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Technical supplement 2023

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NAPS National Antimicrobial Prescribing Survey

NCAS National Centre for Antimicrobial Stewardship

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Support at NAPS

NAPS end users requiring support are able to contact the NAPS Support Team via email and phone during office hours. The team is also available to provide additional clinical advice and online training for facilities without infectious diseases expertise.

For more information and support regarding the NAPS, contact the Support Team via **support@naps.org.au**

Abbreviations

Abbreviation	Term
Aged Care NAPS	Aged Care National Antimicrobial Prescribing Survey
AMS	Antimicrobial stewardship
AURA	Antimicrobial Use and Resistance in Australia
Hospital NAPS	Hospital National Antimicrobial Prescribing Survey
IPC	Infection prevention and control
NAPS	National Antimicrobial Prescribing Survey
RACH	Residential aged care home
Surgical NAPS	Surgical National Antimicrobial Prescribing Survey
VICNISS	Victorian Healthcare Associated Infection Surveillance System

Glossary

Term	Definition
Antimicrobial use prevalence	The proportion of residents/patients present on the survey day who were prescribed at least one antimicrobial (current/active order on the survey day).
Appropriate prescribing	A prescription that is deemed **appropriate** (either 'optimal' or 'adequate') by the respective NAPS appropriateness definitions: see 2.7 Hospital NAPS appropriateness definitions and 3.6 Surgical NAPS appropriateness definitions.
Directed therapy	Treatment or prophylaxis guided by microbiology culture and susceptibility results.
Empirical therapy	Empirical use of antimicrobials to treat a suspected infection when the causative organism has not been identified. It is guided by the clinical presentation.
Existing antimicrobial therapy	Any antimicrobial prescribed for treatment or prophylaxis in the 24 hours prior (72 hours if on dialysis) to the procedure; these are not analysed individually but can be considered when assessing whether procedural antimicrobials were appropriately given or not given.
Inappropriate prescribing	A prescription that is deemed **inappropriate** (either 'suboptimal' or 'inadequate') by the respective NAPS appropriateness definitions: see 2.7 Hospital NAPS appropriateness definitions and 3.6 Surgical NAPS appropriateness definitions.
Initial dose	The first dose of an antimicrobial administered either immediately prior to or during the surgical procedure for the purpose of prophylaxis.
Local guidelines	Locally endorsed guidelines developed to provide guidance on antimicrobial prescribing. These guidelines must be readily available on wards or on the hospital intranet; exceptions include paediatric and neonatal guidelines from an Australian children's hospital.
McGeer Criteria[2]	Internationally recognised infection surveillance definitions for long-term care facilities. The definitions are largely based on signs and symptoms localising to a specific body system (gastrointestinal tract, respiratory tract, skin/soft tissue/mucosal, systemic, and urinary tract). For some definitions, additional microbiological or radiological evidence and use of devices (e.g. urinary catheters) were also assessed.
Multi-Purpose Services	The Multi-Purpose Services Program provides integrated health and aged care services to rural and remote communities in areas that cannot support standalone aged care and hospitals.

Term	Definition
Overall appropriateness	The overall appropriateness of prescribing for a surgical episode was determined by taking the lowest ranked assessment of the individual doses/prescription, including all episodes where antimicrobials were prescribed as well as those where none were prescribed - for example, procedural assessment was deemed appropriate and post-procedural was deemed inappropriate; the overall appropriateness is then inappropriate.
Peer group	Facilities of a similar type and complexity, as defined by the Australian Institute of Health and Welfare (AIHW). See the AIHW website for more information on each of the peer groups.[3, 10] A peer group supports comparisons that reflect the purpose, resources and role of each hospital and is defined by the type and nature of the services provided.
Post-procedural prescription	An antimicrobial prescribed following, but directly relating to, the procedure; each prescription of the antimicrobial is recorded, including any inpatient or discharge scripts.
Procedural antimicrobial	An antimicrobial administered either immediately prior to or during the surgical procedure for the purpose of prophylaxis; each initial and repeat dose of the antimicrobial administered is recorded individually.
Procedure	The procedure(s) performed during the surgical episode, as documented on the procedure form or in the medical record; any procedure can be included - for example, colonoscopies, radiological procedures.
Procedure group	The specialty group under which each procedure is classed for reporting: see 3.3 Data analysis - Surgical procedure groups
Residential Aged Care Homes	For the purpose of NAPS, Residential Aged Care Homes (RACH) encompasses all mainstream aged care homes and Multi-Purpose Services.
Residential aged-care associated suspected infection	An infection that developed in an aged care resident at least 48 hours post (re-) admission.
Remoteness classification[4]	The Australian Standard Geographical Classification – Remoteness Area assigns a remoteness classification to a location based on its physical road distance to the nearest urban centre.
Repeat dose	Any subsequent dose of an antimicrobial administered during the surgical procedure for the purpose of prophylaxis.
Surgical episode	Any individual procedure or set of procedures performed together during one session and the subsequent post-procedural care associated with the procedure(s).
Suspected infection	At least one sign or symptom of a potential infection on the Aged Care NAPS survey day and, if present, other signs and/or symptoms in the 2 days prior to the survey day.

1. Introduction

The National Antimicrobial Prescribing Survey (NAPS) reports analyse antimicrobial prescribing practices across Australian hospitals and aged care facilities. There are 3 annual reports that detail the results from the Hospital NAPS,[5] Surgical NAPS[6] and Aged Care NAPS[7] respectively.

This technical supplement is designed to be read alongside the NAPS reports to support readers' understanding of the program and the methodological considerations when interpreting each report.

This technical supplement will provide information on the following:

i. Methodology, including the participant recruitment, and data collection process

ii. Auditor education and support

iii. Data analyses

iv. Ethical considerations related to participant privacy, informed consent, and data security.

This technical supplement is designed to be read alongside the NAPS reports to support readers' understanding of the program and the methodological considerations when interpreting each module's results.

2. Hospital NAPS

2.1 Methodology

The Hospital NAPS is a standardised web-based auditing tool available to all Australian hospitals to assess the quality of their antimicrobial prescribing, including an assessment of the appropriateness of the prescription. Although voluntary, performing the Hospital NAPS will help to meet the requirements for hospital accreditation - Actions 3.18 and 3.19 of the National Safety and Quality Health Service Standards.[8] Data can be entered directly into the NAPS online platform or initially entered on a data collection form (2.5 Hospital NAPS data collection form).

Timeframe

Data entry and reporting is available throughout the year, allowing hospitals to complete the audit whenever time and staffing resources permit. All finalised patient data that were audited from 1 January to 31 December 2023 have been included for analysis in the 2023 Hospital NAPS report.

Recruitment

Using the existing registry of NAPS participants, auditors from more than 900 hospitals were invited via email to participate in the 2023 survey. Further promotion by the National Centre for Antimicrobial Stewardship and the Royal Melbourne Hospital Guidance Group occurred throughout the year via their websites, X (formerly Twitter) accounts and newsletters.

