Aptima Collection

PCR testing for Chlamydia trachomatis (CLMPCR) and Neisseria gonorrhoeae (GCPCR) or both (GCLPCR)

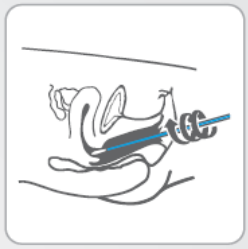
Materials:

- APTIMA collection kit (contains swabs and media)

CERVICAL, ENDOCERVICAL SWAB SPECIMENS

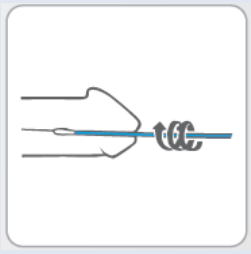
1. Prior to specimen collection it is important to remove excess mucus from the cervical os and surrounding mucosa using the cleaning swab (white shaft). **Discard this swab.**

   NOTE: If collecting a specimen for Pap testing as well, do not use a swab to collect specimen. Swabs may leave fibers behind that would obscure cells during microscopic examination. Specimen for combined Pap/HPV and Chlamydia/Gonorrhea testing may be collected in a liquid-based Pap vial using the appropriate collection device. See GYN Cytopathology Specimen Requirements for more information.



2. Insert the specimen collection swab (blue shaft) into the endocervical canal.
3. Gently rotate the swab clockwise for 10-30 seconds in the endocervical canal to ensure adequate sampling.
4. Withdraw the swab carefully; avoiding any contact with the vaginal mucosa.
5. Remove the cap from the swab specimen transport tube and immediately place the specimen into the transport tube.
6. Carefully break the swab shaft at the score-line; use care to avoid splashing of contents.
7. Re-cap the swab Specimen Transport tube and label it appropriately.
8. Send to the lab.

MALE URETHRAL SWAB SPECIMENS



1. Patient should not have urinated for at least 1 hour prior to specimen collection.
2. Insert the specimen collection swab (blue shaft) 2-4 cm into urethra.
3. Gently rotate the swab clockwise for 2-3 seconds in the urethra to ensure adequate sampling.
4. Withdraw the swab carefully.
5. Place the swab in the Specimen Transport tube, carefully break the swab shaft at the score-line; use care to avoid splashing of contents.
6. Cap the tube and label it appropriately.
7. Send to the lab.

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Blood Culture Collection

Materials:

A. Blood culture vials. Store in a cool, dry place (2-25ºC), out of direct sunlight.
   1. BD BACTEC Plus Aerobic/F Culture vials (plastic vial – silver on blue cap/silver label).
   2. BD BACTEC Lytic/10 Anaerobic/F culture vials (plastic vial – purple on red cap/purple label).
   3. BD BACTEC Myco/F Lytic – (Fungal) culture vials (glass vial – red cap/red label).

B. Betadine or 2% tincture of iodine or Chloraprep

C. Alcohol prep

PROCEDURE

A. Select site for venipuncture. Mark site with surgical marker if vein is difficult to locate.

B. Thoroughly cleanse the skin with 70% alcohol.

C. With a sterile applicator, apply 2% tincture of iodine or 10% povidone-iodine solution (Betadine) to the venipuncture site, starting at the center and moving outward in a circular motion. **Allow the site to completely air dry** before collecting blood.

   NOTE: Do not remove iodine or Betadine from skin before collecting blood.

D. For an alternate cleaning method Chloraprep may be used according to manufacturer's instructions.

   NOTE: Although not recommended by the manufacturer for use in newborns, the cumulative experience at several highly regarded NICUs around the country is that chlorhexidine products are safer and more efficacious than iodophor-based products. Therefore the Intermountain Healthcare NICU Development Team has determined that chlorhexidine products may be used in Intermountain NICUs. There is still some concern about chlorhexidine use in babies of <26 weeks gestation who are <3 days of age. Please review with your facility neonatologists before use with these few tiny, immature newborns.

E. Prepare blood culture vials.
   1. Examine each vial for evidence of contamination (leakage, cloudiness, bulging or depressed septum) and damage or deterioration (turbidity, contamination, discoloration or darkening). DO NOT USE a vial if any defect is detected.
   2. Mark the blood culture bottle with the correct volume needed. Refer to the table below for optimum volumes.
   3. After removing the cap, wipe the rubber septum with a sterile pad soaked in 70% alcohol. Allow the septum to air dry. DO NOT USE IODINE to wipe off the vial septum, as iodine will disintegrate the rubber

F. Apply a tourniquet and visually locate the vein to be punctured, but DO NOT TOUCH the cleansed site.

G. **Blood culture bottles should never be inverted, attached directly to any line access device or attached to a straight needle on a vacutainer barrel for the collection process**.

