NKC Health™

MICROBIOLOGY GUIDELINES FOR COLLECTION AND TRANSPORTATION OF SPECIMENS

The most important step in the recovery of pathogenic organisms responsible for infectious disease is the proper collection of a specimen for culture. A poorly collected specimen may lead to failure in isolating the causative organism(s) and result in the recovery and treatment of contaminating vs. causative organisms.

Select the proper specimen and collect an adequate sample for examination. Transport the specimen in the appropriate container. All specimens must be labeled properly, or they will be rejected. See Specimen Collection Guidelines for general laboratory labeling requirements. All specimens are to be submitted in a plastic bag with a biohazard symbol on it while following Standard/Universal Precautions.

The Electronic Test Directory is the most up-to-date reference for NKC Health Laboratory Testing. NKC Health Test Directory | Home (testmenu.com)

Supplies

- eSwab (white swab) – Central Supply #3900
- Sterile specimen cups –Central Supply#3890
- COPAN swabs (red cap) –Central Supply#9300
- Urine collection system – Central Supply#262
- FLU/SARS/RSV Cepheid NP swab/transport media
- Vaginal/Endocervical Collection Kit (Swab & media)
- Blood culture bottles (Aerobic, Anaerobic, Fungal)
- SPS tubes for AFB Blood Cultures

Outpatient clinics will obtain supplies, including biohazard bags, from the laboratory.

GENERAL SPECIMEN COLLECTION INSTRUCTIONS

- Whenever possible, collect specimens before the administration of antimicrobials.
- Collect the specimen at optimal times if applicable (e.g., early morning sputum for AFB culture).
- Collect the appropriate sample type and in a quantity sufficient for the test to be ordered.
- Properly label the specimen with at least two patient identifiers. See ***Specimen Collection Guidelines***
- The specimen source is required and must be included with the test order.
- Package each specimen separately in a sealed transport bag with a biohazard symbol.
- The containers/specimen should show NO leakage.
- Ensure the appropriate environment will be maintained between collection of specimens and delivery to the laboratory. Minimize transport time.
    - For **outpatient** settings: Most clinical material can be held for several hours in a refrigerator. This includes urine, sputum, feces, and viral specimens.
    - **DO NOT refrigerate** body fluids, CSF, blood for cultures, eye/ear swabs or specimens for anaerobes. DO NOT refrigerate cultures for *Neisseria gonorrheae.*
- Specimens without orders: we will attempt to call the office/department to obtain orders. Sending samples without orders causes a delay in processing and can have a negative impact on the results obtained.

ABSCESS

- Decontaminate the surface with 70% ALC (alcohol) and 1–2% TOI (tincture of iodine)
- Collect purulent material aseptically from an undrained abscess using a sterile needle and syringe or eSwab
- Open abscesses with a sterile scalpel and collect the exudate with a sterile needle/syringe or eSwab.
- Expel air from the syringe. Remove needle and cap collection syringe before sending. **NEVER TRANSPORT SYRINGE WITH NEEDLE ATTACHED.**
- Transport immediately if not in transport media.

- Note: Swabs are inferior to tissues and aspirates. If swabs must be used, carefully open a surface lesion and vigorously sample the advancing edge of the lesion.
- Swabs are not acceptable for mycobacterial (AFB) cultures.
- Swabs are acceptable for fungal cultures but are suboptimal for the recovery of fungi.

ANAEROBIC COLLECTION

Acceptable Specimens for anaerobic culture:

- eSwabs
- Tissue and body fluids
  - Putrid lung suspected: Empyema fluid or percutaneous transtracheal aspiration, lung tissue
- Abscess: aspirate with a syringe after surface decontamination
- Supra-pubic urines (not a supra-pubic catheter)
- Any swab labeled acceptable for anaerobic recovery
- Uterine infections: aspiration by syringe or cannula

Unacceptable Specimens* for anaerobic culture:

- Throat, gingival specimens
- Nasopharyngeal swabs
- Gastric, small bowel contents, colostomy sites
- Feces and rectal swabs
- Sputum and Bronchoscopy specimens
- Urine (except supra-pubic)
- Vaginal or cervical swabs
- Superficial wounds
- Decubitus ulcers

*Due to the inability to distinguish normal flora from potential pathogens, it is essential that only specimens that do not contain normal anaerobic flora be submitted.