Inclusion and exclusion criteria

All hospitals offering overnight stays can participate. Facilities such as same day services, sleep clinics and other private specialty clinics without overnight stay are ineligible.

Included patients to be audited

Data should be collected for any admitted inpatient who:

i. has an active antimicrobial order at 8:00 a.m. on the survey day, and/or

ii. was prescribed a stat dose (i.e. a single dose order) of an antimicrobial since 8.00 a.m. the previous day, and/or

iii. has had a surgical procedure performed and has been prescribed an antimicrobial for prophylaxis since 8.00 a.m. the previous day.

Antimicrobials to be audited

All antimicrobials, including antibiotics, antivirals, antifungals and antiparasitics, are to be included.

All formulations, including oral, intravenous, topical, et cetera, are to be included.

Excluded patients

Day stay, outpatient, Hospital in the Home and residential aged care patients are excluded. Patients present in the emergency department who have not yet been officially admitted are also excluded.

Audit methodology

Depending on the hospital size and the staffing resources available, participants can choose to conduct their audit using one of the following methodologies.

Method 1: Hospital-wide point prevalence audit

- This methodology requires all inpatients to be assessed so that prevalence of antimicrobial use can be calculated.
- Data are collected on both the number of inpatients prescribed antimicrobials (numerator) and the total number of inpatients (denominator).
- It is recommended that the data collection be completed on a single calendar day. However, if this was not possible, wards can be audited on separate days provided that all patients were audited once only.

Method 2: Repeat point prevalence audits

- For small hospitals (those with fewer than 100 acute beds), Method 1 may not allow enough data to be collected to meaningfully reflect prescribing practices.
- Therefore, small hospitals can conduct repeat point prevalence audits whereby a whole hospital audit is conducted multiple times, with audits at least one week apart, until at least 30 antimicrobial prescriptions have been collected.
- All inpatients should be included in the repeat audits, including those who have been audited previously, as the appropriateness of their respective antimicrobial prescriptions may change over time.

Method 3: Random sampling point prevalence audit

For large hospitals where a whole-hospital point prevalence audit cannot be undertaken due to resource limitations, data can be collected from a random sample of inpatients provided the following guidelines are adhered to:

- A random sampling method should only be used in hospitals with ≥100 acute beds.
- The random sampling should include patients from all wards within the hospital.
- The proportion of patients sampled must be at least 50% of the inpatient population.
- The random sampling is based on inpatients, not antimicrobial prescriptions.

Assessment

Participants are advised that the assessments of guideline compliance and appropriateness should ideally be performed by multidisciplinary teams (2.6 Hospital NAPS compliance with guidelines assessment criteria and 2.7 Hospital NAPS appropriateness definitions). The membership of the auditing team is determined by each participating facility, depending on their staffing resources, and can consist of any combination of infectious diseases physicians, clinical microbiologists, other interested physicians, pharmacists, infection prevention and control practitioners or nurses. It is recommended that at least 2 members provide assessments whenever possible, as this facilitates discussion about more challenging assessments. Preferably, members providing assessment should have a sound clinical knowledge of antimicrobial prescribing and any local prescribing guidelines.

Guideline compliance is assessed according to the national guidelines (the *Therapeutic guidelines: antibiotic*[9]) or local guidelines where applicable. Appropriateness assessments are made in accordance with the Hospital NAPS definitions (2.7 Hospital NAPS appropriateness definitions). If adequate onsite clinical expertise is not available, participants are encouraged to seek support from other appropriately experienced clinicians available within their hospital network. The NAPS Support Team is also available to provide additional clinical advice for facilities without infectious diseases expertise.

2.2 Auditor education and support

Auditors are able to access the following essential online resources to promote accurate data collection and prescription assessment, as well as assist with the reporting and feedback process:

- user guides
- data collection form (2.5 Hospital NAPS data collection form)
- appropriateness definitions (2.7 Hospital NAPS appropriateness definitions)
- case examples
- Excel upload user guide
- Guide to the Clinical Care Standard indicators.

The NAPS Support Team also provides direct support throughout the data collection period in the form of:

- webinar training sessions
- helpdesk support via phone and email
- a remote expert assessment service
- assistance with the assessment of guideline compliance and prescription appropriateness for hospitals without access to infectious diseases or antimicrobial stewardship (AMS) specialists.

eLearning module

The Hospital NAPS eLearning module is available on the NAPS website and provides users with information regarding setting up the audit, data collection and assessments of compliance with guidelines and appropriateness.

Hospital NAPS participants must achieve a pass mark of 80% or more before they can finalise patient data and generate reports. The pass mark is kept high to promote consistency among auditors when performing their data collection and prescription assessments. Users who fail to pass the eLearning program within 3 attempts are encouraged to contact the NAPS support helpdesk to discuss any difficulties they may be experiencing.

2.3 Data analysis

Hospitals that conducted whole-hospital audits, including single point prevalence audits, repeat point prevalence audits and randomised sample audits, were included in the analyses. To avoid issues with systematic bias, all other audit methodologies, including directed audits of selected antimicrobials, indications, specialties or wards, were excluded.

De-identified hospital data are analysed by funding type (public or private), state or territory, the Australian Bureau of Statistics remoteness classifications and the Australian Institute of Health and Welfare peer group classifications.[4, 10] Key performance indicators are analysed and reported for these categories.

2.4 Considerations for interpretation of results

Only patients who are *prescribed* antimicrobials are included in the audit. Patients who are *not* receiving any antimicrobials are excluded. Therefore, the audit does not describe the prescribing behaviour for an indication in the context of a whole patient population, including, for example, patients who were appropriately *not* prescribed an antimicrobial. Therefore, for indications where the usual recommended therapy is for no antimicrobial treatment, only those patients receiving antimicrobials are included and hence the reported results may appear worse than they actually are for that indication.

Representativeness

Despite its voluntary nature, there is a high degree of representativeness[5] across many hospital peer groups.[10] Therefore, the results can be confidently presumed to be a true reflection of prescribing practices across most Australian hospitals.

Comparison with previous audits

The Hospital NAPS report includes reference data from 2015 onwards, although the ability to directly compare results from year to year is limited as a result of changes over time to the inclusion criteria, methodology and distribution of participating hospital types. The Hospital NAPS is a live database, and participating sites are able to edit or remove existing data. For the delivery of the annual national reports, the database is accessed and analysed each year; therefore, previous years' data may have some small discrepancies in results compared with the previously published NAPS reports.[5]

Subjective nature of assessments

The Hospital NAPS has a mandatory eLearning module, detailed user guide, standardised appropriateness definitions and remote expert support to assist facilities to conduct their assessments. Nevertheless, individual auditors at each facility are ultimately responsible for assessing compliance with guidelines and antimicrobial prescribing appropriateness, and there is some degree of interpretation involved.

