove accumulated drainage and transient skin flora, which may lead to ambiguous results, cleanse wound with sterile saline or water. It is imperative that the surface lesion be opened and the advancing edge of the lesion firmly sampled. If wound is dry, swabs may be moistened with sterile saline. Never submit a dry swab that has been carelessly rubbed over a surface lesion.
2. Please submit an additional swab for optimum Gram stain preparation. Replace swabs in culturette tube. Swabs are to be kept at room temperature and delivered to the lab with a minimum of delay. Order an aerobic culture. Note specific anatomic site on requisitions. Surface lesions are unsuitable for anaerobic studies.

## RSV (Respiratory Syncytial Virus)

A.

- Specimen**
- Nasopharyngeal Wash (2 – 3 ml volume)
  - Nasopharyngeal Swab in saline (use flexible rayon tipped applicator)

## Influenza A & B (refer to pages 22-27 for nasopharyngeal collection instructions)

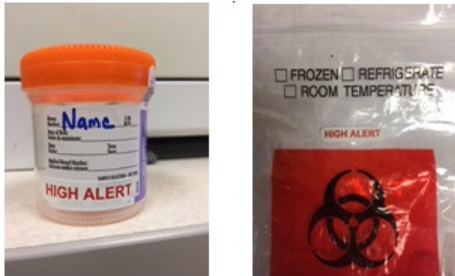
A.

- Specimen**
- Nasopharyngeal Wash (2 – 3 ml volume)
  - Nasopharyngeal Swab in saline (use flexible rayon tipped applicator)

## AFB SAMPLES

A. Labeling Suspected TB specimens (not routine AFB orders)

- Place a **HIGH ALERT** label on specimen and outside of Biohazard bag.
- A second (>2 ml) sputum specimen will need to be collected and ordered as AFB for Placer Co. Public Health.)



a. Sputum

- Collect only material brought up from the lungs after a productive cough. Do not collect sputum immediately after mouth wash. A series of 2 sputum specimens should be collected at 8-24 hour intervals (24 hours when possible) and should include at least one first morning specimen. Immediate submission to the laboratory after collection is recommended. Specimens that cannot be processed within one hour of the time of collection should be refrigerated during transport to and storage in the laboratory prior to processing. 5 – 10 ml volume is adequate.

b. Urine

- Entire first morning midstream specimens are recommended. Instruct patient to wash genital region well prior to collection of specimen. Urine for AFB should only be submitted weekdays before 11 am.

c. Surgically collected specimens

- Submit spinal fluids in sterile lumbar collection tubes, other fluids in sterile containers. Pieces of tissue or swabs must be kept in sterile containers without preservatives or fixatives.

d. Gastric specimens

- Prior laboratory notification is necessary. The specimen must be processed promptly because mycobacteria die rapidly in gastric washings. Gastric specimens will routinely be accepted only on weekdays and must be received in the laboratory before 2 pm.

e. Ordering all the above types

- Order AFB culture. Note the source of the specimen. Transport promptly to the laboratory. AFB smears and cultures are sent out to a reference lab and require 2 mL minimum. These should be received in lab before 2PM for 24 TAT as the Quest courier picks up specimens at 4PM. RT-PCR for MTB/RIF by GeneXpert is done in house and requires a minimum of 1 mL.
- Order blood AFB – this requires prior notification of the laboratory since special vials are required.

## MYCOLOGY SAMPLES -Sent to reference Lab

- Skin - Clean site with 70% ethanol to help eliminate surface contaminants. Using a scalpel, skin scrapings should be made from the active periphery of the lesion. Submit scrapings in a sterile Petri dish or container.
- Nails - Clean site with 70% ethanol. Collect shavings and material under the nail plate. Scrapings should be deep enough to assure acquiring recently invaded tissue. Submit nail clippings and scrapings in a sterile Petri dish or container.
- Hair - Use forceps to pluck involved hairs from the edges of the patches. Submit hair, including shaft, in a sterile Petri dish or container.
- Other - Collect and submit specimens as described for specific type. Specimens associated with the systemic and deep seated mycoses are obtained from a wide variety of sources. They should be obtained, whenever possible, under aseptic conditions and in sufficient quantity for both microscopic and cultural examinations.
- Blood - This requires prior laboratory notification since additional media must be inoculated at bedside. Order blood fungus culture.

