

## National aggregated antibacterial usage rates in Australian hospitals

January 2023 – December 2024

Antibacterial utilisation rates provided in this report are calculated using the number of defined daily doses (DDDs) of the antibacterial class consumed each month per 1,000 occupied bed days using aggregated data from all hospitals currently contributing to NAUSP. Aggregated usage rates of all antibacterials by all contributing hospitals are shown for the total acute use (excluding emergency department and theatre) and for critical care. Rates are also reported for 6 target antibacterial classes, and national critical care and non-critical care rates are shown for individual agents within the 6 target classes.

DDD values for each antimicrobial are assigned by the World Health Organization based on the “assumed average maintenance dose per day for the main indication in adults”. DDDs are reviewed annually by the WHO as dosing recommendations change over time. For more information refer to: [https://www.whocc.no/atc\\_ddd\\_methodology/purpose\\_of\\_the\\_atc\\_ddd\\_system/](https://www.whocc.no/atc_ddd_methodology/purpose_of_the_atc_ddd_system/).

Usage rates for this reporting period include data from 249 hospitals. Critical care rates include data from 142 contributors. Some hospitals were unable to submit data for this reporting period and comparator rates may vary from previous reports.

Enquiries regarding this report should be directed to the Program Manager, NAUSP (email: [Health.NAUSPhelp@sa.gov.au](mailto:Health.NAUSPhelp@sa.gov.au)).

### 1. AGGREGATED NATIONAL ANTIBACTERIAL USAGE IN ACUTE CARE SETTINGS

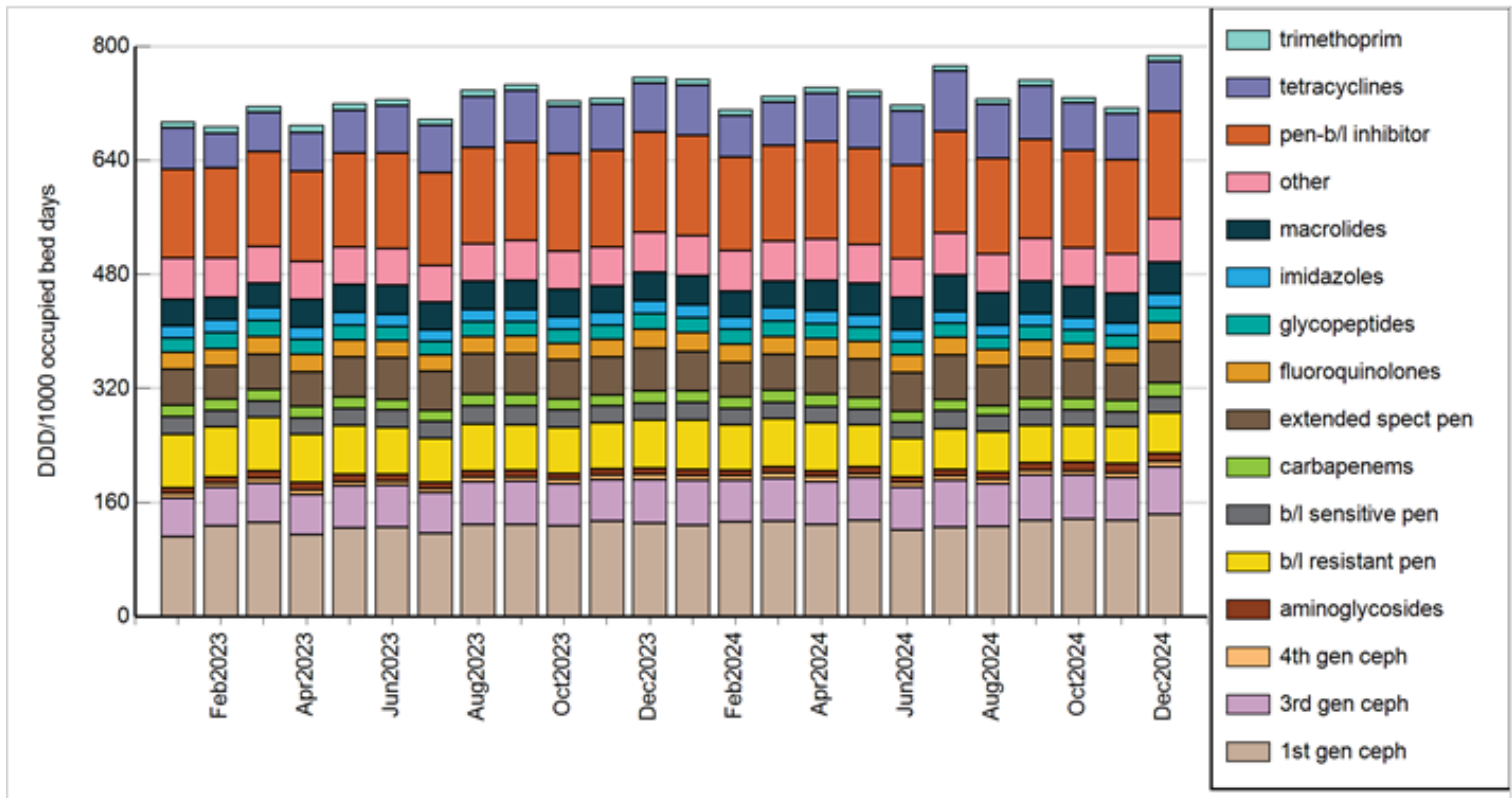


Chart 1: Acute aggregated antibacterial usage rates, NAUSP-contributor hospitals, January 2023 - December 2024 (excludes Emergency Department and operating theatre)

