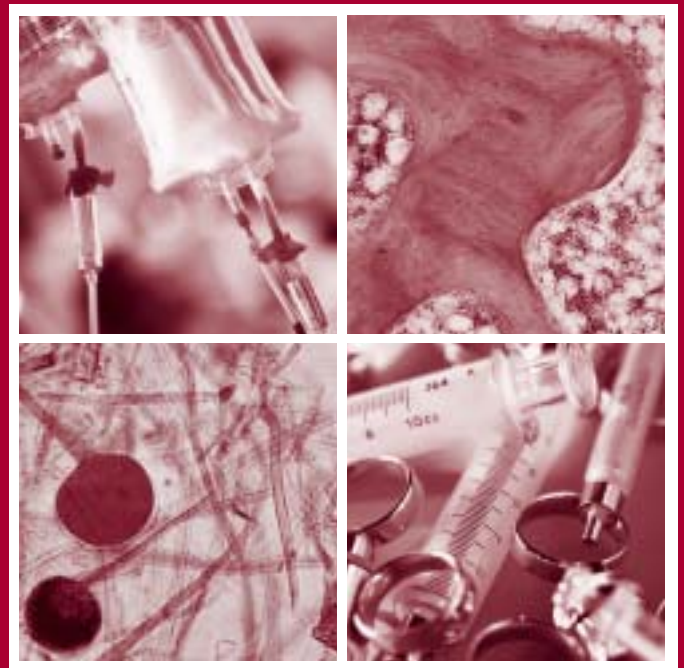


Infection control program quality monitoring indicators

Version 2 users' manual



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Introduction

The NSW Department of Health and the Australian Council on Healthcare Standards (ACHS) jointly developed this revised manual to enable NSW Public Health Organisations to comply with the requirements of Circular 2002/104 *Infection Control Program Quality Monitoring*. This manual supersedes the *Infection Control Program Quality Monitoring Indicators: Users' Manual*, SHPN (AIDB) 020248, released in 2003. This manual should be read in conjunction with Circular 2002/104 *Infection Control Program Quality Monitoring*. This manual includes revised indicators and methodology designed to meet the infection control needs of NSW Public Health Organisations. Where appropriate the Department has also made changes to the monitoring system methodology to respond to trends and according to feedback from participating facilities.

The manual defines and details methodology to be used by infection control practitioners (ICPs) to collect and report data relating to healthcare-associated infections and occupational exposures in NSW Public Health Organisations. The Department has selected these specific indicators after consideration of their attributable morbidity, cost, preventability and transmission risks. They reflect the current priority areas for the NSW state infection control program and policy development.

The Department has designed the indicators in consultation with key stakeholders, including the Australian Council on Healthcare Standards (ACHS). The Department will continue to review the indicators and methodology to ensure their appropriateness.

Where available, the revised NSW indicator definitions are consistent with those proposed by Australian Council for Safety and Quality Health Care Associated Infections and ACHS. The indicator definitions and methodology will assist organisations to meet the ACHS Evaluation and Quality Improvement Program (EQUIP) Standards.

The indicators are limited in that they are:

- not designed to identify all infections. Rather, they are designed to flag problem areas requiring further detailed investigation
- designed for the purposes of infection surveillance, not diagnosis.

Organisations should use the indicators to implement and evaluate interventions to improve the quality of care.

Monitoring periods

From 1 January 2005 NSW Public Health Organisations will be expected to continue collecting and submitting data for two distinct monitoring periods. The initial monitoring period will be from 1 January to 30 June each year and the second from 1 July to 31 December of that year.

For each compulsory indicator, other than multiple resistant organisms (MROs) and occupational exposures, data must be collected for no less than four continuous weeks in each time period under study. MRO and occupational data must be collected for the six month periods, January to June, and July to December. For optional indicators, organisations should plan their local monitoring activity for each monitoring period. Within each six-monthly monitoring period, organisations may choose to collect data for any one or more optional indicator for a locally determined 'time period under study'. A 'time period under study' may be four or more weeks.

The Department has been purposefully non-prescriptive in recommending set 'time periods under study' so that the state monitoring system is flexible enough to:

1. be useful for targeted local monitoring
2. ensure collection of a sufficiently sized sample of data across the state.

ICPs are encouraged to develop local monitoring plans each year. ICPs are also encouraged to limit short (ie less than four weeks) 'time periods under study' to outbreak situations. Typically, at least a one-month 'time period under study' should be applied when collecting optional indicator data.

Mandatory indicators

Table 1 details the revised mandatory indicators for each type of NSW Public Health Organisation according to their relevant peer group. Psychiatric, rehabilitation and mothercraft organisations are not required to collect or submit data.

Table 1. Revised Mandatory Indicators for NSW Public Health Organisations

Type of organisation	Mandatory indicators
GROUP 1	
Principal Referral Hospitals Groups A and B	<ul style="list-style-type: none"> ■ Central line-associated BSIs* ■ MROs (MRSA, VRE, MRAB and VISA)† ■ At least one procedure-specific SSI‡ <ul style="list-style-type: none"> – If coronary artery bypass procedures are performed data must be collected continuously and reported each six months. – If hip or knee prosthetic procedures are performed data must be collected continuously and reported each six months. ■ All occupational exposures to blood and/or body fluids must be collected and reported.
Paediatric Specialist	
Ungrouped Acute	
Major Metropolitan	
Major Non-metropolitan	
GROUP 2	
District Groups 1 and 2	<ul style="list-style-type: none"> ■ MROs (MRSA, VRE, MRAB and VISA) ■ At least one procedure-specific SSI <ul style="list-style-type: none"> – If coronary artery by-pass procedures are performed data must be collected continuously and reported each six months. – If hip or knee prosthetic procedures are performed data must be collected continuously and reported each six months. ■ All occupational exposures to blood and/or body fluids must be collected and reported.
Community Acute with Surgery	
GROUP 3	
Community Acute without Surgery	<ul style="list-style-type: none"> ■ MROs (MRSA, VRE, MRAB and VISA) ■ All occupational exposures to blood and/or body fluids must be collected and reported.
Community Non-Acute	
Nursing Homes	
Multi-purpose Services	
Hospices	
*BSIs	Bloodstream infections
†MROs	Multiple resistant organisms
‡SSI	Surgical site infection

Indicator area 1:

Surgical site infections (SSIs)

Rationale

The risk of acquiring a SSI is dependent on a number of factors – some extrinsic, eg the surgical procedure itself, and some intrinsic factors, such as the severity of an underlying illness. Surgical patients who contributed to a clinical indicator should be of similar risk for infection so that the rate of infection reflects the level of patient safety in like-type patient groups and infections are not contributed by a small number of patients with very different risk. The resultant recording of the clinical indicator rates for SSIs will be surgical procedure specific as identified by the ICD-10-AM code (**Appendix 1**) used to group like procedures and should include revision procedures (eg revision of hip prosthesis).

Health care organisations that perform, routinely, at least 100 surgical procedures of the same type per year, may evaluate patient safety by reporting on the frequency of infection. A higher volume of procedures will produce a more statistically reliable rate.

Timely investigation of higher than expected rates of infection may identify issues relating to preventative factors for documentation and corrective action.

For example, errors may have occurred in administration of the correct type, dose route and timing of antimicrobial prophylaxis in surgical patients.

Definitions of terms

For the purpose of these indicators:

- The degree of contamination of the surgical site pertains to the four levels of expected micro-organisms present at the time of incision that relate to the normal bacteriological flora, breach of normal degree of contamination before the patient presents to the surgical team or the presence of infection. However for consistency with national recommended definitions the NSW Health collection is adopting the following two groupings:

1. Superficial Incisional
2. Deep Incisional/Organ Space.

Presentation of a surgical site with a degree of contamination above the level expected, eg contaminated instead of clean, occur infrequently and hence it is statistically difficult for healthcare

facilities to calculate a reliable rate of infection for several levels of degree of contamination for each surgical procedure. Therefore, it is recommended that the clinical indicator used to measure the level of patient safety within the healthcare facility calculate rates of infection for only those surgical procedures which present to the surgical team with the usual level of contamination. Definitions of the two groupings are in Appendix 2.

- For indicators 1.5-1.8, any procedure which includes a CABG is counted.
- Patients who are **readmitted** with a SSI within 30 days of the surgery (or 1 year for total hip or total knee surgery) should be **included** in the numerator for the current collection period. This only applies where the patient is readmitted to the hospital where the **original surgery** was performed.

Type of indicator

These are comparative rate based indicators addressing the outcome of patient care in terms of infection. Comparisons can be conducted intra-healthcare (within healthcare) facilities. However, the rate for the present time period under study may also be compared with data presented in the ACHS Comparative Report and the previous time period. The aim of the suggested comparisons is to reduce your organisation's rate to the comparative rate, or to that of the previous time period, whichever is the lower.

Risk factors

There are many extrinsic and intrinsic risk factors that increase the likelihood of a surgical patient acquiring an infection, with some contributing only in the presence of others. Risk factors that have been identified as being important contributors to infection include the duration of the surgical procedure, the American Society for Anesthesiology (ASA) score and degree of contamination of the surgical site. Large databases may be able to have the risk factors statistically adjusted so that the resulting rates reflect a patient population with similar risk for infection or calculate several rates for different levels of risk. Most healthcare facilities do not perform the same type of surgical procedure frequently enough to examine

Indicator area 1: Surgical site infections (SSIs)

their rates of infection for several categories of risks. However, it is recommended that healthcare facilities consider collecting risk factor data for each of the surgical patients contributing to the denominator of their clinical indicator. The frequency of these risk factors can then be used to describe the level of risk for the majority of surgical patients in each surveillance period. This documentation will determine whether risk of infection has changed.

Recommended risk factors include the ASA score, the duration of procedure, emergency/unplanned

and prophylaxis. The collection of risk factor data is for local use and is not required for reporting purposes.

Post-discharge surveillance

Only in-hospital SSI rates (that is, infections that develop and are diagnosed/treated while the patient is an in-patient) are required to be reported. Post-discharge surveillance and follow-up and investigation of infections identified post-discharge are encouraged. However, at this stage cases and rates of infection determined by post-discharge surveillance must not be reported to the NSW collection.