**ROUTINE SUSCEPTIBILITY TESTING**

- A. MIC panels are performed on the common, rapidly growing pathogens including the Enterobacteriaceae, Psuedomonas spp. and other miscellaneous Gram-negative bacilli, Staphylococcus aureus, other Staphylococcus spp. when appropriate and Enterococcus spp. A quantitative microdilution technique is used, and requires 18 24 hours once an isolate is obtained in pure culture.
- B. Haemophilus influenzae is tested by the Kirby-Bauer method against a limited panel of antibiotics. All Haemophilus influenzae, Neisseria gonorrhoeae, and Enterococci from critical isolates are tested for production of beta lactamase. All Streptococcus pneumoniae isolates are routinely screened for penicillin susceptibility. Strep pneumoniae isolates from CSF and blood are also tested against 3rd generation cephalosporins.
- C. Skin - Clean site with 70% ethanol to help eliminate surface contaminants. Using a scalpel, skin scrapings should be made from the active periphery of the lesion. Submit scrapings in a sterile Petri dish or container.
- D. Nails - Clean site with 70% ethanol. Collect shavings and material under the nail plate. Scrapings should be deep enough to assure acquiring recently invaded tissue. Submit nail clippings and scrapings in a sterile Petri dish or container.
- E. Hair - Use forceps to pluck involved hairs from the edges of the patches. Submit hair, including shaft, in a sterile Petri dish or container.
- F. Other - Collect and submit specimens as described for specific type. Specimens associated with the systemic and deep seated mycoses are obtained from a wide variety of sources. They should be obtained, whenever possible, under aseptic conditions and in sufficient quantity for both microscopic and cultural examinations.
- G. Blood - This requires prior laboratory notification since additional media must be inoculated at bedside. Order blood fungus culture.

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- C. **Collection Kits Used in Microbiology:**



Anaerobic Culture Collection Kit



Aerobic Culture Collection Kit:  
Routine, Throat, Strep Screen A & B, Rapid Beta Strep, Genital



Aimes/Charcoal Swab:  
Genital & GC Cultures



CVM Transport: Viral Collections



Sterile Saline:  
Wet Mount Collections



Gray and Pink Topped Cups for  
O&P analysis

Orange Topped Cup for Stool  
Culture

Stool Collection Kit:  
Ova & Parasite and Stool Culture



Metal Shaft for Male  
Patient Collections

Plastic Shaft for  
Female Patient  
Collections

M4RT Transport Media for Chlamydia Collections, Male and Female Patients  
Note: Red Capped media tubes are stored at room temp and blue at refrigerated temp. After collection, both are refrigerated.



Urine Cup Kit with C&S Preservative Tube for Midstream Specimens



Sterile Specimen Collection Cup



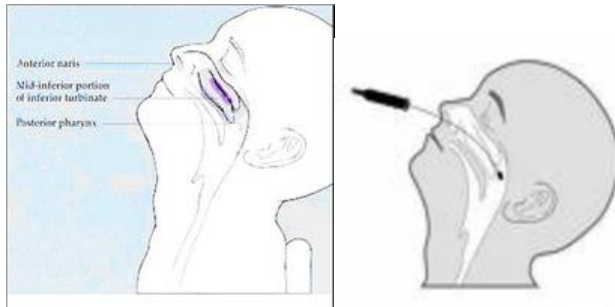
D.

E. **ESwab Collection kit**

1. Open eSwab sample collection kit. (One swab for both Aerobic and Anaerobic cultures)
2. Open swab pouch and collect sample
3. Aseptically unscrew cap from tube.
4. Insert swab into tube and break the swab shaft at red line.
5. Replace cap securely
6. Label tube properly with patient information.
7. Send to lab with proper orders.

