

PHLEBOTOMY BLOOD CULTURE COLLECTION

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PURPOSE

To provide instructions on the proper collection and labeling of blood cultures.

BACKGROUND

The detection of microorganisms in the patient’s blood has diagnostic and prognostic importance. Proper collection of specimens to include aseptic techniques, the correct volume of blood and the number and types of blood culture media inoculated is critical.

RELATED DOCUMENTS

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| CLSI H3-A6 | Procedure for the Collection of Diagnostic Blood Specimen by Venipuncture; Approved Standard – Sixth Edition |
| CLSI M47-P, Vol. 26 | Principles and Procedures for Blood Cultures |

EQUIPMENT

Check all reagents and supplies for outdates prior to use. Expired reagents and supplies must not be used.

- ChloraPrep, one-step prep pad (NOTE: **MUST NOT** be used on infants under two months of age.)
- Blood Culture bottles:
 1. Aerobic FAN bottle (charcoal in the bottle absorbs antibiotics) - green, used routinely and also for **Fungus blood cultures and other body fluids.**
 2. Anaerobic bottle – purple
 3. Pediatric FAN bottle – yellow (for small samples, infants,)
- Collector adapter kit, butterfly kit or syringe and needle, tourniquet, gloves.

General considerations for processing

- A set of blood cultures consists of 1 aerobic bottle and 1 anaerobic bottle. If the patient is a child or an adult that is difficult to draw, use 1 pediatric bottle or 1 aerobic bottle.
- Always observe universal precautions when handling blood.
- Never attempt to recap a needle.

Site Selection

- Identify venipuncture site per standard protocol.
- With the 2nd set of Blood Cultures, select a different site for the venipuncture. It can be the same arm as the first site or the other arm or site.

Timing of blood cultures

- It is no longer necessary to have timed intervals between cultures. It is shown there is no increase in recovery of organisms. The second culture can be drawn immediately after the first but from a different site and preparation of the site must be performed as stated below in site preparation. This is a guideline from CLSI. When a physician writes an order for timing between cultures, this is no longer necessary.

STEPS

Site Preparation – Use of Chloraprep

1. After palpitation, open the pouch, being careful not to touch the sponge surface and remove the scrubber sponge by plastic handles.
2. Hold the scrubber by the handle in a horizontal position and break the ampule inside of the handle by pinching the handle. Do not continue to squeeze the handle or to squeeze multiple times.
3. Apply the sponge surface to the area to be cleansed. Scrub in a back and forth direction for 60 seconds.

KEY POINT: Allow to air dry for 30-60 seconds.

4. For babies less than 2 months of age, cleanse the skin with alcohol and betadine using a circular motion to clean skin. Allow area to dry before collecting specimen. **Do not** use Chloraprep products.
NOTE: The alcohol is used to clean the skin, the betadine is used for 30secs to clean the site, then air dry for 30 - 60sec.

Specimen Collection – BacT/Alert Collection Adapter

1. Assemble the blood culture adapter and 21 g butterfly set, or use a safety syringe needle. The collection adapter should not be used as a direct draw device.
2. Do **NOT** touch the sterile site with the gloved finger. Do NOT change needles before inoculating the blood culture bottle.
3. Remove the flip caps from the required number of BacT/Alert culture bottles. Clean the rubber septum with alcohol only if sterility has not been maintained (the flip caps had been removed, but no specimen had been obtained). Set the bottle(s) upright at the bedside.

KEY POINT: Examine the bottles for evidence of contamination such as cloudiness, bulging or depressed septum, leakage or the sensor on the bottom of the bottle is a bright yellow. **DO NOT USE ANY VIAL SHOWING EVIDENCE OF CONTAMINATION.**

4. Connect the adapter cap to the luer connector of the collection set.
5. Perform the venipuncture. When the needle is in the vein, secure it with tape or hold it in place.
6. Place the adapter cap on the aerobic BacT/Alert culture bottle septum and press down to penetrate and obtain blood flow. Verify that blood flows into the bottle. Hold the adapter cap down on the bottle during collection. Line demarcations on the bottle label indicate sufficient blood volumes.
7. The volume of blood drawn is the key to a good blood culture collection. If less than the recommended amount of blood has been obtained, inoculate the aerobic (green) bottle first then the anaerobic bottle (purple). If less than 10mLs has been drawn, place all of the blood into one green bottle, do **not** split the sample between the two separate bottles. See table for blood volume on next page.

