

# Antimicrobial Stewardship in Australian Residential Aged Care Facilities

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National Centre For Antimicrobial Stewardship - The Royal Melbourne Hospital  
Guidance Group, Melbourne



Australasian College  
for Infection Prevention and Control

# The NAPS Clinical Team



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Project Officer*



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*Program Manager +  
Surgical NAPS Lead  
Project Officer*



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*Clinical Director*



Ms Caroline Chen  
*Hospital NAPS Lead  
Project Officer*



Prof Lisa Hall  
*Epidemiologist*

# Learning Objectives



This interactive workshop will allow participants to:

1. Identify the current 'state of play' of AMS in Australian RACFs
2. Identify key components to consider in establishing an AMS program in RACFs
3. Identify barriers and enablers of implementing an AMS program in Australian RACFs
4. Identify key AMS resources available to support the establishment of AMS programs in Australian RACFs
5. Identify key stakeholders and how to engage them in AMS.

## **Presentations**

1. Results of the 2022 Aged Care National Antimicrobial Prescribing Survey (AC NAPS)  
(Dr Courtney Ierano)
2. How to implement a Residential Aged Care Facility Antimicrobial Stewardship Program  
(A/Prof Noleen Bennett)
3. **Workshop Activity**  
(Prof Lisa Hall)
4. **Q+A Panel**

# Presentations

# Antimicrobial Stewardship in Australian Residential Aged Care Facilities

Results of the 2022 Aged Care National  
Antimicrobial Prescribing Survey (AC NAPS)

Dr Courtney Ierano  
NAPS Program Manager

- National Centre For Antimicrobial Stewardship – University of Melbourne
- The Royal Melbourne Hospital Guidance Group, Melbourne



Australasian College  
for Infection Prevention and Control

# Acknowledgements

## Funding



## Support



# A brief NAPS history



2011 to 2012



**Pilot paper surveys**  
32 (2011) to 85 (2012)  
hospitals participated

2013 to 2015



**Launch of online data collection platform and national program**  
Number of participating hospitals increased from 137 (2013) to 303 (2015)

2016 to 2018



**Expansion into other practice domains**  
New modules added: Aged Care NAPS, Surgical NAPS and Quality Improvement NAPS

2019

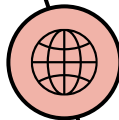


**Continued growth and international implementation**  
Australia: 439 hospitals and x aged care homes participated  
International: 72 hospitals across New Zealand, Canada, Malaysia, Fiji and Bhutan





A standardised  
surveillance tool for  
all Australian aged  
care facilities to:



### **MONITOR**

prevalence of infections +  
antimicrobial use



### **PROVIDE FEEDBACK**

to key clinicians and  
administrators



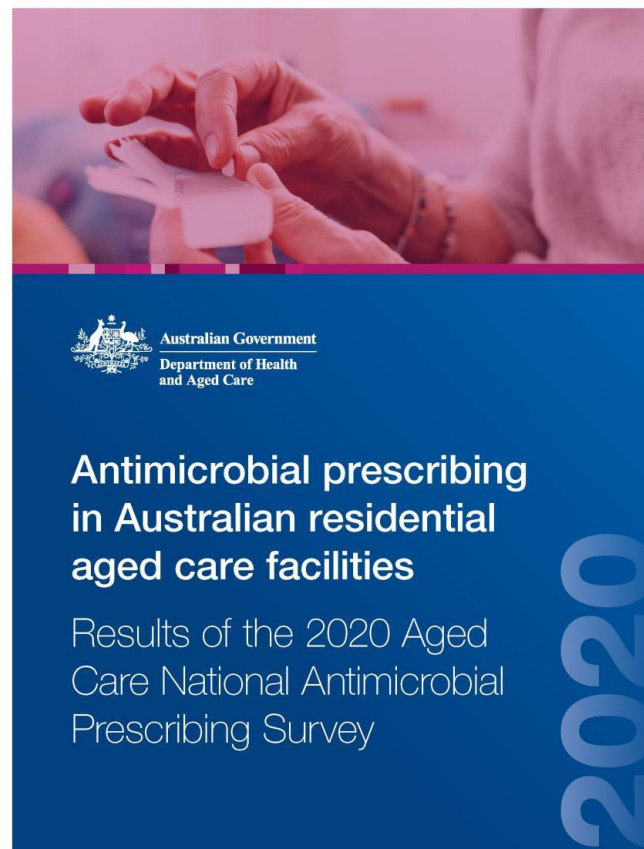
### **MEASURE EFFECTIVENESS**

of infection prevention and  
control + AMS programs

# Aged Care NAPS

Annual public report since 2015

**AIM:** describe **infections** and **antimicrobial prescribing practices** in Australian **aged care homes** to inform targeted quality improvement strategies.



# Methods

Multicenter, national, quality improvement study

## Auditors

Senior Nurse

Infection Control  
Professional

Pharmacists

**Preferably**  
>2 years clinical  
experience  
+  
multi-disciplinary team

# Methods

## Method 1: A single day point prevalence survey only

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

- have an antimicrobial prescription AND/OR
- have signs and symptoms of a suspected or confirmed infection.

## Method 2: A single day point prevalence survey PLUS an additional one month retrospective survey

Smaller facilities may wish to consider this option to increase the sample size of their data

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

- have an antimicrobial prescription AND/OR
- have signs and symptoms of a suspected or confirmed infection.

*In addition*, all residents present on the survey day are screened to determine if they had an antimicrobial prescription on any day during the previous month (that were ceased prior to the survey day).

For example, if the date for the survey day is 27/6/21, additional antimicrobials that were prescribed on any day from 26/5/21 onwards but were ceased prior to 27/6/21 are included.

# Data collection



Does the resident have an antimicrobial prescription? ☐ yes, complete sections 1, 2, 3 & 6 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	Admitted to the facility within the last 48 hours	Admitted to hospital within the last 7 days
			/ /	M / F / O	Yes / No	Yes / No
2. Antimicrobials						
Start date	Started at this facility	Still prescribed today	Antimicrobial	Dose	Route	Freq
/ /						
/ /						
/ /						
/ /						

3. Adverse drug reactions to antimicrobials		Allergic reactions		Side effects		Unknown reaction	
		Anaphylaxis / angioedema	Rash / urticaria	Other	Other	Other	Other
<input type="checkbox"/> nil known	<input type="checkbox"/> not documented	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> yes, specify:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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"/>