## 2. TOTAL CRITICAL CARE ANTIBACTERIAL USE (ALL CLASSES)

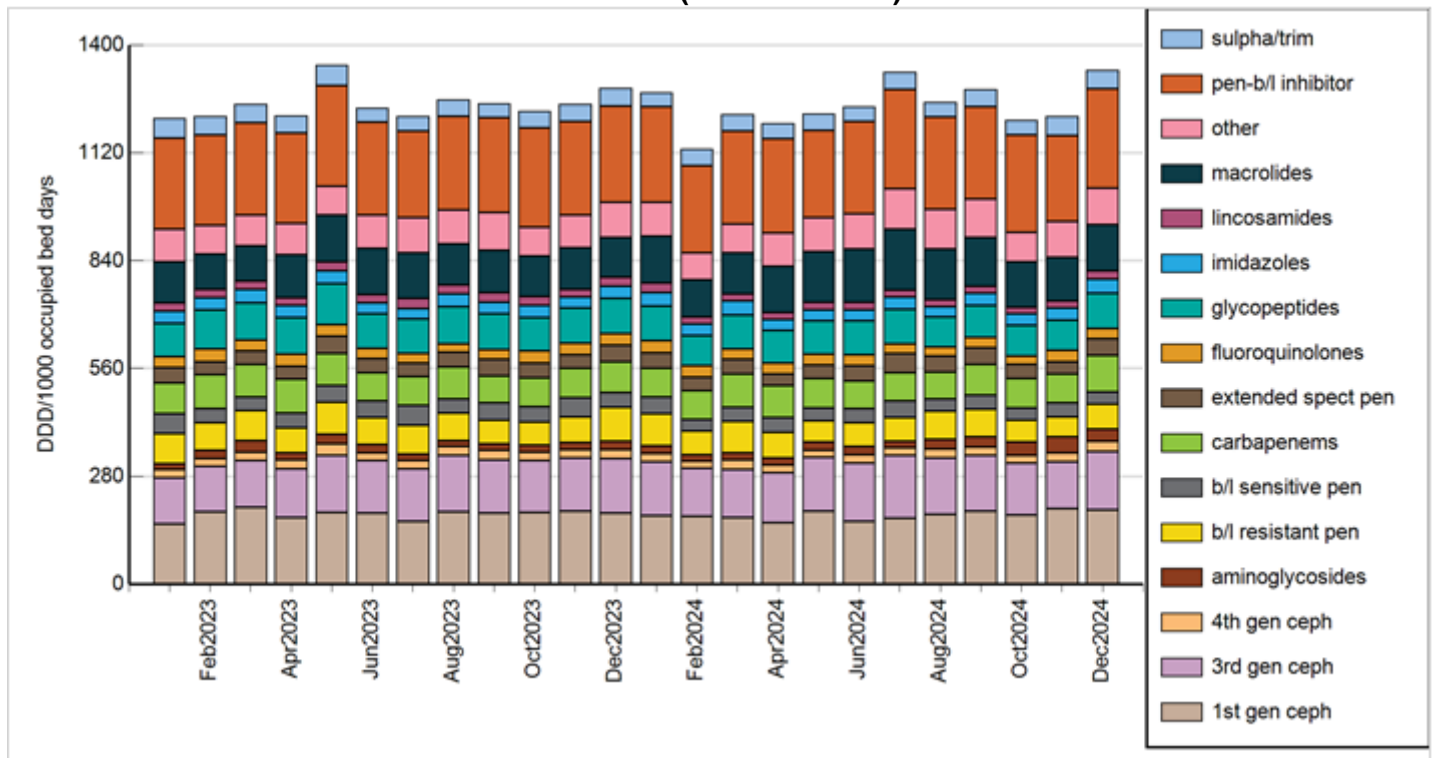


Chart 2: Total Critical Care antibacterial use, NAUSP-contributor hospitals, January 2023 - December 2024

## 3. AGGREGATED NATIONAL USE OF SELECTED CLASSES OF ANTIBACTERIALS

Aggregated acute hospital inpatient usage rates for 3<sup>rd</sup>/4<sup>th</sup> generation cephalosporins, glycopeptides, carbapenems, fluoroquinolones, aminoglycosides and anti-pseudomonal penicillin/β-lactamase inhibitor combinations are displayed for the period January 2022 to December 2023 in charts 3 and 4. Aggregated inpatient usage rates exclude usage in emergency and the operating theatre settings. In the following charts, C denotes aggregate rate for all contributors.

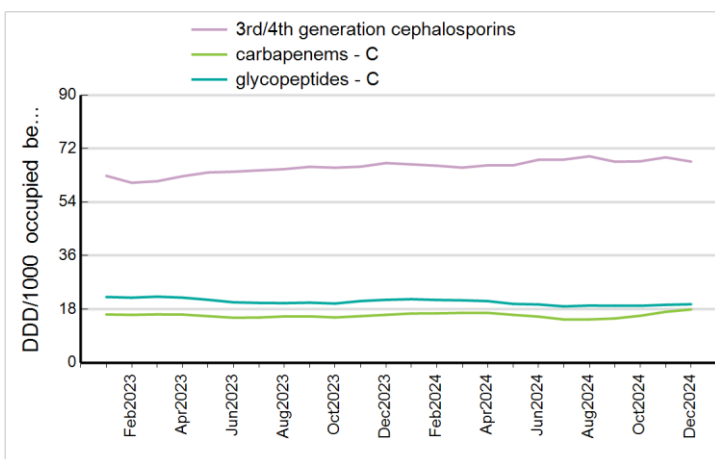


Chart 3: Total hospital usage of 3rd/4th generation cephalosporins, glycopeptides and carbapenems

