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NCAS
National Centre for
Antimicrobial Stewardship

NAPS National Antimicrobial
Prescribing Survey

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Support at NAPS

The NAPS team provides support to all users via the phone and email during regular business hours. The team are 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 team via support@naps.org.au

Abbreviations

Abbreviation	Definition
ABS	Australian Bureau of Statistics
Aged Care NAPS	Aged Care National Antimicrobial Prescribing Survey
AIHW	Australian Institute of Health and Welfare
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
NCAS	National Centre for Antimicrobial Stewardship
NSQHS	National Safety and Quality Health Service
RMH	Royal Melbourne Hospital
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 treats an established 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 the appropriateness of whether procedural antimicrobials were 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 .
Infection prevalence	The proportion of aged care residents present on the survey day who had signs and/or symptoms of at least one suspected infection.
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	Local guidelines must be authorised and readily available on wards or on the hospital intranet; exceptions include paediatric and neonatal guidelines from an Australian children's hospital and links to other official guidelines within a facility's network.
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) are also assessed.

Term	Definition
Overall appropriateness	<p>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.</p> <p>E.g. procedural assessment was deemed appropriate and post-procedural was deemed inappropriate; the overall appropriateness is then inappropriate.</p>
Peer group ³	<p>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.</p> <p>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. It is based on data from a broad range of sources, intended to be multipurpose, and stable over time.</p>
Post-procedural antimicrobial	An antimicrobial prescribed following, but directly relating to, the procedure; each prescription of the antimicrobial is recorded, including any inpatient or discharge scripts.
Prescription	Any antimicrobial prescribed, either as a single dose or as a course, following the surgical procedure.
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, e.g., colonoscopies, radiological procedures.
Procedure group	The specialty group under which each procedure is classed for reporting; see <u>Surgical procedure groups</u> .
Prophylactic therapy	Prophylactic use of antimicrobials aims to prevent infection when there is significant clinical risk of infection developing.
Residential aged care facility 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 was first developed in 2001 by the Australian Bureau of Statistics as a statistical geography that allows quantitative comparisons based on remoteness of a point based on the 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 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.
Therapeutic Guidelines ⁹	Antibiotic Expert Group. Therapeutic Guidelines: Antibiotic. Version 16. Melbourne: Therapeutic Guidelines Limited; 2019. https://www.tg.org.au

1. Introduction

The 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 NAPS⁶ and Aged Care NAPS⁷ respectively.

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

This technical supplement will provide information on:

1. methodology, including the participant recruitment, and data collection process
2. auditor education and support
3. data analysis
4. 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 the 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 Australian health service organisations 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 (NSQHS) 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](#)).

Time frame

Data entry and reporting is available throughout the year, allowing hospitals to complete the survey whenever time and staffing resources permit. All finalised patient data that were audited from 1 January to 31 December 2022 have been included for analysis in the 2022 Hospital NAPS report.

Recruitment

Using the existing registry of NAPS participants, individuals from more than 900 hospitals were invited via email to participate in the 2022 survey. Further promotion by NCAS and the RMH Guidance Group occurred throughout the year via their websites, 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:

1. has an active antimicrobial order at 8:00 a.m. on the audit day
2. was prescribed a stat dose (i.e. a single dose order) of an antimicrobial since 8.00 a.m. the previous day
3. has had a surgical procedure performed and has been prescribed an antimicrobial for prophylaxis since 8.00 a.m. the previous day.

Included antimicrobials to be audited:

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

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

Excluded patients:

Exclude all day-stay, outpatient, hospital-in-the-home and residential aged care patients. Also exclude any patients present in the emergency department who have not yet been officially admitted.

Audit methodology

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

Method 1: Hospital-wide point prevalence survey

- This methodology requires all inpatients to be assessed so 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).
- The data collection is recommended to be completed on a single calendar day; however, if this is not possible, wards can be surveyed on separate days provided that all patients are surveyed once only.

Method 2: Repeat point prevalence surveys

- 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 surveys whereby a whole-hospital survey is conducted multiple times, with surveys at least one week apart, until at least 30 antimicrobial prescriptions have been collected.
- All inpatients should be included in the repeat surveys, including those who have been surveyed previously, as the appropriateness of their respective antimicrobial prescriptions may change over time.

Method 3: Random sampling point prevalence survey

For large hospitals where a whole-hospital point prevalence survey 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 in 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 its 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 Guidelines⁹) or local guidelines where applicable. Appropriateness assessments are made in accordance with the Hospital NAPS definitions ([2.7 Hospital NAPS appropriateness definitions](#)). If adequate on-site 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 online resources to promote accurate data collection and prescription assessment and to assist with the reporting and feedback process. These essential survey resources are:

- a user guide
- the data collection form ([2.5 Hospital NAPS Data Collection Form](#))
- appropriateness definitions ([2.7 Hospital NAPS appropriateness definitions](#))
- case examples
- an Excel upload user guide
- a guide to the clinical care 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 program is available on the NAPS website. It provides users with information regarding setting up the survey, data collection, and assessments of compliance with guidelines and appropriateness.

