AUSTRALIAN COMMISSION ON SAFETY AND QUALITY IN HEALTH CARE

DATA SET SPECIFICATION

Surveillance of Healthcare Associated Infections: *Staphylococcus aureus* bacteraemia & *Clostridium difficile* infection

Version 4.0

PROGRAM MANAGERS
Dr Marilyn Cruickshank, Manager, Healthcare Associated Infections
Mr Neville Board, Information Strategy Manager

CONTACT FOR INFORMATION OR FEEDBACK
Elizabeth Hanley, Senior Project Officer, Health Information Standards

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Professor Debora Picone AM
Chief Executive Officer

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ABBREVIATIONS

ACSQHC	Australian Commission on Safety and Quality in Health Care
AHMC	Australian Health Ministers' Conference
BSI	Bloodstream infection
CDI	*Clostridium difficile* infection
HAI	Healthcare associated infection
MRSA	Methicillin-resistant *Staphylococcus aureus*
MSSA	Methicillin-sensitive *Staphylococcus aureus*
PMC	Pseudomembranous colitis
SAB	*Staphylococcus aureus* bacteraemia

1 PURPOSE

The purpose of this data set specification (DSS) is to support a comprehensive surveillance program of healthcare associated infections (HAI).

This DSS supports consistent local collection of healthcare associated infection (HAI) data, and embeds national definitions for key elements.

This DSS is intended to promote and support consistent collection of reliable, comparable HAI surveillance data.

It is recommended that local forms and systems, and jurisdictional or ownership group data collections adhere to these national health information standards.

This DSS was presented to the National Health Information Statistical Standards Committee (NHISCC) in March 2012, for national endorsement.

2 BACKGROUND

In December 2008, Australian Health Ministers' Conference (AHMC) endorsed the following recommendations:

a. All hospitals establish healthcare associated infection (HAI) surveillance

b. All hospitals monitor and report through their relevant jurisdiction

   i. *Staphylococcus aureus* (including methicillin-resistant (MRSA)) blood stream infections

   ii. *Clostridium difficile* infections (CDI)

In addition, *Staphylococcus aureus* bacteraemia (SAB) rates are one of the National Health Care Agreement Performance Indicators, announced in November 2008[1], and Health Ministers endorsed routine monitoring by hospitals of HAI SAB and CDI in November 2008, as two of the core, hospital-based outcome indicators of safety and quality[2].

National surveillance requires common definitions and consistent data collection processes. However, at the time of these ministerial decisions, there was no systematic Australia-wide approach to the measurement of patient harm caused by or associated with HAI.

HAI and patient safety

Healthcare associated infections (HAIs) are those infections that are not present or incubating at the time of admission to a hospital or healthcare facility; develop within a healthcare facility; or, are produced by micro-organisms acquired during admission.

HAI is responsible for a significant burden of iatrogenic morbidity and mortality. Each year in Australia there are about 200,000 HAIs[3].

HAIs cause patients pain and suffering, prolong hospital admissions and cause significant harm to patients. Some patients die as a result of HAIs, many of which are preventable. Prevention of HAI is the responsibility of all who care for patients, and can cost less than treating such infections. Infection has moved from being considered an unpredictable ‘complication’ to being considered a potentially preventable ‘adverse event’.

Staphylococcus aureus bacteraemia (SAB)

Studies in Australia document that 17–29% of patients with hospital-acquired bloodstream infections (BSIs) die while still in hospital. Patients who develop BSIs are also more likely to suffer complications during their hospital stay that result in a longer hospital stay and an increased cost of hospitalisation[3]

Staphylococcus aureus is the most common cause of healthcare associated BSIs, causing significant illness and death; more than half of these infections are associated with health care procedures[4], and are thus potentially preventable[5].

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[1] Intergovernmental Agreement (IGA) on Federal Financial Relations, Schedule F - National Healthcare Agreement, http://www.coag.gov.au/intergov_agreements/federal_financial_relations/index.cfm

[2] See http://www.safetyandquality.gov.au/internet/safety/publishing.nsf/Content/PriorityProgram-08_HospLvl-Indicators#hospital

[3] Cruickshank M, Ferguson J, editors. Reducing Harm to Patients from Healthcare associated Infection: The Role of Surveillance: Australian Commission on Safety and Quality in Health Care, 2008.

[4] Each year in Australia, there are likely to be more than 12,000 BSIs associated with health care, of which 7,000 are Staphylococcus aureus bacteraemias. Cruickshank M, Ferguson J, editors. Reducing Harm to Patients from Healthcare associated Infection: The Role of Surveillance: Australian Commission on Safety and Quality in Health Care, 2008

Clostridium difficile infection (CDI)

Clostridium difficile infection (CDI), also known as *Clostridium Difficile* Associated Disease (CDAD), remains the single most frequently occurring HAI in hospitals in developed countries[6]. Almost all cases follow the use of antibiotics, and the major reservoir of infection is infected patients in hospitals or long-term care facilities. *Clostridium difficile* infection is found in the stool of 15–25% of patients with antibiotic-associated diarrhoea and more than 95% of patients with pseudomembranous colitis (PMC).[3] CDI has a significant impact on modern health care. International studies show that infected patients spend an extra 1–3 weeks in hospital, costing €5000–15,000 per case[7].

The main reasons for establishing surveillance of CDI were that higher rates can be attributed to the overuse of antibiotics, ineffective infection control processes such as poor levels of hand hygiene and environmental cleanliness, and to have an early warning system for severe strains of CDI already present in Europe and North America, which have significantly higher morbidity and mortality than the strains being detected at the time of the AHMC determination in 2008.

[5] Collignon P, Nimmo GR, Gottlieb T and Gosbell IB (2005). *Staphylococcus aureus* bacteraemia, Australia. *Emerging Infectious Diseases* 11(4):554-561.

[6] Sunenshine R and McDonald L (2006). *Clostridium difficile-associated disease: new challenges from an established pathogen.* Cleveland Clinic Journal of Medicine 73(2):187–197.

[7] Kuijper E, Coignard B and Tüll P (2006). Emergence of Clostridium difficile-associated disease in North America and Europe. *Clinical Microbiology and Infection* 12 Suppl 6:2–18.

3 SURVEILLANCE

The Healthcare associated infection datasets for surveillance of *Staphylococcus aureus* bacteraemia (SAB) and *Clostridium difficile* infection (CDI) are designed for the purposes of infection surveillance, not diagnosis. The value of surveillance as part of a hospital infection control program is supported by high-grade international and national evidence.

Surveillance data should be used to identify local problem areas and implement appropriate policy and clinical interventions to improve the quality of care, not for external benchmarking. Effective surveillance systems provide the impetus for change and make it possible to evaluate the effectiveness of interventions. An effective surveillance system is one that provides timely information to hospital managers and clinicians to promote action for health.

Surveillance is an important tool to reduce HAI. The purpose of collecting, analysing, and then acting on reliable surveillance data is to improve quality and patient safety within a service or facility or jurisdiction. Effective surveillance systems provide the impetus for change and make it possible to evaluate the effectiveness of interventions.

To significantly reduce *Staphylococcus aureus* (including MRSA) blood stream infection and other HAI, a multifaceted approach is required. This approach can be grouped into specific strategies at hospital / healthcare facility, jurisdictional and national level supported by generic tools including surveillance.

HAI Surveillance in Hospitals

Local data collections must provide timely and reliable feedback for clinicians to effectively manage HAI. They should also inform local prevention strategies and improvement strategies. This data set supports the case definitions of SAB and CDI endorsed at the January 2009 Inter-jurisdictional Committee meeting (convened by the Australian Commission on Safety and Quality in Healthcare) and should be collected in Australian hospitals.

HAI Surveillance at State/Territory Level or private hospital ownership group

When surveillance information is collated and analysed at jurisdictional or ownership group level, it:

- informs policy, resource allocation and programs;
- should be returned to hospitals for benchmarking and comparison;
- should be used as the basis for liaison between health services and infectious disease experts to develop state-based priority programs to reduce HAI; and
- enables monitoring of jurisdictional or ownership group trends related to HAI.

Further development

Further work is planned for a national approach to HAI surveillance. For guidance on HAI surveillance, refer to the companion documents to this data set specification, the Implementation Guidelines for surveillance of SAB and CDI, which are available on the Commission's website at

http://www.safetyandquality.gov.au/internet/safety/publishing.nsf/Content/PriorityProgram-03

4 KEY CONCEPTS

4.1 Core data sets

This data set specification is intended to support a minimum standard of *Staphylococcus aureus* (SAB) bloodstream infection and *Clostridium difficile* (CDI) infection surveillance in Australian acute care hospitals by defining the core data sets for healthcare associated infections: SAB and CDI.

The scope of the data sets are cases of SAB and CDI healthcare associated infections that arise from an episode of patient care in an Australian hospital and meet the case definition. For SAB definition see page 12, and for CDI definition see page 15.

In order for jurisdictions and private hospital ownership groups to accurately report and monitor Healthcare Associated Infections (HAIs), the data elements listed in Table 1 should be collected at hospital level for each patient-episode of *Staphylococcus aureus* bacteraemia, and hospital identified *Clostridium difficile* infection.

Table 1 – Healthcare Associated Infections patient episode data elements

Object class	***Data element***	***SAB***	***CDI***
Episode of admitted patient care	Admission date	◆	◆
	Separation date	◆	◆
Establishment	Establishment number	◆	◆
	Ward / clinical area	◆	◆
Laboratory	Specimen identifier	◆	◆
	Laboratory result identifier	◆	◆
	Laboratory number	◆	◆
Person	Person identifier	◆	◆
	Family name	◆	◆
	Given name	◆	◆
	Indigenous status	◆	◆
	Date of birth	◆	◆
	Sex	◆	◆
	Address line	◆	◆
	Suburb/town/locality name	◆	◆
	Australian state/territory identifier	◆	◆
	Specimen collection date	◆	◆
	Specimen collection time	◆	◆
Address	Australian Postcode	◆	◆
Patient episode of SAB	Healthcare associated SAB clinical criteria	◆	
	SAB status	◆	
	SAB methicillin susceptibility	◆	
MRSA isolate	Antibiotic susceptibility (MRSA isolate)	◆	
	Antibiotic susceptibility indicator (MRSA isolate)	◆	

Object class	***Data element***	***SAB***	***CDI***
Patient episode of CDI	Severe CDI status		◆
	CDI strain		◆

Table 2 lists the data elements which should be used to calculate rates of SAB and CDI

Table 2 – Data elements used for calculation of SAB and CDI rates

Object class	***Data element***	***SAB***	***CDI***
Establishment	Number of patient days	◆	◆
	Patient episodes of healthcare associated SAB	◆	
	Patient episodes of hospital identified CDI		◆
	Patient episodes of hospital identified CDI - severe disease		◆

4.2 Case definition - Healthcare Associated *Staphylococcus aureus* bacteraemia (SAB)

A patient-episode of *Staphylococcus aureus* bacteraemia (SAB) is 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 culture, after which an additional episode is recorded.