Indicator data format

CI. 1.1	Numerator	The total number of superficial incisional SSI in total hip prosthesis procedures performed during the time period under study.
	Denominator	The total number of total hip prosthesis procedures performed during the time period under study.
CI. 1.2	Numerator	The total number of deep incisional/organ space SSI in total hip prosthesis procedures performed during the time period under study.
	Denominator	The total number of total hip prosthesis procedures performed during the time period under study.
CI. 1.3	Numerator	The total number of superficial incisional SSI in knee prosthesis procedures performed during the time period under study.
	Denominator	The total number of knee prosthesis procedures performed during the time period under study.
CI. 1.4	Numerator	The total number of deep incisional/organ space SSI in knee prosthesis procedures performed during the time period under study.
	Denominator	The total number of knee prosthesis procedures performed during the time period under study.
CI. 1.5	Numerator	The total number of chest superficial incisional SSI in coronary artery by-pass graft procedures performed during the time period under study.
	Denominator	The total number of coronary artery by-pass graft procedures performed during the time period under study.
CI. 1.6	Numerator	The total number of chest deep incisional/organ space SSI in coronary artery by-pass graft procedures performed during the time period under study.
	Denominator	The total number of coronary artery by-pass graft procedures performed during the time period under study.
CI. 1.7	Numerator	The total number of donor limb site superficial incisional SSI in coronary artery by-pass graft procedures performed during the time period under study.
	Denominator	The total number of coronary artery by-pass graft (involving chest and limb) procedures performed during the time period under study.
CI. 1.8	Numerator	The total number of donor limb site deep incisional/organ space SSI in coronary artery by-pass graft procedures performed during the time period under study.
	Denominator	The total number of coronary artery by-pass graft (involving chest and limb) procedures performed during the time period under study.
CI. 1.9	Numerator	The total number of superficial incisional SSI in femoral-popliteal by-pass procedures performed during the time period under study.
	Denominator	The total number of femoral-popliteal by-pass procedures performed during the time period under study.

CI. 1.10	<i>Numerator</i>	The total number of deep incisional/organ space SSI in femoral-popliteal by-pass procedures performed during the time period under study.
	<i>Denominator</i>	The total number of femoral-popliteal by-pass procedures performed during the time period under study.
CI. 1.11	<i>Numerator</i>	The total number of superficial incisional SSI in open abdominal aortic aneurysm (AAA) procedures performed during the time period under study.
	<i>Denominator</i>	The total number of open AAA procedures performed during the time period under study.
CI. 1.12	<i>Numerator</i>	The total number of deep incisional/organ space SSI in open abdominal aortic aneurysm (AAA) procedures performed during the time period under study.
	<i>Denominator</i>	The total number of open AAA procedures performed during the time period under study.
CI. 1.13	<i>Numerator</i>	The total number of superficial incisional SSI in lower segment caesarean section procedures performed during the time period under study.
	<i>Denominator</i>	The total number of lower segment caesarean section procedures performed during the time period under study.
CI. 1.14	<i>Numerator</i>	The total number of deep incisional/organ space SSI in lower segment caesarean section procedures performed during the time period under study.
	<i>Denominator</i>	The total number of lower segment caesarean section procedures performed during the time period under study.
CI. 1.15	<i>Numerator</i>	The total number of superficial incisional SSI in abdominal hysterectomy procedures performed during the time period under study.
	<i>Denominator</i>	The total number of abdominal hysterectomy procedures performed during the time period under study.
CI. 1.16	<i>Numerator</i>	The total number of deep incisional/organ space SSI in abdominal hysterectomy procedures performed during the time period under study.
	<i>Denominator</i>	The total number of abdominal hysterectomy procedures performed during the time period under study.
CI. 1.17	<i>Numerator</i>	The total number of superficial incisional SSI in repair of inguinal hernia procedures performed during the time period under study.
	<i>Denominator</i>	The total number of inguinal hernia procedures performed during the time period under study.
CI. 1.18	<i>Numerator</i>	The total number of deep incisional/organ space SSI in repair of inguinal hernia procedures performed during the time period under study.
	<i>Denominator</i>	The total number of inguinal hernia procedures performed during the time period under study.
CI. 1.19	<i>Numerator</i>	The total number of superficial incisional SSI in open cholecystectomies performed during the time period under study.
	<i>Denominator</i>	The total number of open cholecystectomies performed during the time period under study.
CI. 1.20	<i>Numerator</i>	The total number of deep incisional/organ space SSI in open cholecystectomies performed during the time period under study.
	<i>Denominator</i>	The total number of open cholecystectomies performed during the time period under study.

Calculation

The rate of surgical site infections for each of the above clinical indicators is expressed per 100 procedures and each is calculated and reported separately.

Indicator area 2:

Central line-associated bloodstream (CLAB) infections for specified clinical units

Rationale

Central line-associated bloodstream (CLAB) infections are responsible for 20-40 percent of healthcare-associated bloodstream infections. Risks for occurrence differ between clinical units depending on the type of line used and patient intrinsic factors. A significant proportion of CLAB events are preventable through adoption of best clinical practice. The occurrence of healthcare-associated bloodstream infections (BSI) can be used as a measure of the safety of key clinical practice processes within a unit.

Suspected infection trends within a unit should be carefully examined by appropriate statistical measures such as process control charts and other quality improvement tools to evaluate significance, at time intervals also determined by statistical considerations. Timely investigation of significantly higher than expected numbers of events or, in larger units, rates of infection, may identify systemic issues relating to preventative factors for documentation and corrective action.

Definitions of terms

- **Diagnosis of BSI** must meet specific criteria set out in **Appendix 3**.
- **ICU** (Intensive Care Units) includes any general or speciality (ie cardio-thoracic, burns, neurosurgical or coronary care) intensive care unit. ICUs are stratified according to their designation as either adult or paediatric.
- **CLAB** is defined as a BSI with no other apparent focus of infection where a central line has been *in situ* within 48 hours of the event.
- **Central lines** are classified as intravascular devices with a tip ending in a major vein or artery. Central lines are classified as either 'centrally inserted' in which case the skin entry point is on the trunk of the patient or 'peripherally-inserted' where the line is inserted through a limb vein. These indicator definitions stratify infections by insertion site (central or peripheral) in view of the significant differences between infection rates related to these line types. Within the category of centrally inserted lines, there is also a lesser variation in infection rate according to type of line. In the event that a centrally inserted CLAB rate is higher than expected or rising, it is advisable for units to stratify their data further in order to examine the relative contribution of implanted, tunnelled or non-tunnelled central catheters to the measured infection rate.

An example of calculating central line-days can be found in **Appendix 4** and a sheet to assist line day collection is at **Appendix 5**.
- When calculating **centrally inserted (CI)** central line-days all types of CI central lines (cuffed and non-cuffed, implanted etc) *in situ* in a specific unit during the time period under study are included. Patients with two CI central lines in place for one day are counted as one CI central line-day.
- When calculating **peripherally inserted (PI)** central line-days all types of PI central lines *in situ* in a specific unit during the time period under study are included. Patients with two PI central lines in place for one day are counted as one PI central line-day.
- **Intensive care unit (ICU) associated events** are CLABs that manifest at least 48 hours after admission to ICU or occur within 48 hours of discharge from ICU.
- **Central line-utilisation ratios (CLUR)** are calculated for ICUs and provide an indication of the degree to which ICU patients are exposed to the risk of CLAB. It enables ICUs to determine whether their unit is comparable to other similar units in terms of CI and PI central line utilisation.
- **Clinical Units** including Adult and Paediatric ICUs, Haematology, and Oncology Units are recommended to use the CLAB indicators.
- **For the purpose of Indicators 2.2, 2.4, 2.6 and 2.8** 'Bed days' refer to the total number of bed days of all admitted patients accommodated in the specified unit during the reporting period. It is taken from the count of the number of inpatients at midnight (approximately) each day.¹

¹ NSW Department of Health (2003) NSW Department of Health Annual Report 2002-03, Sydney.

- For the purpose of Indicators 2.9 to 2.14 inpatient and outpatients events are to be combined.
- Indicators 2.13 and 2.14 are to be used where the Haematology and Oncology patients are situated in the same physical location (ie the Haematology and Oncology Units are combined).
- Healthcare-associated CLAB BSI (see also Appendix 3) Event satisfies at least one of the following criteria:
 - acquired during hospitalisation and not present or incubating on admission
 - is a complication of the presence of an indwelling medical device (eg IV catheter)
 - associated with neutropenia (<1000 neutrophils x 10⁶/L) contributed to by cytotoxic therapy.

Type of indicator

These are comparative rate based indicators addressing the outcome of patient care in terms of infection. Comparisons can be conducted intra-healthcare (within healthcare) facilities. However, the rate for the present period under study may also be compared with data presented in the ACHS Comparative Report and the previous study period. The aim of the suggested comparisons is to reduce your organisation's rate to the comparative rate, or to that of the previous study period, whichever is the lower.

Indicator data format

CI. 2.1	Adult ICU related CI CLAB rate
<i>Numerator</i>	The total number of Adult ICU-associated CI-CLAB, during the time period under study.
<i>Denominator</i>	The total number of CI central line-days in Adult ICU, during the time period under study.
CI. 2.2	Adult ICU related CI CLUR
<i>Numerator</i>	The total number of CI central line-days in Adult ICU, during the time period under study.
<i>Denominator</i>	The total number of bed days in Adult ICU, during the time period under study.
CI. 2.3	Adult ICU related PI CLAB rate
<i>Numerator</i>	The total number of Adult ICU-associated PI-CLAB, during the time period under study.
<i>Denominator</i>	The total number of PI central line-days in Adult ICU, during the time period under study.
CI. 2.4	Adult ICU related PI CLUR
<i>Numerator</i>	The total number of PI central line-days in Adult ICU, during the time period under study.
<i>Denominator</i>	The total number of bed days in Adult ICU, during the time period under study.
CI. 2.5	Paediatric ICU related CI CLAB rate
<i>Numerator</i>	The total number of Paediatric ICU-associated CI-CLAB, during the time period under study.
<i>Denominator</i>	The total number of CI central line-days in Paediatric ICU, during the time period under study.
CI. 2.6	Paediatric ICU related CI CLUR
<i>Numerator</i>	The total number of CI central line-days in Paediatric ICU, during the time period under study.
<i>Denominator</i>	The total number of bed days in Paediatric ICU, during the time period under study.
CI. 2.7	Paediatric ICU related PI CLAB
<i>Numerator</i>	The total number of Paediatric ICU-associated PI-CLAB, during the time period under study.
<i>Denominator</i>	The total number of PI central line-days in Paediatric ICU, during the time period under study.
CI. 2.8	Paediatric ICU related PI CLUR
<i>Numerator</i>	The total number of PI central line-days in Paediatric ICU, during the time period under study.
<i>Denominator</i>	The total number of bed days in Paediatric ICU, during the time period under study.

CI 2.9	Haematology related CI CLAB rate
	<i>Numerator</i> The total number of Haematology Unit-related CI CLAB, during the time period under study.
	<i>Denominator</i> The total number of CI central line-days in Haematology Units, during the time period under study.

CI. 2.10	Haematology related PI CLAB rate
	<i>Numerator</i> The total number of Haematology Unit-related PI CLAB, during the time period under study.
	<i>Denominator</i> The total number of PI central line-days in Haematology Units, during the time period under study.

CI. 2.11	Oncology related CI CLAB rate
	<i>Numerator</i> The total number of Oncology Unit-related CI CLAB, during the time period under study.
	<i>Denominator</i> The total number of CI central line-days in the Oncology Unit, during the time period under study.

CI. 2.12	Oncology related PI CLAB rate
	<i>Numerator</i> The total number of Oncology Unit-related PI CLAB, during the time period under study.
	<i>Denominator</i> The total number of PI central line-days in the Oncology Unit, during the time period under study.

