Collection of Blood Cultures - Venipuncture

What You Will Need

- BacT/Alert culture bottles: **One set = 1 aerobic and 1 anaerobic bottle** drawn from the same phlebotomy procedure. **Note: Collect 2 “sets” when ever possible.**
  - Adults:
    - 1 Aerobic (green) and 1 Anaerobic (purple) for each draw site/culture
  - Children (15 years and younger):
    - 1 Pediatric (yellow) bottle if 0.5ml to 4ml of blood is collected
    - 1 Aerobic (green) bottle if 5ml to 10ml of blood is collected.
- Needles, and 20 ml or larger syringe, and/or butterfly apparatus
- Chlorhexidine, or betadine and sterile alcohol preps
- Disposable gloves
- BacT/Alert Blood Transfer Device – with Male or Female Adapters

Always draw 2 separate blood cultures (an aerobic and anaerobic bottle - each set), from two different sites, avoiding “line” draws, when possible.

**Note:** Do not use the blood culture bottles if they are expired, damaged or have been dropped, have cracks or a cloudy medium. The Aerobic (green) bottles and Pediatric (yellow) bottles will normally have black particles.

How to Do It

- Wash hands for at least 20 seconds or use antibacterial hand gel. Put on gloves.
- “Double Identify” the proper patient.
- Apply tourniquet to locate veins, place patient’s arm in downward position, then **remove the tourniquet. Note:** Choose a site below any existing intravenous lines.
- Place bottles on a flat surface and **mark on the bottles at the broth line and 10mls above the broth line** (each notch on the adult bottles is 5ml). Clean the tops of the bottles with alcohol prep and let dry.
- Apply chlorhexidine (or) in an up and down, back and forth motion. **Note: Site must be cleaned for at least 30 seconds**
- Use betadine if patient has alcohol allergy. Go in a circular motion from inside to the outside for betadine. Be careful to not go over the same area twice. Remove any extra betadine with chlorhexidine cleanser and let dry.
- **Site must dry for at least 30 seconds.** Do not blow or wave on area to accelerate drying.
- Once site has be cleaned, do not re-palpate (this may cause contamination)

**Note:** Proper skin disinfection is critical to minimize contamination of the blood culture.
Note: Collection of adequate volumes of blood is the most important factor in blood culture results. The Aerobic (green) bottle is the more important bottle to completely fill up to 10 mls.

- Re-apply the tourniquet and perform venipuncture:
  - If using the butterfly system, fill the Aerobic (green) bottle first, using the BacT/Alert Blood Transfer Device - with Male Adapter, with 10 mls, followed by 10 mls in the Anaerobic (purple) bottle. Note: Keep bottles upright. Watch 5ml marks on side of the bottles to fill with proper mount.

  Do not force the blood into the bottles or over fill the bottles! Watch the fill carefully. The vacuum may draw more than the optimal 10mls.

  - If using a syringe, draw 20 ml of blood. Remove needle. Attach the BacT/Alert Blood Transfer Device – with Female Adapter, add 10 mls in the Anaerobic (purple) bottle first, making sure to have 10 mls to add to the remaining Aerobic (green) bottle.

  Note: Do not introduce any air from the syringe into the anaerobic bottle.

  - For pediatric patients, draw between 0.5 to <4 ml for the Pediatric bottle. Note: marks on the side of these bottles are for 4mls.

- What to do if you draw less than 20 ml on adults:
  - If < 4 ml, fill one of the Pediatric bottles.
  - If >=4 to 10 ml, put the entire amount into the Aerobic (green) bottle
  - If 10 - 20 ml, fill the Aerobic (green) bottle with 10mls (most important bottle) and put the remaining blood in the Anaerobic (purple) bottle.
  - Note in specimen comments amount of blood drawn.

<table>
<thead>
<tr>
<th>Order of Inoculation</th>
<th>Total amount of Blood Drawn with Syringe:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Anaerobic bottle (purple top)</td>
<td>20 cc</td>
</tr>
<tr>
<td>2. Aerobic Bottle (green top)</td>
<td>10 cc</td>
</tr>
<tr>
<td>3. Pediatric bottle (yellow top) only when &lt; 4 cc</td>
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</tbody>
</table>

- After the draw, apply pressure and an adhesive strip.

- Include on the label: patient name and a second identifier (date of birth or account number), time, date, your initials and draw site.

- Invert the bottle(s) to mix.

- Write on order form in the comment section and in the computer when ordering: the draw site (include specific IV type and site also), and note amount of blood drawn, if unable to get the proper amount of blood (10mls per bottle for adult patients).

- Document any suspicion of unusual organisms in specimen comments.
• If one “set” can only be collected from a catheter line draw, which is more prone to contamination, another “set” must be collected by peripheral venipuncture.

• **Wash hands and change gloves before prepping the same or different site for the second set.**

**Where to Take It**

Take bottles to University of Colorado Health Laboratories as soon as possible. (Or within two hours of collection)

**More Details**

• **Pediatric Patients**
  Put entire sample into 1 bottle (up to 4 ml), rather than splitting a small amount into 2 bottles. You may draw as little as 0.5 ml or as much as 4 ml. If you do not have a Pediatric bottle, use an Aerobic (green) one.

• **Size of Draw**
  10 ml is needed in each of the Aerobic and Anaerobic bottles for the best results and recovery of bacteria. Correct volume directly influences recovery of significant isolates.

• **Multiple Cultures**
  Draw specimens from different sites to have the best opportunity to recover bacteria that show up intermittently or in small numbers and rule in or out contamination. Limit to 3 sets of blood cultures per 24 hours, or 4 sets in 48 hours. If more are ordered, there must be approval from a PVHS Lab Pathologist.

• **Other Body Fluids**
  If you draw peritoneal dialysates and ascites, use the same sterile technique at time of collection and place 10ml of the specimens each into the Aerobic and Anaerobic blood collection bottles in addition to sending 50 mls in a sterile container for direct plating. Write the source on the order form and on labels along with time, date and initials.

• **AFB (Acid Fast Bacillus) Blood Culture – Order “AFBL”**
  5mls of blood is drawn into one special SPS yellow top tube provided by PVHS Specimen Center or Microbiology for send out testing to a reference lab. Send back to the PVH Microbiology Lab, ASAP. Refrigerate for storage and transport.

• **Fungal Blood Culture**
  Use the same sterile technique at time of collection and place 10ml of the specimens each into the Aerobic and Anaerobic blood as for routine Blood Cultures. Mention “Looking for Yeast or Fungus” in comments.