



PICU Blood Culture Decision Guidance

This algorithm is for use in the PICU only



Provider (MD, NP) to fill out form. And drop off in: Oakland- resident work room SF- main desk



- Examine the patient
- Review relevant clinical data
- Discuss with the bedside nurse

Guidelines are intended to assist with clinical decision-making but cannot replace evaluation and management decisions based on specific patient factors and assessment

V.2
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Do you have concerns for sepsis?
Suspected infection with clinical instability or suspected infection with evidence of organ dysfunction

No

Does your patient have new fever, ongoing fever, or other concerning sign/symptoms?

New Fever (afebrile for >=2 days)

Ongoing Fever (febrile in the past 48 hrs)

Afebrile

Is patient Immunocompromised OR <=60 days old?

Is patient immunocompromised OR <=60 days old OR is there a plan to broaden antimicrobials?

Concern for infection based on patient characteristics such as autonomic instability/ impaired thermoregulation and/or possible bacteremia from a known/suspected primary infection (ex: intrabdominal, PNA, MSK, CNS infection?)

Yes, obtain blood cultures
See next page for additional recommendations

No, does patient fit into any of these criteria?

- Concern for withdrawal
- Within 24 hrs post-op
- Known autonomic instability/impaired thermoregulation (ex: ECLS, CRRT)
- Clinical/lab findings of viral syndrome (ex: bronchiolitis)

Yes, defer blood cultures

No, obtain blood cultures
See next page for additional recommendations

Yes, obtain blood cultures
See next page for additional recommendations

No, does the patient fit into any of these criteria?

- Suspected noninfectious cause (ex: withdrawal autonomic instability/ impaired thermoregulation (ex: ECLS, CRRT), and if CVC present, blood cultures obtained, and negative, since start of fever
- Viral syndrome (ex: bronchiolitis) with expected fever course, and if CVC present, blood cultures obtained, and negative, since start of fever
- Known localized bacterial infection (ex: PNA) with fever likely from this infection and if CVC present negative blood cultures within 48 hrs

Yes, defer blood cultures

No, obtain blood cultures
See next page for additional recommendations

Yes, obtain blood cultures
See next page for additional recommendations

No, defer blood cultures

Additional Considerations

Culture for asymptomatic patient after a CVC disconnect or break? → Do not obtain routine surveillance cultures

Culture for asymptomatic patient on CRRT or ECLS* (review with ECMO team)? → Do not obtain routine surveillance cultures

Patient with known bacteremia/fungemia to document clearance → Yes, obtain blood cultures
If considering catheter salvage, re-culture every positive lumen daily until negative for 48hrs



Important information on page 2

Recommendations and Definitions

Definition of Immunocompromised¹ includes:

- Receiving current chemotherapy for malignancy, including but not limited to chemotherapy within the last 6 months, any oral anti-cancer agent, and immunotherapy with check point inhibitor or equivalent
- Hematologic malignancy
- Untreated HIV infection and CD4 T lymphocyte count < 200
- Primary severe immunodeficiency disorders
- Solid organ transplant recipient
- Hematopoietic stem cell (bone marrow) transplant recipient within the last 2 years
- CAR-T therapy within the last 2 years
- Receipt of prednisone of 20 mg/day (adult patients) and 1mg/kg/day (pediatric patients) or the equivalent for more than 14 days, or treatment with other high-risk immunosuppressive medications as determined by the clinical team
- Other conditions as defined by treating provider

DTTP (Differential time to positivity)²: for patients with concerns for sepsis, do not delay antimicrobials if >2 attempts and unable to obtain peripheral sample. DTTP defined as pathogen growth at least 2 hours earlier from catheter versus paired peripheral blood cultures (simultaneously drawn, with equal blood volume). Use the DTTP order set in APeX.

Recommendations for blood cultures for patients with central venous catheters and no signs of sepsis:

1) IMMUNOCOMPETENT

- For **NEW or PERSISTENT fever**, culture 1 lumen of CVC and consider 1 peripheral venipuncture every 24hrs

2) IMMUNOCOMPROMISED

- For **NEW fever**, culture all lumens of CVC that are able to be accessed (if on pressors, do not culture that lumen) and consider DTTP
- For **PERSISTENT fevers**, without signs of sepsis, if initial set of blood cultures from all lumens of CVC:
 - **were NOT obtained**, culture all lumens of CVC that are able to be accessed (if on pressors, do not culture that lumen) and consider DTTP
 - **were obtained and negative to date, if:**
 - patient has a new clinical decompensation OR plan to broaden antimicrobials, culture one lumen of CVC, OR
 - patient otherwise clinically stable and no plan to broaden antimicrobials, culture one lumen of CVC daily (alternate lumens if possible) for the first 72hrs of fever and then space out to q48hrs

General Recommendations:

- Do NOT obtain blood cultures from existing peripheral IVs or arterial catheters:

1. CDC: <https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/people-who-are-immunocompromised.html>
2. Clinical Practice Guidelines for the diagnosis and management of intravascular catheter-related infections:2009 update by IDSA. Mermel et al., Clinical Infectious Diseases, 2009 (<https://doi.org/10.1086/599376>)