**NASOPHARYNGEAL SPECIMEN COLLECTION- TO BE DONE BY TRAINED PERSONNEL UNDER NURSING DEPARTMENT SUPERVISION**

A. Nasopharyngeal Swab Method



1. (Patients head should be inclined back as shown above)

2. **Materials** for Nasopharyngeal Swab Collection

- a. Flexible ,soft or aluminum wire nasopharyngeal with synthetic tip
- b. 1 ml saline tube (for Rapid Influenza A & B)
- c. M4 Viral Transport Media (for viral culture or H1N1)

3. **Procedure:**

- a. Insert swab into one nostril.
- b. Rotate swab over surface of posterior nasopharynx.
- c. Withdraw swab from collection site; insert into saline transport tube or M4
- d. Repeating procedure for the second nostril will deliver optimal combined sample.
- e. After collection, immediately transport specimen to the laboratory for viral testing and viral antigen detection. If transport is delayed, place specimen on ice or in refrigeration.

**B. Nasopharyngeal Wash**



1. **Materials:**

- a. 3-5ml syringe with 22 inch sterile NG tube 8-french (length and diameter of syringe and tubing as appropriate for infant, child or adult.)
- b. Viral transport M4 media for H1N1, or saline for RSV
- c. Specimen container

2. **Procedure:**

- a. Fill syringe with saline; attach tubing to syringe tip.
- b. Quickly instill saline into nostril.
- c. Method A - Aspirate the recoverable nasopharyngeal specimen. (Recovery must occur immediately, as the instilled fluid will rapidly drain.)
- d. Method B - (alternate) In appropriate cases, patients may tilt head forward to allow specimen to drain into suitable sterile container.
- e. (if aspirated) Inject aspirated specimen from syringe into sterile specimen container.
- f. Repeating procedure for the second nostril will deliver optimal combined sample.
- g. Label specimen and transport to Laboratory immediately. If transport is delayed refrigerate or place on ice.

**C. Vacuum-assisted Nasopharyngeal Aspirate method**

1. **Materials:**

- a. Suction outlet
- b. Sterile suction catheter
- c. Mucus trap (i.e., Lukens tube)
- d. Viral transport M4 for H1N1, or saline for RSV or INFAB





- i. Attach mucus trap to suction outlet and catheter, leaving wrapper on suction catheter; turn on suction and adjust to suggested pressure.

Patient age	Catheter size (French) **	Suction Pressure
Premature infant	6	80-100mmHg
Infant	6	80-100 mmHg
Toddler/Preschooler	8	100-120 mmHg
School age	8	100-120 mmHg
Adolescent/Adult	8	120-150 mmHg

- I. \*\* To determine length of catheter tubing, measure distance from tip of nose to external opening of ear.
- ii. Without applying suction, insert catheter into the nose, directed posteriorly and toward the opening of the external ear. **NOTE:** Depth of insertion necessary to reach posterior pharynx is equivalent to distance between anterior naris and external opening of the ear.
- iii. Apply suction. Using a rotating movement, slowly withdraw catheter. **NOTE:** Catheter should remain in nasopharynx for a minimal period of time, not to exceed 10 sec.
- iv. Hold trap upright to prevent secretions from going into pump.
- v. Rinse catheter (if necessary) with approximately 2.0 ml M4 media.
- vi. After collection, immediately transport specimen to the laboratory. Place specimen on ice if delayed.

**D. Reference:**

- 1. BD Diagnostics insert: 2-2452 February 2005

**ATTACHMENTS:**  
(REFERENCED BY THIS DOCUMENT) [Acceptance or Rejection of Samples and Requisitions Receiving Specimens Through LIS in Microbiology](#)

**OTHER DOCUMENTS:**  
(WHICH REFERENCE THIS DOCUMENT) [Specimen Receipt and Accessioning in Microbiology](#)  
[Genital Tract Cultures](#)  
[Aerobic Gram Positive Rod Identification](#)  
[CSF Fluid Culture](#)  
[Sputum and Lower Respiratory Track Cultures](#)  
[Stool Cultures](#)  
[Urine Culture](#)  
[General Overview/Scope of Practice](#)

**FEDERAL REGULATIONS:**

**ACCREDITATION:**

**CALIFORNIA:**

**HAWAII:** Not applicable

**OREGON:** Not applicable

**WASHINGTON:** Not applicable

**REFERENCES:**

**ADVENTIST HEALTH SYSTEM/WEST POLICY OWNER:** Not applicable

**ENTITY POLICY OWNER:** Microbiology Supervisor

**APPROVED BY:**

**ADVENTIST HEALTH SYSTEM/WEST:** Not applicable

**ADVENTIST HEALTH SYSTEM/WEST INDIVIDUAL:** Not applicable

**ENTITY:**

**ENTITY INDIVIDUAL:** ( 10/18/2021 02:03PM PST ) Karen E Corson, Director, Laboratory  
( 10/18/2021 02:51PM PST ) Alexandra Reichman, Physician