KEY POINT: Note that the vacuum in the bottle will exceed 10 mL.

Hint: Mark a line on the bottle with the initial broth volume and use the demarcations to draw a line indicating the volume desired

Volume of Blood drawn	Bottles
20 mLs	10 mLs green bottle, 10mLs purple bottle
10-20 mLs	Split between green and purple bottles
10 mLs	5mLs green bottle, 5mLs purple bottle
5-10 mLs	Put all the blood into a green bottle
1-4 mLs	Put all the blood into a yellow bottle

8. After obtaining the specified amount of blood, mix the bottles, move the adapter cap from the aerobic bottle to the anaerobic bottle (if required) and continue the collection. Do not remove the needle from the patient's vein during this process.
9. After blood collection is complete, remove the adapter cap from the culture bottle and then remove the needle from the patient's vein.
10. If additional blood is required for other tests, place the adapter insert into the adapter cap and lock into place. This makes the cap compatible with vacuum collection tubes. Follow the recommended order of tube draw.
11. Mix the bottles well to avoid clotting.
12. Use a new needle if the vein is missed initially.
13. Label the specific collection site (i.e. L AC – Left Anticubital) on the Blood Culture bottle along with Cerner label or hand written draw information, do **NOT** write across the barcode lines. Phlebotomist Tech ID should be written on the bottle label in the area for this purpose. Do **NOT** cover up all the bottle barcodes with other labels.
14. If blood culture bottles will not be loaded onto the instrument for an extended period such as bottles drawn at another hospital site, leave bottles at room temperature. Do not put the bottles into an incubator.

Number of blood cultures

- The present guideline is to collect two to three sets at admission or episode for suspected septic patients.
- In patients with endocarditis, more than 3 sets in one day are an acceptable practice.
- Cultures should not be repeated for 2-5 days following antimicrobial therapy, since time is needed for blood to become sterile again.
- The use of blood cultures as surveillance cultures are of limited value and should not be routinely performed.

Cerner Computer Functions

1. When blood culture samples arrive in the laboratory, SPR is performed to document their arrival in the lab and to print specimen labels.
2. Do not cover the bar code label on the bottle with patient labels or specimen labels.
3. When the blood culture is MSU'd, enter the source in "Free Text" field - enter the site of collection (i.e. L AC - left antecubital). If the site is not on the Blood Culture bottle enter "Not Specified". It is critical that if the blood has been drawn by the nursing staff from a line that the site is noted. For example: PICC line draw. The site of the specimen can also be entered in the order comment section (F11) above the dotted line (chartable).

KEY POINT: Labeling method: Label bottles per FHS 2-patient identifier protocol. Position the Cerner label so the bar code lines are in the same direction as the bottle bar code lines.

LIMITATIONS

- Avoid drawing blood through indwelling intravenous or intra-arterial catheter unless blood cannot be obtained by venipuncture or unless the diagnosis of catheter sepsis is suspected. Nursing staff will draw cultures through the catheter.

DOCUMENT APPROVAL Purpose of Document / Reason for Change:			
8/9/12 – New header/format. Added new purpose, Related Document. Double spaced steps. Added volume table back into document. Added details about baby skin disinfecting (alcohol/betadine).			
Committee Approval Date	<input checked="" type="checkbox"/> Date: 8/9/12 <input type="checkbox"/> NA – revision of department-specific document which is used at only one facility	Medical Director Approval (Electronic Signature)	8/6/12 <i>Linda D. Burkhardt, M. D.</i>