

Chapter 9 Surveillance, auditing and notification

9.1 Role of surveillance

Each year, numerous patients in Australia experience a complication in the form of a hospital associated infection (Lydeamore et al., 2022). 'A hospital acquired complication' (HAC) refers to a complication that occurs during a hospital stay and for which clinical risk mitigation strategies may reduce (but not necessarily eliminate) the risk of that complication occurring' ([ACSQH](#)).

In 2012 the Independent Health and Aged Care Pricing Authority (IHACPA) and the Australian Commission on Safety and Quality in Health Care (ACSQHC) established a joint working party and developed a national list of 16 HACs. The HACs list offers a set of agreed, high-priority complications which clinicians, managers and others can work together to address and improve patient care. For the full list of HACs refer to the ACSQHC [Hospital-acquired complications \(HACs\)](#).

Health care associated infections that are included in HACS are the following:

- Urinary tract infection (UTI)
- Surgical site infection (SSI)
- Pneumonia
- Blood stream infection (BSI)
- Central and peripheral line associated blood stream infection
- Multi-drug resistant organism
- Infection associated with prosthetics/implantable devices
- Gastrointestinal infection.

Health Organisations record primary and secondary diagnoses and complications routinely for every admission after discharge. Analysis of this "coded data" provides health services with information about the occurrence of complications to identify potential areas for safety and quality improvement ([ACSQHC](#)). For more information refer to [ACSQHC Hospital-Acquired Complications \(HACs\) List – Specifications](#).

Healthcare associated infection (HAI) surveillance programs enable Health Organisations to identify complications, investigate, monitor the outcomes of current practice and provide timely feedback to clinicians to ensure practice improvement and better patient outcomes. Surveillance is a key aspect in detecting disease, triggers a response and potentially prevents clusters and outbreaks from occurring.

Surveillance is an essential component of any infection prevention and control program and patient safety initiative. Surveillance involves the systematic collection, collation, analysis, interpretation and dissemination of data for use in the planning, implementation and evaluation of the provision of healthcare as well as safety and quality of patient care (German et al., 2001). All NSW Health service organisations need to meet the National Safety and Quality Health Service Standards in particular, Standard 3 action 3.05 Surveillance.

The primary purpose of surveillance in infection prevention and control is to monitor for sentinel events, HAIs and report to the relevant stakeholders including infection prevention and control service. Significant incidents such as outbreaks or clusters of HAIs, multi-drug resistant organisms (MROs) and/or non-MROs should be escalated to the Health Organisation or local health districts (LHDs) management as soon as possible to determine ongoing action. Refer to NSW Health guideline [Triggers for Escalation Following Detection of Infection Outbreaks or Clusters](#).

Process indicators

Process indicators are most commonly actions that should be carried out to reduce the probability of patients contracting infections in healthcare organisations.

Process indicators review practices directly related to patient care. For example, hand hygiene auditing to identify whether the practices comply with facility infection prevention and control procedures and policies.

Outcome indicators

The outcome indicators are mostly infections. The process consists of collecting/documenting data on individual cases and comparing the collected data to standard written definitions (criteria) of infections.

When the Health Organisation collects and submits any surveillance data, a suitably qualified or experienced health worker who can reliably interpret, evaluate and report recommendations to a peak committee is needed. In addition to mandatory indicators, other clinical indicators may be used locally. When establishing additional clinical indicators consider:

- Prevalence – has there been an unexpected or unexplained increase in cases?
- Setting – will all departments be surveyed or only specific ones?
- Capacity to undertake surveillance – are there staff and systems available to undertake this surveillance?
- Availability of data – is there sufficient data available to support this?
- Potential for change – is there potential for an intervention to be introduced and supported locally to improve HAI rates?
- Relevance to the risk – does the risk warrant measuring and reporting the indicator?
- Feedback and reporting lines – who is this new information going to be reported to?

When conducting HAI surveillance:

- use standardised definitions and data collection tool where available
- undertake regular data collection in line with reporting requirements
- regularly review surveillance activities to ensure objectives and outcomes of surveillance remain relevant to safety and quality practices.

