

CEC eChartbook Portal Extract

Healthcare Associated Infections

Methicillin-sensitive *Staphylococcus Aureus* (MSSA) Bacteraemias



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HEALTHCARE ASSOCIATED INFECTIONS

Methicillin-sensitive *Staphylococcus Aureus* (MSSA) Bacteraemias

Why is this important? Healthcare associated infections (HAI) are a leading cause of preventable illness and death [1-5]. *Staphylococcus aureus* (*S. aureus*) bacteraemia (SAB) is a serious cause of morbidity and mortality worldwide. SAB is the most common cause of healthcare associated bacteraemias, with over half of all SAB episodes in Australia being attributed as a HAI [6]. Typically, SABs that are able to be treated with common antibiotics, and demonstrate no resistance to the antibiotic, are referred to as being caused by methicillin-sensitive *S. aureus* (MSSA) bacteraemias. National reporting of all healthcare-acquired SABs, including those caused by MSSA, was introduced in Australia in 2008. MSSA bacteraemia incidences and rates also are a key performance indicator for jurisdictions under the National Healthcare Agreement [7]. This section will present MSSA SAB data for NSW, including both 'inpatient' and 'non-inpatient' HAI.

The HAI Program addresses the Australian Commission on Safety and Quality in Health Care's *National Safety and Quality Health Service (NSQHS) Standards* [8]:

3.1 – 3.4 Clinical governance and quality improvement to prevent and control healthcare-associated infections, and support antimicrobial stewardship;

3.5 – 3.12 Infection prevention and control systems;

3.15 – 3.16 Antimicrobial stewardship;

Findings: The annual rate of MSSA in NSW hospitals decreased from 0.79 per 10,000 occupied bed days (OBDs) in 2011 to 0.54 in 2018 (Chart MS01). Despite fluctuating monthly infection rates, a steady declining trend in State's annual rates was observed. The monthly variation in rates provides information to review and enhance infection Prevention and Control programs, an ongoing trend may reflect an actual increase in the overall rates.

Implications: Patients who develop bloodstream infections, such as MSSA, are more likely to suffer complications that result in a longer hospital stay and an increased cost of hospitalisation. Serious infections may also result in death. The aim, therefore, is to minimise the total number of bacteraemias.

What we don't know: *S. aureus* is a normal human commensal that can also behave as a versatile and virulent pathogen [9]. Underlying patient factors are important in determining the likelihood of pathogen transmission and complicated bloodstream infection. Improved understanding of these patient factors requires additional data collection and analysis. The analysis of MSSA infection data by; its origin whether it is hospital- or community-acquired, hospital peer group classification, or a change in severity stages during hospital admission may shed some light on the MSSA transmission process. In addition, the trend analysis comparing rates for MRSA and MSSA bacteraemias may identify differences in the pattern of SAB infections over time.

References:

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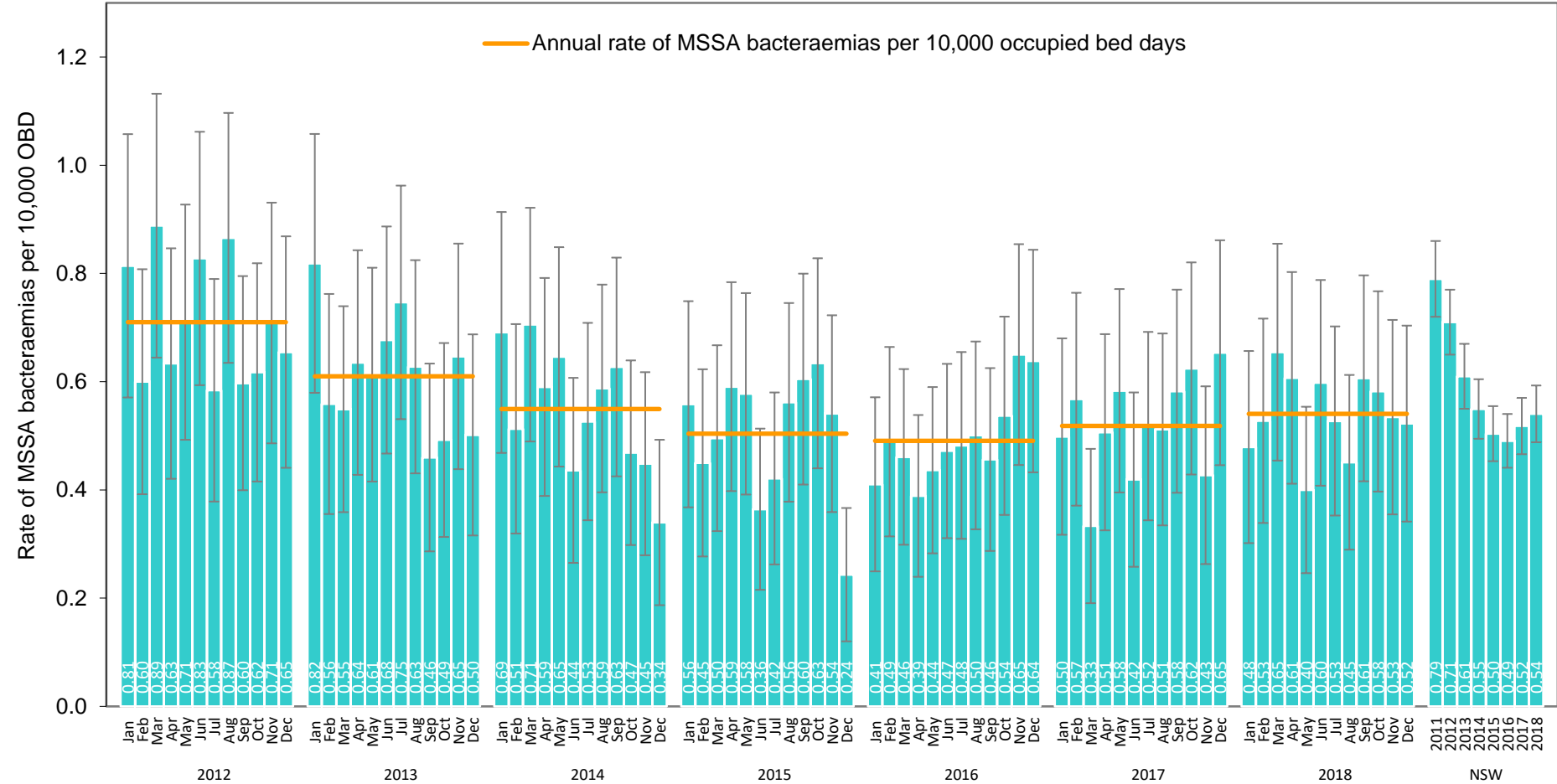
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Chart MS01 – Methicillin-sensitive *Staphylococcus aureus* (MSSA) bacteraemias
 Monthly MSSA rate per 10,000 occupied bed days (public hospitals), NSW, Jan 2012- Dec 2018



Source: NSW Ministry of Health, Health care Associated Infections data Collections.

Data Definitions

Chart:	MS01
Admin Status:	Current, Dec 2018
Indicator Name:	Methicillin-sensitive <i>S. aureus</i> (MSSA) bacteraemias
Description:	Methicillin-sensitive <i>S. aureus</i> (MSSA) bacteraemia rate per 10,000 occupied bed days (public hospitals only), NSW, Jan 2012 – Dec 2018
Dimension:	Patient safety
Clinical Area:	Initiatives in safety and quality health care
Data Inclusions:	All methicillin-sensitive <i>S. aureus</i> (MSSA) bacteraemias, including inpatient & non-inpatient
Data Exclusions:	None
Numerator:	Total number of methicillin-sensitive <i>S. aureus</i> (MSSA) bacteraemias, including inpatient & non-inpatient
Denominator:	Total number of bed days
Standardisation:	None (crude MSSA bacteraemia rate per 10,000 occupied bed days calculated)
Data Source:	NSW Health Healthcare Associated Infections Data Collection, Jan 2012 to Dec 2018, NSW Ministry of Health, Clinical Excellence Commission
Comments:	MSSA comprises infections recorded in two clinical indicators (Clinical indicator 2.1 Healthcare associated (inpatient) MSSA BSIs per 10,000 occupied bed days and Clinical indicator 2.3 Healthcare associated (non-inpatient) MSSA BSIs per 10,000 occupied bed days).