National Healthcare Agreement: PI 22–Healthcare associated infections: Staphylococcus aureus bacteraemia, 2019

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National Healthcare Agreement: PI 22–Healthcare associated infections: Staphylococcus aureus bacteraemia, 2019

Identifying and definitional attributes

Metadata item type:	Indicator
Indicator type:	Progress measure
Short name:	PI 22–Healthcare associated infections: Staphylococcus aureus bacteraemia, 2019
METEOR identifier:	698892
Registration status:	Health, Superseded 13/03/2020
Description:	*Staphylococcus aureus* bacteraemia (SAB) associated with acute care public hospitals (excluding cases associated with private hospitals and non-hospital care).
Indicator set:	National Healthcare Agreement (2019) Health, Superseded 13/03/2020
Outcome area:	Hospital and Related Care Health, Standard 07/07/2010 National Health Performance Authority (retired), Retired 01/07/2016

Collection and usage attributes

Computation description: Acute care public hospitals are defined as all public hospitals including those hospitals defined as public psychiatric hospitals in the Public hospital establishments National minimum data set (NMDS). All types of public hospitals are included, both those focusing on acute care, and those focusing on non-acute or subacute care, including psychiatric, rehabilitation and palliative care.

Unqualified newborns, hospital boarders and posthumous organ procurement are excluded from the denominator of the indicator.

A patient-episode of SAB is defined as a positive blood culture for *Staphylococcus aureus*. For surveillance purposes, only the first isolate per patient is counted, unless at least 14 days has passed without a positive blood culture, after which an additional episode is recorded.

A *Staphylococcus aureus* bacteraemia will be considered to be healthcare-associated if: the first positive blood culture is collected more than 48 hours after hospital admission or less than 48 hours after discharge, OR, if the first positive blood culture is collected less than or equal to 48 hours after admission to hospital and the patient-episode of SAB meets at least one of the following criteria:

1. SAB is a complication of the presence of an indwelling medical device (e.g. intravascular line, haemodialysis vascular access, cerebrospinal fluid (CSF) shunt, urinary catheter)
2. SAB occurs within 30 days of a surgical procedure where the SAB is related to the surgical site
3. SAB was diagnosed within 48 hours of a related invasive instrumentation or incision
4. SAB is associated with neutropenia contributed to by cytotoxic therapy. Neutropenia is defined as at least 2 separate calendar days with values of absolute neutrophil count (ANC) or total white blood cell count (WBC) <500 cells/mm^3 (0.5×10^9 / L) on or within a 7-day time period which includes the date the positive blood specimen was collected (Day 1), the 3 calendar days before and the 3 calendar days after.

Exclusions:

Cases where a known previous positive test has been obtained within the last 14 days are excluded. For example: if a patient has SAB in which 4 sets of blood cultures are positive over the initial 3 days of the patient's admission only one episode of SAB is recorded. If the same patient had a further set of positive blood cultures on day 6 of the same admission, these would not be counted again, but would be considered part of the initial patient-episode.

Note: If the same patient had a further positive blood culture 20 days after admission (i.e. greater than 14 days after their last positive blood culture on day 5), then this would be considered a second patient-episode of SAB.

See Establishment—number of patient days, total N[N(7)] for the definition of patient days.

Analysis by state and territory is based on location of the hospital.

Presented as:

- a number, and
- per 10,000 patient days.

Coverage: Denominator ÷ Number of patient days for all public hospitals in the state or territory.

Any variation from the specifications by jurisdictions will be footnoted and described in the data quality statement.

Computation: Numerator

10,000 x (Numerator ÷ Denominator).

Numerator: Number of SAB patient episodes (as defined above) associated with acute care public hospitals.

