

Collection of Blood Cultures from Dialysis Circuit

Key Points

- Prevention and Management of Bacteraemia
- Identifying patients at risk
- Avoiding contamination of blood samples
- Correct procedure for collecting blood cultures from Dialysis Circuit

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Abbreviations

EPIC	Digital Patient Record System
PPE	Personal Protective Equipment

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Introduction

Blood cultures are an essential part of the management of patients with serious bloodborne infections, enabling the identification of the causative pathogens, antimicrobial susceptibility and treatment guidance. Bacteraemia and fungaemia are associated with high morbidity and mortality amongst hospitalized patients, particularly those with compromised host defenses. The accurate and timely detection of these remains one of the most important functions of clinical microbiology as early detection has significant diagnostic and prognostic importance. Micro-organisms may be present in the blood intermittently or continuously, depending upon the source of infection. The majority of bacteraemias are intermittent, so blood cultures should be taken when there are clinical signs of an infection such as fever, as this is when the concentration of bacteria in the blood is at its highest (Higgins 2013).

Studies suggest contamination rates are at least 10% within the NHS.

This protocol is based on The Royal Marsden Hospital Manual of Clinical Nursing Procedures (2011).

Collection of Blood Cultures from Dialysis Circuit

If blood is being collected for a range of tests, always collect the blood culture first.

THINK! Is there a clinical need for this procedure? For example:

- Core temperature out of normal range
- Raised or very low white cell count
- Chills or rigors
- Acutely unwell, new or worsening confusion
- Abnormal heart rate (raised), Blood pressure (low or raised) or respiratory rate (raised)
- Raised CRP

Inappropriately taken blood cultures may yield contaminants leading to incorrect treatment.

PRIOR TO TAKING BLOOD CULTURES PLEASE DISCUSS with the Renal Consultant

If line sepsis is suspected it is **best practice** to obtain two samples, one from the circuit and a second peripheral blood culture to optimise correct diagnosis and treatment.

Equipment required – collect before going to dialysis station

Blood Culture Collection Kit comprising:

- Blood culture bottle set (check expiry date)
- Blood Collection Set / Adaptor cap

Clinell wipe (X2)

Sharps container and transport tray

Sterile gloves

PPE

Procedure

1. Explain and discuss the procedure with the patient
2. Wash your hands with soap and water, then dry
3. Clean arterial port with Clinell wipe and allow to air dry for at least 30 seconds
4. Flip off lids of blood culture bottles and clean the tops with Clinell wipe and allow to air dry for at least 30 seconds
5. Wash and dry your hands again or use alcohol rub and put on PPE and sterile examination gloves
6. Attach Blood collection Set to blood collection adapter cap. Remove smaller blue inner adapter
7. Insert Blood collection Set into 'Arterial Port'
8. Place adapter cap over blood culture bottle and pierce septum. Hold bottle upright and use bottle graduation lines to gauge accurately the sample volume and collect sample (10mls for adults). DO NOT overfill bottles. Always inoculate anaerobic (purple) bottle first.
9. Ensure that the bottles are held in position during filling BELOW the line, to ensure the culture liquid is not infused back to the patient
10. Remove Blood collection Set from the 'Arterial Port' and discard in sharps container with adapter cap. Do NOT re-use adapter cap.
11. Remove PPE and sterile gloves and discard as clinical waste. Wash hands with soap and water.
12. Label bottles with patient details and date and time of collection.
13. Update the collection status in EPIC.
14. Send to the Laboratory.
15. Record the procedure with indication for culture in the nursing notes

Reference

Higgins, C. (2013) *Understanding Laboratory Investigations : a guide for nurses, midwives and health care professionals*. Oxford: Wiley-Blackwell.

Weinstein, M. P. (2003) 'Blood Culture Contamination: Persisting Problems and Partial Progress', *Journal of Clinical Microbiology*, 41(6), pp. 2275-2278. Available at: <https://doi.org/10.1128%2FJCM.41.6.2275-2278.2003> (Accessed: 21 September 2023).

Ernst, D. J. (2004) 'Controlling blood-culture contamination rates', *MLO: Medical Laboratory Observer*, 36(3), pp. 14-18, quiz 20-21. Available at: <https://www.proquest.com/docview/223361346/60646D0CD0B1456DPQ/9?accountid=47633> (Accessed: 19 September 2023).

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Full version control record

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Version History

Version	Date	Guideline Lead(s)	Status	Comment
1	October 2017	Sijo Stephen	Final	Review
2	May 2024	Sijo Stephen (Senior Charge Nurse) Ana Fleet (Renal Vascular Access CNS)	Final	

Related Documents

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