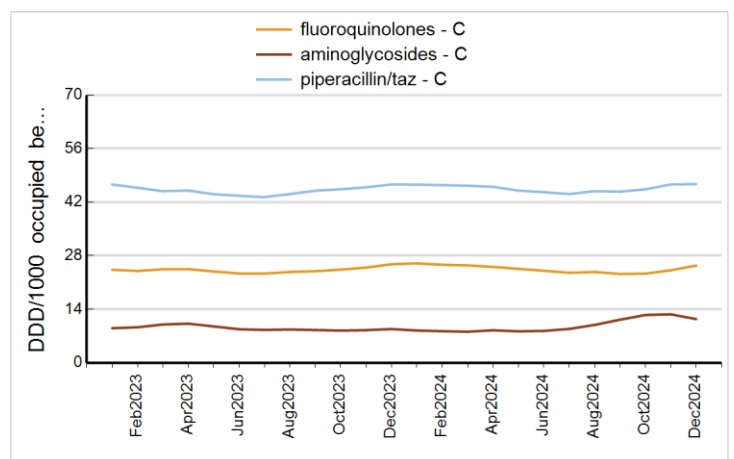


Chart 4: Total hospital usage of fluoroquinolones, aminoglycosides and anti-pseudomonal penicillins plus β-lactamase inhibitor

#### 4. CRITICAL CARE COMPARED TO OTHER HOSPITAL USAGE (NON-CRITICAL CARE)

Usage rates for Critical Care compared to non-Critical Care for each antimicrobial class are shown in charts 5 - 10. Higher usage rates in Critical Care compared to non-Critical Care are expected, based on the density of usage in these areas.

