

INDICATIONS FOR BLOOD CULTURES (BCx) IN ADULT NON-NEUTROPENIC PATIENTS



Fabre V et al. Clin Infect Dis. 2020 Aug 22;71(5):1339-1347.

BCx being considered for symptoms/signs of infection including fever or leukocytosis

Patient is clinically unstable with severe sepsis/septic shock

BCx NOT RECOMMENDED

Negative blood cultures within last 48 hours

BCx RECOMMENDED
Draw 2 peripheral sets

• Obtain BCx based on pretest probability of bacteremia
• Evaluate for source control

High (>50%)

Intermediate (≥10% and <50%)

Low (<10%)

Examples:

- IE/endovascular infection[‡]
- Catheter-associated bloodstream infection
- Discitis/native VO
- Epidural abscess
- Meningitis
- Nontraumatic native septic arthritis
- Ventriculoatrial shunt infections

Examples (intermediate):

- Acute pyelonephritis
- Cholangitis
- Non-vascular shunt infections
- Prosthetic VO
- Severe CAP (PSI V and IV)
- Shaking chills

Examples (low—intermediate):

- Cellulitis in patients with comorbidities^{††}
- VAP

Examples (low):

- Isolated fever without chills and/or leukocytosis
- Non-severe cellulitis
- Lower UTI (e.g., cystitis, prostatitis)
- Non-severe CAP, HCAP

Examples (very low):

- Post-operative fever within 48 hours of surgery

BCx RECOMMENDED
Draw 2 peripheral sets

• Is the patient at risk of endovascular infection?
• Is the primary site of infection *not* readily available for culture prior to antibiotic initiation?
• Are BCx results otherwise likely to impact management?

BCx NOT RECOMMENDED

BCx being considered to document clearance of bacteremia

Is the follow-up BCx to document clearance of bacteremia for any of the following?

- *S. aureus*, *S. lugdunensis*, Enterococcus[†] bacteremia
- Candida fungemia
- Bacteremia in a patient with suspected endovascular infection[‡] OR patient at risk for endovascular infection^{||}
- Catheter-related bloodstream infection before catheter replacement

BCx RECOMMENDED
Draw 2 peripheral sets within 48 hours of initial BCx

Viridans group Streptococcus:
Careful evaluation of clinical scenario and risk factors for for IE

- Concern for persistent bacteremia (lack of source control, lack of clinical improvement, ineffective therapy)
- Single positive BCx with skin flora in symptomatic patients including those with prosthesis[‡] or intravascular catheter^{**}

BCx RECOMMENDED
Draw 2 peripheral sets

BCx NOT RECOMMENDED

Figure Footnote

Algorithm of indications for bacterial blood cultures for non-neutropenic patients. The algorithm is not a substitute for clinical judgment.

* Blood culture (BCx) required by US Centers for Medicare and Medicaid Services severe sepsis criteria of the Severe Sepsis and Septic Shock Early Management Bundle.

† A single set of BCx for Enterococcus in patients without valvular heart disease and no urinary retention/obstruction that would predispose patients to bacteremia may not need repeat BCx.

‡ Endovascular infection: Septic thrombophlebitis, infected endovascular thrombi, implantable cardioverter defibrillator (ICD)/pacemaker lead infections, intravascular catheter infections, and vascular graft infections.

|| Patients at risk of endovascular infection: ICD/pacemaker, vascular graft, prosthetic valves and prosthetic material used for cardiac valve repair, history of infective endocarditis, valvulopathy in heart transplant recipient, unrepaired congenital heart disease, repaired congenital heart disease with residual shunt or valvular regurgitation, or within the first 6 months post-repair.

£ Prosthesis: Orthopedic or intravascular prosthesis.

** Routine additional follow-up BCx for a single BCx with skin flora (eg, coagulase-negative staphylococci) in an immunocompetent patient are not necessary unless bacteremia is suspected or a prosthesis is present.

†† Cellulitis in patients with comorbidities: Immunocompromised hosts or those at risk of poor outcomes from sequelae from missed *Staphylococcus aureus* bacteremia.

Abbreviations: BCx, blood culture; CAP, community-acquired pneumonia; HCAP, healthcare-associated pneumonia; PSI, Pneumonia Severity Index; *S. aureus*, *Staphylococcus aureus*; *S. lugdunensis*, *Staphylococcus lugdunensis*; UTI, urinary tract infection; VAP, ventilator-associated pneumonia; VO, vertebral osteomyelitis.

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