Version control and change history

<table>
<thead>
<tr>
<th>Version</th>
<th>Date from</th>
<th>Date to</th>
<th>Amendment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>Aug 2009</td>
<td>July 2010</td>
<td>Original version</td>
</tr>
<tr>
<td>2.0</td>
<td>July 2010</td>
<td>June 2014</td>
<td>Update references</td>
</tr>
<tr>
<td>3.0</td>
<td>June 2014</td>
<td>Dec 2015</td>
<td>Update references</td>
</tr>
<tr>
<td>4.0</td>
<td>Jan 2016</td>
<td>Feb 2016</td>
<td>Update references</td>
</tr>
<tr>
<td>4.1</td>
<td>Feb 2016</td>
<td>current</td>
<td>Slight modification in MRO definition</td>
</tr>
</tbody>
</table>

© Department for Health and Ageing, Government of South Australia. All rights reserved.
# Table of Contents

**Introduction** ................................................................. 4

**Infection Surveillance** ....................................................... 5
  - Rate Calculations ............................................................. 6
  - Contributor Requirements ................................................... 6
  - Data Provision Requirements ............................................... 7
  - Reporting ........................................................................... 7

**Bloodstream Infection (BSI) Surveillance** ................................. 9

**Clostridium difficile Infection (CDI) Surveillance** ....................... 17

**Multidrug-resistant Organism (MRO) Surveillance** ..................... 21

**Surgical Site Infection (SSI) Surveillance** .................................. 29

**Safety and Quality Indicators** ............................................ 37
Introduction

Healthcare associated infections, in particular those caused by antibiotic-resistant organisms, are responsible for significant morbidity, mortality and economic cost to individual patients, health care facilities and the community.

The mission of the Infection Control Service is to minimise health care associated infections (HAI) in South Australia through monitoring and intervention.

Our activities are divided into those associated with the statewide surveillance of health care associated infections and antibiotic utilisation, and those associated with the promotion of appropriate interventions to minimise health care associated infections.

In the model followed by the Infection Control Service, surveillance and intervention activities are closely linked. Surveillance data are used to support the development of interventions and monitor their effectiveness.

The principal goal of the ICS surveillance program is the systematic collection of data in order to provide continuous statewide monitoring of the incidence of HAI. Specific objectives to assist in achieving this goal include:

- promotion of contributor involvement in the development of HAI surveillance methods and definitions
- provision of standardised definitions for selected infection indicators
- assistance with interpretation and application of the definitions
- provision of aggregated, standardised data for individual institution monitoring and benchmarking
- continuous monitoring and improvement of surveillance data collection, analysis and reporting methods.

This manual is designed to provide information, definitions and reporting requirements for hospitals that participate in the South Australian HAI surveillance program to ensure standardisation of data collection, analysis and reporting practices.
Infection Surveillance

Background

South Australian hospitals have been contributing the following healthcare associated infection surveillance data on a voluntary basis to the Infection Control Service:

- Laboratory-confirmed bloodstream infections (BSI) – from 1997
- Methicillin-resistant Staphylococcus aureus (MRSA) – from 2001
- Expanded multidrug-resistant organisms (MRO)* – from 2003
- Clostridium difficile infection (CDI) – from 2006.

*The organisms targeted for expanded MRO surveillance include:

- vancomycin-resistant enterococci (VRE) - *E. faecalis* or *E. faecium*
- *S. aureus* with reduced susceptibility to vancomycin (VISA/VRSA)
- multidrug-resistant *Pseudomonas aeruginosa* (MRPAER)
- multidrug-resistant *Acinetobacter baumannii* (MRAB)
- extended spectrum beta-lactamase producing Enterobacteriaceae (ESBL)
- carbapenem-resistant *Acinetobacter spp.* and Enterobacteriaceae (CRGNB)
- Plasmid-mediated AmpC beta-lactamase producers (AMPC)
- Metallo-beta-lactamase producers (MBL).

Multidrug-resistant organism surveillance includes both new (incident) infections and colonisations with any of the targeted organisms.

Surveillance for Clostridium difficile infection (CDI) began as a pilot project in 2006. In 2010 South Australia adopted the national definition for CDI for ongoing surveillance.

Central line associated bloodstream infection data has been collected locally as part of bloodstream infection (BSI) surveillance since 1997. In 2011, the Australian Commission on Safety and Quality in Healthcare (ACSQHC) in conjunction with the Australian and New Zealand Intensive Care Society (ANZICS) released a standardised national CLABSI definition which has been incorporated into the state BSI surveillance definition. This data is reported to ANZICS for national reporting.

The central collection of surveillance data on selected surgical site infections was established during 2013. The procedures initially targeted for statewide review include: hip and knee joint replacement, and lower segment caesarean section.

Surveillance definitions for each of the above indicators are included in this manual.

Numerator Data

Module specific case definitions (see individual definition documents) are used.

Denominator Data

Patient days

Patient days are defined as the sum of the length of stay for each patient that leaves the facility either due to discharge, transfer or death, in the surveillance period.

**NOTE:** These data will be provided by SA Health Data and Reporting Services.
Central Line days

Central line days are defined as the sum of the number of days a central line is in place for each patient present during the surveillance period. For the method of calculation of line days see the bloodstream infection surveillance definition document.

Rate Calculations

Rates are expressed as the number of episodes/cases per 10,000 patient days.

\[
\frac{\text{Module specific numerator}}{\text{Patient days}} \times 10,000
\]

CLABSI specific rate calculation:

\[
\frac{\text{Number of CLABSI}}{\text{Central line days}} \times 1,000
\]

Contributor Requirements

National Healthcare Agreement Indicators

Healthcare associated *Staphylococcus aureus* bacteraemia (SAB) and hospital identified *Clostridium difficile* infection surveillance data are required to be reported to the jurisdiction by all acute care public hospitals.

Acute care public hospitals are defined by the Australian Institute of Health and Welfare as:

All public hospitals, including those defined as public psychiatric hospitals in the Public Hospital Establishments National Minimum Data Set. All types of public hospitals are included, both those focusing on acute care, and those focusing on non-acute or sub-acute care, including psychiatric, rehabilitation and palliative care.


State Performance Agreement Indicators

Hospital performance agreements contain several infection control indicators which are reported monthly to the Portfolio Performance Review Committee (PPRC):

- healthcare associated Staphylococcus aureus bacteraemia (SAB)
- hospital identified Clostridium difficile infection (CDI)
- healthcare associated methicillin-resistant Staphylococcus aureus infection (MRSA)
- healthcare associated vancomycin-resistant enterococcal infection (VRE)
- healthcare associated multi-resistant Gram-negative bacilli (MRGN)
Current contributors to state performance reporting include:

<table>
<thead>
<tr>
<th>Metropolitan Hospitals</th>
<th>Country Hospitals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flinders Medical Centre</td>
<td>Berri Hospital (RRH)</td>
</tr>
<tr>
<td>Lyell McEwin Hospital</td>
<td>Mt Gambier Hospital</td>
</tr>
<tr>
<td>Modbury Hospital</td>
<td>Pt Augusta Hospital</td>
</tr>
<tr>
<td>Noarlunga Hospital</td>
<td>Pt Lincoln Hospital</td>
</tr>
<tr>
<td>Queen Elizabeth Hospital</td>
<td>Pt Pirie Hospital</td>
</tr>
<tr>
<td>Repatriation General Hospital</td>
<td>Whyalla Hospital</td>
</tr>
<tr>
<td>Royal Adelaide Hospital</td>
<td></td>
</tr>
<tr>
<td>Women's and Children's Hospital</td>
<td></td>
</tr>
</tbody>
</table>

Other Country Health SA healthcare facilities also contribute data in alignment with the performance agreement indicators and standardised definitions; however this is not reported on a monthly basis to the PPRC.

**NOTE:** Participation in the South Australian HAI surveillance program is also available to private healthcare facilities on a voluntary basis.

**Data Provision Requirements**

**Numerator Data**

For the metropolitan and country public hospitals providing Safety and Quality Indicator data, monthly counts are required to be submitted to the infection control Service no later than the 10th working day after the end of the month. A reminder will be sent out within 5 working days after the end of the month.

The Infection Control Service is required to make the Safety and Quality Indicator data available to the Safety and Quality Unit by the 16th calendar day of the month for loading into the LHN analytics and reporting service (LARS).

All other infection control surveillance data are required within 4 weeks of the end of month, to facilitate timely reporting and identification of possible outbreaks.

**Denominator Data**

Denominator data are provided by Data & Reporting Services of SA Health and facility health informatics units where necessary.

**Reporting**

The Infection Control Service will be responsible for statewide analysis and reporting of surveillance data including (but not limited to) the provision of data for:

**Annual reporting of National healthcare infection indicators to:**

- The Australian Institute for Health and Welfare
- The National Health Performance Authority (including the MyHospitals website).

**Monthly reporting of State and National indicators to:**

- SA Health Portfolio Performance Review Committee
- SA surveillance program contributors.
Other reports

- Annual surveillance reports
- Local committees, as required.
Bloodstream Infection (BSI) Surveillance

Bloodstream infection is the most serious form of healthcare associated infection and is associated with significant morbidity and mortality.

Case definition

An episode of BSI is defined as a positive blood culture which meets one of the following:

**Criterion 1**

One or more recognised bacterial or fungal pathogens are cultured from one or more blood samples.