2.5 Hospital NAPS data collection form 2023

HOSPITAL NAPS National Antimicrobial Prescribing Survey

GUIDANCE | NCAS

Audit date	Patient identification number	Age / date of birth	Gender	Specialty ❒ *currently in ICU / NICU*	Ward	Weight *kg*	eGFR / CrCl *ml/min*
/ /		/ /	M / F / O				

Antimicrobials

Only record the antimicrobials as prescribed at 8:00 am on the day of the audit and any surgical prophylaxis or stat doses in the previous 24 hours

For NICU patients

Birth weight *kg*	Gestational age *weeks*

Start date	Antimicrobial	Route	Dose	Freq	Prescriber code#	Indication documented	Specify documented or presumed indication	Review / stop date documented	Guideline compliance (1-6)	Surgical prophylaxis > 24 hrs	Allergy mismatch	Microbiology mismatch	Indication does not require any antimicrobials	Incorrect route	Incorrect dose / frequency	Incorrect duration	Spectrum too broad	Spectrum too narrow	If restricted: approval given	Appropriateness (1-5)
/ /																				
/ /																				
/ /																				
/ /																				
/ /																				

#Maximum of 6 characters, of which there must be at least 2 numbers

Adverse drug reactions (including allergy) to antimicrobial

❒ Nil known ❒ Present ❒ Not documented

If present, specify drugs or classes and nature of allergies

Were appropriate microbiology samples collected?

❒ Yes ❒ Partially* ❒ Not applicable ❒ No ❒ Not assessable

Record the specimen type, organism, and susceptibilities if relevant

*If more than one indication or microbiological sample is required

Guideline compliance

1. Compliant with Therapeutic Guidelines
2. Compliant with locally endorsed guidelines*
3. Non-compliant with guidelines
4. Directed therapy
5. No guidelines available
6. Not assessable

*Select **Therapeutic Guidelines** if local guidelines are the same

Clinical notes or comments

❒ Renal replacement therapy given within previous 24hrs *(e.g., dialysis)*

Surgical procedure if performed

If prophylaxis given within previous 24 hrs; *include in audit*

Appropriateness

*please refer to the **appropriateness definitions** in the resources tab or in the user guide*

1. Optimal
2. Adequate
3. Suboptimal
4. Inadequate
5. Not assessable

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2.6 Hospital NAPS compliance with guidelines assessment criteria

Compliance with guidelines (only choose one of the following six criteria)	
Compliant with *Therapeutic Guidelines*[a]	The prescription complies with the current *Therapeutic Guidelines*, including: • route, dose, frequency **AND** • takes into account acceptable alterations due to age, weight, renal function, allergies, other prescribed medications etc.
Compliant with locally endorsed guidelines[b]	The prescription complies with an officially endorsed local guideline, including: • route, dose, frequency **AND** • takes into account acceptable alterations due to age, weight, renal function, allergies, other prescribed medications etc. This does not include individual, departmental, or historical guidelines that do not have executive or drug and therapeutic committee approval If the local guidelines are based exactly on the *Therapeutic Guidelines*, then choose the '*Therapeutic Guidelines*' in preference to local guidelines
Non-compliant with guidelines	There is non-compliance with both *Therapeutic Guidelines* and local guidelines **UNLESS** the prescription takes into account acceptable alterations due to age, weight, renal function, allergies, other prescribed medications etc.
Directed therapy	The prescription has changed from empiric to directed therapy with microbiology culture or susceptibility results available
No guidelines available	There are no guidelines available for the documented or presumed indication
Not assessable	The medical records are not comprehensive enough to determine a documented or presumed indication **OR** It is difficult to assess if there is compliance

a. Antibiotic Expert Group. Therapeutic Guidelines: Antibiotic. Version 16 (2019). Melbourne **http://online.tg.org.au/ip/**[9]

b. Local guidelines must be authorised and readily available on wards or on the hospital intranet. They cannot be a web link to international guidelines or other non-approved sites. Exceptions include paediatric and neonatal guidelines from an Australian children's hospital

2.7 Hospital NAPS appropriateness definitions

HOSPITAL NAPS National Antimicrobial Prescribing Survey

Hospital NAPS appropriateness definitions

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			If endorsed guidelines are present	If endorsed guidelines are absent
Appropriate	**1**	**Optimal**[1]	Antimicrobial prescription follows either the Therapeutic Guidelines[2] or endorsed local guidelines *optimally*, including antimicrobial choice, dosage, route and duration[3]	The antimicrobial prescription has been reviewed and endorsed by an infectious diseases clinician or a clinical microbiologist **OR** The prescribed antimicrobial will cover the likely causative or cultured pathogens ***and*** there is not a narrower spectrum or more appropriate antimicrobial choice, dosage, route or duration[3] available
	2	**Adequate**	Antimicrobial prescription does not optimally follow the Therapeutic Guidelines[2] or endorsed local guidelines, including antimicrobial choice, dosage, route or duration[3], however, is a ***reasonable*** alternative choice for the likely causative or cultured pathogens **OR** For surgical prophylaxis, as above ***and*** duration[3] is less than 24 hours	Antimicrobial prescription including antimicrobial choice, dosage, route and duration[3] is not the most optimal, however, is a ***reasonable*** alternative choice for the likely causative or cultured pathogens **OR** For surgical prophylaxis, as above ***and*** duration[3] is less than 24 hours
Inappropriate	**3**	**Suboptimal**	There may be a mild or non-life-threatening allergy mismatch **OR** Antimicrobial prescription including antimicrobial choice, dosage, route and duration[3], is an ***unreasonable*** choice for the likely causative or cultured pathogens, including: • spectrum excessively broad, unnecessary overlap in spectrum of activity, dosage excessively high or duration excessively long • failure to appropriately de-escalate with microbiological results	
	4	**Inadequate**	Antimicrobial prescription including antimicrobial choice, dosage, route or duration[3] is ***unlikely*** to treat the likely causative or cultured pathogens **OR** The documented or presumed indication does not require ***any*** antimicrobial treatment **OR** There may be a severe or possibly life-threatening allergy mismatch, or the potential risk of toxicity due to drug interaction **OR** For surgical prophylaxis, the duration[3] is greater than 24 hours (except where local guidelines endorse this)	
	5	**Not assessable**	The indication is not documented and unable to be determined from the notes **OR** The notes are not comprehensive enough to assess appropriateness **OR** The patient is too complex, due to multiple co-morbidities, allergies or microbiology results, *etc.*	

[1] Taking into account acceptable changes due to the patient's weight, allergy status, renal or hepatic function, or relevant drug interactions (if this information is available)

[2] Antibiotic Expert Group. Therapeutic Guidelines: Antibiotic. Version 16 (2019), or online version

[3] Duration should only be assessed if the guidelines state a recommended duration and the antimicrobial has already been dispensed for longer than this, or if there is a clear planned 'end date' documented

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3. Surgical NAPS

3.1 Methodology

The Surgical NAPS is a standardised web-based auditing tool available to Australian health service organisations that perform incisional and non-incisional procedures to assess the quality of their surgical antimicrobial prophylaxis prescribing, including an assessment of the appropriateness of the prescription. Although voluntary, performing the Surgical NAPS will help to meet the requirements for hospital accreditation – Actions 3.18 and 3.19 of the National Safety and Quality Health Service Standards.[8] Data can be entered directly into the NAPS online portal or initially entered on a data collection form (3.5 Surgical NAPS data collection form).

