



POLICY FOR THE TAKING OF BLOOD CULTURES

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1. KEY POINTS

- 1.1. Blood cultures are an essential procedure for investigating septic patients and must be taken before antibiotics are given.
- 1.2. If a septic patient is afebrile, blood cultures should still be taken rather than waiting for the patient to spike a temperature.
- 1.3. Aseptic technique is essential to avoid contamination, usually from skin flora.
- 1.4. Use of the correct technique is important to ensure operator safety.

2. AIM

- 2.1. Blood culture to detect bacteraemia is an important investigation with major implications for the diagnosis of patients with infection and the selection of appropriate treatment.
 - for the correct indication;
 - at the correct time; and
 - using the correct technique in order to prevent contamination of the sample and minimise risk to patients and staff.

3. DEFINITIONS

- 3.1. **A false positive** - is defined as growth of bacteria in the blood culture bottle that were not present in the patient's bloodstream and were introduced during sample collection. This contamination can come from a number of sources:
 - the patient's skin
 - the equipment used to take the sample and transfer it to the culture bottle
 - the hands of the person taking the blood sample
 - the general environment.

Blood cultures should be taken when patients are showing signs of sepsis.

- 3.2. **Signs of Sepsis** include:

- core temperature out of normal range ($< 36^{\circ}\text{C}$, $> 38^{\circ}\text{C}$)
- raised heart rate ($> 90/\text{minute}$)
- low blood pressure (< 90 mmHg systolic)
- increased respiratory rate ($> 20/\text{minute}$)
- chills or rigors
- raised or very low white blood cell count;
- new or worsening confusion.

NB: Signs of sepsis may be minimal or absent in the very young, the elderly or immunosuppressed or neutropenic patient.

3.3. **Diagnosis of Catheter Related (CVC) Infection**

In these guidelines the term CVC includes:

- short term, non-tunnelled CVCs
- peripherally inserted central catheters (PICCs)
- long term tunnelled line with cuff (e.g. Hickman line)
- totally implanted venous access devices (TIVAD) also known as ports.

3.4. **Exit Site Infection and Tunnel Infection**

Signs of infection:

- Pain at site
- Inflammation
- Cellulitis/tracking (within 2 cm of exit site = exit site infection; at a distance of >2 cm of exit site and along subcutaneous tract or the catheter = tunnel infection)
- Exudate/pus at site
- Fever

4. **DUTIES AND RESPONSIBILITIES**

- 4.1. Ward and Department Managers are responsible for ensuring that the required equipment is available.
- 4.2. All Clinical staff performing blood culture taking are responsible for ensuring that they are trained as competent in the technique.

5. **TAKING A BLOOD CULTURE**

- 5.1. The BacT/ALERT blood culture system is currently in use at Yeovil District Hospital (YDH). This system uses 2 bottles, i.e. aerobic and anaerobic, which require 7.5 - 10mls of blood in each bottle. In addition to the BacT/ALERT bottles, YDH as a Trust have blood culture taking packs that have all additional equipment required within it.
- 5.2. Blood cultures should be taken where possible **before the administration of antibiotics**. If the patient appears septic but is currently afebrile, blood cultures should still be taken, rather than waiting for the patient to spike a temperature. All blood cultures should be documented in the patient's notes, including date, time, site and indications via the insertion sticker. Do not peel off the bar code label on the blood culture bottles or obscure bar codes with patient stickers – this is for laboratory use, not for patient records. **Only take blood for culture when there is a clinical need to do so and not as routine.**
- 5.3. In patients with suspected bacteraemia, it is generally recommended that two sets of cultures be taken at separate times from separate sites. Do not use existing peripheral lines or sites immediately above peripheral lines. Do not take blood

cultures from a freshly inserted cannula. If a cannula looks infected it should be removed and sent for culture. **Avoid femoral vein puncture because of the difficulty in adequate skin cleansing and disinfection.**

- 5.4. If a central venous catheter (CVC) is present, paired blood cultures should be taken from this and a separate peripheral site when investigating potential infection related to the central line.
- 5.5. If exit site/tunnel infection is suspected, swab the exit site for culture and sensitivities. In the absence of pus/exudate, pre-moisten swab with the median in the tube. If the CVC is removed due to infection, the tip needs to be cut off, placed in a clear specimen pot and sent for culture and sensitivities.
- 5.6. All blood culture forms should be clearly marked with the site of blood withdrawal, e.g. internal jugular central line or peripheral.

