I. Principle

Blood cultures are performed on patients who may be suspected of having organisms in their blood. Aseptic collection of blood cultures is essential because contamination of cultures with skin flora result in misleading information to the physician, unnecessary treatment of the patient, and excessive expense in additional testing and treatment. Strict adherence to the following procedure is necessary to ensure there is no skin contamination during the blood collection process.

Blood cultures should be drawn as soon as clinical diagnosis of sepsis is considered and before antibiotics are started. For this reason, it is recommended that two sets be drawn simultaneously from two different sites.

The volume of blood drawn is the single most important variable in recovering bacteria from the blood of a septic patient. Separating venipunctures by 15 minute intervals or any amount of time is arbitrary and has not been shown to improve recovery of organisms. If a time interval is specified, follow the physician’s written orders.

II. Reagent and Supply Requirements

A. Equipment Requirements
   1. Phlebotomy tray
   2. Phlebotomy cart

B. Supply Requirements
   1. Vacutainer® tube holder
   3. BacT/ALERT® SA aerobic blood culture bottle
   4. BacT/ALERT® SN anaerobic blood culture bottle
   5. BacT/ALERT® PF pediatric blood culture bottle
   6. Saf-T HOLDER® blood culture device
   7. ChloraPrep® one-step applicator (3mL, 0.67mL)
   8. 2” X 2” Gauze
   9. 70% alcohol pad
   10. Micropore surgical tape
   11. Disposable tourniquets
   12. Disposable gloves
   13. Specimen bags
   14. Coban® self adhesive bandage
   15. Band-aid
   16. Syringe (3mL, 5mL, 10mL)
III. Procedure

A. Patient identification and specimen labeling must be completed according to quality manual procedure QM1.301 – Patient Identification and Specimen Labeling.

B. An adult blood culture set is considered one aerobic and one anaerobic bottle.

C. A pediatric blood culture is one Pediatric bottle.

D. A winged infusion set (butterfly) is used to draw blood cultures with a Safety Holder Blood Culture device attached to the end. Remove vacuum tube adapter to allow it to be placed over the blood culture bottle.

E. The blood culture is drawn before any other blood is collected. It is the first “tube” drawn in the correct order of draw.

F. Phlebotomist preparation will be same as procedure for Routine Blood Collection Policy # LP1.201 steps A thru E or up until decontamination which is performed as follows.

G. Decontamination of the site

1. Before cleaning the site, release the tourniquet for the entire decontamination process. Because of the length of time necessary for decontamination, it is detrimental to keep the tourniquet applied during this process.

2. Clean the site of the venipuncture using a ChloraPrep® pad.
   a. Pinch the wings on the ChloraPrep® applicator to release the antiseptic.
   b. Hold in a horizontal position with the foam surface down.
   c. Do not touch the sponge.
   d. Wet the sponge by repeatedly pressing and releasing the sponge against the treatment area until liquid is visible on the skin.
   e. Scrub vigorously using a back and forth motion across the site for a minimum of 30 seconds.
   f. Allow the site to dry for a minimum of 3 minutes before proceeding with the Venipuncture. This drying time is required in order to kill all possible skin contaminants.
   g. Do not re-palpate the area once it is cleansed.

H. While waiting for site to dry, mark each bottle with the desired volume to be collected using the graduated markings on the side of the bottle (approx. 10 ml for adult aerobic and anaerobic bottles and approx. 4 mL for pediatric bottle). Remove caps from BacT/ALERT® bottles and cleanse rubber stopper with a 70% alcohol pad and allow to air dry. Do not touch the tops of the blood culture bottles once they are cleaned.
I. Venipuncture
   1. Re-apply the tourniquet
   2. Ask the patient to make a fist again.
   3. Hold the patient’s arm below the Venipuncture site, pulling the skin tightly with the thumb to stabilize the vein.
   4. The needle should be inserted bevel up in the same direction as the vein and should be inserted quickly and smoothly at approximately a 15-degree angle with the skin.
   5. An adult blood culture set requires 8-10 ml of blood collected into the aerobic bottle and 8-10 ml collected into the anaerobic bottle. A pediatric draw requires 1-4 mL drawn into the pediatric blood culture bottle.
   6. As the blood begins to flow, ask the patient to open their fist.
   7. You can either remove the tourniquet as the blood begins to flow, or at the end of the collection.
   8. Fill the bottles to the marks you have previously placed on the side of the blood culture bottle.
      a. If the bottle begins to fill and then stops, move the needle slightly forward or backward.
      b. Do not probe with the needle as it is not recommended and is painful to the patient.
      c. If you are unable to obtain the sample necessary with a slight repositioning of the needle, remove the needle and start the process from the beginning.
   9. If vacuum tubes will be drawn, vacuum tube adapter can be inserted to help guide tubes into Safety Holder Blood Culture Device.
10. Once the specimens have been collected
      a. Remove the tourniquet if still applied
      b. Place clean gauze over the puncture site and apply pressure for 1-2 minutes.
      c. If the patient is able, you may ask them to hold this gauze while you label the bottles.
      d. Mix the blood culture bottles gently eight to ten times.
      e. After 1-2 minutes, evaluate whether or not the bleeding has stopped.
      f. Place a piece of gauze over the site and secure it in place with a piece of paper tape.
      g. Instruct the patient that this is to remain in place for at least 15 minutes.
J. Labeling the specimens and exiting the room
   1. All specimens will be labeled according to the laboratory labeling policy.
      (QM1.301 – Patient Identification and Specimen Labeling)
   2. Blood cultures require documentation of draw site one each set
   3. Place all labeled bottles into a specimen transport bag.
   4. Remove your gloves and place all waste in the appropriate receptacle. Place all needles in to a Sharps container. All other waste can be placed in the trash can, along with your gloves.
   5. Before exiting the room, disinfect your hands using either the foaming waterless hand sanitizer or soap and water in front of the patient.

K. Transport specimens to the lab as indicated in policy LP1.201 - Routine Blood Sample Collection.

IV. References

A. Ernst DJ. *Applied Phlebotomy*. Baltimore, MD; Lippincott Williams & Wilkins; 2005
C. Hospital Policy for washing hands
D. Hospital policy for isolation precautions
E. QM1.301 – Patient Identification and Specimen Labeling
### Change Summary

<table>
<thead>
<tr>
<th>Department:</th>
<th>Lab Processing</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SOP Title</strong></td>
<td>Blood Culture Collection</td>
</tr>
<tr>
<td><strong>SOP #</strong></td>
<td>LP1.202V2</td>
</tr>
<tr>
<td><strong>Implementation Date:</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Date</th>
<th>Revision</th>
</tr>
</thead>
<tbody>
<tr>
<td>10/2/2013</td>
<td>Updated to new format and to reflect changes in procedures</td>
</tr>
<tr>
<td>7/23/2014</td>
<td>Updated to reflect CLSI standard</td>
</tr>
</tbody>
</table>