**NOTE:** Recognised bacterial/fungal pathogens are rare contaminants in a blood culture and will only be considered a contaminant and therefore not reported in the surveillance data, if the clinical picture is unsupportive of infection and either:

- a repeat blood culture is negative AND/OR
- no targeted antimicrobial treatment is prescribed/given

**Criterion 2**

If a potential skin contaminant* is cultured (e.g. coagulase negative staphylococcus, micrococcus, diphtheroid, etc), the patient must have at least one of the following signs and symptoms within 24 hours of the blood culture being collected:

- patients aged >1 year
- patients aged ≤1 year

<table>
<thead>
<tr>
<th></th>
<th>patients aged &gt;1 year</th>
<th>patients aged ≤1 year</th>
</tr>
</thead>
<tbody>
<tr>
<td>fever (&gt;38°C)</td>
<td>fever (&gt;38°C core)</td>
<td></td>
</tr>
<tr>
<td>chills, rigors</td>
<td>hypothermia (&lt;36°C core)</td>
<td></td>
</tr>
<tr>
<td>hypotension</td>
<td>apnoea or bradycardia</td>
<td></td>
</tr>
</tbody>
</table>

and the same organism(s) is isolated from two or more blood cultures# drawn on separate occasions^ within a 48 hour period.

*A list of potential skin contaminants is available from the Centers for Disease Control and Prevention (CDC) / National Healthcare Safety Network (NHSN) master organism list on the "common commensals" tab:  

#If a potential contaminant is identified to the species level from one culture and the second culture is only identified to the corresponding genus level, it is assumed that the organisms are the same. Complete species identification can be obtained from the laboratory for clarification if required.

^A definition of “separate occasions” can be found in the Australian Commission on Safety and Quality in Health Care (ACSQHC) CLABSI implementation guide found at:  

**NOTE:**

- Only the first episode per patient is counted, unless at least 14 days has passed without a positive blood culture with the same organism, after which an additional episode is recorded.
- If a MRO blood culture is considered a contaminant it should not be reported in the BSI or MRO surveillance data. Consideration should be given to screening the patient for MRO carriage.
- Where an episode is considered polymicrobial, report all significant organisms.
Place of Acquisition

A. **Health care associated inpatient (IP):**
   - The episode occurred >48 hours after admission/delivery at your facility and was not present or incubating on admission, or
   - within 48 hours of discharge/transfer.

B. **Health care associated non-inpatient (NIP):**
   The episode occurred < 48 hours after admission and one or more of the “Associated Clinical Criteria” have been met (see below).

Associated Clinical Criteria

B.1 **DEVICE** = BSI is a complication of the presence of an indwelling medical device, (e.g. intravascular line, haemodialysis vascular access, CSF shunt, urinary catheter).

**NOTE:**
- Criterion B.1 does not have a maximum timeframe
- Excludes surgical implants, these are captured under criterion B.2. Surgical implants include (but are not limited to) permanent pacemakers, joint prostheses, nerve stimulators, breast implants, surgical mesh.

B.2 **SURGERY** = BSI occurs within 30 days of a surgical procedure where the BSI is related to the surgical site.

**NOTE:** The BSI will be associated with the relevant surgical procedure undertaken closest (prior) to the development of the BSI unless there is clear clinical evidence to link the BSI to another surgery.

B.3 **PROCEDURE** = An invasive instrumentation or incision related to the BSI was performed within 48 hrs prior to onset of sepsis.

B.4 **NEUTROPENIA** = BSI is associated with neutropenia. White Cell Count (WCC) or Absolute Neutrophil Count (ANC)# <0.5 x 10^9/L induced by cytotoxic therapy on at least 2 separate calendar days during the period 3 days prior and 3 days after the date of blood culture collection. (i.e. a 7 day period including the day of blood culture collection)

*BAbsolute Neutrophil Count = WCC x % neutrophils

**NOTE:**
- If the time period documented in any of the above criteria is exceeded, there must be compelling evidence that the infection was linked to the identified source. These records should be identified on the surveillance reporting form to ensure they can be excluded for National reporting.
- For the purpose of surveillance, clinical criteria B.1, B.2 and B.3 are considered mutually exclusive: only one option can be recorded against a single BSI episode. However neutropenia can be recorded along with clinical criteria B.1, B.2 and B.3 or as an independent clinical risk factor.
- For clinical criteria B.1, B.2 and B.3, record the “Focus of Infection” along with the name of the related Device or Procedure.
ICU Associated

(AICU=Adult, PICU=Paediatric, or NICU= Neonatal Intensive Care Units)

> The episode occurs > 48 hours after ICU admission, or
> within 48 hours of ICU discharge.

Clinical Unit

Record the clinical unit responsible for the care of the patient at the time of the attributable source of the BSI; this may not be the same as the clinical unit in charge of care at the time the blood culture was taken.

MRSA Isolates

For all MRSA isolates please record antibiotic susceptibility data as indicated on the surveillance reporting form.

**NOTE:** Intermediate susceptibility should be recorded as “R”

Focus of infection

Please use one of the following body site codes:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BJ</td>
<td>Bone and joint</td>
<td>IA</td>
<td>Intra-abdominal</td>
</tr>
<tr>
<td>CNS</td>
<td>Central nervous system</td>
<td>LA</td>
<td>IV line-associated</td>
</tr>
<tr>
<td>CV</td>
<td>Cardiovascular system</td>
<td>MAT</td>
<td>Maternally-acquired</td>
</tr>
<tr>
<td>DIS</td>
<td>Disseminated</td>
<td>OTH</td>
<td>Other body site</td>
</tr>
<tr>
<td>GEN</td>
<td>Genital tract</td>
<td>RT</td>
<td>Respiratory tract</td>
</tr>
<tr>
<td>GIT</td>
<td>Gastrointestinal tract</td>
<td>ST</td>
<td>Skin and soft tissue</td>
</tr>
<tr>
<td>HB</td>
<td>Hepatobiliary</td>
<td>UT</td>
<td>Urinary tract</td>
</tr>
<tr>
<td>HN</td>
<td>Head and neck</td>
<td>UNK</td>
<td>Unknown</td>
</tr>
</tbody>
</table>
1 **IV line-associated**

Identified organism is not associated with any other identifiable site/focus* of infection and

- the IV line was in situ for at least 48 hours and
- the IV line was in situ within the 48 hours prior to the BSI episode (Blood culture date)

2 **Maternally-acquired**

This is an infection in a neonate that is acquired from the mother during delivery.

Unless strong evidence suggests otherwise, an infection that appears less than 48 hours after birth is considered to be acquired from the mother, and are not reported to the ICS.

**NOTE:**

- For SA Health facilities, these infections should be reported via the Safety Learning System (> Level 1 – Neonate > Level 2 – Incident related to neonatal care > Level 3 – Early onset sepsis).
- Non-SA Health contributors should report these events through relevant Safety & Quality performance programs in their facilities.

3 **Gastrointestinal tract**

Includes neutropenic haematology/oncology patients with no obvious clinical focus and the source is thought to be GIT associated (e.g. due to mucositis).

For a description of mucositis-related BSI definitions see the NHSN guidelines (Mucosal Barrier Injury from: [http://www.cdc.gov/nhsn/PDFs/pscManual/4PSC_CLABScurrent.pdf](http://www.cdc.gov/nhsn/PDFs/pscManual/4PSC_CLABScurrent.pdf))

4 **Disseminated**

Spread throughout the body, with multiple potential sites of infection*.

---

**Central Line associated BSI (CLABSI)**

Central lines are classified as intravascular devices with a tip ending in a major vessel. Central lines can be classified as either ‘centrally inserted’ in which case the skin entry point is on the trunk of the patient or ‘peripherally-inserted’ where the line is inserted through a limb vein.

A central line associated blood stream infection is a laboratory-confirmed BSI (as defined under case definition) where:

- the central line was in situ for at least 48 hours **and**
- the central line was in situ within the 48 hours prior to the BSI episode (Blood culture date) **and**
- the BSI is not related to an infection at another site/focus*.

**NOTE:** If CLABSI criteria are met again within 14 days, and the same organism(s) is identified, it is deemed to be the same infection and should not be reported.

Central Line-days

To calculate central line-days, one of 3 methods can be used:

- count the total number of days each patient has a central line in situ (assign to relevant surveillance period) **OR**
- at the same time each day count the number of patients who have a central line in situ **OR**
- at the same time each day, on at least three days per week e.g. Monday, Wednesday and Friday, count the number of patients who have a central line in situ then calculate a daily average and multiply by the number of days in the month. (If an allocated count day falls on a public holiday, a count on the day before or after should be done).

**NOTE:**

- Patients with two or more central lines in situ on one day are counted only once i.e. one central line day.
- If there is a peripherally and a centrally inserted line in situ, count as a single central line day.
- Central line-day documentation should be unit specific (e.g. AICU, PICU, NICU, Haematology / Oncology) to allow for analysis of groups with similar risks.

Data Element Table

The data specification table is intended to support standardised provision of BSI surveillance data by assisting with the application of definitions and identification of the minimum data requirements.