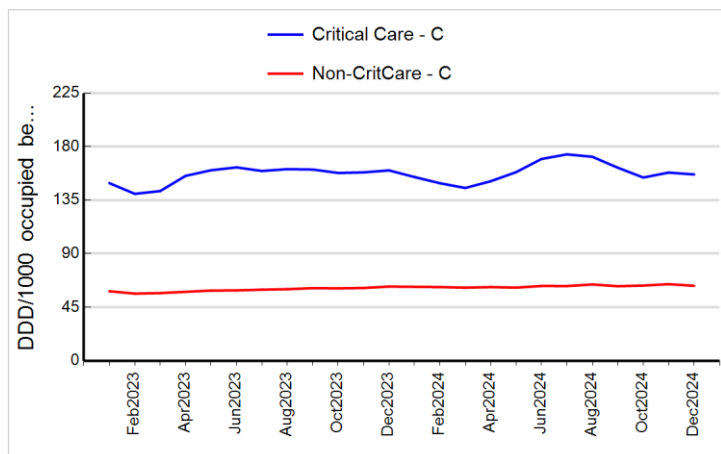


Chart 5: 3rd/4th generation cephalosporins

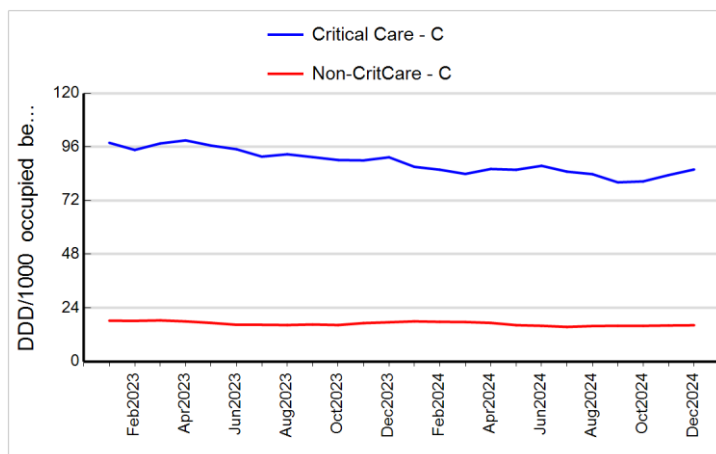


Chart 6: glycopeptides

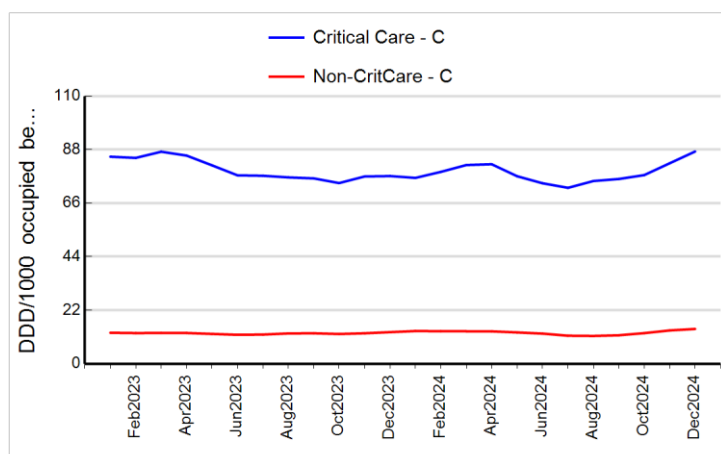


Chart 7: carbapenems

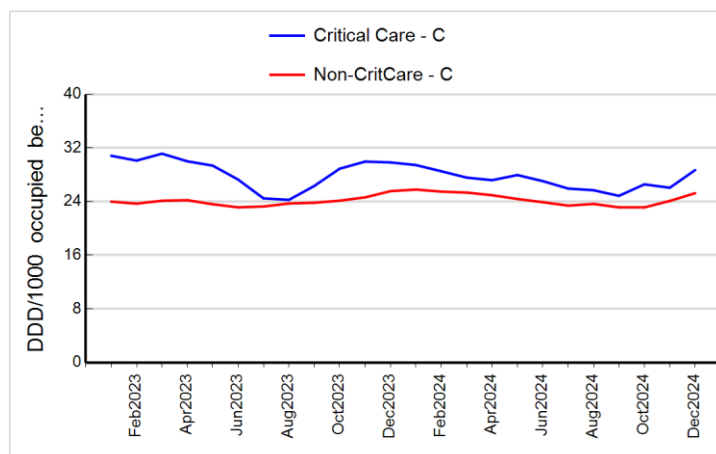


Chart 8: fluoroquinolones

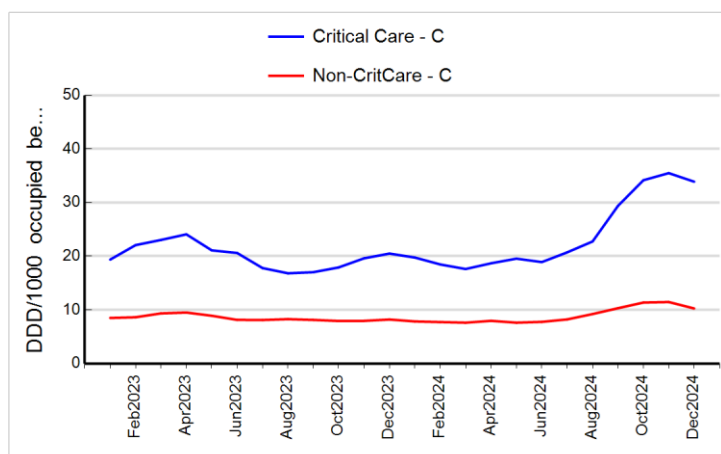


Chart 9: aminoglycosides

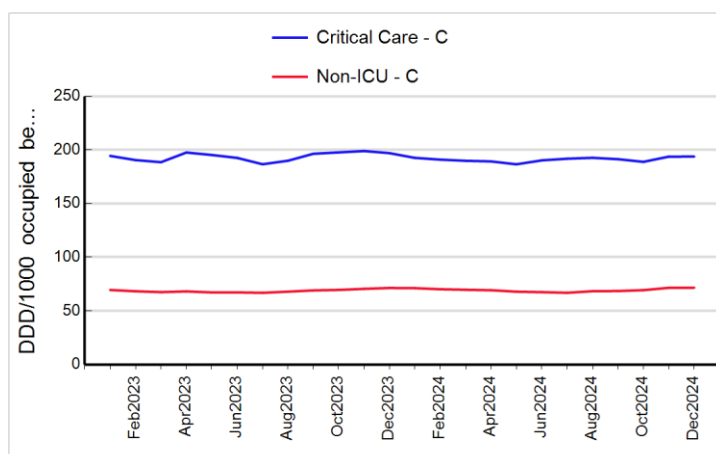


Chart 10: parenteral penicillins / beta-lactamase inhibitors

## 5. CRITICAL CARE USAGE RATES FOR INDIVIDUAL ANTIMICROBIALS

Critical Care antimicrobial utilisation rates for individual agents within reported classes are shown in the Charts 11 - 16 below.

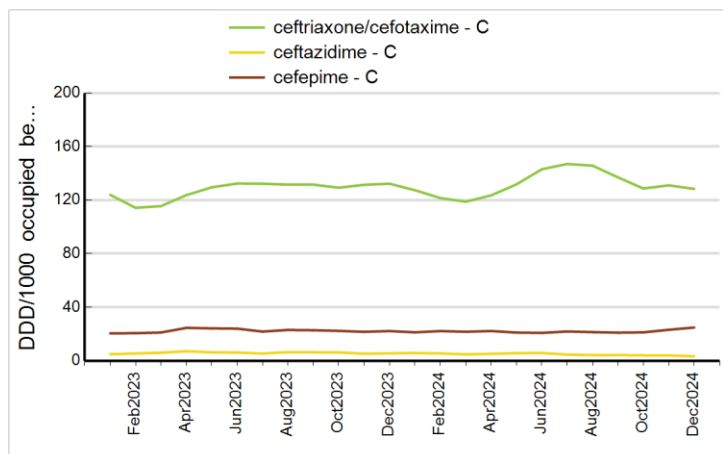


Chart 11: 3rd/4th generation cephalosporins (ceftriaxone and cefotaxime grouped together)

