



Crumlin | Temple Street | Tallaght | Connolly

**CHI Nursing Practice Guidelines  
Taking Blood Cultures from Peripheral or  
Central Venous Access Device (CVAD)**

<b>Area of use:</b>	All of organisation <input checked="" type="checkbox"/>	CHI at Connolly <input type="checkbox"/>	CHI at Crumlin <input type="checkbox"/>
		CHI at Tallaght <input type="checkbox"/>	CHI at Temple Street <input type="checkbox"/>
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<b>Approved by &amp; title:</b>	Nursing Documentation Approval Committee October 2023		
<b>Version:</b>	Version	<b>Approval date:</b>	October 2023
<b>Reference:</b>	CHINPGTBCPCVAD-FON-10-2023	<b>Revision due:</b>	October 2026

**Version History**

Version:	Date approved:	Summary of changes:	Author:

**Please note practice variation**

When taking blood cultures in CHI at Temple Street one blood culture bottle is used for all over two years and two used for those under two, and CHI at Crumlin two blood culture bottles are used, in CHI at Tallaght one blood culture bottle is used.

**Contents**

1.0 Introduction ..... 3

2.0 Purpose of the guideline ..... 3

3.0 Blood Cultures..... 3

4.0 Inoculation process ..... 4

5.0 Applicable to ..... 4

6.0 Guidelines ..... 4

7.0 Stakeholder Involvement..... 6

8.0 Communication and Training..... 7

9.0 Monitoring and evaluation..... 7

10.0 References ..... 7

## 1.0 Introduction

A blood culture is a blood test, which is designed to remove blood from the patient and test it to determine if infection is present in the blood stream. Isolating the organism is enhanced by the careful collection of sterile samples to avoid contamination by the operator's skin flora. Blood cultures are requested by the medical/surgical teams caring for the infant or child and can be requested as peripheral or central samples or both.

## 2.0 Purpose of the guideline

- To improve the quality of the detection of blood stream infections by ensuring the blood cultures are not contaminated when blood is taken from the patient or placed in the blood culture bottles. Contaminated blood culture samples can lead to diagnostic uncertainty and increased healthcare costs due to unnecessary treatment with antibiotics and testing.
- To promote the timely transportation of samples to the laboratory.

## 3.0 Blood Cultures

### Peripheral blood cultures

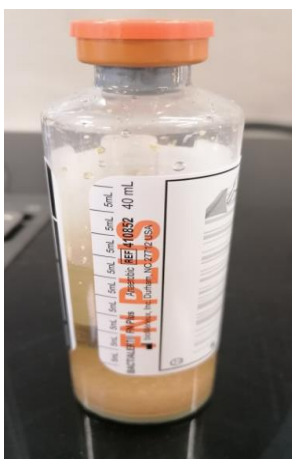
Blood cultures will be requested for a variety of reasons. If taking blood cultures from a peripheral line it is advisable to take the samples if possible when an Intravenous Cannula is inserted. In the event that this is not possible, the Phlebotomy team will take the requested sample.

### Central Blood Cultures

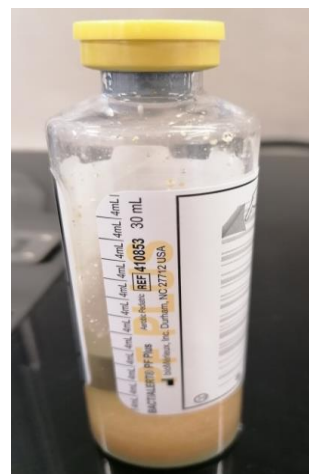
When taking blood cultures from a Central Venous Access Device please follow the steps in the Guidelines on the Insertion and Care of a Central Venous Access Device for Clinical Staff.

### Blood Culture Bottles:

These bottles may look different on sites.



Anaerobic bottle



Aerobic paediatric

The **orange** blood culture bottle is the **anaerobic bottle** and can take up to 5 ml

The **yellow** blood culture bottle is the **aerobic paediatric** bottle and can take up to 4 ml.