A SAB will be considered to be a **healthcare-associated** event if:

EITHER

CRITERION A. The patient's first SAB positive blood culture was collected **more than 48 hours after** hospital admission or **less than 48 hours after** discharge.

OR

CRITERION B. The patient's first positive 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 1×10^9 L) contributed to by cytotoxic therapy

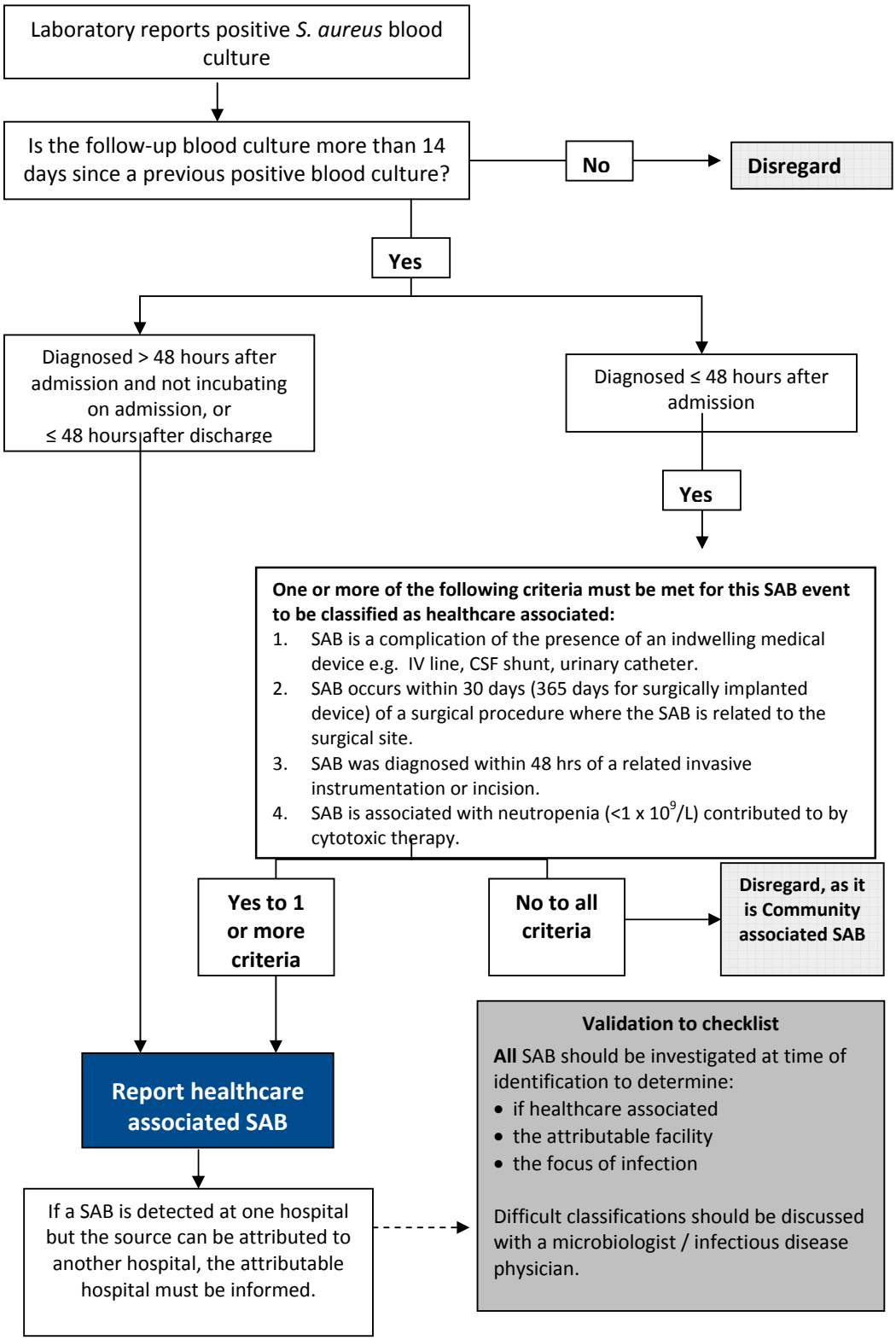
If none of these criteria are met, then the episode of SAB is considered to be community associated for the purposes of surveillance. See Figure 1 for flowchart.

Note: Cases where a known previous positive test has been obtained within the last 14 days are excluded.

For example: If a patient has SAB in which 4 sets of blood cultures are positive over the initial 3 days of the patient's admission only one episode of SAB is recorded. If the same patient had a further set of positive blood cultures on day 6 of the same admission, these would not be counted again, but would be considered part of the initial patient-episode.

Note: If the same patient had a further positive blood culture 20 days after admission (i.e. greater than 14 days after their last positive on day 5), then this would be considered a second patient-episode of SAB.

Figure 1 – Flow Chart – Determining whether Staphylococcus aureus bacteraemia is Healthcare associated



4.2.1 Calculation of SAB rates

The following primary information will be used to define the rates of *Staphylococcus aureus* bacteraemia (SAB) for each Australian healthcare facility with acute inpatient beds:

Numerator

- Patient-episodes of SAB (noting the following factors related to each episode):
    - Determination of whether the SAB is a healthcare associated infection
    - Designation of which healthcare facility the patient was admitted to at the time of the patient-episode of SAB

Denominator

- Total patient days (noting the following inclusion)
    - Same-day patients

The rate will be calculated for each healthcare facility and State/Territory as follows:

Numerator:	Patient episodes of Healthcare associated SAB	x 10,000
Denominator:	Number of patient days	

4.2.2 Notes – SAB Calculation

Patient days

The recommended denominator for calculating rates of HAI in Australian healthcare facilities is *patient days*. *Patient days* is a national standard, defined in the national health data dictionary and used for national reporting. *Occupied bed days* is a term commonly used by some states to express a similar concept to *patient days*. However, there is no national standard for calculating *occupied bed days*.

Patient days are calculated by counting the total patient days of those patients *separated* during the specified period, including those admitted before the specified period. Patient days of those patients admitted during the specified period who did not separate until the following reference period are not counted.

For example, Patient A is admitted on January 20 and discharged February 20. Patient A generates 0 patient days in the hospital's January record, and 31 patient days for February (11 from the January period of the separation, and 20 in February).

The yearly variance between calculations of *patient days* and *occupied bed days* is minimal (less than 1%); however the monthly variation can be quite significant for smaller hospitals.

Contract patient days are included in the count of total patient days. If it is a requirement to distinguish contract patient days from other patient days, they can be calculated by using the rules contained in the data element: total contract patient days.

Contamination

A contaminated specimen can produce a false positive in surveillance systems. Contamination of blood cultures is rare in adults (1- 2% of culture positive episodes) and more common in children (5-10%). If, in the evaluation of a potential event, the clinical diagnosis is unsupportive of infection AND, either a repeat blood culture(s) is (are) negative, AND/OR no antimicrobial

treatment is given, the positive blood culture should be regarded as a contamination and not reported in the surveillance data.[8]

4.3 Case Definition - Hospital identified *Clostridium difficile* infection (CDI)

A CDI case is defined as a case of diarrhoea that meets the following criteria

- the stool sample yields a positive result in a laboratory assay for *C. difficile* toxin A and/or B, or
- a toxin-producing *C. difficile* organism is detected in the stool sample by culture or other means.

A hospital identified CDI case is:

- a CDI case diagnosed in a patient attending a hospital (that is, it includes positive specimens obtained from admitted patients and those attending the Emergency Department, and outpatient departments).

Exclusions

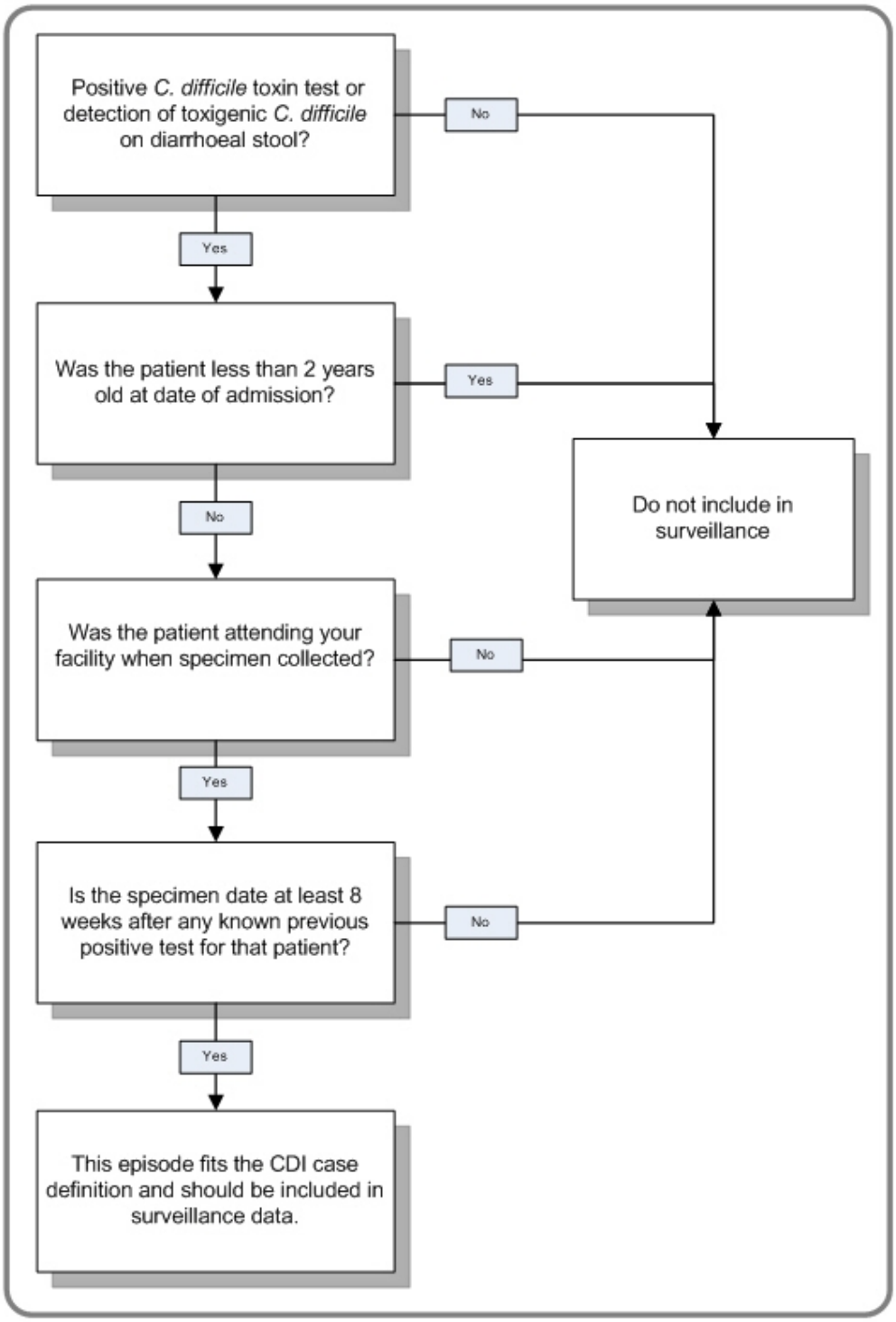
- Cases where a known previous positive test has been obtained within the last 8 weeks (that is, only include cases once in an 8 week period).
- Patients less than two years old at date of admission.

