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Policy Number: 1951
Manual Name: Infection Prevention
Policy Name: Blood Culture Indication
Guideline
Approved By: VP, Quality
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Blood Culture Indication Guideline

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Policy Type

- Entity Governance Policy
- Entity Policy
- Entity Departmental Policy
- System Governance Policy
- System Policy
- System Departmental Policy
- Home Office Policy

Policy Scope

- Home Office (Summa Health System)
- Summa Health Network
- Summa Physicians, Inc
- Summacare
- Akron City & St Thomas Hospital
- Barberton Hospital
- New Health Collaborative
- Department: _____
- Summa Health System (includes all other entities)

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1.0 Purpose:

- 1.1 To summarize and provide additional guidance to healthcare workers for ordering blood cultures.
- 1.2 To reduce unnecessary cultures thereby reducing increased length of stay and costs.

2.0 Scope:

- 2.1 Summa Health System

3.0 Definitions:

- 3.1 None

4.0 Policy:

- 4.1 Blood cultures are recommended in syndromes with a high likelihood of bacteremia (endovascular infections), fungemia, or when prompt initiation of antibiotics is needed.
- 4.2 Major Criteria/Indications for ordering an Initial Blood Culture
 - 4.2.1.1 Prior to initiation of antimicrobial therapy for any patient with suspicion of bacteremia or fungemia.
 - 4.2.1.2 Epidural abscess
 - 4.2.1.3 Ventricular shunt
 - 4.2.1.4 Febrile neutropenia
 - 4.2.1.5 Endocarditis
 - 4.2.1.6 Sepsis/Septic Shock (Temp > 100.4°F or < 96.8°F, HR > 90, RR > 22, WBC > 12,000 or < 4,000, bands > 10% plus suspected bacterial infection)
 - 4.2.1.7 Septic arthritis
 - 4.2.1.8 Meningitis
 - 4.2.1.9 Osteomyelitis
 - 4.2.1.10 Peritonitis
 - 4.2.1.11 ICU patient with pneumonia, cellulitis, skin/soft tissue infections, or necrotizing fasciitis
 - 4.2.1.12 Consider for new fever of unknown origin (patient with unexplained fever > 100.4° F that may be intermittent but lasting for > 3 weeks).
 - 4.2.1.13 Intravenous drug abuse
 - 4.2.1.14 Infected indwelling vascular catheter with redness, drainage, warmth, swelling, or pain at site; uncapped lumens; or soiled/missing dressing present on admission
- 4.3 Order follow-up Blood Cultures in patients with:
 - 4.3.1 Bacteremia with the exception of gram-negative bacteremia due to simple or uncomplicated urinary source.
 - 4.3.2 Bacteremia due to *Staphylococcus aureus* or *Staphylococcus lugdunensis*
 - 4.3.3 Bacteremia due to *fungemia*.
 - 4.3.4 Recent intravascular device or catheters.
 - 4.3.5 Catheter-related bloodstream infection after infected catheter replacement or removal.
- 4.4 Consider follow-up blood cultures in patients with
 - 4.4.1 Presence of fever, leukocytosis more than 72 hours, or unknown source following initiation of pathogen directed therapy.

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- 4.4.2 Known or suspected site of infection with limited antimicrobial penetration (abscess or joint space infection).
 - 4.4.3 Presumed source of infection in central nervous system bacteremic meningitis.
 - 4.4.4 Presence of pathogens known or suspected be resistant to standard antibacterial agents (CRE, MDR Acinetobacter, and Pseudomonas).
 - 4.4.5 Repeat blood cultures for a single positive blood culture with skin flora (ex. Coagulase-negative Staphylococci) is not necessary in an immunocompetent patient unless bacteremia or an infected prosthesis or intravascular device is suspected
 - 4.5 Assess patients for primary source of infection and culture these sites if able.
 - 4.5.1.1 Wounds
 - 4.5.1.2 Abscesses
 - 4.5.1.3 Purulent drainage
 - 4.6 Studies have shown the following conditions rarely support obtaining blood cultures: fever developed in the first 48 hours after surgery, non-severe community associated pneumonia (CAP), cystitis/prostatitis, and non-severe purulent or non-purulent cellulitis
 - 4.7 **DO NOT** Repeat blood cultures for suspected viral infection.
 - 4.8 **DO NOT ORDER** blood cultures for WBC count alone.
 - 4.9 **DO NOT ORDER** blood cultures for increased temp alone.
 - 4.10 **DO NOT ORDER** blood cultures every time a patient has a fever without considering whether
 - 4.11 a blood culture is indicated.
 - 4.12 **DO NOT REPEAT** if blood cultures have been collected in the previous 72 hours without growth or clear clinical change.
 - 4.13 **DO NOT REPEAT** blood cultures on patients with gram-negative bacteremia due to “simple or uncomplicated urinary source”.
- 5.0 **Procedure:**
- 5.1 See Blood Culture Indications Algorithm.
 - 5.2 Clinical practice guidelines are guidelines intended to assist the provider.
 - 5.3 Two sets of blood cultures should be ordered at a time (avoid ordering single sets of blood cultures).
- 6.0 **Responsibilities and Authorities:**
- 6.1 It is the responsibility of the Infection Prevention and Control department to review this policy every 3 years for appropriateness. The policy will undergo review and approval via the Infection Prevention and Control Committee.
- 7.0 **Records:**
- 7.1 Reviews and associated documents are maintained in accordance with the System policy.
- 8.0 **References:**
- 8.1 Fabre, V., Sharara, S. L., Salinas, A. B., Carroll, K. C., Desai, S., & Cosgrove, S. E. (2020). Does This Patient Need Blood Cultures? A Scoping Review of Indications for Blood Cultures in Adult Nonneutropenic Inpatients. *Clinical infectious diseases: an official publication of the Infectious Diseases Society of America*, 71(5), 1339–1347. <https://doi.org/10.1093/cid/>
- 9.0 **Key Words or Aliases:** Blood Culture, Bacteremia, Fungemia

Blood Culture Indications

Order Blood Cultures if patient meets ANY of the following criteria:

- Prior to antimicrobial therapy for suspected bacteremia or fungemia
- Febrile Neutropenia
- Endocarditis
- Sepsis/Septic Shock
- Septic Arthritis
- Meningitis
- Osteomyelitis
- Epidural abscess
- Peritonitis
- IV Drug Abuse
- Ventricular shunt
- ICU patient with the following:
 - Pneumonia
 - Skin/soft tissue infection
 - Necrotizing fasciitis
- Fever of unknown origin (> 100.4 lasting > 3 weeks)
- Infected indwelling vascular catheter with redness, drainage, warmth, swelling or pain at site; uncapped lumens; or soiled/missing dressing present on admission

Consider Follow-Up Blood Cultures for:

- Known or suspected endocarditis
- Bacteremia with the exception of gram-negative bacteremia due to simple or uncomplicated urinary source
- Staph aureus or Staph lugdunensis bacteremia
- Fungemia
- Presence of fever, leukocytosis more than 72 hours or unknown source following initiation of pathogen directed therapy
- Known or suspected site of infection with limited antimicrobial penetration to abscess or joint space
- Catheter-related bloodstream infection after infected catheter replacement or removal

DO NOT Order Blood Cultures for the following:

- Increased WBC count alone
- Increased temperature alone
- Suspected viral infection
- If blood cultures have been collected in the previous 72 hours without growth or clear clinical change

Assess for presence of wounds, abscesses and or purulent drainage. If present, MUST culture these sites at time of ordering blood cultures.
 Order abdominal GI imaging as indicated.