2.3 Data analysis

Hospitals that conducted whole-hospital audits, including single point prevalence surveys, repeat point prevalence surveys and randomised sample surveys, were included in the analyses. To avoid issues with systematic bias, all other survey methodologies, including directed surveys 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 (ABS) remoteness classifications and the Australian Institute of Health and Welfare (AIHW) 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 survey. Patients who are *not* receiving any antimicrobials are excluded. Therefore, the survey 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 patients who are receiving antimicrobials are included; hence the reported results may appear worse than what they actually are for a given indication.

Representativeness

Despite the survey's voluntary nature, there is a high degree of representativeness⁵ 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 surveys

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 each annual report, previous years' data are regenerated and re-analysed for the purpose of comparison reporting. Therefore, the 2022 report⁵ results may differ slightly from those that were previously published.

Subjective nature of assessments

The Hospital NAPS has a mandatory eLearning module, detailed user guides, 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 antimicrobial prescribing appropriateness and compliance with guidelines, and there is some degree of interpretation involved.

Audit date / /	Patient identification number	Age / date of birth / /	Gender M / F / O	Specialty <input type="checkbox"/> currently in ICU / NICU	Ward	Weight kg	eGFR / CrCl ml/min
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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
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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 <u>any</u> 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

Doc: HospitalINAPS-DCF-v10-20220218

2.5 Hospital NAPS data collection form 2022

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	<p>The prescription complies with the current Therapeutic Guidelines^a, including:</p> <ul style="list-style-type: none"> • route, dose, frequency <p>AND</p> <ul style="list-style-type: none"> • takes into account acceptable alterations due to age, weight, renal function, allergies, other prescribed medications etc.
Compliant with locally endorsed guidelines ^b	<p>The prescription complies with an officially endorsed local guideline, including:</p> <ul style="list-style-type: none"> • route, dose, frequency <p>AND</p> <ul style="list-style-type: none"> • takes into account acceptable alterations due to age, weight, renal function, allergies, other prescribed medications etc. <p>This does not include individual, departmental, or historical guidelines that do not have executive or drug and therapeutic committee approval</p> <p>If the local guidelines are based exactly on the Therapeutic Guidelines^a, then choose the 'Therapeutic Guidelines' in preference to 'Local guidelines'</p>
Non-compliant with guidelines	<p>There is non-compliance with both Therapeutic Guidelines^a and local guidelines.</p> <p>UNLESS</p> <p>the prescription takes into account acceptable alterations due to age, weight, renal function, allergies, other prescribed medications etc.</p>
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	<p>The medical records are not comprehensive enough to determine a documented or presumed indication</p> <p>OR</p> <p>It is difficult to assess if there is compliance</p>

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 and links to other official guidelines within a hospital's network.

Hospital NAPS appropriateness definitions

If endorsed guidelines are <u>present</u>		If endorsed guidelines are <u>absent</u>	
Appropriate	1 Optimal ¹	Antimicrobial prescription follows either the Therapeutic Guidelines ² or endorsed local guidelines <i>optimally</i> , including antimicrobial choice, dosage, route and duration ³	
	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 <i>reasonable</i> 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 <i>unreasonable</i> choice for the likely causative or cultured pathogens, including: <ul style="list-style-type: none"> 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 <i>unlikely</i> to treat the likely causative or cultured pathogens OR The documented or presumed indication does not require <i>any</i> 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

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 NSQHS 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](#)).

Time frame

Data entry and reporting were available throughout the year (1 January to 31 December 2022), allowing hospitals to complete the survey whenever time and staffing resources permit. Hospitals may retrospectively audit data from previous years. Therefore, the total number of hospitals contributing annually differs slightly each year. Despite auditing in 2022, data from previous years are not included in the 2022 Surgical NAPS report.

All finalised patient data that were audited in 2022 have been included for analysis in the 2022 Surgical NAPS report.

Recruitment

Using the existing registry of NAPS participants, individuals from more than 900 hospitals were invited via email to participate in the 2022 Surgical NAPS. Further promotion by NCAS and the RMH Guidance Group occurred throughout the year via their websites, Twitter accounts and newsletters.

Inclusion criteria

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

Audit methodology

Auditors can choose a variety of methods to perform the survey, depending on the size of the facility and available resources. Data can be collected on paper data collection forms and 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 audit was the preferred methodology used by auditors. Auditors were advised to complete the audit over any chosen time frame, with a minimum of one week or 30 consecutive procedures or surgical episodes. They were advised to obtain theatre lists to capture all procedures during this time frame.

