# National Healthcare Agreement: PI 22–Healthcare associated infections: Staphylococcus aureus bacteraemia, 2022

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# National Healthcare Agreement: PI 22–Healthcare associated infections: Staphylococcus aureus bacteraemia, 2022

## Identifying and definitional attributes

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|---|---|
| **Metadata item type:** | Indicator |
| **Indicator type:** | Progress measure |
| **Short name:** | PI 22–Healthcare associated infections: Staphylococcus aureus bacteraemia, 2022 |
| **METEOR identifier:** | 740834 |
| **Registration status:** | Health!, Standard 24/09/2021 |
| **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 (2022)<br>Health!, Standard 24/09/2021 |
| **Outcome area:** | Hospital and Related Care<br>National Health Performance Authority (retired), Retired 01/07/2016<br>Health!, Standard 07/07/2010 |

## Collection and usage attributes

**Computation description:** For the purpose of data collection, all types of public hospitals are included (as defined in the Local Hospital Networks/Public hospital establishments NMDS 2020–21), both those focusing on acute care, and those focusing on non-acute or sub-acute care, including psychiatric, rehabilitation and palliative care.

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/$mm^3$ ($0.5 \times 10^9$ / 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.

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

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

Presented as:

- a number, and
- cases 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 (number of cases)

10,000 x (Numerator ÷ Denominator) (cases per 10,000 patient days).

**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:**

2019–20 (updated for resupplied data), 2020–21—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 2022 National Healthcare Agreement performance reporting: 2020–21.

In accordance with analysis guidelines produced by the Australian Commission for Safety and Quality in Health Care, reported data may refer to SABSI (for *Staphylococcus aureus* bloodstream infections) or HA-SABSI (for healthcare-associated *Staphylococcus aureus* bloodstream infections).

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

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

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.

For the purpose of data collection, 'acute care public hospitals' refers to all types of public hospitals with SAB 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'.
- 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, 2017–18, 2018–19, 2019–20 and 2020–21 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/$mm^3$ ($0.5 \times 10^9$/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 1.0 per 10,000 occupied bed days for acute care public hospitals by 2020–21 in each state and territory, 2022

**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, 2021
Health!, Standard 16/09/2020

See also Australian Health Performance Framework: PI 2.2.2–Healthcare-associated Staphylococcus aureus bloodstream infections, 2019
Health!, Standard 09/04/2020

See also Australian Health Performance Framework: PI 2.2.2–Healthcare-associated Staphylococcus aureus bloodstream infections, 2020
Health!, Standard 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 1.0 per 10,000 occupied bed days for acute care public hospitals by 2020–21 in each state and territory, 2022
Health!, Standard 24/09/2021

See also National Healthcare Agreement: PI 23–Unplanned hospital readmission rates, 2022
Health!, Standard 24/09/2021

See also National Staphylococcus aureus Bacteraemia Data Collection, 2019–20: Quality Statement
AIHW Data Quality Statements, Standard 23/02/2021