It is imperative to only collect data that is useful and directly related to the prevention and control of HAIs. If there is no useful outcome for data collection (such as intervention is not possible, and/or improvement cannot be achieved) then surveillance objectives should be re-assessed.

9.2 Clinical indicators

The NSW HAI Clinical Indicator Manual outlines the minimum level of mandatory HAI surveillance that all NSW Health Organisations are to undertake. For more information refer to [CEC Healthcare Associated Infection \(HAI\) Clinical Indicator Manual](#).

Health Organisations should have systems in place to ensure health workers whose role is to conduct mandatory surveillance can receive all reports, documents and results that are necessary to conduct HAI surveillance. This includes microbiology reports, access to medical records and theatre management systems.

The CEC's Quality Improvement Data System ([QIDS](#)) provides support to local health districts and speciality health networks (LHD/SHNs) with processing data and sharing information to assist with patient safety and quality improvement activities. It has reporting and charting capacity for business intelligence, and for management of hospital complications including infections, falls, pressure injuries, venous thromboembolism and medications. QIDS is intended as a single point of access for

clinicians and managers to view incident and hospital coded data as well as provide access to tools and resources fundamental to improvement work. The system facilitates collaborative decision making allowing LHD/SHNs to manage and organise their own permissions and information sharing with clinicians and managers.

Quality Audit Reporting System ([QARS](#)) is another electronic tool developed by the CEC in collaboration with all other organisations in NSW Health, including LHD/SHNs. QARS is used for conducting clinical audits, patient surveys, and other data collection processes in a more efficient and effective way for NSW Health Organisations.

As part of a statewide transformation, NSW Health is implementing the Single Digital Patient Record (SDPR), a secure and integrated electronic health record system that will unify patient information across all public hospitals and health services.

The SDPR will enhance clinical workflows by providing real-time access to comprehensive patient data, including test results, treatment history, and appointments. Critically, the SDPR will support improved surveillance and management of HAIs by offering advanced tools for documentation, analysis, and reporting. This capability will strengthen infection prevention and control practices, enable timely interventions, and support data-driven decision-making, ultimately contributing to safer, more connected care across the NSW Health system.

9.3 Reporting of notifiable disease

Medical practitioners and hospital chief executives are required to report notifiable incidents/conditions to their local PHUs based on reasonable clinical suspicion. Timelines for reporting vary dependent on urgency and clinical risk. Information for each notifiable disease and condition is available from the [NSW Health Disease notification](#).

9.4 Investigation of outbreaks or clusters

The main goal of investigating an increased or unexpected incidence of transmission, outbreak or a cluster is to prevent further transmission, prevent additional cases or incidence and to identify contributing factors. This allows for the development and implementation of measures to contain the current increased incidence and prevent future outbreaks or clusters. Refer to NSW Health [Triggers for Escalation Following Detection of Infection Outbreaks or Clusters](#) for more information. For more information refer to Chapter 8 Outbreak and cluster management.

The following table contains trigger points which may assist when investigating an infection or a cluster.

Table 44 Points of consideration for investigation of outbreaks or clusters

Consideration	Risk assessment
The point you consider an investigation?	- As soon as the rate increases. - A death caused by an HAI (review the cause of death). - Based on the local prevalence and significance of the microorganism when there are 2 or more cases above the baseline (some microorganisms – one case may be of significance). - When there is a sustained increase in a particular infection.
Investigation method	IMS+ or relevant system for case reviews.

