AUSTRALIAN COMMISSION
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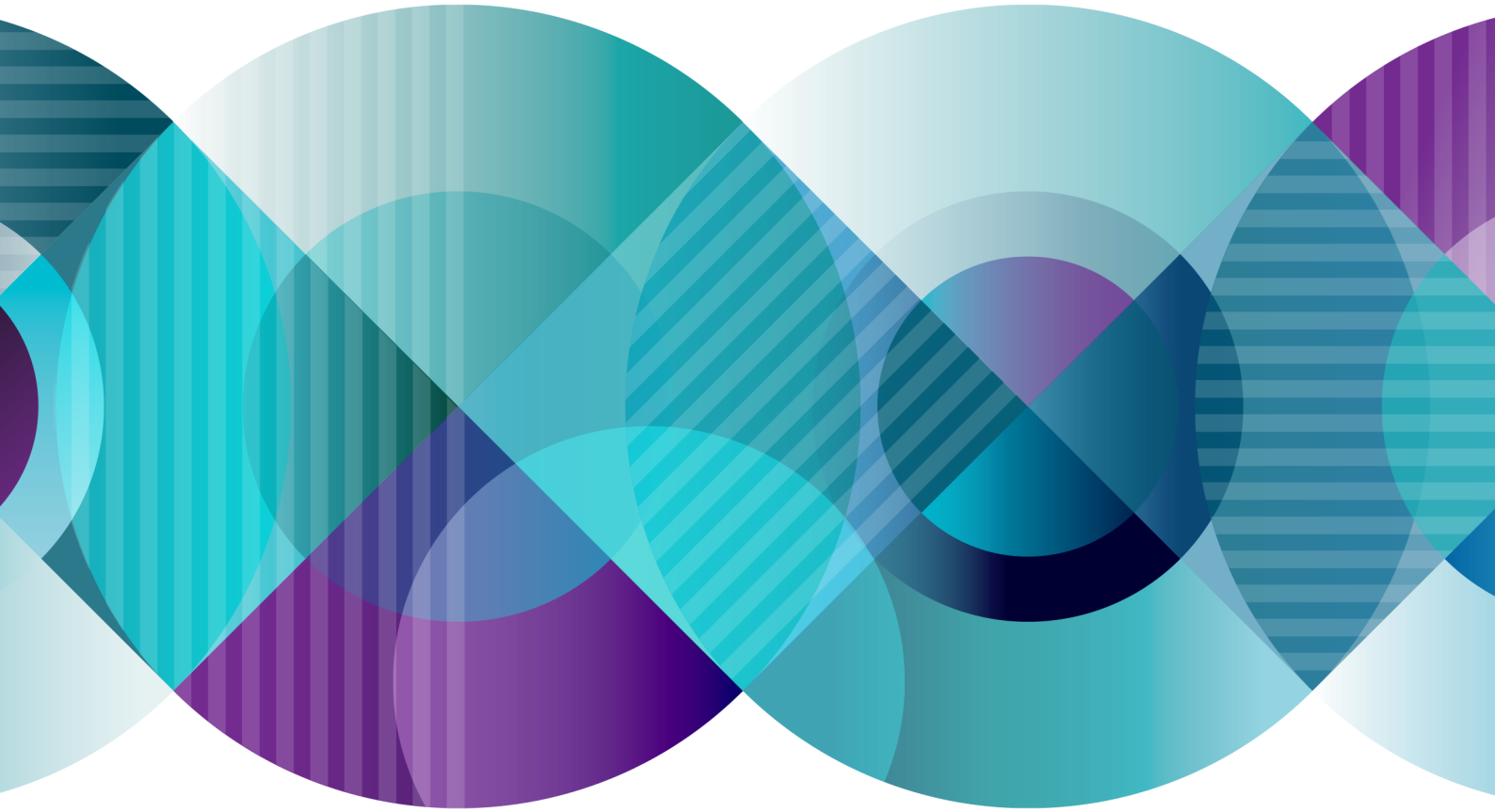