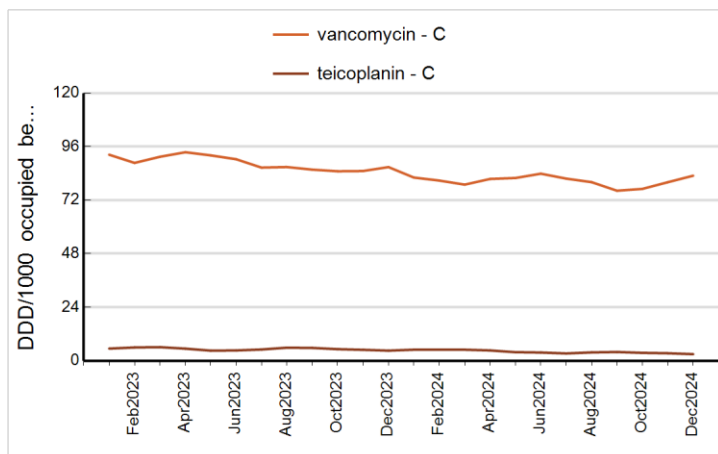


Chart 12: glycopeptides

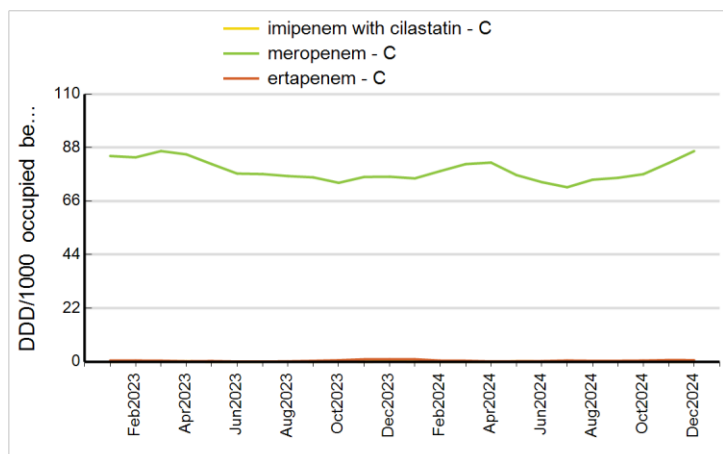


Chart 13: carbapenems

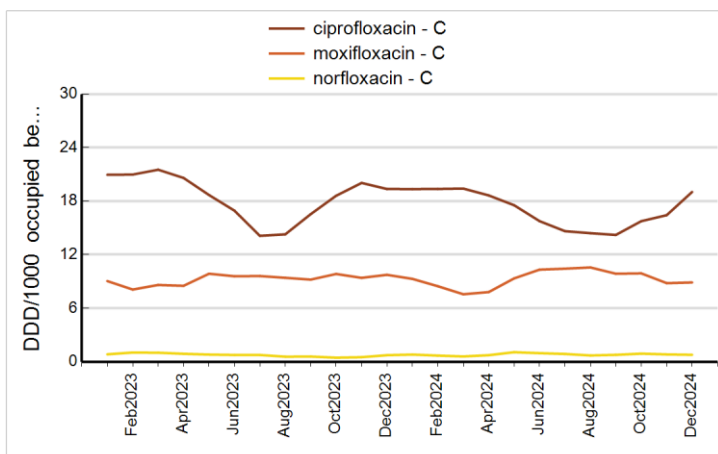


Chart 14: fluoroquinolones

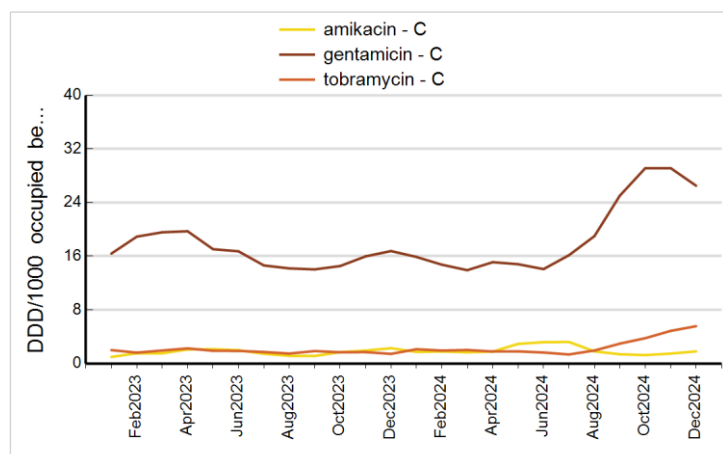


Chart 15: aminoglycosides

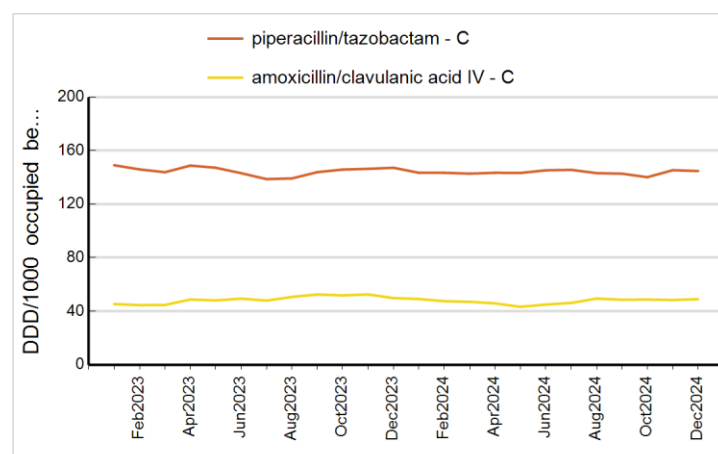


Chart 16: parenteral penicillin /  $\beta$ -lactamase inhibitors

## 6. NON-CRITICAL CARE ANTIMICROBIAL USAGE RATES FOR INDIVIDUAL ANTIMICROBIALS

Non-Critical Care antimicrobial utilisation rates for individual agents within reported classes are shown in Charts 17 - 22 below.

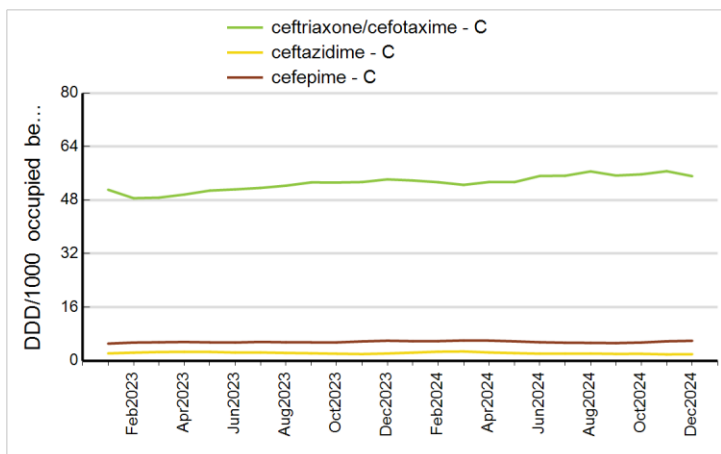


Chart 17: 3rd/4th generation cephalosporins (ceftriaxone and cefotaxime grouped together)