Note: An additional positive test obtained from a specimen collected from the same patient more than 8 weeks since the last positive test is regarded as a new case.

See Figure 2.

[8] Hunter Area Pathology Service: internal data 2005-9. Personal communication Dr J Ferguson
http://www.asid.net.au/hicsigwiki/index.php?title=Rates_of_blood_culture_contamination_with_Staphylococcus_aureus

Figure 2 – Flow chart – Determining whether the C.difficile infection meets the case definition for hospital identified CDI



4.3.1 Calculation of hospital identified CDI rates

Principles of *Clostridium difficile* infection prevention include antibiotic stewardship, monitoring of incidence and outbreaks, appropriate use of contact precautions, accurate identification of infected patients, consistent hand hygiene and improved environmental cleaning.

The rate of CDI is an important indicator of safety and quality, and CDI is the object of national surveillance. Recently published international recommendations and a national definition support implementation of an appropriate surveillance program in Australia.[3]

The following primary information will be used to calculate the rates of *C. difficile* infection (CDI) in each Australian healthcare facility with acute inpatient beds.

Numerator

- Patient episodes of hospital identified CDI (total hospital CDI cases)

Denominator

- Total patient days (including day cases)

Exclusions

- Cases where a known previous positive test has been obtained within the last 8 weeks (that is, only include cases once in an 8 week period)
- Patients less than 2 years old at date of admission

This will be calculated for each hospital as follows:

Numerator:	Patient episodes of hospital identified CDI	x 10,000
Denominator:	Number of patient days	

Note: Rates for healthcare facilities can be aggregated to produce rates for each state / territory.

4.3.2 CDI and cases of severe disease

The *C. difficile* case definition does not require differentiation between severe and non-severe cases.

A severe case is defined as a CDI case patient who meets any of the following surveillance criteria within 30 days of symptom onset:

- history of admission to an intensive care unit for treatment of complications from CDI (for example vasopressor therapy for shock);
- history of surgery for treatment of toxic megacolon, perforation or refractory colitis; or
- death caused by CDI within 30 days of symptom onset.

[3] Cruickshank et al, op cit, p. 171

4.3.3 Calculation of rates of severe CDI

For those healthcare facilities or organisations monitoring severe disease, this should be expressed as the proportion of total hospital identified CDI cases in the reporting period that were severe against the total number of CDI cases in the reporting period. The raw numbers as well as the proportion should be reported to aid interpretation.

The proportion should be calculated for each healthcare facility in the reporting period, as follows:

Numerator:	Patient episodes of hospital identified CDI - severe disease
Denominator:	Patient episodes of hospital identified CDI (total hospital CDI cases)

4.4 Levels of Identification

Whenever data regarding individuals or service provider organisations are collected or disseminated, privacy and confidentiality must be addressed. Hospitals, health services and jurisdictions have a range of policies, regulations and laws in place regarding the use of personal health information for secondary purposes. This data set specification does not address health information privacy in detail.

However, the following principles can be applied to HAI surveillance in general:

- Hospitals can and will hold identified data on healthcare associated infections.
- Jurisdictions and private hospital ownership groups will focus on trends over time and variation between comparable facilities, and do not necessarily need to hold identified patient information[10].
- National reporting will focus on trends over time and regional variation

No individual service provider or individual client will be identified/or identifiable in any published reporting undertaken comprising healthcare associated infections data.

Data collection staff must be made aware of the need for ethical management and privacy of data. Generally, clients should be informed as to what information is collected, by whom, how it will be used, and their rights in relation to it. This should occur, irrespective of whether the information was collected from a third party or directly from the person concerned. The *Privacy Act 1988*, however, recognises there will be situations when it is not reasonable or appropriate to do this.

The datasets for *Staphylococcus aureus* bacteraemia and *Clostridium difficile* infection are structured in the following layers:

- Episode and person level data (SAB/CDI patient episode and demographics)
- Establishment level data (hospital and laboratory)
- Disease specific data (to calculate rates)

[10] However, HAIs are notifiable in some jurisdictions

Figure 4 – Levels of reporting

Hospital		
Episode and person data	**Jurisdiction or Ownership group**	
Establishment level data	Establishment level data	**National reporting**
Disease specific data	Disease specific data (by facility)	Disease specific data (by Jurisdiction)

4.5 Metadata standards and data elements

The development of metadata standards improves quality, relevance, consistency and the availability of national information about the health and welfare of Australians. The drivers for standard development arise from the need for better information - whether it is statistical, administrative, clinical or other information.

Metadata standards describe the expected meaning and acceptable representation of data for use within a defined context. The need for consistency of meaning is vital to facilitate information sharing among primary and secondary users of the data. Much of the work involved in establishing a data collection is in the development of metadata standards to ensure comparability and consistency of the data collected and produced from the collection. The data standards in this data dictionary are based on the national health standard used by METeOR, Australia's repository for national metadata standards for the health, community services and housing assistance sectors. The system was developed by the Australian Institute of Health and Welfare and is accessed online via http://meteor.aihw.gov.au/.

Note:
The format of the data elements section of this document is based on the METeOR standard. *METeOR is Australia's repository for national metadata standards for the health, community services and housing assistance sectors*[11].

In order to support the use of this Data Set Specification (DSS) by those working in the area of HAI surveillance and surveillance system development, the data element presentation in this specificiation is a truncated version of the METeOR standard. A fully compliant version will be maintained within the national metadata registry, METeOR.

[11] See http://meteor.aihw.gov.au/content/index.phtml/itemId/181414

5 DATA ELEMENTS – PATIENT EPISODE OF HEALTHCARE ASSOCIATED INFECTION

This section specifies the data elements to be collected at hospital level for all patient episodes of healthcare associated infection

- Admission date
- Separation date
- Specimen collection date
- Specimen collection time
- Establishment number
- Ward/clinical area
- Specimen identifier
- Laboratory result identifier
- Laboratory number

5.1 Admission date

Identifying and definitional attributes

Metadata item type:	Data Element
Technical name:	Episode of admitted patient care—admission date, DDMMYYYY
METeOR identifier:	269967
Registration status:	Health, Standard 01/03/2005
Definition:	Date on which an admitted patient commences an episode of care.

Value domain attributes

Representational attributes

Representation class:	Date
Format:	DDMMYYYY
Maximum character length:	8

Data element attributes

Collection and usage attributes

Guide for use:	Assign the admission date for the patient-episode: where the positive blood culture for *Staphylococcus aureus* bacteraemia has been isolated, and is considered to be a healthcare associated infection according to the case definition; OR where *Clostridium* difficile has been detected in the stool sample and is considered to be a healthcare associated infection according to the case definition.

Source and reference attributes

Origin:	National Health Data Committee

5.2 Separation date

Identifying and definitional attributes

Metadata item type:	Data Element
Technical name:	Episode of admitted patient care—separation date, DDMMYYYY
METeOR identifier:	270025
Registration status:	Health, Standard 01/03/2005
Definition:	Date on which an admitted patient completes an episode of care.

Value domain attributes

Representational attributes

Representation class:	Date
Format:	DDMMYYYY
Maximum character length:	8

Data element attributes

Collection and usage attributes

Guide for use:	Assign the separation date for the patient-episode: where the positive blood culture for *Staphylococcus aureus* bacteraemia has been isolated, and is considered to be a healthcare associated infection according to the case definition; OR where *Clostridium* difficile has been detected in the stool sample and is considered to be a healthcare associated infection according to the case definition.
Comments:	There may be variations amongst jurisdictions with respect to the recording of separation date. This most often occurs for patients who are statistically separated after a period of leave (and who do not return for further hospital care). In this case, some jurisdictions may record the separation date as the date of statistical **separation** (and record intervening days as leave days) while other jurisdictions may retrospectively separate patients on the first day of leave. Despite the variations in recording of separation date for this group of patients, the current practices provide for the accurate recording of length of stay.

Source and reference attributes

Origin:	National Health Data Committee

5.3 Specimen collection date

Identifying and definitional attributes

Metadata item type:	Data Element
Technical name:	Person—specimen collection date, DDMMYYYY
METeOR identifier:	428420
Registration status:	Health, Standardisation pending 22/02/2012
Definition:	The date on which the specimen was collected from the person, expressed as DDMMYYYY.

Value domain attributes

Representational attributes

Representation class:	Date
Format:	DDMMYYYY
Maximum character length:	8

Data element attributes

Collection and usage attributes

Guide for use:	Record the date when the specimen was collected.

Source and reference attributes

Submitting organisation:	Australian Commission on Safety and Quality in Health Care (ACSQHC)
Origin:	ACSQHC Healthcare Associated Infection Technical Working Group

5.4 Specimen collection time

Identifying and definitional attributes

Metadata item type:	Data Element
Technical name:	Person—specimen collection time, hhmm
METeOR identifier:	438491
Registration status:	Health, Standardisation pending 22/02/2012
Definition:	The time at which the specimen was collected from the person, presented in 24 hour time.

Value domain attributes

Representational attributes

Representation class:	Time
Format:	hhmm
Maximum character length:	4

Data element attributes

Collection and usage attributes

Guide for use:	Record the time when the specimen was collected.

Source and reference attributes

Submitting organisation:	Australian Commission on Safety and Quality in Health Care (ACSQHC)
Origin:	ACSQHC Healthcare Associated Infection Technical Working Group

5.5 Establishment number

Identifying and definitional attributes

Metadata item type:	Data Element
Technical name:	Establishment—organisation identifier (state/territory), NNNNN
METeOR identifier:	269975
Registration status:	Health, Standard 01/03/2005
Definition:	An identifier for an establishment, unique within the state or territory.

Value domain attributes

Representational attributes

Representation class:	Identifier
Data type:	Number
Format:	NNNNN
Maximum character length:	5

Data element attributes

Collection and usage attributes

Comments:

Identifier should be a unique code for the health care establishment used in that state/territory.