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Description and Details</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>UR or Postcode</td>
<td>Unique record identification number</td>
<td>• This is the patient’s medical record number (MRN) or postcode for Private hospitals that do not supply MRN</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Mandatory field, cannot be null</td>
</tr>
<tr>
<td>Gender</td>
<td>Sex of the patient</td>
<td>• Field should not be null</td>
</tr>
<tr>
<td>Date of Birth</td>
<td>The patients full year of birth, including day and month</td>
<td>• If date of birth is not known or cannot be provided, provision of a generic estimate is acceptable (the first day of the appropriate month or 01/01/ of the appropriate year.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Format date as dd/mm/yyyy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Field should not be null</td>
</tr>
<tr>
<td>Clinical Unit</td>
<td>Patient’s Clinical Unit at time of acquisition</td>
<td>• Institution specific clinical names are acceptable and are automatically assigned to clinical unit groups on load to the database.</td>
</tr>
<tr>
<td>ICU Status</td>
<td>Identifies if the specimen was taken in an Intensive Care Unit or a Non Intensive Care Unit i.e. ward</td>
<td>• Record as: AICU = Adult ICU</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PICU = Paediatric ICU</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NICU = Neonatal ICU</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Non-ICU = for all other ward locations</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Mandatory field, cannot be null</td>
</tr>
<tr>
<td>Specimen Date</td>
<td>Identifies the date the specimen was taken</td>
<td>• Format date as dd/mm/yyyy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Must be within the reporting month</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Mandatory field, cannot be null</td>
</tr>
<tr>
<td>LAB Name</td>
<td>Identifies the laboratory organisation that processed the specimen</td>
<td>• Field should not be null</td>
</tr>
<tr>
<td>Specimen Number</td>
<td>Positive specimen’s unique identification number</td>
<td>• Identifier allocated by the laboratory to the pathology result</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Field should not be null</td>
</tr>
<tr>
<td>Focus of Infection</td>
<td>Indicates the primary site of infection associated with the BSI episode</td>
<td>• Record the code that identifies the focus of the BSI according to the “Focus of Infection” table.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Mandatory field, cannot be null</td>
</tr>
<tr>
<td>Focus of Infection &quot;Other&quot;</td>
<td>Indicates the focus of the BSI episode if not associated with one of the areas documented in the “Focus of Infection” table</td>
<td>• Record detail</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Mandatory if &quot;Focus of Infection”= Other body site</td>
</tr>
<tr>
<td>DEV or PROC associated</td>
<td>Indicates if the BSI was associated with a health care associated intervention or device</td>
<td>• If appropriate, record the episode as DEVICE or PROCEDURE(includes surgery) otherwise document N/A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Field should not be null</td>
</tr>
<tr>
<td>Device type</td>
<td>Indicates the generic classification of the device associated with the BSI episode</td>
<td>• Mandatory field, cannot be null</td>
</tr>
<tr>
<td>PROC/DEV details</td>
<td>Include the name of the device, surgery or procedure if identified as the BSI source</td>
<td>• Record specific details associated with the PROC or DEV</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Mandatory field, cannot be null</td>
</tr>
<tr>
<td>Neutropenia</td>
<td>Was the BSI associated with cytotoxic therapy -induced neutropenia?</td>
<td>• Only record neutropenia associated with cytotoxic therapy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Record as either Y or N</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Field should not be blank</td>
</tr>
<tr>
<td>Acquisition</td>
<td>Indicates if the BSI episode is inpatient or non-patient acquired (based on BSI surveillance definition)</td>
<td>• Must be either IP or NIP</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• If Acquisition = NIP details must include information on the associated clinical criteria associated with the BSI episode.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Mandatory field, cannot be null</td>
</tr>
<tr>
<td>Field Name</td>
<td>Description and Details</td>
<td>Details</td>
</tr>
<tr>
<td>---------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| Resistance    | If the BSI Organism = Methicillin-resistant *Staphylococcus aureus*, this indicates the resistance pattern of the organism                                                                                             | • For all MRSA isolates record the sensitivity / resistance details listed in the data collection template.  
  • Fields should not be blank if Organism = MRSA                                                                                                                                                             |
| Details       |                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                       |
| Organism      | Record organisms associated with the bloodstream infection episode                                                                                                                                                   | • List all identified significant organisms that fit the “Bloodstream Infection (BSI) episode” criteria.  
  • Mandatory field, cannot be null                                                                                                                                                                           |
| Comment       | Record any relevant additional information                                                                                                                                                                           | For example  
  • MRO information  
  • Associated criteria time period exceptions                                                                                                                                                           |

**Flow Chart**

1. Positive blood culture received?
   - Yes
     - Was a recognised pathogen isolated from blood culture?
       - Yes
         - If the organism is a potential skin contaminant, does the episode fit the documented criteria of "potential contaminant" in the definitions document?  
           - E.g. coagulase negative *Staphylococcus* or diphtheroid etc.
           - No
             - Do not include in SA Health surveillance data
       - No
         - Patient has been in hospital >48 hours and episode was not present or incubating or is within 48hrs of discharge?
           - Yes  
             - This episode fits the health care associated BSI inpatient case definition and should be included in SA Health surveillance data.
           - No
             - Patient has been in hospital <48 hours and has one of the associated clinical criteria?
               - Yes
                 - This episode fits the health care associated BSI non-inpatient case definition and should be included in SA Health surveillance data.
               - No
                 - Do not include in SA Health surveillance data
Bloodstream infection (BSI) surveillance

The following table provides a guide to the interpretation of polymicrobial episodes of bloodstream infection for surveillance purposes only. Clinical designation of episodes may differ on occasions.

<table>
<thead>
<tr>
<th>Date</th>
<th>Organism</th>
<th>Focus</th>
<th>Attributes</th>
<th>Count</th>
<th>Comment</th>
</tr>
</thead>
</table>
| 3/5  | Coagulase-neg Staphylococcus S. epidermidis | IV IV | • same organism  
• same focus | single episode caused by S. epidermidis | If a common skin contaminant is identified to the species level from one blood culture, and a second culture is identified with only a descriptive name (i.e. to the genus level), then it is assumed that the organisms are the same. |
| 5/5  | S. aureus E. coli | ST ST | • different organism  
• same focus  
• within 48 hours | single polymicrobial episode | Both organisms would usually be considered to be significant, especially from a surgical wound. |
| 3/5  | S. aureus S. epidermidis | ST ST | • different organism  
• same focus  
• within 48 hours | single episode caused by S. aureus | A potential skin contaminant (S. epidermidis) where the focus is skin or soft tissue is likely to be regarded as a contaminant. |
| 5/5  | S. aureus E. faecium | ST UT | • different organism  
• different focus  
• within 48 hours | two episodes | Two organisms considered significant from two different foci. |
| 3/5  | P. aeruginosa P. aeruginosa | UT RT | • same organism  
• different focus  
• > 48 hrs apart | two episodes | Same organism but from different foci. |
| 6/5  | K. pneumoniae E. coli | UT UT | • different organism  
• same focus  
• > 48 hrs apart | two episodes | Two organisms from same focus, but >48hr apart. |

**NOTE:** Ensure only significant organisms are reported.
**Clostridium difficile Infection (CDI) Surveillance**

**CDI case definition**

A CDI episode is defined as a laboratory confirmed C. difficile infection. Diagnosis is by a PCR-based toxin test on faeces from a symptomatic patient. Record only positive results from diarrhoeal stools, i.e. do not report positive results from screening specimens or asymptomatic patients.

**Inclusions**

- Cases from all patients attending an acute care facility while symptomatic (including patients attending Emergency departments, outpatient departments and haemodialysis units etc.).

**Exclusions**

- Cases where a known previous positive specimen has been recorded within the previous 8 weeks (an isolate obtained from a patient more than 8 weeks since the last positive test is regarded as a new episode).
- Patients less than 2 years old at date of attendance/admission.

**CDI exposure classification**

Currently the national data collection for CDI only includes those episodes that are first identified in a specimen collected in an acute care facility. However, the Australian Commission for Safety and Quality in Health Care has developed an Implementation Guide for CDI surveillance that describes sub-categorisation of episodes according to their most likely place of acquisition into 5 separate categories. Available from: [http://www.safetyandquality.gov.au/our-work/healthcare-associated-infection/national-hai-surveillance-initiative/](http://www.safetyandquality.gov.au/our-work/healthcare-associated-infection/national-hai-surveillance-initiative/).

At the present time, South Australian contributors are requested to only apply the Category A (HCA-HCF) exposure classification (see Figure 1 below) as a sub-set of Hospital identified.

**Category A: Healthcare associated – Healthcare facility onset (HCA-HCF)**

Date of CDI symptom onset more than 48 hours after admission to a health care facility and prior to discharge from the facility. If date of symptom onset is not available, the date/time of specimen collection is used as a proxy.

**QA NOTE:**

- Outpatient and Emergency records – Attendance date should match specimen/symptom onset date*
- Category A records – ensure reported specimen/onset date is > 48hrs after admission

*Sources for identifying onset date may include (but are not limited to) medical notes, lab request date, specimen request form or the patient.
# Data Element Table

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>UR or Postcode</td>
<td>Unique record identification number</td>
<td>• This is the patient’s medical record number (MRN) or postcode for Private hospitals that do not supply MRN &lt;br&gt;• Mandatory field, cannot be null</td>
</tr>
<tr>
<td>Gender</td>
<td>Sex of the patient</td>
<td>• Field should not be null</td>
</tr>
<tr>
<td>Date of Birth</td>
<td>The patient’s full year of birth, including day and month</td>
<td>• If date of birth is not known or cannot be provided, provision of a generic estimate is acceptable (the first day of the appropriate month or 01/01/ of the appropriate year &lt;br&gt;• Format date as dd/mm/yyyy &lt;br&gt;• Mandatory field, cannot be null</td>
</tr>
<tr>
<td>Date of Admission / Attendance</td>
<td>The date the patient attended the Emergency or Outpatient Dept or date the patient was admitted</td>
<td>• Format date as dd/mm/yyyy &lt;br&gt;• Mandatory field, cannot be null</td>
</tr>
<tr>
<td>Attendance Type</td>
<td>Identifies if the type of hospital attendance/admission</td>
<td>• Permissible values: Inpatient, Outpatient or Emergency &lt;br&gt;• Mandatory field, cannot be null</td>
</tr>
<tr>
<td>Ward</td>
<td>The ward where patient was located at time specimen was collected.</td>
<td>• This is NOT the acquisition ward, only the ward at the time the specimen was taken &lt;br&gt;• Field should not be Null if “Attendance Type” = Inpatient</td>
</tr>
<tr>
<td>Specimen/Onset Date</td>
<td>Identifies the date of symptom onset or the date the specimen was taken</td>
<td>• Format date as dd/mm/yyyy &lt;br&gt;• Must be within the reporting month &lt;br&gt;• Mandatory field, cannot be null</td>
</tr>
<tr>
<td>LAB Name</td>
<td>Identifies the laboratory organisation that processed the specimen</td>
<td>• Field should not be null</td>
</tr>
<tr>
<td>Specimen Number</td>
<td>Positive specimen’s unique identification number</td>
<td>• Identifier allocated by the laboratory to the pathology result &lt;br&gt;• Mandatory field, cannot be null</td>
</tr>
<tr>
<td>Category</td>
<td>Identifies record as healthcare associated where applicable</td>
<td>• Permissible values: Cat A or N/A &lt;br&gt;• Field should not be null</td>
</tr>
<tr>
<td>Comment</td>
<td>Record any relevant additional information</td>
<td></td>
</tr>
</tbody>
</table>
Careconnect.sa infection control users (ICIMS)
To ensure record is included in the Category A field select:
- Primary Acquisition = HCA
- Secondary Acquisition = New.