Some sites use just one bottle.

## 4.0 The inoculation process of the bottles is as follows

The inoculation process of the bottles is as follows:

1. **IF USING WINGED BLOOD COLLECTION SET** (preferred method of collection) - Place the **adapter cap** over the **aerobic paediatric bottle** and press straight down to pierce the septum. Hold the bottle upright, below the level of the draw site, and add up to 10 ml of blood per adult bottle and up to 4 ml per paediatric bottle. Ensure the bottle is correctly filled to the Fill-to Mark or target fill level. Once the aerobic bottle has been inoculated, repeat the procedure for the **anaerobic bottle**.
2. **IF USING NEEDLE AND SYRINGE** - Collect the sample. Transfer the blood into the culture bottles, starting with the **anaerobic bottle**. Hold the bottle upright, and add up to 10 ml of blood per adult bottle and up to 4 ml per paediatric bottle. Ensure the bottle is correctly filled to the Fill-to Mark or target fill level. Once the anaerobic bottle has been inoculated, repeat the procedure for the **aerobic bottle**.

The above instruction is in accordance with the manufactures (**BioMérieux**) recommendations for blood culture collection.



## 5.0 Applicable to

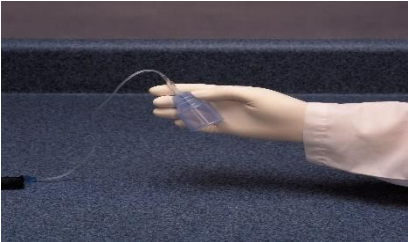
All healthcare staff who take blood cultures handle or transport blood cultures to the laboratory

## 6.0 Guidelines

### General Principles

- Blood cultures are taken before antibiotics are administered refer to Sepsis guideline
- Blood cultures can be taken during cannulation but not from a cannula that is in place.
- If central cultures are required, they can be taken from each lumen of the central catheter.
- If taking other bloods then blood cultures must be taken first and placed in the bottles.
- Aseptic non-touch technique must be used throughout the procedure.

ACTION	RATIONALE AND REFERENCE
<p>Explain the procedure to the child if appropriate, ensuring the privacy and dignity are maintained.</p> <p>Ensure adequate light is available.</p> <p>It is advisable to take the blood culture samples when the infant/child is pyrexial.</p> <p>Ensure the completed request form for blood cultures is available.</p> <p>Identify the child with Identity band, healthcare record and request form with the correct details.</p> <p>Detail the patient details on the blood culture bottles.</p> <p>Don Personal Protective Equipment</p> <p>Decontaminate hands</p> <ol style="list-style-type: none"> <li>1. Cleanse the child’s skin with the appropriate cleansing wipes and allow drying for at least 40 seconds.</li> <li>2. Cleanse the CVAD catheter hub with cleansing swab and allow to air dry for at least 40 seconds. <i>Take the blood samples as for Peripheral or Central blood sampling as detailed in guidelines. See above.</i></li> </ol> <p>If doing blood cultures to test for systemic infection then peripheral cultures may also be taken.</p> <p>If taking blood cultures from the central line do not waste any blood withdrawn.</p> <p>Open the caps of the blood culture bottles, decontaminate tops, and allow to air dry for at least 40 secs.</p>  <p>different types of this adaptor may be available on sites</p> <p>Place the vial adaptor on to the top of the blood culture bottle, <u>one adaptor for each bottle.</u></p> <p>Decontaminate the needle free device on the vial adaptor with a new cleansing wipe for each adaptor and allow to air dry for at least 40 seconds.</p>	<p>To gain the patient and child cooperation for the procedure. Ensure the patient and child understands the reason for the procedure. (Lister, 2021).</p> <p>To ensure the operator has the light available to carry out the procedure.</p> <p>The organism is present in greater numbers when temperature is elevated, (Lister, 2021)</p> <p>To verify the patient and type of cultures requested. To ensure the correct details are placed on the bottles and it corresponds with the request form. (NHO, 2011)</p> <p>To ensure the correct test is carried out for the correct child. (CHI, 2023).</p> <p>To prevent cross infection as per local guidelines.</p> <p>(CHI, ANTT, 2022)</p> <p>To ensure skin is dry prior to procedure( Epic 3, 2014)</p> <p>To ensure the hub is decontaminated and allowed to dry prior to the procedure (Epic 3, 2014)</p> <p>To prevent contamination of the top of the culture bottles. (Lister, 2021).</p> <p>To ensure clean and dry prior to blood transfer (Epic, 2014)</p> 