H. Collect the specimen using one of the following methods:

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NOTE: Draw blood cultures separate from other tests. If it is necessary to draw them with other tests, inoculate the blood culture vials first to reduce likelihood of contamination.

1. Syringe draw
   - Use the largest gauge needle that the patient's vein will allow.
   - Remove needle completely before touching the gauze to the puncture site. Transfer blood from the syringe into **upright** blood culture vials using a transfer device. Allow vacuum in vial to draw the blood in. When drawing with a butterfly/syringe combination, discard the butterfly after drawing specimen into the syringe, then attach a transfer device to the syringe to inoculate the vial(s).
2. Butterfly needle
   a. Attach butterfly to the barrel. Place the barrel over the end of **upright** blood culture vials. Bottles must remain in an upright position throughout the collection. Never invert the bottle while the bottle is filling and the needle is in the patient.
   b. Carefully observe the direction of blood flow when starting specimen collection. The vacuum in the vial will usually exceed 10 mL, so the user should monitor the volume collected by means of the 5 mL graduated marks on the vial label. DO NOT OVERFILL.
   a. When the desired volume has been drawn, remove the needle from the vial.

I. Specimen volumes

OPTIMAL VOLUMES FOR BLOOD CULTURE VIALS

Age	Plus Aerobic/F vial	Lytic/10 Anaerobic/F vial	Myco/F Lytic vial
Neonate to 1 year	1 – 2 mL	1 – 2 mL	1 – 2 mL
1 to 6 years	3 – 5 mL	3 – 5 mL	3 – 5 mL
Adolescent to Adult	8 – 10 mL	8 - 10 mL	3 – 5 mL

NOTE: For suboptimal specimen volumes, if <2 mL, place the entire specimen in the aerobic vial; if ≥2 mL, divide specimen equally between the aerobic and anaerobic vials. Use of lower volumes may adversely affect recovery and /or time to detection of organisms.

J. Remove Betadine or iodine from the skin using alcohol.

K. Properly label vials with collection date, time, identity of phlebotomist and site of collection (e.g., "left arm", "right hand", "subclavian line red port", etc.). DO NOT COVER VIAL BARCODE LABEL

L. Transport the specimen promptly to the laboratory.

NOTES:

A. Contamination rates are higher with line draws than with venipunctures, so *blood cultures should not be collected through lines except to test for an infected line*.

B. If a clinician orders blood cultures times a number (e.g., "blood cultures times 2"), but doesn't specify different sites or time periods between specimens, the time interval is not important, but separate sites with separate preps are important when possible.

C. If the venipuncture proves difficult, and the cleansed site must be touched to locate the vein, *the site must be completely re-cleansed again before venipuncture*.

Capillary Collection

Materials:

- 70% alcohol prep pad or other approved disinfectant
- Gauze or cotton balls
- Approved skin puncture device, appropriate for the site of puncture
- Plastic capillary tubes/microtainers, glass slides for blood smears, etc.
- Sharps disposal container
- Bandage
- Instant hot pack (Optional; use as needed.)

PROCEDURE

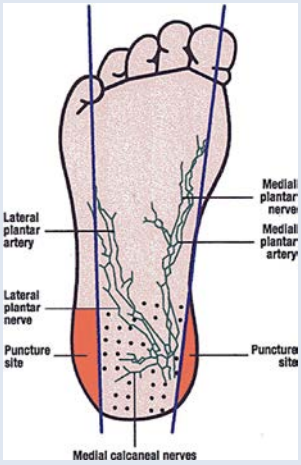
A. Review all tests ordered to determine the total volume of blood required for each collection and the correct microtainers to be used.
B. Positively identify the patient, using two unique identifiers.
C. Reassure the patient and/or parents.
D. Sanitize hands and put on gloves.
E. Properly position patient.
    1. For heel punctures, the baby should be in a supine position.
    2. An adult may hold the infant on their shoulder to comfort and console while the heel puncture is being performed. The adult should be sitting while holding infant for puncture.
    3. For a finger stick the patient may be in a supine or sitting position. Do not perform finger stick on infants under 1 year of age.
F. Select capillary site.
G. Warm the site, if applicable. Use caution when using the instant hot packs. Follow these precautions:
    1. Assess the patient's skin integrity prior to use. Don't apply a heel warmer to an infant whose skin integrity is compromised in any way. Exercise extra caution when using this device on a premature infant.
    2. Activate the heel warmer according to the device's labeling. Don't activate it near the infant or near anyone's eyes.
    3. Don't wrap the heel warmer with any additional heat source, such as a warm washcloth.
    4. Use the device for 3 to 5 minutes and monitor the application site continually, at least every 30 seconds, to avoid burns when using the warmer with premature infants. After removing the heel warmer, inspect the skin for any signs of altered skin integrity, such as blisters or erythema.
H. Prepare the needed supplies. Select an appropriate puncture device for the site selected.
I. Clean the puncture site with alcohol. Allow the site to air dry. Do not wipe away or fan the alcohol.
J. Perform skin puncture.