Numerator data elements:

Data Element / Data Set

Establishment—number of healthcare-associated Methicillin-sensitive Staphylococcus aureus (MSSA) bacteraemia patient episodes, total episodes N[NNNN]

Data Source

State/territory infection surveillance data

NMDS / DSS

Healthcare-associated infections NBEDS 2016–2021

Guide for use

Data source type: Administrative by-product data

Data Element / Data Set

Establishment—number of healthcare-associated Methicillin-resistant Staphylococcus aureus (MRSA) bacteraemia patient episodes, total episodes N[NNNN]

Data Source

State/territory infection surveillance data

NMDS / DSS

Healthcare-associated infections NBEDS 2016–2021

Guide for use

Data source type: Administrative by-product data

Data Element / Data Set

Establishment—Staphylococcus aureus bacteraemia surveillance indicator, yes/no code N

Data Source

State/territory infection surveillance data

NMDS / DSS

Healthcare-associated infections NBEDS 2016–2021

Guide for use

Data source type: Administrative by-product data

Denominator:

Number of patient days for acute care public hospitals under surveillance (i.e. only for hospitals included in the surveillance arrangements).

Exclude unqualified newborns, posthumous organ procurement and hospital boarders.

Denominator data elements:

Data Element / Data Set
Establishment—number of hospital patient days under Staphylococcus aureus bacteraemia surveillance, total days N[NNNNN] **Data Source** State/territory admitted patient data **NMDS / DSS** Healthcare-associated infections NBEDS 2016–2021 **Guide for use** Data source type: Administrative by-product data

Data Element / Data Set
Establishment—Staphylococcus aureus bacteraemia surveillance indicator, yes/no code N **Data Source** State/territory admitted patient data **NMDS / DSS** Healthcare-associated infections NBEDS 2016–2021 **Guide for use** Data source type: Administrative by-product data

Disaggregation:

2016–17 (updated for resupplied data), 2017–18—State and territory, by:

- Methicillin-resistant *Staphylococcus aureus* (MRSA)/Methicillin-sensitive *Staphylococcus aureus* (MSSA)

Some disaggregation may result in numbers too small for publication.

Disaggregation data elements:

Data Element / Data Set
Establishment—Australian state/territory identifier, code N **Data Source** State/territory infection surveillance data **NMDS / DSS** Healthcare-associated infections NBEDS 2016–2021 **Guide for use** Data source type: Administrative by-product data

Comments:

Most recent data available for 2019 National Healthcare Agreement performance reporting: 2017–18.

The number of SAB patient episodes associated with acute care public hospitals under surveillance includes SAB patient episodes associated with all public hospitals, and the number of patient days for acute care public hospitals under surveillance includes the number of patient days for all public hospitals under surveillance.

For some states and territories there is less than 100% coverage of hospitals. This may impact on the reported rate. For those jurisdictions with incomplete coverage

of acute care public hospitals (in the numerator), only patient days for those hospitals that contribute data are included (in the denominator). Specifically, if a hospital was not included in the SAB surveillance arrangements for part of the year, then the patient days for that part of the year are excluded. If part of the hospital was not included in the SAB surveillance arrangements (e.g. children's wards, psychiatric wards), then patient days for that part of the hospital are excluded. Patient days for 'non-acute' hospitals (such as rehabilitation and psychiatric hospitals) are included if the hospital was included in the SAB surveillance arrangements, but not otherwise. However, all these patient days are included in the coverage rate denominator measure of total number of patient days for all public hospitals in a state or territory.

Some states operate a 'signal surveillance' arrangement for smaller hospitals whereby the hospital notifies the appropriate authority if a SAB case is identified, but the hospital is not considered to have formal SAB surveillance as per larger hospitals. Where this arrangement is in place, these hospitals should be included as part of the indicator. That is, SAB patient episodes and patient days should be included as 'under surveillance'.

Only episodes associated with acute care public hospital care in each jurisdiction should be counted. If a case is associated with care provided in another jurisdiction (cross border flows) then it is reported (where known) by the jurisdiction where the care associated with the SAB occurred.

