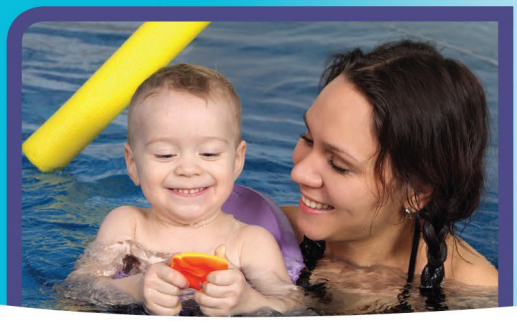
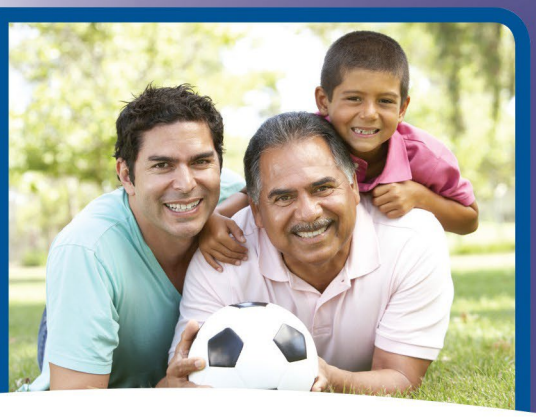
Staphylococcus aureus Bloodstream Infection (SABSI)

Surveillance protocol version 6







Department of Health

Tasmanian Government

***Staphylococcus aureus* Bloodstream Infection (SABSI) surveillance protocol V6**

Public Health Services

Department of Health, Tasmania

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Contents

Background

Staphylococcus aureus (*S. aureus*) is a Gram-positive bacteria found on the skin and mucous membranes, with humans being the major reservoir. If *Staphylococcus aureus* enters the bloodstream or tissues, it can cause a wide variety of infections, including skin and soft tissue, bone and joint, respiratory, and medical device related infections. A *Staphylococcus aureus* bloodstream infection (SABSI) may be complicated by sepsis, endocarditis, or metastatic seeding (infection established at other tissue sites).

SABSI are a serious cause of morbidity and mortality worldwide with a proportion of these episodes associated with healthcare and healthcare activities. Many healthcare associated *Staphylococcus aureus* blood stream infections (HA-SABSI) are related to indwelling vascular devices, hand hygiene practices and healthcare associated practices. Many of these HA-SABSI are considered to be preventable adverse events.

Tasmanian laboratory identified SABSI is notifiable under the *Public Health Act* 1997, thus all SABSI identified in Tasmania are notified to the Director of Public Health by the identifying Tasmanian laboratory.

The Tasmanian Infection Prevention and Control Unit (TIPCU) monitors and reports on SABSI identified within Tasmania in accordance with the surveillance methods outlined in this protocol.

Surveillance objectives

1. To monitor SABSI cases, clusters, and trends of SABSI with respect to person, place and time, and emergence of antibiotic resistance.
2. To provide surveillance data to local and National stakeholders.
3. To inform the planning and implementation of evidence-based policy, service provision, prevention strategies and other public health interventions.

Definitions

Hospital admission - an episode of care provided by a hospital.

Relevant personnel - person/s external to Public Health Services who cross checks SABSI data; this is usually infection prevention and control personnel or healthcare workers in residential aged care facilities (RACF).

Case definition

- A blood culture positive for *Staphylococcus aureus* (*S. aureus*)

Inclusions

- Repeat SABSI from the same patient/client and at least 14 days or more have passed since the previous positive culture.

Exclusions

- Repeat positive blood cultures where ≤ 14 days have elapsed since the previous positive blood culture.
- Contaminant – the clinical picture does not support infection AND either a repeat blood culture is negative AND/OR no *S. aureus* targeted antibiotic treatment is given.
- Duplicate results of the same specimen.

Classification of cases

All SABSI must be classified as to the likely place of acquisition – healthcare associated or community associated.

Healthcare associated SABSI (HA-SABSI) – the SABSI meets either Criterion A **OR** Criterion B:

- **Criterion A** - the patient/client's first *S. aureus* blood culture was collected more than 48 hours after hospital admission, with no documented evidence that infection was present or was incubating on admission* **OR** was collected less than 48 hours after hospital discharge. A key-clinical criteria (KCC) may also be identified (Table 1).
  * as determined by consultation with the patients medical officer and/or a clinical microbiologist
- **Criterion B** - the patient/client's first *S. aureus* blood culture was collected less than or equal to 48 hours after hospital admission **AND** one or more KCC (Table 1) are met.