The Aged Care Infection Prevention and Control Guide

A supplementary resource for the **Australian Guidelines for the Prevention and Control of Infection in Healthcare** for aged care settings

Chapter 9

AUSTRALIAN COMMISSION ON SAFETY AND QUALITY IN HEALTH CARE

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Chapter 9: Monitoring and continuous quality improvement

Key points

- **Monitoring infections (also known as infection surveillance) looks at how and why infections are spread in an aged care organisation or service. It helps aged care organisations identify issues that may be leading to infections.**
- **Monitoring infections should always be linked to a prevention strategy or a continuous quality improvement activity to drive change.**
- **A variety of methods may be used to monitor infections activities related to infection prevention and control (IPC).**
- **Monitoring of infections and IPC activities should be targeted to the needs and the context of the service.**
- **The elements of data collection include:**
    - **defining the activity**
    - **collecting the data**
    - **reviewing the data**
    - **communicating the results of the data (which should be used to drive change).**
- **Continuous quality improvement aims to make a difference to the health and wellbeing of older people by improving the safety, effectiveness, and experience of care through application of a systematic approach to review of outcomes. IPC involves both responding to infections when they occur and delivering comprehensive care to prevent infections.**

Monitoring infections

Monitoring infections refers to the ongoing collection, analysis and evaluation of infection-related data, which is done to plan and improve practice. It is also known as infection surveillance.

Monitoring is used to look at how and why infections are spread in an aged care organisation or service. Monitoring can focus on specific infections (such as the number of older people with influenza) or IPC practices (such as cleaning practices). Collecting and examining these data can help aged care organisations to understand:

- Whether there may be a problem relating to the spread of infections
- The potential size of the problem
- Why the problem is happening.

The way in which monitoring is undertaken will depend on the type of care and service provided, the number of older people receiving care and the environment in which care is provided. Data may be collected on different types of infections such as acute respiratory infections, skin or wound infections, gastrointestinal infections, urinary tract infections (UTIs) and device-associated infections, or on IPC practices such as workforce vaccination and compliance with standard precautions such as cleaning or aseptic technique.

Once data has been collected and analysed, strategies and interventions can be implemented to reduce the rate of infections, or noncompliance with policies and recommended IPC practices. The ongoing use of this information to improve the quality of care is referred to in this Guide as continuous quality improvement (also known as continuous improvement or quality improvement), which is discussed later in this chapter. Monitoring infections and IPC practices will not change the rate or spread of infections unless the monitoring is linked to continuous quality improvement.

Targeted monitoring

Monitoring should be targeted according to the needs and context of the service so that the data collected are meaningful and can be used to improve practice. Selecting how infections or IPC practices will be monitored should be linked to an organisation's IPC system so that the data collected are useful and help to monitor local IPC-related risks. The IPC system for the organisation should involve documenting the monitoring of infections and IPC-related activities, along with the continuous quality improvement strategies that have been developed using the monitoring data.

The infections and IPC-related activities that are monitored should be reviewed regularly to ensure that the organisation is responding to identified risks. Aged care organisations that conduct infection monitoring as part of their IPC system may focus on:

- Specific types of IPC activities (such as cleaning audits – refer to **Chapter 6**)
- Specific types of infections (such as influenza and COVID-19)
- Specific sites of infection (such as device-associated infections and wound infections)
- Specific organisms or types of organisms (such as *Clostridioides difficile*).

> It is not possible for an aged care organisation to monitor every infection or activity that might cause an infection. Monitoring should be targeted according to the needs, identified problems and the context of the service.