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	
<input type="checkbox"/> No constitutional criteria identified <b>Fever</b> <input type="checkbox"/> Single oral temperature >37.8°C <input type="checkbox"/> Repeated oral temperature >37.2°C, or rectal temperature >37.5°C <input type="checkbox"/> Single temperature >1.1°C over baseline from any site <input type="checkbox"/> Chills or rigors <b>As according to full blood examination results</b> <input type="checkbox"/> White blood cells elevated (WBC, leucocytes, etc.) <input type="checkbox"/> Left shift documented	<b>Change in mental status from baseline</b> (confusion, forgetfulness, etc.) <input type="checkbox"/> Acute onset (hours to a few days) <input type="checkbox"/> Fluctuating course <input type="checkbox"/> Inattention <input type="checkbox"/> Disorganised thinking or altered level of consciousness <b>Acute functional decline from baseline</b> (hours to a few days) <input type="checkbox"/> Bed mobility <input type="checkbox"/> Transfer <input type="checkbox"/> Locomotion within facility <input type="checkbox"/> Dressing <input type="checkbox"/> Toilet use <input type="checkbox"/> Personal hygiene <input type="checkbox"/> 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	Respiratory tract	Skin or soft tissue	Other infection(s) not listed
<input type="checkbox"/> Acute pain on urination <input type="checkbox"/> Acute pain, swelling or tenderness of the testes, epididymis or prostate <input type="checkbox"/> Back pain or tenderness (new onset) <input type="checkbox"/> Blood in urine <input type="checkbox"/> Frequency (new or marked increase) <input type="checkbox"/> Incontinence (new or marked increase) <input type="checkbox"/> Low blood pressure with no alternate site of infection (new onset) <input type="checkbox"/> Pus discharging from the urethra or around a catheter <input type="checkbox"/> Suprapubic pain (new onset) <input type="checkbox"/> Urgency (new or marked increase) <input type="checkbox"/> Urinary retention <input type="checkbox"/> Other signs +/or symptoms not listed above <b>Urinary catheter</b> <input type="checkbox"/> none <input type="checkbox"/> intermittent (in and out) <input type="checkbox"/> indwelling <input type="checkbox"/> suprapubic <input type="checkbox"/> external <input type="checkbox"/> nephrostomy tube <b>Urine dipstick</b> <input type="checkbox"/> not performed <input type="checkbox"/> performed; date / / <b>Nitrite</b> <input type="checkbox"/> negative <input type="checkbox"/> positive <input type="checkbox"/> not recorded <b>Leucocyte esterase</b> <input type="checkbox"/> negative <input type="checkbox"/> 1+ <input type="checkbox"/> 2+ <input type="checkbox"/> 3+ <input type="checkbox"/> not recorded <b>Urine specimen in the 6 days prior to 3 days after the survey day</b> <input type="checkbox"/> not collected <input type="checkbox"/> collected; date / / <input type="checkbox"/> final report attached	<input type="checkbox"/> Chest wall pain <input type="checkbox"/> Chest X-ray (recent, normal) <input type="checkbox"/> Chest X-ray showing pneumonia or new infiltrate (recent) <input type="checkbox"/> Cough (new or increased) <input type="checkbox"/> Headache or eye pain (new) <input type="checkbox"/> Hoarseness <input type="checkbox"/> Loss of appetite <input type="checkbox"/> Lung abnormalities (new or increased) <input type="checkbox"/> Malaise <input type="checkbox"/> Myalgia or muscle pain <input type="checkbox"/> Oxygen saturation < 94% on room air or a reduction of > 3% from baseline <input type="checkbox"/> Pain on swallowing <input type="checkbox"/> Respiratory rate > 25 breaths per minute <input type="checkbox"/> Runny nose or sneezing <input type="checkbox"/> Sore throat <input type="checkbox"/> Sputum (new or increased) <input type="checkbox"/> Stuffy nose <input type="checkbox"/> Swollen or tender neck glands <input type="checkbox"/> Other signs +/or symptoms not listed above <b>Sputum specimen in the 6 days prior to 3 days after the survey day</b> <input type="checkbox"/> not collected <input type="checkbox"/> collected; date / / <input type="checkbox"/> final report attached <b>Respiratory virus test in the 2 days prior to 3 days after the survey day</b> <input type="checkbox"/> not collected <input type="checkbox"/> collected; date / / <input type="checkbox"/> final report attached <b>Urine specimen in the 6 days prior to 3 days after the survey day</b> <input type="checkbox"/> not collected <input type="checkbox"/> collected; date / / <input type="checkbox"/> final report attached	<input type="checkbox"/> Heat <input type="checkbox"/> Pus present at wound, skin or soft tissue site <input type="checkbox"/> Redness <input type="checkbox"/> Serous discharge <input type="checkbox"/> Swelling <input type="checkbox"/> Tenderness or pain <b>Rash</b> <input type="checkbox"/> rash or lesions characteristic of a fungal skin infection <input type="checkbox"/> maculopapular rash and/or itching rash <input type="checkbox"/> vesicular rash <b>Doctor or laboratory confirmation for</b> <input type="checkbox"/> fungal skin infection <input type="checkbox"/> herpes simplex or zoster <input type="checkbox"/> scabies <input type="checkbox"/> Linkage to laboratory confirmed case of scabies <input type="checkbox"/> Other signs +/or symptoms not listed above <b>Swab in the 6 days prior to 3 days after the survey day</b> <input type="checkbox"/> not collected <input type="checkbox"/> collected; date / / <input type="checkbox"/> final report attached	<b>Comments and clinical notes</b>
	Oral	Eye	
	<input type="checkbox"/> Doctor or dental provider confirmation <input type="checkbox"/> Presence of raised white patches or plaques in mouth <input type="checkbox"/> Other signs +/or symptoms not listed above	<input type="checkbox"/> Itching or pain > 24 hours <input type="checkbox"/> New or increased conjunctival redness <input type="checkbox"/> Pus from one/both eyes present for >24 hrs <input type="checkbox"/> Other signs +/or symptoms not listed above	

AC NAPS Antimicrobial and Infection Form FINAL

# Data submission



[Frequently Asked Questions](#) | [About NAPS](#) |  
[Welcome Courtney!](#) | [My Account](#) |



● ○ ○ ○ ○

Please select your module below

**Hospital**

**HOSPITAL NAPS** National Antimicrobial Prescribing Survey

**SURGICAL NAPS** National Antimicrobial Prescribing Survey

**QI Quality Improvement NAPS** National Antimicrobial Prescribing Survey

**Residential Aged Care**

**AGED CARE NAPS** National Antimicrobial Prescribing Survey

**Veterinary**

**VETERINARY NAPS** National Antimicrobial Prescribing Survey



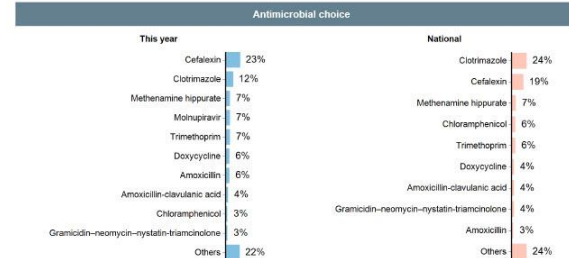
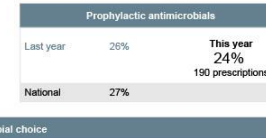
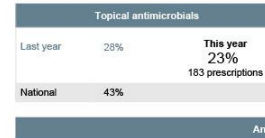
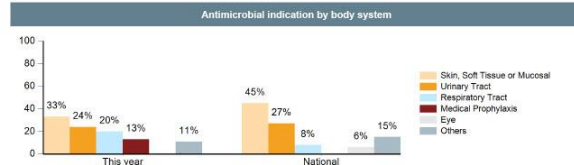
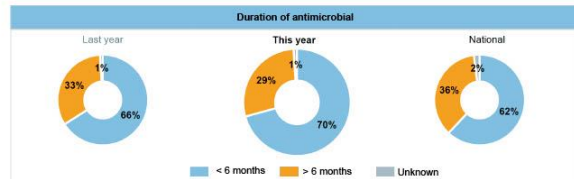
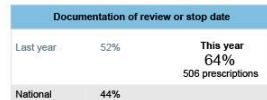
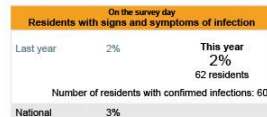
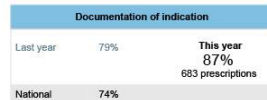
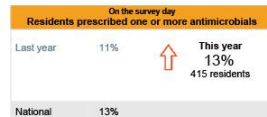
# Reports



## Dashboard Report

Number of included facilities:	61		
Number of included surveys:	60		
Survey year:	2022	Previous survey year:	2021
Residents present:	3117	Previous residents present:	2727
Number of antimicrobials prescribed:	788	Previous number of antimicrobials prescribed:	501

\*See over page for details about participating facilities.



Survey information			
Measurement	This year	Last year	National
Residents present on survey day	3,117	2,727	97,312
Age > 85 years	1,857 (60%)	1,499 (55%)	55,982 (58%)
Male	970 (31%)	857 (31%)	32,587 (33%)
Admitted to hospital in previous 7 days	29 (1%)	125 (5%)	1,749 (2%)
Urinary catheter present on survey day	97 (3%)	156 (6%)	3,494 (4%)

Facilities included in this report	Surveys	Methodology
Albion House	2022 AC NAPS JULY	Single day AND one month retrospective
	2022 AC NAPS	Single day AND one month retrospective
	2022 AC NAPS	Single day AND one month retrospective
	2022 AC NAPS	Single day only
	2022 AC NAPS	Single day only
	2022 AC NAPS	Single day only
	2022 AC NAPS	Single day AND one month retrospective
	2022 AC NAPS	Single day AND one month retrospective
	2022 AC NAPS	Single day only
	2022 AC NAPS	Single day only

# Results

Retrospective analysis of data collected from Aged  
Care NAPS audits  
from July 1, 2022 to December 31, 2022



NOT YET PUBLISHED



# Results



**743** aged care facilities

**27.5%** of all Australian  
aged care facilities

**3.1%**  
(n = 1,293)

of residents had **signs +/-or**  
**symptoms** of a **suspected**  
**infection**



**1.0%**

of residents had **signs +/-or**  
**symptoms** that met the McGeer  
Criteria



**International  
comparisons**

**HALT 2016/2017**

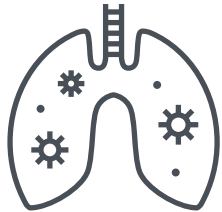
**3.7%**

Residents with  
at least ONE  
HAI

# Results

## Most Common Suspected Infections

45.7%	skin or soft tissue
21.8%	urinary tract
20.3%	respiratory tract



# Results

14.1%  
(n = 5,430)

of residents  
were prescribed  
at **least one antimicrobial**



Of these...

18.8%  
(n = 1,574)

of prescriptions  
were for  
**prophylactic  
indications**

# Results

**14.1%**

(n = 5,430)

of residents  
were prescribed  
at **least one**  
**antimicrobial**



When  
excluding  
topicals...

