# Blood Culture Shortage Guidelines

*Revised 7.3.24*

UCSF Clinical Laboratories, UCSF Adult Antimicrobial Stewardship, UCSF Pediatric Antimicrobial Stewardship, UCSF Healthcare Epidemiology and Infection Prevention

The severe national shortage of blood culture bottles utilized at UCSF Medical Center continues and with the current supply we have on hand, we will exhaust the UCSF supply of blood culture which would impact patient care. This guidance is designed to focus blood culture ordering on situations where they are highest yield and likely to affect management.

Blood culture orders will default to one set of cultures (i.e., one aerobic and one anaerobic bottle). Additional blood cultures ordered within 48 hours will be limited to specific clinical indications. This guidance goes into effect today, July 3, 2024

## Table of Contents



## Summary Table

|  **Do not check blood cultures** |  **One blood culture set only** |   **Two blood culture sets** |
|---|---|---|
| Repeat cultures within 72 hours unless patient clinically unstable | All other patients, including neonates/pediatric patients | Patients with severe sepsis/septic shock |
| Pneumonia or non-severe cellulitis in immunocompetent hosts | | Suspicion of endocarditis or endovascular infection* |
| Lower urinary tract infection (cystitis or prostatitis) | | Initial presentation of patients with neutropenic fever |
| Isolated fever or leukocytosis in a stable patient without neutropenia | | Clearance of bacteremia for specific situations below |
| Postoperative fever within 48 hours of surgery | | Necrotizing skin/soft tissue infection |
| Blood cultures without a blood culture order placed (“holds”) | | |

*Patients at risk for endovascular infection include: ICD/pacemaker, vascular graft, prosthetic valves or material used for cardiac valve repair, historic of endocarditis, valve disease in a heart transplant recipient, unrepaired congenital heart disease, or repaired congenital heart disease with residual shunt or regurgitation or in the first 6 months post-repair

*For patients with a central venous catheter, the single blood culture set should be collected as a peripheral draw. If line cultures are needed, only collect from a single lumen*

## Avoid obtaining blood cultures altogether in the following scenarios:

*Blood cultures are rarely positive in these scenarios, and are unlikely to affect management*

- Repeat cultures within 72 hours if clinically stable
- Pneumonia
- Non-severe cellulitis in immunocompetent hosts
- Lower urinary tract infection (cystitis or prostatitis)
- Isolated fever or leukocytosis in a stable patient without neutropenia
- Postoperative fever within 48 hours of surgery
- Blood cultures without a blood culture order placed ("holds")
- Viral syndrome in patients >60 days of age

## Order one set of blood cultures only in most situations

**In most scenarios, other than those detailed above and below, one set of blood cultures is sufficient.** This intervention is focused on preserving supply of blood cultures for patients who need them most and in whom they are most likely to affect clinical management

## Two sets of cultures recommended:

**Collect two sets of blood cultures in these specific situations**

- Patients with severe sepsis/septic shock
- Suspicion of endocarditis or endovascular infection*
- Initial presentation of neutropenic fever
- Clearance of bacteremia for specific pathogens only, see below

## Clearance of Bacteremia recommendations

**Ok to collect two sets of blood cultures for clearance of bacteremia for these specific infections (should be collected 48-72 hours from last blood cultures)**

- patients with *Staphylococcus aureus*, *Staphylococcus lugdunensis*, and *Candida* bloodstream infections
- Patients with suspected endovascular infection or patients at risk for endovascular infection*
- patients with catheter related bloodstream infection awaiting catheter replacement
- concern for persistence of bacteremia in the absence of source control

*Patients at risk for endovascular infection include: ICD/pacemaker, vascular graft, prosthetic valves or material used for cardiac valve repair, historic of endocarditis, valve disease in a heart transplant recipient, unrepaired congenital heart disease, or repaired congenital heart disease with residual shunt or regurgitation or in the first 6 months post-repair

## Additional considerations for pediatric patients

1. Follow BRIGHTstar collaborative guidelines for PICU, shared cross-bay.
2. Follow guidelines for Fever in Patients Receiving Cancer Therapy and/or Hematopoietic Transplantation
3. Patient with multiple line lumens and has already had cultures at onset, that are no growth - any repeat cultures even if clinically indicated, only do from 1 lumen.
4. Avoid blood cultures when low likelihood of bacteremia
    a. Fever within the expected time course for identified viral infection
    b. Persistent fever in a patient with or without an identified bacterial non-bloodstream infection AND blood culture obtained within the last 48 hours which is negative to date
    c. Identified non-infectious source of fever (dysautonomia, post-operative fever)
    d. Uncomplicated infections with low risk for bacteremia such as uncomplicated community-acquired pneumonia and skin-soft tissue infections

## Collection of Blood Cultures

The utility of our cultures is maximized when they are collected appropriately. This minimizes the chance of contaminants and increases the sensitivity for detection of pathogens

1. Disinfect skin well
2. Fill blood cultures to the required volume of 10cc. Do not over or under fill
3. Body fluids other than blood (i.e. pleural or peritoneal fluid) should NOT be inoculated into blood culture bottles, use other collection media
4. Do not collect blood cultures if they have not been ordered (“holds”)

Note that above recommendations serve as a guideline only and should not replace clinical judgement. Thank you for your collaboration in optimizing your ordering of blood cultures in order to preserve our institutional supply. We will continue to communicate with you as we receive updated information from the manufacturers.

References:

Valeria Fabre, Sima L Sharara, Alejandra B Salinas, Karen C Carroll, Sanjay Desai, Sara E Cosgrove, Does This Patient Need Blood Cultures? A Scoping Review of Indications for Blood Cultures in Adult Nonneutropenic Inpatients, *Clinical Infectious Diseases*, Volume 71, Issue 5, 1 September 2020, Pages 1339–1347, https://doi.org/10.1093/cid/ciaa039