CI. 2.13	Haematology/Oncology related CI CLAB rate
	<i>Numerator</i> The total number of Haematology/Oncology Unit-related CI CLAB, during the time period under study.
	<i>Denominator</i> The total number of CI central line-days in the Haematology/Oncology Unit, during the time period under study.

CI. 2.14	Haematology/Oncology related PI CLAB rate
	<i>Numerator</i> The total number of Haematology/Oncology Unit-related PI CLAB, during the time period under study.
	<i>Denominator</i> The total number of PI central line-days in the Haematology/Oncology Unit, during the time period under study.

Indicator area 3:

Haemodialysis-associated bloodstream infections

Rationale

Dialysis-associated bloodstream infections cause considerable morbidity. A proportion of infections are potentially preventable through adherence to appropriate standards of care and the avoidance, where possible, of devices that have more frequent occurrence of infection. This indicator should be used for adult and paediatric patients receiving chronic dialysis.

Definitions of terms

- Diagnosis of BSI must meet the specific criteria set out in Appendix 3.
- Haemodialysis-associated BSI is defined as a BSI without apparent focus of infection or where there is clinical infection at the site of the vascular access.

- See Appendix 1 for ICD-10-AM codes to assist with data collection.
- To calculate patient months see Appendix 6.

Type of indicator

These are comparative rate based indicators addressing the outcome of patient care in terms of infection. Comparisons can be conducted within health care facilities. However, the rate for the present surveillance period may also be compared with data presented in the ACHS Comparative Report, and the previous surveillance period. The aim of the suggested comparisons is to reduce an organisation's rate to the comparative rate, or to that of the previous surveillance period, whichever is the lower.

Indicator data format

CI. 3.1	Haemodialysis fistula-associated BSI rate	
	<i>Numerator</i>	The number of AV-fistula access -associated bloodstream infections during the time period under study.
	<i>Denominator</i>	The number of patient-months for patients dialysed through AV-fistula during the time period under study.
CI. 3.2	Haemodialysis synthetic graft-associated BSI rate	
	<i>Numerator</i>	The number of synthetic graft access -associated bloodstream infections during the time period under study.
	<i>Denominator</i>	The number of patient-months for patients dialysed through synthetic grafts during the time period under study.
CI. 3.3	Haemodialysis native vessel graft-associated BSI rate	
	<i>Numerator</i>	The number of native vessel graft access -associated bloodstream infections during the time period under study.
	<i>Denominator</i>	The number of patient-months for patients dialysed through native vessel grafts during the time period under study.
CI. 3.4	Haemodialysis centrally inserted non-cuffed dialysis line (temporary)-associated BSI rate	
	<i>Numerator</i>	The number of centrally inserted non-cuffed line access -associated bloodstream infections during the time period under study.
	<i>Denominator</i>	The number of patient-months for patients dialysed through centrally inserted non-cuffed line during the time period under study.
CI. 3.5	Haemodialysis centrally inserted cuffed (semipermanent) dialysis line-associated BSI rate	
	<i>Numerator</i>	The number of centrally inserted cuffed line access -associated bloodstream infections during the time period under study.
	<i>Denominator</i>	The number of patient-months for patients dialysed through centrally inserted cuffed line during the time period under study.

Reference

Hospital Infections Program, Centers for Disease Control and Prevention, Atlanta Surveillance of Bloodstream and Vascular access Infections in Outpatient Haemodialysis Centers. October 1999.

This indicator has been replicated with permission, from the ACHS Infection Control Indicators Version 2.²

² ACHS (2004) ACHS Clinical Indicator Users' Manual 2004

Indicator area 4: Neonatal infections

Rationale

Early onset infections are usually acquired from the mother during the birth process. A proportion of these infections are preventable through adherence to appropriate standards of maternal care.

Late onset infections within Neonatal Intensive Care may also be prevented through adherence to appropriate standards of care, particularly with management of intravascular lines.

The risk of early and late onset infections is strongly correlated with birth weight and gestational age.

Definitions of terms

■ Significant late bloodstream infection definition

Both of the criteria below are to be satisfied (also see the flowchart on page 13):

- Isolation of an organism(s) from blood culture, one or more sets, **excluding** mixed coagulase negative staph (confirmed by ID), aerobic coryneforms or propionobacteria or repeat isolate of the same organism from blood during the previous 14 days.
- Clinical intent to treat the organism is present.

- **Clinical intent definition** – After consideration of clinical and laboratory evidence, a decision is made to give the patient antibiotics with therapeutic intent against this organism.

- **Intensive care** – Level 3 neonatal ICUs only; note that Level 3 nurseries should include in both the numerator and denominator, neonates admitted or transferred to their Level 2 step down areas where this facility is managed within the same hospital.
- **GA** – estimated gestational age at birth.
- **Patient-days** – This is to be calculated to include single day stays (ie babies that are admitted and leave (or die) within the same day). For each baby, then patient-days accrued is equal to (date of discharge – date of admission) unless DOA=DOD, in which case patient-day for that baby = 1.
- See **Appendix 1** for ICD-10-AM codes to assist with data collection.

Type of indicator

These are comparative rate based indicators addressing the outcome of patient care in terms of infection. Comparisons can be conducted within health care facilities. However, the rate for the present surveillance period may also be compared with data presented in the ACHS Comparative Report, and the previous surveillance period. The aim of the suggested comparisons is to reduce an organisation's rate to the comparative rate, or to that of the previous surveillance period, whichever is the lower.

Indicator data format

CI. 4.1	Early onset infection rate – inborn neonates
<i>Numerator</i>	Number of live babies born at the reporting hospital who develop bloodstream and/or CSF infection within 48 hours of birth and who were born in the time period under study.
<i>Denominator</i>	Number of live babies born at the reporting hospital during the time period under study.
CI. 4.2	Early onset infection rate – inborn neonates ≥ 37 weeks
<i>Numerator</i>	Number of live babies of ≥ 37 wks GA born at the reporting hospital who develop a blood and/or CSF infection within 48 hours of birth and who were born in the time period under study.
<i>Denominator</i>	Number of live babies ≥ 37 wks GA born at the reporting hospital during the time period under study.
CI. 4.3	Late onset intensive care infection rate – neonates of < 1000g birth weight admitted to intensive care
<i>Numerator</i>	Number of babies of birth weight < 1000g admitted during the time period under study who have a significant (see definition below) blood infection occurring more than 48 hours after birth at any time during their whole admission.
<i>Denominator</i>	The total number of babies of birth weight < 1000g who survive ≥ 48 hours admitted during the time period under study.

CI. 4.4	Late onset intensive care infection rate – neonates of \geq 1000g birth weight
<i>Numerator</i>	Number of babies of \geq 1000g birth weight, admitted during the time period under study who have a significant (see definition below) blood infection occurring more than 48 hours after birth at any time during their whole admission.
<i>Denominator</i>	The total number of babies of \geq 1000g birth weight, who survive \geq 48 hours admitted during the time period under study.

CI. 4.5	Late onset intensive care infection incidence – neonates of $<$ 1000g birth weight
<i>Numerator</i>	The number of significant (see definition below) blood infections in admitted babies of $<$ 1000g birth weight, occurring more than 48 hours of birth during the time period under study.
<i>Denominator</i>	Number of patient-days accrued by babies of $<$ 1000g birth weight, during the time period under study (includes level 3 and 2 bed-days).

CI 4.6	Late onset intensive care infection incidence – neonates of $>$ 1000g birth weight
<i>Numerator</i>	The number of significant (see definition below) blood infections in admitted babies of \geq 1000g birth weight occurring more than 48 hours of birth during the time period under study.
<i>Denominator</i>	Number of patient-days accrued by babies of \geq 1000g birth weight, admitted to the ICU during the time period under study.

Origin of these definitions

Originally published in the *ACHS Clinical Indicator Users' Manual 2003 and 2004*, revised in October 2004 for ACHS and NSW Health.

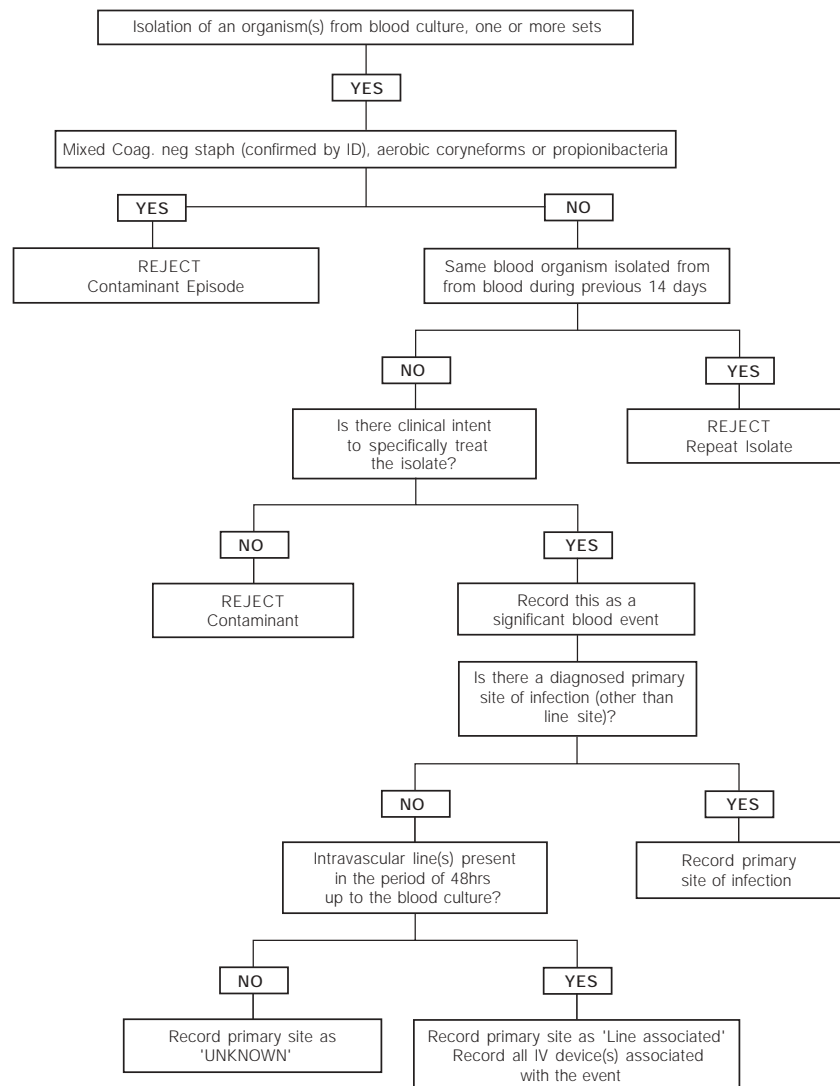
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Flowchart for event definition:

Late neonatal intensive care bloodstream infection and line-associated blood infections



Notes

'Clinical intent'

After consideration of clinical and laboratory evidence, a decision is made to give the patient antibiotics with therapeutic intent against this organism.

Mixed coagulase negative staph

It is implied that the laboratory should distinguish strains of Coag. negative staph by means of either antibiogram or speciation, rather than just by morphological criteria, as pure cultures of some species such as Staph epidermidis may appear mixed on primary subculture.