**7.8%**

(n = 1,837)

of residents  
were prescribed  
at **least one**  
**antimicrobial**



**International  
comparisons**

**HALT 2016/2017**

**4.9%**

Residents  
prescribed with at  
least **ONE**  
antimicrobial  
\*excluding topicals

# Results

## Most Common Indications

<b>22.1%</b>	skin, soft tissue or mucosal conditions – other
<b>14.6%</b>	cystitis
<b>6.5%</b>	respiratory tract- other

## Most Common Prophylactic Indications

cystitis	<b>24.3%</b>
medical prophylaxis -other	<b>11.0%</b>
skin, soft tissue or mucosal conditions - other	<b>9.9%</b>

# Results

## Most Common Antimicrobials



21.7%	clotrimazole
19.6%	cefalexin
5.7%	trimethoprim
5.6%	molnupiravir

40.3%

of all  
antimicrobials  
were **topical**



# Results

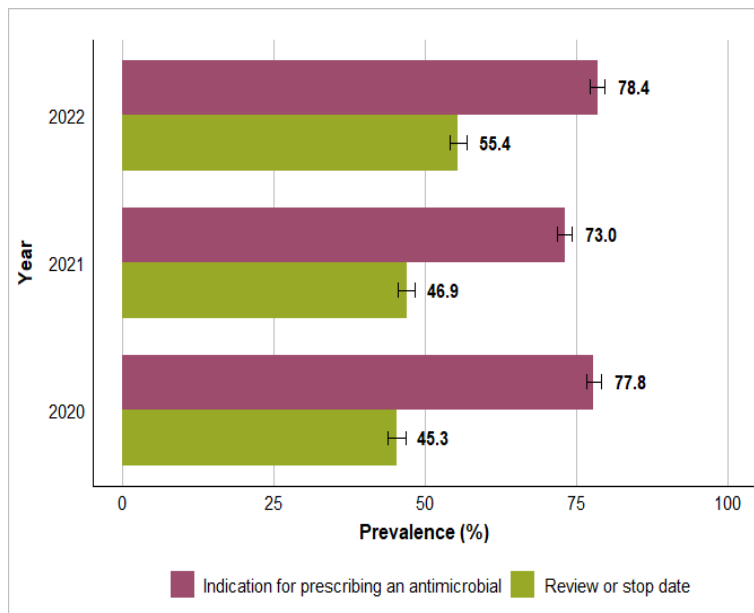
## Key Quality Indicators

**78.4%** Documented indication

**55.4%** Documented review or  
stop date

**37.7%** Commenced  
>6 months prior

Key quality indicators, Aged Care NAPS contributors that have participated each year 2020-2022 (n = 428)



# Implications

Drive **local quality improvement** and AMS initiatives

Aim to improve resident **safety, care** and **outcomes**

Support Aged care facilities to meet Australian Aged Care **Quality Standards**





# Auditing tips

- User Guide and resources
- Plan ahead
- Engage your stakeholders
- Optional worksheet

Worksheet (optional)

Bed	Name or ID number	>85yrs	Male	Admitted to hospital in previous 7 days	Current urinary IDC	Prescribed an antimicrobial	Signs and/or symptoms of infection
1.							
2.							
3.							
4.							
5.							
6.							
7.							
8.							
9.							
10.							
11.							
12.							
13.							
14.							
15.							
16.							
17.							
18.							
19.							
20.							
21.							
22.							
23.							
24.							
Total							

AC NARS Facility Form, FINAL

# Conclusions



perceived **high value** of Aged Care NAPS



**monitor and benchmark** infections + antimicrobial use



identified **targets for improvement**



↓ **prolonged** durations

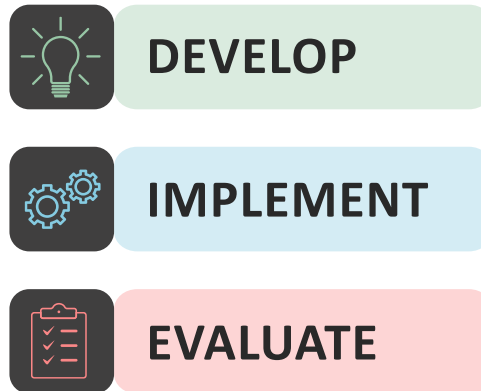


↓ **topical** antimicrobials



↓ **prophylactic** antimicrobials

# Future research: NISPAC



Projects include:

Development of **INTERNATIONAL CONSENSUS METRICS** for infections and antimicrobial use in aged care



# References



1. Royal Melbourne Hospital and the National Centre for Antimicrobial Stewardship. Antimicrobial prescribing practice in Australian residential aged care facilities. Results of the 2020 Aged Care National Antimicrobial Prescribing Survey Canberra: Department of Health and Aged Care; 2023.  
<https://www.amr.gov.au/resources/antimicrobial-prescribing-australian-residential-aged-care-facilities-results-2020-aged-care-national-antimicrobial-prescribing-survey>
2. European Centre for Disease Prevention and Control. Protocol for point prevalence surveys of healthcare-associated infections and antimicrobial use in European long-term care facilities – version 4.0. 2023.  
<https://www.ecdc.europa.eu/en/publications-data/protocol-point-prevalence-surveys-healthcare-associated-infections-4-0>
3. Australian Government. Aged Care Quality Standards. Sydney: Aged Care Quality and Safety Commission; 2021. <https://www.agedcarequality.gov.au/providers/standards>
4. NCAS website: <https://www.ncas-australia.org/>
5. NISPAC website: <https://nispac.site/>

# Resources + Contacts



**NAPS** National Antimicrobial  
Prescribing Survey



@NCAS\_Aus

@NAPSurvey

@NISPAC\_Aus



Enquiries:  
[support@NAPS.org.au](mailto:support@NAPS.org.au)



# Antimicrobial Stewardship (AMS)

Driving forward: Embracing Fundamentals and Charting a Path for the Future.

Australasian College for Infection Prevention and Control (ACIPC) conference, November 2023

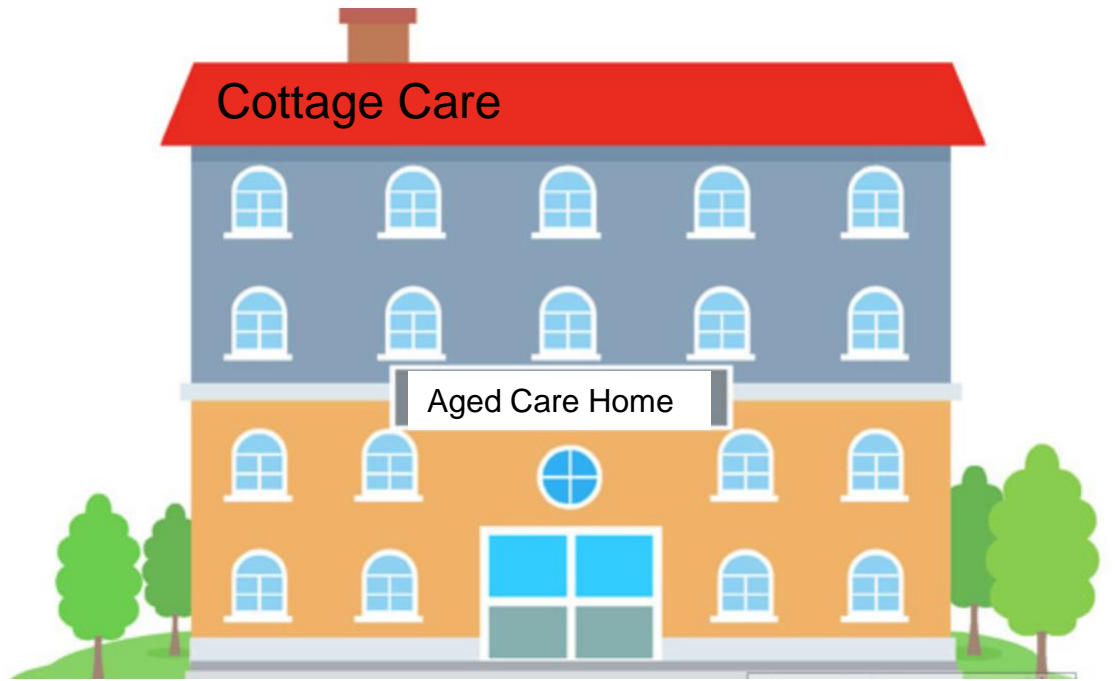
A/Prof Noleen Bennett



A joint venture between The University of Melbourne and The Royal Melbourne Hospital

# Outline

1. AMS definitions
2. AMS Framework
3. Resources





# Definitions

# AMS program (Antimicrobial, Antimicrobial resistance)

## AMS program

A systematic and coordinated approach to optimising antimicrobial use with the goals of:

- improving resident/patient/client outcomes
- ensuring **cost effective therapy**
- reducing **adverse consequences** of antimicrobial use, including **antimicrobial resistance**.

Antimicrobial: Chemical substances that inhibit the growth of, or destroy, bacteria, fungi, viruses or parasites.

Antimicrobial resistance: Failure of an antimicrobial to inhibit a microorganism at the antimicrobial concentrations usually achieved over time with standard dosing regimens.

