National Staphylococcus aureus Bacteraemia Data Collection, 2019–20: Quality Statement

Exported from METEOR (AIHW's Metadata Online Registry)

© Australian Institute of Health and Welfare 2024

This product, excluding the AIHW logo, Commonwealth Coat of Arms and any material owned by a third party or protected by a trademark, has been released under a Creative Commons BY 4.0 (CC BY 4.0) licence. Excluded material owned by third parties may include, for example, design and layout, images obtained under licence from third parties and signatures. We have made all reasonable efforts to identify and label material owned by third parties.

You may distribute, remix and build on this website's material but must attribute the AIHW as the copyright holder, in line with our attribution policy. The full terms and conditions of this licence are available at https://creativecommons.org/licenses/by/4.0/.

Enquiries relating to copyright should be addressed to info@aihw.gov.au.

Enquiries or comments on the METEOR metadata or download should be directed to the METEOR team at meteor@aihw.gov.au.

National Staphylococcus aureus Bacteraemia Data Collection, 2019–20: Quality Statement

Identifying and definitional attributes

Metadata item type: Data Quality Statement

Synonymous names: NSABDC

METEOR identifier: 733574

Registration status: AIHW Data Quality Statements, Standard 23/02/2021

Data quality

Data quality statement summary:

Summary of key issues

- The National *Staphylococcus aureus* Bacteraemia Data Collection (NSABDC) is a data set that includes counts of healthcare associated cases of *Staphylococcus aureus* bacteraemia (SAB) for each public hospital covered by SAB surveillance arrangements, and for private hospitals that choose to provide data. The data also includes the counts of patient days under surveillance and total patient days.
- All cases of SAB have been reported by state and territory health departments, private hospitals and private hospital groups using the nationally agreed case definition (outlined below).
- Some SAB cases are excluded due to the inherent difficulties in determining the origins of SAB episodes, such as those originating in non-hospital settings.
- For some states and territories there is less than full coverage of public hospitals as surveillance arrangements may not be in place in all wards or all hospitals.

- The Victorian government granted an exemption to all Victorian hospitals from reporting routine surveillance during the period 1 April to 31 December 2020 inclusive due to some hospitals having resource issues due to pandemic response requirements. This included an exemption from submitting data on SABs and hand hygiene audits.

- Private hospitals supply data voluntarily to the NSABDC, and a low proportion of private hospitals report data. Coverage of the private sector is therefore incomplete and reported data is not fully representative of the sector as a whole. Comparisons between the public and private sector are therefore unreliable.
- The data for 2011–12 to 2019–20 are comparable. The count of days of patient care reflects the amount of admitted patient activity, but does not reflect the amount of non-admitted patient activity as this cannot be captured due to variations in admission practice.
- The New South Wales Department of Health provided the number of occupied bed days for New South Wales public hospitals, rather than the number of patient days under surveillance. Counts of occupied bed days are likely to be different from counts of days of patient care, and therefore limiting comparability of New South Wales public hospital data to equivalent data from other jurisdictions.
- The 2019–20 patient day and coverage data may be preliminary for some hospitals or jurisdictions.
- As described in the National *Staphylococcus aureus* Bacteraemia Data Collection, 2015–16 Quality Statement, due to the changes in the denominator of the performance indicator specification, data published in 2017 for the reporting years 2010–11 to 2015–16 are not comparable with data previously published in COAG Reform Council publications, the AIHW series '*Staphylococcus aureusbacteraemia in Australian public hospitals: Australian hospital statistics*' nor the *Report of Government Services.*

Description

The NSABDC includes counts of healthcare associated cases of *Staphylococcus aureus* bacteraemia (SAB) for each public hospital covered by SAB surveillance arrangements, and for private hospitals that choose to provide data. The data for public hospitals are collected under hospital infection control arrangements by state and territory health authorities. The data include the counts of patient days under surveillance.

Data on the numbers of methicillin-resistant *Staphylococcus aureus* (MRSA) and methicillin-sensitive *Staphylococcus aureus* (MSSA) cases for public hospitals are reported separately at a state or territory level for the collection years of 2010–11 to 2015–16 inclusive, and at hospital level for the collection years of 2016–17, 2017–18 and 2019–20.

A case (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 case of SAB 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 (for example, intravascular line, haemodialysis vascular access, cerebrospinal fluid 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 two separate calendar days with values of absolute neutrophil count or total white blood cell count (WBC) <500 cells/mm^3 (<0.5 x 10^9/ L) on or within a seven-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.

This definition of a case of SAB was used by all states and territories for reporting for the 2015–16; 2016–17, 2017–18, 2018–19 and 2019–20 years.

Institutional environment:

The AIHW is a major national agency set up by the Australian Government under the *Australian Institute of Health and Welfare Act 1987* to provide reliable, regular and relevant information and statistics on Australia's health and welfare. It is an independent corporate Commonwealth entity established in 1987, governed by a management board, and accountable to the Australian Parliament through the Health portfolio.