The following points should be considered as part of an organisation's plan for monitoring infections:

- What is the purpose of collecting the information?
- For how long will the information need to be collected?
- What information needs to be collected?
- What resources are needed (and available)? Does the organisation have existing arrangements or systems for collecting the data, such as an electronic resident record from which the data could be extracted?
- Who should be included?
- What are the risk factors that must be considered when reviewing the data to ensure the process is meaningful and considers different variables?
- How will the service use the information to improve practice?

Types of monitoring

There are a variety of approaches that can be used to collect information about an infection or IPC activity. These include a focus on the **length of time** for which the information is collected (for example, continuous monitoring), the **type** of information that is collected (for example, process or outcome monitoring), and **when** the information is collected (for example, prospective or retrospective monitoring). Two different methods may be used – for example, an organisation may use both outcome and retrospective methods to collect information (such as collecting data on the number of confirmed COVID-19 infections in older people between 1 January 2021 and 1 January 2022). **Table 26** outlines some of the methods that can be used to monitor infections and IPC-related activities.

Table 26: Methods for monitoring infections

Monitoring method	Advantage	Disadvantage
Continuous monitoring collects data on a specific type of activity or infection for a specific group of people. This is appropriate if there is a need for ongoing monitoring.	Provides a historical and real-time baseline rate (benchmarks) that new data can be compared against to identify changes in the spread of an infection.	Can be resource intensive. Produces a large amount of information that may be complex to manage and interpret.
Targeted monitoring focuses on a specific aspect of care that may be known to contribute to an elevated level of infection risk. For example, focusing on specific locations or areas in a building or service or during specific events, such as during the influenza season.	Can be used for a short period. Provides very specific information. Can be initiated in response to a change in infection rates or in response to an intervention.	Information is limited to the specific process, outcome or setting that is being monitored.
Outcome monitoring monitors an 'outcome', such as the number of actual infections of a particular type that occur in a specific group of people. When monitoring outcomes, it is important to define what outcome is being monitored.	Can be used to discover changes in the spread of diseases. Can often predict outcomes – for example, if an organisation has poor cleaning practices, it is possible that more older people will develop infections from contact with contaminated surfaces.	Data can only be collected after the outcome has occurred. Does not identify the processes that may have contributed to the infection. Relies on accuracy of data collected at the time.
Process monitoring focuses on practices (processes) that are used to prevent infections (outcome) to identify whether they are effective. Process monitoring involves auditing specific IPC practices against a standard, guideline or policy to ensure the practice is being	Easy to implement by using auditing tools to monitor practices. Findings can be benchmarked against specific indicators. Can be used to monitor practical activities, such as hand hygiene, PPE use,	Can be resource intensive. Cannot identify whether a poor process caused an infection.

Monitoring method	Advantage	Disadvantage
carried out correctly. Some specific practices have a large impact on the spread of infections, such as hand hygiene and uptake of vaccinations.	compliance with aseptic technique.	

IPC = infection prevention and control; PPE = personal protective equipment

Auditing

Auditing is a way of collecting data that helps to measure performance. It is used to measure the quality of care provided against a specific standard, policy or procedure to support improvement of adherence to IPC best practice. Audits can be used to understand the factors that contribute to noncompliance, so that improvement strategies can be implemented to support the continuous quality improvement of an IPC system. An audit can be conducted on a variety of IPC-related activities. Ideally, auditing should focus on a specific topic, be repeatable and, if possible, involve a standardised tool.

Audits can be done at the point of care or by reviewing medical records, or both. Examples of practices that could be monitored using a point-of-care audit to measure compliance with policies or procedures include:

- Aseptic technique
- Standard or transmission-based precautions
- Correct documentation for insertion or removal of invasive devices
- Uptake of vaccination by the workforce.

Conducting regular audits can provide a level of assurance about the organisation's compliance with the national standards. Following any audit, a plan for continuous quality improvement should be developed to deal with any areas that do not comply with best practice.

Practice point

Which data is the most meaningful to collect?