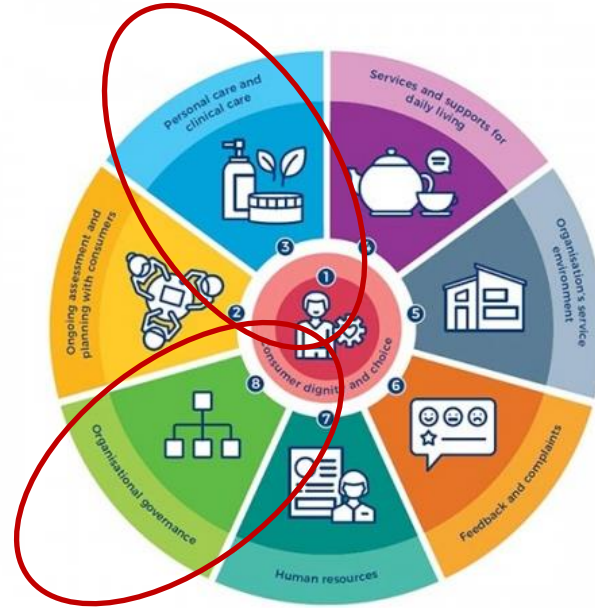
# AMS Framework

# Accreditation standards

## Hospitals

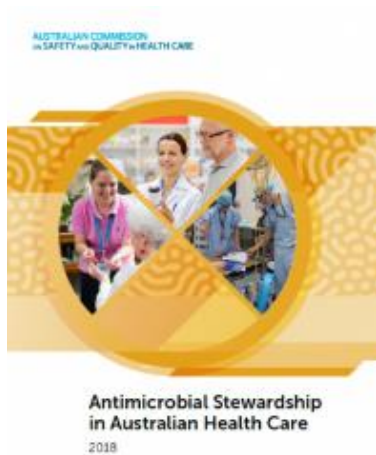


## Aged Care: July 1<sup>st</sup>, 2019

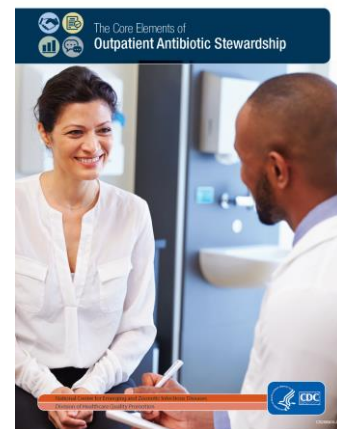
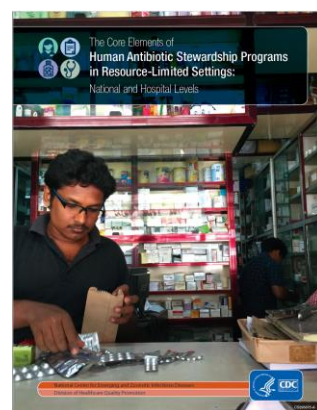
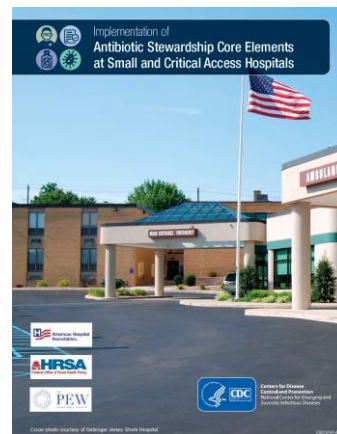
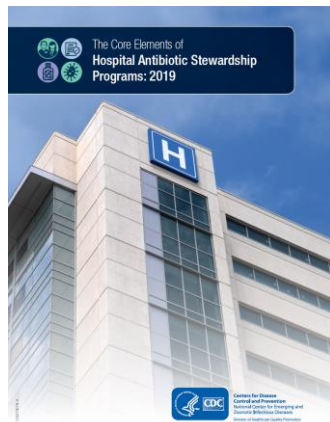


Aged Care Quality and Safety Commission

# AMS frameworks



For all healthcare settings



## CORE elements

1. Leadership
2. Accountability
3. Drug Expertise
4. Action
5. Tracking
6. Reporting
7. Education

# AMS program framework

## Step one: AIMS



	Leadership	Accountability	Drug Expertise	Surveillance (Tracking and Reporting)	Action	Education and Communication
AIM	Commit to preventing infections and improving antimicrobial use.	Identify individuals accountable for AMS activities.	Establish access to individuals with antimicrobial expertise.	<ul style="list-style-type: none"><li>•Track process and outcome measures.</li><li>•Disseminate surveillance reports.</li></ul>	Implement AMS policies and practices.	Provide AMS education <i>to residents, families and clinicians.</i>

# AMS program framework

## Step 2: Potential Barriers

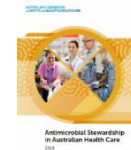


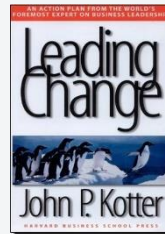
	Leadership	Accountability	Drug Expertise	Surveillance	Action	Education and Communication
AMS	Commit to preventing infections and improving antimicrobial use.	Identify individuals accountable for AMS activities.	Establish access to individuals with antimicrobial expertise.	<ul style="list-style-type: none"> <li>Track process and outcome measures.</li> <li>Disseminate surveillance reports.</li> </ul>	Implement AMS policies and practices.	Prioritise and provide AMS education to <i>residents, families and clinicians.</i>
Potential barriers	<p><i>Low awareness and support of AMS program.</i></p> <p>Competing priorities or initiative fatigue</p>	<p><i>Inability to find a qualified leader</i></p> <p>Leaders who are not effective stewards</p> <p>Fear of disciplining rogue providers/ habitual offenders</p> <p>Non physicians sometimes not included in AMS program</p>	<p>Inability to find a qualified pharmacist</p> <p>Insufficient funding</p>	<p>AMS program does not have resources to conduct measurements.</p> <p>Lack of expertise for data collection, analysis and interpretation.</p> <p>Lack of enough isolates to produce an antibogram</p> <p>Overwhelming amount of antibiotic use and resistance data.</p> <p>Lack of IT infrastructure</p>	<p><i>Overwhelming scope of possible interventions</i></p> <p>Resistance from providers to proposed interventions</p> <p>Providers not aware of treatment recommendations</p> <p>Alert fatigue</p>	<p><i>Overwhelming body of education material</i></p> <p>Data not well received, <i>poorly engaged clinical team</i></p>



8(e) Where clinical care is provided, a clinical governance framework including **antimicrobial stewardship**.

# AMS program framework **Step 3: Tips**



	Leadership	Accountability	Drug Expertise	Surveillance	Action	Education and Communication
AIMS	Commit to preventing infections and improving antimicrobial use.	Identify individuals accountable for AMS activities.	Establish access to individuals with antimicrobial expertise.	<ul style="list-style-type: none"> <li>•Track process and outcome measures.</li> <li>•Disseminate surveillance reports.</li> </ul>	Implement AMS policies and practices.	Prioritise and provide AMS education <i>to residents, families and clinicians.</i>
TIPS	<p>Facility leadership includes both owners and administrators as well as regional and national leaders if the facility is part of a larger corporation</p> <p>Establish a clear aim/vision that is shared by <b>all</b> stakeholders and that conveys a <b>sense of urgency</b>. AMS should be a safety priority.</p>	<p><b>Assemble multidisciplinary AMS team</b> with the responsibility and resources to coordinate AMS</p> <p><b>Appoint a strong influential clinical leader (can be a nurse)</b> and team members who possess a mix of expertise, credibility and leadership.</p> <p>It is helpful to have at least two identified leaders to ensure continuity should staff change.</p> <p>Ensure there are clear lines of governance b/w team and senior management who are ultimately responsible for AMS.</p>	<p>Use evidence based prescribing guidelines.</p> <p>Utilise existing resources such as community pharmacist and consultant laboratory.</p> <p>Laboratory support can include developing an official process for alerting the facility if certain antimicrobial resistant organisms are identified or creating a summary report of antibiotic susceptibility patterns from organisms isolated in cultures</p> <p>Partner with AMS leads at other facilities (hospitals) within network.</p>	<p>Monitor both processes and outcomes related to infections and antimicrobial use.</p> <p>Provide feedback reports in a simple format preferred by administrators/ clinicians.</p>	<p><b>Start with easy core evidence-based AMS interventions based on local needs, availability of expertise and resources- short term wins</b> – and then consolidate success/gains while progressing with more change or innovation.</p>	<p><b>Ensure all staff are aware of the importance and urgency of AMS</b></p>  <p>Methods include flyers, pocket guides, newsletters or electronic communications however interactive academic detailing has the strongest evidence for improvement</p> <p>Participate in Antibiotic Awareness Week</p>



# Multidisciplinary team

## Reasons why **NURSES** should be involved and can LEAD AMS programs

Half the Australian health care workforce

Work in many different settings where antimicrobials are prescribed, dispensed and/or administered

A constant in patient care

Advocate for patients

Work collaboratively with other healthcare team members

*Are or can be effectively involved in all core elements that support and influence AMS*

## CORE elements

1. Leadership
2. Accountability
3. Drug Expertise
4. Action
5. Tracking
6. Reporting
7. Education

# Medication management (and drug expertise)

Medication management extends beyond prescribing and includes too dispensing and administration.

Nurses predominately **administer** medications, including antimicrobials.

Obligation to patients and residents to ensure medication safety principles of administration are followed.

## FIVE rights

1. Right patient

2. Right drug

3. Right route

4. Right time

5. Right dose

## TEN rights

Five rights *plus*

6. Right documentation

7. Right action (reason)

8. Right form

9. Right response (desired effect)

10. Right duration

Ref: Elliott M and Liu Y. 2010

These principles of administration support the appropriate use of antimicrobials.



The Registered Nurse Prescribing Accreditation Standards are now under development. These standards will be used to assess and accredit registered nurse prescribing programs of study.