BODY FLUIDS

- **Sterile fluids: pleural, pericardial, peritoneal, synovial, amniotic etc.**
  - Minimum 1.0 ml
  - aspirated into a sterile syringe or sterile leak-proof container. Remove needle and cap syringe.
- **Bone marrow**
  - Collect in a SPS tube, Minimum of 1.0 ml. If <1ml is obtained, please send in syringe.
- **CSF - Cerebrospinal Fluid**
  - CSF is collected in sterile, leak-proof, screw top tubes. Deliver to the laboratory immediately after collection due to the fastidious nature of the organisms that may be present.
  - Do NOT refrigerate before processing culture and gram stain.
  - Rejection Criteria:
    - Delay: CSF will not be rejected if received after the 1-hour collection time limit; however, a time delay will be noted on the final report.
    - Labeling: CSF will not be rejected due to labeling issues

  Laboratory Instructions: See below for which tube each department uses unless the licensed practitioner specifies another order.
  Tube 1 For chemistry
  Tube 2 For microbiology
  Tube 3 For hematology
  Tube 4 For Reference lab/histology

BLOOD CULTURE

- See ***Blood Culture Collection***

BLOOD CATHETER CULTURE

- Send a 2-inch section of catheter in sterile container

FECES
Transport Container: Disposable, wide-mouth container with lid.
Bring specimens to the lab immediately.
Specimens in Cary-Blair transport media are acceptable for enteric PCR and culture.
Rejection Criteria:

- Delivered >2 hours after collection if not in transport media.
- Specimens containing barium or oily cathartics will interfere with testing. Several days must lapse after barium is administered before acceptable for testing.
- Stool contaminated with urine or toilet water
- Rectal swabs and Colon aspirates
  - Acceptable for aerobic culture (only Salmonella and Shigella)
  - Not acceptable for C. difficile toxin by PCR or Enteric pathogen PCR
- **Specimens from patients who have been in the hospital for >72 hours will be rejected for testing involving enteric pathogens including parasites.**
- Formed samples will be rejected for Enteric Pathogen and C diff testing
- O&P orders will be changed to an Enteric Pathogen Panel unless extensive travel history is provided

C difficile protocol
Testing will be canceled if:

- specimen is formed (only specimens conforming to the container will be tested)
- patient has had laxatives within 48 hours
- <3 loose stools within 24 hours of collection
- repeat testing (within two weeks of a positive or within 48 hours of a negative)
- pediatric patients <2 years of age

Exceptions include ED specimens, new admits and rectal tubes.

GENITAL

- **Chlamydia/ Gonorrhea PCR, Trichomonas vaginalis PCR**
  - Female: Cervical or vaginal swab samples in Cepheid Genital Swab Transport
  - Male and Female: Dirty urine
  - Other sources-refer to the ARUP CT/NG TMA test
- **Bacterial Vaginosis/Yeast**
  - Female only: Cervical or vaginal swab samples in Cepheid Genital Swab Transport
- **GBS- Strep B PCR**: vaginal/rectal swab collected with a red-cap Copan swab.
- **Culture Specimens for *Neisseria gonorrhoeae* should be brought to the lab immediately.**
  - Urethral(male): NP swab
  - IUD sent in sterile container.
  - Throat, anus, eye for *Neisseria gonorrhoeae* send in eSwab.

  Rejection Criteria: Delivered >1 hour after collection.

MRSA Screening
Nasal Swab for MRSA
PCR (recommended test for nares): Using a single red cap COPAN swab hold the applicator by the red cap, insert both swabs 1-2 cm inside nares. Rotate swabs for at least 3 seconds while gently applying pressure on the outside of the nostril. Repeat with the opposite nares.
Nares culture: Using a single eSwab, insert one inch into anterior nares,rotate (5) times clockwise, five (5) times counter clockwise, remove, using same swab place in other nares and repeat.
Groin Swab for MRSA(culture only)
Using an eSwab, place the swab on the left groin and rotate (5) times, repeat the process with the same swab on the right groin.

Mycobacteria (AFB) Culture

- Collect in leak-proof screw-cap,sterile containers and send to the laboratory within 1 hour of collection
- Specimens that cannot be processed within one hour should be refrigerated during transport to and storage in the laboratory prior to processing.