	• Morbidity and mortality (M&M) for case reviews. • Root cause analysis (RCA), or the type of review as per the Serious adverse event review (SAER). • Ensure an infectious diseases and infection prevention and control person is part of the team.
Immediate actions to be taken	• Establish a case definition. • Determine who collects the data – consistency. • Treat like an outbreak and use same methodology (refer to Chapter 8 Outbreak and cluster management).
Investigation plan	• Lookback process with other surgical site infections (SSIs). • Review of microbiology reports. • Develop a checklist to assist with the lookback and investigation. • Detail where, when, who, what, how with a timeline. • Full review of cases within the defined period. • Determine who will be part of the investigation team, for example, infection prevention and control, operating theatre, surgical ward, medical staff, clinical governance unit (CGU) or patient safety, microbiology and/or infectious diseases. • Determine what you will review and perform risk assessments on for the investigation. • Determine the type of education and training required. • Determine how you will check for other linked incidents/adverse events.
Pre-operative assessment	• Review of MRO screening practices. • Pre-operative care, for example, chronic wounds. • Admission timeframes from pre-operative assessment to admission for surgery, number performed, patient education, specific specialty group, MRSA/MSSA decolonisation. • Patient factors. • Review of patient risk factors, for example, obesity, diabetes, nutrition, smoking, staph aureus carriage/colonisation.
Surgical or anaesthetic procedure	• Surgical teams – is there a common theme person/group. • Common operating theatre room. • Check changes in practice within operating theatres, for example, draining method or type, new equipment, performing skin prep before scrubbing. • Check surgery type, for example, elective versus emergency.

	• Compliance with scrubbing, gowning and gloving. • Review the existing pre-op antiseptic (type and how it is applied) and if any changes have been made. • Review antisepsis. • Review aseptic technique competency and audit compliance. • Review type of wound closure method and dressing used. • Check antimicrobial prophylaxis, time, dose. • Review workflow within operating theatre during surgical procedures. Observe any changes to operating theatre equipment or patient beds.
Environment	• Results of environmental cleaning audits. • Any changes to the environmental cleaning, for example, usual cleaner on leave. • Check practices within sterilization department, for example, changes to the procedure, equipment used or changes in chemicals, changes to staffing. • Water sample testing (automated flexible endoscope reprocessor, cooling towers, and so forth).
Workforce	• Staffing and skill mix in operating theatre. • Review of governance structure. • Any changes to management or education programs within the peri-operative setting.
Inpatient ward/unit	• Perform a ward round. • Observe standard precautions including hand hygiene, review compliance reports and use. • Environmental cleaning audits results. • Look at other process measures, for example, surgical prophylaxis, wound care. • Review all audit and risk assessment outcomes/results. • Review other services that are involved in the care/treatment of surgical patients, for example, rehabilitation. • Education on wound management, aseptic technique, hand hygiene. • Review documentation on wound, indwelling devices management and any patient education care and management of these devices/wound.

Evaluation, response and escalation plan	• Evaluate all the known gaps and check progress on actions. • Escalate data to all key stakeholders. • Monitor data trend ○ Benchmark with other sites ○ Set measurable goals • Determine what audits need to have continuous monitoring (the timeframes for these may be changed as HAIs reduce). • Determine if an independent review is to be undertaken. • Present investigation and outcomes as a case study – what were the learnings. • Develop a regular feedback mechanism, for example, monthly 1 page summary that includes action plan achievements, surveillance data. • Continue to have a visual presence in the clinical areas, for example, operating theatre, surgical wards. • Provide education, feedback and resources to clinicians as appropriate. • Review the infection prevention and control meetings to determine whether the reports are tabled and trend results discussed. If reports are not tabled, then need to add as a standing agenda item. • Review the recommendations that are made from the investigation. Ensure that recommendations have a risk rating assigned to each one before they are submitted. • Review what risks were identified from the investigation and determine what high risks should be added to the facility risk register, for example, capability of relief for infection prevention and control professionals.
---	--

9.5 Surveillance in non-acute settings

The incidence of HAIs in non-acute settings should be regularly monitored. The type and scope of surveillance will be determined by the type of service being provided and the associated risk to the patient.

Monitoring should be specific to a significant organism, condition or process where HAIs pose an increased risk. Surveillance should be evidence-based, utilise clear definitions and, where possible, allow for benchmarking between similar Health Organisations.

Adaptations of standardised clinical indicators or locally developed clinical indicators should be reviewed by a suitably qualified health worker(s) with experience in data collection and analysis prior to implementing such programs.

Surveillance activities for community-based settings could include but are not limited to:

Oral health clinics

Infections identified following dental treatment. This can be recorded as a HAI register or through data entry record of an antibiotic script following a procedure.

