



**Health**  
Hunter New England  
Local Health District



# Antimicrobial Stewardship Journey at Manning Base Hospital ...

**Dr Nilar Lwin**

Hospital in the Home Service & Infectious Diseases Physician,  
Community Health Centre - Infectious Diseases Clinic

**Laura Boyce**

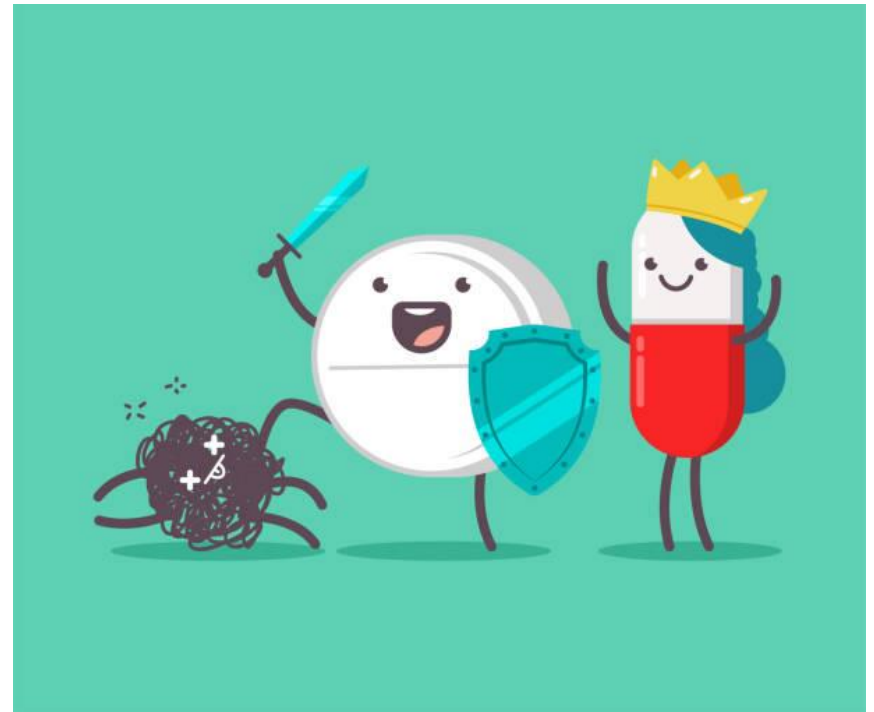
Director of Pharmacy,  
Antimicrobial Stewardship Pharmacist