Timeframe

Data entry and reporting were available throughout the year (1 January to 31 December 2023), allowing hospitals to complete the audit whenever time and staffing resources permitted. Hospitals may retrospectively audit data from previous years or edit or remove existing data. Therefore, the total number of hospitals contributing annually differs slightly each year. Data from previous years that were retrospectively entered onto the data entry platform in 2023 were excluded.

All finalised patient data audited in 2023 have been included for analysis in the 2023 Surgical NAPS report.[6]

Recruitment

Using the existing registry of NAPS participants, auditors from more than 900 hospitals were invited via email to participate in the 2023 Surgical NAPS. Further promotion by the National Centre for Antimicrobial Stewardship and the Royal Melbourne Hospital Guidance Group occurred throughout the year via their websites, X (formerly Twitter) accounts and newsletters.

Inclusion criteria

Any procedure type can be audited, including incisional or non-incisional procedures.

Audit methodology

Auditors can choose a variety of methods to perform the audit, depending on the size of the facility and available resources. Data can be collected on paper data collection forms then entered into the NAPS online portal (see 3.5 Surgical NAPS data collection form for data fields) or can be entered directly into the online portal. The data collection form is standardised across both paper and online platforms.

Retrospective audits were the preferred methodology undertaken by auditors. Auditors were advised to complete the audit over any chosen timeframe with a minimum of one week or 30 consecutive procedures or surgical episodes. Theatre lists were recommended to be obtained to capture all procedures during this timeframe.

Assessment

Participants are advised that the assessments of guideline compliance and appropriateness should ideally be performed by multidisciplinary teams. The membership of the auditing team is determined by each participating facility, depending on their staffing resources, and can consist of any combination of infectious diseases physicians, clinical microbiologists, other interested physicians, pharmacists, infection prevention and control practitioners and nurses. It is recommended that at least 2 members provide assessments whenever possible, as this facilitates discussion about more challenging assessments. Preferably, members providing assessment should have a sound clinical knowledge of antimicrobial prescribing and any local prescribing guidelines.

Guideline compliance is assessed according to the national guidelines (the *Therapeutic guidelines: antibiotic*[9]) or local guidelines where applicable. Appropriateness assessments are made in accordance with the Surgical NAPS definitions (3.6 Surgical NAPS appropriateness definitions).

If an onsite assessment team is not available, participants are encouraged to seek support from other appropriately experienced clinicians available within their hospital network. The NAPS Support Team is also available to provide additional clinical advice for facilities without infectious diseases expertise.

3.2 Auditor education and support

Auditors are able to access the following essential online resources to promote accurate data collection and prescription assessment, as well as assist with the reporting and feedback process:

- user guide
- data collection form (3.5 Surgical NAPS data collection form)
- appropriateness definitions (3.6 Surgical NAPS appropriateness definitions).

A guide to the timing and duration of surgical prophylaxis was created to help with the assessment of appropriateness regarding these issues.[11] With the release of the newly designed Surgical NAPS reports in 2021 and based on early feedback regarding the complex nature of the reports, a written guide to interpreting these reports was also developed to assist users to understand their results.[14]

The NAPS Support Team also provide direct support throughout the data collection period in the form of:

- webinar training sessions
- helpdesk support via phone and email
- a remote expert assessment service
- assistance with the assessment of guideline compliance and prescription appropriateness for hospitals without access to infectious diseases or AMS specialists.

eLearning module

The Surgical NAPS online eLearning module is available on the NAPS website at any time. The package provides users with information regarding setting up the audit, data collection and assessments of compliance with guidelines and appropriateness.

Surgical NAPS participants must achieve a pass mark of 80% or more before they can finalise patient data and generate reports. The pass mark is kept high to promote consistency among auditors when performing their data collection and prescription assessments. Users who fail to pass the eLearning program within 3 attempts are encouraged to contact the NAPS support helpdesk to discuss any difficulties they may be experiencing.

3.3 Data analysis

The Surgical NAPS database is live and participating hospitals are free to amend, add or remove their data at any time. For the delivery of the annual national reports, the database is accessed and analysed each year; therefore, previous years' data may have some small discrepancies in results compared with the previously published NAPS reports.

Surgical procedure groups

The procedures listed in the Surgical NAPS database have been adopted from The Royal Australasian College of Surgeons Morbidity Audit and Logbook tools.[12]

The surgical procedure groups listed are:

- Abdominal surgery
  - anorectal
  - bariatric and other
  - biliary
  - colorectal
  - gastro–oesophageal
  - hepatic
  - pancreas and duodenum
- Breast surgery
- Cardiac surgery
- Dentoalveolar surgery
- Gastrointestinal endoscopic procedures
- Gynaecological surgery
- Head and neck surgery
  - laryngology
  - otology
  - rhinology
- Neurosurgery
  - cerebrovascular
  - peripheral nerve
  - spinal
  - other
- Obstetrics
- Ophthalmology
- Orthopaedic surgery
- Plastic and reconstructive surgery
- Thoracic surgery
- Urological surgery
  - endoscopic procedures
  - laparoscopic procedures
  - open procedures
  - other
- Vascular surgery
  - dialysis access

Appropriateness assessments

For reporting purposes, 'optimal' and 'adequate' are deemed to be appropriate, while 'suboptimal' and 'inadequate' are deemed to be inappropriate (see 3.6 Surgical NAPS appropriateness definitions for more information on definitions of appropriateness). Each surgical episode was given an overall assessment of inappropriate if any single aspect of the procedural or post-procedural prescribing was deemed inappropriate by the auditor. This included allergy or microbiology mismatch; incorrect antimicrobial timing, dose, route, frequency or duration; if the antimicrobial spectrum was too broad or too narrow; or if the procedure did not require any antimicrobials (see 3.6 Surgical NAPS appropriateness definitions for detailed definitions).

Calculation of duration of surgical prophylaxis

Duration of surgical prophylaxis was calculated from the surgical incision date and time, if recorded; otherwise, the surgery start date and time were used. These dates and times were used as a surrogate measure to the more acute measure of administration date and time of the first procedural antimicrobial prescribed, which was not able to be determined for 941 (10.1%) of the prescribed initial procedural doses (n=9,276) in 2023. The end date and time for the last prophylactic antimicrobial prescribed was then used to determine the end date and time of surgical prophylaxis.

For calculation of duration of surgical prophylaxis greater than 24 and 48 hours, the required dates and times were consistently completed by auditors, and these were able to be calculated accurately. For days of therapy calculations, any incomplete administration time for the last dose of therapy did not affect these overall calculations.

Calculation of participation rates

In order to define the denominator for participation rates by different reporting groups (states and territories), the Australian Institute of Health and Welfare peer group classification system[10] and the Australian Bureau of Statistics remoteness categories[4] were used. Hospital peer groups that would not be expected to perform surgical procedures were excluded from the denominator calculation.