There may be patient episodes of SAB identified by a hospital which did not originate in the identifying hospital (as determined by the definition of a patient episode of SAB), but in another public hospital. If the originating hospital is under SAB surveillance, then the patient episode of SAB should be attributed to the originating hospital and should be included as part of the indicator. If the originating hospital is not under SAB surveillance, then the patient episode is unable to be included in the indicator.

Patient episodes associated with care provided by private hospitals and non-hospital health care are excluded.

Patient days for unqualified newborns, hospital boarders and posthumous organ procurement are excluded.

Almost all patient episodes of SAB will be diagnosed when the patient is an admitted patient. However, the intention is that cases are reported whether they were associated with admitted patient care or non-admitted patient care in acute care public hospitals.

Where there is significant variation, for example non-coverage of cases diagnosed less than 48 hours after admission, in the data collection arrangements it will affect the calculation of values across states and territories.

Variation in admission practices across jurisdictions will influence the denominator for this indicator impacting on comparability of rates.

Jurisdictional manuals should be referred to for full details of definitions used in infection control surveillance.

Note that the definition of a healthcare-associated SAB was revised by the Australian Commission on Safety and Quality in Health Care in 2016. In particular, the clinical criterion for SAB associated with neutropenia was revised. Data for 2010–11, 2011–12, 2012–13, 2013–14 and 2014–15 are reported according to the previous neutropenia criterion:

- SAB is associated with neutropenia ($<1 \times 10^9$) contributed to by cytotoxic therapy

Data for 2015–16, 2016–17 and 2017–18 are reported according to the new neutropenia criterion:

- SAB is associated with neutropenia contributed to by cytotoxic therapy. Neutropenia is defined as at least 2 separate calendar days with values of absolute neutrophil count (ANC) or total white blood cell count (WBC) <500 cell/mm^3 (0.5×10^9/L) on or within a 7-day time period which includes the date the positive blood specimen was collected (Day 1), the 3 calendar days

before and the 3 calendar days after.

Note that patient episodes of SAB are just one type of healthcare associated infection. Hence, this performance indicator is not a complete measure of healthcare associated infections for the outcome area of Hospital and Related Care.

Representational attributes

Representation class:	Rate
Data type:	Real
Unit of measure:	Episode
Format:	N[NN].N

Indicator conceptual framework

Framework and dimensions:	Safety

Data source attributes

Data sources:

Data Source

State/territory admitted patient data

Frequency

Annual

Data custodian

State/territory health authorities

Data Source

State/territory infection surveillance data

Frequency

Annual

Data custodian

State/territory health authorities

Accountability attributes

Reporting requirements:	National Healthcare Agreement
Organisation responsible for providing data:	Australian Institute of Health and Welfare
Benchmark:	National Healthcare Agreement: PB g-Better health services: the rate of *Staphylococcus aureus* (including MRSA) bacteraemia is no more than 2.0 per 10,000 occupied bed days for acute care public hospitals by 2011–12 in each state and territory, 2019
Further data development / collection required:	Specification: Substantial work required, the measure requires significant work to be undertaken.

Relational attributes

Related metadata references:

Supersedes National Healthcare Agreement: PI 22–Healthcare associated infections: Staphylococcus aureus bacteraemia, 2018
Health, Superseded 19/06/2019

Has been superseded by National Healthcare Agreement: PI 22–Healthcare associated infections: Staphylococcus aureus bacteraemia, 2020
Health, Standard 13/03/2020

See also Australian Health Performance Framework: PI 2.2.2–Healthcare-associated Staphylococcus aureus bloodstream infections, 2019
Health, Superseded 13/10/2021

See also National Healthcare Agreement: PB g–Better health services: the rate of Staphylococcus aureus (including MRSA) bacteraemia is no more than 2.0 per 10,000 occupied bed days for acute care public hospitals by 2011–12 in each state and territory, 2019
Health, Superseded 13/03/2020

See also National Healthcare Agreement: PI 23–Unplanned hospital readmission rates, 2019
Health, Superseded 13/03/2020