**REVIEW DATE:**

**REVISION DATE:** 10/26/2009, 01/25/2010, 09/08/2011, 02/07/2012, 03/21/2012, 12/07/2012, 12/26/2012, 02/22/2013, 01/29/2014, 02/04/2014, 10/02/2014, 12/08/2015, 01/24/2017, 04/21/2017, 02/27/2019, 05/20/2019, 08/19/2021, 09/02/2021, 10/18/2021

**NEXT REVIEW DATE:** 10/18/2023

**APPROVAL PATHWAY:** None

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[https://www.lucidoc.com/cgi/doc-gw.pl?ref=ahro:21499\\$18](https://www.lucidoc.com/cgi/doc-gw.pl?ref=ahro:21499$18).

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SOP: Acceptance or Rejection of Samples and Requisitions

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## PROCEDURE SUMMARY/INTENT

To ensure that samples and requisitions are accurately identified with required information. To define the acceptable criteria and rejection criteria for samples and requisitions for optimum patient safety. To address the cancelling of orders process.

### DEFINITIONS:

1. **Requisition** – A document, paper or electronic, that contains information that accurately identifies the patient and the tests that the physician has requested. May also be called a physician's order.
2. **Sample** – a representative part taken to typify the whole. Sample is taken to show or to determine the character of the whole. Examples of samples that are received in the Laboratory for analysis are blood, urine, feces and body fluids.

### AFFECTED DEPARTMENTS/SERVICES:

1. Laboratory Services
- 

## PROCEDURE: COMPLIANCE – KEY ELEMENTS

### A. Related Documents

1. [Completing the Occurrence Report](#)
2. [Clarification of Orders and Receiving Verbal Orders-Laboratory](#)
3. [Request Form for Additional Information on the Laboratory Requisition](#)
4. [Sample Recollection Form](#)
5. [Clarification of Orders and Receiving Verbal Orders-Laboratory](#)
6. [Transfusion Services Specimen Labeling Requirements](#)
7. Pathology specimens refer to: **Pathology Sample Submissions**

### B. Responsibilities

1. All staff – Collecting, receiving and reviewing samples and requisitions for acceptability criteria.

### C. Specimen Requirements

#### 1. Acceptable Criteria for Requisitions

- a. The requisition shall contain sufficient information to uniquely identify the patient, the ordering physician and the requested test analysis. The following elements shall be included:
  - i. Patients last and first name
  - ii. Medical record number (or date of birth, if medical record number is not available)
  - iii. Patient sex.
  - iv. Date of birth (if not used instead of medical record number)
  - v. Name and address or other suitable identifier of physician or authorized person ordering the test.
  - vi. Patient location, if an inpatient
  - vii. Tests requested
  - viii. Priority of collection or time for collection if it is a timed order
  - ix. Chief Symptom or Complaint or ICD-10-CM diagnosis codes for Outpatients
    - x. If a sample is submitted with the requisition the information on both must be identical
    - xi. If a sample is submitted with the requisition time and date of specimen collection shall be on the request
    - xii. If a sample is submitted with the requisition the name or initials of the sampler collector shall be on the request
    - xiii. Source of specimen, when appropriate
    - xiv. Clinical information, when appropriate
    - xv. Standing orders must accompany a requisition and can be for a timed period of 12 months or less

#### 2. Acceptable Labeling Criteria for Samples

- a. Each sample container shall identify the patient uniquely and the information is legible and indelible. All primary collection containers and their aliquots shall have a unique label which one can audit back to full particulars of patient identification, collection date, specimen type, etc. Adequate specimen identification on specimens is maintained throughout all phases of testing, including dilutions, tubes, slides, culture plates. The following elements shall be included on the primary container:



	If...	Then...
1	there is no patient name, and/or tests, and/or name and address of the ordering physician.	the patient will need to return to the ordering physician so that the requisition can be completed. No sample will be collected. Skip steps 2-7.
	there is no chief symptom, complaint or ICD-10-CM diagnosis code	the sample can be collected and analysis performed. Go to step 2.
	there is no date of birth	ask the patient their date of birth and compare it to the registration information if it compares then the patient sample can be collected and the analysis performed. Go to step 2.
	there is no patient sex	compare the patient's sex to the registration information if it compares the sample can be collected and analysis performed. Skip steps 2-7.
	the patient brought a sample with them and collection date and time, source, collectors initials are missing on the requisition	ask the patient the information and write it on the requisition. Skip steps 2-7.
2	When there is no date of birth, chief symptom, complaint or ICD-10-CM diagnosis code on the requisition the requisition will be placed in a designated location so that it can be sent to the physicians office or clinic at the earliest opportunity.	

**Nurse collected specimens found in the red buckets (on floors) must be labeled with name, Medical record number or date of birth, date, time of collection and nurses initials. (This should be done at the bedside). Improperly labeled specimens will be rejected and the nurse supervisor will be notified. These specimens also placed on our rejected specimen log in the lab.**

3	When the physician's office or clinic is open inform them that you will be faxing the requisition back to them to complete the missing information.
4	Utilizing the form <u>Request Form for Additional Information on the Laboratory Requisition</u> indicate the missing information from the requisition and fax the form and the requisition to the physician's office or clinic.
5	Once the new requisition is received it will be evaluated to determine if it meets acceptable criteria.
6	If the requisition does not meet the acceptable criteria repeat steps 3-5.
7	If the requisition meets the acceptable criteria attach the resubmitted requisition to the original requisition.
8	Initiate an OCR.

## 2. Rejection of Samples Course of Action

- a. Laboratory personnel can handle minor corrections such as, date and time of collection, and the source and site, if applicable.
- b. Samples that are not unique or difficult to obtain will be recollected when the acceptance criteria is not met. Refer to the section "Recollection of Samples"
- c. Samples that are unique or difficult to obtain that do not meet the acceptance criteria will require that the physician, or designee, to be notified and an OCR initiated.
  - i. A Clinical Laboratory Scientist (CLS) will contact the physician or designee and inform them of the reason for the unacceptability of the sample.
  - ii. The physician, or designee, may request test analysis and can approve re-labeling of the sample by the person who collected it if the sample was mislabeled or unlabeled.

NOTE: If there is a time delay in contacting the physician, or designee, preserve the sample integrity for the tests ordered, including if necessary performing the analysis. If analysis is performed the results cannot be released until the physician, or designee, has approved the sample.

Example: STAT ER CSF - cell count, Gram stain, etc. should be taken to testing department (if labeled properly) and Ver slip error corrected while tests are processing.

- d. Samples that are unique or difficult to obtain that do not meet the acceptance criteria, continued

If...	Then...

the physician, or designee requests test analysis or re-labeling of the sample	document on the report the reason the results are questionable and the name of the physician, or designee, who authorized testing or re-labeling
The physician, or designee does not request test analysis or re-labeling of the sample	refer to the section "Recollection of Samples"

**3. Recollection of Samples**

- a. Samples that are not unique or difficult to obtain will be recollected when the acceptance criteria is not met. Samples that are unique or difficult to obtain that do not meet the acceptance criteria and the physician, or designee, has not approved for analysis will be recollected.

**Note: Any samples that are rejected because they are mislabeled or unlabeled shall have an OCR initiated.**

**i. INPATIENT SAMPLES THAT THE LABORATORY DID COLLECT**

Step	CLS/MLT Action	
1	Notify the nursing unit the reason the test will not be performed and inquire if they want it re-drawn.	
2	Cancel the test(s) that cannot be performed entering the comment as to why the sample was unacceptable, name of the person notified and if the sample will be redrawn or not.	
3	<b>If...</b> it is to be re-collected	<b>Then...</b> reorder the test(s), and, if requested, at the specified time. For the emergency department they will re-order the test. Notify the appropriate laboratory personnel of the collection
	it is not to be collected	no further action needed

**ii. INPATIENT SAMPLES THAT THE LABORATORY DID NOT COLLECT**

Step	Action
1	Notify the nursing unit the reason the test will not be performed and inform them if they want the sample re-collected to reorder and send a new sample.
2	Cancel the test(s) that cannot be performed entering the comment as to why the sample was unacceptable, name of the person notified and if the sample will be recollected or not.