# AMS program framework: **Step 4: Primary tasks**



## Example

LEADERSHIP SUPPORT	ESTABLISHED AT FACILITY
1. Can your facility demonstrate leadership support for antibiotic stewardship through one or more of the following actions?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If yes, indicate which of the following are in place (select all that apply)	
<input type="checkbox"/> Written statement of leadership support to improve antibiotic use	
<input type="checkbox"/> Antibiotic stewardship duties included in medical director position description	
<input type="checkbox"/> Antibiotic stewardship duties included in director of nursing position description	
<input type="checkbox"/> Leadership monitors whether antibiotic stewardship policies are followed	
<input type="checkbox"/> Antibiotic use and resistance data is reviewed in quality assurance meetings	

## CORE elements

1. Leadership
2. Accountability
3. Drug Expertise
- 4. Action**
5. Tracking
6. Reporting
7. Education

# AMS program framework: Step 4: Primary tasks Step 5: Resources



	Leadership	Accountability	Drug Expertise	Surveillance	Action	Education and Communication
AMS	Commit to preventing infections and improving antimicrobial use.	Identify individuals accountable for AMS activities.	Establish access to individuals with antimicrobial expertise.	<ul style="list-style-type: none"> <li>Track process and outcome measures.</li> <li>Disseminate surveillance reports.</li> </ul>	Implement AMS policies and practices.	Provide AMS education
Primary tasks	<ul style="list-style-type: none"> <li>Develop AMS 'support statement' or policy.</li> <li>Include AMS related duties in position descriptions.</li> <li>Review AMR and AMS data in <b>monthly quality meetings</b>.</li> </ul>	Assign a multidisciplinary team to coordinate AMS program.	<ul style="list-style-type: none"> <li>Provide onsite access to evidence based prescribing guidelines</li> </ul>	<ul style="list-style-type: none"> <li>Collect and analyse infection and antimicrobial use data</li> <li>Disseminate reports to administrators/clinicians</li> </ul>		Download and disseminate information sheets to <i>residents, families and clinicians</i> .
Resources	NCAS/VICNISS AMS policy  AHRQ Roles and Responsibilities  ACSQHC AMS Clinical Care Standard	AHRQ Gather a team	Therapeutic Guidelines: Antibiotic  AMH Aged Care Companion  RACGP Medical care of older persons in residential aged care facilities	<b>Aged care National Antimicrobial Prescribing Survey</b>	National Residential Medication chart  TGA Urinary tract infection in ACF residents/ Community-acquired pneumonia in ACF  AMH Aged Care Companion Caring for ageing skin  VICNISS IAD guideline.  ACSQHC Infection Guidelines	NCAS/VICNISS Microbiology information sheets  NCAS/VICNISS UTI FAQs  CDC Education sheets

# National Antimicrobial Prescribing Surveys

## Hospital

**HOSPITAL**  
NAPS National Antimicrobial  
Prescribing Survey

**|SURGICAL**  
NAPS National Antimicrobial  
Prescribing Survey

**|Q|** Quality Improvement  
NAPS National Antimicrobial  
Prescribing Survey

## Residential Aged Care

**|AGED CARE**  
NAPS National Antimicrobial  
Prescribing Survey



## Veterinary

**|VETERINARY**  
NAPS National Antimicrobial  
Prescribing Survey



Peter Doherty Institute for  
Infection and Immunity



### NCAS team

ID physicians

AMS pharmacists

Clinical microbiologist

IC professional

IT technicians

*PhD students*

Email: [naps.org.au](mailto:naps.org.au)

Ph: (03) 9342 9415

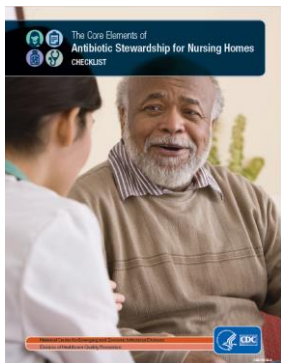
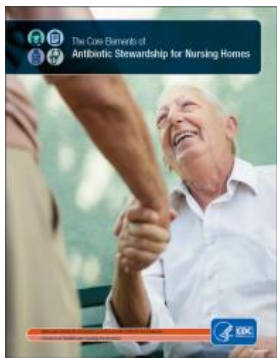
# AMS program framework

## Step 4: Primary tasks - Action

	Leadership	Accountability	Drug Expertise	Surveillance	Action	Education and Communication
AMS	Commit to preventing infections and improving antimicrobial use.	Identify individuals accountable for AMS activities.	Establish access to individuals with antimicrobial expertise.	<ul style="list-style-type: none"> <li>•Track process and outcome measures.</li> <li>•Disseminate surveillance reports.</li> </ul>	Prioritise and implement AMS policies and practices.	Prioritise and provide AMS education to residents, families and clinicians.
Primary tasks	<ul style="list-style-type: none"> <li>•Develop AMS 'support statement' or policy.</li> <li>•Include AMS related duties in position descriptions.</li> <li>•Review AMR and AMS data in quality meetings.</li> </ul>	Assign <b>nurse</b> to lead AMS program.	<ul style="list-style-type: none"> <li>•Provide onsite access to Therapeutic Guidelines: Antibiotic and AMH Aged Care Companion.</li> </ul>	<ul style="list-style-type: none"> <li>•Participate in AC NAPS</li> <li>•Feedback reports to administrators/clinicians</li> </ul>		Download and disseminate information sheets for residents, families and clinicians.

Overwhelming scope of interventions

# AMS Framework: Step 4: Primary tasks - Action



## CORE elements

1. Leadership
2. Accountability
3. Drug Expertise
- 4. Action**
5. Tracking
6. Reporting
7. Education

## Example

### Antibiotic prescribing and use policies

- Documentation of dose duration and indication
- Establish best practices for use of microbiology testing
- Develop facility specific treatment recommendations
- Review the antibiotic agents available in the facility.

### Broad interventions to improve antibiotic use

- Develop and implement algorithms for the assessment of residents
- Utilize a communication tool for residents suspected of having an infection
- Develop and disseminate a facility specific report of antibiotic susceptibility

### Pharmacy interventions to improve antibiotic use

- Establish standards on laboratory testing to monitor for adverse event
- Review of microbiology culture results

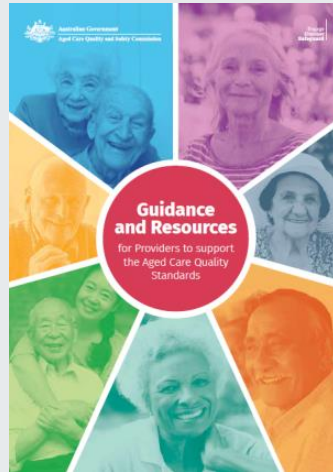
### Infection specific interventions to improve antibiotic use

- Reduce antibiotic use in asymptomatic bacteruria
- Reduce antibiotic prophylaxis for prevention of UTI
- Optimise management of nursing home pneumonia
- Optimise use of superficial cultures for management of chronic wounds

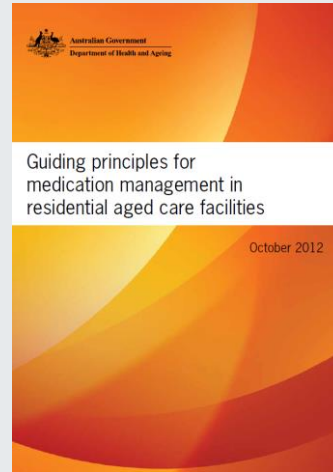
# Action



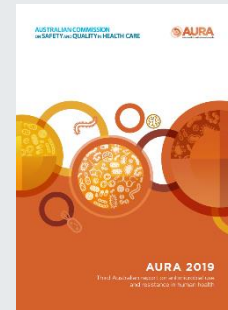
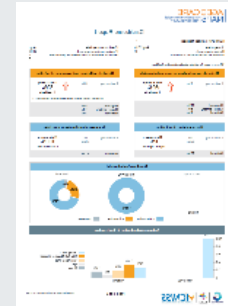
## ACQSC Guidance and Resources document



## Guiding principles for medication management



## ACNAPS reports





# AMS program framework

## Step 4: Primary tasks - Action



	Leadership	Accountability	Drug Expertise	Surveillance	Action	Education
AMS	Commit to preventing infections and improving antimicrobial use.	Identify individuals accountable for AMS activities.	Establish access to individuals with antimicrobial expertise.	<ul style="list-style-type: none"> <li>•Track process and outcome measures.</li> <li>•Disseminate surveillance reports.</li> </ul>	Implement AMS policies and practices.	Prioritise and provide AMS education
Primary tasks	<ul style="list-style-type: none"> <li>•Develop AMS 'support statement' or policy.</li> <li>•Include AMS related duties in position descriptions.</li> <li>•Review <i>AMR and</i> AMS data in quality meetings.</li> </ul>	Assign GP, pharmacist and/or nurse to lead program.	<ul style="list-style-type: none"> <li>•Provide onsite access to Therapeutic Guidelines: Antibiotic and AMH Aged Care Companion.</li> </ul>	<ul style="list-style-type: none"> <li>•Participate in AC NAPS</li> <li>•Feedback reports to administrators and clinicians</li> </ul>	Document key prescribing elements for all medications, antimicrobials included.	Download and disseminate information sheets for residents, families and clinicians.

# Documentation

**Support** appropriate documentation for prescribed antimicrobials: **generic name, dose time, route, indication and review and stop date**

AUSTRALIAN COMMISSION  
ON SAFETY AND QUALITY IN HEALTH CARE



Nine quality statements describe the care a patient with a bacterial infection prescribed antibiotics should received.