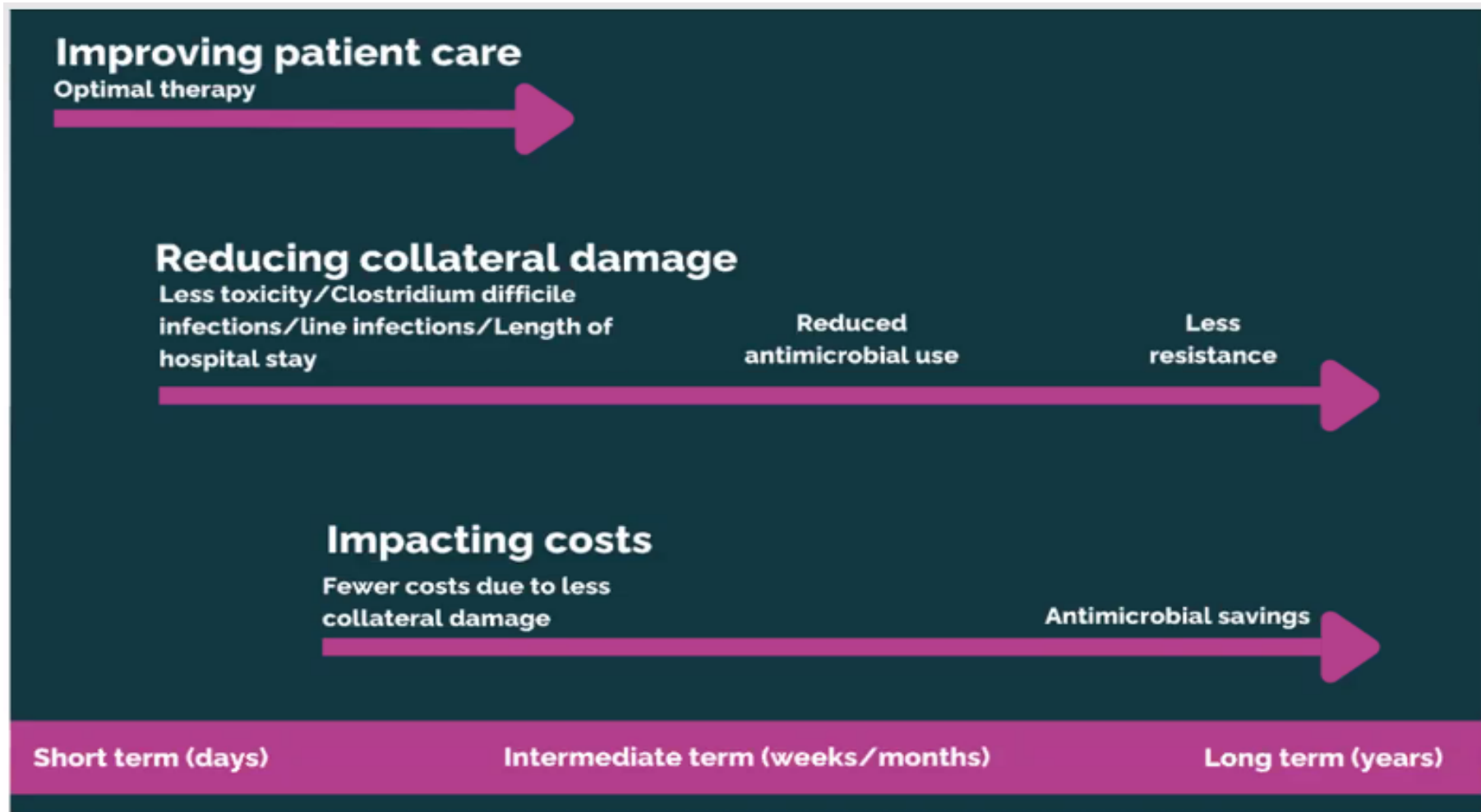
# Outline



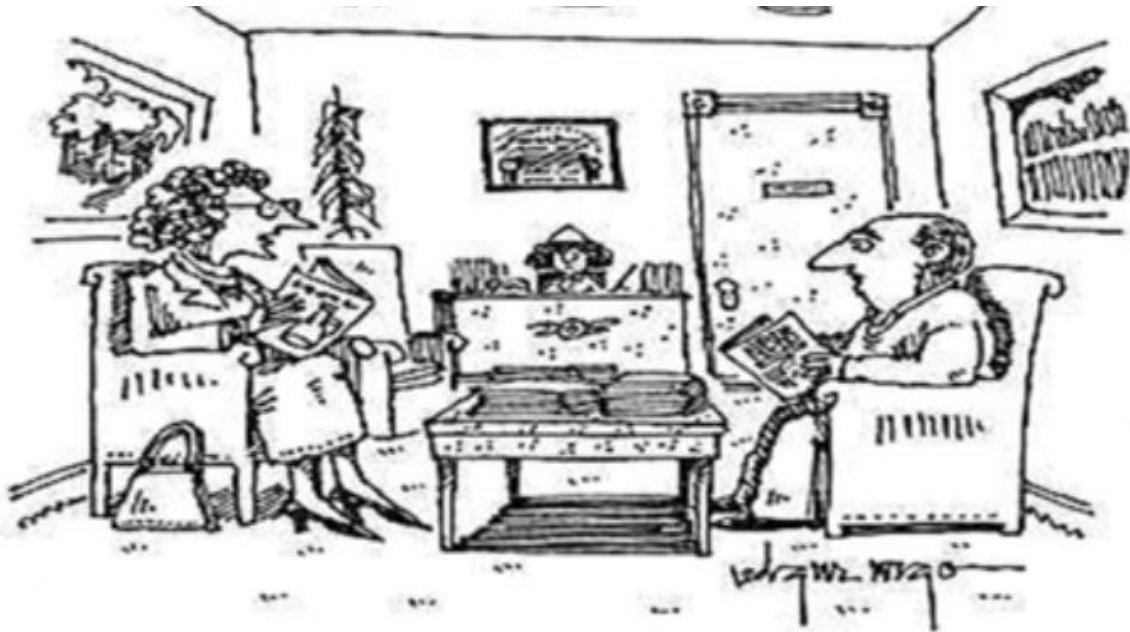
- Goals of antimicrobial stewardship (AMS).
- AMS at Manning Base Hospital (MBH).
- What evidence is there for the effectiveness of AMS program within MBH?



# Goals of AMS Programs



## AMS at MBH



"CEFTRIAXONE IS A "WONDER DRUG" BECAUSE ANY TIME THE DOCTOR WONDERS WHAT YOU'VE GOT, THAT'S WHAT YOU GET."



# 1980's ...



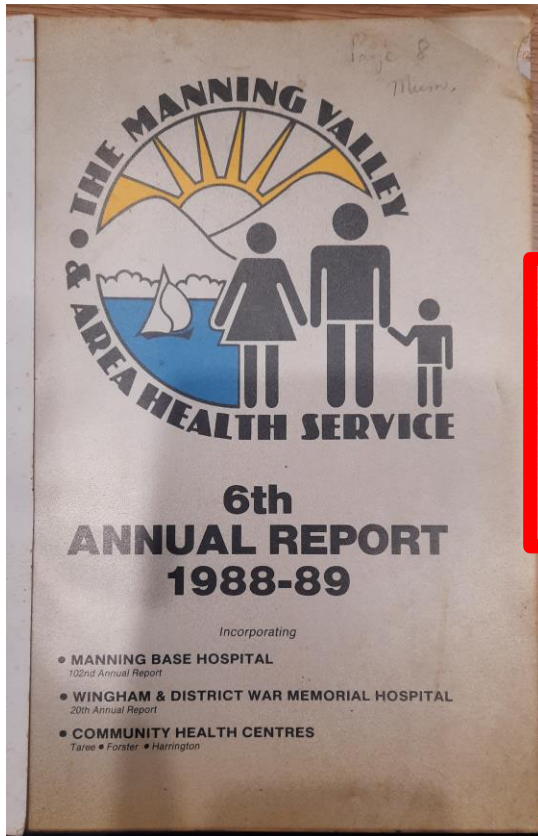
## MEDICAL SUPERINTENDENT'S REPORT

### Pharmacy

In the 1988/89 financial year drug purchases amounted to \$427,719. This was 10.3% higher than 1987/88. The start of the year showed the department over budget by as much as 25% in this area.

This trend gradually reversed, helped largely by restrictions in the usage of certain antibiotics which were initiated in October 1988. The type of restriction applied by the Drug Committee does not deny a patient use of these drugs where there is genuine need, but does cut inappropriate usage of these expensive products.

The Pharmaceutical Section of the Government Stores Department closed during the year and the Pharmacy staff in that section were retrenched. While Government Stores were not noted for their speedy service, they were a convenient source of supply of many difficult to obtain drugs and prepared pharmaceuticals.



# 2017 ...



## Preventing and Controlling Infections Standard

Please follow this link for a copy of the [2021 Preventing and Controlling Infections Standard](#).

For information on transitioning from *2017 Preventing and Controlling Healthcare-Associated Infection Standard* to *2021 Preventing and Controlling Infections Standard*, please follow this link to the [fact sheet](#).



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# Lower Mid North Coast Sector AMS Advisory Group



Reports to the Lower Mid North Coast (LMNCS) Quality Use of Medicines Committee (QUMC):

- Co-Director of General Medicine / Chair - Dr Anne Knight
- ID Physician - Dr Nilar Lwin
- Infection Prevention and Control, Clinical Nurse Consultant - Liz Reading
- Director of Pharmacy - Laura Boyce
- Clinical Practice Improvement Manager - Karon Devenish
- Pathology Manager - Deb Monck
- Infection Prevention and Control, Clinical Nurse Specialist - Jennifer Higgins
- District AMS Governance Pharmacist - Bianca Mills
- District AMS Physician – Dr Catherine Berry (when available)



District Antimicrobial Stewardship Policy HNELHD Pol 22\_05

policy



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## District Antimicrobial Stewardship Policy