**NOTE:** Given state reporting currently only collects data on hospital identified episodes and the Category A (HCA-HCF) sub-set, if a patient has a specimen taken during a current visit and it is identified as being associated with a previous admission, do not classify as a “post discharge” in the secondary acquisition, classify as NEW. Post-discharge information can be recorded as a comment in ICIMS.
Flow Chart

Positive *C. difficile* toxin test on diarrhoeal stool?

- **Yes**
  - Was the patient ≥ 2 years of age on the date of admission/attendance?
    - **No**
      - Do not include in surveillance data
    - **Yes**
      - Was the patient symptomatic during attendance at your facility? symptom onset/specimen collection (Emergency, Outpatient or Inpatient)
        - **No**
          - Do not include in surveillance data
        - **Yes**
          - Is the specimen date at least 8 weeks after the last known positive test for that patient?
            - **No**
              - Do not include in surveillance data
            - **Yes**
              - Was the symptom onset (specimen collection) date > 48 hrs after admission?
                - **No**
                  - This episode fits the Hospital Identified CDI case definition and should be included in surveillance data.
                - **Yes**
                  - This episode fits the Cat A (HAI-HCF) CDI case definition and should be included in surveillance data.

Record this episode on the CDI surveillance reporting form.
Multidrug-resistant Organism (MRO) Surveillance

The MRO surveillance indicators are targeted at important antibiotic-resistant organisms that can spread amongst patients within hospitals and can cause invasive infections that are difficult to treat.

Case definition

Data are collected on the new acquisition of healthcare associated infection or colonisation due to one of the following targeted organisms:

**Vancomycin-resistant enterococci (VRE)**

*E. faecalis* or *E. faecium* reported resistant to vancomycin.

**Methicillin-resistant *Staphylococcus aureus* (MRSA)**

*Staphylococcus aureus* reported resistant to oxacillin or cefoxitin.

**Vancomycin-intermediate *Staphylococcus aureus* (VISA or hVISA)**

*Staphylococcus aureus* with reduced susceptibility to vancomycin.

**Vancomycin-resistant *Staphylococcus aureus* (VRSA)**

*Staphylococcus aureus* reported resistant to vancomycin.

**Extended spectrum beta-lactamase producers (ESBL)**

Gram-negative organism (e.g. *E.coli*, *Klebsiella* spp., *Enterobacter* spp.) in which a transmissible ESBL enzyme has been reported.

**Plasmid-mediated AmpC beta-lactamase producers (AMPC)**

Gram-negative organism in which laboratory detection of plasmid-mediated AmpC has been reported.

**Multidrug-resistant *Pseudomonas aeruginosa* (MRPAER)**

*P. aeruginosa* resistant to at least one antibiotic from 2 or more classes out of the following 3 groups:

- aminoglycosides (e.g. gentamicin, tobramycin)
- fluoroquinolones (e.g. ciprofloxacin, norfloxacin)
- beta-lactams (e.g. piperacillin, ticarcillin, ceftazidime, cefipime, meropenem+)

**NOTE:**

- +If resistance to meropenem is detected via plasmid-mediated carbapenemase, record the type identified (e.g. NDM, OXA)
- Exclude MRPAER isolates from cystic fibrosis patients and *Pseudomonas* species other than *P. aeruginosa*. 
Multidrug-resistant *Acinetobacter baumannii* (MRAB)

*A. baumannii* resistant to at least one antibiotic from 2 or more classes out of the following 3 groups:

> aminoglycosides (e.g. gentamicin, tobramycin)
> fluoroquinolones (e.g. ciprofloxacin, norfloxacin)
> carbapenems (e.g. meropenem)

**NOTE:**
- Acinetobacter species are naturally resistant to the following beta-lactams: penicillins, cefazolin/cephalexin and ceftriaxone
- +If resistance to meropenem is detected via plasmid-mediated carbapenemase, record the type identified (e.g. NDM, OXA).

**Carbapenem-resistant Enterobacteriaceae and Acinetobacter species (CRGNB) #**

Enterobacteriaceae (e.g. E.coli, Enterobacter spp., Klebsiella spp., Proteus spp.) or Acinetobacter spp. reported as resistant to meropenem.

Record full identification (i.e. genus and species) and the resistance mechanism^a

1. **Plasmid mediated (carbapenemase enzymes):**
   - *Klebsiella pneumoniae carbapenemase (KPC)*
     Gram-negative organism* in which laboratory detection of KPC has been reported.
   - *Metallo-beta-lactamase producers (MBL)*
     Gram-negative organism in which laboratory detection of MBL has been reported e.g. New Delhi MBL (NDM), Verona integron encoded MBL (VIM).
   - *Oxacillinase (OXA)*
     Gram-negative organism in which laboratory detection of OXA has been reported.

2. **Non-plasmid mediated**

   If carbapenemase is not detected, record the resistance mechanism as “non-plasmid.

**NOTE:**
- #If organism fits resistance code CRGNB criteria, list resistance mechanism in the “Other” field
- ^Resistance to carbapenem may be due to either plasmid mediated enzymes (carbapenemase) or other mechanisms other than transmissible enzymes.
- *Although K. pneumoniae remains the most prevalent organism carrying KPC, the enzyme has been identified in several other Gram-negative bacilli.*
Episode / Case attributes

**Acquisition Count**
Total number of new healthcare associated MRO acquisitions for the surveillance period. Record separately for MRSA, VRE and all other MRO combined.

> Include all patients who became colonised or infected for the first time in your facility during the surveillance period, where the event was classified as healthcare associated (see below).
> Patients transferred to another facility and found to be positive for an MRO on admission are included in the discharging hospital’s statistics.

**Infection (Morbidity) Count**
Total number of new healthcare associated MRO infections for the surveillance period. Record separately for MRSA, VRE and all other MRO combined.

> Include patients who are known to be colonised and then develop a new healthcare associated infection with the same MRO.
> Count only one infection episode in the surveillance period for each patient.

**NOTE:** Ensure it is not an on-going infection recorded in a previous surveillance period

**Definition of Infection**
Isolates from specimens that are sterile (obtained by aseptic technique) are almost always considered significant, whereas isolates from non-sterile specimens cannot always be attributed to infection and may require clinical judgement to determine if an infection is present.

> **A sterile site** infection – blood culture, CSF, aspirate from a normally sterile body cavity (e.g. peritoneum, pleural or pericardial space) or a tissue sample collected by aseptic means (biopsy).
> **A non-sterile site** infection - wound swab, drain fluid, urine, sputum where the identified MRO was treated with antibiotic therapy by a clinician.

**Place of Acquisition**

**Healthcare associated**

> The episode occurred >48 hours after admission/delivery at your facility and was not present or incubating on admission, or
> within 48 hours of discharge/transfer, or
> the episode is epidemiologically linked to a previous admission/intervention at your facility (e.g. within one month of discharge and there is no evidence to link the isolate to another healthcare facility or intervention).

**NOTE:** If MRO identification was a direct result of an admission, intervention or procedure undertaken at another institution, the episode should be included in the statistics of the hospital responsible for the event (e.g. Patient had surgery at Hospital A and was discharged. Patient admitted to Hospital B with a MRO wound infection. Hospital B should advise Hospital A of the infection and the episode is included in Hospital A numbers.)
ICU Associated

(AICU=Adult, PICU=Paediatric, or NICU= Neonatal Intensive Care Units)

- The episode occurs > 48 hours after ICU admission, or
- within 48 hours of ICU discharge.

**Burden**

The MRO burden is defined as the number of patients with a MRO colonisation/infection that have been discharged from your facility during the surveillance period.

Record individual counts for MRSA, VRE and all other MROs combined in the summary table of the surveillance reporting form (SRF).

- Include all infected or colonised patients on MRO precautions – new acquisitions and those admitted with a previously recorded history of MRO.
- Patients discharged, readmitted and discharged again during the surveillance period are counted twice.
- It is not necessary to have a positive culture during the admission.
- Exclude same-day patients.

**NOTE:** Burden is recorded as a summary figure for reporting, patient details are not included in the table unless they also fulfil criteria for an acquisition or infection during the surveillance period.

**Hierarchy of reporting**

When a new *infection* is determined from a sterile site (e.g. blood, CSF) and is also identified in a non-sterile site (e.g. wound, urine, sputum) during the same surveillance period the sterile site episode takes precedence and is the reported event.