    1. Heel puncture:

a. The recommended location for blood collection on a newborn or infant is the heel. The puncture should be made on the most medial or most lateral position of the plantar (flat) surface of the heel.

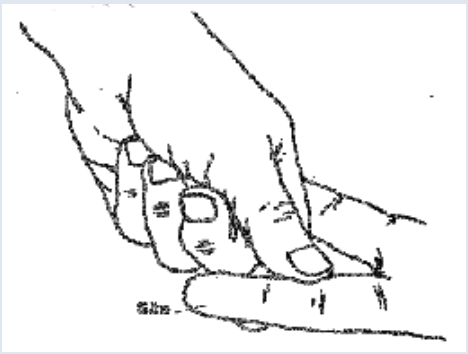
b. **Do not use the central portion of the heel because you might injure the underlying bone, which is close to the skin surface. It is also possible to cause neurological or soft tissue damage if the central portion of the foot is used.**

c. Do not use a previous puncture site. Make the cut across the heel-print lines so that a drop of blood can well up and not run down along the lines.



d. Wipe away the first drop of blood with a piece of clean, dry cotton. Since newborns do not often bleed immediately, use gentle pressure to produce a rounded drop of blood. Do not use excessive pressure or heavy massaging because the blood may become diluted with tissue fluid.

2. Finger puncture:
   a. Puncture on the side of the ball of the finger. Make the puncture across the fingerprint marks.
   b. Wipe away the first drop of blood with a dry gauze pad to remove any possible tissue fluid contamination.



K. Gently squeeze the puncture area and collect the required blood into the appropriate container(s).

L. Fill tubes in the correct order.
   1. Capillary blood gas (mix immediately). Heel must be pre-warmed.
   2. Tests collected in EDTA microtainers (**mix intermittently during collection** and immediately after collection).
   3. Tests collected in heparin microtainers (**mix intermittently during collection** and immediately after collection).
   4. Tests collected for serum microtainers.
   5. Newborn screen testing.

M. Check puncture site, apply pressure until blood flow ceases and bandage if appropriate.

N. Label specimens immediately after collection, in the presence of the patient. All specimens must be labeled with two unique patient identifiers, the date and time of collection and the identity of the phlebotomist.

O. Place the specimen(s) in a secondary container (e.g., Ziplock bag, tray, etc.).

P. Remove gloves and wash/sanitize hands.

Q. Send specimens (with paperwork) to the laboratory for testing

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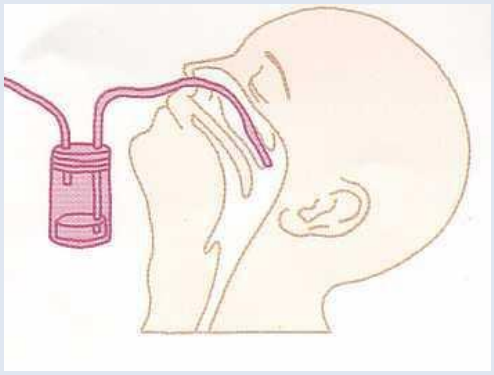
Vacuum-Assisted Nasal Aspirate Specimen Collection

Materials:

- Portable suction pump
- Sterile suction catheter
- Mucus trap (e.g. Luken's tube)
- Saline



1. Attach mucus trap to suction pump and catheter, leaving wrapper on suction catheter; turn on suction and adjust to suggested pressure.
2. 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.
3. Apply suction. Using a rotation movement, slowly withdraw catheter. NOTE: Catheter should remain in nasopharynx no longer than 10 seconds.
4. Hold trap upright to prevent secretions from going into pump.
5. Rinse catheter (if necessary) with approximately 2.0 mL saline; disconnect suction; connect tubing to arm of mucus trap to seal.
6. Label the sample appropriately.
7. Send to lab.

Patient Age	*Catheter size (French)	Suction Pressure
Premature infant	6	80-100 mmHg
Infant	8	80-100 mmHg
Toddler/Preschooler	10	100-120 mmHg
School Age	12	100-120 mmHg
Adolescent/Adult	14	100-150 mmHg

*To determine length of catheter tubing, measure distance from tip of nose to external opening of ear.