The peer groups **included** for determination of denominator numbers for rates of participation are shown in Table 1.

Table 1. Australian Institute of Health and Welfare peer groups included for calculation of participation rates

Public facilities	Private facilities
Children's hospitals	Combined women's and children's hospitals
Combined women's and children's hospitals	Endoscopy centres
Mixed day procedure hospitals	Eye surgery centres
Other day procedure hospitals	Gynaecology day hospitals
Principal referral hospitals	Mixed day procedure hospitals
Public Acute Group A hospitals	Oral and maxillofacial surgery centres
Public Acute Group B hospitals	Other acute specialised hospitals
Public Acute Group C hospitals	Other specialist day hospitals
Public Acute Group D hospitals	Plastic and reconstructive surgery centres
Women's hospitals	Private Acute Group A hospitals
	Private Acute Group B hospitals
	Private Acute Group C hospitals
	Private Acute Group D hospitals
	Women's hospitals

The peer groups **excluded** for determination of denominator numbers for rates of participation are shown in Table 2.

Table 2. Australian Institute of Health and Welfare peer groups excluded for calculation of participation rates

Public facilities	Private facilities
Drug and alcohol hospitals	Cardiovascular health centres
Early parenting centres	Dialysis clinics
Mixed subacute and non-acute hospitals	Drug and alcohol hospitals
Other acute specialised hospitals	Fertility clinics
Other public acute specialised hospitals	Haematology and oncology clinics
Outpatient hospitals	Hyperbaric health centres
Public acute psychiatric hospitals	Mixed subacute and non-acute hospitals
Public child, adolescent and young adult psychiatric hospitals	Private acute psychiatric hospitals
Public forensic psychiatric hospitals	Private rehabilitation hospitals
Public rehabilitation hospitals	Reproductive health centres
Public subacute and non-acute psychiatric hospitals	Same day hospitals
Unpeered hospitals	Sleep centres
Very small hospitals	Unpeered hospitals
	Very small hospitals

3.4 Considerations for interpretation of results

The results presented in the 2023 Surgical NAPS report[6] should be interpreted in the context of the following limitations and considerations.

Sampling and selection bias

The facilities that participated were not a randomised sample because participation was voluntary. Therefore, the results might not be representative of all Australian facilities where surgery is performed. Each hospital could choose how to perform the Surgical NAPS audit. Audits may have been conducted as prevalence audits (consecutive or random patients), directed audits (particular surgical specialties or procedures) or other types of audits; therefore, it is not possible to determine the exact prevalence of the surgical procedures or antimicrobials prescribed.

Audit methodology was not defined

For the Surgical NAPS, each hospital could decide how they performed the audit and which patients, or surgical specialties, were audited. If directed audits were performed, patient sampling may not have been random, and auditors may have targeted problem or higher volume surgical units.

Subjective nature of assessments

Individual auditors at each contributing facility were responsible for assessing the compliance with guidelines and appropriateness of antimicrobial prescribing. These assessments are not completely objective, as they involve some degree of interpretation, although the Surgical NAPS appropriateness definitions (3.6 Surgical NAPS appropriateness definitions) improve this objectivity. This is further supplemented by the NAPS Support Team and online training resources. Remote expert assessments were also able to be conducted by the NAPS support team on request.

Comparison of data over time

Care is required in relation to comparisons of Surgical NAPS data from one year to another, as the cohort of contributors varies from year to year, along with the proportions of surgical procedure groups represented.

3.5 Surgical NAPS data collection form 2023

SURGICAL NAPS National Antimicrobial Prescribing Survey

GUIDANCE NCAS

Patient identification Number	Date of birth / Age / /	Gender M / F / O	Date of admission / /	Date of discharge / /	Specialty	Height *cm*	Weight *kg*	eGFR / CrCl *mL/min*

Surgery details

Date of surgery / / **Surgery this admission** ❒ initial ❒ subsequent

Procedures ❒ emergency ❒ elective ❒ not assessable ❒ trauma ❒ removal / insertion of prosthetic material

Surgeon code

Anaesthetist code

Time of first incision : ❒ not documented ❒ not applicable

If not documented or not applicable; surgery start time *(or estimated)* :

Surgery end time *(or estimated)* : ❒ same day ❒ following day

CDC wound classification[#]

❒ clean ❒ clean-contaminated ❒ contaminated ❒ dirty ❒ unknown / not applicable

ASA score[#] ❒ 1 ❒ 2 ❒ 3 ❒ 4 ❒ 5 ❒ 6 ❒ unknown

Risk factors

❒ no risk factors

All procedures
- ❒ current smoker
- ❒ diabetes
- ❒ obesity (BMI ≥ 30)
- ❒ MRSA colonisation
- ❒ MDR Gram-negative colonisation
- ❒ current malignancy
- ❒ immunocompromised, e.g. immunosuppressive therapy, including current systemic corticosteroids

Transrectal prostatic biopsy
- ❒ quinolone therapy in preceding 3 months
- ❒ risk factors for infection with a MDR Gram-negative bacterium

Gastroduodenal or oesophageal procedures
- ❒ gastrointestinal bleeding
- ❒ gastric outlet obstruction
- ❒ perforation

Surgical or clinical notes, microbiology, radiology

Procedural doses

Include all antimicrobials commenced for the purpose of prophylaxis.

*Record **each dose** on a separate line, including any repeat doses. Include any documented **topical antimicrobials** (e.g. cement beads, soaks, sponges, irrigations, etc.)*

Antimicrobial	Dose	Route	Documented administration time: Not assessable	Nearest 15 minutes	Exact time	Start time :	Guideline compliance (1-6)	Allergy mismatch	Microbiology mismatch	Procedural antimicrobials not required	Incorrect dose	Incorrect route	Incorrect timing	Spectrum too broad	Spectrum too narrow	Procedure requires antimicrobials[#]	Appropriateness (1-5)
						:											
						:											
						:											
❒ *Repeat dose required, but not given*																	4
❒ *No antimicrobial prescribed*																	

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Allergies or adverse drug reactions to antimicrobials

❒ nil known ❒ present; *specify drug and nature* ❒ not documented

Existing antimicrobial therapy

Any antimicrobial for treatment or medical prophylaxis or another condition.
*Prescribed in the **24 hours prior** (72 hours if on dialysis) to the procedure*

❒ none prescribed ❒ not assessable

Antimicrobial	Dose	Route	Date and time of last dose
			/ / :
			/ / :
			/ / :

If prescribed, existing antimicrobials provide sufficient procedural prophylaxis[#] ❒ yes ❒ no ❒ not assessable

Post-procedural antimicrobials

*Record those **only relating to the procedure**, including any inpatient or discharge scripts*

