

**UW NEIGHBORHOOD CLINICS
DEPARTMENT: LABORATORY**

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BLOOD CULTURE SPECIMEN COLLECTION PROCEDURE

PRINCIPLE

Blood cultures may be ordered in certain cases where the patient may have symptoms such as: Sudden relative change in pulse rate and temperature, with or without chills, prostration, and hypertension. Also, a history of mild, intermittent, and persistent fever in association with a heart murmur may also be indicative of sepsis. Blood cultures are one of the most important procedures performed in the laboratory because of the life threatening nature of blood infections.

It is imperative that absolute aseptic technique is maintained throughout the collection procedure. Any contamination may lead to false culture results, as well as greater cost, and as much work as true positive blood cultures without benefit to the patient. Proper collection will take more time than a routine blood draw. Before beginning the procedure, the phlebotomist must wash his/her hands thoroughly, wear gloves when performing the venipuncture, and wash his/her hands after the procedure.

EQUIPMENT

1. Alcohol 70% Prep pads or wipes (for REDOX bottle stopper disinfection)
2. ChlorPrep® Frepp Blood Culture Prep Kit (2% chlorhexidine gluconate-CHG- & 70% isopropyl alcohol-IPA) NOT FOR USE ON CHILDREN LESS THAN 2 MONTHS OF AGE.
3. Povidone-Iodine solution-swabs or prep pads (for disinfecting ISOLATOR tubes)
4. Blood drawing supplies to include:
 - 21 or 23 gauge Vacutainer Brand Push button blood collection set (retractable safety butterfly)
 - Saf-T-Holder Device with Female Luer Adapter (for use with syringes)
 - Saf-T-Holder Device Male Adapter (for use with butterfly)
 - Blood Draw Transfer Device Holder (for use with syringe and Isolator 10 Tubes)
 - Syringes
5. VersaTREK REDOX 1 media-Aerobic blood collection bottle-80 ml
6. VersaTREK REDOX 2 media-Anaerobic blood collection bottle-80 ml
7. Wampole ISOLATOR 10 Microbial tubes-yellow top

➤ **VENIPUNCTURE SITE PREPARATION:**

1. Locate the vein to be used and remove the tourniquet.
2. Remove ChlorPrep® Frepp from the kit*.
3. Hold the Frepp in a horizontal position, and pinch the handle once to break the ampule. DO NOT CONTINUE TO SQUEEZE THE HANDLE.

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4. Place the sponge on the selected venipuncture site, and depress once or twice to saturate the sponge.
5. **Scrub vigorously in an up and down motion for 60 SECONDS and allow to air dry.**

***IF PATIENT IS ALLERGIC TO CHLORHEXADINE GLUCONATE or IS LESS THAN 2 MONTHS OF AGE, USE ALCOHOL AND IODINE FOR CLEANSING.**

- a. Clean area of venipuncture site 5-6 cm in diameter with an alcohol pad.
- b. Scrub the site to loosen and remove dirt and oils.
- c. With a second pad cleanse the area using a spiral motion from the venipuncture site outward in a concentric circle. Never wipe up and down or decrease the spirals.
- d. Next use Povidone/iodine solution (swabs or pads)** wiping in the same manner.
- e. Allow the iodine to air dry. This allows the antibacterial action of the iodine to work. This can take up to 3 minutes. **THIS IS THE MOST IMPORTANT STEP OF SKIN PREPARATION IN ORDER TO REDUCE CONTAMINATION.**

****IF PATIENT IS ALLERGIC TO IODINE, CLEANSE THOROUGHLY WITH THREE SEPARATE ALCOHOL PADS.**

- a. With first cleansing, scrub the site to loosen and remove dirt and oils.
- b. With the second and third cleansing, start at site of intended venipuncture using spiral motion as above.
- c. Allow to air dry.

WHILE THE SITE IS AIR DRYING, PREPARE THE BLOOD CULTURE MEDIA

➤ **PREPARATION OF BLOOD CULTURE MEDIA:**

Always check the expiration dates and lot numbers of bottles and tubes. Do not use outdated products.

Routine blood cultures:

Disinfect top of VersaTREK bottles with 70% alcohol pads (do not use iodine). Allow stopper to dry for 1-2 minutes. Use a separate prep pad for each bottle.

Mycobacterial (AFB) Blood Cultures:

Disinfect the tube stoppers with iodine solution provided in the collection kit. Do not allow iodine to pool in stopper. Allow iodine to air dry for 1-2 minutes.