<b>Sites where policy applies</b>	All HNE Health Facilities
<b>This Policy applies to:</b>	
1. Adults	Yes
2. Children up to 16 years	Yes
3. Neonates – less than 29 days	Yes
	Approval gained from the Children Young People and Families Network on 14 April 2022
<b>Target audience</b>	All clinical staff who prescribe, dispense or administer antimicrobials
<b>Description</b>	Provides a governance framework for the appropriate prescribing of antimicrobials, their restriction, approval processes and use
<b>Keywords</b>	District, HNE, area, policy, AMS, traffic light, restriction, antimicrobial stewardship, antibiotics, antimicrobials, clinical care standard
<b>Document registration number:</b>	HNELHD Pol 22_05
<b>Replaces existing document?</b>	Yes
<b>Registration number and dates of superseded documents</b>	HNELHD Pol 20_02 Version One from 13 March 2020
<b>Related Legislation, Australian Standard, NSW Ministry of Health Policy Directive or Guideline, National Safety and Quality Health Service Standard (NSQHSS) and/or other, HNE Health Document, Professional Guideline, Code of Practice or Ethics:</b>	
<ul style="list-style-type: none"> <li>• NSQHS National Standard 3 and 4</li> <li>• ACSQHC <a href="#">Antimicrobial Stewardship Clinical Care Standard 2020</a></li> <li>• <a href="#">NSW Health PD2020_045 High Risk Medicines Management Policy</a></li> <li>• <a href="#">Therapeutic Guidelines: Antibiotic Therapeutic Guidelines, Melbourne, Victoria 2021</a></li> <li>• <a href="#">Antimicrobial Stewardship in Australian Health Care 2018</a>, Sydney: ACSQHC; 2018</li> <li>• <a href="#">HNE LHD District Antimicrobial Restriction List Clinical Guideline CG19_08</a></li> <li>• <a href="#">HNE LHD District Infectious Diseases Management Clinical Guideline CG22_12</a></li> <li>• <a href="#">HNE LHD Surgical Antibiotic Prophylaxis Clinical Guideline CG20_09</a></li> </ul>	
<b>Tier 2 Director responsible for development, communication, implementation and review</b>	Kim Nguyen: Executive Director Workforce & Allied Health
<b>Policy Contact Officer:</b>	District Antimicrobial Stewardship Governance Pharmacist
<b>Contact details</b>	<a href="mailto:HNELHD-DistrictAMS@health.nsw.gov.au">HNELHD-DistrictAMS@health.nsw.gov.au</a> Ph: 6767 7961
<b>Aboriginal Health Impact Statement required?</b>	No
<b>To be distributed to:</b>	All
<b>Staff acknowledgement, education and training - minimum requirements:</b>	<ul style="list-style-type: none"> <li>• Line managers to ensure</li> <li>• Distribution to relevant staff</li> <li>• Staff are made aware that education is available</li> <li>• Staff undertake required training</li> </ul>
<b>Date authorised by HNE Health Chief Executive:</b>	9 May 2022
<b>This document contains advice on therapeutics</b>	Yes
	Approval gained from HNE Quality Use of Medicines Committee on 5 April 2022
<b>Issue date</b>	12 May 2022
<b>Review date</b>	12 May 2025

# Lower Mid North Coast Sector Antimicrobial Stewardship Operational & Strategic Framework 2022-2024

Endorsed by Lower Mid North Coast Sector Quality Use of Medicines Committee

Ratification Date: June 2022

Next Review Date: June 2024

- Governance
- Surveillance
- Quality improvement activities
- Education and engagement activities



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# District Antimicrobial Restriction List



District Antimicrobial Restriction List Management HNELHD CG 23\_26

## Clinical Guideline



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## District Antimicrobial Restriction List Management

<b>Sites where Clinical Guideline applies</b>	All HNE LHD sites, Acute Network Hospitals, Primary and Community Networks
<b>This Clinical Guideline applies to:</b>	
1. Adults	Yes
2. Children up to 16 years	Yes
3. Neonates – less than 29 days	Yes – Approval gained from the Children Young People and Families Network on 23 May 2026
<b>Target audience</b>	All clinical staff who prescribe, dispense, or administer antimicrobials
<b>Description</b>	This document provides guidance on the restriction level or class for antimicrobials prescribed in HNE LHD as defined by the Hunter New England Health Quality Use of Medicines Committee. It is intended for all inpatient groups.

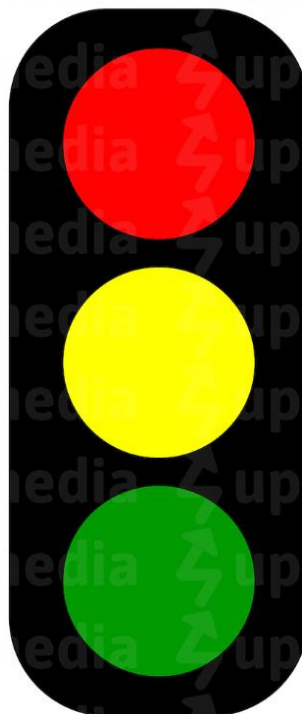
[Go to Guideline](#)

<b>Keywords</b>	AMS, antimicrobials, antibiotics, anti-infectives, traffic light, restricted, antimicrobial stewardship, antibiotic indications, green, amber, red, specialist restricted, restriction list, restriction management, state formulary
<b>Document registration number</b>	HNELHD CG 23_26
<b>Replaces existing document?</b>	Yes
<b>Registration number and dates of superseded documents</b>	HNELHD CG 19_08 Version One from 18 March 2019

Related Legislation, Australian Standard, NSW Ministry of Health Policy Directive or Guideline, National Safety and Quality Health Service Standard (NSQHSS) and/or other, HNE Health Document, Professional Guideline, Code of Practice or Ethics:

- [NSQHS National standard 3 and 4](#)
- [HNELHD High Risk Medicines Management PD2020\\_045](#)
- [HNELHD District AMS Policy Pol. 22\\_05](#)
- [Therapeutic Guidelines: Antibiotic, Therapeutic Guidelines, Melbourne, Victoria 2021](#)
- [Antimicrobial Stewardship in Australian Health Care 2018, Sydney: ACSQHC, 2018](#)
- [Antimicrobial Stewardship Clinical Care Standard, Sydney: ACSQHC, 2020](#)
- Medication Conflict Resolution: Managing Concerns over the Safety of Medication Orders HNELHD CG 22\_75

<b>Position responsible for Clinical Guideline Governance and authorised by</b>	Chair, HNELHD Quality Use of Medicines Committee
<b>Clinical Guideline contact officer</b>	District AMS Governance Pharmacist
<b>Contact details</b>	<a href="mailto:HNELHD-DistrictAMS@health.nsw.gov.au">HNELHD-DistrictAMS@health.nsw.gov.au</a>
<b>Date authorised</b>	24 May 2023
<b>This document contains advice on therapeutics</b>	Yes Approval gained from HNE Quality Use of Medicines Committee on 21 April 2023
<b>Issue date</b>	26 May 2023
<b>Review date</b>	26 May 2026



