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Multidisciplinary root-cause analysis for Staphylococcus aureus bacteraemia: lessons learnt

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Background: In England, Wales and Northern Ireland, Staphylococcus aureus bacteraemias (SAB) has decreased by 33 % between 2007-14. Prevention of transmission from patient to patient remains the most important means to reduce SAB. However, further reductions of SAB can also be achieved by careful review of both community and hospital onset cases for preventable factors in patients whose SAB is endogenous. The clinical review needs to be comprehensive and multi-disciplinary and a root cause analysis is an ideal tool for this.

Material/methods: All SAB recovered from blood cultures at Heart of England Foundation Trust, a large 3 hospital site Trust in England, were recorded between April 2014 and January 2016. Each case was defined as community or hospital onset based on whether the blood culture was taken within 48 hours of admission. Each case was carefully screened on the hospital information system (Concerto) by an infection specialist and an infection control nurse to determine evidence necessitating a RCA meeting using the NHS National Patient safety RCA toolkit. Factors considered triggers for an RCA included a) history of cannula/device insertion b) recent instrumentation and c) recent hospital admission. The RCA meetings involved representatives from the clinical team, infection specialists, ward nursing staff, Infection Prevention and Control team and pharmacists.

Results: There were a total of 280 SAB isolates (Table) recorded by the laboratory during the study period, of which 32 (11.4%) were identified as meticillin-resistant Staphylococcus aureus (MRSA). 81 (28.9%) isolates were recovered from blood cultures taken after the first 48 hours of admission and were therefore potentially nosocomial. After initial screening, a total of XX MSSA bacteraemias underwent RCA, in addition to all 32 of the MRSA bacteraemias (irrespective of time taken in relation to admission). The outcomes of the RCAs highlighted failures in processes of skin preparation prior to prosthetic insertion, failure of skin decolonisation and on-going care of intravascular devices. In

addition, a cluster of MSSA bacteraemias in the neonatal unit led to the development of an intravenous line care bundle that included skin and mucosal decolonisation of heavily colonised babies.

	Organism	Community (n)	Nosocomial (n)	Total (n)
2014/15	MRSA	14	1	15
	MSSA	100	44	144
2015/16	MRSA	12	5	17
	MSSA	77	31	108

Conclusions: The RCA toolkit can be successfully be applied to all types of SAB to improve patient safety. Such a review of the cases highlights process/organisation failures that are used to inform a wider quality improvement programme to further reduce SAB.