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 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 assessments 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 Guidelines⁹) or local guidelines where applicable. Appropriateness assessments are made in accordance with the Surgical NAPS definitions ([3.6 Surgical NAPS appropriateness definitions](#)).

If an on-site 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 online resources to promote accurate data collection and prescription assessment and to assist with the reporting and feedback process. These essential survey resources include:

- a user guide
- the 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.

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 AMS specialists.

eLearning module

The Surgical NAPS online eLearning program is available on the NAPS website. The package provides users with information regarding setting up the survey, 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.

Data cleaning

Following the 2019 Surgical NAPS, improvement in data validation was undertaken by the NAPS support team, particularly around data entry of dates. This helped to ensure data accuracy, particularly with respect to calculation of the duration of surgical prophylaxis. This improvement then reduced the requirement for extensive data cleaning, as was performed prior to the 2019 data analysis.

The data are cleaned and reviewed annually prior to analysis. For the 2022 dataset, antimicrobials prescribed with a duration of 31 days or greater were reviewed to confirm correct data entry of dates. Only 4 antimicrobial prescriptions required review, of which none (0%) required amendment by the NAPS support team following internal review and discussion. No facilities had to be contacted directly to review and amend their records.

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 for the more acute measure of administration date and time of the first procedural antimicrobial prescribed, which could not be determined for 767 (9.0%) of the prescribed initial procedural doses (n=8,530) in 2022. 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 could 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 AIHW peer group classification system¹⁰ and the ABS remoteness categories⁴ 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 were:

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	Other women's and children's hospitals
Women's hospitals	Plastic and reconstructive surgery centres
Women's and children'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 were:

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 this 2022 Surgical NAPS report⁶ 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 surveys (consecutive or random patients), directed surveys (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.

Survey methodology not defined

For the Surgical NAPS, each hospital could decide how it performed the survey and which patients, or surgical specialties, were audited. If directed surveys 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](#)) improves this objectivity. This is further supplemented by the NAPS support team and online training resources. Remote expert assessments could also 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.

Patient identification Number / Date of birth / Age / Gender / 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

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

☐ no risk factors

Transrectal prostatic biopsy

- ☐ quinolone therapy in preceding 3 months
- ☐ risk factors for infection with a MDR Gram-negative bacterium

Gastrointestinal 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			Guideline compliance (1-6)							Appropriateness (1-5)	
			Not assessable	Nearest 15 minutes	Exact time	Start time								
						:								
						:								
						:								
<input type="checkbox"/> Repeat dose required, but not given														
<input type="checkbox"/> No antimicrobial prescribed														4

Surgical NAPS data collection form 2022 continued

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	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)
/ / ;	/ / ;					For prophylaxis only											
/ / ;	/ / ;					For treatment of infection related to the procedure*											
/ / ;	/ / ;					Not assessable											
/ / ;	/ / ;																
/ / ;	/ / ;																
/ / ;	/ / ;																
/ / ;	/ / ;																
/ / ;	/ / ;																
*If time unknown, write unknown		<input type="checkbox"/> None prescribed	<input type="checkbox"/> 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 ☐ prostheses

Microbiology

Clostridioides difficile infection

MDR organism

Sepsis

Unplanned return to theatre

Unplanned ICU admission

Unplanned hospital readmission

Death

Other morbidity (if yes, specify)

☐ yes ☐ no ☐ unknown

☐ yes ☐ no ☐ unknown

☐ yes ☐ no ☐ unknown

☐ yes ☐ no ☐ unknown

☐ yes ☐ no ☐ unknown

☐ yes ☐ no ☐ unknown

☐ yes ☐ no ☐ unknown

☐ 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

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Surgical NAPS appropriateness definitions

	Appropriate		Inappropriate		5 - Not assessable
	1 - Optimal	2 - Adequate	3 - Suboptimal	4 - Inadequate	
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 <i>If any reason is selected for incorrect prescribing, the prescription will no longer be optimal.</i>	Repeat dose given too soon (including patients who were already on existing antimicrobial therapy) taking into consideration patients with renal impairment	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	
Incorrect route			An intravenous antimicrobial has been prescribed when the patient is able to safely take it orally	Gentamicin dose too high or too frequent The prescribed route does not reach the site of infection or surgery	
Incorrect timing				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	Existing antimicrobials providing sufficient prophylaxis for the duration of procedure No antimicrobial prescribed for procedure not requiring prophylaxis		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	Choice of antimicrobial does not cover likely organisms	
Spectrum too narrow				Procedure does not require any antimicrobials, but antimicrobials were still prescribed	
Procedure does not require any antimicrobials				Procedure requires antimicrobials but no antimicrobials were prescribed AND there were no existing antimicrobials to provide sufficient prophylaxis	
Procedure requires antimicrobials				This will automatically be selected for auditors	
Repeat dose required, but not given					

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3.6 Surgical NAPS appropriateness definitions

4. Aged Care NAPS

4.1 Methodology

The Aged Care NAPS is a standardised surveillance tool that all Australian aged care homes and multipurpose services (aged care facilities) 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 aged care facilities 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 can 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, infection control professionals and/or pharmacists. Ideally, surveyors have at least 2 years of clinical experience and collaborate with other staff as deemed appropriate.