Line-associated events

Subclassification of events as line-associated is optional and is included for internal use where individual units

plan to monitor these events specifically. This definition is for epidemiologic use only. It is accepted that line-associated events so defined do not necessarily equate with clinically diagnosed line infection events.

When classifying events as line-associated note is taken of all intravascular devices that have been used in the patient during the previous 48 hrs. When several lines have been present and no particular line is implicated by signs of local sepsis, then the event is associated with the type of line that has the highest likelihood of involvement. UVC or UAC lines are considered to have the highest risk, followed by peripherally inserted central lines, peripheral IA lines and then peripheral IV lines.

Indicator area 5: Non line-associated bloodstream infections (BSIs)

Rationale

In non-acute facilities use of either peripheral or central intravenous lines may be limited to a few patients. This indicator has been developed to assist staff in those facilities to measure BSIs in patients where the focus of infection is other than line-related. This indicator would be expected to account for cases of BSI HAI which may be related to other indwelling devices such as urinary catheters or secondary BSI from infections such as pneumonia. The Department anticipates that this indicator will be most useful in small, non-acute settings.

Definitions of terms

For the purpose of this indicator:

- **Diagnosis of BSI** must meet the specific criteria set out in **Appendix 3**.
- **Bed days** refer to the total number of bed days of all admitted patients accommodated during the reporting period. It is taken from the count of the number of inpatients (excluding psychiatry/ rehabilitation and mothercraft inpatients) at midnight (approximately) each day.

Type of indicator

This is a comparative rate based indicator addressing the outcome of patient care in terms of infection.

Indicator data format

CI. 5.1	Numerator	The total number of BSIs considered to be related to an infection at another site (ie non-line related), during the time period under study.
	Denominator	The total number of bed days during the time period under study.

Indicator area 6:

Antibiotic resistant organisms

Rationale

Methicillin-resistant *Staphylococcus aureus* (MRSA), Vancomycin resistant *Enterococci* (VRE), multi-resistant *Acinetobacter baumannii* (MRAB) and Vancomycin Intermediate *Staphylococcus aureus* (VISA) indicators are designed for monitoring specific antibiotic resistant organisms that can colonise or cause invasive infections during the healthcare process and spread amongst patients.

In that the majority of MRSA is spread through contact transmission, predominantly by hand transfer, healthcare associated inpatient MRSA acquisition is a good proxy indicator for compliance of healthcare workers with hand hygiene requirements.

Definitions of terms

For the purposes of this indicator:

- Only new healthcare-associated infections (even if patient previously known to be MRO colonised) or new MRO colonisation (patients not previously documented as colonised) are to be included in the numerator. That is *only the first infection or colonisation of an admission is to be counted. If a patient is known to be colonised prior to admission, do not count.*
- **Sterile site isolate** refers to a significant isolate obtained from bloodstream, normally sterile body cavity (peritoneum, pleural or pericardial space, cerebrospinal fluid) or tissue sample collected by aseptic means.
- **Infection** refers to events associated with a sterile isolate or an event associated with a non-sterile site clinical isolate where MRO-specific antibiotic therapy was administered by clinician (eg for MRSA vancomycin or fusidate/rifampicin). Patients that are given empirical therapy for an MRO infection on the basis of clinical suspicion and no other evidence including +ve screening swabs *should not be included.*
- **Colonised** refers to a patient with a non-sterile site isolate and not receiving MRO-specific antibiotic therapy.
- **New acquisitions** refer to patients who become colonised or infected for the first time in your institution during the period of surveillance. Note that some MROs can be community associated. The '48 hour' rule can be applied or the episode isolated as healthcare associated if the judgement of the infection control professional (ICP) was that it is likely to be healthcare associated.
- **New infections** refer to the number of patients who develop healthcare-associated infections (ie become 'infected') during the period of surveillance. Previously colonised patients who develop an infection are counted as events. Only the first infection event for an admission is counted.
- **Non ICU bed days** refer to the total number of bed days of all admitted patients **excluding day only patients** accommodated in units (other than ICU, psychiatry, mothercraft or rehabilitation) during the reporting period. It is taken from the count of the number of inpatients at midnight.
- **ICU bed days** refer to the total number of bed days of all admitted patients accommodated in ICU during the reporting period. It is taken from the count of the number of inpatients in ICU at midnight.
- **ICU** includes adult and paediatric intensive care units.

Type of indicator

These are comparative rate based indicators addressing the outcome of patient care in terms of infection.

Indicator data format

CI. 6.1	<i>Numerator</i>	The total number of ICU associated new MRSA healthcare-associated infections in a <i>sterile</i> site during the time period under study.
	<i>Denominator</i>	The total number of ICU bed days during the time period under period.
CI. 6.2	<i>Numerator</i>	The total number of ICU associated new MRSA healthcare-associated infections and colonisations in a <i>non-sterile</i> site during the time period under study.
	<i>Denominator</i>	The total number of ICU bed days during the time period under study.
CI. 6.3	<i>Numerator</i>	The total number of Non ICU associated new MRSA healthcare-associated infections in a <i>sterile</i> site during the time period under study.
	<i>Denominator</i>	The total number of Non ICU bed days during the time period under study.
CI. 6.4	<i>Numerator</i>	The total number of Non ICU associated new MRSA healthcare-associated infections and colonisations in a <i>non-sterile</i> site during the time period under study.
	<i>Denominator</i>	The total number of Non ICU bed days during the time period under study.
CI. 6.5	<i>Numerator</i>	The total number of ICU associated new VRE healthcare-associated infections in a <i>sterile</i> site during the time period under study.
	<i>Denominator</i>	The total number of ICU bed days during the time period under study.
CI. 6.6	<i>Numerator</i>	The total number of ICU associated new VRE healthcare-associated infections and colonisations in a <i>non-sterile</i> site during the time period under study.
	<i>Denominator</i>	The total number of ICU bed days during the time period under study.
CI. 6.7	<i>Numerator</i>	The total number of Non ICU associated new VRE healthcare-associated infections in a <i>sterile</i> site during the time period under study.
	<i>Denominator</i>	The total number of Non ICU bed days during the time period under study.
CI. 6.8	<i>Numerator</i>	The total number of Non ICU associated new VRE healthcare-associated infections and colonisations in a <i>non-sterile</i> site during the time period under study.
	<i>Denominator</i>	The total number of Non ICU bed days during the time period under study.
CI. 6.9	<i>Numerator</i>	The total number of ICU associated new MRAB healthcare-associated infections in a <i>sterile</i> site during the time period under study.
	<i>Denominator</i>	The total number of ICU bed days during the time period under study.
CI. 6.10	<i>Numerator</i>	The total number of ICU associated new MRAB healthcare-associated infections and colonisations in a <i>non-sterile</i> site during the time period under study.
	<i>Denominator</i>	The total number of ICU bed days during the time period under study.
CI. 6.11	<i>Numerator</i>	The total number of Non ICU associated new MRAB healthcare-associated infections in a <i>sterile</i> site during the time period under study.
	<i>Denominator</i>	The total number of Non ICU bed days during the time period under study.
CI. 6.12	<i>Numerator</i>	The total number of Non ICU associated new MRAB healthcare-associated infections and colonisations in a <i>non-sterile</i> site during the time period under study.
	<i>Denominator</i>	The total number of Non ICU bed days during the time period under study.
CI. 6.13	<i>Numerator</i>	The total number of ICU associated new VISA healthcare-associated infections in a <i>sterile</i> site during the time period under study.
	<i>Denominator</i>	The total number of ICU bed days during the time period under study.
CI. 6.14	<i>Numerator</i>	The total number of ICU associated new VISA healthcare-associated infections and colonisations in a <i>non-sterile</i> site during the time period under study.
	<i>Denominator</i>	The total number of ICU bed days during the time period under study.
CI. 6.15	<i>Numerator</i>	The total number of Non ICU associated new VISA healthcare-associated infections in a <i>sterile</i> site during the time period under study.
	<i>Denominator</i>	The total number of Non ICU bed days during the time period under study.
CI. 6.16	<i>Numerator</i>	The total number of Non ICU associated new VISA healthcare-associated infections and colonisations in a <i>non-sterile</i> site during the time period under study.
	<i>Denominator</i>	The total number of Non ICU bed days during the time period under study.

Indicator area 7:

Occupational exposures to blood and/or body fluids that present a risk of transmission of blood-borne disease

Rationale

An occupational exposure as defined below may put the injured person at risk of acquiring a blood-borne infection. International reports suggest that determining the magnitude of occupational exposures is the first step in developing local programs and strategies designed to reduce this risk. In NSW s341(h) of the Occupational Health and Safety Regulation 2001 requires organisations to report all exposures to bodily fluids that present a risk of transmission of blood-borne diseases. All organisations are required to collect and report data using this indicator. Organisations must also collect and submit additional data relating to each exposure such as the type of injury, the activity surrounding the injury and any factors relating to devices, equipment or human behaviour which may have contributed to the exposure. **Appendix 7** details the additional data. Worksheets which can be used to collect mandatory and other data for each exposure are available as a supplement to this Users' Manual. Where available, additional information about the source should also be collected at a local level. This additional information should not be reported but used locally to evaluate health care worker safety.

Definitions of terms

For the purposes of this indicator:

- **Occupational exposure** means skin, eye, mucous membrane or parenteral contact with blood or other potentially infectious materials that may result from the performance of an employee's duties.
- **Contaminated sharp** means any contaminated object that can penetrate the skin including, but not limited to, needles, scalpels, broken glass, broken capillary tubes, and exposed ends of dental wires.
- **Parenteral exposure** means any piercing of skin or piercing of mucous membrane with a contaminated sharp.
- **Non-parenteral exposure** means any eye, mouth, other mucous membrane or non-intact skin contact with blood or other potentially infectious materials that results from the performance of an employee's duties.
- **Bed days** refer to the total number of bed days of all admitted patients accommodated during the reporting period. It is taken from the count of the number of inpatients (excluding psychiatry, rehabilitation and mothercraft inpatients) at midnight (approximately) each day.

Type of indicator

These are comparative rate based indicators addressing healthcare workers safety in terms of infection risk.

Indicator data format

CI. 7.1	Numerator	The total number of reported parenteral exposures sustained by staff during the time period under study.
	Denominator	The total number of bed days during the time period under study.
CI. 7.2	Numerator	The total number of reported non-parenteral exposures sustained by staff during the time period under study.
	Denominator	The total number of bed days during the time period under study.

Additional data that must be collected

Additional data that must be collected and reported for each occupational exposure, by type of exposure is specified in **Appendix 7**.

1

ICD-10-AM Codes applicable to the NSW Indicator Set

Coding of clinical indicators is desirable as it provides a means of using routinely collected data (morbidity coding) and makes benchmarking between health care institutions more accurate. However, not all clinical indicators are able to be expressed using ICD-10-AM codes (partially or fully). In these cases data may be obtained by other methods such as National Health Data Dictionary items, individual unit collections (eg outpatient department), external data collections or a prospective collection.

The association of ICD-10-AM codes to clinical indicators was accomplished in consultation with the National Centre for Classification in Health (NCCH).

