Guidelines for Obtaining Initial Blood Cultures from a Patient with Suspected Bacteremia/Fungemia:

- The clinical situation in which initial blood cultures are indicated is any patient with symptoms and signs suggesting an infection with bacteremia, sepsis, or fungemia.

- Initial blood cultures are defined as those from patients who have not already had blood cultures drawn and have not been on antimicrobial therapy.

- Blood cultures should be obtained only if there is a reasonable expectation that bacteremia, sepsis, or fungemia is present; “standing orders” for blood cultures (e.g., “Blood culture x 2 for temp > 101”) are unacceptable.

- Obtaining blood cultures from patients with a low probability of bacteremia is less cost effective and may confuse the clinical picture due to contaminants.

- If initial blood cultures are indicated, see “Instructions for Obtaining Blood Cultures”.

- For repeat blood cultures, see “Guidelines for Repeat Blood Cultures from a Patient who either has already had Blood Cultures Drawn and/or is already being Treated for Suspected or Diagnosed Infection”.

Guidelines for Obtaining Repeat Blood Cultures from a Patient who either has Already had Blood Cultures Drawn and/or is Already being Treated for Suspected or Diagnosed Infection:

- After initial blood cultures have been drawn, do not obtain additional sets of blood cultures until the results of the first 2 sets of blood cultures are available.

- Pending blood culture reports are listed in MARS under “Pending” and not under “Microbiology”. Be sure to select “Pending” to confirm that the blood cultures have been received and are being incubated. When positive, the final results are listed under “Microbiology”.

- Positive blood cultures in which the isolate represents a pathogen are almost always positive within the first 24-48 hours.

- Remember that once empirical antimicrobial therapy has been initiated, the yield of blood cultures is both reduced and delayed.

- Follow the clinical course of the patient closely for the first 72 hours after obtaining blood cultures and any response to antimicrobial therapy.

- The fever curve is more clinically relevant as an indicator of response to antimicrobial therapy if antipyretic use is avoided or reduced.

- If the clinical course of the patient remains stable or improves over the first 72 hours after obtaining blood cultures, usually no additional sets of blood cultures are needed.

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• Minor changes such as an evening fever in a patient being treated or a post bronchoscopy fever usually do not require additional blood cultures.

• If the patient has an abrupt change over this time, an additional 2 sets of blood cultures might be needed.

• Abrupt changes include:
  - Suspected superinfection as evidenced by resumed/new fever
  - Hypotension
  - ARDS

**Instructions for Obtaining Blood Cultures**

• Quickly obtain 2 sets of blood cultures using 2 different venipuncture sites.

• Be sure to use ChloraPrep® Sepp® (chlorhexidine gluconate 2% and isopropyl alcohol 70%) applicators for approximately 30 seconds to prep the skin; allow the area to air dry for approximately another 30 seconds. Do not blot or wipe away.

• Each set for adults should be at least 20mL of blood with 10mL of this blood being placed in each of 2 bottles (anaerobic and aerobic bottles; ignore the 5-7 ml suggested volume on the anaerobic bottle).

• For children, each set consists of 1-5mL of blood that is placed in a special pediatric bottle (Peds Plus Bottle).

• A third set of blood cultures for adults or children should be drawn only if an endovascular focus is suspected.

• It is best that blood cultures are not obtained through intravascular lines as these lines often become colonized and result in false-positive blood cultures.

• For certain patient populations, an intravascular line may be a source of bacteremia, and a set of blood cultures may be obtained from the line to assess this possibility; such a set of blood cultures may be paired with a set of blood cultures obtained through a venipuncture site.

• If it is physically impossible to obtain blood cultures through a venipuncture, or an intravascular line infection is suspected, a qualified health care worked may obtain one set of blood cultures through an intravascular line.

• The procedure for obtaining blood cultures from intravascular lines is as follows:
  - Use ChloraPrep® Sepp® to prep the port – allow ChloraPrep® Sepp® solution time to dry.
  - Flush out with 5-10 ml of sterile saline.
  - Aspirate and discard an equal amount to that used for flush.
  - Aspirate blood for blood culture.

• Another set of blood cultures may be drawn through a venipuncture site if desired.

• If a venipuncture is not possible, a qualified health care worker may use a different intravascular line than the first line used in order to obtain a second set of blood cultures.
ALGORITHM FOR OBTAINING BLOOD CULTURES

The clinical situation in which blood cultures are indicated is any patient with symptoms and signs suggesting an infection with bacteremia, sepsis, or fungemia. Blood cultures should be obtained only if there is a reasonable expectation that bacteremia, sepsis, or fungemia is present. Obtaining blood cultures from patients with a low probability of bacteremia (e.g., cellulitis) is not cost effective and may confuse the clinical picture due to contaminants. If blood cultures are indicated, use the following approach.

Quickly obtain 2 blood cultures using 2 venipunctures. Do not obtain blood cultures through intravascular lines as these lines often become colonized and result in false-positive blood cultures. If it is physically impossible to obtain blood cultures through a venipuncture, a physician may obtain one blood culture through an intravascular line. If empirical antimicrobial therapy is required by the clinical situation, initiate this therapy with appropriate antibiotics based on the most likely pathogen(s). Do not obtain additional blood cultures until the results of the first blood cultures are available. Positive blood cultures in which the isolate represents a pathogen are almost always positive within the first 24-48 hours. Follow the clinical course of the patient closely for the first 72 hours after obtaining blood cultures and note any response to antimicrobial therapy.

If the clinical course of the patient remains stable or improves over the first 72 hours after obtaining blood cultures, no additional blood cultures are needed. If the patient has an abrupt change over this time, an additional 2 blood cultures might be needed on day 2 and day 3. Remember that if the patient is receiving antibiotics, the yield of blood cultures is both reduced and delayed. Most patients need only 2 blood cultures on day 1.

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