For example, the below records should be reported...

...as a single record as we only count one infection per surveillance period.

If the non-sterile site episode is either a colonisation and the collection date was prior to the sterile site episode, or the non-sterile site episode occurred in a previous surveillance period then it remains included in the numerator for the relevant surveillance period.

For example, the below case would be reported as two records
QA NOTES:
- If a MRO is isolated from a blood culture which has been classified as contaminant it should not be reported in the MRO or BSI surveillance data. Consideration should be given to screening the patient for MRO carriage.
- Ensure each reported MRO bacteraemia has a corresponding episode documented in the BSI data for the relevant surveillance period.
- Do not include details for on-going colonisation episodes from previously identified patients (i.e. Colonised / Infected = Colonised and New / Known = Known).

Resistance Codes

<table>
<thead>
<tr>
<th>CODE</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMPC</td>
<td>Plasmid-mediated AmpC beta-lactamase producer</td>
</tr>
<tr>
<td>CRGNB</td>
<td>Carbapenem resistant Enterobacteriaceae and Acinetobacter species</td>
</tr>
<tr>
<td>ESBL</td>
<td>Extended spectrum beta-lactamase producer</td>
</tr>
<tr>
<td>MBL</td>
<td>Metallo beta-lactamase producer</td>
</tr>
<tr>
<td>MRAB</td>
<td>Multidrug-resistant Acinetobacter baumannii</td>
</tr>
<tr>
<td>MRPAER</td>
<td>Multidrug-resistant Pseudomonas aeruginosa</td>
</tr>
<tr>
<td>MRSA</td>
<td>Methicillin-resistant Staphylococcus aureus</td>
</tr>
<tr>
<td>VISA/VRSA</td>
<td>Staphylococcus aureus with reduced susceptibility or resistance to vancomycin</td>
</tr>
<tr>
<td>VRE Van A</td>
<td>Vancomycin-resistant enterococci Van A (E. faecalis or E. faecium)</td>
</tr>
<tr>
<td>VRE Van B</td>
<td>Vancomycin-resistant enterococci Van B (E. faecalis or E. faecium)</td>
</tr>
<tr>
<td>Other</td>
<td>For identification of new isolates of significance</td>
</tr>
</tbody>
</table>

For further information on infection definitions:
Centers for Disease Control and Prevention (CDC) / National Healthcare Safety Network (NHSN) definitions for specific type of infections are available under “supporting materials” from:
Data Element Table

The data specification table is intended to support standardised provision of MRO surveillance data by assisting with the application of definitions and identification of the minimum data requirements.

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>UR or Postcode</td>
<td>Unique record identification number</td>
<td>• This is the patient’s medical record number (MRN) or postcode for Private hospitals that do not supply MRN</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Mandatory field, cannot be null</td>
</tr>
<tr>
<td>Gender</td>
<td>Sex of the patient</td>
<td>• Field should not be null</td>
</tr>
<tr>
<td>Date of Birth</td>
<td>The patient’s full year of birth, including day and month</td>
<td>• If date of birth is not known or cannot be provided, provision of a generic estimate is acceptable (the first day of the appropriate month or 01/01/ of the appropriate year.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Format date as dd/mm/yyyy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Field should not be null</td>
</tr>
<tr>
<td>Specimen Date</td>
<td>Identifies the date the specimen was taken</td>
<td>• Format date as dd/mm/yyyy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Must be within the reporting month</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Mandatory field, cannot be null</td>
</tr>
<tr>
<td>ICU Status</td>
<td>Identifies if the specimen was taken in an Intensive Care Unit or a Non Intensive Care Unit i.e. ward</td>
<td>• Record as:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt; AICU = Adult ICU</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt; PICU = Paediatric ICU</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt; NICU = Neonatal ICU</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt; Non-ICU = for all other ward locations</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Mandatory field, cannot be null</td>
</tr>
<tr>
<td>LAB Name</td>
<td>Identifies the laboratory organisation that processed the specimen</td>
<td>• Field should not be null</td>
</tr>
<tr>
<td>Specimen Number</td>
<td>Positive specimen’s unique identification number</td>
<td>• Identifier allocated by the laboratory to the pathology result</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Mandatory field, cannot be null</td>
</tr>
<tr>
<td>Organism</td>
<td>Record organism associated with the antibiotic resistance</td>
<td>• For VRE, ensure species (faecium or faecalis) is recorded</td>
</tr>
<tr>
<td>Resistance Code</td>
<td>Record the code that identifies the type of resistance</td>
<td>• Record corresponding code from the “Resistance Codes” table.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Mandatory field, cannot be null</td>
</tr>
<tr>
<td>Resistance Code “Other”</td>
<td>Initially used for identification of new isolates of significance</td>
<td>• For CRGNB, record resistance mechanism^</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Mandatory if “Resistance Code” = Other</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Record a description of the “Other” resistance</td>
</tr>
<tr>
<td>Specimen Site</td>
<td>The site of the specimen (e.g. Blood, Urine, leg wound or screening etc.)</td>
<td>• “Screening” only applies to specimens specifically collected for identification of an MRO</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Mandatory field, cannot be null</td>
</tr>
<tr>
<td>Field Name</td>
<td>Description</td>
<td>Details</td>
</tr>
<tr>
<td>---------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Sterile / Non-sterile</td>
<td>Indicates whether the specimen was taken from a sterile or non-sterile site</td>
<td>• Record sterile status according to the rules set out under “Specimen classification”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Allow for ACHS benchmarking</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Mandatory field, cannot be null</td>
</tr>
<tr>
<td>Colonised / Infected</td>
<td>Indicates if the episode is an infection or colonisation</td>
<td>• Document infection status according to the rules set out under “Episode/Case attributes”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Mandatory field, cannot be null</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Record as I or C</td>
</tr>
<tr>
<td>New / Known</td>
<td>Identifies whether the episode is a first isolation or an infection in a previously colonised patient</td>
<td>• Record acquisition status according to the rules set out under “Episode/Case attributes”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Mandatory field, cannot be null</td>
</tr>
<tr>
<td>Comment</td>
<td>Record any other relevant information here</td>
<td></td>
</tr>
</tbody>
</table>

Flow Chart

Multi-resistant organism identified from specimen?

Yes

Patient has been in hospital > 48 hrs and episode was not present or incubating on admission or is within 48hrs of discharge?

Yes

Isolate is deemed to be causing clinical infection?

Yes

Patient has an active MRO history?

Yes

This episode fits the case definition and should be included in your SA Health surveillance data. 
Record as: Colonised or Infected = Infected New or Known = Known

No

Patient has an active MRO history?

Yes

This episode fits the case definition and should be included in your SA Health surveillance data. 
Record as: Colonised or Infected = Infected New or Known = New

No

No

This episode does not fit the case definition and should not be included in your SA Health surveillance data.

Episode is associated with a previous admission/intervention at your facility?

Yes

Case is associated with care at another facility?

Yes

Inform the other healthcare facility. Do not include in your SA Health surveillance data.

No

Do not include in your SA Health surveillance data.

No

This episode fits the case definition and should be included in your SA Health surveillance data. 
Record as: Colonised or Infected = Colonised New or Known = New
Multidrug-resistant organism (MRO) infection surveillance

The following table provides a guide to the interpretation and recording of multidrug-resistant organisms/specimens for surveillance purposes only.

<table>
<thead>
<tr>
<th>SINGLE LAB RESULT DETAILS</th>
<th>CLASSIFICATION FOR ICS SURVEILLANCE – (column labels)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Organism</strong></td>
<td><strong>Resist #</strong></td>
</tr>
<tr>
<td>Org 1. <em>S.aureus</em></td>
<td></td>
</tr>
<tr>
<td>Org 2. <em>E.faecium</em></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Org 1. <em>E.Coli</em></td>
<td>NDM</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Org 1. <em>P.aeruginosa</em></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Org 1. <em>A baumannii</em></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Org 2. <em>K.pneumoniae</em></td>
<td>KPC</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Use this column on the surveillance reporting form to record resistance mechanisms.*
Surgical Site Infection (SSI) Surveillance

Surveillance of surgical site infection with feedback of appropriate data to surgeons has been shown to be an important component of strategies to reduce the SSI risk.

Case definition

A surgical site infection (SSI) is an infection that develops as a direct result of an operative procedure. These infections are associated with increased morbidity and mortality, increased length of stay and higher healthcare costs.

Appendix 1 provides a list of ICD 10/CMBS codes and procedure descriptions by surveillance procedure group, to assist with identification of eligible numerator and denominator inclusions.

SSI should only be reported by the hospital where the initial procedure was undertaken.

Denominator:

Total number of patients who have undergone an operative procedure included in your institution’s surgical site infection surveillance program, for the reporting month.

Specific procedure groups are to be recorded separately when applicable.

If automated electronic procedure notifications are not available in your facility, identification of eligible denominator patients can be achieved by liaising with operating theatre staff using local operating theatre management systems.

Numerator:

A surgical site infection is classified as either a superficial incisional or deep incisional/organ space infection.