Community-based settings

Infection rates associated with peripherally inserted intravenous cannulas, the management of intravascular access devices (IVADs) and urinary catheterisation.

Occupational exposure reporting

Collection and reporting of occupational exposures to blood and/or body substances are mandatory for all public facilities, including:

- Community, acute without surgery
- Community non-acute
- Aged care facilities
- Multi-purpose services
- Hospices.

9.6 Antimicrobial resistance surveillance methods

To meet the Australian National Safety and Quality Health Service Standards, Health Organisations are to monitor antimicrobial usage and resistance. A suggested means of monitoring antimicrobial resistance is through the development of an annual hospital-level cumulative antibiogram, which will provide information on likely antimicrobial susceptibilities for common microorganisms.

The Antimicrobial Use and Resistance in Australia (AURA) Surveillance System, coordinated by the Australian Commission on Safety and Quality in Health Care (noting AMR function is also incorporated as a function in scope for the Australian CDC with pending detail), provides essential information to develop and implement strategies to prevent and contain antimicrobial resistance (AMR) in human health and improve antimicrobial use across the acute and community healthcare settings.

The AURA Surveillance System coordinates data from a range of sources to provide a comprehensive and integrated picture of patterns and trends of AMR and antimicrobial use in human health across Australia. The AURA National Coordination Unit (NCU) is responsible for the conduct of the AURA Surveillance System. The cumulative hospital-level antibiogram should be used to inform local empirical antimicrobial recommendations and formulary management.

Antibiogram should be available to clinicians and groups who are responsible for local antimicrobial therapy guidelines. The Commission has published a [Specification for a Hospital Cumulative Antibiogram](#) which provides more information on the use of hospital cumulative antibiogram.

Monitoring antimicrobial resistance aligns with the Australian Government's [National Antimicrobial Resistance Strategy](#) which provides a framework to guide actions on preventing the development and spread of antimicrobial resistance. For more information refer to [Australia's National Antimicrobial Resistance Strategy – 2020 and beyond](#).

For smaller Health Organisations where a hospital-level cumulative antibiogram may not be feasible or appropriate, antimicrobial resistance may be monitored through review of MRO data in liaison with the microbiology service provider. Also liaise with the committee that oversees antimicrobial stewardship in the organisation, with a specific focus on how local antimicrobial susceptibility patterns may impact empiric antibiotic therapy.

In community health settings, antimicrobial resistance may be monitored by reviewing infection rates associated with insertion of medical devices, checking whether these infections are due to MROs, and conducting targeted surveillance, where appropriate, for microorganisms, including MROs.

Antimicrobial Stewardship in Dental Practice was developed to strengthen AMS in dental services. For information on implementing an AMS program in a dental practice refer to [Antimicrobial Stewardship in Australian Health Care 2022](#).

9.7 Auditing

9.7.1 Auditing principles

In the context of infection prevention and control, performance measures or auditing is a process aimed at measuring the quality-of-care Health Organisations provide against relevant standards to reduce clinical variation with specific infection prevention or control strategies. If Health Organisations fail to meet a set of agreed standards or benchmarks, the performance measure will assist Health Organisations and infection prevention and control professionals to understand the factors causing non-compliance and enable priorities to be set and make improvements.

Establishing, monitoring, and reporting performance can enhance credibility by demonstrating the extent to which we are meeting our goals and providing value to the patient safety measures. Using a systematic and objective approach to assess the effectiveness of and/or compliance with specific infection prevention or control strategy, an audit may be conducted to yield quantitative or qualitative data, or both.

Infection prevention and control performance measures or audit should focus on a specific topic, be repeatable and preferably involve the use of a standardised tool if benchmarking is required (Bryce et al., 2007). Performance measures/audits therefore should be brief and easy for the auditor to complete and understand. Following the audit, an action plan should be formulated to address any areas which do not meet the required practice. The action plan should be shared with the overseeing Infection prevention and control Committee (or equivalent committee) and direct line management.

