

Approval:

 Chief Executive Officer Date

 Chief of Staff Date

 Chief Nursing Officer Date

 Laboratory Medical Director Date

SADDLEBACK MEMORIAL MEDICAL CENTER
Policy/Procedure

SUBJECT: BLOOD CULTURE COLLECTION PROCEDURE

PURPOSE:

The detection of living micro-organisms in a patient's blood has great diagnostic importance. When bacteria multiply at a rate that exceeds the capacity of the reticuloendothelial system to remove micro-organisms, bacteremia results. The ability to identify the etiologic agent in the blood can provide the optimization of antibiotic therapy.

POLICY:

1. Specimen

1.1 Recommended Volumes for Blood Culture Venipuncture:

Age	Total Volume of Blood	Distribution
Infant - 2 yrs	1 - 2 ml (1ml Minimum)	Peds plus/F* bottle - aerobic
2 - 6 yrs	2 - 6 ml	Peds plus/F* bottle - aerobic
6 - 10 yrs	6 - 10 ml	Standard/10 Aerobic/F* and Lytic/10 Anaerobic/F*
	(distribute between the 2 bottles)	
10 yrs - Adult	16 - 20 ml	Standard/10 Aerobic/F* and Lytic/10 Anaerobic/F*
	(distribute between the 2 bottles)	

1.2 Timing of Blood Cultures

1.2.1 Draw blood according to the schedule ordered by the physician. If no specific times were indicated, blood cultures are to be drawn 15 minutes apart.

1.2.2 **Only 4 Blood Cultures are allowed to be drawn per day. Additional cultures need a pathologist's approval. If Subacute Bacterial Endocarditis is suspected more blood cultures may be ordered the following day.**

1.2.3 If the blood cultures are ordered for the same time, different sites are used and the sites must be clearly recorded on the bottles.

1.3 Rejection Criteria for Blood Cultures

- 1.3.1 Multiple cultures drawn at the same time from the same site or if sites are not specified.
- 1.3.2 Only 4 blood culture sets may be drawn per day. More may be drawn only after consultation with the pathologist.
- 1.3.3 Specimen is rejected if insufficient blood specimen is added to the blood culture bottles.
- 1.4 Blood Cultures for AFB and Fungus
 - 1.4.1 Follow the blood culture collection procedure.
 - 1.4.2 Adults - Add 10 ml of blood to an large 10ml Isolator tube (Obtain from Lab)
 - 1.4.3 Pediatric - Add 1.5 ml of blood to a small 1.5ml Pediatric Isolator tube (Obtain from Lab)

2. Reagents and Equipment

- 2.1 Sterile syringe - appropriate size for the amount of blood required according to the specimen chart.
- 2.2 Blood culture bottles:
 - 2.2.1 Aerobic: Standard/10 Aerobic/F (enriched soybean-casein digest broth with CO₂) - blue top
 - 2.2.2 Anaerobic: Bactec Lytic/10 Anaerobic/F (prereduced enriched soybean-casein digest both with CO₂) - purple top
 - 2.2.3 Aerobic: Peds Plus/F (enriched soybean-casein digest broth with CO₂ and resin) - pink top
 - 2.2.4 AFB, FUNGUS: Isolator tubes (found in Bacteriology) - contain agents which lyse erythrocytes and prevent coagulation.
- 2.3 Mediflex Chloraprep One-Step Frepp Applicator
- 2.4 Tourniquet
- 2.5 21 - 23 gauge needles (a safety butterfly set-up may be used)
- 2.6 Sterile gauze pads or cotton balls
- 2.7 Adhesive bandage or tape
- 2.8 Alcohol pads
- 2.9 Gloves

3. Quality Control

- 3.1 Aseptic techniques are utilized.
- 3.2 If blood culture bottles appeared cracked, cloudy, or unsealed, **DO NOT USE**, notify supervisor.
- 3.3 Discard bottles if they are expired.

PROCEDURE:

- 1. Select the appropriate set of blood culture bottles for the order. **See section 1.1 for the appropriate selections.**
- 2. Patient preparation
 - 2.1 Identify the patient by having the patient state their name and DOB and compare to the information listed in Lattice, computer printed labels or on a requisition and with the armband (inpatient).
 - 2.2 Explain the test to the patient.
 - 2.3 Choose the vein to be drawn by touching the skin before it has been disinfected.
 - 2.4 Release the tourniquet once the vein has been selected (keep the arm in the same position to insure the vein does not move)
 - 2.5 Clean the skin over the venipuncture site using the procedure listed below:
 - 2.5.1 Remove the Chloraprep One-Step Frepp Applicator from the package holding it by the two wings (with the sponge side down)
 - 2.5.2 Pinch the wings together to break the ampule.

- 2.5.3 Saturate the sponge with Chloraprep by gently pressing it against the treatment area.
 - 2.5.4 Using a back and forth scrubbing motion, completely wet the treatment area 30 seconds for dry sites or 2 minutes for wet/clammy sites. Allow the prepped area to dry completely. Do not blot or wipe the solution away. Discard the applicator after a single use.
3. Venipuncture
- 3.1 Reapply the tourniquet to the arm and position the arm so the vein selected is visible.
 - 3.2 Without touching the site, insert the needle into the vein and withdraw 10-20 ml of blood following procedure PL - 415.
 - 3.3 Take the blood culture bottle cap off from the top. Clean the rubber stopper with alcohol. Do not use iodine. Leave an alcohol sponge on top of bottles until inoculation.
 - 3.4 Use the BD Transfer Device to inoculate the bottles with the blood.
 - 3.5 Distribute the blood between the two bottles for the adults collections. For low volume blood < 3 ml, use Peds plus media (minimum 1.0 ml required).
 - 3.6 Mix bottles gently.
 - 3.7 Discard the tourniquet and other supplies in the appropriate containers.
4. Follow-up
- 4.1 Prior to leaving the bedside, label the blood culture bottle(s) with the patient's full name, hospital number, date/time drawn, **site of draw** and RN's initials or venipuncturist's computer code. **(Make sure the bottle's barcode labels are not covered by applied patient labels)**
 - 4.2 **Record the site** where the specimen is obtained on the bottle (i.e. LAC, RAC, Art Line, PICC line, etc.) for each set of blood cultures.
 - 4.3 Place each set of blood cultures in a biohazard bag and seal the bag.
 - 4.4 Deliver the bottles or tubes to the Laboratory as soon as possible. (Bottles are easily broken in the tube system so it is preferred that they be hand delivered to the lab)
 - 4.5 Upon receipt in the Lab, the laboratory will verify the collection of the blood culture in the computer and log in the blood culture in Microbiology (MSU).

REFERENCES/AUTHORITY:

Phlebotomy Handbook, 5th Edition, Diana Garza and Kathleen Becan-McBride, 2010

Bactec Systems - Becton-Dickenson

Clinical and Laboratory Standards Institute: Principles and Procedures for Blood Cultures: Approved Guidelines: M47A, May 2007

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