The AIHW aims to improve the health and wellbeing of Australians through better health and welfare information and statistics. It collects and reports information on a wide range of topics and issues, ranging from health and welfare expenditure, hospitals, Indigenous health, maternal health, disease and injury, and mental health, to ageing, homelessness, disability and child protection.

The Institute also plays a role in developing and maintaining national metadata standards. This work contributes to improving the quality and consistency of national health and welfare statistics. The Institute works closely with governments and non-government organisations to achieve greater adherence to these standards in administrative data collections to promote national consistency and comparability of data and reporting.

One of the AIHW's main functions is to work with the states and territories to improve the quality of administrative data and, where possible, to compile national data sets based on data from each jurisdiction, analyse these data sets, and disseminate information and statistics.

The *Australian Institute of Health and Welfare Act 1987*, in conjunction with compliance to the *Privacy Act 1988*, (Cwlth), ensures that the data collections managed by the AIHW are kept securely and under the strictest conditions with respect to privacy and confidentiality.

For further information, see the AIHW website

Data for the NSABDC were supplied to the AIHW by state and territory health authorities for reporting based on the National Healthcare Agreement (NHA) performance benchmark and performance indicator 'Healthcare-associated infections: *Staphylococcus aureus* bacteraemia' and for reporting using the Performance and Accountability Framework specifications. Data supplied to the AIHW by state and territory health authorities and AIHW reports based on those data are approved by the relevant data custodians in each jurisdiction prior to it being released.

Timeliness:

Data are provided annually by state and territory health authorities. Data are collected from private providers concurrently with data from state and territory health authorities. However, given the voluntary nature of the NSABDC for the private sector, one or more supplementary collections may also be conducted throughout each year for private hospitals. The reference period for this data set is 2019–20, with revised data provided for 2018–19.

States and territory health departments provided the data to the AIHW by November 2020. The data were published in February 2021.

Accessibility:

The AIHW publishes data from the NSABDC annually:

- in the 'Staphylococcus aureus *bacteraemia in Australian hospitals: Australian hospital statistics'* series. From 2019, this was renamed the *'Bloodstream infections associated with hospital care: Australian hospital statistics'* series. These reports may be accessed on the AIHW website.
- for individual hospitals on the MyHospitals website. These data may be accessed on the MyHospitals website.

Interpretability:

Information on the definitions used for the NSABDC, including patient days, admitted patient, non-admitted patient and care type, are available on the AIHW's online metadata repository (METeOR). METeOR can be accessed on the AIHW website.

The NHA performance indicator specification can be accessed on the METeOR website.

Relevance:

Data from the NSABDC are used for the NHA performance benchmark and performance indicator about safety and quality in hospital and related care.

Each jurisdiction only reports cases associated with health care in their jurisdiction. Jurisdictions report SAB cases where health care services for that cases were provided.

There may be patient episodes of SAB identified by a hospital which did not originate in that hospital. If the originating hospital is under SAB surveillance, then the patient episode of SAB is reported against the originating hospital.

Almost all cases of SAB will be diagnosed when the patient is an admitted patient. However, the intention is that cases are reported whether they were determined to be associated with admitted patient care or non-admitted patient care in hospitals. Some SAB cases may be excluded due to the inherent difficulties in determining the origins of SAB episodes, such as those originating from non-hospital settings. However, it is likely that the number of cases incorrectly included or excluded would be small.

While non-admitted patient episodes are included in the numerator for performance indicator calculations, the count of patient days (in the denominator) reflects the amount of admitted patient activity, but not the amount of non-admitted patient activity. The amount of hospital activity that patient days reflect varies among jurisdictions and over time because of variation in admission practices.

The data have not been adjusted for differences in casemix among the states and territories or among hospital peer groups. 'Casemix' is a term that refers to the range and types of patients treated by a hospital or other health service. For SAB, relevant aspects of casemix that could affect the risk of SAB for patients include patient comorbidities and procedures performed.

For some states and territories there is less than 100 per cent coverage of public hospitals as surveillance arrangements may not be in place in all wards or all hospitals.

Private hospitals supply data voluntarily to the NSABDC, and not all private hospitals report data. Coverage of the private sector is therefore incomplete and reported data may not be representative of the sector as a whole. Comparisons between the public and private sectors should be avoided.

Accuracy:

States and territories and private hospitals are primarily responsible for the quality of the data they provide. However, the AIHW undertakes validations on receipt of data. Data are checked for valid values, logical consistency and historical consistency. Potential errors are queried, and corrections and resubmissions may be made by data provider in response to these edit queries. The AIHW does not adjust data to account for possible data errors or missing or incorrect values, except as stated above.

Processes and capacity to validate a patient episode of SAB may vary between states and territories, and arrangements for the collection of data by hospitals and the reporting to state and territory health authorities may also vary. Jurisdictional manuals should be referred to for full details of definitions used in their infection surveillance arrangements.

Coverage

For some states and territories there is less than full coverage of public hospitals as surveillance arrangements may not be in place in all wards or all 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.

Between 1 April 2020 and 31 December 2020, the Victorian government granted an exemption to all Victorian hospitals from reporting routine surveillance due to some hospitals having resource issues due to pandemic response requirements. This included an exemption from submitting data on SAB and hand hygiene audits.