District Antimicrobial Restriction List Management HNELHD CG 23\_26

## Appendix 1. District Restrictions on Antimicrobial Prescribing

Unrestricted Group I	Restricted Group II	Highly Restricted Group III
Prescribe and administer as per MINDME AMS principles	Prescribe and administer for ACCEPTED INDICATION only as per eTG or HNE PPG	Must undergo prescription review & REGISTRATION (online /via a form). Limited supply (24-72 hours) awaiting review.
No approval required	Those without an accepted indication need to be REGISTERED (online /via form) & receive limited supply (24-72 hours) awaiting review.	Highly Restricted Group IV Notification to ID required prior to prescribing/ dispensing. Review and registration must occur. Limited supply (24-72 hours) awaiting review.
Group I	Group II	Group III
Aciclovir (all non-IV)	Aciclovir IV	Amikacin
Amoxicillin	Albendazole	Amphotericin IV
Amoxicillin + clavulanic acid PO	Amoxicillin + clavulanic acid IV	Anidulafungin
Amphotericin PO	Atovaquone	Aztreonam
Ampicillin	Azithromycin IV/PO	Ceftaroline
Benzathine (benzyl)penicillin	Cefepime	Ceftazidime + avibactam
Benzyl penicillin	Cefotaxime	Ceftolozane + tazobactam
Cefaclor	Cefoxitin	Cidofovir
Cefalexin	Ceftazidime	Ciprofloxacin IV
Cefazolin	Ceftriaxone	Daptomycin
Cefuroxime	Ciprofloxacin PO/EYE/EAR	Ertapenem
Chloramphenicol EAR/EYE	Clarithromycin	Fidaxomicin
Clotrimazole	Clindamycin IV/PO/TOP	Foscarnet
Diloxacinil	Colistin IV/NEB	Ganciclovir
Doxycycline	Dapsone	Imipenem + cilastatin
Erythromycin PO	Erythromycin IV/TOP	Isavuconazole
Famciclovir	Ethambutol	Linezolid
Flucoxacinil	Fluconazole	Micafungin
Framycetin EAR/EYE	Fosfomycin	Moxifloxacin
Gentamicin IV < 48 hrs	Gentamicin IV>48 hrs	Neomycin PO
Gentamicin EYE	Isoniazid	Penlamidine
Gramicidin EAR	Itraconazole	Rifapentine
Ketoconazole TOP	Ivermectin	Terbinafine PO
Mebendazole	Meropenem	Tigecycline
Metronidazole PO /IV <72 hrs	Metronidazole TOP / IV >72 hrs	
Miconazole TOP	Molnupiravir	
Neomycin EAR	Mupirocin	
Nitrofurantoin	Nirmatrelvir + ritonavir	
Nystatin	Norfloracin	
Phenoxymethylpenicillin	Ofloxacin	
Procaine penicillin	Oseltamivir	
Pyrantel	Piperacillin + tazobactam	
Roxithromycin	Posaconazole	
Terbinafine TOP	Praziquantel	Group IV
Trimethoprim	Pyrazinamide	Artemether + lumefantrine
Trimethoprim + sulfamethoxazole PO	Remdesivir	Artesunate
Valaciclovir	Rifabutin	Atovaquone + proguanil
	Rifampicin	Primaquine
	Rifaximin	Quinine
	Sodium fusidate PO/TOP/IV	
	Teicoplanin	
	Tobramycin IV/EYE/NEB	
	Trimethoprim + sulfamethoxazole IV	
	Valganciclovir	
	Vancomycin	
	Voriconazole	

# AMS Support at MBH



- ID consults.
- AMS ward rounds.
  - Twice weekly medical, surgical and ICU AMS ward rounds (Tuesday and Thursday).
  - *New: Once weekly Gloucester Soldiers Memorial and Wingham Hospitals.*



Anti Microbial Stewardship Details

https://rap.hne.health.nsw.gov.au/Reports/Pages/Report.aspx?ItemPath=%2fMedChart%2fAnti+Microbial+Stewardsh...

Home > MedChart > Anti Microbial Stewardship Details NAPS Data With Bed Numbers

Hospital Code: Manning Base Hospital    Formulary: Red + Orange    View Report

HRN	PatientName	DoB	Gender	Consultant	weight	DisplayMedication	Start Date	Cmp	Route	Dose	Frequency	eGFR	Location / Indication / Allergy & ADR	AMS Notes
2882477	CG	27031984	M			Piperacillin 4g + Tazobactam 0.5g Infusion	22102023		Intravenous	4.5g	Every 8 hour(s)	>90 (23102023)	CurrLoc:MPRH L3 Surgical Ward (Bed: 325) Indication:Stomal	
0042522	KT	10081958	M			Amoxicillin (Amoxycillin) 1000mg + Clavulanic acid 200mg Injection	21102023		Intravenous	1200mg	Every 6 hour(s)	>90 (23102023)	CurrLoc:MPRH L3 Surgical Ward (Bed: 358D) Indication:Cholecystitis AllergIntol:	
2272421	EW	8031948	F		75	Amoxicillin (Amoxycillin) 1000mg + Clavulanic acid 200mg Injection	21102023		Intravenous	1200mg	Every 6 hour(s)	87 (23102023)	CurrLoc:MPRH L3 Surgical Ward (Bed: 358A) Indication:Cholecystitis Pancreatitis AllergIntol:	
2981771	RE	17071949	F			Amoxicillin (Amoxycillin) 1000mg + Clavulanic acid 200mg Injection	23102023		Intravenous	1200mg	Every 6 hour(s)	59 (23102023)	CurrLoc:MPRH L3 Surgical Ward (Bed: 358C) Indication:Prosthetic joint infection AllergIntol:NSAIDs ; Pregabalin	
2150498	JB	15031934	M			Ceftriaxone Injection	22102023		Intravenous	1g	Every 24 hour(s)	55 (23102023)	CurrLoc:MPRH L3 Surgical Ward (Bed: 349C) Indication:Septicaemia - Empirical AllergIntol:	
2150498	JB	15031934	M			Gentamicin 80mg/2mL Injection	22102023	22102023	Intravenous	320mg	Stat		CurrLoc:MPRH L3 Surgical Ward (Bed: 349C) Indication:Septicaemia - Empirical AllergIntol:	