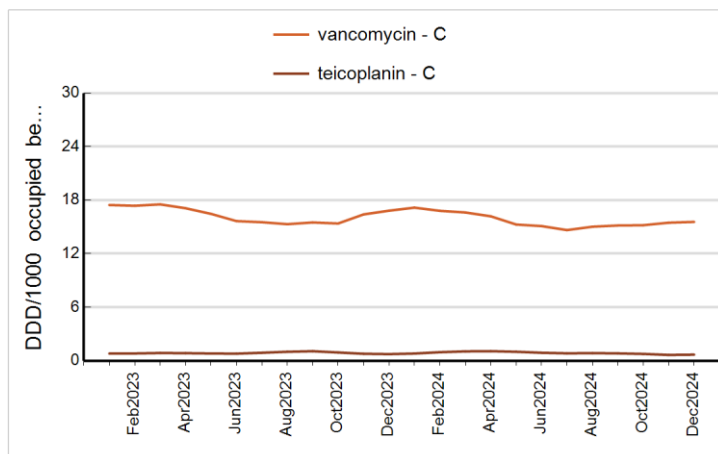


Chart 18: glycopeptides

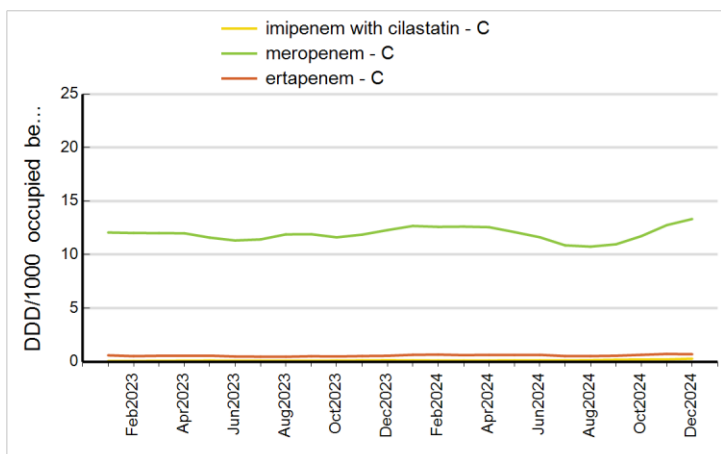


Chart 19: carbapenems

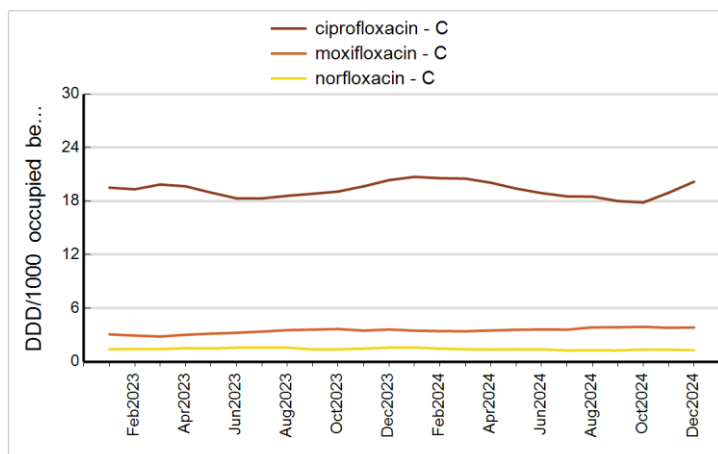


Chart 20: fluoroquinolones

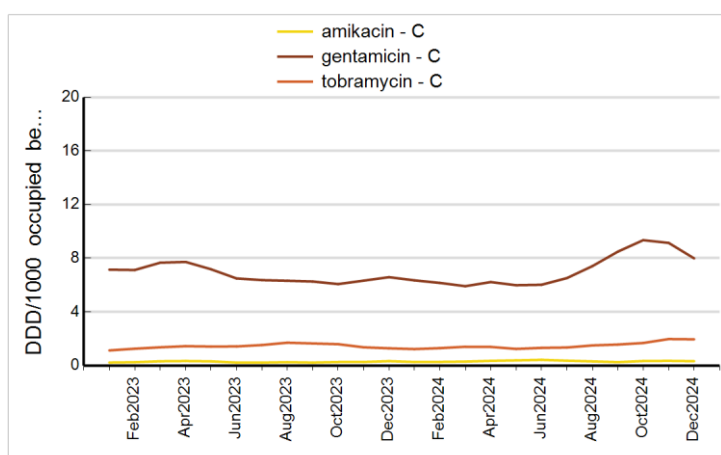


Chart 21: aminoglycosides

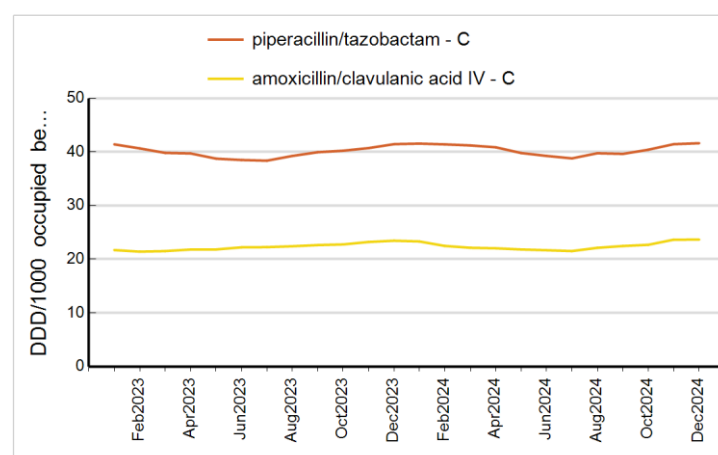


Chart 22: parenteral penicillin / beta-lactamase inhibitors

**This report includes data from the following hospitals:**

- ACT:** CALVARY BRUCE PRIVATE HOSPITAL, CALVARY JOHN JAMES HOSPITAL
- NSW:** ARMIDALE HOSPITAL,AUBURN HOSPITAL,BANKSTOWN HOSPITAL,BATEMANS BAY DISTRICT HOSPITAL,BATHURST BASE HOSPITAL,BELLINGER RIVER DISTRICT HOSPITAL,BELMONT HOSPITAL,BLACKTOWN HOSPITAL,BOWRAL HOSPITAL,BRISBANE WATERS PRIVATE HOSPITAL,BROKEN HILL BASE HOSPITAL,CALVARY RIVERINA HOSPITAL,CAMPBELLTOWN HOSPITAL,CAMPBELLTOWN PRIVATE HOSPITAL,CANTERBURY HOSPITAL,CESSNOCK DISTRICT HOSPITAL,CHRIS O'BRIEN LIFEHOUSE,COFFS HARBOUR HOSPITAL,CONCORD HOSPITAL,COOMA HOSPITAL,COWRA HEALTH SERVICE,DUBBO BASE HOSPITAL,FAIRFIELD HOSPITAL,FORBES DISTRICT HOSPITAL,FORSTER PRIVATE HOSPITAL,GLEN INNES DISTRICT HOSPITAL,GLOUCESTER SOLDIERS' MEMORIAL HOSPITAL,GOSFORD HOSPITAL,GOSFORD PRIVATE HOSPITAL,GOULBURN BASE HOSPITAL,GRAFTON BASE HOSPITAL,GRIFFITH BASE HOSPITAL,GUNNEDAH HOSPITAL,HORNSBY KU-RING-GAI HOSPITAL,HURSTVILLE PRIVATE HOSPITAL,INSTITUTE OF RHEUMATOLOGY AND ORTHOPAEDICS,INVERELL DISTRICT HOSPITAL,JOHN HUNTER HOSPITAL,KAREENA PRIVATE HOSPITAL,KEMPSEY DISTRICT HOSPITAL,KURRI KURRI HOSPITAL,LINGARD PRIVATE HOSPITAL,LITHGOW HOSPITAL,LIVERPOOL HOSPITAL,MACKSVILLE DISTRICT HOSPITAL,MAITLAND HOSPITAL,MAITLAND PRIVATE HOSPITAL,MANNING BASE HOSPITAL,MATER HOSPITAL NORTH SYDNEY,MAYO PRIVATE HOSPITAL,MILTON-ULLADULLA HOSPITAL,MONA VALE HOSPITAL,MOREE HOSPITAL,MORUYA HOSPITAL,MT DRUITT HOSPITAL,MUDGEES DISTRICT HOSPITAL,MUSWELLBROOK HOSPITAL,NARRABRI HOSPITAL,NEPEAN PRIVATE HOSPITAL,NEWCASTLE MATER,NORTHERN BEACHES HOSPITAL,ORANGE HEALTH SERVICE,PARKES HOSPITAL,PORT MACQUARIE BASE HOSPITAL,PRINCE OF WALES HOSPITAL,QUEANBEYAN HOSPITAL,ROYAL NORTH SHORE HOSPITAL,ROYAL PRINCE ALFRED HOSPITAL,RYDE HOSPITAL,SCOTT MEMORIAL HOSPITAL,SHELLHARBOUR HOSPITAL,SHOALHAVEN HOSPITAL,SINGLETON DISTRICT HOSPITAL,SOUTH EAST REGIONAL HOSPITAL,ST GEORGE HOSPITAL,ST VINCENT'S HOSPITAL SYDNEY,ST VINCENT'S PRIVATE HOSPITAL LISMORE,SUTHERLAND HOSPITAL,SYDNEY ADVENTIST HOSPITAL,TAMWORTH HOSPITAL,WAGGA WAGGA BASE HOSPITAL,WESTMEAD HOSPITAL,WOLLONGONG HOSPITAL,WYONGHOSPITAL