Performance measures in infection prevention and control can be used to identify specific practices and behaviours against standards or policies, with the purpose of marking compliance or areas for improvement ([Australian Guidelines for the Prevention and Control of Infection in Healthcare](#)). Performance measures can be done at the point-of-care, through the review of healthcare records, or both.

Examples of point-of-care audit could be to measure compliance with policies or procedures for:

- post-insertion peripheral cannula management
- aseptic technique
- standard or transmission-based precautions
- fingernail and/or hand/wrist jewellery of the health worker.

Examples of audits that involve a review of healthcare records may include:

- correct documentation for insertion or removal of intravascular access devices (and/or proceduralist identification)
- accurate documented dates/procedure of invasive device insertion or removal
- screening swabs on admission/discharge (for example, MRO, wound swabs)
- health worker uptake of immunisation.

Infection prevention and control performance measures can identify areas for improvement and areas of exemplary practice in relation to safety and quality. In addition, an audit provides a level of

assurance around the compliance with standards and policy requirements developed by NSW Ministry of Health and supported by the [NSQHS – National Standards](#) (specifically Standard 3). An audit should complement a range of infection prevention and control activities which aim to improve or provide assurance on the safety and quality of patient care.

Performance measures should focus on the Health Organisation's governance processes for safety and quality and not on individual performance. Infection prevention and control auditing and frequency should be based on a risk management framework which aims to evaluate the systems and processes in place to control HAI risks to patients. Outcomes of audits can be evaluated through a combination of self-assessment and/or independent verification processes to assess improved patient care.

9.7.2 Auditing for the National Hand Hygiene Initiative

In alignment with NSQHS – National Standards version 2, NSW Health Organisations must regularly audit the hand hygiene compliance of its workforce.

To do this, NSW Health Organisations should use a method consistent with the National Hand Hygiene Initiative (NHHI).

This approach allows comparison of:

- hand hygiene compliance within healthcare facilities and between professional groups at a facility level
- comparison of hand hygiene compliance between facilities and local health districts and specialty health networks at a state level.

NSW Health Organisations should refer to the Australian Commission's [National Hand Hygiene Initiative\(NHHI\)](#) for further advice on the data collection process, clinical area selection and number of moments required for a facility, based on acute inpatient bed numbers.

Hand hygiene compliance data from Health Organisations is added to the national database once validated by regional and state jurisdictional leads.

Hand hygiene compliance data is also published on websites such as [QIDS](#) where a Health Organisation's aggregated hand hygiene compliance rate will be compared to the national interim benchmark.

Results from hand hygiene auditing should be discussed in a relevant and timely fashion. Therefore, it is imperative that a Health Organisation's hand hygiene compliance report is generated locally and received by everyone, from the senior executive team through to the health workers from where the data was collected.

The concept of frontline ownership of hand hygiene data is emerging as an important enabler of hand hygiene culture sustainability. It follows that clinical areas and their management are responsible for their own hand hygiene compliance results and as such, should engage in strategies to improve and invigorate their ward or departments hand hygiene compliance.

Public display of ward and facility hand hygiene compliance results can act as a visual cue for clinical practice improvement and reinforce consumer awareness that hand hygiene is everyone's core business.

Health Organisations may wish to track their progress in hand hygiene resources, promotion, activities, plan their actions, aim for improvement and sustainability using the [World Health Organization Hand Hygiene Self-Assessment Framework](#). This self-assessment framework is a tool to obtain a situation analysis of hand hygiene promotion and practices within an individual healthcare facility, according to a set of indicators. This framework also acts as a diagnostic tool,

identifying key issues requiring attention and improvement. Repeated use of this framework may allow documentation on hand hygiene compliance progress with time.

The NHHI recognise that the standard '5 Moments for Hand Hygiene' auditing model is not suitable for the operating theatre due to its sterile environment. Instead, surgical hand hygiene techniques must be practiced ensuring infection prevention and control ([ACSQHC, NHHI direct observational auditing of hand hygiene compliance user guide 2024](#)).

In perioperative areas such as the anaesthetic bay and recovery, the 5 Moments framework remains applicable and should be used for auditing hand hygiene compliance through direct observation.

