

# Blood cultures: a question guide

## 1. Relevance

- a. Why are blood cultures such an important part of diagnostic pathology?
- b. When should blood cultures be recommended?
- c. Indications for blood culture collection in adults versus children versus neonates

## 2. Collection process

- a. Availability of media at the point of care
- b. Volume- what is adequate ? What is optimal sample to media ratio for manual versus automated systems ? Why is this important to respect
- c. Site disinfection ? best method
- d. Collection via existing lines- should we do it?
- e. Safety considerations - ? what personal protective equipment is required for collection ? how are sharps (needles) disposed of
- f. Patient identification and identification of sample

## 3. Blood culture media considerations

- a. What media is best for manual systems?
- b. What additives are recommended for BHI to improve performance?
- c. What additional special components are present in automated system broths?

## 4. Manual system method considerations

- a. Incubation - ? what temp, ? what duration, ? Venting required
- b. Subculture process – ?when , what media used
- c. Identification of isolates ? what rapid methods can be used
- d. Susceptibility testing of isolates ? rapid direct methods; avoidance of testing/reporting of contaminant isolates

## 5. What is done with the individual patient blood culture result?

- a. **Liaison with the clinician at the time of a positive result**
  - ring the clinician for all new positive results
  - discuss relevance of result - ? is it a contaminant
  - what is the likely site of infection?
  - Is this a nosocomial or community infection? (Easiest distinction is a positive culture collected > 48hrs after admission = nosocomial)- keep records of all significant cultures and their clinical parameters
  - offer guidance on treatment – antibiotic selection, dose and duration, need for other investigations or therapy eg. Surgical drainage (provided that you have sufficient knowledge of antibiotics and therapeutics)

- record the discussion in a day-diary (medicolegal purpose and also provides a record of the clinical information against each blood culture result)

**b. Reporting of result**

- specify when contamination likely; don't report susceptibilities on these
- provide direct advice on correct antibiotic choice and dose for common pathogens

**6. Summaries of collected blood culture results**

- a. What proportion of blood cultures are contaminated for different patient groups? ***Essential information to provide quality assurance of collection technique- if contamination high then improvements required.***
- b. What are the common blood bacterial isolates for different patient groups and what susceptibilities are seen? ***This information helps clinicians to construct guidelines that have the best choice of empiric antibiotic treatment for septic patients.***

**References (on USB stick)**

1. CLSI M47 standard- Principles and Procedures for blood cultures
2. Excerpt from Manual Clinical Microbiology , current edition
3. Uptodate 2007- review of collection issues
4. Gratten, PNG Medical Journal 1983. Blood cultures – description of manual systems for blood culture
5. Hall, K. 2006. Review of blood culture contamination
6. Plorde et al 1994. Effect of volume and periodicity on blood cultures
7. Connell et al 2007. How Reliable Is a Negative Blood Culture Result? Volume of Blood Submitted for Culture in Routine Practice in a Children's Hospital.