This data element concept will be replaced by the NEHTA *Healthcare Provider Identifiers – Organisation* (HPI-O). Information about the HPI-O is shown below. NEHTA has engaged Medicare Australia to design and build Australia's first national healthcare identification service, to provide the requisite identification service for the people and organisations involved in healthcare across Australia, by way of:

• *Individual Healthcare Identifiers* (IHIs) to identify all Australian healthcare consumers

• *Healthcare Provider Identifiers - Individual* (HPI-Is), to identify individual healthcare providers, such as general practitioners, clinicians, nurses and pharmacists

• *Healthcare Provider Identifiers – Organisation* (HPI-Os), to identify healthcare organisations such as hospitals and clinics.

Initially, it is assumed that the Individual Healthcare Identifiers (IHIs) and jurisdictional and local system identifiers (including Medical Record Numbers [MRNs] and Unique Patient Identifiers [UPIs]) will coexist. However, in the longer term, IHIs, HPI-Is and HPI-Os are expected to replace these existing, localised identifiers.

5.6 Ward/clinical area

Identifying and definitional attributes

Metadata item type:	Data Element
Technical name:	Establishment—ward/clinical area name, text X[X(39)]
METeOR identifier:	389201
Registration status:	Health, Standardisation pending 22/02/2012
Definition:	The organisational unit or organisational arrangement dedicated to the treatment and care of admitted patients in a healthcare setting, as represented by text.

Value domain attributes

Representational attributes

Representation class:	Text
Format:	X[X(39)]
Maximum character length:	40

Data element attributes

Collection and usage attributes

Guide for use:	This data element refers to the ward or clinical area within the healthcare facility where the patient was located. This information will be facility specific, so local conventions for naming wards should be used, for example Maternity Ward, or Emergency Department.

Source and reference attributes

Submitting organisation:	Australian Commission on Safety and Quality in Health Care (ACSQHC)
Origin:	ACSQHC Healthcare Associated Infection Technical Working Group

5.7 Specimen identifier

Identifying and definitional attributes

Metadata item type:	Data Element
Technical name:	Laboratory—Specimen identifier, text X[X(39)]
METeOR identifier:	428518
Registration status:	Health, Standardisation pending 22/02/2012
Definition:	Specimen identifier unique within a laboratory, as represented by text.

Value domain attributes

Representational attributes

Representation class:	Text
Format:	X[X(39)]
Maximum character length:	40

Data element attributes

Collection and usage attributes

Guide for use:	The assignment of an identifier to a specimen allows the tracking of the specimen through receipt, processing, analysis, reporting and storage within the laboratory.

Source and reference attributes

Submitting organisation:	Australian Commission on Safety and Quality in Health Care (ACSQHC)
Origin:	ACSQHC Healthcare Associated Infection Technical Working Group

5.8 Laboratory result identifier

Identifying and definitional attributes

Metadata item type:	Data Element
Technical name:	Laboratory—result identifier, text X[X(39)]
METeOR identifier:	428639
Registration status:	Health, Standardisation pending 22/02/2012
Definition:	Result identifier unique within a laboratory, as represented by text.

Value domain attributes

Representational attributes

Representation class:	Text
Format:	X[X(39)]
Maximum character length:	40

Data element attributes

Collection and usage attributes

Guide for use:	The assignment of an identifier to a result allows the linking of a result to a request within the laboratory. The laboratory result identifier will be derived from the pathology report and will be unique within the laboratory only.

Source and reference attributes

Submitting organisation:	Australian Commission on Safety and Quality in Health Care (ACSQHC)
Origin:	ACSQHC Healthcare Associated Infection Technical Working Group

5.9 Laboratory number

Identifying and definitional attributes

Metadata item type:	Data Element
Technical name:	Laboratory—organisation identifier, text X[X(39)]
METeOR identifier:	390779
Registration status:	Health, Standardisation pending 22/02/2012
Definition:	A unique identifier allocated to a laboratory, as represented by text.

Value domain attributes

Representational attributes

Representation class:	Text
Format:	X [X(39)]
Maximum character length:	40

Data element attributes

Source and reference attributes

Submitting organisation:	Australian Commission on Safety and Quality in Health Care (ACSQHC)
Origin:	ACSQHC Healthcare Associated Infection Technical Working Group

6 PERSON DATA ELEMENTS

This section specifies the following person-level data elements:

- Family name
- Given name(s)
- Indigenous status
- Date of birth
- Sex
- Address line (person)
- Suburb/town/locality name (person)
- Australian postcode (address)
- Australian state/territory identifier (person)
- Person identifier

6.1 Family name

Identifying and definitional attributes

Metadata item type:	Data Element
Technical name:	Person (name)—family name, text X[X(39)]
Synonymous names:	Surname; Last name
METeOR identifier:	286953
Registration status:	Health, Standard 04/05/2005 Community services, Superceded 06/02/2012 Housing assistance, Standard 20/06/2005
Definition:	That part of a name a person usually has in common with some other members of his/her family, as distinguished from his/her given names, as represented by text.

Value domain attributes

Representational attributes

Representation class:	Text
Format:	X[X(39)]
Maximum character length:	40

Data element attributes

Collection and usage attributes

Guide for use:	The agency or establishment should record the person's full **family** name on their information systems.
Collection methods:	See http://meteor.aihw.gov.au/content/index.phtml/itemId/286953 for collection methods if required.

Source and reference attributes

Submitting organisation:	Australian Institute of Health and Welfare Standards Australia
Origin:	National Health Data Committee National Community Services Data Committee Commonwealth Department of Health and Family Services 1998. Home and Community Care Data Dictionary Version 1.0. Canberra: DHFS Standards Australia 2002. AS5017 Health Care Client Identification, 2002, Sydney: Standards Australia.
Reference documents:	AS4846 Health Care Provider Identification, 2006, Sydney: Standards Australia

6.2 Given name(s)

Identifying and definitional attributes

Metadata item type:	Data Element
Technical name:	Person (name)—given name, text [X(40)]
METeOR identifier:	287035
Registration status:	Health, Standard 04/05/2005 Community services, Superceded 06/02/2012 Housing assistance, Standard 20/06/2005
Definition:	The person's identifying name within the family group or by which the person is socially identified, as represented by text.

Value domain attributes

Representational attributes

Representation class:	Text
Format:	[X(40)]
Maximum character length:	40

Data element attributes

Collection and usage attributes

Guide for use:	A person may have more than one Given name. All given names should be recorded. The agency or establishment should record the person's full given name(s) on their information systems. Each individual Given name should have a Given name sequence number associated with it. Health care establishments may record given names (first and other given names) in one field or several fields. This metadata item definition applies regardless of the format of data recording. A full history of names is to be retained.
Collection methods:	See http://meteor.aihw.gov.au/content/index.phtml/itemId/287035 for collection methods if required.

Source and reference attributes

Submitting organisation:	Australian Institute of Health and Welfare Standards Australia
Origin:	National Health Data Committee National Community Services Data Committee Commonwealth Department of Health and Family Services 1998. Home and Community Care Data Dictionary Version 1.0. Canberra: DHFS AS5017 Health Care Client Identification, 2002, Sydney: Standards Australia.
Reference documents:	AS4846 Health Care Provider Identification, 2006, Sydney: Standards Australia

6.3 Indigenous status

Identifying and definitional attributes

Metadata item type:	Data Element
Technical name:	Person—Indigenous status, code N
METeOR identifier:	291036
Registration status:	Health, Standard 04/05/2005 Community services, Standard 25/08/2005
Definition:	Whether a person identifies as being of Aboriginal or Torres Strait Islander origin, as represented by a code. This is in accord with the first two of three components of the Commonwealth definition.

Value domain attributes

Representational attributes

Representation class:	Code	
Format:	N	
Maximum character length:	1	
Permissible values:	Value	Meaning
	1	Aboriginal but not Torres Strait Islander origin
	2	Torres Strait Islander but not Aboriginal origin
	3	Both Aboriginal and Torres Strait Islander origin
	4	Neither Aboriginal nor Torres Strait Islander origin
Supplementary values:	9	Not stated/inadequately described

Collection and usage attributes

Guide for use:	This metadata item is based on the Australian Bureau of Statistics (ABS) standard for Indigenous status. For detailed advice on its use and application please refer to http://meteor.aihw.gov.au/content/index.phtml/itemId/291036.

Data element attributes

Collection and usage attributes

Collection methods:	See http://meteor.aihw.gov.au/content/index.phtml/itemId/291036.
Comments:	See http://meteor.aihw.gov.au/content/index.phtml/itemId/291036 for the Commonwealth definition of indigenous status if required.

Source and reference attributes

Origin:	National Health Data Committee National Community Services Data Committee
Reference documents:	Australian Bureau of Statistics 1999. Standards for Social, Labour and Demographic Variables. Cultural Diversity Variables, Canberra. Viewed 3 August 2005.

6.4 Date of birth

Identifying and definitional attributes

Metadata item type:	Data Element
Technical name:	Person—date of birth, DDMMYYYY
METeOR identifier:	287007
Registration status:	Health, Standard 04/05/2005 Community services, Standard 25/08/2005 Housing assistance, Standard 20/06/2005
Definition:	The date of birth of the person.

Value domain attributes

Representational attributes

Representation class:	Date
Format:	DDMMYYYY
Maximum character length:	8

Data element attributes

Collection and usage attributes

Guide for use:	If date of birth is not known or cannot be obtained, provision should be made to collect or estimate age. Collected or estimated age would usually be in years for adults, and to the nearest three months (or less) for children aged less than two years. Additionally, an estimated date flag or a date accuracy indicator should be reported in conjunction with all estimated dates of birth. For data collections concerned with children's services, it is suggested that the estimated date of birth of children aged under 2 years should be reported to the nearest 3 month period, i.e. 0101, 0104, 0107, 0110 of the estimated year of birth. For example, a child who is thought to be aged 18 months in October of one year would have his/her estimated date of birth reported as 0104 of the previous year. Again, an estimated date flag or date accuracy indicator should be reported in conjunction with all estimated dates of birth.
Collection methods:	Information on date of birth can be collected using the one question: What is your/(the person's) date of birth? In self-reported data collections, it is recommended that the following response format is used: Date of birth: _ _ / _ _ / _ _ _ _ This enables easy conversion to the preferred representational layout (DDMMYYYY). For record identification and/or the derivation of other metadata items that require accurate date of birth information, estimated dates of birth should be identified by a date accuracy indicator to prevent inappropriate use of date of birth data. The linking of client records from diverse sources, the sharing of patient data, and data analysis for research and planning all rely heavily on the accuracy and integrity of the collected data. In order to maintain data integrity and the greatest possible accuracy an indication of the accuracy of

the date collected is critical. The collection of an indicator of the accuracy of the date may be essential in confirming or refuting the positive identification of a person. For this reason it is strongly recommended that the data element Date—accuracy indicator, code AAA also be recorded at the time of record creation to flag the accuracy of the data.

Comments:

Privacy issues need to be taken into account in asking persons their date of birth.

Wherever possible and wherever appropriate, date of birth should be used rather than age because the actual date of birth allows a more precise calculation of age.