It is beneficial to collect outcome data and process data to assist with understanding factors that may have influenced the occurrence of an infection. For example, an organisation may choose to monitor influenza infections across a service (this is outcome data). If the organisation does not monitor IPC practices such as vaccination and use of standard and transmission-based precautions, it may be difficult to understand infection rates.

If an organisation monitors both influenza cases (outcome), mask wearing (process) and vaccination rates of staff and older people (process), it may identify a link between high infection rates and low adherence to vaccination or other IPC practices. This provides a starting point for continuous quality improvement projects.

Some organisations (such as home and community organisations) may choose to perform only process monitoring, because there may not be enough outcome data or the results may not be meaningful enough to assess practice.

Older people who live in the community have a variety of different services providing care; therefore, outcome data, such as infection rates, may not be indicative of the care provided by the aged care service. Alternatively, the community organisation could monitor hand hygiene product use to check whether aged care workers are performing correct hand hygiene practices when providing care for older people. Poor hand hygiene practices are a known factor in the spread of infections and can be a good indicator for process monitoring to check if IPC is being performed well.

Data processing

Data processing involves four main steps.

Step 1: Definitions

It is important to define the infection or activity that is being monitored so that those collecting the data know when and what information to collect. It may help to ask: Who is the population that is included? For example, ‘all older people in wing one of a residential aged care home’.

If the organisation wants the rate of UTIs monitored, how will workers collecting the information know when an older person has a UTI? For example, the organisation should outline whether a diagnosis needs to include a laboratory-confirmed infection (such as a positive urine culture), plus related symptoms. Developing definitions means that all workers are abiding by the same rules to collect data, meaning the data collected is internally comparable.

Many infection monitoring programs in aged care use definitions from the McGeer methodology. Using standardised definitions such as these allows organisations to compare their data with other aged care services. States and territories also have standardised monitoring definitions for infections of local significance.

The Aged Care Quality and Safety Commission’s To Dip or Not to Dip standardised audit tool provides a clinical definition for UTI diagnosis.

Step 2: Collecting the data

Data can be collected from areas of practice such as clinical observations, audits, surveys, incident management systems, interviews, and test and laboratory results. Some residential aged care homes may also use programs such as operating platforms or resident information systems, which include incident report data. When collecting data, it is important to ensure that the information is accurate, stored correctly and meets the monitoring definitions – this is known as data quality.

If data appear to be missing, never make them up! If data are missing, then consider improvements in documentation or the overall process, as the absence may not be related to the collection process itself. Recognising this can be valuable and an improvement in itself.

Sometimes data are incomplete and cannot be used. Review the process for data collection to see whether something was missed, or the collection process or definition requires improvement.

There are several different factors that can influence the quality of data, including whether the data are complete, consistent, accurate, reported on time, valid and relevant to the context.

High-quality data are obtained when these factors are considered and met. It is critical to ensure that monitoring data accurately reflect the true risk of infection in a specific setting or population. If high-quality data are not available or not used, the reporting based on the data will be inaccurate and may result in development of inappropriate or inadequate improvement strategies.

Aged care organisations should ensure that monitoring methods comply with legislative requirements for how data can be collected, stored and reported.

Practice point

Using incident management systems to monitor infections

Aged care organisations may choose to collect infection-related data by asking aged care workers to report suspected infections in an online incident management system.

Organisations can utilise these systems to monitor information relating to infections such as the type of suspected infection (skin, urinary or respiratory) and the symptoms identified that led the worker to suspect an infection was present (this may be clinical symptoms, pathology reports or antimicrobials taken). Some incident management systems can be programmed to use this data to identify whether the infection meets a specific definition, and others may need a person to run a report and review the data to determine whether the data meet the organisation's definition of a confirmed infection.

For example, an aged care worker may notice that an older person being cared for (with no urinary catheter) has developed a fever, acute urinary incontinence, and a change in behaviour. Once the older person is clinically reviewed and managed, the aged care worker can use the incident management system to report a suspected infection, recording the older person's details, the location, date and time, symptoms noted, and the actions taken into the system. Depending on the organisation's definition of a UTI, this may be counted as an unconfirmed infection or a confirmed infection.