- NT:** ALICE SPRINGS HOSPITAL,DARWIN PRIVATE HOSPITAL,GOVE DISTRICT HOSPITAL,KATHERINE DISTRICT HOSPITAL,PALMERSTON REGIONAL HOSPITAL,ROYAL DARWIN HOSPITAL,TENNANT CREEK HOSPITAL
- QLD:** ATHERTON HOSPITAL,BRISBANE PRIVATE HOSPITAL,BUDERIM PRIVATE HOSPITAL,BUNDABERG HOSPITAL,CABOOLTURE HOSPITAL,GLADSTONE HOSPITAL,GOLD COAST PRIVATE HOSPITAL,GREENSLOPES HOSPITAL,HERVEY BAY HOSPITAL,JOHN FLYNN PRIVATE HOSPITAL,KILCOY HOSPITAL,KINGAROY HOSPITAL,MAREEBA HOSPITAL,MARYBOROUGH HOSPITAL,MATER BUNDABERG,MATER HOSPITAL BRISBANE,MATER MACKAY,MATER MOTHERS' HOSPITAL,MATER PRIVATE HOSPITAL BRISBANE,MATER PRIVATE HOSPITAL SPRINGFIELD,MATER PRIVATE HOSPITAL TOWNSVILLE - HYDE PARK,MATER PRIVATE HOSPITAL TOWNSVILLE - PIMLICO,MATER REDLAND PRIVATE,MATER ROCKHAMPTON,MT ISA HOSPITAL,PINDARA PRIVATE HOSPITAL,QUEEN ELIZABETH 2 JUBILEE HOSPITAL,REDCLIFFE HOSPITAL,REDLAND HOSPITAL,ROYAL BRISBANE AND WOMEN'S HOSPITAL,ST ANDREW'S WAR MEMORIAL HOSPITAL,ST STEPHEN'S HOSPITAL HERVEY BAY,ST VINCENT'S PRIVATE HOSPITAL BRISBANE,ST VINCENT'S PRIVATE HOSPITAL NORTHSIDE,ST VINCENT'S PRIVATE HOSPITAL TOOWOOMBA,STARS - SURGICAL TREATMENT AND REHABILITATION SERVICES,THE PRINCE CHARLES HOSPITAL,TOOWOOMBA HOSPITAL,TOWNSVILLE HOSPITAL,WARWICK HOSPITAL,WESLEY HOSPITAL
- SA :** ASHFORD HOSPITAL,BURNSIDE WAR MEMORIAL HOSPITAL,CALVARY ADELAIDE PRIVATE HOSPITAL,CALVARY CENTRAL DISTRICTS HOSPITAL,CALVARY NORTH ADELAIDE HOSPITAL,FLINDERS MEDICAL CENTRE,FLINDERS PRIVATE HOSPITAL,GAWLER HEALTH SERVICE,HAMPSTEAD REHABILITATION CENTRE,LYELL MCEWIN HOSPITAL,MEMORIAL HOSPITAL,MODBURY HOSPITAL,MOUNT BARKER DISTRICT SOLDIERS MEMORIAL HOSPITAL,NOARLUNGA HOSPITAL,PORT LINCOLN HOSPITAL,QUEEN ELIZABETH HOSPITAL,ROYAL ADELAIDE HOSPITAL,SOUTH COAST DISTRICT HOSPITAL,ST ANDREW'S HOSPITAL