When date of birth is an estimated or default value, national health and community services collections typically use 0101 or 0107 or 3006 as the estimate or default for DDMM.

It is suggested that different rules for reporting data may apply when estimating the date of birth of children aged under 2 years because of the rapid growth and development of children within this age group which means that a child's development can vary considerably over the course of a year. Thus, more specific reporting of estimated age is suggested.

Source and reference attributes

Origin:

National Health Data Committee

National Community Services Data Committee

Reference documents:

AS5017 Health Care Client Identification, 2006, Sydney: Standards Australia

AS4846 Health Care Provider Identification, 2006, Sydney: Standards Australia

6.5 Sex

Identifying and definitional attributes

Metadata item type:	Data Element
Technical name:	Person—sex, code N
METeOR identifier:	287316
Registration status:	Health, Standard 04/05/2005 Community services, Standard 25/08/2005 Housing assistance, Standard 10/02/2006
Definition:	The biological distinction between male and female, as represented by a code.

Value domain attributes

Representational attributes

Representation class:	Code
Format:	N
Maximum character length:	1

Permissible values:

Value	Meaning
1	Male
2	Female
3	Intersex or indeterminate

Supplementary values:

Value	Meaning
9	Not stated/inadequately described

Collection and usage attributes

Guide for use:

Diagnosis and procedure codes should be checked against the national ICD-10-AM sex edits, unless the person is undergoing, or has undergone a sex change or has a genetic condition resulting in a conflict between sex and ICD-10-AM code.

CODE 3 Intersex or indeterminate

Intersex or indeterminate, refers to a person, who because of a genetic condition, was born with reproductive organs or sex chromosomes that are not exclusively male or female or whose sex has not yet been determined for whatever reason.

Intersex or indeterminate, should be confirmed if reported for people aged 90 days or greater.

Comments: The definition for Intersex in Guide for use is sourced from the ACT Legislation (Gay, Lesbian and Transgender) Amendment Act 2003.

Source and reference attributes

Origin:	Australian Capital Territory 2003. Legislation (Gay, Lesbian and Transgender) Amendment Act 2003
Reference documents:	Legislation (Gay, Lesbian and Transgender) Amendment Act 2003. See http://www.legislation.act.gov.au/a/2003-14/20030328-4969/pdf/2003-14.pdf.

Data element attributes

Collection and usage attributes

Collection methods:

Operationally, sex is the distinction between male and female, as reported by a person or as determined by an interviewer.

When collecting data on sex by personal interview, asking the sex of the respondent is usually unnecessary and may be inappropriate, or even offensive. It is usually a simple matter to infer the sex of the respondent through observation, or from other cues such as the relationship of the person(s) accompanying the respondent, or first name. The interviewer may ask whether persons not present at the interview are male or female.

A person's sex may change during their lifetime as a result of procedures known alternatively as sex change, gender reassignment, transsexual surgery, transgender reassignment or sexual reassignment. Throughout this process, which may be over a considerable period of time, the person's sex could be recorded as either Male or Female.

In data collections that use the ICD-10-AM classification, where sex change is the reason for admission, diagnoses should include the appropriate ICD-10-AM code(s) that clearly identify that the person is undergoing such a process. This code(s) would also be applicable after the person has completed such a process, if they have a procedure involving an organ(s) specific to their previous sex (e.g. where the patient has prostate or ovarian cancer).

CODE 3 Intersex or indeterminate

Is normally used for babies for whom sex has not been determined for whatever reason.

Should not generally be used on data collection forms completed by the respondent.

Should only be used if the person or respondent volunteers that the person is intersex or where it otherwise becomes clear during the collection process that the individual is neither male nor female.

CODE 9 Not stated/inadequately described

Is not to be used on primary collection forms. It is primarily for use in administrative collections when transferring data from data sets where the item has not been collected.

Source and reference attributes

Origin:

Australian Institute of Health and Welfare (AIHW) National Mortality Database 1997/98 AIHW 2001 National Diabetes Register, Statistical Profile, December 2000 (Diabetes Series No. 2.)

Reference documents:

Australian Bureau of Statistics

AS4846 Health Care Provider Identification, 2006, Sydney: Standards Australia

AS5017 Health Care Client Identification, 2006, Sydney: Standards Australia

In AS4846 and AS5017 alternative codes are also presented. Refer to the current standard for more details.

6.6 Address line (person)

Identifying and definitional attributes

Metadata item type:	Data Element
Technical name:	Person (address)—address line, text [X(180)]
METeOR identifier:	286620
Registration status:	Health, Standard 04/05/2005 Community services, Standard 30/09/2005
Definition:	A composite of one or more standard **address** components that describes a low level of geographical/physical description of a location, as represented by text. Used in conjunction with the other high-level address components i.e. Suburb/town/locality, Postcode—Australian, Australian state/territory, and Country, forms a complete geographical/physical address of a person.

Value domain attributes

Representational attributes

Representation class:	Text
Format:	[X(180)]
Maximum character length:	180

Data element attributes

Collection and usage attributes

Guide for use:

A high-level address component is defined as a broad geographical area that is capable of containing more than one specific physical location. Some examples of a broad geographical area are:

- Suburb, town or locality
- Postcode—Australian or international
- State, Territory, local government area, electorate, statistical local area
- Postal delivery point identifier
- Countries, provinces, etc other than in Australia

These components of a complete address do not form part of the Address line.

When addressing an Australian location, following are the standard address data elements that may be concatenated in the Address line:

- Building/complex sub-unit type
- Building/complex sub-unit number
- Building/property name
- Floor/level number
- Floor/level type
- House/property number
- Lot/section number
- Street name
- Street type code
- Street suffix code

One complete identification/description of a location/site of an address can comprise one or more than one instance of address

line.

Instances of address lines are commonly identified in electronic information systems as Address-line 1, Address-line 2, etc.

The format of data collection is less important than consistent use of conventions in the recording of address data. Hence, address may be collected in an unstructured manner but should ideally be stored in a structured format.

Where Address line is collected as a stand-alone item, software may be used to parse the Address line details to separate the sub-components.

Multiple Address lines may be recorded as required.

Collection methods:

The following concatenation rules should be observed when collecting address lines addressing an Australian location.

- Building/complex sub-unit type is to be collected in conjunction with Building/complex sub-unit number and vice versa.

- Floor/level type is to be collected in conjunction with Floor/level number and vice versa.

- Street name is to be used in conjunction with Street type code and Street suffix code.

- Street type code is to be used in conjunction with Street name and Street suffix code.

- Street suffix code is to be used in conjunction with Street name and Street type code.

- House/property number is to be used in conjunction with Street name.

Source and reference attributes

Submitting organisation: Standards Australia

Origin: Health Data Standards Committee

AS5017 Health Care Client Identification, 2002, Sydney: Standards Australia.

Reference documents: AS4846 Health Care Provider Identification, 2006, Sydney: Standards Australia

6.7 Suburb/town/locality name within address

Identifying and definitional attributes

Metadata item type:	Data Element
Technical name:	Address—suburb/town/locality name, text [X(46)]
METeOR identifier:	287326
Registration status:	Health, Standard 07/12/2011 Community services, Standard 06/02/2012
Definition:	The name of the locality / suburb of the address, as represented by text.

Value domain attributes

Representational attributes

Representation class:	Text
Format:	X [46]
Maximum character length:	46

Data element attributes

Collection and usage attributes

Guide for use:

The suburb/town/locality name may be a town, city, suburb or commonly used location name such as a large agricultural property or Aboriginal community.

This metadata item may be used to describe the location of an organisation or person. It can be a component of a street or postal address.

If used for mailing purposes, the format of this data element should be upper case. Refer to Australia Post Address Presentation Standard. Any forced abbreviations shall be done by truncation from the right.

This data element is one of a number of items that can be used to create a primary address, as recommended by the AS 4590-2006 Interchange of client information standard. Components of the primary address are:

- Address site (or Primary complex) name
- Address number or number range
- Road name (name/type/suffix)
- Locality
- State/Territory
- Postcode (optional)
- Country (if applicable).

Collection methods:

Enter 'Unknown' when the locality name or geographic area for a person or event is not known. Enter 'No fixed address' when a person has no fixed address or is **homeless**.

Source and reference attributes

Origin:

Standards Australia 2006. AS 4590—2006 Interchange of client information. Sydney: Standards Australia.

6.8 Australian postcode (address)

Identifying and definitional attributes

Metadata item type:	Data Element
Technical name:	Address—Australian postcode, code (Postcode datafile) {NNNN}
METeOR identifier:	429894
Registration status:	Health, Standard 07/12/2011 Community services, Standard 06/02/2012 Early Childhood, Standard 09/03/2012
Definition:	The Australian numeric descriptor for a postal delivery area for an address.

Value domain attributes

Representational attributes

Classification scheme:	Postcode datafile
Representation class:	Code
Format:	{NNNN}
Maximum character length:	4

Collection and usage attributes

Comments:	See http://meteor.aihw.gov.au/content/index.phtml/itemId/429894.

Data element attributes

Collection and usage attributes

Guide for use:

Australian postal addresses should include a valid postcode. Refer to the Australia Post Address Presentation Standard for rules on presentation and positioning of postcodes on mail.

For a full list of Australian postcodes visit the Australia Post website: www.auspost.com.au

This data element may be used in the analysis of data on a geographical basis which involves a conversion from postcodes to the Australian Bureau of Statistics (ABS) postal areas. This conversion results in some inaccuracy of information as postcodes do not have a geographic definition and boundaries are not well defined. However, in some data sets postcode is the only geographic identifier, therefore the use of other more accurate indicators (e.g. Statistical areas - SA) is not always possible.

When dealing with aggregate data, postal areas, converted from postcodes, can be mapped to Australian Statistical Geography Standard (ASGS) codes using an ABS concordance, for example to determine SA1s. For a more advanced concordance, locality, postcode and state, which are all part of an address, used in conjunction can effectively code data to the SA2 level and above in the ASGS.

This data element is one of a number of items that can be used to create a primary address, as recommended by the AS 4590-2006

Interchange of client information standard. Components of the primary address are:

- Address site (or Primary complex) name
- Address number or number range
- Road name (name/type/suffix)
- Locality
- State/Territory
- Postcode (optional)
- Country (if applicable)

Collection methods:

Leave Postcode - Australian blank for:

- Any overseas address
- Unknown address
- No fixed address.

Postal addresses may be different from where a person actually resides.

Source and reference attributes

Submitting organisation: Standards Australia

Origin: National Health Data Committee
National Community Services Data Committee

Reference documents: AS590 Interchange of Client Information, 2006, Sydney: Standards Australia
Australia Post Postcode book. Reference through:
http://www1.auspost.com.au/postcodes/

6.9 Australian state/territory identifier

Identifying and definitional attributes

Metadata item type:	Data Element
Technical name:	Person—Australian state/territory identifier, code N
METeOR identifier:	286919
Registration status:	Health, Standard 04/05/2005 Community services, Standard 25/08/2005 Housing assistance, Standard 10/02/2006
Definition:	The Australian state or territory where a person can be located, as represented by a code.