While it is acknowledged that there may be some occasions where an alternative disease or procedure code may 'fit' the indicator definition, these cases will not be statistically significant. The codes provided have been limited to those which provide a sound basis for benchmarking and comparison.

Important points to remember

- Unless otherwise indicated, the numerator is always a subset of the denominator, therefore the codes in the denominator are not repeated.
- Where no ICD-10-AM codes have been provided for a numerator, denominator, or both, then you must refer to the indicator description for guidelines on how to collect the relevant data.
- If all disease codes in a category are relevant, only the category title and code range or rubric is provided. If all procedure codes in a block are relevant, only the block title is provided.
- If only some disease/procedure codes within a category/block are relevant, then the individual codes are listed.
- Where one code in the code string will sufficiently 'flag' the condition, other associated codes are not required. For example, external cause codes for procedural complications may not be included in the numerator as the specific type of procedure is captured by the denominator.
- The column titled 'For consideration' should be read carefully to ensure that record review or other inclusion or exclusion criteria are applied.

* The International Statistical Classification of Diseases and Related Health Problems, Tenth Revision, Australian Modification

Numerator in ICD-10-AM

CI	Codes that may assist data collection	For consideration
1.1 to 1.4	T84.5 <i>Infection and inflammatory reaction due to internal joint prosthesis</i>	Record review required to determine:
1.5 to 1.10	T82.7 <i>Infection and inflammatory reaction due to other cardiac and vascular devices, implants and grafts</i>	<ul style="list-style-type: none"> ■ if the infection codes relate to the procedure under review
1.11 and 1.12	T82.7 <i>Infection and inflammatory reaction due to other cardiac and vascular devices, implants and grafts</i> and I71.3 <i>Abdominal aortic aneurysm, ruptured</i> or I71.4 <i>Abdominal aortic aneurysm, without mention of rupture</i>	<ul style="list-style-type: none"> ■ if the infection was superficial or deep/organ space, where appropriate.
1.13 and 1.14	O86.0 <i>Infection of obstetric surgical wound</i>	
1.15 and 1.20	T81.41 <i>Wound infection following a procedure</i>	

Denominator in ICD-10-AM

CI	Codes that may assist data collection	For consideration
1.1 and 1.2	<p>Any of the following procedure codes: 47522-00 [1489] <i>Hemiarthroplasty of femur</i> 49312-00 [1489] <i>Excision arthroplasty of hip</i> 49315-00 [1489] <i>Partial arthroplasty of hip</i> 49318-00 [1489] <i>Total arthroplasty of hip, unilateral</i> 49319-00 [1489] <i>Total arthroplasty of hip, bilateral</i> or Any procedure code(s) from block: [1492] <i>Revision arthroplasty of hip</i></p>	
1.3 and 1.4	<p>Any procedure code(s) from block [1518] <i>Arthroplasty of knee</i> or Any procedure code(s) from block: [1519] <i>Arthroplasty of knee with bone graft to femur or tibia</i> or Any procedure code(s) from block: [1523] <i>Revision of total arthroplasty of knee with bone graft to femur or tibia</i> or 49527-00 [1524] <i>Revision of total arthroplasty of knee</i> or 49515-00 [1501] <i>Removal of knee prosthesis</i></p>	
1.5 to 1.8	<p>Any procedure code(s) from blocks: [672] <i>Coronary artery bypass – saphenous vein graft</i> [673] <i>Coronary artery bypass – other vein graft</i> [674] <i>Coronary artery bypass – LIMA graft</i> [675] <i>Coronary artery bypass – RIMA graft</i> [676] <i>Coronary artery bypass – radial artery graft</i> [677] <i>Coronary artery bypass – epigastric artery graft</i> [678] <i>Coronary artery bypass – other artery graft</i> [679] <i>Coronary artery bypass – other material graft</i></p>	
1.9 and 1.10	<p>Any of the following procedure codes: 32739-00 [711] <i>Femoro-popliteal bypass using vein, above knee anastomosis</i> 32742-00 [711] <i>Femoro-popliteal bypass using vein, below knee anastomosis</i> 32751-00 [712] <i>Femoro-popliteal bypass using synthetic material, above knee anastomosis</i> 32751-01 [712] <i>Femoro-popliteal bypass using synthetic material, below knee anastomosis</i> 32754-00 [713] <i>Femoro-popliteal bypass using composite graft, above knee anastomosis</i> 32754-01 [713] <i>Femoro-popliteal bypass using composite graft, below knee anastomosis</i></p>	

Appendix 1: ICD-10-AM Codes applicable to the NSW Indicator Set

1.11 and 1.12	<p>Any of the following procedure codes:</p> <p>33112-00 [715] <i>Replacement of suprarenal abdomino-aortic aneurysm with graft</i></p> <p>33151-00 [715] <i>Replacement of ruptured suprarenal abdomino-aortic aneurysm with graft</i></p> <p>33115-00 [715] <i>Replacement of infrarenal abdomino-aortic aneurysm with tube graft</i></p> <p>33154-00 [715] <i>Replacement of ruptured infrarenal abdomino-aortic aneurysm with tube graft</i></p> <p>33118-00 [715] <i>Replacement of infrarenal abdomino-aortic aneurysm with bifurcation graft to iliac arteries</i></p> <p>33157-00 [715] <i>Replacement of ruptured infrarenal abdomino-aortic aneurysm with bifurcation graft to iliac arteries</i></p> <p>33121-00 [715] <i>Replacement of infrarenal abdomino-aortic aneurysm with bifurcation graft to femoral arteries</i></p> <p>33160-00 [715] <i>Replacement of ruptured infrarenal abdomino-aortic aneurysm with bifurcation graft to femoral arteries</i></p>	
1.13 and 1.14	<p>Any of the following procedure codes:</p> <p>16520-02 [1340] <i>Elective lower segment caesarean section</i></p> <p>16520-03 [1340] <i>Emergency lower segment caesarean section</i></p>	
1.15 and 1.16	<p>Any procedure code from block [1268] <i>Abdominal hysterectomy</i></p> <p>or</p> <p>any of the following procedure codes:</p> <p>35756-00 [1269] <i>Laparoscopically assisted vaginal hysterectomy proceeding to abdominal hysterectomy</i></p> <p>35756-01 [1269] <i>Laparoscopically assisted vaginal hysterectomy proceeding to abdominal hysterectomy with unilateral salpingo-oophorectomy</i></p> <p>35756-02 [1269] <i>Laparoscopically assisted vaginal hysterectomy proceeding to abdominal hysterectomy with bilateral salpingo-oophorectomy</i></p>	
1.17 and 1.18	<p>Any procedure code(s) in block:</p> <p>[990] <i>Repair of inguinal hernia</i></p> <p>or</p> <p>30615-00 [997] <i>Repair of incarcerated, obstructed or strangulated hernia</i></p>	<p>Record review required:</p> <ul style="list-style-type: none"> ■ for code 30615-00 [997] to check for inguinal hernias only.
1.19 and 1.20	<p>Any of the following procedure codes:</p> <p>30446-00 [965] <i>Laparoscopic cholecystectomy proceeding to open cholecystectomy</i></p> <p>30443-00 [965] <i>Cholecystectomy</i></p> <p>30454-01 [965] <i>Cholecystectomy with choledochotomy</i></p> <p>30455-00 [965] <i>Cholecystectomy with choledochotomy and biliary intestinal anastomosis</i></p>	

Indicator area 3: Infection surveillance – haemodialysis-associated bloodstream infection

Numerator in ICD-10-AM

CI	Codes that may assist data collection	For consideration
3.1 to 3.5	T82.7 <i>Infection and inflammatory reaction due to other cardiac and vascular devices, implants and grafts</i> or T81.42 <i>Sepsis following a procedure</i> and Y84.1 <i>Kidney dialysis</i>	Record review required: <ul style="list-style-type: none"> ■ to distinguish the type of access and if the infection relates to the haemodialysis ■ to determine if the infection meets the specific criteria set out in Appendix 2.

Denominator in ICD-10-AM

CI	Codes that may assist data collection:	For consideration
3.1 to 3.5	13100-00 [1060] <i>Haemodialysis</i>	Record review required: <ul style="list-style-type: none"> ■ to distinguish the type of access. Need to determine the number of patient-months.

Indicator area 4: Infection surveillance – neonatal infections

Numerator in ICD-10-AM

4.1 to 4.2	Any disease code in the neonates clinical record in category P36 Bacterial sepsis of newborn or any of the following disease codes: P37.2 Neonatal (disseminated) listeriosis P37.52 Invasive neonatal candidiasis P39.8 Other specified infections specific to the perinatal period	Record review required: ■ to check if infection meets the criteria for an early onset infection, ie within 48 hours of birth.
4.3 to 4.6	Any disease code in the neonates clinical record in category P36 Bacterial sepsis of newborn or any of the following disease codes: P37.2 <i>Neonatal (disseminated) listeriosis</i> P37.52 <i>Invasive neonatal candidiasis</i> P39.8 <i>Other specified infections specific to the perinatal period</i>	Record review required: ■ to check if infection meets the criteria for a significant late onset infection, ie more than 48 hours after birth (also refer to flowchart).

Denominator in ICD-10-AM

4.1	Any of the following disease codes in the neonates clinical record: <i>Z38.0 Singleton, born in hospital</i> <i>Z38.3 Twin, born in hospital</i> <i>Z38.6 Other multiple, born in hospital</i>	Individual organisations may have more appropriate methods of capturing denominator data for this indicator set, ie birth registers.
4.2	Any of the following disease codes in the neonates clinical record: <i>Z38.0 Singleton, born in hospital</i> <i>Z38.3 Twin, born in hospital</i> <i>Z38.6 Other multiple, born in hospital</i> without either of the following disease codes: P07.2 <i>Extreme immaturity</i> P07.3 <i>Other preterm infants</i>	
4.3	Any diagnosis code from the following category: P07.0 <i>Extremely low birth weight</i>	Record review required: ■ to check for survival time.
4.4	Any of the following disease codes in the neonates clinical record: <i>Z38.0 Singleton, born in hospital</i> <i>Z38.3 Twin, born in hospital</i> <i>Z38.6 Other multiple, born in hospital</i> without P07.0 <i>Extremely low birth weight</i>	
4.5	Any diagnosis code from the following category: P07.0 <i>Extremely low birth weight</i>	Need to tabulate patient days
4.6	Any of the following disease codes in the neonates clinical record: <i>Z38.0 Singleton, born in hospital</i> <i>Z38.3 Twin, born in hospital</i> <i>Z38.6 Other multiple, born in hospital</i> without P07.0 <i>Extremely low birth weight</i>	Need to tabulate patient days

Definitions of surgical site infections (SSIs)

Superficial Incisional

Deep Incisional/Organ Space

Definition must meet the following criteria

Infection involves only skin and subcutaneous tissue of this incision

AND

occurs within 30 days after the operative procedure

AND

exhibits at least one of the following from the superficial incision:

1. Purulent discharge (NOT stitch abscess).
2. Organisms isolated from an aseptically collected culture of fluid or tissue.