**Antimicrobial  
Stewardship**  
Clinical Care Standard

November 2020

## Quality statements

- 1 Life-threatening conditions**  
A patient with a life-threatening condition due to a suspected infection receives an appropriate antimicrobial immediately, without waiting for the results of investigations.
- 2 Use of guidelines**  
When a patient is prescribed an antimicrobial, this is done in accordance with the current Therapeutic Guidelines or evidence-based, locally endorsed guidelines and the antimicrobial formulary.
- 3 Adverse reactions to antimicrobials**  
When an adverse reaction (including an allergy) to an antimicrobial is reported by a patient or recorded in their healthcare record, the active ingredient(s), date, nature and severity of the reaction are assessed and documented. This enables the most appropriate antimicrobial to be used when required.
- 4 Microbiological testing**  
A patient with a suspected infection has appropriate samples taken for microbiology testing as clinically indicated, preferably before starting antimicrobial therapy.
- 5 Patient information and shared decision making**  
A patient with an infection, or at risk of an infection, is provided with information about their condition and treatment options in a way that they can understand. If antimicrobials are prescribed, information on how to use them, when to stop, potential side effects and a review plan is discussed with the patient.
- 6 Documentation**  
When a patient is prescribed an antimicrobial, the indication, active ingredient, dose, frequency and route of administration, and the intended duration or review plan are documented in the patient's healthcare record.
- 7 Review of therapy**  
A patient prescribed an antimicrobial has regular clinical review of their therapy, with the frequency of review dependent on patient acuity and risk factors. The need for ongoing antimicrobial use, appropriate microbial spectrum of activity, dose, frequency and route of administration are assessed and adjusted accordingly. Investigation results are reviewed promptly when they are reported.
- 8 Surgical and procedural prophylaxis**  
A patient having surgery or a procedure is prescribed antimicrobial prophylaxis in accordance with the current Therapeutic Guidelines or evidence-based, locally endorsed guidelines. This includes recommendations about the need for prophylaxis, choice of antimicrobial, dose, route and timing of administration, and duration.

## Examples

### Cephalexin

- 500mg orally, 12 hourly
- Acute cystitis
- Commenced 1/11/21
- Review or stop date: 5/11/21

### Clotrimazole 1% cream

- Topically, twice daily
- Cutaneous candidiasis
- Commenced 25/9/21
- Review or stop date: 2/10/21

Aged Care Companion document to be published

# AMS program framework

## Step 6: Review



	Leadership	Accountability	Drug Expertise	Surveillance	Action	Education
AMS	Commit to preventing infections and improving antimicrobial use.	Identify individuals accountable for AMS activities.	Establish access to individuals with antimicrobial expertise.	<ul style="list-style-type: none"> <li>•Track process and outcome measures.</li> <li>•Disseminate surveillance reports.</li> </ul>	Implement AMS policies and practices.	Prioritise and provide AMS education
Primary tasks	<ul style="list-style-type: none"> <li>•Develop AMS 'support statement' or policy.</li> <li>•Include AMS related duties in position descriptions.</li> <li>•Review <i>AMR and AMS</i> data in quality meetings.</li> </ul>	Assign GP, pharmacist and/or nurse to lead program.	Provide onsite access to Therapeutic Guidelines: Antibiotic and AMH Aged Care Companion.	<ul style="list-style-type: none"> <li>•<b>Participate in AC NAPS</b></li> <li>•Feedback reports to administrators and clinicians</li> </ul>	Document key prescribing elements for <b>all medications</b> , antimicrobials included.	Download and disseminate information sheets <i>for residents, families and clinicians.</i>
Review	✓	✓	✓	✓	✓	✓

# AMS Review



Noted CC had participated in Aged Care NAPS

- Report showed CC antimicrobial use prevalence was 'relatively high' compared to national aggregate prevalence.
- Quality manager asked if the prescribing of each antimicrobial was appropriate (or not).
- IPC Lead reviewed medical records to determine if residents prescribed antimicrobials had a true infection that warranted the prescription.
- For infections to be true, McGeer *et al* (clinical and diagnostic) definitions-criteria had to be met.

# McGeer (Stone) *et al*/infection definitions



- Surveillance definitions for ‘urinary tract’, ‘respiratory tract’, ‘skin, soft tissue and mucosal’, ‘gastrointestinal’ and ‘systemic’ infections
- Used to count **true** infections and to estimate the actual incidence or prevalence of infections.
- Are applied retrospectively, **often with new information** (e.g., diagnostic test results, which can take days to receive) that was not **available during the initial clinical assessment.**

# McGeer (Stone) *et al*/infection definitions

**Should not be used to retrospectively assess appropriateness of antimicrobial therapy.**

- If used, they should be applied without inclusion of diagnostic criteria (e.g., positive urine culture, chest x-ray) that were not available at the time of initiation.
- If diagnostic information that was not available in real-time is included in an antimicrobial appropriateness assessment, measures of inappropriate prescribing might be artificially increased.

# References

1. **McGeer** A, Campbell B, Emori TG, et al. Definitions of infection for surveillance in long-term care facilities. *Am J Infect Control*. 1991;19(1):1-7
2. **Stone** ND, Ashraf MS, Calder J, et al. Surveillance definitions of infections in long-term care facilities: revisiting the McGeer criteria. *Infect Control Hosp Epidemiol*. 2012;33(10):965-77.
3. **Loeb** M, Bentley DW, Bradley S, et al. Development of minimum criteria for the initiation of antibiotics in residents of long-term-care facilities: results of a consensus conference. *Infect Control Hosp Epidemiol*. 2001;22(2):120-4.
4. **Mylotte** JM. Determining the Appropriateness of Initiating Antibiotic Therapy in Nursing Home Residents. *J Am Med Dir Assoc*. 2023;24(11):1619-28.

# AMS program framework

## Step 7: Secondary tasks



	Leadership	Accountability	Drug Expertise	Surveillance	Action	Education
AMS	Commit to preventing infections and improving antimicrobial use.	Identify individuals accountable for AMS activities.	Establish access to individuals with antimicrobial expertise.	<ul style="list-style-type: none"> <li>•Track process and outcome measures.</li> <li>•Disseminate surveillance reports.</li> </ul>	Prioritise and implement AMS policies and practices.	Prioritise and provide AMS education
Primary tasks	<ul style="list-style-type: none"> <li>•Develop AMS 'support statement' or policy.</li> <li>•Include AMS related duties in position descriptions.</li> <li>•Review <i>AMR and</i> AMS data in quality meetings.</li> </ul>	Assign GP, pharmacist and/or nurse to lead program.	<ul style="list-style-type: none"> <li>•Provide onsite access to Therapeutic Guidelines: Antibiotic and AMH Aged Care Companion.</li> </ul>	<ul style="list-style-type: none"> <li>•Participate in AC NAPS</li> <li>•Feedback reports to administrators and clinicians</li> </ul>	Document key prescribing elements for all medications, antimicrobials included.	Download and disseminate information sheets <i>for residents, families and clinicians.</i>
Secondary tasks	Set 2021 AMS goals	Include a consumer representative on the quality improvement team	<ul style="list-style-type: none"> <li>•Expand community pharmacist's role.</li> <li>•Partner with AMS leads at nearby hospitals</li> </ul>	<ul style="list-style-type: none"> <li>•Participate in AC NAPS</li> </ul>	<ul style="list-style-type: none"> <li>•Implement UTI standard assessment tools.</li> <li>•Review microbiology culture data.</li> <li>•Encourage RMMRs</li> </ul>	Download and disseminate <u>UTI</u> information sheets <i>for residents, families and clinicians.</i>
Potential Barriers			Inability to find a qualified pharmacist			Overwhelming body of education material



# Resources

# Resources and links

**AUSTRALIAN COMMISSION  
ON SAFETY AND QUALITY IN HEALTH CARE**

<https://www.safetyandquality.gov.au/our-work/antimicrobial-stewardship/antimicrobial-stewardship-ams-resources-and-links>

A range of state/territory, national and international resources



Logo



# AMS program framework: Resources

	Leadership	Accountability	Drug Expertise	Surveillance	Action	Education and Communication
AMS	Commit to preventing infections and improving antimicrobial use.	Identify individuals accountable for AMS activities.	Establish access to individuals with antimicrobial expertise.	<ul style="list-style-type: none"> <li>•Track process and outcome measures.</li> <li>•Disseminate surveillance reports.</li> </ul>	Implement AMS policies and practices.	Provide AMS education
Resources	NCAS/VICNISS AMS policy  AHRQ Roles and Responsibilities  ACSQHC AMS Clinical Care Standard	AHRQ Gather a team	Therapeutic Guidelines: Antibiotic  AMH Aged Care Companion  RACGP Medical care of older persons in residential aged care facilities	<b>National Antimicrobial Prescribing Survey</b>	National Residential Medication chart  TGA Urinary tract infection in ACF residents/ Community-acquired pneumonia in ACF  AMH Aged Care Companion Caring for ageing skin  VICNISS IAD guideline.  ACSQHC Infection Guidelines	NCAS/VICNISS Microbiology information sheets  NCAS/VICNISS UTI FAQs  CDC Education sheets



# Leadership: NCAS AMS Policy

Australian Aged Care Home

## Antimicrobial Stewardship Policy

This Antimicrobial Stewardship Policy is an example of policy that might be used in an Australian Aged Care Home. It is intended as a guide only and modifications may be required to ensure that these recommendations are suitable for your Aged Care Home. For further information, suggestions or comments, please contact: [enquiries@ncas-australia.org](mailto:enquiries@ncas-australia.org)

[Add your facility name here]

## Antimicrobial Stewardship Policy

### Purpose and scope:

The purpose of the Antimicrobial Stewardship policy is to promote optimal management of antimicrobials in order to maximise the effectiveness of treatment and minimise potential for harm (including drug resistance and toxicity).