<p><u>Adding blood to culture bottles via syringe</u> Attach the syringe with blood to the needlefree vial adaptor and place 3-5mls into the bottles. <i>See over</i></p> <p>Inoculation of the culture bottles should take place before using blood in the syringe for other samples. Always place blood in the anaerobic bottle first.</p> <p><u>Adding blood to culture bottles via Multifly system</u> If the blood sample has been taken with the Multifly system please use the adaptor which will pierce the culture bottle and allow access Once the blood has been added to the blood culture bottles remove the vial adaptors and dispose of the vial adaptors appropriately. Place the labelled blood culture bottles in the appropriate transport device with the correct completed request form in a timely fashion. <u>Blood culture bottles can be transported in the Chute.</u></p> <p>When labelling Blood cultures (BC), please do not cover the barcode on the bottle.</p> <p>Please label the bottle and the request form with the date and time of the sample.</p> <p>If the bottle gets bloodstained, please decontaminate and then send to the lab.</p> <p>Please send the BCs to the lab immediately. This includes at night, as BC bottles are loaded into the machine 24/7 by staff.</p> <p>Document the blood collection in the patient’s healthcare records.</p>	<p>To ensure contamination does not occur (Maddox &amp; Pearson 2010).</p> <p>To prevent cross contamination (OLCHC 2011)</p> <p>To prevent oxygen trapped in the syringe entering the anaerobic bottle.</p>  <p>Adaptor for use with Multifly (<i>Multiuse holder with leur adaptor</i>)</p> <p>To ensure the bottles are transported safely.</p> <p>To ensure best practice and safety</p> <p>Delayed blood cultures can have a major impact on clinical outcomes so it is critical that they are received in the laboratory on time.</p> <p>(NMBI, 2015)</p>
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**7.0 Stakeholder involvement**

Name	Grade	Location
Susan Kearns	Nursing Practice Facilitator	CHI Temple street
Warren O’ Brien	Nursing Practice Development Coordinator	CHI Crumlin
Caroline O’ Connor	NPDC	CHI Temple Street
Fionnuala O’ Neill	NPDC	CHI
Circulated to the SMEs on all sites		
Approved by the NPC at meeting on October 2023		

## 8.0 Communication and training

Guidelines will be available on the CHI website and on the various document management systems in CHI. Education will take place during the induction process.

## 9.0 Monitoring and evaluation

Practice will determine when audit is required. Feedback from the laboratory will determine if issues arise with this process.

## 10.0 References

CHI (2023) *The Hospital Formulary and Prescribing Guide*, CHI Dublin.

Dougherty and Lister (2021) *The Royal Marsden Manual of Clinical Nursing Procedures*, 10<sup>th</sup> Edition,

Health Service Executive (2011) *Code of Practice for Healthcare Records Management*, National Hospitals Office, Dublin.

Irish Society of Clinical Microbiologists (2019) *Irish Guideline for the Investigation of Blood Culture Samples*, Ireland.

Loveday, H.P. and Wilson, J.A et al (2014) *Epic3: National Evidence-Based Guidelines for Preventing Healthcare-Associated Infections in NHS Hospitals in England*. University of Southampton and Leeds.

Maddox, C. and Pearson, B. (2010) *Specimen Collection, Practices, in Children Nursing*

Nursing and Midwifery Board of Ireland (2015). *Recording Clinical Practice*. Guidance to Nurses and Midwives. NMBI, Dublin.