Blood Culture Collection Including Fungal and Acid-Fast Blood Cultures

Blood cultures are performed to detect and identify bacteria that may be present in a patient's blood stream. Once identified, bacteria are tested for susceptibility to different antibiotics.

Number and Timing of Specimens

When multiple blood cultures are ordered, they are collected at **no less than** hourly intervals, unless specified otherwise. Three cultures in a 24-hour period, or 4 to 6 cultures in a 48-hour period are usually sufficient. The physician may choose to alter this pattern based on clinical indications and urgency to begin antimicrobial therapy.

Specific recommendations are outlined below for systemic and localized infections:

- In suspected acute sepsis, meningitis, osteomyelitis, arthritis, or acute untreated bacterial pneumonia, obtain 2 blood cultures (from 2 separate venipuncture sites) before starting therapy.
- Initially, for fever of unknown origin, obtain 2 separate blood cultures; 24 to 36 hours later, obtain 2 more just before the expected (usually afternoon) temperature elevation.
- For suspected bacterial endocarditis:
  - —Acute: obtain 3 blood cultures with 3 separate venipunctures during the first 1 to 2 hours of evaluation, and begin therapy.
  - —Subacute: obtain 3 blood cultures on day 1 (ideally 15 minutes or more apart). If all are negative 24 hours later, obtain 3 more. From undiagnosed patients who have received antimicrobial agents 1 to 2 weeks before admission, obtain 2 separate blood cultures on each of 3 successive days.

General Considerations

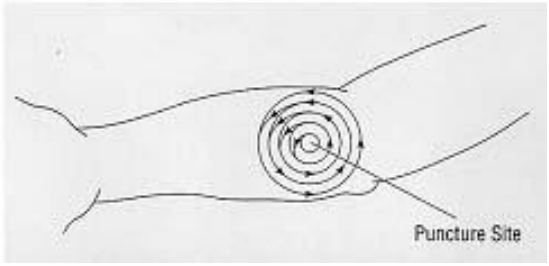
It is necessary to obtain at least 15 mL to 20 mL of blood from an adult for each blood culture ordered; 1 mL to 5 mL is sufficient for infants and children.

- Each culture ordered on an adult should include 1 aerobic and 1 anaerobic bottle.
- Blood for culture should not be collected through a heparin lock, since heparin may exert antimicrobial activity.
- When blood cultures for acid-fast or fungus are ordered, a Myco/F Lytic bottle must be drawn.

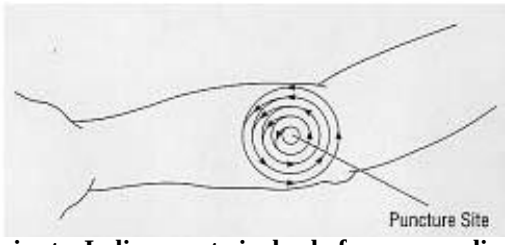
Specimen Collection

1. Prepare blood culture bottles prior to collection. Remove seal from top of each blood culture bottle. Apply iodine to rubber stopper at top of each bottle and cover with an alcohol pad until ready to inoculate. Avoid pooling of iodine. Inoculating through liquid iodine may inhibit bacterial growth inside culture bottle.

2. Select vein to be drawn by palpating site before it is disinfected. Disengage tourniquet once vein is located.
3. Cleanse site vigorously with 70% alcohol, using an ever-widening circular motion. Do not physically dry area with gauze or cotton.



4. Cleanse site with a 7.5% povidone iodine swab or a 2% iodine tincture SEPP® using an ever-widening circular motion. Scrub area for a minimum of 30 seconds.



5. Allow iodine to remain on skin for **at least 1 minute**. **Iodine must air dry before proceeding to next step.**
6. Prepare syringe and needle utilizing an aseptic technique. Do not touch end of luer-tip on syringe. Do not touch hub of needle. Attach needle to syringe making sure that nothing touches any part of the equipment that will come into contact with the specimen. Reapply tourniquet.
7. Perform venipuncture utilizing a syringe, and draw out appropriate volume of blood. Maintain aseptic technique at all times. Do not re-palpate venipuncture site (where needle will enter skin). It is acceptable to palpate above or below intended puncture site. Remove tourniquet. Be careful when removing needle from puncture site. **Do not** touch needle with gauze as needle is removed.
8. Remove safety needle from syringe after safety feature has been activated.
9. Attach a blood transfer device. Use aseptic technique when removing needle and attaching blood transfer device. Leave blood transfer device in its sterile packaging until it is needed.
10. Inoculate: (1) Myco/F Lytic bottle (if an acid-fast or fungal culture is ordered), (2) anaerobic bottle, (3) aerobic bottle. Mix well utilizing a swirling motion.
11. Re-cleanse area surrounding puncture site with alcohol to remove any remaining iodine solution.
12. After inoculation, record volume of blood inoculated into each culture bottle.
13. Label specimens appropriately with date and time drawn and amount of blood each bottle was inoculated with.

Required Specimen Volumes

- *Neonatal/Pediatric (Birth-3 years old)*
  - —Blood culture: 0.5 mL to 3 mL in a pediatric aerobic culture bottle; attempt to obtain 1 mL per each year of age.
  - —Acid-fast blood culture: 0.5 mL to 3 mL in a Myco/F Lytic culture bottle; attempt to obtain 1 mL per each year of age.
  - —Fungal blood culture: 0.5 mL to 3 mL in a Myco/F Lytic culture bottle; attempt to obtain 1 mL per each year of age.
- *Pediatric (3 years old-5 years old)*
  - —Blood culture: at least 4 mL to 5 mL in an adult anaerobic bottle, **and/or** 3 mL in a pediatric aerobic culture bottle.
  - —Acid-fast blood culture: 3 mL in a Myco/F Lytic culture bottle.
  - —Fungal blood culture: 3 mL in a Myco/F Lytic culture bottle.
- *Pediatric (5 years old-8 years old)*
  - —Blood culture: at least 5 mL to 8 mL in an adult anaerobic bottle **and** 1 mL to 3 mL in a pediatric aerobic culture bottle.
  - —Acid-fast blood culture: 3 mL in a Myco/F Lytic culture bottle.
  - —Fungal blood culture: 3 mL in a Myco/F Lytic culture bottle.
- *Adult (9 years and older)*
  - —Blood culture: 8 mL to 10 mL in an adult anaerobic bottle **and** 8 mL to 10 mL in an adult aerobic bottle (Both bottles are required for the culture "set.").
  - —Acid-fast blood culture: 3 mL to 5 mL in a Myco/F Lytic culture bottle.
  - —Fungal blood culture: 3 mL to 5 mL in a Myco/F Lytic culture bottle.