**iii. OUTPATIENT SAMPLES THAT THE LABORATORY DID COLLECT**

Step	Physician office - Action	
1	Notify the physician's office the reason the test will not be performed and inquire if they want it re-drawn.	
2	Cancel the test(s) that cannot be performed entering the comment as to why the sample was unacceptable, name of the person notified and if the sample will be redrawn or not.	
3	<b>If...</b> it is to be re-collected	<b>Then...</b> Complete <u>Sample Recollection Form</u> . Place the form in the order request files. Call or contact the patient immediately for recollection.
	it is not to be collected	no further action needed

**iv. EMERGENCY DEPARTMENT**

Step	Emergency Department -Action
1	ED needs to reorder all tests in Empower. Notify the appropriate Lab personnel of the collection/pending order.

3	<b>If...</b>	<b>Then...</b>
	It was cancelled in error by lab	DO NOT reorder the test. Test must be reordered by Physician or RN
	it is not to be collected	no further action needed

v. **OUTPATIENT SAMPLES THAT THE LABORATORY DID NOT COLLECT**

Step	Action
1	Notify the physician's office the reason the test will not be performed and inform them if they want the sample re-collected to submit a new order and send a new sample.
2	Cancel the test(s) that cannot be performed entering the comment as to why the sample was unacceptable, name of the person notified and if the sample will be recollected or not.

4. **Canceling Orders:**

- a. Outstanding orders will be canceled after 72 hours. All canceled orders must have a documented call to the floor or Physician and the reason for the canceling.
- b. **Duplicate orders** - MUST have a documented call to the floor RN/ED RN to verify which order they want cancelled. Even if an order appears to be a simple duplicate, cancelling the incorrect accession can affect the entire Lab order in Paragon/Empower as well as cause billing issues.
  - i. Example: A larger panel is not always the order you want to keep. (Choosing a COMPP over a Basic is not always correct). Level of care changes dictate which order to keep, which the nursing staff would be able to look up. Look up both provider orders and ask RN which to cancel. Document all actions completely.
  - ii. Remember Paragon/Empower orders are based on the following: Ordering provider, ordering /Patient location, Level of care changes, draw times, order sets.
- c. Reordering tests for specimens which are previously hemolyzed, contaminated, clotted etc: Use comment Previously Hemolyzed/contaminated/ clotted specimen. Example use LIS entry ASTRA-; then comment
- d. This is only true for existing original physician orders that were drawn by our phlebotomist. (not RN). If specimen drawn by RN then call the floor and have RN reorder the test.

E. **References**

1. 42 CFR 493.1241 Standard: Test Request
2. Standards for Blood Banks and Transfusion Services, current edition
3. College of American Pathologist Accreditation Checklist

[Clarification of Orders and Receiving Verbal Orders-Laboratory Sample Recollection Form](#)  
[Request Form for Additional Information on the Laboratory Requisition](#)  
[Transfusion Services Specimen Labeling Requirements](#)  
[Completing the Occurrence Report](#)  
[Pathology Sample Submissions](#)

ATTACHMENTS:  
(REFERENCED BY THIS DOCUMENT)

[Sample Labeling and Aliquotting Utilizing the Laboratory Information System Labels](#)  
[Pathology Send-Out Procedure for Consultations](#)  
[CSF Cell Count and Differential \(Manual Method\)](#)  
[Acceptable Chemistry Specimen Guidelines \(Hemolysis, Icterus, Lipemia, Contamination\)](#)  
[Cytology Reporting](#)  
[Point-of-Care Testing \(POCT\) General Quality Assurance and Quality Control Plan](#)  
[Transfusion Services Specimen Labeling Requirements](#)  
[Antibody Screen Utilizing PeG](#)  
[Scanning Requisitions and Results](#)  
[Blood Collection and Transportation by Non-Laboratory Medical Staff](#)  
[Special Requirements for Coagulation Specimen Collection by Non-Laboratory Personnel-](#)  
[Laboratory Services](#)  
[Typenex Identification Armband](#)  
[Collection of Specimens for Non-Gynecologic & Fine Needle Aspiration Cytology](#)  
[Outpatient Sample Submission With No Patient Contact](#)  
[Clarification of Orders and Receiving Verbal Orders-Laboratory](#)  
[Pathology Sample Submissions](#)  
[Phlebotomy Collection Manual](#)  
[Peripheral Blood/Body Fluid/Bone Marrow/Fresh Tissue Send-Outs to Reference Laboratories](#)  
[Collection of Clean Catch Random Urine Samples](#)  
[Specimen Collection and Transportation of Microbiology Specimens](#)  
[Anatomic Pathology Reporting](#)  
[Disciplinary Action for Patient Identification and Sample Handling](#)  
[Specimen Receipt and Accessioning in Microbiology](#)  
[Cytology Specimen Quality Assessment](#)  
[Transfusion Services ABO/RH Confirmation](#)  
[Anatomic Pathology Specimen Grossing](#)  
[Reference Laboratory Samples and Reports](#)  
[Pathology Sample Handling When Received in the Clinical Laboratory](#)