# AMS Support at MBH



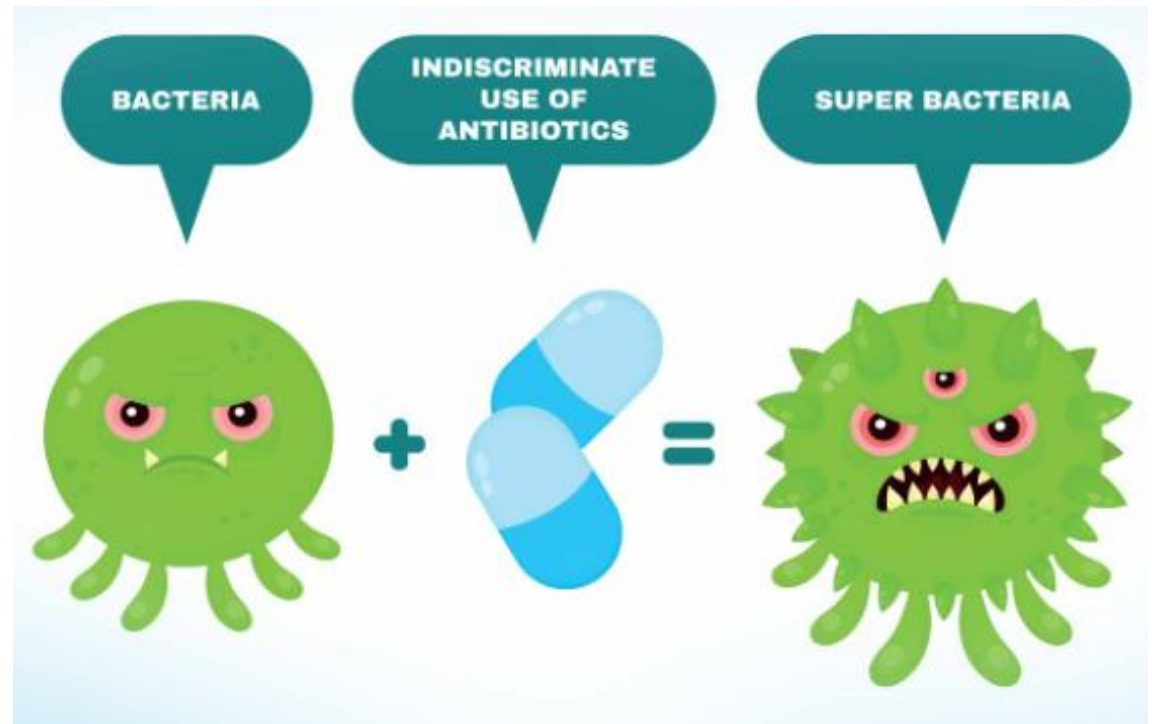
- Automated daily AMS email for orange and red antimicrobials.
  - MBH, GSMH, Wingham and Bulahdelah.

NSW GOVERNMENT		Health Hunter New England Local Health District		Anti Microbial Stewardship Details							
Facility: J225, Red + Orange											
HRN	Patient Name	Date	Medication	Formulary	Indication	Consulting Dr	Antibiotic as per standard indications?	AMS Team	Intervention Made? Details	Intervention successful?	Timeframe 1. next dose 2. within 24hr 3. within 48hr
Manning Base Hospital (J225) - MRRH Coronary Care Unit											
3349434	ST	21/11/23	Rifaximin	Orange	Hepatic encephalopathy	PB					
Manning Base Hospital (J225) - MRRH Discharge Lounge											
2204753	NK	21/11/23	Quinine sulfate dihydrate 300mg	Red	Cramps	MG					
Manning Base Hospital (J225) - MRRH Intensive Care Unit											
3271675	ST	21/11/23	Piperacillin 4g + Tazobactam 0.5g	Orange	severe pancreatitis, to change to tazocin as per dr Lwin	SD					
Manning Base Hospital (J225) - MRRH L3 Surgical Ward											
3416264	EK	21/11/23	Amoxicillin (Amoxycillin) 1000mg + Clavulanic acid 200mg	Orange	Perforated Diverticulitis	SA					
2208909	GL	21/11/23	Amoxicillin (Amoxycillin) 1000mg + Clavulanic acid 200mg	Orange	large necrotic sacral ulcer, fever	SP					
2863831	PM	21/11/23	Ceftriaxone 1g	Orange	Septicaemia - Directed Therapy	SA					
2157790	MB	21/11/23	Amoxicillin (Amoxycillin) 1000mg + Clavulanic acid 200mg	Orange	Biloma	SD					
Manning Base Hospital (J225) - MRRH L4 COVID19 Ward											
2263820	KW	21/11/23	Remdesivir	Orange	Moderate to severe COVID-19 within 10 days of onset, NOT requiring invasive or non-invasive ventilation.	KG					
Manning Base Hospital (J225) - MRRH L6 Palliative Care & Rehabilitation											
2214552	KD	21/11/23	Fidaxomicin 200mg	Red	Severe C Diff	PB					
2214552	KD	21/11/23	Metronidazole 500mg/100mL	Orange	Severe C diff	PB					

# AMS Support at MBH



- Escalation pathway:
  - Senior pharmacist.
  - ID physician.
  - LMNCS AMS Advisory Group.
  - LMNCS QUMC.





# AMS & MBH Nursing Staff



- AMS is part of orientation for ALL new nursing staff within the LMNCS.
- Patient's greatest advocate.
- Constant in the patient journey, least transient professional group.
- Review medication charts as part of routine professional practice.
- Allergy status.
- Antimicrobial administration.
- Weighing patients to facilitate dose calculations.
- Duration of therapy?
  - When did the patient start the course?
  - Surgical prophylaxis:
    - What time is the surgery? **When were the antibiotics given?**
    - Why is my patient still on antibiotics post-op?



# AMS & MBH Nursing Staff



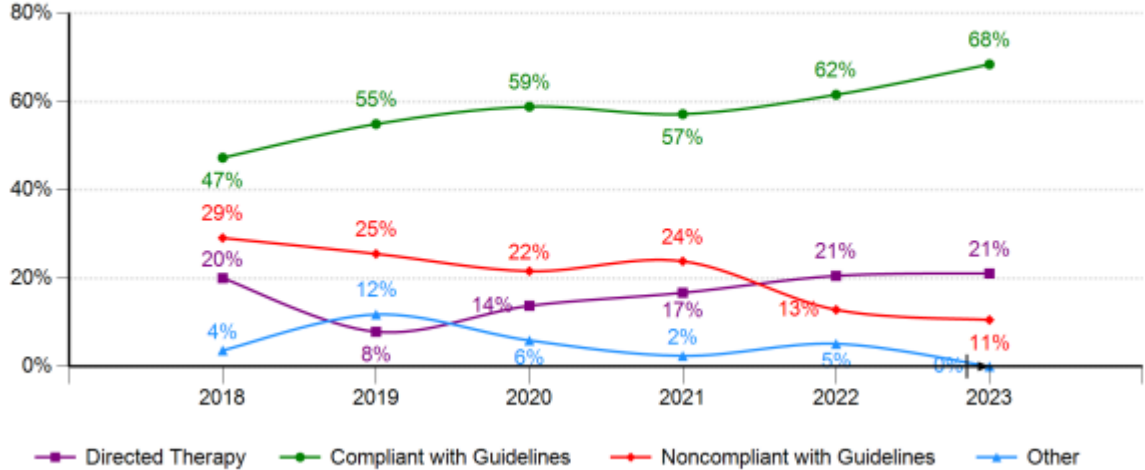
- Report observations:
  - Response to therapy.
  - Active surveillance for signs of potential or actual infection?
  - Can they swap from IV to oral?
- Sepsis:
  - Administration of antibiotics can't wait.
- Return non-impresst antimicrobials to Pharmacy Department after the patient's treatment is complete.
- Infection Prevention and Control Nurses:
  - Support pharmacy staff with audits i.e. NAPS, Surgical NAPS
  - Multidisciplinary team collaboration.