Noting that not all public hospitals/wards have SAB surveillance arrangement in place, coverage of public hospitals within the collection is very high. In 2014–15 coverage ranged from 94% to 100%. In 2018–19 the range of coverage increased, from 96% to 100%.

For private hospitals, the percentage of hospitals participating in the collection has increased from 14% in 2016–17 to 28% in 2018–19. Participation of private hospitals is calculated by using the 2016-17 ABS National Private Health Establishment Collection. As this collection ceased after 2016-17, there may be an over estimation of the percentage of private hospitals participating in the collection. Of the 28% that participated in the 2018–19 collection, coverage ranged from 98% to 100%.

The patient day data for 2019–20 may be preliminary for some hospitals or jurisdictions. Due to changes in the proportion of private hospitals participating in the NSABDC (as well as changes in terms of which private hospitals participate in which collection years), aggregated results for private hospitals should not be compared over time.

In both 2015–16, and 2018–19, Western Australia reported one case where both MRSA and MSSA were identified. These cases have been reported in the MRSA counts; they are not included in the MSSA counts, and are reported as one case in the total for Western Australia for these years.

The New South Wales Department of Health reports occupied bed days for New South Wales public hospitals, rather than patient days, for calculation of the performance indicator denominator. The comparability of New South Wales public hospital performance indicator data to that for other jurisdictions is therefore limited (but only by the small extent that counts of occupied bed days would be expected to differ from counts of patient days). New South Wales performance indicator data are included in the Australian performance indicator data because it is expected that at the national level the use of occupied bed days, rather than patient days, for New South Wales is unlikely to create a marked difference in the Australian performance indicator data.

Private hospitals supply data voluntarily to the NSABDC, and not all private hospitals report data. Coverage of the private sector is therefore incomplete and reported data may not be representative of the sector as a whole. Comparisons between the public and private sectors should be avoided.

Some public hospitals services are provided by private hospitals or private hospital groups. Reported SAB data for these public hospitals may be provided by the state or territory department of health, the private hospital or the private hospital group.

Coherence:

The NSABDC data were first reported in the 2010 COAG Reform Council *National Agreement: Baseline performance report for 2008-09* (CRC 2010). Since that report, further work has been undertaken on data development for the NHA performance indicator, including the definition of an episode of SAB and the definition of the number of patient days under SAB surveillance, as used for the denominator of the NHA performance indicator.

The most recent work in 2016 was to revise the definition of patient days under SAB surveillance to exclude unqualified newborns, and to update the neutropenia criterion, as advised by the Australian Commission on Safety and Quality in Health Care. All jurisdictions re-provided data for the reporting years of 2010–11 to 2014–15 according to the revised specification.

For 2010–11 to 2014–15, all states and territories used the definition of SAB patient episodes as defined above in the 'Quality statement summary — description', but with the following neutropenia criterion:

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

For 2015–16 and subsequent years, all states and territories used the definition of SAB patient episodes as defined above with the updated neutropenia criterion as described above in the 'Quality statement summary — description'.

The change to the neutropenia criterion is not considered to have materially affected the comparability of counts of SAB cases for 2015–16 and subsequent years, with counts from previous years.

In Queensland, data for public hospitals for 2010–11 are not comparable to later years (and not comparable across jurisdictions for 2010–11) as the 2010–11 data only include patients aged 14 years and over, whereas the data for 2011–12 and later years include patients of all ages.

Due to the changes in the denominator of the performance indicator specification, data published in 2017 and subsequent years for the reporting years 2010–11 to 2014–15 are not comparable with data previously published in:

- the Council of Australian Governments (COAG) Reform Council publications
- the AIHW series '*Staphylococcus aureus* bacteraemia in Australian public hospitals: Australian hospital statistics'
- the annual *Report on Government Services* produced by the Steering Committee for the Review of Government Service Provision.

Private hospitals supply data voluntarily to the NSABDC, and not all private hospitals report data. Coverage of the private sector is therefore incomplete and reported data may not be representative of the sector as a whole.

Source and reference attributes

Submitting organisation: Australian Institute of Health and Welfare

Steward: Australian Institute of Health and Welfare

Reference documents: CRC (COAG Reform Council) 2010. National Healthcare Agreement: Baseline performance report for 2008–09. Sydney: COAG Reform Council.

Relational attributes

Related metadata references:

Supersedes National Staphylococcus aureus Bacteraemia Data Collection, 2018–19: Quality Statement
AIHW Data Quality Statements, Superseded 01/03/2021

See also National Healthcare Agreement: PI 22–Healthcare associated infections: Staphylococcus aureus bacteraemia, 2021
Health!, Standard 16/09/2020

See also National Healthcare Agreement: PI 22–Healthcare associated infections: Staphylococcus aureus bacteraemia, 2022
Health!, Standard 24/09/2021

See also National Staphylococcus aureus Bacteraemia Data Collection, 2015-16: Quality Statement
AIHW Data Quality Statements, Superseded 15/12/2017