Value domain attributes

Representational attributes

Representation class:	Code
Format:	N
Maximum character length:	1

Permissible values:

Value	Meaning
1	New South Wales
2	Victoria
3	Queensland
4	South Australia
5	Western Australia
6	Tasmania
7	Northern Territory
8	Australian Capital Territory
9	Other territories (Cocos (Keeling) Islands, Christmas Island and Jervis Bay Territory)

Collection and usage attributes

Guide for use:	The order presented here is the standard for the Australian Bureau of Statistics (ABS). Other organisations (including the Australian Institute of Health and Welfare) publish data in state order based on population (that is, Western Australia before South Australia and Australian Capital Territory before Northern Territory).

Source and reference attributes

Reference documents:	Australian Bureau of Statistics 2005. Australian Standard Geographical Classification (ASGC). Cat No. 1216.0. Canberra: ABS. Viewed on 30/09/2005

Data element attributes

Collection and usage attributes

Collection methods:	Irrespective of how the information is coded, conversion of the codes to the ABS standard must be possible.

Source and reference attributes

Origin:	Australian Bureau of Statistics 2004. Australian Standard Geographical Classification (ASGC) (Cat No. 1216.0). Viewed 13 October 2005.
Reference documents:	AS4846 Health Care Provider Identification, 2006, Sydney: Standards Australia AS5017 Health Care Client Identification, 2006, Sydney: Standards Australia In AS4846 and AS5017 alternative codes are also presented. Refer to the current standard for more details.

6.10 Person identifier

Identifying and definitional attributes

Metadata item type:	Data Element
Technical name:	Person—person identifier, XXXXXX[X(14)]
METeOR identifier:	290046
Registration status:	Health, Standard 04/05/2005 Community services, Standard 25/08/2005
Definition:	Person identifier unique within an establishment or agency.

Value domain attributes

Representational attributes

Representation class:	Identifier
Format:	XXXXXX[X(14)]
Maximum character length:	20

Data element attributes

Collection and usage attributes

Guide for use:	Individual agencies, establishments or collection authorities may use their own alphabetic, numeric or alphanumeric coding systems. Field should not be blank.
Comments:	Identifier should be a unique code for the person used in that establishment or agency. This data element concept will be replaced by the NEHTA *Individual Healthcare Identifiers* (IHIs). Information about the IHI is shown below. NEHTA has engaged Medicare Australia to design and build Australia's first national healthcare identification service, to provide the requisite identification service for the people and organisations involved in healthcare across Australia, by way of: • *Individual Healthcare Identifiers* (IHIs) to identify all Australian healthcare consumers • *Healthcare Provider Identifiers - Individual* (HPI-Is), to identify individual healthcare providers, such as general practitioners, clinicians, nurses and pharmacists • *Healthcare Provider Identifiers – Organisation* (HPI-Os), to identify healthcare organisations such as hospitals and clinics. Initially, it is assumed that the Individual Healthcare Identifiers (IHIs) and jurisdictional and local system identifiers (including Medical Record Numbers [MRNs] and Unique Patient Identifiers [UPIs]) will coexist. However, in the longer term, IHIs, HPI-Is and HPI-Os are expected to replace these existing, localised identifiers.

Source and reference attributes

Reference documents:	AS5017 Health Care Client Identification, 2006, Sydney: Standards Australia AS4846 Health Care Provider Identification, 2006, Sydney: Standards Australia

7 DATA ELEMENTS – CALCULATION OF HAI RATES

This section specifies the following establishment-level data elements used in the calculation of healthcare associated infection rates (see also sections 4.2 and 4.3):

- Number of patient days
- Patient episodes of healthcare associated SAB
- Patient episodes of hospital identified CDI
- Patient episodes of hospital identified CDI – severe disease

7.1 Number of patient days

Identifying and definitional attributes

Metadata item type:	Data Element
Technical name:	Establishment—number of patient days, total N[N(7)]
METeOR identifier:	270045
Registration status:	Health, Standard 01/03/2005
Definition:	The total number of days for all patients who were admitted for an episode of care and who separated during a specified reference period.

Value domain attributes

Representational attributes

Representation class:	Total
Format:	N[N(7)]
Maximum character length:	8
Unit of measure:	Day

Data element attributes

Collection and usage attributes

Guide for use:

A day is measured from midnight to 2359 hours.

The following basic rules are used to calculate the number of patient days for overnight stay patients:

- The day the patient is admitted is a patient day
- If the patient remains in hospital from midnight to 2359 hours count as a patient day
- The day a patient goes on leave is counted as a leave day
- If the patient is on leave from midnight to 2359 hours count as a leave day
- The day the patient returns from leave is counted as a patient day
- The day the patient is separated is not counted as a patient day.

The following additional rules cover special circumstances and in such cases, override the basic rules:

- Patients admitted and separated on the same date (same-day patients) are to be given a count of one patient day
- If the patient is admitted and goes on leave on the same day, count as a patient day
- If the patient returns from leave and goes on leave on the same date, count as a leave day.
- If the patient returns from leave and is separated, it is not counted as either a patient day or a leave day.
- If a patient goes on leave the day they are admitted and does not return from leave until the day they are discharged, count as one patient day (the day of admission is counted as a patient day, the day of separation is not counted as a patient day).

When calculating total patient days for a specified period:

- Count the total patient days of those patients separated during the specified period including those admitted before the specified period
- Do not count the patient days of those patients admitted during the specified period who did not separate until the following reference period
- Contract patient days are included in the count of total patient days. If it is a requirement to distinguish contract patient days from other patient days, they can be calculated by using the rules contained in the data element: total contract patient days.

Source and reference attributes

Origin: National Health Data Committee

7.2 Patient episodes of healthcare associated SAB

Identifying and definitional attributes

Metadata item type:	Data Element
Technical name:	Establishment—number of patient episodes of healthcare associated *Staphylococcus aureus* bacteraemia, total episodes N[NNNN]
METeOR identifier:	428594
Registration status:	Health, Standardisation pending 23/07/2012
Definition:	The total number of patient episodes of healthcare associated *Staphylococcus aureus* bacteraemia (SAB) occurring within the organisation during a specified reference period.

Value domain attributes

Representational attributes

Representation class:	Total
Format:	N[NNNN]
Maximum character length:	5

Data element attributes

Collection and usage attributes

Guide for use:

Patient episodes of healthcare associated *Staphylococcus aureus* bacteraemia may be counted for:

- an individual establishment i.e. the sum of the number of patient episodes of healthcare associated SAB within the establishment; and/or
- a jurisdiction (i.e. state/territory) i.e. the sum of the number of patient episodes of healthcare associated SAB within establishments within the jurisdiction.

SAB rates will be calculated for each healthcare facility and jurisdiction as follows:

Numerator:	Patient episodes of healthcare associated SAB	X 10,000
Denominator:	Number of patient days	

As with all hospital-based infection surveillance, the responsibility for collection, analysis and reporting generally rests with hospital infection control teams. In many states, jurisdictional surveillance units provide support for these activities for at least some hospitals, and relevant manuals and material from such units should be used where appropriate.

Source and reference attributes

Submitting organisation:	Australian Commission on Safety and Quality in Health Care (ACSQHC)
Origin:	ACSQHC Healthcare Associated Infection Technical Working Group

7.3 Patient episodes of hospital identified CDI

Identifying and definitional attributes

Metadata item type:	Data Element
Technical name:	Establishment—number of patient episodes of hospital identified *Clostridium difficile*, total episodes N[NNNNN]
METeOR identifier:	428601
Registration status:	Health, Standardisation pending 23/07/2012
Definition:	The total number of patient episodes of hospital identified *Clostridium difficile* occurring during a specified reference period.
Context:	Admitted patient care and those attending the Emergency Department and outpatients departments

Value domain attributes

Representational attributes

Representation class:	Total
Format:	N[NNNN]
Maximum character length:	5

Data element attributes

Collection and usage attributes

Guide for use:

Patient episodes of hospital identified *Clostridium difficile* infection (CDI) may be counted for:

- an individual establishment i.e. the sum of the number of patient episodes of hospital identified CDI within the establishment; and/or
- a jurisdiction (i.e. state/territory) i.e. the sum of the number of patient episodes of hospital identified CDI within establishments within the state/territory.

CDI rates will be calculated for each healthcare facility and jurisdiction as follows:

Numerator	Patient episodes of hospital identified CDI	X 10,000
Denominator	Number of patient days	

As with all hospital-based infection surveillance, the responsibility for collection, analysis and reporting generally rests with hospital infection control teams. In many states, jurisdictional surveillance units provide support for these activities for at least some hospitals, and relevant manuals and material from such units should be used where appropriate.

Data element attributes

Source and reference attributes

Submitting organisation:	Australian Commission on Safety and Quality in Health Care
Origin:	ACSQHC Healthcare Associated Infection Technical Working Group

7.4 Patient episodes of hospital identified CDI – severe disease

Identifying and definitional attributes

Metadata item type:	Data Element
Technical name:	Establishment—number of patient episodes of hospital identified *Clostridium difficile* with severe disease, total episodes N[NNNNN]
METeOR identifier:	428679
Registration status:	Health, Standardisation pending 22/02/2012
Definition:	The total number of patient episodes of hospital identified *Clostridium difficile* – severe disease, occurring during a specified reference period.
Context:	Admitted patient care and those attending the Emergency Department and outpatients departments

Value domain attributes

Representational attributes

Representation class:	Total
Format:	N[NNNN]
Maximum character length:	5

Data element attributes

Collection and usage attributes

Guide for use:

Patient episodes of hospital identified CDI – severe disease may be counted for:

- an individual establishment i.e. the sum of the number of patient episodes of hospital identified CDI – severe disease, within the establishment; and/or
- a jurisdiction (i.e. state/territory) i.e. the sum of the number of patient episodes of hospital identified CDI – severe disease, within establishments within the state/territory.

A patient episode of hospital identified CDI - severe disease is defined as a CDI patient who meets any of the following surveillance criteria within 30 days of symptom onset:

- history of admission to an intensive care unit for treatment of complications from CDI (for example vasopressor therapy for shock);
- history of surgery for treatment of toxic megacolon, perforation or refractory colitis; or
- death caused by CDI within 30 days of symptom onset.

