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CENTRAL LINE ASSOCIATED BLOODSTREAM INFECTION

Central Line Associated Bloodstream Infection (CLABSI) in Intensive Care Units

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CENTRAL LINE ASSOCIATED BLOODSTREAM INFECTION

Central Line Associated Bloodstream Infection (CLABSI) in Intensive Care Units

Why is this important? A central line (also known as a central venous catheter) is an intravenous line that is used to give patients fluids and/or medications. Central lines access a major vein close to the heart and can remain in place for up to several months. Despite patients in Intensive Care Units (ICUs) being at high risk of developing healthcare associated infections (HAIs), central lines are commonly used in this setting [1]. Over the past 5 years, infection rates have fallen substantially but remain a priority area for prevention. CLABSI continue to be a key indicator of the safety of the ICU's clinical practice processes [2] as they result in prolonged hospital stays, significant morbidity and an increase in mortality [3]-[5],[11].

In 2007-08, the NSW Central Line-Associated Bacteraemia (CLAB) ICU project was conducted by the Clinical Excellence Commission (CEC) and the Intensive Care Co-ordination and Monitoring Unit (ICCMU) (now known as Intensive Care NSW), with the support of NSW Health. The project enlisted the participation of 37 NSW ICUs. During the 18month project, the CLABSI rate reduced from of 3.8/1000 line days (months 1-12) to 1.6/1000 line days (months 13-18) [6]. Based on this project and other successful projects undertaken locally and overseas [3],[7], the Australian and New Zealand Intensive Care Society was later granted funding by the Australian Commission on Safety and Quality in Health Care to lead a national project to prevent CLABSI in Australian ICUs. The aims of the national project were to:

- reduce Australian ICU CLABSI to <1/1000 line days, and
- facilitate accurate and consistent CLABSI measurement, with timely reporting to clinicians and benchmarking opportunities.

Since January 2008, NSW Health has also included CLABSI in its statewide surveillance of HAIs occurring across the state and has collected monthly data on this clinical indicator [8].

Findings: The monthly rate of CLABSI in ICUs across NSW was calculated for the period between January 2009 and Dec 2018. The annual rate of CLABSI in ICU adult patients dropped sharply from 1.43 in 2009 to 0.21 per 1,000 central line days in 2018.

Since 2010, the rates have remained lower than the national agreed target (1.0) (Chart CL01). The rates should however be interpreted with caution as they were based on small number of infections. For example, of the 71,384 central line days reported by ICUs across NSW in 2018, 15 central line associated bloodstream infections (CLABSI) were reported.

Implications: The reduction in CLABSI rate during this period is likely to also manifest in a reduction in length of hospitalisation and infection-related morbidity and mortality. Continued effort is required for further incidence reduction.

What we don't know: Although the hospital-associated risk factors for CLABSI are known [9-10] the underlying patient factors associated are also important in determining the likelihood of infection and associated outcomes. Further investigation is required to determine the contribution of these factors.

References:

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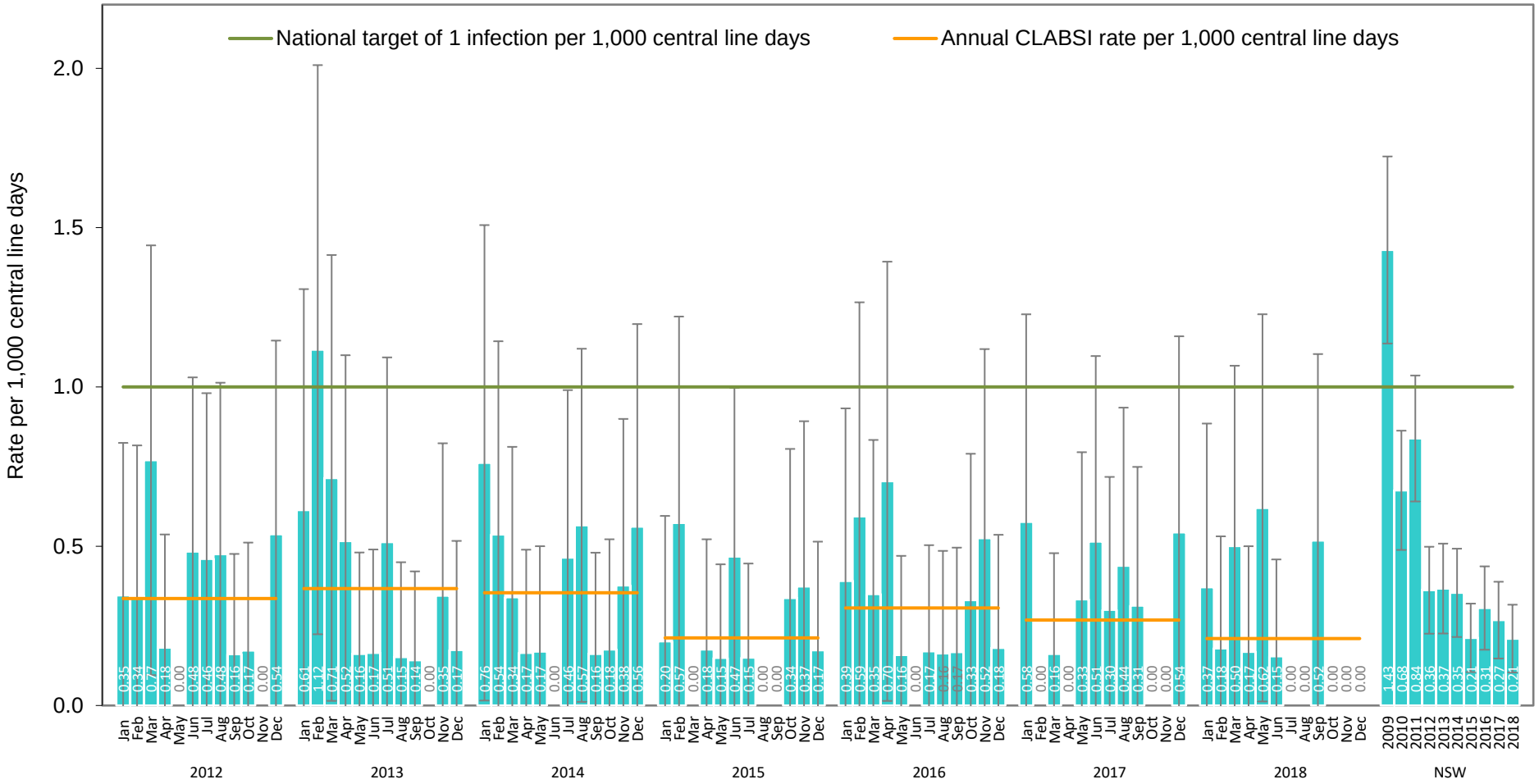
Chart CL01 – CLABSI in ICU adult patients

Monthly CLABSI rate per 1,000 line days in ICU adult patients (public hospitals), NSW, Jan 2012 – Dec 2018



Source: NSW Ministry of Health, Clinical Excellence Commission.

Data Definitions

Chart:	CL01
Admin Status:	Current, Dec 2018
Indicator Name:	CLABSI in ICU adult patients
Description:	Monthly CLABSI rate per 1,000 line days in ICU adult patients (public hospitals), NSW, Jan 2012 – Dec 2018
Dimension:	Patient safety
Clinical Area:	Initiatives in safety and quality health care
Data Inclusions:	All CLABSIs in adult patients in ICUs
Data Exclusions:	None
Numerator:	Total number of CLABSIs in adult patients in ICUs
Denominator:	Total number of central line days in adult patients in ICUs
Standardisation:	None (crude infection rate per 1,000 central line days was calculated)
Data Source:	NSW Health Healthcare Associated Infections Data Collection, NSW Ministry of Health
Comments:	Not applicable