Start date and time*	End date and time* (or estimated)	Antimicrobial	Dose	Route	Freq	Indication: For prophylaxis only	Indication: For treatment of infection related to the procedure[#]	Indication: Not assessable	Guideline compliance (1-6)	Allergy mismatch	Microbiology mismatch	Post-procedural antimicrobials not required	Incorrect dose / frequency	Incorrect route	Incorrect duration	Spectrum too broad	Spectrum too narrow	Procedure requires antimicrobials[#]	Appropriateness (1-5)
/ / :	/ / :																		
/ / :	/ / :																		
/ / :	/ / :																		
/ / :	/ / :																		
/ / :	/ / :																		
/ / :	/ / :																		
If time unknown, write unknown		❒ ***None prescribed***	❒ ***Not assessable***																

Total surgical prophylaxis given ≥ 24 hours[#] ❒ yes ❒ no ❒ not assessable *This includes all antimicrobials prescribed, for prophylaxis only, from the time the first procedural dose was administered to the time the last post-procedural dose was administered, including if last dose given at exactly 24 hours*

30 Day follow up

Surgical site infection ❒ no ❒ unknown
❒ yes; *select one type and list any relevant microbiology*

❒ superficial
❒ deep incisional
❒ organ space
❒ prosthesis

Microbiology

Clostridioides difficile infection	❒ yes	❒ no	❒ unknown
MDR organism	❒ yes	❒ no	❒ unknown
Sepsis	❒ yes	❒ no	❒ unknown
Unplanned return to theatre	❒ yes	❒ no	❒ unknown
Unplanned ICU admission	❒ yes	❒ no	❒ unknown
Unplanned hospital readmission	❒ yes	❒ no	❒ unknown
Death	❒ yes	❒ no	❒ unknown
Other morbidity *(if yes, specify)*	❒ yes	❒ no	❒ unknown

Guideline compliance

1. Compliant with Therapeutic Guidelines
2. Compliant with locally endorsed guidelines
3. Directed therapy
4. Non-compliant with guidelines
5. No guidelines available
6. Not assessable

Appropriateness

1. Optimal
2. Adequate
3. Sub-optimal
4. Inadequate
5. Not assessable

[#] *Refer to the Surgical NAPS User Guide for further explanation of these assessments*

Doc:SurgicalNAPS-DCFv10;20200518

3.6 Surgical NAPS appropriateness definitions

SURGICAL NAPS National Antimicrobial Prescribing Survey

Surgical NAPS appropriateness definitions

GUIDANCE | NCAS

	Appropriate		Inappropriate		
	1 - Optimal	2 - Adequate	3 - Suboptimal	4 - Inadequate	5 - Not assessable
Allergy mismatch	Antimicrobials prescribed exactly according to Therapeutic Guidelines or local guidelines – antimicrobial choice, dose, route, timing and duration; or where there is an appropriate reason for deviation from guidelines *If any reason is selected for incorrect prescribing, the prescription will no longer be optimal.* Existing antimicrobials providing sufficient prophylaxis for the duration of procedure No antimicrobial prescribed for procedure not requiring prophylaxis		Mild or non-life threatening allergy mismatch	Life threatening allergy mismatch	Where there is insufficient information available or the case is too complex for assessment.
Microbiology mismatch				Antimicrobial prophylaxis does not cover the colonising organism	
Incorrect dose or frequency			Dose or frequency too high (with exception of gentamicin)	Dose or frequency too low Gentamicin dose too high or too frequent	
Incorrect route			An intravenous antimicrobial has been prescribed when the patient is able to safely take it orally	The prescribed route does not reach the site of infection or surgery	
Incorrect timing		Repeat dose given too soon (including patients who were already on existing antimicrobial therapy) *taking into consideration patients with renal impairment*		Antimicrobial prophylaxis given outside the recommended time frame Antimicrobial prophylaxis given after surgical incision (with exception of intracameral cefazolin in cataract surgery) Repeat dose given too late	
Incorrect duration			Surgical prophylaxis more than 1 dose but less than 24 hours (except when a repeat dose is required or where guidelines endorse this)	Surgical prophylaxis ≥ 24 hours (except where guidelines endorse this)	
Spectrum too broad			Choice of antimicrobial is too broad. Unnecessary additional antimicrobial		
Spectrum too narrow				Choice of antimicrobial does not cover likely organisms	
Procedure does not require any antimicrobials				Procedure does not require any antimicrobials, but antimicrobials were still prescribed	
Procedure requires antimicrobials				Procedure requires antimicrobials but no antimicrobials were prescribed AND there were no existing antimicrobials to provide sufficient prophylaxis	
Repeat dose required, but not given				This will automatically be selected for auditors	

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4. Aged Care NAPS

4.1 Methodology

The Aged Care NAPS is a standardised surveillance tool that residential aged care homes (RACHs) can use to monitor the prevalence of infections and antimicrobial use, provide feedback to key clinicians and administrators, and measure the effectiveness of infection prevention and control (IPC) and AMS programs.

Performing the Aged Care NAPS will help IPC and AMS services in RACHs meet the requirements of the Aged Care Quality Standards.[13] Standard 3 (3.g) specifically aims to minimise infection-related risks by implementing standard and transmission-based precautions and practices to promote appropriate antimicrobial use. Standard 8 (3.e) notes that where clinical care is provided a clinical governance framework must include AMS.

Participants who register are granted access to the NAPS online portal where they can submit their data. Data are able to be entered directly into the online portal or collected on a paper-based data collection form first (see 4.5 Aged Care NAPS facility data collection form and 4.6 Aged Care NAPS antimicrobial and infection data collection form).

The Aged Care NAPS is commonly completed by senior nurses, IPC practitioners and/or pharmacists. Ideally, auditors have had at least 2 years of clinical experience.

Timeframe

The Aged Care NAPS module is open for data entry and reporting all year round.

The official data collection and submission period for the 2023 Aged Care NAPS was 1 June to 31 December 2023. All finalised data that were audited during this timeframe have been included for analysis in this report.

Recruitment

All Australian RACHs were eligible to participate in the 2023 Aged Care NAPS. Since 2017, participation by Victorian Government RACHs has been mandatory, as part of the Victorian Healthcare Associated Infection Surveillance System (VICNISS) Infection Control Indicator Program. The remainder of participants contribute on a voluntary basis.

Using the existing registry of NAPS participants, individuals from more than 900 RACHs were invited via email to participate in the 2023 Aged Care NAPS. Further promotion by National Centre for Antimicrobial Stewardship, VICNISS and the Royal Melbourne Hospital Guidance Group occurred throughout the year via their websites, X (formerly Twitter) accounts and newsletters.

Inclusion criteria

All residents living in the participating RACH and present on the survey day are eligible to be included. This includes permanent, respite or transient residents, as well as those being managed by Hospital in the Home or In-Reach service.

Audit methodology

On any day during the 2023 timeframe, participating RACHs chose 1 of 2 audit methods to collect data (see box below).

Method 2 was recommended for smaller RACHs that wished to expand their sample size to better assess their performance.

RACHs could participate more than once.