OTHER DOCUMENTS:  
(WHICH REFERENCE THIS DOCUMENT)

FEDERAL REGULATIONS:

ACCREDITATION:

CALIFORNIA:

HAWAII: Not applicable

OREGON: Not applicable

WASHINGTON: Not applicable

REFERENCES:

ADVENTIST HEALTH  
SYSTEM/WEST POLICY  
OWNER:

Not applicable

ENTITY POLICY OWNER:

Supervisor of Quality Management

APPROVED BY:

ADVENTIST HEALTH  
SYSTEM/WEST:

Not applicable

ADVENTIST HEALTH  
SYSTEM/WEST INDIVIDUAL:

Not applicable

ENTITY:

ENTITY INDIVIDUAL:

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None

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[https://www.lucidoc.com/cgi/doc-gw.pl?ref=ahro:21175\\$18](https://www.lucidoc.com/cgi/doc-gw.pl?ref=ahro:21175$18).

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SOP: Receiving Specimens Through LIS in Microbiology

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## STANDARD OPERATING PROCEDURE SUMMARY/INTENT:

This function enables specimens to be received in the LIS (Laboratory Information System), prints accession labels.

## AFFECTED DEPARTMENTS/SERVICES:

Laboratory Services

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## PROCEDURE: COMPLIANCE – KEY ELEMENTS

- A. Specimen Accession no. labels for all culture plates/Micro tests will be printed after the specimen has been received in "28 microbiology". ALL SPECIMENS MUST BE ordered in Powerchart or Pathnet. When specimen is received in "28 Micro". An Accession no. label will be printed. Carefully check the Accession no. label with patient specimen labeled name, medical record no., etc. for all tests ordered, e.g. a urine may have both a urinalysis and a culture order. Once the culture has been set up, transport the specimen with associated paper requisition (for example, body fluids, C. difficile toxin assay verification form, etc.) to appropriate department. Place specimens in the Micro refrigerator tub when all tests have been setup.
1. Specimens are received in microbiology as follows:
    1. Click "Specimen Log-in" button from top AppBar ECA Prod-PathNet Collections:Specimen Log-in".
    2. Click "Retrieve"
    3. Barcode/Enter Accession no.
    4. Click the very left box to make sure the specimen to be received is checked.
    5. Select "28 Micro" of the pulldown menu from "Location" field.
    6. Click "Log In"
    7. Plate labels will now be printed.
- 

### ATTACHMENTS:

(REFERENCED BY THIS DOCUMENT)

### OTHER DOCUMENTS:

(WHICH REFERENCE THIS DOCUMENT)

[Specimen Collection and Transportation of Microbiology Specimens](#)  
[Specimen Receipt and Accessioning in Microbiology](#)

### FEDERAL REGULATIONS:

#### ACCREDITATION:

#### CALIFORNIA:

HAWAII: Not applicable

OREGON: Not applicable

WASHINGTON: Not applicable

### REFERENCES:

#### ADVENTIST HEALTH

SYSTEM/WEST POLICY OWNER: Not applicable

ENTITY POLICY OWNER: Microbiology Supervisor

### APPROVED BY:

ADVENTIST HEALTH SYSTEM/WEST: Not applicable

ADVENTIST HEALTH SYSTEM/WEST INDIVIDUAL: Not applicable

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