National Staphylococcus aureus Bacteraemia Data Collection, 2017–18: Quality Statement

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Identifying and definitional attributes

Metadata item type: Data Quality Statement

Synonymous names: NSABDC

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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 include the counts of patient days under surveillance.
- 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).
- There may be imprecise exclusion of some SAB cases 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 100 per cent coverage of public hospitals as surveillance arrangements may not be in place in all wards or all hospitals.
- The data for 2011–12 to 2017–18 are comparable, noting that the count of days of patient care reflects the amount of admitted patient activity, and does not reflect the amount of non-admitted patient activity because of variations in admission practice.
- The data for 2010–11 are comparable with subsequent year data except for public hospital data for Queensland.
- 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. The comparability of New South Wales public hospital data to equivalent data from 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 days of patient care.
- The 2017–18 patient day and coverage data may be preliminary for some hospitals or jurisdictions.
- Due to changes in the denominator of the performance indicator specification, data re-/published in 2017 and subsequent years for the reporting years 2010–11 to 2014–15 are not comparable with previously published 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 be biased and not representative of the sector as a whole. Comparisons between the public and private sector are therefore unreliable.

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 year of 2016–17 and 2017–18.

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 and 2017–18 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 http://www.aihw.gov.au/.

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 2017–18, with revised data provided for 2016–17.

States and territories provided the data to the AIHW by November 2018. The data were published in February 2019.

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: http://www.aihw.gov.au/hospitals/.
- for individual hospitals on the MyHospitals website. These data may be accessed on the MyHospitals website: https://www.myhospitals.gov.au/.

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:

/content/index.phtml/itemId/181162.

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

/content/index.phtml/itemId/658487.

Relevance:

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

Only cases associated with health care in each jurisdiction are reported. If a case is associated with care provided in another jurisdiction, 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 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. There may be imprecise exclusion of some SAB cases 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.

The count of patient days (used in the denominator for performance indicator calculation) reflects the amount of admitted patient activity, but does not reflect 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.

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.

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.

The patient day data for 2017–18 may be preliminary for some hospitals or jurisdictions.

For 2015–16, Western Australia reported one case where both MRSA and MSSA were identified. This case has been reported in the MRSA count, not reported in the MSSA count, and reported as one case in the total for Western Australia.

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 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 previously published data.

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, 2016–17: Quality Statement
AIHW Data Quality Statements, Superseded 21/01/2019

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