- **Sputum: three** sputum specimens at 8–24-hour intervals (24 hours when possible) and at least one first-morning specimen are recommended. (Example: acceptable collection times 0600, 1400, 2200)
- **Gastric specimens, Bronchoscopy specimens, Tissues, Body fluids, etc.:** BALs and body fluids require at least 5 ml
- **Swabs:** Swabs are **not** acceptable for AFB culture and will be rejected.
- AFB and Fungal cultures collected from the same site and same date/time will be pooled for culture to optimize the recovery of these organisms.

Mycology (Fungal) Culture

- All specimens are to be collected in sterile containers and stable <2 hrs ambient.
- Specimens collected using an eswab are acceptable but not recommended. The raw specimen, fluid or tissue is preferred
- AFB and Fungal cultures collected from the same site and same date/time will be pooled for culture to optimize the recovery of these organisms.

Lower Respiratory tract

Sterile, leak-proof container. Minimum of 1.0 ml for aerobic culture. Minimum of 5.0 ml for fungus and AFB. Deliver within 2 hours. Do not add cytology preservative or formalin.

- **SPUTUM:** Instruct the patient to first rinse their mouth with water and spit out water. Second, breathe deeply and cough several times to expectorate material into a sterile container. Do not collect saliva; it will be rejected. Improper instruction leads to an improperly collected specimen. Early morning specimens are usually the most productive.
- **BRONCHOSCOPY SPECIMENS:** These are collected by trained respiratory care personnel.

Upper Respiratory Tract

- **THROAT:** Order Strep A PCR (recommended) or Throat Culture (checks for Beta Strep Groups A-G)
  Transport Container: eSwab
  With the patient's tongue depressed and adequate light, rub the swab firmly over the posterior pharynx, both tonsillar fauces and where areas of inflammation, exudation, or ulceration are evident. Care should be taken not to touch the tongue or mouth.
- **NASOPHARYNGEAL, MOUTH, EYE, EAR:**
  Transport Container:
  - Mouth, eye, ear: eSwab
  - Nasopharyngeal swab: NP swab in transport media See ***NP Collection Guide***

TISSUES

- Tissue samples: take from the leading edge of infection, the most viable portion of the tissue.
- Use sterile container, a small amount of sterile saline can be added to prevent tissue from drying up.
- Rejection Criteria:
  - Specimen in formalin.
  - Specimens will not be rejected if received after the 2-hour collection time limit; however, a time delay will be noted on the final report
  - Tissues will not be rejected due to labeling issues

URINE

- **Types of urine:** note source on order
  - **Supra-pubic aspirate**: collected by licensed practitioner by inserting a sterile needle/syringe directly into the bladder.
  - **Catheterized:** Refer to ***Catheter Urine Collection Guidelines***
  - **Midstream, voided, clean catch**: Instruct the patient to collect a specimen according to the ***Midstream Urine Collection Guide***
- Transport Container: urine cultures should be sent in the collection tube designated for culture (includes preservative), requires 3 mls or else the preservative may be toxic to certain bacteria
- Rejection Criteria:
  - Preserved specimen >24 hours

- Unpreserved specimen: >1 hr ambient, >24 hr refrigerated
- <3 mls in preservative tube.
- Specimens collected by "**hat, bedpan, bag or urinal**"
- Leaking samples.
- Frozen samples

WOUND, LESION, VESICLES

Open Wounds

- Cleanse with sterile saline or alcohol to eliminate superficial, flora organisms
- Culture the base or edges of the wound
- Aspirations or curettings are preferred, if not possible, use eSwab which should include pus from the advancing margin of the wound.

Closed Wounds

- Cleanse the skin with chlorhexidine and allow to dry
- Aspirate the fluid/purulent material using a sterile needle and syringe, remove needle before transporting to the lab
- If no material is obtained, unroof the wound, vesicle, or bullous lesion and collect tissue from the base of the lesion to avoid collecting superficial flora organisms
- Specimens received in the lab greater than two hours after collection may be rejected (eSwabs are acceptable for 24 hours). Specimens that cannot be recollected may be accepted for culture; however, the final report should include the time delay.
- Swabs are acceptable for aerobic, anaerobic, and fungal cultures. AFB cultures will not be performed on a swab.

Transport Container:

- eSwab
- Syringe with needle removed
- Sterile container

Rejection Criteria:

- delivered >2 hours after collection if not in transport media
- Improper source for anaerobic isolation

References: CLSI H56A 2006, CLSI M56A 2014, CLSI M54 2021
ARUP-INFO-0005, Rev 04 | November 2024