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PROCEDURE FOR COLLECTION OF BLOOD SAMPLE

➤ **PERFORMING VENIPUNCTURE AND ORDER OF DRAW:**

Blood culture specimens are drawn first before any other blood collection tubes. Since most pathogens are aerobic, it's recommended that you fill the Aerobic bottle first. This will also allow for any air in the tubing of butterfly needles to be deposited only in the Aerobic bottle.

VersaTREK REDOX Bottles (Routine cultures)

1. Determine needle type depending on vein selection and integrity.
2. If using a **butterfly**, remove the rubber-sheathed multiple needle adaptor, and replace with **Male Saf-T Holder device**.
3. Place collection bottles on a hard flat surface such as the phlebotomy table. Make sure they are close to the patient, no further away than the length of the butterfly tubing; 10 inches.
4. Replace the tourniquet and visually relocate vein. **DO NOT TOUCH THE DISINFECTED SITE EVEN WITH GLOVES.**
5. Perform venipuncture, removing the tourniquet after good blood flow is established, and leaving it on for no longer than one minute.
6. Blood is drawn directly into the collection bottles during butterfly collection.
7. First fill the **SILVER TOP-PURPLE** label REDOX 1 with 10 ml of blood by puncturing the bottle stopper with the Saf-T adapter device. Keeping the adapter on the bottles while they fill, counting to 10 or observing for slowing blood flow will equal approximately 10 ml of blood.
8. Next fill the **RED TOP-RED** label REDOX 2 with 10 ml of blood.
9. If less than 10 ml of blood is obtained, split the total amount of blood drawn into both bottles. **Minimum volume is 0.5 ml in each bottle.**
10. **Gently invert the bottles 8 times to mix thoroughly. DO NOT SHAKE.**
11. Proceed with the rest of the collection tubes per the standard order of draw, labeling all tubes and bottles with patient identification after completing the draw.
12. Place gauze on venipuncture site and have patient apply firm pressure for at least 2 minutes to stop the bleeding.

NOTE: If using **syringes** to draw the blood, detach from the butterfly tubing after the draw, discard butterfly into a Biohazard Sharps container, and attach syringes to a **Female Safety Adapter** for transfer of blood into the bottles.

ISOLATOR 10 Tubes (AFB cultures):

1. Determine needle type depending on vein selection and integrity.
2. Regular Vacutainer needles with safety adapters, butterfly collection sets with adapters or syringes may be used with AFB culture tubes.
3. Replace the tourniquet and visually relocate vein. **DO NOT TOUCH THE DISINFECTED SITE EVEN WITH GLOVES.**

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4. First fill the ISOLATOR 10 tube with 10 ml of blood. **Minimum volume is 6 ml.**
5. Mix the tube by gentle inversion and label with patient identification.
6. Place gauze on venipuncture site and have patient apply firm pressure for at least 2 minutes to stop the bleeding.

NOTE: If using **syringes** to draw the blood, detach from the butterfly tubing after the draw, discard butterfly into a Biohazard Sharps container and attach syringes to a **Blood Transfer Device holder** for transfer of blood into the bottles.

➤ **PATIENT AFTERCARE:**

1. Clean the puncture site with alcohol pads to remove all traces of the iodine.
Iodine can irritate the skin if it is not removed.
2. Bandage with a pressure dressing of gauze and paper tape.
3. Instruct the patient to leave the dressing on for 15-30 minutes.
4. Inform the patient that they will be notified of test results when they are available but let them know that blood cultures can take up to 5 days before being finalized.
5. Thank the patient and ask if they have any questions regarding the blood draw.

NOTE: If two sets of blood cultures are ordered, wait at least **20 minutes between sets and draw from a different site for each set. Label each set with the site used; i.e. right arm, left arm, etc. and time of draw.**

SPECIMEN TRANSPORT TO UW LAB

1. Place each labeled blood culture bottle into a separate small bubble wrap pouch and close tightly.
2. Place paper order into the outside pouch of a room temperature biohazard bag.
3. Place both wrapped bottles into the room temp. bio bag.
4. Place this bag into another medium sized bio bag marked ROOM TEMPERATURE.
5. Insert this bag into the yellow padded send-out container marked with the clinic name and labeled "blood cultures".
6. If there are two sets of cultures for one patient, place each set into a separate bio bag.
7. Place the yellow bag with other Room Temperature samples for transport by the courier to UW lab.
8. ISOLATER 10 TUBES are placed into appropriately labeled Room Temperature Biohazard zip lock bags, with orders in the pouch, for transport to UW Lab.

NOTE: Wash hands after removing gloves and processing specimens.

REFERENCES

University of Washington, Department of Laboratory Medicine, "VersaTREK[®] REDOX[®] Media Blood Culture Collection, PowerPoint presentation June 2012

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