

Thematic analysis of post 48 hour bloodstream infections: what did we learn?

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1. Introduction

- The surveillance of *E. coli*, MRSA and MSSA bloodstream infections (BSI) is now mandatory in England¹.
- Rates of MRSA BSI have been reduced dramatically nationally and locally, whereas MSSA BSI have remained largely stable and *E. coli* BSIs are on the rise.
- Mandatory surveillance of these invasive infections provides a detailed dataset that can be used to identify source of infection and potential lapses in care.

2. Methods

- We undertook a full review of all MRSA, and a modified shortened review of *E. coli* and MSSA BSI that were detected 48 hours following admission in the 2014/2015 financial year, based on the Post Infection Review (PIR) process².
- This included identifying the source of infection, any care or service delivery issues and subsequent accompanying action plan.
- A thematic analysis of the findings was performed.
- Recurrent themes were investigated.

Table: Source of infection by organism

Organism	Contaminant	Central venous access device	Peripheral venous access device	Urine (non-CAUTI)	Urine (CAUTI)	Neutropaenic sepsis	Gut translocation	Abdominal sepsis	Chorioamnionitis	Biliary sepsis	Skin/soft tissue	Pneumonia	Empyema	NEC	Other	Unknown	Total
MRSA	2	3	1														6
MSSA		8	1	1							3	4	1	1	1	9	29
<i>E. coli</i>				16	12	14	7	6	3	7					9	2	76
	2	11	2	17	12	14	7	6	3	7	3	4	1	1	10	11	111

3. Results

- Of six MRSA BSI, three were related to central venous access devices, one was a peripheral venous access device, two were likely contaminants.
- Of 76 *E. coli* BSI, 28 had a urinary source, 12 of which were considered catheter associated UTIs.
- The other *E. coli* BSI were from diverse sources.
- Of 29 MSSA BSI, eight were from central venous access devices, one from a peripheral vascular access device, nine were from an unknown source, and the rest from diverse sources.
- Of the six MRSA BSI cases, documentation of intravenous access devices was incomplete or missing in four cases.
- In three cases the documentation of blood cultures was incomplete or missing.
- In one case admission screening for MRSA was not in line with local policy and in a further case the MRSA suppression therapy was not administered correctly.

4. Discussion

- Our detailed review of BSI cases has provided valuable data on the likely source of BSI.
- The most common source for MRSA and MSSA were lines, whereas urine was the most common source for *E. coli*.
- Whilst there will always be some uncertainty around the actual source of the BSI, the likely source data is useful in identifying problems particularly around documentation of vascular access devices and blood culture collection.

References

1. Department of Health (2001) Surveillance of Healthcare Associated Infections, CMO's Update 30.
2. NHS England (2014) Guidance on the reporting and monitoring arrangements and post infection review process for MRSA bloodstream infections from April 2014 Version 2.