Note: Repeating procedure for the second nostril will deliver optimal combined specimen.

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Nasal Wash Specimen Collection

Bulb Method

Materials:

- Saline
- 1-2 oz tapered rubber bulb*
- Specimen container (e.g. urine collection cup)

1. Suction 3-5 mL saline into a new sterile bulb.
2. Insert bulb into one nostril until nostril is occluded.
3. Instill saline into nostril with one squeeze of the bulb and immediately release bulb to collect recovered nasal specimen.
4. Empty bulb into suitable dry, sterile specimen container.
5. Label the sample appropriately.
6. Send to lab.

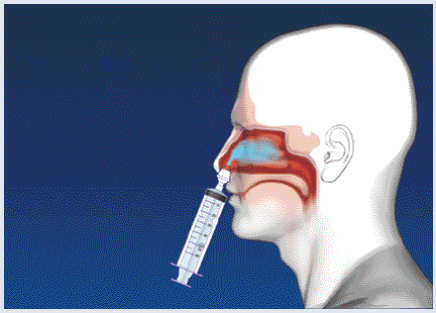
*Length and diameter of syringe, tube or bulb as appropriate for infant, child, or adult.

Note: Repeating procedure for second nostril will deliver optimal combined specimen.

Syringe Method

Materials:

- Saline
- 3-5 mL syringe*
- 2” 18-20 gauge tubing
- Specimen Container



1. Fill syringe with saline; attach tubing to the syringe tip.
2. Quickly instill saline into nostril.
3. Aspirate the recoverable nasal specimen.
4. Recovery must occur immediately, as the instilled fluid will rapidly drain.
5. (Alternate) In appropriate cases, patients may tilt head forward to allow specimen to drain into suitable sterile container.
6. Inject aspirated (if aspirated) specimen from syringe into suitable dry, sterile specimen container. Urine collection cup is acceptable.
7. Label the sample appropriately.
8. Send to lab.

*Length and diameter of syringe, tube or bulb as appropriate for infant, child, or adult.

Note: Repeating procedure for second nostril will deliver optimal combined specimen.

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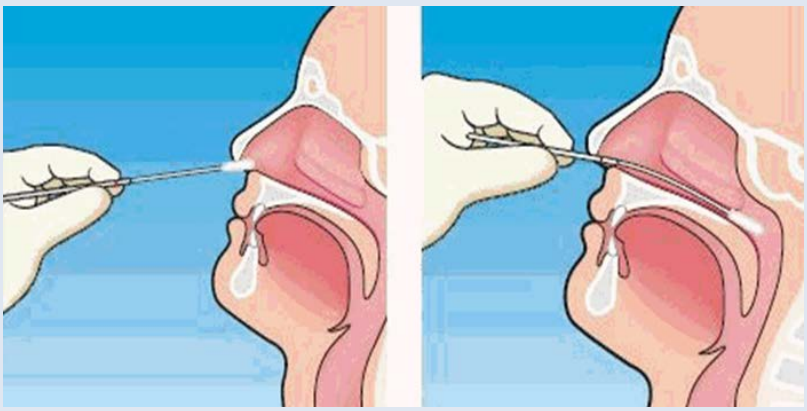
Nasopharyngeal Specimen Collection

Materials:

- Flocked swab with Universal Transport Media

1. Gently insert a small flocked swab through the nares and into the posterior nasopharynx.
2. Rotate swab slowly for 3-5 seconds to absorb secretions.
3. Remove swab from nares.
4. Place the swab in the Universal Transport Media tube. Securely cap the tube. Vigorously swirl or agitate the swab in the liquid for 15 seconds.
5. Label the sample appropriately.
6. Send to lab.



Patient's head should be positioned from vertical as shown for proper specimen recovery.