Note: a positive wound swab (in contrast to wound aspirate) without other significant evidence of infection is not adequate for diagnosis of infection.

3. Displays at the site of incision any of the following signs and symptoms of infection:

- Pain or tenderness
- Localised swelling
- Redness or heat

AND the incision is deliberately explored by the surgeon resulting in a positive wound culture.

Note: A culture-negative finding does not meet this criterion unless the patient was on antibiotics immediately prior to diagnosis.

4. Diagnosis or antimicrobial treatment of superficial incisional infection by the operating surgeon or registrar.

Infection involves deep soft tissues (eg fascial and muscle layers) **AND/OR** organs/spaces opened or manipulated during an operation

AND

occurs within 30 days after the operative procedure if implant not present OR within one year if implant insitu

AND

exhibits either one or both of the following:

1. Purulent drainage from deep soft tissue or drain that is placed through a stab wound into the organ/space.

2. Spontaneous dehiscence at the incision site or the wound is deliberately explored by a surgeon with the patient showing evidence of one or more of the following signs or symptoms:

- Fever > 38°C, localised pain or tenderness with culture-positive specimen. A culture-negative finding does not meet this criterion unless the patient was on antibiotics immediately prior to the wound being explored and/or the culture being taken.
- Organisms isolated from aseptically obtained culture of fluid or tissue obtained from an organ/space.
- An abscess or other evidence of infection involving a deep/organ space is found on direct examination, during re-operation, or by histopathologic or radiologic examination.
- Diagnosis of or antimicrobial treatment of a deep incisional or organ/space SSI by the operating surgeon or registrar.

Superficial Incisional	Deep Incisional/Organ Space
<p>Reporting instructions</p> <ol style="list-style-type: none"> 1. Do not report a stitch abscess (minimal inflammation and discharge confined to the points of suture penetration) as an infection. 2. If infection involves or extends into fascial and muscle layers, report as deep/organ space SSI. 3. Coronary bypass graft data (ie graft and chest incision site) should be collected and reported separately. 	<ol style="list-style-type: none"> 1. Classify infection that involves both superficial and deep incisional sites as deep incisional SSI. 2. The following are specific sites of an organ/space SSI: <ul style="list-style-type: none"> ■ Osteomyelitis ■ Breast abscess or mastitis ■ Myocarditis or pericarditis ■ Disc space ■ Ear, mastoid ■ Endometritis ■ Endocarditis ■ Eye, other than conjunctivitis ■ Gastro intestinal tract ■ Intra-abdominal, not specified elsewhere ■ Intracranial, brain abscess or dura ■ Joint or bursa ■ Other infections of the lower respiratory tract ■ Mediastinitis ■ Meningitis or ventriculitis ■ Oral cavity (mouth, tongue or gums) ■ Other male or female reproductive organs ■ Other infections of the urinary tract ■ Spinal abscess without meningitis ■ Sinusitis ■ Upper respiratory tract ■ Arterial or venous infection ■ Vaginal cuff

Definition of bloodstream infection

A bloodstream infection must meet the conditions in one of the following criteria:

Criterion 1 (recognised pathogens; non-neonatal intensive care)

Isolation of one or more recognised bacterial or fungal pathogens from one or more blood cultures (eg *Staphylococcus aureus*, *Streptococcus pneumoniae*, *Escherichia coli*, *Klebsiella*, *Proteus*, *Salmonella* species, *Candida albicans*).

Note: Where mixed isolates are obtained with one being an accepted pathogen, the potential contaminant^b organism is to be disregarded.

Criterion 2 (potential contaminants^b in patients aged >1 year)

The patient has at least one of the following signs and symptoms within 24 hours of a positive blood culture being collected:

- fever (>38°C);
- chills or rigors; or
- hypotension

and at least one of the following:

- a. there is isolation of the same potential contaminant^b from two or more blood cultures drawn on separate occasions within a 48-hour period (isolates identified by suitable microbiological techniques)
- b. there is isolation of a potential contaminant^b from a single blood culture drawn from a patient with an intravascular line (within 48 hours of the episode) and appropriate antimicrobial therapy against that isolate is commenced.

Criterion 3 (potential contaminants^b in patients aged <1 year not including neonates)

The patient has at least one of the following signs and symptoms within 24 hours of a positive blood culture being collected:

- fever (>38°C);
- hypothermia (<36°C); or
- apnoea or bradycardia

and at least one of the following:

- a. there is isolation of a potential contaminant^b from two or more blood cultures drawn on separate occasions within a 48-hour period
- b. there is isolation of a potential contaminant^b from a single blood culture drawn from a patient with an intravascular line (within 48 hours of the episode) and appropriate antimicrobial therapy is commenced.

Notes:

- a. A bloodstream infection due to the same organism(s) that recurs within 14 days of the original event is disregarded and not counted as a new episode as it is considered to be the same infection.
- b. Potential contaminant organisms include coryneforms (*Corynebacterium*, etc), coagulase-negative staphylococci, micrococci, *Propionibacterium*, *Bacillus*, alpha haemolytic streptococci, environmental Gram-negative bacilli, non-pathogenic *Neisseria*.
- c. If antimicrobials are given for less than 14 days for a dialysis access line-associated infection and then restarted for the same infection, this is NOT considered a new incident. However, if IV antimicrobials are stopped for 14 days or more and then restarted for a BSI with the same organism, this is considered a new episode.

4

Central line-associated BSI rate (CLAB) and central line utilisation ratio (CLUR)

The method of collecting denominator data for central line days is a tally system as recommended by the National Nosocomial Infection Surveillance system (NNIS) and involves collection every day of the following summary information:

Number of patients with a central intravascular line(s). Count one line per patient only.

Central line-associated BSI rate ratio

$$\text{Central line-associated BSI rate (CLAB)} = \frac{\text{Number of BSI in patients with central lines}}{\text{Number of central line-days}} \times 1000$$

The quotient is multiplied by 1000 so each infection rate is expressed as the number of infections per 1000 central line-days.

Central line utilisation ratio

The central line utilisation ratio, which measures the percent of total patient-days in which a central line was used, is calculated by dividing the number of central line-days by the total number of bed days

$$\text{Central line utilisation ratio (CLUR)} = \frac{\text{Number of central line-days}}{\text{Number of bed-days}}$$

Example

In one month in a particular unit there were 98 patient-days during the month, 40 central line days and six patients with central lines who had BSI.

The CLAB rate and CLUR for this unit for the month are as follows:

$$\begin{aligned} \text{Central line-associated BSI rate (CLAB)} &= \frac{6}{40} \times 1000 \\ &= 0.15 \times 1000 \\ &= 150 \text{ central line-related BSIs per 1000 days.} \end{aligned}$$

$$\begin{aligned} \text{Central line utilisation ratio (CLUR)} &= \frac{40}{98} \\ &= 0.41 \end{aligned}$$

NSW Infection Control Program quality monitoring sheet for recording central line utilisation

Appendix

5

Month and Year _____ Ward / Unit _____

Circle type of ICU: Adult / Paediatric / Neonatal / Other (specify) _____

Date	No of patients at midnight (= bed days)	No of patients with central line(s) (= central line days)
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		
31		
TOTAL		

6 Calculating patient months

Haemodialysis-associated BSI

Haemodialysis-associated BSI is defined as a BSI in a patient receiving haemodialysis without an organ site focus for the BSI where there is clinical infection at the site of vascular access.

Dialysis Unit – access-associated BSI

Numerator

Bloodstream infection in a patient undergoing haemodialysis.

Either local access site infection OR no identifiable organ site focus.

Denominator

Rates per 100 patient months.

These should then be stratified by vascular access type.

Vascular access types are:

- graft
 - synthetic (eg poly tetra fluoro ethylene (PTFE), thoratec)
 - native vein
- fistula
- temporary catheter (non-cuffed)
- permanent catheter (cuffed).

BSI rate associated with haemodialysis:

$$\frac{\text{Number of dialysis-associated BSI during a specified surveillance period}}{\text{Number of dialysis patient months measured for that same surveillance period}} \times 100$$

General notes

Rates should be calculated separately for each type of vascular access.

The denominator is simply calculated by counting the number of patients being haemodialysed each month and adding them together.

For example, if there were 45 patients in January, 40 in February and 50 in March, the denominator would be (45+40+50=135) 135 dialysis patient months for the three month surveillance period. If a patient was on the dialysis program for only one or two weeks, fractional calculations can be made and given values of 0.25 or 0.5.

The denominator should then be subdivided (stratified) by dialysis access device as stated above.

If antimicrobials are given for less than 14 days for a dialysis-access line-associated infection and then restarted for the same infection, it is NOT considered a new episode. If IV antimicrobials are stopped for 14 days or more and then restarted for a BSI, this is considered a new episode.

Occupational exposures Data Dictionaries

Needlestick and sharp object injury report – Data Dictionary

Field name	Description
HOSPITID	Hospital/health care facility ID code as provided by ACHS
DATEEXPO	Date of injury
DATE REPORTED	Date injury reported
JOBCAT	HCW job category
WHEREEXPO	Where did the exposure or injury occur?
WARD	Specified area (<i>for where expo = 1, 2, 4, 5, 6, 10, 11, 13, 17, 19</i>)
ORIGUSE	Was the injured worker the original user?
CONTAMINAT	Was the object that caused the injury contaminated?
TYPEOBJECT	What type of object caused the injury?
ORIGUSE	For what purpose was the sharp item originally used?
WHENINUSE	When in the use of the sharp did the injury occur?
TYPEDEVICE	Indicate the type of device involved
WHICHDEVICE	Indicate which sharp device was involved
SAFEDESIGN	Designed as a shielded, recessed or retractable needle?
ACTIVATION	Safety feature activated
TIMING	Exposure during activation stage
DEPTH	Indicate depth of the injury

Blood and body fluid exposure report – Data Dictionary

Field name	Comment
HOSPITID	Hospital/health care facility ID code as provided by ACHS
DATEEXPO	Date of injury
DATE REPORTED	Date injury reported
JOBCAT	HCW job category
WHEREEXPO	Where did the exposure or injury occur?
FLUIDS	Which fluids were involved in exposure?
BLOODSTAIN	Was the fluid blood-stained?
SURFACES	Which HCW body surfaces were involved?
PENETRATION	Penetration of skin or PPE?
PPE	What PPE being used/worn?
TYPEEXP	How did the exposure occur?

Blood and body fluid exposure report

Data fields 1, 2, 5, 6, 8, 9, 10, 11 and 12 are mandatory in NSW and must be completed and submitted for analysis each six months. These questions are shaded grey for ease of completion. All other data fields are optional.

