New BD BACTEC Blood Culture System
Wake Forest Baptist Medical Center
Microbiology Laboratory (6-2658)
Skin Preparation
This an important step to avoid contamination

- Select vein for venipuncture site
- Use a ChloraPrep (Medi-Flex Hospital Products, Inc.) kit following the instructions recommended by manufacturer
  - Use repeated back and forth strokes of the applicator for 30 seconds to thoroughly clean the site. Allow to dry for 30 seconds.
- Alternatively, 70% isopropyl alcohol followed by iodine
  - Scrub with 70% alcohol for minimum 30 seconds
  - Apply iodine solution in concentric circles away from puncture site (1 ½ – 2 inches)
    - 1-2% tincture of iodine for 30 seconds
    - 10% povidone-iodine for 60 seconds

Note 1. Chlorhexidine-gluconate is recommended for infants two months and older and patients with iodine sensitivity.

Note 2. If povidone-iodine is used, site should be cleansed after phlebotomy is performed.
Prepare BACTEC Bottles

- Visually inspect all bottles for contamination, cracks, or other signs of deterioration
- Do not use bottles that appear turbid or damaged
- Using media meniscus as a guide, mark culture bottle label(s) at desired fill level
  - Each hatch mark on label is approximately 5mL
- Remove flip-off caps from culture bottle(s).
- Wipe top of each vial with a single alcohol swab and allow to dry completely, usually 60 seconds
Blood Collection

- Perform venipuncture by holding wings of butterfly device.
- **DO NOT** hold by grasping yellow safety shield.
- Select aerobic vial first (blue ring).
- **Maintain vial in an upright position.**
- Push and hold Vacutainer™ holder over top of vial to puncture septum.
- Hold in place on vial and collect blood to desired fill level.
- Monitor to ensure proper flow and fill level.
Blood Collection

• Once desired fill level is achieved, remove holder from vial.
• Immediately transfer holder to second vial and push needle into vial.
• Hold in place on vial and collect blood to desired fill level.
• Remove holder from vial.

• When final blood culture vial is filled, place gauze pad over insertion site, and gently remove needle from vein.
• Apply mild pressure to gauze to stem blood flow.
• Check to ensure that bleeding has ceased, and apply an adhesive or gauze bandage over venipuncture site.
Blood Culture: Bacterial Culture
Versatrek versus BD BACTEC System

Versatrek (Previous) System

- **Purple**: aerobic
- **Red**: anaerobic

**Recommended volume**
**Up to 5 cc** (mL) of blood per bottle

BD BACTEC (NEW) System

- **Gray cap/ blue ring**: Aerobic
- **Purple cap/maroon ring**: Anaerobic
- **Pink cap/ silver ring**: Pediatric bottle

**Recommended volume**
8-10 cc (mL) of blood per bottle (aerobic and anaerobic)
1 to 5 cc (mL) per Ped bottle in children ≤ 5 years of age.
Minimum of 0.5 cc (mL) in Neonates to < 1 year old

In adults always send 2 bottles (one aerobic and one anaerobic) and if one set (2 bottles) is drawn through a port in an indwelling catheter, a peripheral set (2 additional bottles) **MUST** be submitted

Wake Forest Baptist Medical Center
Blood Culture: Fungal and AFB Culture
Isolator (old) versus BACTEC Myco (new) System

**Isolator (previous) System**
- 10ml per tube adult
- 2 ml pediatric
- Minimum volume required: 5 ml adult; 1 ml pediatric

**BACTEC Myco/F Lytic (NEW System)**
White Cap/Red Ring

**Optimal Volume:** 3-5 mL

Minimum volume in pediatric patients: 1ml

Wake Forest Baptist Medical Center
**Recommended Fill Volumes for Needle and Syringe Draw**

- **Children ≤ 5 years old:** 1 ml per year of age (1 to 5 mL of blood per venipuncture).
  - Transfer the entire amount to a BACTEC™ PEDS PLUS/F vial. (Pink Cap)
- **Adult:** 16 to 20 mL of blood per venipuncture (8-10 mL per bottle).
  - If it is impossible to draw the required amount, aliquot as follows:

<table>
<thead>
<tr>
<th>Venipuncture</th>
<th>Amount in BACTEC Plus Aerobic Vial (Grey Cap/Blue Ring)</th>
<th>Amount in BACTEC Lytic/10 Anaerobic Vial (Purple Cap/Maroon Ring)</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 – 20 mL</td>
<td>Split equally between aerobic and anaerobic vials</td>
<td></td>
</tr>
<tr>
<td>13 – 16 mL</td>
<td>8 mL</td>
<td>5 – 8 mL</td>
</tr>
<tr>
<td>10 – 12 mL</td>
<td>5 – 7 mL</td>
<td>5 mL</td>
</tr>
<tr>
<td></td>
<td>Lower volumes are not recommended</td>
<td></td>
</tr>
</tbody>
</table>

Wake Forest Baptist Medical Center
Label Vials

- Label all vials with patient name, collection date and time.

- DO NOT write on or place any labels over BACTEC bottle barcode, as this is required by instrument to process specimen.

Wake Forest Baptist Medical Center
Transport of Bottles

• Send bottles **promptly** to the microbiology laboratory for processing.

• Do not refrigerate the bottles after inoculation.

• Make sure that **one set** of bottles (one aerobic and one anaerobic) have been collected per patient.

• Check that the requisition slip is complete and accurate. One requisition slip is needed per set.

• Take the bottles to the Microbiology Laboratory or send them through pneumatic tube according to instructions.
To send blood culture bottles through the pneumatic tube, **you MUST:**

- Use a red, biohazard carrier with both halves on the egg crate insert, designed for this carrier. (NCBH store room # 35-998703). **No** other insert should be used.
- **EACH** blood culture bottle should be placed in a **separate** biohazard, zip lock bag.
- Only **two** blood culture bottles should be placed in a carrier **with NO** other specimens.
- The blood culture bottles are to be placed in a carrier **with the bottoms toward each other** (flat bottom to flat bottom)
- Carriers should be securely fastened