Data element attributes

Source and reference attributes

Submitting organisation:	Australian Commission on Safety and Quality in Health Care (ACSQHC)
Origin:	ACSQHC Healthcare Associated Infection Technical Working Group

8 STAPHYLOCOCCUS AUREUS BACTERAEMIA (SAB) DATA ELEMENTS

This section specifies the disease-specific data elements for a patient episode of healthcare associated SAB:

- Healthcare associated SAB clinical criteria
- *Staphylococcus aureus* bacteraemia status
- SAB Methicillin susceptibility
- Antibiotic susceptibility (MRSA isolate)
- Antibiotic susceptibility indicator (MRSA isolate)

8.1 Healthcare associated SAB clinical criteria

Identifying and definitional attributes

Metadata item type:	Data Element
Technical name:	Patient episode of *Staphylococcus aureus* bacteraemia —most probable healthcare associated *Staphylococcus aureus* bacteraemia clinical criteria, code N
METeOR identifier:	388928
Registration status:	Health, Standardisation pending 22/02/2012
Definition:	Most probable clinical criteria for a healthcare associated patient episode of *Staphylococcus aureus* bacteraemia (SAB) when the patient's first SAB positive blood culture was collected less than or equal to 48 hours after hospital admission, as represented by a code.

Value domain attributes

Representational attributes

Representation class:	Code
Format:	N
Maximum character length:	1

Permissible values:

Value	Meaning
1	The patient episode of SAB is a complication of the presence of an indwelling medical device (e.g. intravascular line, haemodialysis vascular access, CSF shunt, urinary catheter).
2	The patient episode of SAB occurs within 30 days of a surgical procedure where the SAB is related to the surgical site.
3	The patient episode of SAB was diagnosed within 48 hours of a related invasive instrumentation or incision.
4	The patient episode of SAB is associated with neutropenia (Neutrophils: less than 1 x 10^9/L) contributed to by cytotoxic therapy
7	Not applicable
8	Unknown
9	Not stated/inadequately described.

Collection and usage attributes

Guide for use: A SAB will be considered to be a healthcare associated event if:

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 (Neutrophils: less than 1×10^9/L) contributed to by cytotoxic therapy

The most probable healthcare associated clinical criteria should be selected.

If none of these criteria are met, then the SAB will be considered to be community-acquired for the purposes of surveillance.

Comments: To identify whether SABs are healthcare associated or community-acquired, SABs should undergo a standard case review by a healthcare worker trained in Infectious Diseases/Infection Control.

Data element attributes

Source and reference attributes

Submitting organisation: Australian Commission on Safety and Quality in Health Care (ACSQHC)

Origin: ACSQHC Healthcare Associated Infection Technical Working Group

8.2 *Staphylococcus aureus* bacteraemia status

Identifying and definitional attributes

Metadata item type:	Data Element
Technical name:	Patient episode of *Staphylococcus aureus* bacteraemia — *Staphylococcus aureus* bacteraemia status, code N
METeOR identifier:	458219
Registration status:	Health, Standardisation pending 22/02/2012
Definition:	Indicates whether the patient episode of *Staphylococcus aureus* bacteraemia (SAB) is healthcare associated or community-acquired, as represented by a code.

Value domain attributes

Representational attributes

Representation class:	Code
Format:	N
Maximum character length:	1

Permissible values:

Value	Meaning
1	Healthcare associated
2	Community-acquired
8	Unknown
9	Not stated / inadequately described

Collection and usage attributes

Guide for use:

An episode of SAB will be considered to be a healthcare-associated event if:

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 (Neutrophils: less than 1 x 10^9/L) contributed to by cytotoxic therapy

	If none of these criteria are met, then the episode of SAB is considered to be community-acquired for the purposes of surveillance.
Comments:	To identify whether SABs are healthcare associated or community-acquired, SABs should undergo a standard case review by a healthcare worker trained in Infectious Diseases/Infection Control.

Data element attributes

Source and reference attributes

Submitting organisation:	Australian Commission on Safety and Quality in Health Care (ACSQHC)
Origin:	ACSQHC Healthcare Associated Infection Technical Working Group

8.3 SAB methicillin susceptibility

Identifying and definitional attributes

Metadata item type:	Data Element
Technical name:	Patient episode of *Staphylococcus aureus* bacteraemia — *Staphylococcus aureus* methicillin susceptibility indicator, yes/no code N
METeOR identifier:	458522
Registration status:	Health, Standardisation pending 22/02/2012
Definition:	An indicator of whether the *Staphylococcus aureus* bacteraemia (SAB) isolate is susceptible to oxacillin or methicillin (cefoxitin), as represented by a code.

Value domain attributes

Representational attributes

Representation class:	Code
Data type:	Boolean
Format:	N
Maximum character length:	1

Permissible values:

Value	Meaning
1	Yes
2	No

Collection and usage attributes

Guide for use:

This data element is used to record whether the *Staphylococcus.aureus* organism is Methicillin-susceptible (MSSA) or Methicillin-resistant (MRSA).

CODE 1 Yes
Record if the *Staphylococcus.aureus* isolate is susceptible to oxacillin or methicillin (cefoxitin) (MSSA).

CODE 2 No
Record if the *Staphylococcus aureus* isolate is resistant to oxacillin or methicillin (cefoxitin) (MRSA).

Intermediate level resistance is reported as 2 (resistant).

Data element attributes

Source and reference attributes

Submitting organisation:	Australian Commission on Safety and Quality in Health Care (ACSQHC)
Origin:	ACSQHC Healthcare Associated Infection Technical Working Group

8.4 Antibiotic susceptibility (MRSA isolate)

Identifying and definitional attributes

Metadata item type:	Data Element
Technical name:	Methicillin-resistant *Staphylococcus aureus* isolate—antibiotic susceptibility, text X [X(39)]
METeOR identifier:	391098
Registration status:	Health, Standardisation pending 22/02/2012
Definition:	The antiobiotic against which the Methicillin-resistant *Staphylococcus aureus* (MRSA) isolate is tested for susceptibility, as represented by text.

Value domain attributes

Representational attributes

Representation class:	Text
Format:	X[X(39]
Maximum character length:	40

Data element attributes

Collection and usage attributes

Guide for use:	Methicillin-resistant *Staphylococcus aureus* (MRSA) is a strain of *Staphylococcus aureus* that can survive treatment with the antibiotics normally used to treat *Staphylococcus aureus* infections. Required for MRSA isolates only, where the *Staphylococcus aureus* bacteraemia is resistant to methicillin. Must be used in conjunction with the data element *MRSA isolate—antibiotic susceptibility indicator, yes/no, code N* to indicate the result of each test. For example, if the MRSA isolate is resistant to trimethoprim, the text recorded for *Methicillin-resistant Staphylococcus aureus isolate—antibiotic susceptibility text [X(39)]* would be trimethoprim, and *Methicillin-resistant Staphylococcus aureus isolate—antibiotic susceptibility indicator, yes/no*, *code N* would be 2 (resistant).
Max occurs	8

Source and reference attributes

Submitting organisation:	Australian Commission on Safety and Quality in Health Care (ACSQHC)
Origin:	ACSQHC Healthcare Associated Infection Technical Working Group

Relational attributes

Related metadata references:	See also Methicillin-resistant *Staphylococcus aureus* isolate—antibiotic susceptibility indicator, yes/no, code N

8.5 Antibiotic susceptibility indicator (MRSA isolate)

Identifying and definitional attributes

Metadata item type:	Data Element
Technical name:	Methicillin-resistant *Staphylococcus aureus* isolate— antibiotic susceptibility indicator, yes/no code N
METeOR identifier:	458628
Registration status:	Health, Standardisation pending 22/02/2012
Definition:	An indicator of whether the Methicillin-resistant *Staphylococcus aureus* (MRSA) isolate is susceptible to the antibiotic tested, as represented by a code.

Value domain attributes

Representational attributes

Representation class:	Code
Format:	N
Maximum character length:	1

Permissible values:

Value	Meaning
1	Yes
2	No

Collection and usage attributes

Guide for use:

Supports clinical management by identifying a range of antibiotics that can be used to treat a patient infected with Methicillin-resistant *Staphylococcus aureus* (MRSA).

Required for MRSA isolates only, where the *Staphylococcus aureus* is resistant to methicillin.

Code 1 YES
Record if the MRSA isolate is susceptible to the antibiotic.

Code 2 NO
Record if the MRSA isolate is not susceptible (i.e. resistant) to the antibiotic.

Intermediate level resistance is reported as 2 (resistant).

Must be used in conjunction with the metadata item *MRSA isolate—antibiotic susceptibility,* text X [X(39)] to indicate which antibiotic is tested.
For example, if the MRSA isolate is resistant to trimethoprim, the text recorded for *Methicillin-resistant Staphylococcus aureus isolate—antibiotic susceptibility, text X [X(39)*] would be trimethoprim, and *Methicillin-resistant Staphylococcus aureus isolate—antibiotic susceptibility indicator yes/no code N* would be 2 (resistant).

Data element attributes

Source and reference attributes

Submitting organisation:	Australian Commission on Safety and Quality in Health Care (ACSQHC)
Origin:	ACSQHC Healthcare Associated Infection Technical Working Group

Relational attributes

Related metadata references:	See also MRSA isolate—antibiotic susceptibility, text X[X(39)]

9 *CLOSTRIDIUM DIFFICILE* INFECTION (CDI) DATA ELEMENTS

This section specifies the disease-specific data elements for a patient episode of CDI:

- severe CDI status
- CDI strain

9.1 Severe CDI status

Identifying and definitional attributes

Metadata item type:	Data Element
Technical name:	Patient episode of *Clostridium difficile* infection—severe *Clostridium difficile* infection status, code N
METeOR identifier:	389393
Registration status:	Health, Standardisation pending 22/02/2012
Definition:	Indicates whether the patient episode of *Clostridium difficile* infection (CDI) meets the surveillance criteria for severe CDI, as represented by a code.
Context:	

Value domain attributes

Representational attributes

Representation class:	Code
Format:	N
Maximum character length:	1

Permissible values:

Value	Meaning
1	Patient episode of CDI meets the surveillance criteria for severe CDI
2	Patient episode of CDI does not meet the surveillance criteria for severe CDI
7	Not applicable
8	Unknown
9	Not stated/inadequately described.

Collection and usage attributes

Guide for use:

This data element is used to classify the severity of the patient episode of *Clostridium difficile* infection (CDI. This is an optional data element for those hospitals and jurisdictions undertaking a more intensive form of surveillance.

Collecting this data is recommended for larger hospitals with high risk patient population or high background rates. Classification of severity level supports the use of information for local prevention and control.

CODE 1 Yes

Record if the patient episode of CDI meets the surveillance criteria for severe CDI.

CODE 2 No

Record if the patient episode of CDI does not meet the surveillance criteria for severe CDI

For surveillance, a severe episode of CDI is defined as a CDI patient who meets any of the following surveillance criteria within 30 days of symptom onset:

- history of admission to an intensive care unit for treatment of complications from CDI (e.g. for shock that requires vasopressor therapy);
- history of surgery (e.g. colectomy) for toxic megacolon, perforation or refractory colitis; or
- death caused by CDI within 30 days after symptom onset.