Superficial Incisional:

A superficial incisional SSI must meet the following criteria:

- infection occurs within 30 days after the operative procedure, and
- involves only skin and subcuteaneous tissue of the incision, and
- the patient has at least one of the following:
  a. Purulent drainage from the superficial incision.
  b. Significant micro-organisms are isolated from an aseptically obtained culture of fluid or tissue from the superficial incision.
  c. Superficial incision is deliberately opened by surgeon, is culture-positive with significant micro-organisms or not cultured and patient has at least one of the following signs or symptoms of infection at the incision site:
     - pain, tenderness, localised swelling, redness or heat
   NOTE: a culture-negative finding is not a surrogate for “not cultured”
  d. Diagnosis of superficial incisional SSI by the surgeon or attending physician.
NOTES:

- Do not report a stitch abscess (minimal inflammation and discharge confined to the points of suture penetration) or localised stab wound infection (e.g. drain incision site) as a SSI.
- Do not report superficial incisions that are shown to be colonised with microorganisms by the collection of a superficial wound swab and are without clinical signs of infection as a SSI.
- Cellulitis alone does not meet the criteria for superficial SSI unless criterion c) is met.
- Classify SSIs that involve both superficial and deep/organ infections as a deep/organ SSI.

Deep/Organ:

A deep incisional/organ space SSI must meet the following criteria:

> infection occurs within the operation specific surveillance period (refer to Appendix 1 on page 35) and the infection appears to be related to the operative procedure, and
> infection involves any part of the body (excluding the skin incision), and
> patient has at least one of the following:
  e. Purulent drainage from a deep incision or from a drain that is placed through a stab wound into the organ space
  f. An incision spontaneously dehisces or is deliberately opened by a surgeon, is culture-positive with significant micro-organisms or not cultured and the patient has at least one of the following signs or symptoms of infection
    - fever (>38ºC), localised pain or tenderness
    NOTE: a culture-negative finding is not a surrogate for “not cultured”
  g. An abscess or other evidence of infection involving the deep incision is found on direct examination, during reoperation or by histopathologic or radiologic examination.
  h. Significant micro-organisms are isolated from an aseptically obtained culture of fluid or tissue related to the procedure site.
  i. Diagnosis of a deep/organ SSI by a surgeon or attending physician.

NOTE:

- Classify SSIs that involve both superficial and deep infections as a Deep/Organ SSI.

SSI Detection Codes#

Inpatient – Initial Admission (IP-IA): SSI identified during the admission surgery was undertaken.

Inpatient – Re-admission (IP-RA): SSI identified on re-admission

Post discharge (PDC): SSI identified post-discharge and patient is not re-admitted

# within operation specific surveillance period (refer appendix 1)

Patient Risk Score

The patient risk score is a method of stratification of risk for infection associated with surgery. The higher the patient’s risk score the higher the risk the patient has of developing an SSI. Risk-adjusted rates allow for benchmarking across participating hospitals.
Calculation of risk index

The risk index score, ranging from 0 to 3, is a figure assigned to the number of risk factors present among the following three areas:

1. **ASA class**

The anaesthesiologist assesses the patient’s preoperative physical condition using the American Society of Anesthesiologists’ (ASA) Classification. The ASA classification system is a numerical quantification of disease severity and potential for suffering complications from general anaesthesia. Patients with an ASA class of 3, 4 or 5 will be assigned a risk score of 1.

<table>
<thead>
<tr>
<th>ASA</th>
<th>ASA Description</th>
<th>Risk Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A normal healthy patient</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>A patient with mild systemic disease</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>A patient with severe systemic disease</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>A patient with severe systemic disease that is a constant threat to life</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>A moribund patient who is not expected to survive without the operation</td>
<td>1</td>
</tr>
</tbody>
</table>

1. **Duration of surgery**

Duration of surgery is the interval (in minutes) between skin incision and primary skin closure.

The CDC/NHSN\(^{(1)}\) lists duration cut points for surgical procedures which approximate the 75th percentile of the duration of surgery in minutes (That is, 75% of the operations for that procedure were shorter than the documented duration cut point and 25% were longer).

Local cut point times have been calculated using data from SA Health, Data & Reporting Services.

If the procedure under review takes longer than the reported duration cut point for the equivalent procedure then a risk score of 1 will be assigned.

**NOTE:** The most up to date duration cut points for the procedures included in the ICS surveillance program will be listed in Appendix 2, and will be updated annually.
2. **Surgical wound classification**

<table>
<thead>
<tr>
<th>Surgical Wound Class</th>
<th>Wound Classification Description</th>
<th>Risk Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clean</td>
<td>An uninfected operative wound in which no inflammation is encountered and the respiratory, alimentary, genital or uninfected urinary tracts are not entered. In addition, clean wounds are primarily closed and if necessary, drained with closed drainage. Operative incisional wounds that follow non-penetrating (blunt) trauma should be included in this category if they meet the criteria.</td>
<td>0</td>
</tr>
<tr>
<td>Clean-Contaminated</td>
<td>Operative wounds in which the respiratory, alimentary, genital, or urinary tracts are entered under controlled conditions and without unusual contamination. Specifically, operations involving the biliary tract, appendix, vagina and oropharynx are included in this category provided no evidence of infection or major break in technique is encountered.</td>
<td>0</td>
</tr>
<tr>
<td>Contaminated</td>
<td>Open, fresh, accidental wounds. In addition, operations with major breaks in sterile technique (e.g. open cardiac massage) or gross spillage from the gastrointestinal tract and incisions in which acute, non-purulent inflammation is encountered are included in this category.</td>
<td>1</td>
</tr>
<tr>
<td>Dirty / Infected</td>
<td>Includes old traumatic wounds with retained devitalised tissue and those that involve existing clinical infection or perforated viscera. This definition suggests that the organisms causing postoperative infection were present in the operative field before the operation.</td>
<td>1</td>
</tr>
</tbody>
</table>

3. **Calculation of patient risk score**

A score is assigned for each risk factor and the total score is calculated by adding the three scores together (ASA class + duration of surgery + surgical wound classification).

For example:

ASA class of 3 = 1  
Surgery Duration >75th percentile = 1  
Surgical Wound Class “Clean” = 0  

\[
\text{PATIENT RISK SCORE} = 2
\]
Data Element Table

The data specification table is intended to support standardised provision of SSI surveillance data by assisting with the application of definitions and identification of the minimum data requirements.

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>UR or Postcode</td>
<td>Unique record identification number</td>
<td>• This is the patient’s medical record number (MRN) or postcode for Private hospitals that do not supply MRN</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Mandatory field, cannot be null</td>
</tr>
<tr>
<td>Gender</td>
<td>Sex of the patient</td>
<td>• Field should not be null</td>
</tr>
<tr>
<td>Date of Birth</td>
<td>The patients full year of birth, including day and month</td>
<td>• If date of birth is not known or cannot be provided, provision of a generic estimate is acceptable (the first day of the appropriate month or 01/01/ of the appropriate year.)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Format date as dd/mm/yyyy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Field cannot be null</td>
</tr>
<tr>
<td>Date of Procedure</td>
<td>Identifies the date the procedure was performed</td>
<td>• Format date as dd/mm/yyyy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Must be within the reporting month</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Mandatory field, cannot be null</td>
</tr>
<tr>
<td>Procedure</td>
<td>Short description of procedure group</td>
<td>• Entry must be a valid code option</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Refer Appendix 1 for Procedure group codes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Mandatory field, cannot be null</td>
</tr>
<tr>
<td>“OTH” procedure details</td>
<td>Indicates the procedure undertaken is not associated with one of the documented procedure groups</td>
<td>• Record a description of the procedure</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Mandatory if “Procedure” = Other</td>
</tr>
<tr>
<td>Patient risk score#</td>
<td>A score used to predict a surgical patient’s risk of acquiring a surgical site infection</td>
<td>• Must be in the list 0, 1, 2, 3 or NA (not available).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Mandatory field, cannot be null</td>
</tr>
<tr>
<td>Appropriate Surgery specific prophylaxis</td>
<td>Antibiotics given for the purpose of preventing infections at the surgical site. Does not include antibiotics that have been given as a course leading up to the procedure.</td>
<td>• Record as either Yes or No</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Mandatory field, cannot be null</td>
</tr>
<tr>
<td>Infection category</td>
<td>Degree of infection from the surgical procedure according to definitions</td>
<td>• Record as either Superficial, Deep or Organ space</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Mandatory field, cannot be null</td>
</tr>
<tr>
<td>LAB Name</td>
<td>Identifies the laboratory organisation that processed the specimen</td>
<td>• Where possible, field should not be null</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• N/A where SSI is identified by MO diagnosis</td>
</tr>
<tr>
<td>Specimen Number</td>
<td>Positive specimen’s unique identification number</td>
<td>• Identifier allocated by the laboratory to the pathology result</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Where possible, field should not be null</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• N/A where SSI is identified by MO diagnosis</td>
</tr>
<tr>
<td>Specimen date/SSI MO Diagnosis date</td>
<td>Identifies the date the specimen was taken or if no specimen was taken, this is the date the SSI was diagnosed</td>
<td>• Format date as dd/mm/yyyy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Mandatory field, cannot be null</td>
</tr>
<tr>
<td>Field Name</td>
<td>Description</td>
<td>Details</td>
</tr>
<tr>
<td>---------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| Specimen/Infection Site | The site of the specimen was taken or if no specimen was taken, this is the site of infection | • Must correlate to the site of surgery  
• Where possible, field should not be null |
| Organism            | Record organisms associated with the surgical site infection episode         | • List all identified significant organisms causing infection  
• “Nil Specimen” where SSI is identified by MO diagnosis |
| SSI detection       | Identifies whether the SSI was discovered during the original admission or Post-discharge | • IP-IA: Inpatient initial admission  
• IP-RA: Inpatient re-admission  
• PDC: Post-discharge |
| Comment             | Record any relevant additional information                                  |                                                                        |
### Appendix 1

