

## **Checklist for Pediatric Blood Culture Collection (Indication)**

### **Prerequisites**

- This checklist is intended for pediatric patients, excluding those admitted to the NICU.
- It outlines the minimum requirements for collecting blood cultures from pediatric patients. Additional items deemed necessary by each medical institution can be added as appropriate (although this checklist may help prevent excessive blood culture collection).
- The checklist is revised when new evidence is gathered.

### **Q1. When to collect blood cultures in pediatric patients?**

#### **1. When blood cultures should be collected regardless of body temperature:**

- There is a high possibility of concomitant bacteremia in the following suspected diseases: (bacterial meningitis, osteomyelitis, arthritis, and infective endocarditis)
- Suspected sepsis based on two or more of the following criteria:
  1. Tachypnea
  2. Low blood pressure
  3. Altered consciousness
  4. Tachycardia

#### **2. When blood cultures should be collected if patients have a fever or hypothermia**

Collect if any of the following apply:

- Under 1 month of age
- Under 3 months of age, with no upper respiratory symptoms and no history of vaccination within the last 24 hours
- Under 3 years of age, unvaccinated against Hib or pneumococcus or received only one dose
- Patients with central venous catheter insertion (CVC, PICC, and other vascular access)

- Patients with peripheral venous catheter insertion present with symptoms such as redness, pus, or phlebitis at the insertion site.
- Known focus of infection not improving despite antibiotic treatment.
- Immunocompromised patients (primary immunodeficiency and use of immunosuppressive medications)
- Febrile neutropenia
- Fever of unknown origin
- “The parent reports that the child is different than usual” / “Healthcare provider senses something is wrong”

**Q2. When are multiple sets of blood cultures necessary in pediatric patients?**

**1. When multiple sets of blood cultures should be collected regardless of body temperature:**

- There is a high possibility of concomitant bacteremia in the following suspected diseases: (bacterial meningitis, osteomyelitis, arthritis, and infective endocarditis)
- Suspected sepsis based on two or more of the following criteria:
  1. Tachypnea
  2. Low blood pressure
  3. Altered consciousness
  4. Tachycardia

**2. When multiple sets of blood cultures should be collected if patients have a fever or hypothermia**

Collect if any of the following apply:

- Patients with central venous catheter insertion (CVC, PICC, and other vascular access)
- Patients with peripheral venous catheter insertion present with symptoms such as redness, pus, or phlebitis at the insertion site.
- Known focus of infection not improving despite antibiotic treatment.
- Immunocompromised patients (primary immunodeficiency, taking immunosuppressive medication) suspected of having an infection

- Febrile neutropenia
- Fever of unknown origin

**Q3. When is anaerobic culture necessary in pediatric blood cultures?**

Collect if any of the following apply:

- Suspected complicated intra-abdominal infections (including postoperative infections)
- Suspected deep-organ abscess
- Fever in patients undergoing catheter insertion for short bowel syndrome
- Suspected infections in immunocompromised patients
- Febrile neutropenia

## **Checklist for Pediatric Blood Culture Collection (Method)**

### **Prerequisites**

- There is limited evidence regarding the optimal volume and number of sets of blood cultures for pediatric patients.
- This checklist does not aim for ideal recommendations, but provides recommendations applicable to actual clinical practice.
- Clean procedures focus on minimum requirements for use in clinical settings.

### **Q4. How much volume should be collected?**

Volume per Bottle:

- Pediatric Aerobic Bottle: 3-4 mL
- Adult Aerobic Bottle: 10 mL
- Adult Anaerobic Bottle: 10 mL

*Note:* Always confirm the recommended volume for each bottle and aim to collect up to the upper limit of the optimal volume specified.

The higher the collection volume, the better the sensitivity. Strive for the upper limit of the optimal volume specified for each bottle. If a sufficient volume cannot be obtained, ensure at least 1 mL is collected.

- Pediatric bottles that are effective with smaller blood volumes are preferred.
- The volume collected in a single attempt did not exceed 2% of the circulating blood volume (multiply 80mL by body weight). For example, a child weighing 10 kg has a circulating blood volume of 800 mL, allowing for a collection volume of 16 mL.
- Adult bottles (collecting 8-10 mL) were selected for children weighing more than 30 kg.

### **Q5. Are there any recommendations for disinfection and cleaning procedures?**

- Wear a mask.
- Non-sterile gloves are acceptable, although hand disinfection should be performed before donning the gloves.
- Scrub the skin or collection site using an alcohol swab.

- The disinfectants typically used at each facility include alcohol swabs, povidone-iodine, or chlorhexidine. However, when povidone-iodine or chlorhexidine was used, the specified time after disinfection is observed before collection.
- The top of each bottle should be disinfected with an alcohol swab before the sample was injected.

#### **Q6. Where should the sample be collected from?**

- Peripheral puncture, central venous line, and arterial line. Collection sites are not strictly specified.
- When a sample is drawn through a peripheral catheter, it is acceptable to submit the blood drawn from the newly inserted intravenous cannula using an adequate sterile technique.

#### **Q7. Are there any recommendations for the testing system?**

- After injection into the blood culture bottle, the solution should be promptly loaded into the testing machine.
- If the samples cannot be processed immediately and no blood culture system is available, store the samples at room temperature until they can be tested.