Table 1 – Key Clinical Criteria (KCC)

KCC	Description	Examples
KCC 1	Complication of an indwelling intravascular (IV) or non-IV indwelling medical device if: • The device was in-situ in the 48 hours prior to the SABSI episode and there is no other identifiable focus of *S. aureus* infection. • An IV introducer was used for a procedure occurring within the 48 hours prior to the SABSI. • The device is a haemodialysis access device **and** clinical evidence of infection at the site **or** there is no other identifiable source of SABSI.	A – CVC - central venous catheter (CVC), tunneled CVC (Hickman's), peripherally inserted central venous catheter (PICC), Swan Ganz catheter, Vascath (dialysis), implanted devices (Infusaport, Portacath). B – other: IV device - peripheral arterial line, peripheral intravenous device, umbilical venous device, AV fistula. C – other: non-IV indwelling device - urinary catheter, percutaneous endoscopic gastrostomy (PEG) tube, external ventricular drains, chest tubes, cerebrospinal fluid (CSF) shunts, peritoneal dialysis catheters.
KCC 2	Complication of a surgical procedure with: • a superficial surgical site infection (SSI) proven or suspected to be due to *S. aureus* that occurs within 30 days of the surgical procedure. • a deep/organ space SSI proven or suspected to be due to *S. aureus* that occurs within 90 days of the surgical procedure or implanted device.	Implanted devices - joint prostheses, permanent pacemakers, nerve stimulators, breast implants, surgical mesh.
KCC 3	Within 48 hours of invasive instrumentation or incision.	Pacing wires, endoscopic retrograde cholangiopancreatography (ERCP), cardiac catheterisation.
KCC 4	Associated with neutropenia caused by cytotoxic therapy and unrelated to the presence on an indwelling medical device.	At least two separate calendar days where the absolute neutrophil count or total white blood cell count <500 cells/mm^3 (<0.5 × 10^9 / L) on or within 7 days, which includes the date the blood culture was collected, and the 3 calendar days before and after.

Community associated SABSI – any case of SABSI where criteria for HCA-SABSI not met.

Data collection process

- All SABSI identified in Tasmania are notified to Public Health Services (PHS) by the identifying laboratory.
- TIPCU assess whether the SABSI notification meets the case definition and records the relevant laboratory and demographic information.
- Identifying laboratories perform at a minimum, a quarterly data extraction of all SABSI identified within Tasmania and securely transmit the extracted data to TIPCU.
- TIPCU cross check the data extraction against SABSIs notified to PHS within the same quarter.
- Any discrepancies are investigated by TIPCU and the identifying laboratory.
- The SABSI data is sent to the relevant personnel quarterly for enhanced data collection and cross checking against their own data set, and classification of SABSI identified at their site, then returned to TIPCU.
- TIPCU make any changes or additions to the final version of the data.

Data collection responsibilities

	Notification	Data
Laboratory	Notifies PHS of result.	• Hospital identification number where available. • Date of birth. • Surname. • Sex. • Specimen date. • Specimen laboratory number. • Specimen site. • Name of organism. • Antibiotic susceptibilities.
TIPCU	Identifies if the SABSI meets the case definition. New case: • Enters minimum patient/client data. • Sends data to relevant. personnel to cross check the notification with their own data and to complete classification and attribution of SABSI. • Enters returned data and makes any changes. Duplicate results are discarded.	• Hospital identification number when not provided by laboratory. • Indigenous status. • Postcode. • Hospital code. • Laboratory code. • Hospital admission date if patient/client was an inpatient in a healthcare facility at time of specimen collection. • Days between admission and specimen collection. • Type of *S. aureus*.

Relevant personnel	Identifies if the SABSI is:
	• Healthcare associated **OR** Community associated.
	• If healthcare associated, is it Criterion A or B?
	  • If Criterion B, the SABSI must have an associated KCC.
	  • If criterion A, identify if there is a KCC associated with the SABSI.
		• Enters missing data.
		• Corrects erroneous data. Classification of SABSI.
		• Key Clinical Criteria (for Criterion A where applicable and for all Criterion B).
		• Attribution of SABSI.

Reporting

TIPCU produce publicly available, annual surveillance reports that are available online and on request from TIPCU.

Information management

All information held by TIPCU is in accordance with the information privacy principles as set out in the *Personal Information Privacy Act 2004*.

Information shared by laboratories (public and private) pursuant to the *Public Health Act 1997* is held in accordance with the *Personal Information Privacy Act 2004*.

Refer data or information requests to the Director of Public Health or delegate.

References

- Australian Commission on Safety and Quality in Health Care, 2021. Implementation Guide for the Surveillance of *Staphylococcus aureus* Bloodstream Infection, Sydney: ACSQHC. Available at: https://www.safetyandquality.gov.au/sites/default/files/2021-06/sabsi_surveillance_guide_-_june_2021.pdf

- Australian Commission on Safety and Quality in Health Care, 2021. How to analyse Staphylococcus aureus bloodstream infection (SABSI) data for quality improvement. [Online]. Available at: https://www.safetyandquality.gov.au/publications-and-resources/resource-library/staphylococcus-aureus-bloodstream-infection-data-analysis-information-sheet