Time frame

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

The official data collection and submission period for the 2022 Aged Care NAPS was 1 June to 31 December 2022. All finalised data that were audited during this time frame have been included for analysis in this report.

Recruitment

All Australian aged care facilities were eligible to participate in the 2022 Aged Care NAPS. Since 2017, participation by Victorian state government aged care facilities 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 aged care facilities were invited via email to participate in the 2022 Aged Care NAPS. Further promotion by NCAS, VICNISS and the RMH Guidance Group occurred throughout the year via their websites, Twitter accounts and newsletters.

Inclusion criteria

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

Audit methodology

On any day during the 2022 time frame, participating facilities chose one of 2 survey methods to collect data (see box below).

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

Facilities could participate more than once.

Method 1: single-day point prevalence survey

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

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

Method 2: single-day point prevalence survey plus additional one-month retrospective survey

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

- have an antimicrobial prescription noted on their medication chart
- 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 facility 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 online resources to promote accurate data collection and prescription assessment and to assist with the reporting and feedback process. These essential survey resources are:

- a user guide
- the Facility form
- the Antimicrobial and infection form
- a list of commonly prescribed antimicrobials
- an indications list
- the 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 aged care facilities without access to infectious diseases or AMS specialists.

eLearning module

The Aged Care NAPS eLearning program is available on the NAPS website. It provides users with information regarding setting up the survey, how to prepare for the survey, the methodology, and how to complete the data collection form.

Currently, Aged Care NAPS participants are not required to complete the e-Learning, 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 surveyors to correct missing, miscoded and out-of-range errors. Duplicate and non-finalised resident records were excluded; surveys that included only non-finalised resident records were omitted. For facilities that participated more than once each year, only their last survey was included. 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 the McGeer et al. infection surveillance definitions were met.² 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' were captured.²

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 date and survey date were required for these analyses.

4.4 Considerations for interpretation of results

Aged Care NAPS data

Data from 2016 to 2021 included in the analyses for the 2022 report differ from the data in previous reports. This is because some data were retrospectively entered and an extensive data cleaning process was undertaken before commencing the 2022 analysis.

Sampling

For some states and territories, remoteness and provider type categories, there were relatively small numbers of participating facilities.

Over time, different cohorts of facilities have participated in the annual Aged Care NAPS. Each year, the number of participating facilities has mostly increased, 'new' facilities have participated and some facilities 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 are likely to be most significant in the time period just prior to 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 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 may not fully exclude the presence of a true infection.²

In addition, the McGeer et al. definitions require microbiological confirmation for some infections (for example, urinary tract infections).² 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 aged care facilities 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 survey 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 2022

Facility name

Aged care provider group name

Survey date

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.

No. of residents present (or onsite)

Total

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

Does the resident have an antimicrobial prescription? ☐ yes; **complete sections 1, 2, 3 & 4 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 M / F / O Gender Admitted to the facility within the last 48 hours Yes / No Admitted to hospital within the last 7 days Yes / No

2. Antimicrobials		Antimicrobial		Dose	Route	Freq	PRN	Indication documented by prescriber	Specify documented or presumed indication	Was this for prophylaxis?	Review/stop date documented
Start date*	Started at this facility										
/ /											
/ /											
/ /											
/ /											

3. Adverse drug reactions to antimicrobials		Allergic reactions			Side effects	Unknown reaction
<input type="checkbox"/> nil known	<input type="checkbox"/> not documented	Anaphylaxis / angioedema	Rash / urticaria	Other	(eg: nausea, vomiting, diarrhoea)	
<input type="checkbox"/> yes, specify; Antimicrobial(s)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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	
<input type="checkbox"/> none collected	<input type="checkbox"/> sputum
<input type="checkbox"/> skin / wound swab	<input type="checkbox"/> respiratory swab
<input type="checkbox"/> urine	<input type="checkbox"/> 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

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

As according to full blood examination results

☐ White blood cells elevated (WBC, leucocytes, etc.)

☐ Left shift documented

Acute functional decline from baseline:
(hours to a few days)

☐ Bed mobility

☐ Transfer

☐ Locomotion within facility

☐ Dressing

☐ Toilet use

☐ Personal hygiene

☐ Eating

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 via 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 application 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.

6. References

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All information in this publication is correct as at October 2023

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