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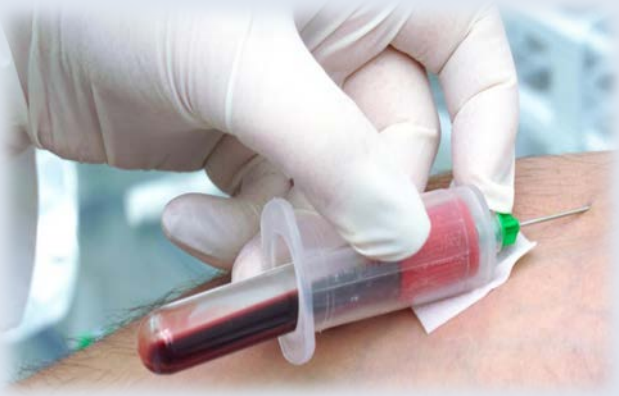
Venipuncture Collection

Materials:

- Tourniquet
- Gauze
- Alcohol prep or other suitable cleansing solution
- Venipuncture safety needle
- Disposable plastic tube holder or barrel
- Vacutainer tubes
- Adhesive bandage or tape
- Marking pencil or pen
- Gloves
- Sharps disposal container



TECHNIQUE

1. Sanitize hands. Identify patient using two unique identifiers.
2. Prepare and assemble needed supplies. Make sure all supplies are easily accessible during procedure.
3. Position the patient. A reclining position is preferred. A sitting position in a sturdy, comfortable chair with an arm support is also acceptable. Make the patient as comfortable as possible.
4. Select venipuncture site. Inspect both arms for good veins. Place a tourniquet on the patient's arm. Having the patient make a loose fist (do not pump) may make the veins more prominent and easier to feel. Find the vein that feels the fullest. Palpate and trace the path of the vein. Release the tourniquet.

CAUTION: Do not attempt venipuncture:

- in an arm on the same side as a mastectomy
- in an arm above an IV site
- in an arm with a PICC line (peripherally inserted central catheter)
- in an arm with a dialysis fistula

5. Put gloves on.
6. Apply tourniquet. Stretch both ends of the tourniquet around the arm so the tourniquet is tight but not painful. Tie the tourniquet with a partial loop to allow for easy removal during the venipuncture procedure.
7. Cleanse venipuncture site. Using an alcohol prep or cotton ball saturated with alcohol or cleansing solution, cleanse the site by moving the pad in a circular motion from the center of the site outward. In order to allow the area to be properly disinfected, allow site to air dry (do not wipe, fan or blow dry). Do not touch the cleansed site. Inspect needle and other equipment for defects.

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8. Perform venipuncture. Grasp the patient's arm firmly, but gently. Use your thumb to draw the skin taut. Enter the vein with the bevel of the needle upward with angle of insertion 30° or less. Fill vacutainer tubes in appropriate order of draw. While keeping the holder in place, depress an evacuated tube into the holder. Fill the tube until the vacuum is exhausted and the blood flow ceases, ensuring a proper fill volume and for tubes with anticoagulant a correct ratio of anticoagulant to blood. Remove the tube from the holder. Gently invert tubes (5-8 times) to assure adequate mixing of blood and anticoagulant.
9. Release and remove tourniquet.
10. Remove the needle, activate the safety device and immediately place a folded gauze pad or cotton ball over the puncture site. Hold the gauze pad ball firmly over the venipuncture site until bleeding has stopped. If bleeding has not stopped after 5 minutes, contact the patient's nurse or clinician.
11. Dispose of needle/puncture unit in sharps container.
12. Apply appropriate bandage. Instruct the patient to leave the bandage on for at least 15 minutes.
13. **In the patient's presence, label specimen(s) after verifying correct patient information**
14. Mix tubes according to the notes below
15. Complete necessary paper work and computer entry, if applicable.
16. Place specimens in secondary container (e.g., bag, tray, etc.)
17. Remove gloves and wash/sanitize hands.

MIXING TUBES

For proper performance of tube additives (anticoagulants, clot activators, and separation gels) tubes must be gently inverted several times immediately after collection (manufacturer recommends 8 inversions). In tubes with anticoagulants, inadequate mixing may result in platelet clumping, clotting, and incorrect test results. When mixing specimen tubes with additives, do not shake the tubes.

Insufficient mixing or delayed mixing in SST tubes may result in delayed clotting and incorrect test results

NOTES

Technique

- Avoid prolonged application of the tourniquet (no more than two minutes).
- Avoid a probing, traumatic venipuncture.
- Avoid using a needle that is too small (less than 22 gauge). A 20-21 gauge needle is recommended.
- Avoid drawing from a hematoma.
- Make sure alcohol preparation of draw site is dry (residual alcohol may cause RBC lysis).
- If the tube is filling very slowly, adjust the needle position to obtain a steady flow. Allow 1-2 mL of blood to flow into the tube, then discard that tube (as waste) and replace it with a fresh tube.

Transfer

- When transferring a specimen from a syringe through the transfer device, allow the tube to fill at its normal speed. Do not apply pressure to the plunger.
- Position the transfer device so the blood flows down the side of the tube rather than splashing to the bottom.

Extreme temperatures

- Do not expose the specimen to extreme temperatures (heating or freezing) or direct sunlight.

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