<table>
<thead>
<tr>
<th>Proc Group</th>
<th>ICD10-AM Codes</th>
<th>ICD10-AM Description</th>
<th>CMBS Codes</th>
<th>Surv Period (days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSEC</td>
<td>16520-00</td>
<td>Elective classical caesarean section</td>
<td>16520</td>
<td>30</td>
</tr>
<tr>
<td>CSEC</td>
<td>16520-01</td>
<td>Emergency classical caesarean section</td>
<td>16520</td>
<td>30</td>
</tr>
<tr>
<td>CSEC</td>
<td>16520-02</td>
<td>Elective lower segment caesarean section</td>
<td>16520</td>
<td>30</td>
</tr>
<tr>
<td>CSEC</td>
<td>16520-03</td>
<td>Emergency lower segment caesarean section</td>
<td>16522</td>
<td>30</td>
</tr>
<tr>
<td>HPRO</td>
<td>47522-00</td>
<td>Hemiarthroplasty of femur - Austin Moore arthroplasty</td>
<td>47522</td>
<td>90</td>
</tr>
<tr>
<td>HPRO</td>
<td>49312-00</td>
<td>Excision arthroplasty of hip</td>
<td>49312</td>
<td>90</td>
</tr>
<tr>
<td>HPRO</td>
<td>49315-00</td>
<td>Partial arthroplasty of hip</td>
<td>49315</td>
<td>90</td>
</tr>
<tr>
<td>HPRO</td>
<td>49318-00</td>
<td>Total arthroplasty of hip, unilateral, total joint replacement of hip</td>
<td>49318</td>
<td>90</td>
</tr>
<tr>
<td>HPRO</td>
<td>49319-00</td>
<td>Total arthroplasty of hip, bilateral</td>
<td>49319</td>
<td>90</td>
</tr>
<tr>
<td>HPRO</td>
<td>49321-00</td>
<td>Total arthroplasty of hip, including bone grafting, unilateral or bilateral</td>
<td>49321</td>
<td>90</td>
</tr>
<tr>
<td>HPRO</td>
<td>49324-00</td>
<td>Revision of total arthroplasty of hip</td>
<td>49324</td>
<td>90</td>
</tr>
<tr>
<td>HPRO</td>
<td>49327-00</td>
<td>Revision of total arthroplasty of hip with bone graft to acetabulum</td>
<td>49327</td>
<td>90</td>
</tr>
<tr>
<td>HPRO</td>
<td>49330-00</td>
<td>Revision of total arthroplasty of hip with bone graft to femur</td>
<td>49330</td>
<td>90</td>
</tr>
<tr>
<td>HPRO</td>
<td>49333-00</td>
<td>Revision of total arthroplasty of hip with bone graft to acetabulum &amp; femur</td>
<td>49333</td>
<td>90</td>
</tr>
<tr>
<td>HPRO</td>
<td>49336-00</td>
<td>Revision of total arthroplasty of hip during treatment of fractured femur</td>
<td>49336</td>
<td>90</td>
</tr>
<tr>
<td>HPRO</td>
<td>49339-00</td>
<td>Revision of total arthroplasty of hip with anatomic specific allograft to acetabulum</td>
<td>49339</td>
<td>90</td>
</tr>
<tr>
<td>HPRO</td>
<td>49342-00</td>
<td>Revision of total arthroplasty of hip with anatomic specific allograft to femur</td>
<td>49342</td>
<td>90</td>
</tr>
<tr>
<td>HPRO</td>
<td>49345-00</td>
<td>Revision of total arthroplasty of hip with anatomic specific allograft to acetabulum and femur</td>
<td>49345</td>
<td>90</td>
</tr>
<tr>
<td>HPRO</td>
<td>49346-00</td>
<td>Revision of partial arthroplasty of hip</td>
<td>49346</td>
<td>90</td>
</tr>
<tr>
<td>HPRO</td>
<td>50217-00</td>
<td>Arthroplasty of joint, not elsewhere classified</td>
<td>50217</td>
<td>90</td>
</tr>
<tr>
<td>HPRO</td>
<td>50215-03</td>
<td>En bloc resection of lesion of soft tissue affecting the long bones of lower limb, with intercalary reconstruction using prosthesis</td>
<td>50215</td>
<td>90</td>
</tr>
<tr>
<td>HPRO</td>
<td>50218-03</td>
<td>En bloc resection of lesion of long bone of lower limb with replacement of adjacent joint</td>
<td>50218</td>
<td>90</td>
</tr>
<tr>
<td>KPRO</td>
<td>49517-00</td>
<td>Hemiarthroplasty of knee</td>
<td>49517</td>
<td>90</td>
</tr>
<tr>
<td>KPRO</td>
<td>49518-00</td>
<td>Total arthroplasty of knee, unilateral</td>
<td>49518</td>
<td>90</td>
</tr>
<tr>
<td>KPRO</td>
<td>49519-00</td>
<td>Total arthroplasty of knee, bilateral</td>
<td>49519</td>
<td>90</td>
</tr>
<tr>
<td>KPRO</td>
<td>49521-00</td>
<td>Total arthroplasty of knee with bone graft to femur, unilateral</td>
<td>49521</td>
<td>90</td>
</tr>
<tr>
<td>KPRO</td>
<td>49521-01</td>
<td>Total arthroplasty to knee with bone graft to femur, bilateral</td>
<td>49521</td>
<td>90</td>
</tr>
<tr>
<td>KPRO</td>
<td>49521-02</td>
<td>Total arthroplasty to knee with bone graft to tibia, unilateral</td>
<td>49521</td>
<td>90</td>
</tr>
<tr>
<td>KPRO</td>
<td>49521-03</td>
<td>Total arthroplasty to knee with bone graft to tibia, bilateral</td>
<td>49521</td>
<td>90</td>
</tr>
<tr>
<td>KPRO</td>
<td>49524-00</td>
<td>Total arthroplasty of knee with bone graft to femur and tibia, unilateral</td>
<td>49524</td>
<td>90</td>
</tr>
<tr>
<td>KPRO</td>
<td>49524-01</td>
<td>Total arthroplasty of knee with bone graft to femur and tibia, bilateral</td>
<td>49524</td>
<td>90</td>
</tr>
<tr>
<td>KPRO</td>
<td>49527-00</td>
<td>Revision of total arthroplasty of knee</td>
<td>49527</td>
<td>90</td>
</tr>
<tr>
<td>KPRO</td>
<td>49530-00</td>
<td>Revision of total arthroplasty of knee with bone graft to femur</td>
<td>49530</td>
<td>90</td>
</tr>
<tr>
<td>KPRO</td>
<td>49530-01</td>
<td>Revision of total arthroplasty of knee with bone graft to tibia</td>
<td>49530</td>
<td>90</td>
</tr>
<tr>
<td>KPRO</td>
<td>49533-00</td>
<td>Revision of total arthroplasty of knee with bone graft to femur and tibia</td>
<td>49533</td>
<td>90</td>
</tr>
<tr>
<td>KPRO</td>
<td>49534-00</td>
<td>Total replacement arthroplasty of patellofemoral joint of knee</td>
<td>49534</td>
<td>90</td>
</tr>
<tr>
<td>KPRO</td>
<td>49554-00</td>
<td>Revision of total arthroplasty of knee with anatomic specific allograft</td>
<td>49554</td>
<td>90</td>
</tr>
<tr>
<td>KPRO</td>
<td>50217-00</td>
<td>Arthroplasty of joint, not elsewhere classified</td>
<td>50217</td>
<td>90</td>
</tr>
</tbody>
</table>
Appendix 2 – SA Health Duration of Surgery Table (75th percentile)

The following table presents the 75th percentile of procedure duration (in minutes) for the listed procedures. This is equivalent to the “cut point time”

**Procedure Start time to Procedure End time (minutes)**

<table>
<thead>
<tr>
<th>Year range</th>
<th>CSEC</th>
<th>HPRO</th>
<th>KPRO</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009-2012</td>
<td>59</td>
<td>122</td>
<td>119</td>
</tr>
<tr>
<td>2011-2014</td>
<td>57</td>
<td>125</td>
<td>123</td>
</tr>
<tr>
<td>2012-2015</td>
<td>58</td>
<td>126</td>
<td>125</td>
</tr>
</tbody>
</table>

CSEC - Lower segment caesarean section
HPRO - Hip replacement
KPRO - Knee replacement
Safety and Quality Indicators

The primary focus of Safety and Quality (S&Q) initiatives is to save lives and reduce harm.

Along with the Infection Control Unit Surveillance program components, S&Q indicators also encompass surveillance of antibiotic use and Hand Hygiene strategies.

The Safety and Quality performance agreements have identified health care associated infections as an area of interest, with the formal inclusion of several infection control indicators tied to performances of individual health care facilities. Reporting of these indicators to regional Executive is via the Portfolio Performance Review Committee (PPRC) and the Local Health Network analytics and reporting service (LARS).

The indicators developed align with the Australian Commission on Safety and Quality in Health Care (ACSQHC) national strategic framework.

**NOTE:** Although Private institution data is not provided to the SA Health Safety and Quality Unit, all infection control surveillance data will be collected in accordance with the definitions included in this document to facilitate standardised data collection and reporting.

**Governance**

If you have any questions regarding the performance agreement measures please contact Irene Wilkinson on 7425 7161 or via email: irene.wilkinson@sa.gov.au.

Eligible contributors should submit data on the standardised surveillance reporting form, to the Infection Control Service via email: HealthICS@sa.gov.au by the 10th working day of the month following the period of surveillance.
Rate of healthcare associated *Staphylococcus aureus* bacteraemia

**Identifying and definitional attributes**

**Short name:** Rate of healthcare associated *Staphylococcus aureus* bacteraemia.

**Description:** Patient episodes of healthcare associated *Staphylococcus aureus* bacteraemia per 10,000 patient days.

**National Safety and Quality Standard:**
3. Preventing and controlling healthcare associated infections.

**Rationale:** Many infections caused by *Staphylococcus aureus* bacteraemia are associated with healthcare procedures. They are a frequent and serious cause of morbidity and mortality, and are potentially preventable.