Last name: _____ First name: _____
 Incident ID:(office use only) _____ Facility ID: (ACHS CODE) _____ Birthdate: _____

- 1 **Date of injury** _____
 - 2 **Date reported** _____
 - 3 **Department where incident occurred** _____
 - 4 **Home/employing department** _____ **Time of incident** _____
 - 5 **Healthcare worker job category (tick one box only)**

<input type="checkbox"/> 1 Doctor (VMO/HMO) specify specialty _____	<input type="checkbox"/> 10 Laboratory/pathology staff
<input type="checkbox"/> 2 Doctor (MO/intern/resident) specify specialty _____	<input type="checkbox"/> 11 Technologist (non-lab)
<input type="checkbox"/> 3 Medical student _____	<input type="checkbox"/> 12 Dentist
<input type="checkbox"/> 4 Nurse: specify _____ <input type="checkbox"/> 1 RN	<input type="checkbox"/> 13 Dental therapist/nurse
<input type="checkbox"/> 5 Nursing student <input type="checkbox"/> 2 EN	<input type="checkbox"/> 21 CSSD/TSSU staff
<input type="checkbox"/> 18 Nursing assistant	<input type="checkbox"/> 14 Housekeeping
<input type="checkbox"/> 24 Midwife	<input type="checkbox"/> 19 Laundry worker
<input type="checkbox"/> 22 Community health staff/allied health staff	<input type="checkbox"/> 16 Ambulance staff/paramedic
<input type="checkbox"/> 8 Orderly/ward/trolley person	<input type="checkbox"/> 17 Other student
<input type="checkbox"/> 9 Blood collector	<input type="checkbox"/> 15 Other, specify: _____
<input type="checkbox"/> 23 Anaesthetic/perfusion tech	
 - 6 **Where did the injury occur? (tick one box only)**

<input type="checkbox"/> 1 Ward/nursery/patient's room	<input type="checkbox"/> 10 Procedure areas (<i>imaging, angiography, cardiac cath, etc</i>)
<input type="checkbox"/> 19 Dental cubicle	<input type="checkbox"/> 11 Pathology/clinical laboratories
<input type="checkbox"/> 2 Outside patient room (hallway, nurses station, etc)	<input type="checkbox"/> 12 Autopsy
<input type="checkbox"/> 3 Emergency department	<input type="checkbox"/> 13 Nonclinical-service/utility (<i>CSSD, laundry, supply, loading dock, etc</i>)
<input type="checkbox"/> 4 Intensive/critical care: specify type:	<input type="checkbox"/> 16 Delivery/labour ward
<input type="checkbox"/> 5 Operating room/anaesthetic/cleanup/theatre/recovery	<input type="checkbox"/> 17 Patient's home
<input type="checkbox"/> 6 Community clinic/outpatient clinic	<input type="checkbox"/> 14 Other, specify: _____
<input type="checkbox"/> 8 Blood collection room	
<input type="checkbox"/> 9 Dialysis facility (<i>haemodialysis and peritoneal dialysis</i>)	
 - 7 **Was the source patient identifiable? (tick one box only)**
 1 Yes 2 No 3 Unknown 4 Not applicable
 - 8 **To which body fluids was the healthcare worker exposed? (tick all that apply)**

<input type="checkbox"/> Blood or blood products	<input type="checkbox"/> CSF
<input type="checkbox"/> Urine	<input type="checkbox"/> Vomit
<input type="checkbox"/> Peritoneal fluid	<input type="checkbox"/> Sputum
<input type="checkbox"/> Pleural fluid	<input type="checkbox"/> Saliva
<input type="checkbox"/> Amniotic fluid	<input type="checkbox"/> Other, specify _____ (includes semen, breastmilk, etc.)
- Was the body fluid visibly stained with blood?** 1 Yes 2 No 3 Unknown
- 9 **Which body surfaces of the healthcare worker were involved? (tick all that apply)**

<input type="checkbox"/> Intact skin	<input type="checkbox"/> Nose (<i>mucosa</i>)
<input type="checkbox"/> Non-intact skin	<input type="checkbox"/> Mouth (<i>mucosa</i>)
<input type="checkbox"/> Eyes (<i>conjunctiva</i>)	<input type="checkbox"/> Other, specify: _____
 - 10 **Did the blood or body fluid (tick all that apply)**

<input type="checkbox"/> Touch unprotected skin	<input type="checkbox"/> Soak through barrier garment or protective garment
<input type="checkbox"/> Touch skin between gap in protective garments	<input type="checkbox"/> Soak through clothing

11 Which barrier garments were worn at the time of exposure? (tick all that apply)

- | | |
|----------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| <input type="checkbox"/> Gloves, single pair | <input type="checkbox"/> Surgical mask |
| <input type="checkbox"/> Gloves, double pair | <input type="checkbox"/> Surgical gown |
| <input type="checkbox"/> Goggles | <input type="checkbox"/> Plastic apron |
| <input type="checkbox"/> Eyeglasses (<i>not a protective item</i>) | <input type="checkbox"/> Lab coat/gown, cloth (<i>permeable-not protective</i>) |
| <input type="checkbox"/> Eyeglasses with side shields | <input type="checkbox"/> Lab coat/gown, other |
| <input type="checkbox"/> Face shield | <input type="checkbox"/> Other, specify: _____ |

12 What was the exposure the result of? (tick one box only)

- | | |
|----------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|
| <input type="checkbox"/> 1 Direct patient contact | <input type="checkbox"/> 5 Other body fluid container spilled or leaked |
| <input type="checkbox"/> 2 Specimen container leaked/spilled | <input type="checkbox"/> 6 Touched contaminated equipment or surface |
| <input type="checkbox"/> 3 Specimen container broke | <input type="checkbox"/> 7 Touched contaminated drapes/sheets/gowns, etc |
| <input type="checkbox"/> 4 IV tubing/bag/pump leaked/broke | <input type="checkbox"/> 8 Unknown |
| <input type="checkbox"/> 10 Feeding/ventilator/other tube separated/
leaked/splashed. Specify tubing: _____ | <input type="checkbox"/> 11 Assault or non-percutaneous bite |
| | <input type="checkbox"/> 9 Other, specify: _____ |

If equipment failure, please specify: Equipment type: _____
 Manufacturer: _____

13 How long was the blood or body fluid in contact with healthcare worker's skin or mucous membranes? (tick one)

- | | |
|------------------------------------------------|-------------------------------------------------|
| <input type="checkbox"/> 1 Less than 5 minutes | <input type="checkbox"/> 3 15 minutes to 1 hour |
| <input type="checkbox"/> 2 5-14 minutes | <input type="checkbox"/> 4 More than 1 hour |

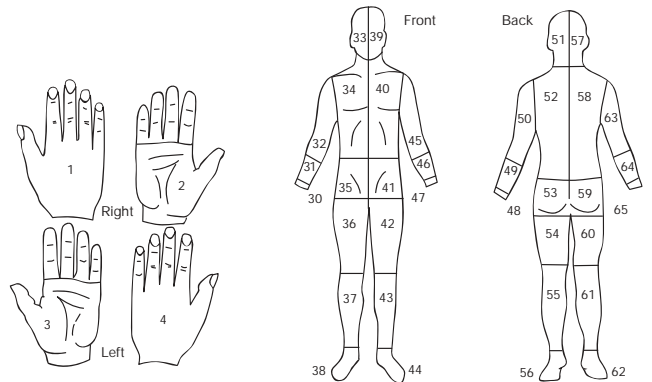
14 How much blood/body fluid came in contact with healthcare worker's skin or mucous membranes? (tick one)

- | |
|-------------------------------------------------------------------------------|
| <input type="checkbox"/> 1 Small amount (up to 5 ml, or up to 1 teaspoon) |
| <input type="checkbox"/> 3 Large amount (more than 50 ml) |
| <input type="checkbox"/> 2 Moderate amount (up to 50ml, or up to quarter cup) |

15 Location of the exposure

Write the number of the location of up to three exposed body parts in the blanks below.

Largest area of exposure: _____
 Middle area of exposure: _____
 Smallest area of exposure: _____



16 Describe the circumstances leading to this exposure (please note if a device malfunction was involved):

17 For injured worker: Do you have an opinion that any other engineering control, administrative or work practice could have prevented the injury?

- 1 Yes 2 No 3 Unknown

Describe:

Cost:

_____ **Lab charges (HBV, HCV, HIV, other tests)**

_____ Healthcare worker

_____ Source

_____ **Treatment prophylaxis (HBIG, hepatitis vaccines, tetanus, other)**

_____ Healthcare worker

_____ Source

_____ **Service charges (Emergency Department, Employee Health, other)**

_____ **Other costs (Worker's Compensation, surgery, other)**

_____ **TOTAL (round to nearest dollar)**

Needlestick and sharp object injury report

Data fields 1, 2, 5, 6, 8, 9, 10, 11, 12, 13, 13a, 13b and 15 are mandatory in NSW and must be completed and submitted for analysis each six months. These questions are shaded grey for ease of completion. All other data fields are optional.

Last name: _____ First name: _____

Injury ID:(office use only) _____ Facility ID: (ACHS CODE) _____ Birthdate: _____

1 Date of injury _____

2 Date reported _____

3 Department where incident occurred _____

4 Home/employing department _____ Time of incident _____

5 Healthcare worker job category (tick one box only)

- | | |
|---------------------------------------------------------------------------|--------------------------------------------------------|
| <input type="checkbox"/> 1 Doctor (VMO/HMO) specify speciality | <input type="checkbox"/> 10 Laboratory/pathology staff |
| <input type="checkbox"/> 2 Doctor (MO/intern/resident) specify speciality | <input type="checkbox"/> 11 Technologist (non-lab) |
| <input type="checkbox"/> 3 Medical student | <input type="checkbox"/> 12 Dentist |
| <input type="checkbox"/> 4 Nurse: specify <input type="checkbox"/> 1 RN | <input type="checkbox"/> 13 Dental therapist/nurse |
| <input type="checkbox"/> 5 Nursing student <input type="checkbox"/> 2 EN | <input type="checkbox"/> 21 CSSD/TSSU staff |
| <input type="checkbox"/> 18 Nursing assistant | <input type="checkbox"/> 14 Housekeeping |
| <input type="checkbox"/> 24 Midwife | <input type="checkbox"/> 19 Laundry worker |
| <input type="checkbox"/> 22 Community health staff/allied health staff | <input type="checkbox"/> 16 Ambulance staff/paramedic |
| <input type="checkbox"/> 8 Orderly/ward/trolley person | <input type="checkbox"/> 17 Other student |
| <input type="checkbox"/> 9 Blood collector | <input type="checkbox"/> 15 Other, specify: _____ |
| <input type="checkbox"/> 23 Anaesthetic/perfusion tech | |

6 Where did the injury occur? (tick one box only)

- | | |
|-----------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| <input type="checkbox"/> 1 Ward/nursery/patient's room | <input type="checkbox"/> 10 Procedure areas (<i>imaging, angiography, cardiac cath, etc</i>) |
| <input type="checkbox"/> 19 Dental cubicle | <input type="checkbox"/> 11 Pathology/clinical laboratories |
| <input type="checkbox"/> 2 Outside patient room (hallway, nurses station, etc) | <input type="checkbox"/> 12 Autopsy |
| <input type="checkbox"/> 3 Emergency department | <input type="checkbox"/> 13 Nonclinical-service/utility (<i>CSSD, laundry, supply, loading dock, etc</i>) |
| <input type="checkbox"/> 4 Intensive/critical care: specify type: | <input type="checkbox"/> 16 Delivery/labour ward |
| <input type="checkbox"/> 5 Operating room/anaesthetic/cleanup/theatre/recovery | <input type="checkbox"/> 17 Patient's home |
| <input type="checkbox"/> 6 Community clinic/outpatient clinic: specify: | <input type="checkbox"/> 14 Other, specify: _____ |
| <input type="checkbox"/> 8 Blood collection room | |
| <input type="checkbox"/> 9 Dialysis facility (<i>haemodialysis and peritoneal dialysis</i>) | |

