

Blanchard Valley Health System Laboratory Services

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Blood Culture Collection Procedure (LTR54849)

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Blood Culture Collection

PRINCIPLE:

This procedure provides instructions for sterile collection of blood samples for aerobic and anaerobic culture.

CLINICAL SIGNIFICANCE:

Properly collected blood cultures prevent contamination, minimizes costs, reduces the length of medical stays, and reduces unnecessary antibiotic treatment.

SPECIMEN:

- A. **COLLECTION AND PROCESSING:** Proper Patient Identification, proper disinfectant of bottle septum, and patient's venipuncture site are essential to ensuring patient safety, prevent misdiagnosis, and contamination.
- B. **REJECTION:** Specimens will be rejected if they are not labeled properly, if the bottles are expired or damaged in any way.
- C. **STORAGE AND PRESERVATION:** Bottles are stored ambient.

EQUIPMENT:

A. EQUIPMENT:

1. Gloves
2. Tourniquet
3. Collection device
4. Blood Culture Kit (includes the following):
 - a) Underpad
 - b) ChloroPrep One Step Applicator – 1.5 mL or 3.0 mL
 - c) Female or Male Blood Culture Adapter
 - d) BD Z-tube (for wasting with Male Blood Culture Adapter)
 - e) Aerobic Bottle - Green bottle
 - f) Anaerobic Bottle - Maroon bottle
 - g) Alcohol Pad
 - h) Biohazard Bag
5. Gauze
6. Tape

NOTE: Pediatric patients will utilize only the aerobic green bottle.

PROCEDURE:

A. PERFORMANCE:

1. Greet patient and perform hand hygiene upon entry into the room.
2. Identify the patient using 2 patient identifiers.
3. Review patient's orders and print labels (if labels are available). If collecting in Cerner, utilize the proper Specimen Collection process.
4. Gather supplies:
 - a) Collection needles, syringes, hubs, etc.

- a. Butterfly and hub (preferred method)
 - b. Butterfly and syringe(s)
 - c. Straight needle and syringe
 - d. IV Catheter (for draw with initial IV start)
- b) Prepare a clean work area and lay out all supplies. Utilize the underpad included in the blood culture collection kit if needed. The environment should be clean, and all sterile supplies must remain clean and/or sterile. The patient's bed should not be used as a work area.
5. Check supplies for adequacy:
 - a. Do not inoculate bottles past their expiration date.
 - b. Do not use bottles showing signs of damage, deterioration, or contamination.
 - c. Identify the fill-to mark or mark the target fill level on the bottle label.
6. Prepare bottles for inoculation:
 - a. Remove the plastic "flip-cap".
 - b. Disinfect the bottle septum with an alcohol pad and allow to dry.
7. Prepare venipuncture site:
 - a. Apply a disposable tourniquet 3-4 inches above the venipuncture site.
 - b. Palpate to find a vein.
 - c. Note site of venipuncture and release tourniquet.
 - d. Apply clean examination gloves
 - e. Disinfect the skin
 - i. Clean the venipuncture site with an alcohol pad until the alcohol pad is clean. Utilize additional alcohol pads until they appear clean.
 - ii. Utilize a ChloaPrep application to clean the site using back-and-forth strokes for a minimum of 30 seconds.
 - iii. Allow the venipuncture site to completely air dry. This takes approximately 30-60 seconds. **DO NOT RE-PALPATE.**
 - iv. NOTE: For pediatric patients less than 2 months old, disinfect the venipuncture site by gently wiping with 2-3 alcohol pads for a total of 60 seconds.
8. Venipuncture
 - a. Assemble the needle and hub (or needle and syringe).
 - b. To prevent contamination, do not re-palpate site.
 - c. Re-apply the tourniquet.
 - d. Perform venipuncture.
 - i. When drawing from an IV site: A waste is collected and can be used to fill other vials for other test(s) that may be ordered. If no other tests are ordered the waste can be discarded.
 - ii. When using a Male Blood Culture Adapter: A waste is collected using the BD Z-tube. Draw 0.5ml-1ml of blood into the BD Z-tube before filling bottles. Discard BD Z-tube after blood draw.
 - iii. When using a Female Blood Culture Adapter: A waste is collected and can be used to fill other vials for other test(s) that may be ordered. Discard 0.5mL-1mL of blood via syringe. If no other tests are ordered the waste can be discarded.
9. Bottle Inoculation
 - a. Collect **10 mL** of blood per adult bottle or up to **4 mL** per pediatric patient (aerobic bottle only). If pediatric patient is less than 100 pounds please refer to the Phlebotomy Venipuncture Procedure (LTR53131) for maximum allowable draw volumes.
 - b. Ensure each bottle is correctly filled to the Fill-to Mark.
 - i. Optimal fill volume is 8-10 mL per adult bottle and 3-4 mL per pediatric draw (aerobic bottle only)
 - ii. Absolute minimum fill volume is 5 mL per adult bottle.
 - iii. **If the minimum volume cannot be obtained fill only the aerobic bottle.**
 - c. Bottle inoculation order:

- i. For butterfly and hub collection – fill the aerobic bottle first, followed by the anaerobic bottle
 - ii. For butterfly/needle and syringe collection – If using **one** syringe, fill the anaerobic bottle first, followed by the aerobic bottle.
 - iii. For butterfly/needle and multiple syringe collection – If using more than one syringe, inoculate the aerobic bottle with the first syringe and the anaerobic bottle with the second syringe.
10. Other blood tests
 - a. Always collect blood cultures first.
 - b. Collect the remaining blood tests after cultures.
11. Finishing the Procedure
 - a. Release the tourniquet from patient's arm.
 - b. Place gauze on the venipuncture site and remove the needle.
 - c. Hold pressure on the venipuncture site and place tape to hold the gauze in place.
 - d. If you collected blood using a syringe, follow the bottle inoculation steps in Step 9-C above.
 - e. Dispose needle in proper sharps container and discard trash.
 - f. Label the specimen(s) in the presence of the patient.
 - i. Place label on specimen(s).
 - ii. If labels are not available: Handwrite the patient's name, date of birth, date and time of collection, and collector's initials on the specimen.
 - iii. Do not cover the barcode on the bottle when labeling.
 - g. Perform hand hygiene prior to leaving the patient room.
12. Transport blood culture bottles to the laboratory as soon as possible.

REFERENCE:

Refer to the *Recommendations For Blood Culture Collection* quick guide from Biomerieux.