Utilising this type of system can take away the burden of aged care workers needing to know the definition of each infection, while still ensuring that the organisation is monitoring the confirmed infections. It is critical that the definition for the infection is clear and consistent in the system and known by those analysing the data so that the quality of the data is maintained. Over time, this type of system can support organisations to monitor infection patterns or trends in specific locations or services.

Step 3: Analysing the data

Step 3.1: Data validation

Validation is a process that ensures collected data are accurate, classified correctly, fit for purpose and that there is minimal risk of bias. Data validation is an essential step in the analysis process.

Data validation identifies errors and anomalies in data. If data are not validated, IPC interventions based on the data will be misinformed. This may mean that inappropriate or ineffective strategies are used; there may be misallocation of finite resources; and there may be increased safety risk for older people and aged care workers.

Data validation involves checking that all the information collected for monitoring is accurate and complete. As a minimum, this process should include checking that:

- All the required data entry fields have been completed
- There are no duplicate data entries
- There are no errors from cutting and pasting practices
- All data fields are within the expected or acceptable value ranges
- There has been consistent use of monitoring definitions
- Any other events that may affect validity of the findings have been captured – for example, outbreaks of infections, or introduction of new equipment, processes or procedures.

Step 3.2 Data analysis

Analysis of data involves reviewing and presenting the data in a way that is useful to and can be understood by many people. Data analysis may include looking for trends or patterns that are meaningful to practice. Data analysis can be challenging. There are many software programs to help analyse data, to calculate percentages and to prepare graphs, charts, tables and infographics. For example, Microsoft Excel is widely available and is a useful tool to record, store and analyse data.

Considering risk when analysing the data is also important. Within any population, some people are at a higher risk of infection than others. For example, older people who have been admitted to hospital for surgery or another reason, who are immunocompromised may be more likely to acquire an infection. It is important to account for varying levels of infection risk within a population when analysing monitoring data. Failure to do so may result in missed opportunities to improve the safety of high-risk older people and aged care workers. It may also result in avoidable costs associated with unnecessary interventions when the risk of infection is low.

Step 4: Feedback and reporting

Providing timely and relevant feedback to aged care workers on IPC practices may have a positive effect on improving infection rates. Overall accountability for feedback and reporting is determined by an organisation's corporate and clinical governance arrangements.

Reporting infection monitoring data at team meetings provides an opportunity to discuss the effectiveness of existing continuous quality improvement initiatives. Aged care organisations should also ensure that the outcomes of infection monitoring are reported to older people and carers. Feedback received from older people and carers (including the use of visual tools) should be used in combination with feedback from the workforce (for example, patient safety culture measurements) to inform future continuous quality improvement activities to reduce the risk of infection.

Resources

Various national monitoring systems and resources that support IPC programs are available in Australia:

- Aged care organisations must abide by the National Aged Care Mandatory Quality Indicator Program, which is a form of national surveillance; however, this program does not directly monitor infections (Department of Health and Aged Care)
- The Communicable Diseases Network Australia coordinates national monitoring programs for communicable diseases in Australia (Department of Health and Aged Care)
- The National Notifiable Diseases Surveillance System includes data on nationally agreed notifiable diseases provided by state and territory public health authorities (Department of Health and Aged Care)
- The Antimicrobial Use and Resistance in Australia (AURA) surveillance system includes data from programs that monitor antimicrobial use and antimicrobial resistance in hospital and community settings, including aged care (ACSQHC)
- The Aged Care National Antimicrobial Prescribing Survey is a standardised audit tool that can be used by all residential and centre-based aged care services to monitor antimicrobial use.