Data element attributes

Source and reference attributes

Submitting organisation:	Australian Commission on Safety and Quality in Health Care (ACSQHC)
Origin:	ACSQHC Healthcare Associated Infection Technical Working Group
Reference documents:	Cheng AC, Ferguson JK, Richards MJ, Robson JM, Gilbert GL, McGregor A, Roberts S, Korman TM, Riley TV *Australasian Society for Infectious Diseases guidelines for the diagnosis and treatment of Clostridium difficile infection* MJA vol. 194 issue 7, 4 April 2011 McDonald LC, Coignard B et al. 2007. *Recommendations for surveillance of Clostridium difficile-associated disease*. Infection Control and Hospital Epidemiology 28:140-145

9.2 CDI strain

Identifying and definitional attributes

Metadata item type:	Data Element
Technical name:	Patient episode of *Clostridium difficile infection — Clostridium difficile infection* strain, X[X(39)]
METeOR identifier:	428320
Registration status:	Health, Standardisation pending 22/02/2012
Definition:	The strain of *Clostridium difficile infection (CDI)* recorded for the patient episode of *C. difficile* as reported by the laboratory after identification and typing of the *C. difficile* specimen, as represented by text.

Value domain attributes

Representational attributes

Representation class:	Text
Format:	X[X(39)]
Maximum character length:	40

Data element attributes

Collection and usage attributes

Guide for use	This data element is used to record the strain of CDI. This is an optional data element for those hospitals and jurisdictions undertaking a more intensive form of surveillance. Collecting this data is recommended for larger hospitals with high risk patient population or high background rates. Classification of the strain of CDI supports the use of information for local prevention and control.

Source and reference attributes

Submitting organisation:	Australian Commission on Safety and Quality in Health Care (ACSQHC)
Origin:	ACSQHC Healthcare Associated Infection Technical Working Group
Reference documents:	Cheng AC, Ferguson JK, Richards MJ, Robson JM, Gilbert GL, McGregor A, Roberts S, Korman TM, Riley TV *Australasian Society for Infectious Diseases guidelines for the diagnosis and treatment of Clostridium difficile infection* MJA vol. 194 issue 7, 4 April 2011 McDonald LC, Coignard B et al. 2007. *Recommendations for surveillance of Clostridium difficile-associated disease*. Infection Control and Hospital Epidemiology 28:140-145

Appendix I – Supporting data element concepts

Episode of admitted patient care

Identifying and definitional attributes

Metadata item type:	Object Class
METeOR identifier:	268956
Registration status:	Health, Standard 01/03/2005
Definition:	The period of admitted patient care between a formal or statistical **admission** and a formal or statistical **separation**, characterised by only one care type.
Context:	Admitted patient care.
Specialisation of:	Episode of care (Episode of admitted patient care status)

Collection and usage attributes

Guide for use:	This treatment and/or care provided to a patient during an episode of care can occur in hospital and/or in the person's home (for **hospital-in-the-home** patients).

Source and reference attributes

Origin:	Health Data Standards Committee.

Establishment

Identifying and definitional attributes

Metadata item type:	Object Class
METeOR identifier:	268953
Registration status:	Health, Standard 01/03/2005
Definition:	Institutions, organisations or the community from which health services are provided. The term establishment covers conventional health establishments and also organisations which may provide services in the community.
Specialisation of:	Health service provider (Establishment status)

Source and reference attributes

Origin:	National Health Data Committee

Person

Identifying and definitional attributes

Metadata item type:	Object Class
METeOR identifier:	268955
Registration status:	Health, Standard 01/03/2005 Community services, Standard 01/03/2005 Housing assistance, Standard 01/03/2005
Definition:	A human being, whether man, woman or child.
Specialisation of:	Person/group of persons (Group status)

Source and reference attributes

Submitting organisation:	Australia Institute of Health and Welfare
Origin:	Macquarie University 2003. *The Macquarie Dictionary 3rd ed.* Sydney: The Macquarie Library Pty. Ltd

Address

Identifying and definitional attributes

Metadata item type:	Object Class
METeOR identifier:	428657
Registration status:	Health, Standardisation pending 24/11/2011 Community Services, Standard 06/02/2012 Early Childhood, Standardisation pending 17/11/2011
Definition:	A collection of information used for describing the location of an entity and / or details describing how the entity can be contacted.

Source and reference attributes

Submitting organisation:	Australia Institute of Health and Welfare

Laboratory

Identifying and definitional attributes

Metadata item type:	Object Class
METeOR identifier:	390761
Registration status:	Standardisation pending
Definition:	A facility that performs tests in various fields of pathology including anatomical pathology (histology and cytology), chemical pathology, microbiology, haematology, immunohaematology, cytogenetics, molecular biology, immunology and assisted reproductive technologies[1].

Source and reference attributes

Submitting organisation:	Australian Commission on Safety and Quality in Health Care

[1] http://www.nata.asn.au/index.php/types-of-accreditation

Origin:	ACSQHC Healthcare Associated Infection Technical Working Group
Reference documents:	National Association of Testing Authorities, Australia (NATA) 2009. NATA, New South Wales. Viewed December 2009, <http://www.nata.asn.au/index.php/types-of-accreditation>

Patient episode of *Staphylococcus aureus* bacteraemia

Identifying and definitional attributes

Metadata item type:	Object Class
METeOR identifier:	388775
Registration status:	Standardisation pending
Definition:	A positive blood culture for *Staphylococcus aureus* bacteraemia (SAB) that arises from an episode of admitted patient care in an Australian hospital and meets the case definition for healthcare associated SAB

Collection and usage attributes

Source and reference attributes

Submitting organisation:	Australian Commission on Safety and Quality in Health Care
Origin:	ACSQHC Healthcare Associated Infection Technical Working Group

Methicillin-resistant *Staphylococcus aureus* isolate

Identifying and definitional attributes

Metadata item type:	Object Class
METeOR identifier:	379076
Registration status:	Standardisation pending
Definition:	The methicillin-resistant *Staphylococcus aureus* (MRSA) strain of *Staphylococcus aureus* bacteraemia (SAB) that has been isolated.

Collection and usage attributes

Guide for use:	The MRSA isolate object class is to be used to describe whether the SAB infection is resistant to various antibiotics.

Source and reference attributes

Submitting organisation:	Australian Commission on Safety and Quality in Health Care
Origin:	ACSQHC Healthcare Associated Infection Technical Working Group

Patient episode of *Clostridium difficile* infection

Identifying and definitional attributes

Metadata item type:	Object Class
METeOR identifier:	388767
Registration status:	Standardisation pending
Definition:	A patient episode of *Clostridium difficile* infection (CDI) is a case of diarrhoea that meets the following criteria: the stool sample yields a positive result in a laboratory assay for *C. difficile* toxin A and/or B, or a toxin-producing *C. difficile* organism is detected in the stool sample by culture or other means.

Source and reference attributes

Submitting organisation:	Australian Commission on Safety and Quality in Health Care
Origin:	ACSQHC Healthcare Associated Infection Technical Working Group

Appendix II – Data Set Specification Terminology[2]

Metadata item types

- Classification scheme - An official terminological system, recognised and endorsed by a national or international body, that is used to classify data.
- Data element - The basic unit of identifiable and definable information created by combining a data element concept and a value domain.
- Data element concept - A concept created for the purposes of defining a data element by the union of an object class and a property.
- Data set specification - A collection of data elements which are collected as a set.
- Object class - Represents an entity, place or event that is of interest and needs to be described.
- Property - A characteristic of the object class of interest.
- Value domain - A set of permissible values by which a data element can be implemented. The value domain may be enumerated (e.g. a code) or non-enumerated (e.g. a total).

Short name

A short or common name or designation by which the data element is known and might be identified.

Definition

A concise statement that expresses the essential nature of the metadata item and its differentiation from other metadata items.

Context

A designation and/or description of the application environment or discipline in which the data element concept has meaning.

[2]Australian Institute of Health and Welfare, About Metadata, http://meteor.aihw.gov.au/content/index.phtml/itemId/268284

Representation class

The class of representation of a value domain (e.g. 'Code' or 'Total').

Table 1: Valid representation class values and their associated meanings

Value	Meaning
Average	A numeric value representing an arithmetic mean.
Code	A system of valid symbols that substitute for longer values.
Date	A numeric value representing a calendar date (i.e. day, month and year) or recognised part of a calendar date (i.e. day, month, and/or year).
Identifier	A value which establishes identity.
Percentage	Parts per hundred.
Ratio	An expression of the quantity of one substance or entity in relation to that of another (Dorlands, 2003: 1586).
Text	An unformatted, descriptive value.
Time	A numeric value representing a specific instance in time.
Total	A numeric value representing the sum of a set of values or an entire quantity (including monetary).
Count	A numeric value representing a non-monetary numeric value arrived at by counting.
Currency	A numeric value representing a monetary value.
Quantity	A numeric value representing a continuous number such as the linear dimensions, capacity/amount (non-monetary) of an object.

Format

A template for the presentation of values, including specification and layout of permitted characters, the maximum and minimum size, and precision. It is not a template for electronic data transmission or storage.

Table 2: Format values and their associated meanings

Value	Valid character range
A	Alphabetic character set: contains the letters a-z and A-Z and may contain special characters**, but not numeric characters.
N	Numeric character set: contains whole and decimal numbers and may contain special characters, but not alphabetic characters.
X	Alphanumeric character set: contains alphabetic and numeric characters, and may contain blank characters.
D	A numeric character representing a number of days.*
M	A numeric character representing a number of months.*
Y	A numeric character representing a number of years.*
h	Any numeric character representing a number of hours.*
m	Any numeric character representing a number of minutes.*
s	Any numeric character representing number of seconds.*
{ }	The string within the curly brackets (braces) is optional in its entirety (e.g. X{XX} indicates 1 or 3 alphanumeric characters (i.e. X or XXX)).
[ ]	The string within the square brackets is optional in any ordered combination (e.g. [XXX] indicates 0, 1, 2 or 3 alphanumeric characters (i.e. blank, X, XX or XXX)).
( )	The character preceding the round brackets (parentheses) is repeated the number of times specified (e.g. X(9) indicates 9 alphanumeric characters).

** A special character is a character which has a visual representation and is neither a letter, number, ideogram, or blank. For example, punctuation marks and mathematical symbols.

A blank is a character that represents an empty position in an alphanumeric character field e.g. space. A blank is conceptually different from a null value, which is defined as the absence of a stored value.

* Valid in value domains of representation class Date or Time only. These format values indicate the valid unit(s) of measure to be presented. For value domains of all other representation classes, only the characters A, N, X, { }, [ ], and ( ) may be used to denote the presence of a value.

Maximum character quantity

The maximum number of characters permitted to represent the values.

Origin

Any document(s) (including web-sites), organisations or committees from which any content is drawn.