7 Was the source patient identifiable? (tick one box only)

- 1 Yes 2 No 3 Unknown 4 Not applicable

8 Was the injured worker the original user of the sharp item? (tick one box only)

- 1 Yes 2 No 3 Unknown 4 Not applicable

9 Was the sharp that caused the injury contaminated? (tick one box only)

- 1 Yes (known exposure to patient or contaminated equipment). Was blood visible on the device? 1 Yes 2 No
- 2 No
- 3 Unknown

10 For what purpose was the sharp that caused the injury originally used? (tick one box only)

- | | |
|-----------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| <input type="checkbox"/> 1 Unknown/not applicable | <input type="checkbox"/> 9 Obtain a specimen/body fluid/tissue sample |
| <input type="checkbox"/> 2 Injection, IM/SC or other injection through the skin (<i>syringe</i>) | <input type="checkbox"/> 10 Finger/heel stick |
| <input type="checkbox"/> 3 Heparin or Saline Flush (<i>syringe</i>) | <input type="checkbox"/> 11 Suturing |
| <input type="checkbox"/> 4 Inject into/aspirate from IV injection site or IV port (<i>syringe</i>) | <input type="checkbox"/> 12 Surgical cutting |
| <input type="checkbox"/> 5 Connect IV line (<i>intermittent IV/piggyback/IV infusion/ other IV line connection</i>) | <input type="checkbox"/> 12.1 Surgical procedure – not cutting (includes wound care) |
| <input type="checkbox"/> 6 Cannulate IV/heparin/saline lock (<i>IV catheter or butterfly</i>) | <input type="checkbox"/> 17 Drilling |
| <input type="checkbox"/> 16 Cannulate arterial/central line | <input type="checkbox"/> 13 Electrocautery |
| <input type="checkbox"/> 7 Draw venous blood _____ | <input type="checkbox"/> 14 To contain a specimen or pharmaceutical (glass item) |
| <input type="checkbox"/> 8 Draw arterial blood _____ | <input type="checkbox"/> 15 Other specify _____ |
- if used to draw blood was it? direct stick? drawn from a line?

11 When in the use of the sharp did the injury occur? (tick one box only)

- | | |
|--------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|
| <input type="checkbox"/> 1 Before use (<i>item broke/slipped, assembling device, etc</i>) | <input type="checkbox"/> 16 Device left on floor, table, bed or other inappropriate place |
| <input type="checkbox"/> 2 During use (<i>item slipped, patient jarred item, etc</i>) | <input type="checkbox"/> 8 Other after use – before disposal (<i>in transit to waste, cleaning, sorting, etc</i>) |
| <input type="checkbox"/> 15 Assault/restraining patient | <input type="checkbox"/> 9 From item left on or near disposal container |
| <input type="checkbox"/> 3 Between steps of multi-step procedure (<i>between incremental injections, passing instruments, etc</i>) | <input type="checkbox"/> 10 While putting item into disposal container |
| <input type="checkbox"/> 4 Disassembling device or equipment | <input type="checkbox"/> 11 After disposal, stuck by item protruding from opening of disposal container |
| <input type="checkbox"/> 5 Preparing reusable instrument for reuse (<i>sorting, disinfecting, sterilizing, etc</i>) | <input type="checkbox"/> 12 Item pierced side of disposal container |
| <input type="checkbox"/> 6 While recapping a used needle | <input type="checkbox"/> 13 After disposal, item protruded from waste bag or inappropriate waste container |
| <input type="checkbox"/> 7 Withdrawing a needle from rubber or other resistant material (<i>rubber stopper, IV port, etc</i>) | <input type="checkbox"/> 14 Other: specify: _____ |

12 What type of device caused the injury? (tick one box only)

- Needle – *hollow bore* Surgical Glass

Which device caused the injury? (tick one box from one of the three sections only)

Needles (for suture needles see 'surgical instruments')

- | | |
|-------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|
| <input type="checkbox"/> 1 Disposable syringe needle | <input type="checkbox"/> 7 Venous or arterial cannula/ stylet |
| <input type="checkbox"/> a Insulin | <input type="checkbox"/> 8 Vacuum tube blood collection holder/needle (<i>includes Vacutainer™ *- type device</i>) |
| <input type="checkbox"/> b Tuberculin | <input type="checkbox"/> 9 Spinal/epidural needle |
| <input type="checkbox"/> c 24/25-gauge needle | <input type="checkbox"/> 10 Unattached hypodermic needle |
| <input type="checkbox"/> d 23-gauge needle | <input type="checkbox"/> 17 Biopsy needle |
| <input type="checkbox"/> e 22-gauge needle | <input type="checkbox"/> 18 Bone marrow needle |
| <input type="checkbox"/> f 21-gauge needle | <input type="checkbox"/> 28 Needle, not sure what kind |
| <input type="checkbox"/> g 20-gauge needle | <input type="checkbox"/> 29 Other needle, specify: _____ |
| <input type="checkbox"/> h 'Other' | |
| <input type="checkbox"/> 2 Pre-filled/cartridge syringe | |
| <input type="checkbox"/> 3 Blood gas syringe | |
| <input type="checkbox"/> 4 Syringe, other type | |
| <input type="checkbox"/> 5 Needle on IV line (includes piggybacks and IV line connectors) | |
| <input type="checkbox"/> 6 Butterfly/winged steel needle | |

Surgical instrument or other sharp items (for glass items see 'glass')

- | | |
|-----------------------------------------------------------------------------------------|------------------------------------------------------------------------|
| <input type="checkbox"/> 30 Lancet (finger or heel sticks) | <input type="checkbox"/> 43 Test tube (<i>plastic</i>) |
| <input type="checkbox"/> 31 Suture needle | <input type="checkbox"/> 44 Fingernails/teeth |
| <input type="checkbox"/> 32 Scalpel, reusable (<i>scalpel, disposable code is 45</i>) | <input type="checkbox"/> 45 Scalpel, disposable |
| <input type="checkbox"/> 33 Razor | <input type="checkbox"/> 46 Retractors, skin/bone hooks |
| <input type="checkbox"/> 34 Pipette (<i>plastic</i>) | <input type="checkbox"/> 47 Staples/steel sutures |
| <input type="checkbox"/> 35 Scissors | <input type="checkbox"/> 48 Wire (<i>suture/fixation/guide wire</i>) |
| <input type="checkbox"/> 36 Electrocautery device | <input type="checkbox"/> 49 Pin (<i>fixation, guide pin</i>) |
| <input type="checkbox"/> 37 Bone cutter | <input type="checkbox"/> 50 Drill bits/burr |
| <input type="checkbox"/> 38 Bone chip | <input type="checkbox"/> 51 Haemostat/artery forceps/clamps |
| <input type="checkbox"/> 39 Towel clip | <input type="checkbox"/> 58 Sharp item, not sure what kind |
| <input type="checkbox"/> 40 Microtome blade | <input type="checkbox"/> 59 Other sharp item: specify: _____ |
| <input type="checkbox"/> 41 Trocar | |
| <input type="checkbox"/> 42 Vacuum tube (<i>plastic</i>) | |

Glass

- | | |
|-----------------------------------------------------------------------------------------|--------------------------------------------------------------|
| <input type="checkbox"/> 60 Medication ampoule | <input type="checkbox"/> 66 Capillary tube |
| <input type="checkbox"/> 61 Medication vial (<i>small volume with rubber stopper</i>) | <input type="checkbox"/> 67 Glass slide |
| <input type="checkbox"/> 62 Medication/IV bottle (<i>large volume</i>) | <input type="checkbox"/> 78 Glass item, not sure what kind |
| <input type="checkbox"/> 63 Pipette (<i>glass</i>) | <input type="checkbox"/> 79 Other glass item: specify: _____ |
| <input type="checkbox"/> 64 Vacuum tube (<i>glass</i>) | |
| <input type="checkbox"/> 65 Test tube (<i>glass</i>) | |

12a Brand/Manufacturer of product: (eg ABC Medical Company) _____

12b Model:

- 98 Please specify: _____ 99 Unknown

13 If the item causing the injury was a needle or sharp medical device, was it a 'safety design' with a shielded, recessed, retractable, or blunted needle or blade?

- 1 Yes
 2 No
 3 Unknown

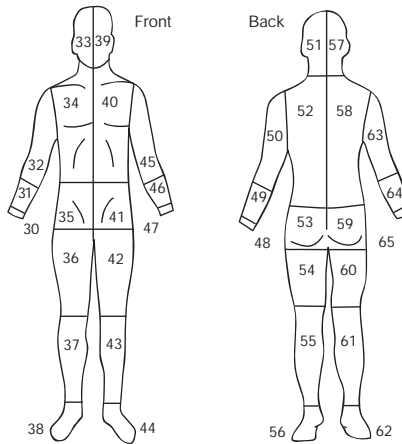
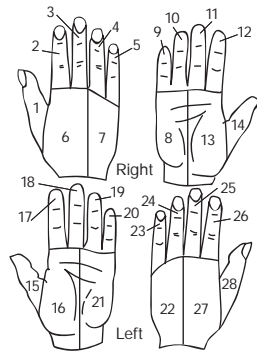
13a Was the protective mechanism activated?

- 1 Yes, fully 3 No
 2 Yes, partially

13b Did exposure incident happen?

- 1 Before activation 3 After activation
 2 During activation

14 Mark the location of the injury:



15 How deep was the injury?

- 1 Superficial (little or no bleeding)
- 2 Moderate (skin punctured, some bleeding)
- 3 Severe (deep stick/cut, or profuse bleeding)

16 If injury was to the hand, did the sharp item penetrate?

- 1 Single pair of gloves
- 2 Double pair of gloves
- 3 No gloves

17 Dominant hand of the injured worker:

- 1 Right-handed
- 2 Left-handed

18 Describe the circumstances leading to this injury (please note if a device malfunction was involved):

19 For injured healthcare worker: If the sharp had no integral safety feature, do you have an opinion that such a feature could have prevented the injury?

- 1 Yes
- 2 No
- 3 Unknown

Describe:

20 For injured healthcare worker: Do you have an opinion that any other engineering control, or administrative or work practice could have prevented the injury?

- 1 Yes
- 2 No
- 3 Unknown

Describe:

Cost:

Lab charges (HBV, HCV, HIV, other tests)

_____ Healthcare worker

_____ Source

Treatment prophylaxis (HBIG, Hepatitis vaccines, tetanus, other)

_____ Healthcare worker

_____ Source

Service charges (Emergency Department, Employee Health, other)

_____ **Other costs (Worker's Compensation, surgery, other)**

_____ **TOTAL (round to nearest dollar)**

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