# National Antimicrobial Prescribing Survey at MBH – 2018 to 2023

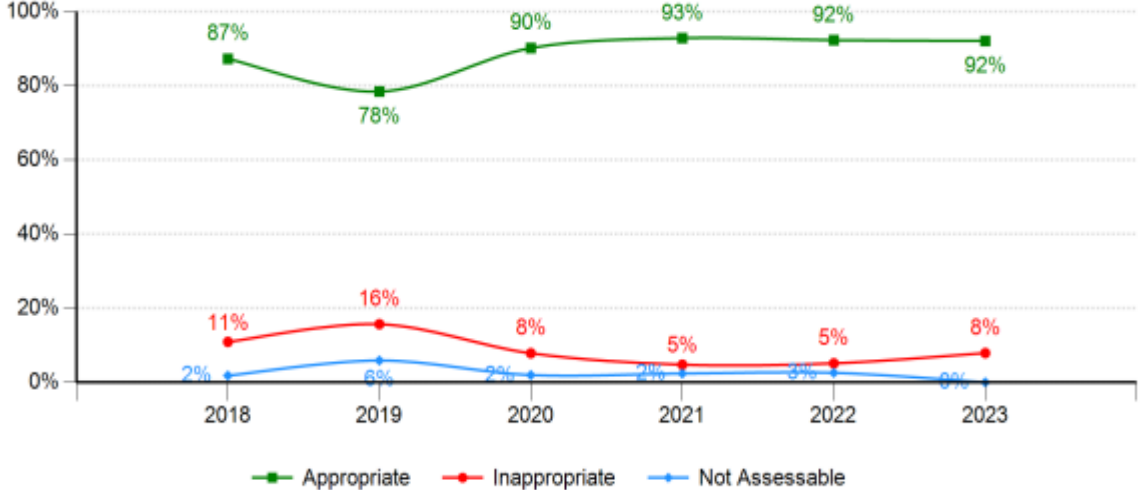


**Compliance with Guidelines**



National Antimicrobial Prescribing Survey (NAPS) is a measure of the appropriateness of antimicrobial prescribing throughout the hospital for a sample of patients on a specific day.

**Appropriateness of Antimicrobial**



# National Antimicrobial Utilisation Surveillance Program at MBH



National Antimicrobial Utilisation Surveillance Program (NAUSP) data is antimicrobial usage with no review of appropriateness, data is compared to other facilities.

## Manning Base Hospital Last updated 31/10/2023

Current average annual usage data:

Third and Fourth Generation  
Cephalosporins =  
**34.12 DDD/1000OBD**

Piperacillin + Tazobactam =  
**29.08 DDD/1000 OBD**

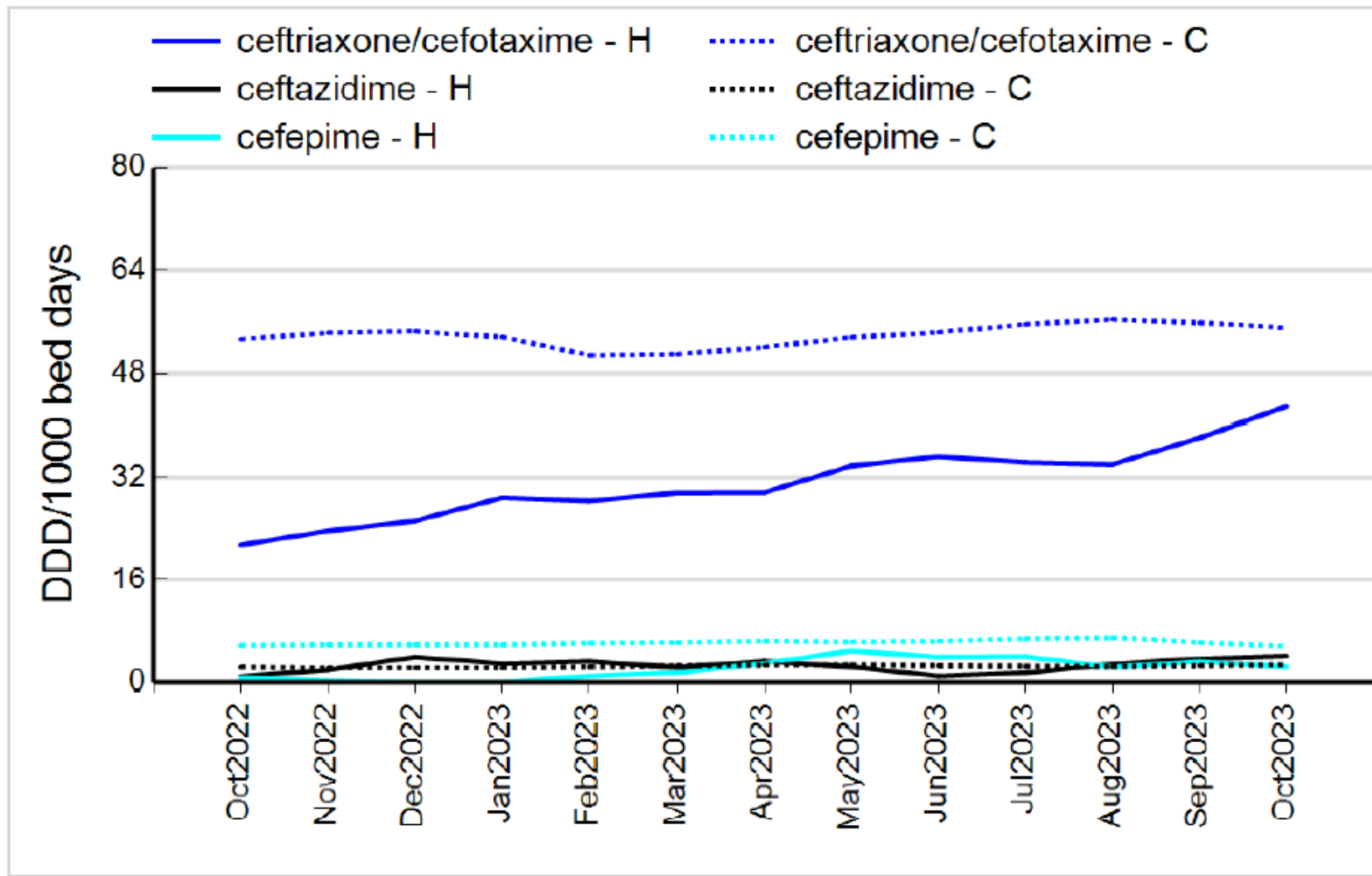
Fluoroquinolones =  
**27.76 DDD/1000OBD**