Method 1: A single-day point prevalence audit

On the survey day, all residents are screened to determine if they:

- have an antimicrobial prescription noted on their medication chart, and/or
- have signs and symptoms of a suspected infection.

Method 2: A single-day point prevalence audit plus an additional one-month retrospective audit

On the survey day, all residents are screened to determine if they:

- have an antimicrobial prescription noted on their medication chart, and/or
- have signs and symptoms of a suspected infection.

In addition, all residents present on the survey day are screened to determine if they had an antimicrobial prescription noted on their medication chart on any day during the previous month that was ceased prior to the survey day.

Data collection forms

Facility data collection form

Each participating RACH completed the facility form (4.5 Aged Care NAPS facility data collection form). Resident-level data fields included listing the number of residents present on the survey day. All residents who were present on the survey day were eligible for inclusion.

Antimicrobial and infection data collection form

The antimicrobial and infection form (4.6 Aged Care NAPS antimicrobial and infection data collection form) was completed for residents who:

- were prescribed an antimicrobial on the survey day (Methods 1 and 2), and within the previous month (Method 2 only), and/or
- had at least one sign and/or symptom of a suspected infection present on the survey day (Methods 1 and 2).

4.2 Auditor education and support

Auditors are able to access the following essential online resources to promote accurate data collection and prescription assessment, as well as assist with the reporting and feedback process:

- user guide
- facility form
- antimicrobial and infection form
- list of commonly prescribed antimicrobials
- indications list
- McGeer et al. infection definitions.[2]

The NAPS Support Team also provides direct support throughout the data collection period in the form of:

- webinar training sessions
- helpdesk support via phone and email
- a remote expert assessment service
- assistance with auditing and clinical queries for RACHs without access to infectious diseases or AMS specialists.

eLearning module

The Aged Care NAPS online eLearning module is available on the NAPS website at any time. The package provides users with information regarding setting up the audit, how to prepare for the audit, the methodology and how to complete the data collection form.

Currently, it is not mandatory for Aged Care NAPS participants to complete the eLearning module, although it is highly recommended and a valued resource amongst participants.

4.3 Data analysis

Data quality processes for the Aged Care NAPS dataset included identification and, if necessary and possible, 'follow-up consultation' with the auditors to correct missing, miscoded and out-of-range errors. Duplicate and non-finalised resident records were excluded; audits that included only non-finalised resident records were omitted. For those RACHs that participated more than once each year, only their last audit was included in the analyses for this report. Changes to the dataset and decisions about how to assess certain data fields were documented.

An electronic decision algorithm was applied to each suspected infection to determine whether or not the McGeer et al. infection surveillance definitions[2] were met. These widely referenced definitions, which were specifically developed for use in long-term care facilities, were last revised in 2012 to take into account the most recent evidence and the availability of improved diagnostics for surveillance. The criteria that define the infections were selected to increase the likelihood that 'true infections'[2] were captured.

To analyse antimicrobial use, Method 1 and Method 2 antimicrobial data were usually combined. Antimicrobials prescribed on a known start date within 6 months and still prescribed on the survey day only were included in exact duration and date of administration estimates. This is because both the start and audit date were required for these analyses.

4.4 Considerations for interpretation of results

Aged Care NAPS data

The 2016–2022 data included in the analyses for the 2023 report differ from previous reports: some data were retrospectively entered, and an extensive data cleaning process was undertaken before commencing the 2023 analysis.

Sampling

For some state and territory remoteness and provider type categories, there was a relatively small number of participating RACHs.

Over time, different cohorts of RACHs have participated in the annual Aged Care NAPS. Each year, the number of participating RACHs has mostly increased, 'new' RACHs have participated and some RACHs which had previously participated have chosen not to participate.

Signs and symptoms

In many cases, prescriptions audited were prescribed more than 3 days prior to the survey day. Signs and symptoms of infection are likely to be most significant in the period just prior to considering, or on commencement of, antimicrobial prescriptions. Therefore, the number of audited suspected infections may under-represent the true number of antimicrobial prescriptions where signs and symptoms of infection were present prior to the prescription.

Infection surveillance definitions

Signs and symptoms of infection in older residents may be atypical, so failure to meet the revised McGeer et al. definitions[2] may not fully exclude the presence of a true infection.

In addition, the McGeer et al. definitions[2] require microbiological confirmation for some infections (e.g. urinary tract infections). This means that these infections will not be confirmed unless microbiological specimens are collected. Specimens for microbiological testing are less likely to be collected in RACHs than in acute care services.

The McGeer et al. definitions are generally useful to compare the proportion of defined infections between facilities over time as opposed to being used to rule in or rule out the clinical need for a prescription.[2]

Variation

The audit was conducted on a single day. The results may have been different on another day dependent on the season. Certain respiratory infections, for example, are usually more frequent in winter.

Validation

The analysis relied on the validity of local assessments. There was no additional external validation undertaken.

4.5 Aged Care NAPS facility data collection form 2023

For this form, the term 'facility' is interchangeable with RACHs.

AGED CARE NAPS National Antimicrobial Prescribing Survey

Facility Form

GUIDANCE NCAS VICNISS

Facility name

Survey date / /

Aged care provider group name

RAC number

1. Facility Data

Infection Prevention and Control (IPC)

A multidisciplinary team or committee is established that oversees an IPC program. ❒ yes ❒ no

The aged care home has IPC policies and procedures that detail requirements for standard and transmission based precautions. ❒ yes ❒ no

Antimicrobial stewardship (AMS)

The aged care home has IPC policies and procedures that promote appropriate antimicrobial use. ❒ yes ❒ no

The aged care home have a formal system in place to ensure all microbiological specimens are correctly:

- Collected ❒ yes ❒ no
- Stored ❒ yes ❒ no
- Transported to laboratory ❒ yes ❒ no
- Followed up and reviewed ❒ yes ❒ no

Documented clinical guidelines are available in the facility on:

- Respiratory tract infections? ❒ yes ❒ no
- Skin and soft tissue infections? ❒ yes ❒ no
- Urinary tract infections? ❒ yes ❒ no

Staff that prescribe are easily able to access onsite the following national **prescribing guidelines:**

- Therapeutic Guidelines: Antibiotic ❒ yes ❒ no
- Australian Medicines Handbook: Aged Care Companion ❒ yes ❒ no

2. Demographic Data

Enter the total number **on the survey day.**

You may wish to use the **Worksheet** on the following page to help identify these residents.