### Principles of antimicrobial management:

- Decisions about antimicrobial prescribing should be based on careful clinical assessment, ensuring that the benefits of antimicrobial use are always weighed against the potential for harm.
- Decisions regarding the prescribing of antimicrobials should be based on the best available evidence. National guidelines such as the Therapeutic Guidelines: Antibiotic should form the basis of prescribing recommendations, with adjustment for individual resident factors (allergies, comorbidities).
- Documentation for all antimicrobial prescriptions should be clear to enable effective communication between all staff members.
- Residents should always receive clear information about their clinical condition and treatment in a form they can understand.
- Regular review and refinement of the antimicrobial therapy should occur based on the resident's clinical progress (improvement or deterioration) and available clinical information (investigation results).

Adapted from the National Centre for Antimicrobial Stewardship - Aged Care AMS Policy v1.1 - March 2019  
[www.ncas-australia.org/aged-care-resources](http://www.ncas-australia.org/aged-care-resources)

Add your facility  
logo here

### Policy:

1. Management will ensure an effective program to prevent and control infections is implemented, thereby minimising the need for antimicrobial use. This may include elements such as vaccination, hand hygiene, etc.
2. Management will ensure that all clinical staff are informed about the importance of safe antimicrobial use. Resources to raise awareness should be available (e.g., posters, pamphlets) for staff, residents and families.
3. Management will ensure that clinical staff are educated about the recognition of signs and symptoms of infection and know how to escalate concerns to medical carers in a timely way.
4. Management will ensure that staff know how to access individuals with antimicrobial prescribing expertise (e.g., pharmacist or general practitioner) to discuss concerns about medication.
5. Management will ensure that all clinical staff can access current endorsed national guidelines on antimicrobial prescribing.
6. Management will ensure that mechanisms are in place to enable staff to access antimicrobials in a timely way for patients with acute infections.
7. Management will ensure a system is in place that enables diagnostic test results to be reviewed in a timely way.
8. Management will require that if an antimicrobial is prescribed all key prescribing elements are clearly documented to facilitate good communication.
9. Management will require that if an antimicrobial is prescribed, the resident should be clinically assessed by the prescriber within a reasonable timeframe e.g., 48 hours.
10. Management will require all new antimicrobial prescriptions to have a clear treatment plan (especially after seven days) and all prolonged (long-term) antimicrobial prescriptions to be reviewed at least half yearly to determine if ongoing use is still appropriate.
11. Management will ensure a resident with a suspected infection, and/or their carer, receives information on their health condition and treatment options in a format and language that they can understand.
12. Management will specify a person who is responsible for leading and co-ordinating AMS initiatives.
13. The nominated AMS person has the authority to review all procedures and guidelines that contain recommendations for the use of antimicrobials to ensure that the advice is evidence-based where possible and concordant with AMS principles.
14. The nominated AMS person has the authority to lead at least annual audits of infections and antimicrobial prescribing practices.
15. The nominated AMS person is expected to provide reports to management and clinicians where relevant regarding prescribing safety and quality.

Adapted from the National Centre for Antimicrobial Stewardship - Aged Care AMS Policy v1.1 - March 2019  
[www.ncas-australia.org/aged-care-resources](http://www.ncas-australia.org/aged-care-resources)

# Accountability: AHRQ toolkit

Agency for Healthcare Research and Quality



## Toolkit 1. Start an Antimicrobial Stewardship Program

### Tool 1. Gather a Team

1. **Choose members to serve on the antimicrobial stewardship program team.** Depending on the size of the nursing home, the team may be very small (two or three members) or large (five or six members). At a minimum, the antimicrobial stewardship program team should include several individuals with different responsibilities in the nursing home, such as charge nurses, the director of nursing, the assistant director of nursing, the medical director, the infection preventionist, and possibly an information technology staff member (if the home uses electronic health records). If possible, include outside consultants such as a consultant pharmacist, prescribing clinician, and/or resident or family representative. Staff may already consult with these individuals and developing new relationships may not be required to start a program. Including nursing home leadership will help the program receive adequate support and attention, and improve the likelihood that it will succeed.

2. **Familiarize the team with antimicrobial stewardship.** It is likely that many staff may be new to antimicrobial stewardship. The team must learn about antimicrobial stewardship and understand why it is important. There are many online resources that team members can review. The Centers for Disease Control and Prevention (CDC) Web site is a good place to start and includes links to many relevant resources, including the following:

- a. [CDC's Core Elements of Antibiotic Stewardship in Nursing Homes](#)
- b. [CDC's About Antimicrobial Resistance: A Brief Overview](#)
- c. [CDC's Antibiotic/Antimicrobial Resistance: References and Resources](#)
- d. [CDC's Antibiotic Resistance Threats in the United States \(2013\)](#)

A bibliography of journal articles is also provided below.

3. **Appoint two champions to promote the importance of an antimicrobial stewardship program in the nursing home.** These individuals should lead the effort and be responsible for program outcomes. Two champions are recommended to increase the chance that the antimicrobial stewardship program always has a leader through periods of staff change. These champions should have the following qualities:

- a. A basic knowledge of antibiotics
- b. An interest in playing a leadership role in the nursing home
- c. The respect of his or her peers
- d. An understanding of how to be a good team player
- e. An understanding of the importance of improving antibiotic use in nursing homes

4. **Assign initial roles and responsibilities.** Assign roles and responsibilities within the team for initial tasks like scheduling meetings and conducting the readiness assessment, as well as long-term tasks like monitoring the program. Suggested roles include:

- a. Champions: develop agendas and policies, lead training, provide leadership and support
- b. Stewardship staff: Help develop training, review use of tools, remind staff to use tools, help solve problems with implementation
- c. Monitoring staff: Abstract data for monitoring, develop findings and communicate them

Tool 2 provides further suggestions and can be used to track assigned roles and responsibilities.

# Drug expertise: TGA Antibiotic

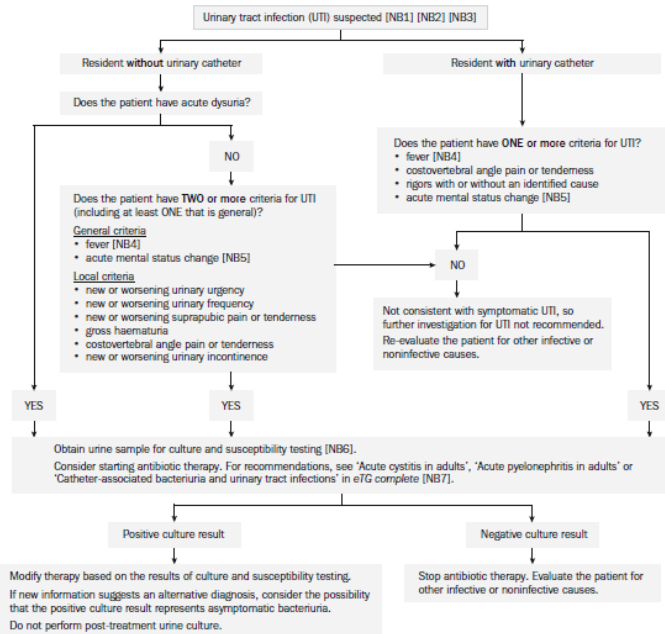


## Practical information on using antimicrobial drugs

- [Principles of antimicrobial use](#)
- [Antimicrobial hypersensitivity](#)
- [Antimicrobial desensitisation protocols](#)
- [Practical information on using antibacterial drugs](#)
- [Practical information on using antifungal drugs](#)
- [Practical information on using antiviral drugs](#)
- [Practical information on using antiprotazoal drugs](#)
- [Practical information on using anthelmintic drugs](#)
- [Community-based parenteral antimicrobial therapy](#)
- [Principles of aminoglycoside use](#)
- [Principles of vancomycin use](#)
- [Monitoring antimicrobial blood concentrations](#)
- [Renal impairment and antimicrobial dosing](#)

## Therapeutic Guidelines

### Assessment and treatment of aged-care facility residents with suspected urinary tract infection



NB1: Do not investigate or treat cloudy or malodorous urine in aged-care facility residents who do not have other signs or symptoms of UTI.  
 NB2: Consider whether an alternative diagnosis is likely. Consider both infective (eg pneumonia) and noninfective (eg medication-related adverse events) causes.  
 NB3: Establish whether an advance care plan is in place as it may influence assessment and management (eg whether investigations are performed or antibiotics are given).  
 NB4: Fever is defined as a temperature higher than 38°C or an increase of more than 1.5°C above baseline temperature.  
 NB5: Acute mental status changes include new change in level of consciousness, periods of altered perception, disorganised speech and lethargy.  
 NB6: If the resident has an indwelling urinary catheter, see eTG complete for a guide to collecting urine samples in patients with indwelling urinary catheters.  
 NB7: The duration of therapy does not need to be modified for this patient group and should always be stated on the prescription.