This measure is included in the Performance and Accountability Framework (PAF 6.2.1.5). 2

NSQHS Standards Action:
3.2.1 Surveillance systems for healthcare associated infections are in place.

**Collection and usage attributes**

**Computation:** 10,000 x (numerator ÷ denominator).

**Numerator:** Patient episodes of healthcare associated *Staphylococcus aureus* bacteraemia (SAB) during the reference period.

**Numerator criteria:** A patient episode of bacteraemia 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 (SAB) will be considered to be healthcare associated if:22

**EITHER**

- the patient’s first SAB blood culture was collected more than 48 hours after hospital admission or less than 48 hours after discharge

**OR**

- the patient’s first SAB blood culture was collected less than or equal to 48 hours after hospital admission and one or more of the following key clinical criteria was met for the patient-episode of SAB:

  1. SAB is a complication of the presence of an indwelling medical device (e.g. intravascular line, haemodialysis vascular access, 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 (less than 1 x 10^9/L) contributed to by cytotoxic therapy.

Inclusions
• Same-day patients.

Exclusion
• Cases where a known previous positive test has been obtained within the last 14 days.

Denominator: The total number of days for all patients who were admitted for an episode of care and who separated during the reference period.

Denominator criteria:

Inclusions
• Total patient days, including those for same day and overnight admitted patients.
• Unqualified newborns.

Ineligible health services: Health service organisations that are not required to report SAB to their state or territory, or ownership group.

Day procedure services.
Rate of hospital identified *Clostridium difficile* infection (CDI)

**Identifying and definitional attributes**

**Short name:** Rate of Hospital identified *Clostridium difficile* infection (CDI).

**Description:** Hospital identified episodes of *Clostridium difficile* per 10,000 patient days.

**National Safety and Quality Standard:** 3. Preventing and controlling healthcare associated infections.

**Rationale:** *Clostridium difficile* is responsible for antibiotic associated diarrhoea and colitis and is a particularly hardy organism in the environment. It is a marker of antibiotic stewardship and environmental hygiene.

NSQHS Standards Action: 3.2.1 Surveillance systems for healthcare associated infections are in place.

**Note:** this indicator also includes episodes that may be community-associated

**Collection and usage attributes**

**Computation:** 10,000 x (numerator ÷ denominator)

**Numerator:** Total number of cases of CDI diagnosed in patients attending the hospital during the reporting period.

**Numerator criteria:**
- **Inclusions**
  - Only positive results from diarrhoeal stools are recorded i.e. do not include positive results from screening specimens or asymptomatic patients.
  - All cases identified during hospital attendance including ED, outpatient departments and haemodialysis units.

- **Exclusions**
  - Cases where a known previous positive test has been obtained within the last 8 weeks.
  - Patients under 2 years of age at date of attendance/admission.

**Denominator:** The total number of days for all patients who were admitted for an episode of care and who separated during the reference period.

**Denominator criteria:**
- **Inclusions**
  - Total patient days, including those for same day and overnight admitted patients.

- **Exclusions**
  - Patient days from patients under 2 years of age at date of attendance/admission.

**Ineligible health services:** Health service organisations that are not required to report CDI to their state or territory, or ownership group.
Rate of healthcare associated Methicillin-resistant 
Staphylococcus aureus (MRSA) infection

Identifying and definitional attributes

**Short name:** Rate of healthcare associated Methicillin-resistant *Staphylococcus aureus* (MRSA) infection.

**Description:** Patient episodes of healthcare associated Methicillin-resistant *Staphylococcus aureus* infection per 10,000 patient days.

**National Safety and Quality Standard:** 3. Preventing and controlling healthcare associated infections.

**Rationale:** The MRSA infection rate is recommended as the primary performance indicator of MRSA control for external benchmarking purposes, as it is the least likely to be affected by changes over time in screening practices.

**NSQHS Standards Action:**
3.2.1 Surveillance systems for healthcare associated infections are in place.

Collection and usage attributes

**Computation:** $10,000 \times \left( \frac{\text{numerator}}{\text{denominator}} \right)$

**Numerator:** MRSA infection = Total number of new healthcare associated MRSA infections for the period of surveillance.

**Numerator criteria:**
- Inclusions
  - All laboratory confirmed MRSA specimens, collected ≥48 hours after admission to hospital or ≤48 hours after discharge.
  - The infection rate includes all patients, both newly identified and known carriers.

**Denominator:** The total number of days for all patients who were admitted for an episode of care and who separated during the reference period.

**Denominator criteria:**
- Inclusions
  - Total patient days, including those for same day and overnight admitted patients.
  - Unqualified newborns.

**Ineligible health services:** Health service organisations that are not required to report MRSA to their state or territory, or ownership group.

Day procedure services.
Rate of healthcare associated Vancomycin-resistant Enterococci (VRE) infection

Identifying and definitional attributes

**Short name:** Rate of healthcare associated Vancomycin-resistant Enterococci (VRE) infection.

**Description:** Patient episodes of healthcare associated Vancomycin-resistant Enterococci acquisition per 10,000 patient days.

**National Safety and Quality Standard:**

3. Preventing and controlling healthcare associated infections

**Rationale:** The VRE infection rate is a robust indicator, as it is the least likely to be affected by changes over time in screening practices.

**NSQHS Standards Action:**

3.2.1 Surveillance systems for healthcare associated infections are in place.

Collection and usage attributes

**Computation:** 10,000 x (numerator ÷ denominator)

**Numerator:** VRE infection = Total number of new healthcare associated VRE infections for the period of surveillance.

**Numerator criteria:**

- **Inclusions**
  - All laboratory *E. faecalis* or *E. faecium* specimens reported resistant to vancomycin, collected ≥48 hours after admission to hospital or ≤48 hours after discharge.
  - The infection rate includes all patients, both newly identified and known carriers.

- **Exclusions**
  - The acquisition rate excludes those patients who are known carriers of VRE.

**Denominator:** The total number of days for all patients who were admitted for an episode of care and who separated during the reference period.

**Denominator criteria:**

- **Inclusions**
  - Total patient days, including those for same day and overnight admitted patients.
  - Unqualified newborns.

**Ineligible health services:** Health service organisations that are not required to report VRE to their state or territory, or ownership group.

Day procedure services.
Rate of healthcare associated multi-resistant Gram-negative bacilli (MRGN) infection and acquisition

Identifying and definitional attributes

Short name: Rate of healthcare associated multi-resistant Gram-negative bacilli (MRGN) infection and acquisition.

Description: Patient episodes of healthcare associated multi-resistant Gram-negative bacilli infection per 10,000 patient days.

Patient episodes of healthcare associated multi-resistant Gram-negative bacilli acquisition per 10,000 patient days.

National Safety and Quality Standard: 3. Preventing and controlling healthcare associated infections

Rationale: NSQHS Standards Action:
3.2.1 Surveillance systems for healthcare associated infections are in place.

Collection and usage attributes

Computation: 10,000 x (numerator ÷ denominator)

Numerator: MRGN acquisition = Total number of new healthcare associated MRGN acquisitions for the period of surveillance.

MRGN infection = Total number of new healthcare associated MRGN infections for the period of surveillance.

Numerator criteria: Inclusions
- All laboratory confirmed MRGN specimens, collected ≥48 hours after admission to hospital or ≤48 hours after discharge.
- The infection rate includes all patients, both newly identified and known carriers.

Exclusions
- The acquisition rate excludes those patients who are known carriers of MRGN.

Denominator: The total number of days for all patients who were admitted for an episode of care and who separated during the reference period.

Denominator criteria: Inclusions
- Total patient days, including those for same day and overnight admitted patients.
- Unqualified newborns.

Ineligible health services: Health service organisations that are not required to report VRE to their state or territory, or ownership group.

Day procedure services.
Rate of healthcare associated central line associated bloodstream infection (CLABSI)

Identifying and definitional attributes

*Short name:* Rate of healthcare associated central line associated bloodstream infection (CLABSI).

*Description:* Patient episodes of healthcare associated central line associated bloodstream infection per 10,000 patient days.

*National Safety and Quality Standard:* 3. Preventing and controlling healthcare associated infections

*Rationale:* Central line associated bloodstream infections are a frequent and serious cause of morbidity and mortality, and are potentially preventable.

NSQHS Standards Action:
3.2.1 Surveillance systems for healthcare associated infections are in place.

Collection and usage attributes

*Computation:* \(10,000 \times \left(\frac{\text{numerator}}{\text{denominator}}\right)\)

*Numerator:* Patient episodes of healthcare associated central line associated bloodstream infection (CLABSI) during the reference period.

*Numerator criteria:* A patient episode of CLABSI is defined as a laboratory-confirmed BSI where the patient has a central line in situ within the 48 hour period before the development of the BSI which is not related to an infection at another site/focus.

  **Inclusions**
  - Same-day patients.
  - Non-inpatients with central line in situ.

*Denominator:* The total number of days for all patients who were admitted for an episode of care and who separated during the reference period.

*Denominator criteria:* Inclusions
- Total patient days, including those for same day and overnight admitted patients.
- Unqualified newborns.
For more information

Infection Control Service
Department for Health & Ageing
11 Hindmarsh Square
Adelaide, 5000
Telephone: 7425 7161
www.sahealth.sa.gov.au/infectionprevention
Public-I1-A2