	Total
No. of residents present (or onsite)	
No. of residents aged > 85 years	
No. of male residents	
No. of residents admitted to hospital in previous 7 days	
No. of residents with a urinary catheter present on the survey day	

4.6 Aged Care NAPS antimicrobial and infection data collection form 2023

AGED CARE NAPS National Antimicrobial Prescribing Survey

Antimicrobial and Infection Form

GUIDANCE | NCAS | VICNISS HEALTHCARE ASSOCIATED INFECTION SURVEILLANCE

Does the resident have an antimicrobial prescription? ❒ yes; ***complete sections 1, 2, 3 & if the antimicrobial start date is known and <6 months section 4***

Does the resident have signs or symptoms of infection **on the survey day**? ❒ yes; ***complete sections 1, 5a and 5b***

1. Demographics	Identification number	Date of birth or age / /	Gender M / F / O	Admitted to the facility within the last 48 hours Yes / No	Admitted to hospital within the last 7 days Yes / No

2. Antimicrobials

Start date* / /	Started at this facility	Still prescribed today	Antimicrobial	Dose	Route	Freq	*PRN*	*If PRN, administered on the survey day or in the 6 days prior*	Indication documented by prescriber	Specify documented or presumed indication	Was this for prophylaxis?	Review/stop date documented
/ /												
/ /												
/ /												
/ /												

3. Adverse drug reactions to antimicrobials

❒ nil known ❒ not documented

❒ yes, specify;
Antimicrobial(s) _____
_____
_____

Allergic reactions			Side effects (eg: nausea, vomiting diarrhea)	Unknown reaction
Anaphylaxis / angioedema	Rash / urticaria	Other		
❒	❒	❒	❒	❒
❒	❒	❒	❒	❒
❒	❒	❒	❒	❒

4. Microbiology

*Complete for specimens collected **on the antimicrobial start date**, in the **6 days prior** to, or **3 days after** the **antimicrobial start date***

❒ none collected ❒ sputum
❒ skin / wound swab ❒ respiratory swab
❒ urine ❒ other

5a. Constitutional criteria; *completed for all residents with any signs and/or symptoms of a suspected or confirmed infection on the **survey day** or in the **2 days prior***

❒ No constitutional criteria identified

Fever
❒ Single oral temperature >37.8°C
❒ Repeated oral temperature >37.2°C, or rectal temperature >37.5°C
❒ Single temperature > 1.1°C over baseline from any site
❒ Chills or rigors

As according to full blood examination results
❒ White blood cells elevated *(WBC, leucocytes, etc.)*
❒ Left shift documented

Change in mental status from baseline
(confusion, forgetfulness, etc.)
❒ Acute onset *(hours to a few days)*
❒ Fluctuating course
❒ Inattention
❒ Disorganised thinking or altered level of consciousness

Acute functional decline from baseline;
(hours to a few days)
❒ Bed mobility
❒ Transfer
❒ Locomotion within facility
❒ Dressing
❒ Toilet use
❒ Personal hygiene
❒ Eating

AC NAPS Antimicrobial and Infection Form FINAL

1. Demographics	Identification number	Date of birth or age / /

5b. System criteria; *Complete for all residents with any signs and / or symptoms of a suspected or confirmed infection on the **survey day** or in the **2 days prior**. Multiple system criteria are possible.*

Urinary tract

- ❒ Acute pain on urination
- ❒ Acute pain, swelling or tenderness of the testes, epididymis or prostate
- ❒ Back pain or tenderness (new onset)
- ❒ Blood in urine
- ❒ Frequency (new or marked increase)
- ❒ Incontinence (new or marked increase)
- ❒ Low blood pressure with no alternate site of infection (new onset)
- ❒ Pus discharging from the urethra or around a catheter
- ❒ Suprapubic pain (new onset)
- ❒ Urgency (new or marked increase)
- ❒ Urinary retention

❒ **Other** signs +/or symptoms not listed above

Urinary catheter
- ❒ none
- ❒ intermittent *(in and out)*
- ❒ indwelling
- ❒ suprapubic
- ❒ external
- ❒ nephrostomy tube

Urine dipstick
❒ not performed ❒ performed; *date* / /
Nitrite
❒ negative ❒ positive ❒ not recorded
Leucocyte esterase
❒ negative ❒ 1+ ❒ 2+ ❒ 3+ ❒ not recorded

Urine specimen *in the **6 days prior** to **3 days after** the **survey day***
❒ not collected ❒ collected: *date* / /
❒ final report attached

Respiratory tract

- ❒ Chest wall pain
- ❒ Chest X-ray (recent, normal)
- ❒ Chest X-ray showing pneumonia or new infiltrate (recent)
- ❒ Cough (new or increased)
- ❒ Headache or eye pain (new)
- ❒ Hoarseness
- ❒ Loss of appetite
- ❒ Lung abnormalities (new or increased)
- ❒ Malaise
- ❒ Myalgia or muscle pain
- ❒ Oxygen saturation < 94% on room air or a reduction of > 3% from baseline
- ❒ Pain on swallowing
- ❒ Respiratory rate ≥ 25 breaths per minute
- ❒ Runny nose or sneezing
- ❒ Sore throat
- ❒ Sputum (new or increased)
- ❒ Stuffy nose
- ❒ Swollen or tender neck glands

❒ **Other** signs +/or symptoms not listed above

Sputum specimen *in the **6 days prior** to **3 days after** the **survey day***
❒ not collected ❒ collected: *date* / /
❒ final report attached

Respiratory virus test *in the **2 days prior** to **3 days after** the **survey day***
❒ not collected ❒ collected: *date* / /
❒ final report attached

Skin or soft tissue

- ❒ Heat
- ❒ Pus present at wound, skin or soft tissue site
- ❒ Redness
- ❒ Serous discharge
- ❒ Swelling
- ❒ Tenderness or pain

Rash
- ❒ rash or lesions characteristic of a fungal skin infection
- ❒ maculopapular rash and/or itching rash
- ❒ vesicular rash

Doctor or laboratory confirmation for
- ❒ fungal skin infection
- ❒ herpes simplex or zoster
- ❒ scabies

❒ Linkage to laboratory confirmed case of scabies

❒ **Other** signs +/or symptoms not listed above

Swab *in the **6 days prior** to **3 days after** the **survey day***
❒ not collected ❒ collected: *date* / /
❒ final report attached

Oral

- ❒ Doctor or dental provider confirmation
- ❒ Presence of raised white patches or plaques in mouth

❒ **Other** signs +/or symptoms not listed above

Eye

- ❒ Itching or pain > 24 hours
- ❒ New or increased conjunctival redness
- ❒ Pus from one/both eyes present for >24 hrs

❒ **Other** signs +/or symptoms not listed above

Other infection(s) not listed

Comments and clinical notes

5. Ethical considerations

The NAPS program has been granted a Low-Risk Human Research Ethics Approval by the Melbourne Health Human Research Ethics Committee (project number HREC/74195/MH-2022).

The NAPS datasets utilised for annual reporting purposes contain data that are both patient and hospital de-identifiable. Additionally, there is no direct patient involvement in the data collection process or subsequent research. In accordance with the current ethics approval, individual patient consent is not required.

Each NAPS Auditor provides consent to the NAPS by agreeing to the Terms and Conditions, which are available on the NAPS website.

The NAPS™ database and program are managed by the RMH Guidance Group and hosted within the web applications servers accessible from the internet and database servers behind internal security firewalls at Melbourne Health. Access is only granted to NAPS staff employed by Melbourne Health and to authenticated users.

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All information in this publication is correct as at January 2025.

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