The NHHI provides a range of auditing tools and resources that organisations can use or adapt to suit local contexts, particularly where direct observational auditing is impractical.

Health Organisations are also encouraged to implement local quality improvement initiatives within theatre settings to raise awareness and promote hand hygiene best practices among perioperative staff, complementing national infection prevention and control strategies. For more information refer to [ACSQHC National Hand Hygiene Initiative Implementation Guide](#).

9.8 Incident management and notification

NSW Health Organisations are to respond, manage and escalate outbreaks or clusters of communicable diseases, HAIs, MROs and/or non-MROs to minimise local and state-level health impacts. During situations of increased infection prevention and control risk, it is important to be able to escalate and provide a proportionate response with specific infection prevention and control precautions.

For more information refer to the NSW Health guidelines [Triggers for escalation following detection of infection outbreaks or clusters](#).

9.8.1 Clinical incident

Clinical incidents or concerns may include healthcare associated infections, blood or blood products; operating theatre products, devices and equipment; information technology systems; imaging; privacy breaches; and cybersecurity ([PD2023_003 Lookback](#)).

An infection prevention and control clinical incident is the transmission or risk of transmission of microorganisms or infectious disease to an individual or group of patients and/or an individual or group of health workers in the healthcare setting. A clinical incident involves a breach in infection prevention and control practices which may cause:

- actual or potentially contaminated instruments/equipment from inadequate disinfection or sterilizing processes that could lead to transmission of an infectious disease
- provider-to-patient exposure from infected health workers who perform exposure prone procedures (EPPs) on patients
- any acute illnesses due to blood borne pathogens that are likely to have been transmitted in a Health Organisation
- patient-to-patient transmission of an infectious disease or MRO
- transmission of microorganisms from the environment or a health worker to a patient.

Health Organisations are responsible for identifying clinical incidents and for taking immediate action to ensure the safety of patients, visitors and health workers. For more information refer to the NSW Health Policy Directive on [Incident Management](#).

9.9 Lookback

Lookback is a process that is triggered when a notification of a clinical incident or concern from any source leads to the need for the notification, investigation and the management of a group of commonly affected patients.

Where there is a significant failure of infection prevention and control processes, an assessment should be made as to whether patients may be at risk of cross infection, and if so, whether those patients should be notified of the incident and actions to be taken.

Assessment is required on a case-by-case basis. Where a patient notification exercise is thought necessary, a risk-based approach should be considered, such as those people who are at highest risk of infection should be assessed first.

Lookback involves:

- forming a local committee including infectious diseases, public health, infection prevention and control, sterilizing services, clinical governance, clinical risk manager and other participants as indicated, to investigate the incident and prepare a risk assessment
- identifying, tracing, communicating and providing appropriate ongoing advice to, and/or management of the group of patients affected
- reporting the risk assessment and incident to the CEC, the NSW Ministry of Health, health service or LHD management and formation of a communication strategy
- notification to the wider public, if applicable
- evaluation or review of the Lookback process.

For more information refer to the NSW Health Policy Directive on [Lookback](#).

9.10 Open disclosure following a patient safety incident

Open disclosure is a process for ensuring that open, honest, empathic and timely discussions occur between patients and/or their support person(s) and health workers following a patient safety incident. Health Organisations are required to implement open disclosure as part of the [Clinical Governance Standard](#) in the National Safety and Quality Health Service (NSQHS) Standards.

The [Open Disclosure policy directive](#) sets out the minimum requirements for a consistent open disclosure process within NSW Health Organisations, to ensure that patients and their support person(s) and health service staff are:

- communicating effectively about a patient safety incident
- provided with an opportunity to recount their experiences, concerns and feelings and are listened to
- treated respectfully and provided with ongoing care and support for as long as is required.

Open disclosure is:

- a patient's and consumer's right
- a core professional requirement of ethical practice and an institutional obligation
- a normal part of an episode of care should the unexpected occur
- a critical element of clinical communications
- an attribute of high-quality health services and an important part of health care quality improvement.

For more information refer to NSW Health Policy Directive on [Open Disclosure](#).