## Therapeutic Guidelines

### Approach to managing community-acquired pneumonia in residents of aged-care facilities

- Establish whether an advance care plan is in place and whether antibiotic therapy is appropriate for the patient. Antibiotic therapy may be consistent with a declared palliative treatment plan.
- Assess aspiration risk. If the patient has had an aspiration event, try to exclude aspiration pneumonia (see eTG complete) before starting antibiotic therapy for pneumonia. If aspiration pneumonia is suspected (eg pneumonia in a patient with recurrent aspiration), start empirical therapy for community-acquired pneumonia (CAP).
- Consider whether a viral respiratory infection, such as influenza, could be the cause of the patient's symptoms. Viral respiratory infections are common in aged-care facility residents and difficult to differentiate from CAP. Do not rule out influenza in a vaccinated patient because circulating strains may differ from the vaccine, and vaccine response can be suboptimal in elderly patients.
  - If a viral respiratory infection is suspected, consider performing nucleic acid amplification testing (NAAT) (eg polymerase chain reaction [PCR]) to establish the diagnosis, guide appropriate treatment and direct infection control measures (eg facility outbreak control and influenza prophylaxis for other residents)
  - If antibiotic therapy was started, review the results of investigations (eg NAAT [eg PCR], full blood count, C-reactive protein) within 24 to 48 hours. If a respiratory viral infection is likely, consider stopping antibiotic therapy.
- Sputum samples can be difficult to obtain in residents of aged-care facilities. If sputum samples are taken for Gram stain and culture, interpret with care [NB1].
- Check that the patient is immunised against *Streptococcus pneumoniae* and influenza. For immunisation and other strategies to prevent pneumonia, see eTG complete.
- If antibiotic treatment is indicated and consistent with the patient's goals of care, determine the appropriate site of care by assessing:
  - severity of pneumonia [NB2]
  - physiological status (eg hypoxaemia requiring supportive oxygen therapy)
  - comorbidities (particularly cardiac, respiratory and cognitive comorbidities)
  - functional status
  - ability to tolerate and absorb oral therapy.
- Consider management in the aged-care facility with oral therapy if the patient can eat and drink, and the following clinical parameters are met:
  - heart rate less than 100 beats/minute
  - systolic blood pressure higher than 90 mmHg
  - respiratory rate less than 25 breaths/minute
  - oxygen saturation higher than 92%
  - no evidence of acute-onset confusion.
- If transfer to hospital is indicated (eg patients who do not meet the above criteria or who require supportive oxygen therapy for hypoxaemia):
  - if transfer to hospital is consistent with the patient's goals of care, transfer the patient and treat as for CAP in adults.
  - if transfer to hospital is not consistent with the patient's goals of care, consider parenteral therapy in the aged-care facility (eg through an organised Residential In-Reach Program, community-based parenteral antimicrobial therapy program or similar).
- Review the patient's response to therapy within 24 to 48 hours and reassess the diagnosis if the patient is not improving or an alternative diagnosis (eg aspiration pneumonia, a respiratory virus) is more likely.

NB1: Gram stain of poor quality sputum samples can give misleading results. Ensure a good quality sample (presence of polymorphs, but few or no squamous epithelial cells on microscopy), collected before starting antibiotics, is used for adjusting therapy.

NB2: Pneumonia severity scoring tools can overestimate disease severity in residents of aged-care facilities, leading to inappropriate broad-spectrum therapy. These tools should be used as a guide, and are not a substitute for clinical judgment.

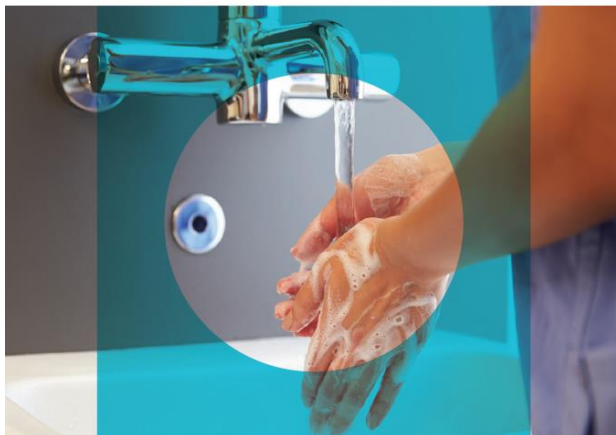
# Action: ACSQHC Infection Guidelines



Australian Government  
National Health and Medical Research Council  
Australian Commission on Safety and Quality in Health Care

Australian Guidelines for the Prevention  
and Control of Infection in Healthcare

2019



NHMRC

AUSTRALIAN COMMISSION  
ON SAFETY AND QUALITY IN HEALTH CARE

Infection prevention and control practices are a key part of an effective response to AMR .

Preventing infection reduces the need for antimicrobials and the opportunity for organisms to develop resistance.

# Education: NCAS Information sheets

## Topical Antifungals

Information for clinicians



Assessing and treating common fungal infections

	Presentation	Location	Treatment
Tinea (dermatophytes)	Ring shaped with a defined edge and central clearing ('ringworm')	Scalp ( <i>tinea capitis</i> ) Face ( <i>tinea faciei</i> ), Trunk and limbs ( <i>tinea corporis</i> )	<b>Topical therapy</b> Terbinafine 1% cream or gel once or twice daily, for <b>7 to 14 days</b> for infections in the trunk, limb, face or between fingers or toes  Topical azoles (see below) are an alternative but need to be given for <b>14 days*</b>  Nystatin is <u>not</u> effective for tinea
	OR Scaly and itchy areas between toes, ('athlete's foot'), or in groin ('jock itch')	Feet ( <i>tinea pedis</i> ) Groin ( <i>tinea cruris</i> ) Nails ( <i>tinea unguium</i> )	Nystatin is <u>not</u> effective for tinea  <b>Oral therapy</b> is indicated for infection that is widespread, severe, recurrent, or not responding to topical therapy. It is often required for scalp lesions and for nail infections. Terbinafine is typically used - refer to the Therapeutic Guidelines for oral therapy recommendations.
Cutaneous candidiasis (thrush)	Thickened discoloured pitted nails		
	Can be itchy Moist Red skin rash Sometimes with surrounding pustules, blisters, or satellite lesions Usually minimal scaling	Skin folds: <ul style="list-style-type: none"> <li>Flexures</li> <li>Submammary area</li> <li>Under arms</li> <li>Groin - vagina, scrotum, buttocks</li> </ul> Can complicate dermatitis e.g. 'nappy rash' or 'incontinence dermatitis'	<b>Topical therapy</b> Clotrimazole 1% / econazole 1% / miconazole 2% cream twice daily, for <b>14 days*</b>  OR Bifonazole 1% cream once daily, for <b>14 days*</b>  OR Nystatin 100 000 units/g cream twice daily, for <b>14 days*</b>  <b>Oral therapy</b> may be considered if there is poor response to topical therapy. Fluconazole is typically used - refer to the Therapeutic Guidelines for oral therapy recommendations.  <i>Seek expert advice for immunocompromised patients with persisting candidiasis despite treatment.</i>

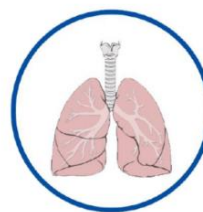
\*If not improving after 14 days, a clinical review and consideration for alternative diagnoses is required

This fact sheet is intended as a guide only and does not equate to expert opinion. Interpretation of recommendations should always be taken in context with local variations, a patient's current condition and formal clinical review. Our recommendations are based on review of the current literature and expert consensus. For further information or if unsure, refer to the Therapeutic Guidelines or seek expert advice.

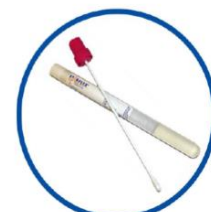
## Interpretation of microbiology reports



Urine MC&S



Sputum MC&S



Wound Swab MC&S

## Urinary tract infection

### Frequently asked questions

What is a urinary tract infection?

How is a UTI diagnosis confirmed?

What is asymptomatic bacteriuria?

When might antibiotic therapy be prescribed?

What is a recurrent UTI?

When should prophylactic antibiotic therapy be considered to prevent recurrent UTIs?

**When should prophylactic antibiotic therapy for UTIs be reassessed?**



# Summary: Key points

The use of an AMS framework supports a systematic and coordinated approach to optimising antimicrobial use.

Steps	Items
1	Aims
2	Potential barriers
3	Tips
4+5	Primary tasks + resources
6+7	<b>Revision</b> + secondary tasks

Nurses should be involved in and can LEAD AMS programs.

Do not use infection surveillance criteria to assess antimicrobial therapy appropriateness

Many AMS resources can be accessed from the ACSQHC website and during AMR week.

# WORKSHOP ACTIVITY

# Scenario

You have been asked to present a business case for implementing AMS in a regional private aged care facility.



Consider the following:

1. What challenges do you anticipate? [Potential barriers]
2. What might be some strategies you could use to overcome these challenges? [Tips]
3. What resources could you use to support your case and/or program?
4. Who are key stakeholders you need to engage?
5. What would you do first? [Primary tasks]

Discuss and Report Back

# Q&A Panel

# Contact Details and Acknowledgments

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- ALL staff employed at those facilities who have participated in NCAS and VICNISS programs
- National Centre for Antimicrobial Stewardship and Guidance Group
- VICNISS Co-ordinating Centre
- Department of Health and Aged Care