Continuous quality improvement

Continuous quality improvement in aged care means improving the quality of care and services provided to older people, and focuses on changes that can be made that will reduce the risk of spreading infections. Continuous quality improvement interventions can improve the quality of care, protect aged care workers, reduce financial costs, promote environmental sustainability and improve the use of resources (see **Table 27**). Monitoring data can be used to measure what practices need to be improved and whether changes implemented to improve practice have worked. Continuous quality improvement should always be supported by valid data.

Data collection supports organisations to identify issues, to prioritise changes to fix those issues and to assess whether those changes have been successful:

- If an organisation monitors the number of acute respiratory infections, improvements can be implemented that lead to timely identification of cases, and infection control measures such as staff training about PPE
- If an organisation monitors rates of vaccination for influenza or COVID-19 in older people and staff, improvements can be implemented to lower the risk of outbreaks
- Continuous monitoring of antimicrobial prescribing using audits can identify use of antimicrobials that is not consistent with prescribing guidelines
- Monitoring UTIs in conjunction with an audit tool such as To Dip or Not to Dip can help identify overuse of antibiotics to treat UTIs. It can inform strategies to prevent UTIs and respond to asymptomatic bacteriuria.

Resources

- The Aged Care Quality and Safety Commission developed To Dip or Not to Dip, a continuous quality improvement activity that incorporates an evidence-based clinical pathway, which aims to improve the diagnosis and management of UTIs in older people living in residential and centre-based aged care homes.
- Developing written plans for continuous improvement (PCIs) is a requirement for aged care organisations and is a form of continuous quality improvement. PCIs categorise identified issues within an aged care service according to each Aged Care Quality Standard (Aged Care Quality and Safety Commission).
- The Department of Health and Aged Care Star Ratings helps providers to monitor, compare and improve the quality of aged care.

Table 27: Steps to developing a continuous quality improvement intervention

Steps	Explanation
Establish a team	Depending on the size of the organisation, the team may consist of one person, or a large group of people. If a team with more than one person is established, consider who is most appropriate to lead the program of work. Consider including workers from different areas (non-clinical and clinical staff), older people and carers who can provide a different perspective on what needs to be improved or how to go about the improvement.
Identify a problem by using existing data	When identifying a problem, it is important to consider existing data to confirm it is a true problem. Comparing existing data to new data helps assess whether the continuous quality improvement intervention made a difference. Continuous quality improvement interventions to reduce infection risks may include changes to current IPC or care practices, review of current programs or policies, additional education or training in IPC, or changes to equipment or processes.
Develop your intervention using the SMART framework	When designing a continuous quality improvement intervention, it is important to identify a goal, what needs to change and how the change will be measured. The SMART framework can help develop an intervention that is achievable and able to be measured: • **Specific:** Clearly define the goal and the proposed outcome of the continuous quality improvement program • **Measurable:** Identify what will be measured, and how will it be measured • **Achievable:** Determine whether there is access to the resources, skills and knowledge to deliver this change • **Realistic:** Determine if this change can be made within the current context and resourcing of the organisation • **Time-bound:** Set a deadline for each milestone in the program.

Steps	Explanation
Implement, review and continuous quality improvement	Once an intervention has been implemented, the intervention should be routinely monitored to see if it has had an impact on reducing the risk or incidence of infection. An effective way to monitor an intervention is to use the plan–do–see–act method: • **Plan:** Define the continuous quality improvement intervention using the SMART framework • **Do:** Roll out the continuous quality improvement intervention • **See:** Use new and existing monitoring to track the effect of the intervention • **Act:** Based on the monitoring results, identify further aspects for intervention or change.

For further information, refer to the *Australian Guidelines for the Prevention and Control of Infection in Healthcare*; specifically, for:

- **Outbreak investigation and management, refer to Section 3.4.2**
- **Infection control strategies to contain an outbreak, refer to Section 3.4.2.1**
- **Outbreak surveillance, refer to Section 4.4.4.**

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