Hunter New England Health Target is to remain **BELOW 30 DDD/1000 OBD**



# NAUSP Ceftriaxone – October 2022 to October 2023

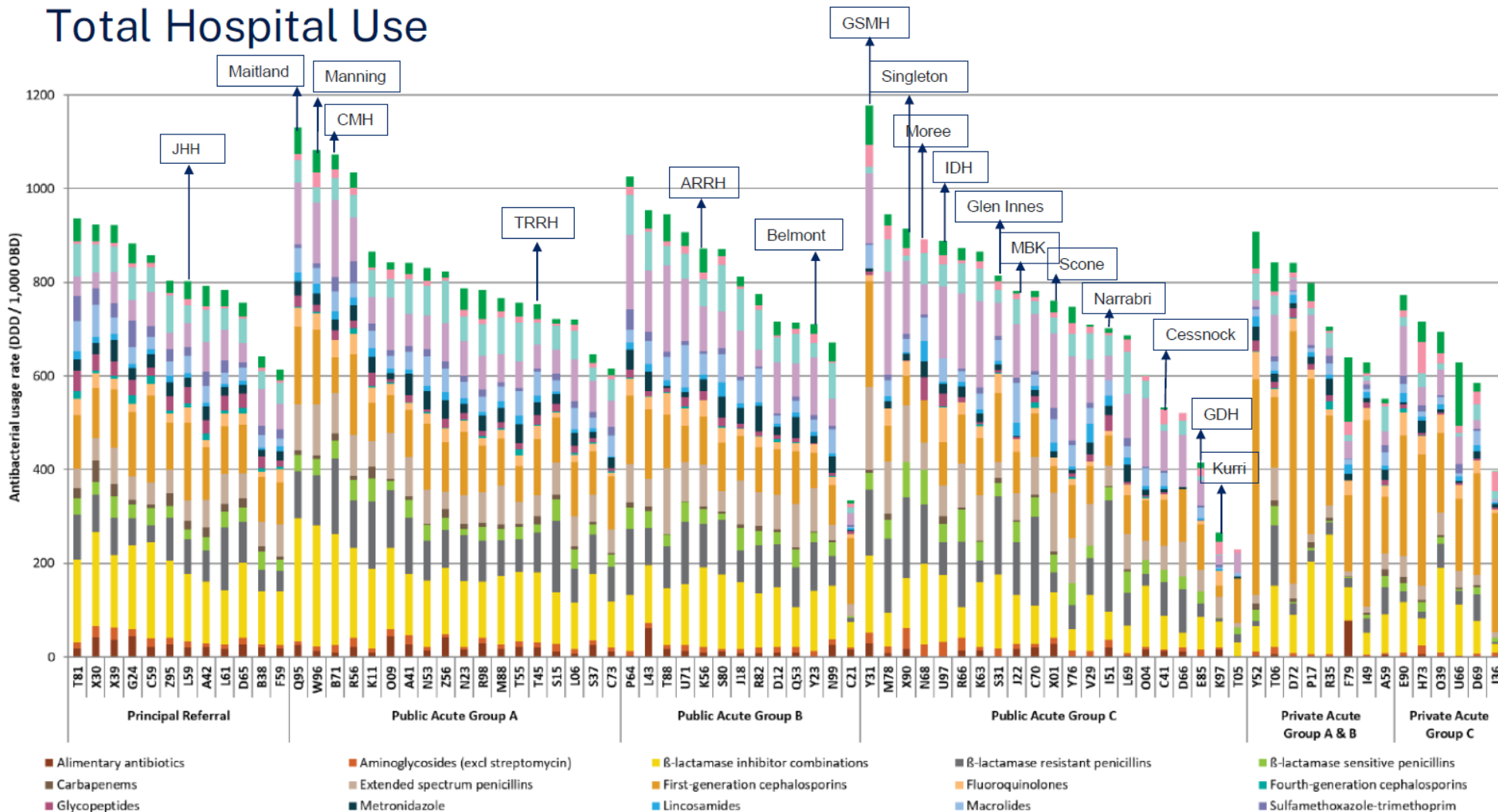


**Chart 3: 3rd/4th generation cephalosporins (ceftriaxone and cefotaxime grouped together).**

# HNELHD NAUSP Summary - January to June 2023



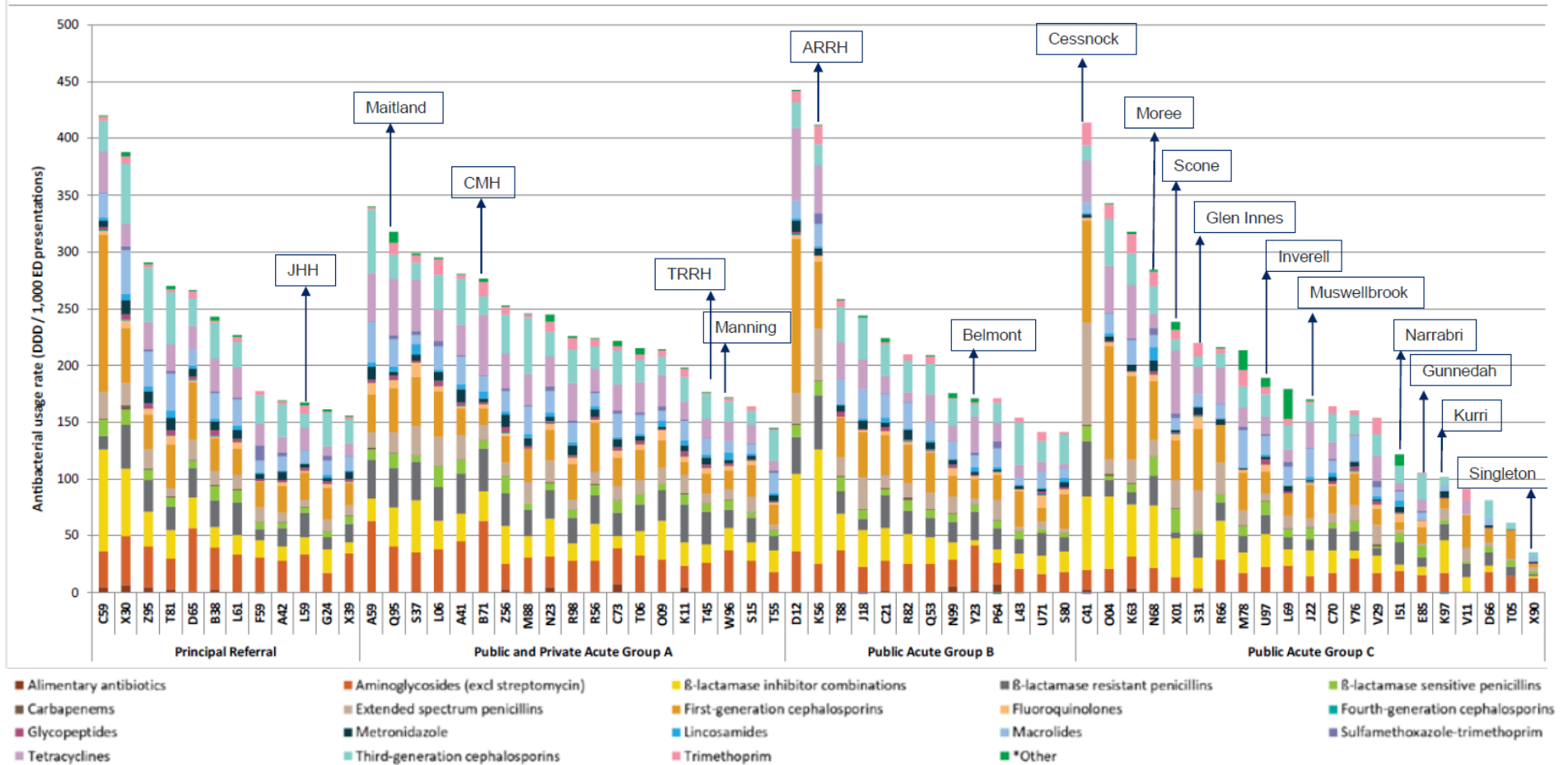
## Total Hospital Use



# HNELHD NAUSP Summary - January to June 2023



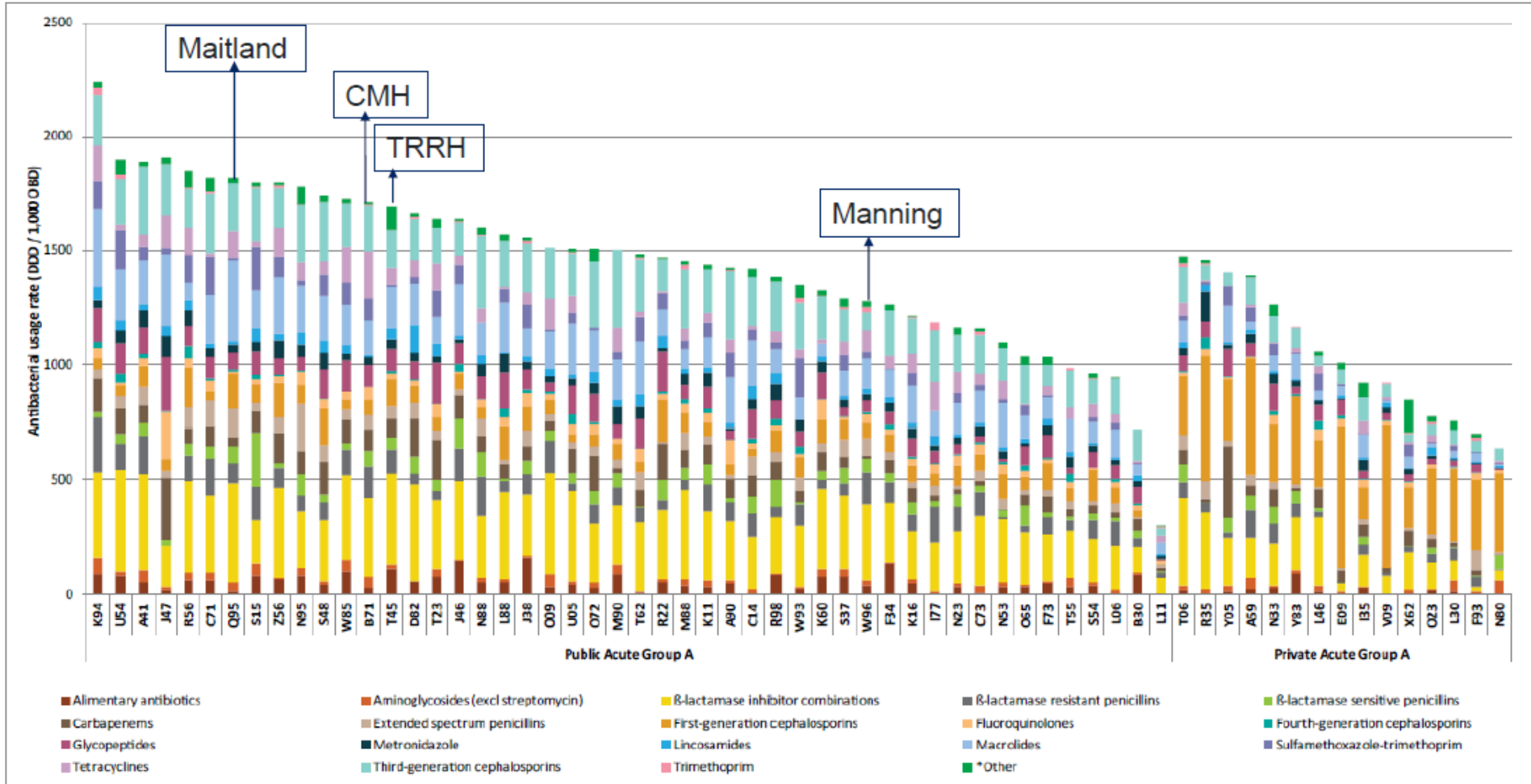
Chart 1: Emergency Department antibacterial usage rates (DDD/1000 emergency presentations) in NAUSP contributor hospitals, by peer group, New South Wales & Australian Capital Territory, Jan – Jun 2023



# HNELHD NAUSP Summary - January to June 2023



Chart 1: Critical Care antibacterial usage rates (DDD/1000 OBD) in NAUSP Public and Private Acute Group A contributor hospitals, Jan-Jun 2023



# Secrets to Success at MBH ... TEAMWORK



#GoingBlueforAMR2023



# Secrets to Success at MBH ...



- Create list of focus areas and an action plan.





# Health

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- Antibiotics
- Antivirals
- Antifungals
- Antiparasitics



Our AMS journey continues...