6. PROCEDURES

6.1. Collection of Blood Cultures

- Method to be used (see [Appendix A](#) and [Appendix C](#)).

6.2. Preparation of Blood Culture Bottles

- The top of the bottle will be clean but not sterile Remove the flip – off caps from the bottles. Disinfect the tops of the culture bottles with a 2% chlorhexidine in 70% isopropyl alcohol impregnated swab. Allow the alcohol to fully evaporate before proceeding with bottle inoculation as it is the drying of the alcohol which disinfects the caps.

6.3. Skin Preparation Perform hand hygiene (alcohol hand rub or wash hands with soap and water).

- Clean any visibly soiled skin on the patient with soap and water then dry. Apply a tourniquet and palpate to identify swollen vein. Clean skin with 2% chlorhexidine gluconate in 70% isopropyl alcohol, swab for 10 – 15 seconds and allow it to dry thoroughly. If a culture is being collected from a central venous catheter, disinfect the access port with a 2% chlorhexidine gluconate in 70% isopropyl alcohol impregnated swab.

6.4. Labelling of Bottles

- Label the bottles with appropriate patient information after filling.
- Ensure that barcodes on the bottles are not covered by additional labels.

6.5. Transportation to the Laboratory

- Out of hours cultures should be sent as soon as possible to the Clinical Microbiology laboratory for incubation. There is no need to telephone the on-call technician when sending blood cultures.
- Include information on recent/proposed antibiotic therapy and relevant clinical details on the microbiology request form.

6.6. **Blood Culture Results**

- When a culture appears positive, a Gram's stain is made and a Microbiology Consultant will telephone the patient's Doctor to discuss management.
- Full culture results and antibiotic sensitivities are available later and the Doctor will again be contacted.
- It is **NOT** necessary to telephone the Laboratory to chase blood culture results

7. **REVIEW**

- 7.1. These guidelines will be reviewed in 3 years or sooner if there are any major changes.

8. **REFERENCES**

- 8.1. [Department of Health High Impact Interventions; July 2010. Taking blood cultures, a summary of best practice](#)
- 8.2. [Procedure for blood aspiration from a central venous catheter \(CVC\)](#)
- 8.3. [Blood cultures from peripheral IV cannula versus dedicated venepuncture.](#)

9. **APPENDICES**

- 9.1. [Appendix A: Guidance for Sample Collection of Peripheral Blood Cultures](#)
- 9.2. [Appendix B: Guidance for Sample Collection of Central Venous Catheter \(CVC\) Blood Cultures](#)
- 9.3. [Appendix C: Equipment used for peripheral and central venous catheter \(CVC\) blood culture collection](#)



Equality Impact Assessment Tool

To be completed and attached to any procedural document when submitted to the appropriate committee for consideration and approval.

Name of Document: Policy for Taking Blood Cultures

		Yes/No	Comments
1.	Does the policy/guidance affect one group less or more favourably than another on the basis of:		
	Race	No	
	Ethnic origins (including gypsies and travellers)	No	
	Nationality	No	
	Gender	No	
	Culture	No	
	Religion or belief	No	
	Sexual orientation including lesbian, gay and bisexual people	No	
	Age	No	
	Disability	No	
2.	Is there any evidence that some groups are affected differently?	No	
3.	If you have identified potential discrimination, are any exceptions valid, legal and/or justifiable?	N/A	
4.	Is the impact of the policy/guidance likely to be negative?	No	
5.	If so can the impact be avoided?	N/A	
6.	What alternatives are there to achieving the policy/guidance without the impact?	N/A	
7.	Can we reduce the impact by taking different action?	N/A	

For advice or if you have identified a potential discriminatory impact of this procedural document, please refer it to The Equality & Diversity Lead, Yeovil Academy, together with any suggestions as to the action required to avoid/reduce this impact.

Signed **Rachael Grey, IPC/TV Nurse Consultant**

Date: July 2016