- TAS:** CALVARY LENA VALLEY HOSPITAL, CALVARY ST. JOHN'S HOSPITAL, CALVARY ST. VINCENTS LAUNCESTON, HOBART PRIVATE HOSPITAL, LAUNCESTON GENERAL HOSPITAL, MERSEY COMMUNITY HOSPITAL, NORTH WEST REGIONAL HOSPITAL, ROYAL HOBART HOSPITAL
- VIC:** ALBURY WODONGA - ALBURY,ALBURY WODONGA - WODONGA,ALFRED HOSPITAL,ANGLISS HOSPITAL,AUSTIN HOSPITAL,BALLARAT BASE HOSPITAL,BENDIGO HEALTH,BOX HILL HOSPITAL,CABRINI HOSPITAL BRIGHTON,CABRINI HOSPITAL MALVERN,CASEY HOSPITAL,CENTRAL GIPPSLAND HEALTH,DANDENONG HOSPITAL,FRANKSTON HOSPITAL,GEELONG HOSPITAL,GRAMPIANS HEALTH - HORSHAM,GRAMPIANS HEALTH - STAWELL,HOLMESGLEN PRIVATE HOSPITAL,JOHN FAWKNER PRIVATE HOSPITAL,MAROONDAH HOSPITAL,MERCY WOMEN'S HOSPITAL,MONASH MEDICAL CENTRE CLAYTON,MONASH MOORABBIN HOSPITAL,PETER MACCALLUM CANCER CENTRE,ROSEBUD HOSPITAL,ROYAL MELBOURNE HOSPITAL,SANDRINGHAM HOSPITAL,SOUTH EASTERN PRIVATE HOSPITAL,ST JOHN OF GOD GEELONG,ST VINCENT'S HOSPITAL MELBOURNE,ST VINCENT'S PRIVATE EAST MELB,ST VINCENT'S PRIVATE FITZROY,ST VINCENT'S PRIVATE HOSPITAL KEW,ST VINCENT'S PRIVATE HOSPITAL WERRIBEE,SWAN HILL DISTRICT HEALTH,THE NORTHERN HOSPITAL,THE ROYAL VICTORIAN EYE & EAR HOSPITAL,VICTORIAN HEART HOSPITAL,WARRNAMBOOL BASE HOSPITAL,WERRIBEE MERCY HOSPITAL,WEST GIPPSLAND HOSPITAL
- WA :** ALBANY HEALTH CAMPUS,ARMADALE KALAMUNDA GROUP,BENTLEY HEALTH SERVICE,BROOME HOSPITAL,BUNBURY REGIONAL HOSPITAL,BUSSELTON HEALTH,DERBY HOSPITAL,FIONA STANLEY HOSPITAL,GERALDTON HOSPITAL,HEDLAND HEALTH CAMPUS,HOLLYWOOD PRIVATE HOSPITAL,KARRATHA HEALTH CAMPUS,KATANNING HEALTH SERVICE,KING EDWARD MEMORIAL HOSPITAL,KUNUNURRA HOSPITAL,MOUNT HOSPITAL,NARROGIN HOSPITAL,NORTHAM HOSPITAL,ROCKINGHAM HOSPITAL,ROYAL PERTH HOSPITAL,SIR CHARLES GAIRDNER HOSPITAL,ST JOHN OF GOD BUNBURY,ST JOHN OF GOD MIDLAND,ST JOHN OF GOD MURDOCH,ST JOHN OF GOD SUBIACO

<b>ANTIBACTERIAL CLASSES</b>			
<b>Alimentary antibiotics</b>	colistin (oral)	<b>Glycopeptides</b>	dalbavancin
	fidaxomicin		oritavancin
	neomycin (oral)		teicoplanin
	nystatin (oral)		vancomycin
	paromomycin	<b>Imidazole derivatives</b>	metronidazole (parenteral)
	rifaximin	<b>Intermediate acting sulfonamides</b>	sulfadiazine
	vancomycin (oral)	<b>Lincosamides</b>	clindamycin
	lincomycin		
<b>Aminoglycosides (excl streptomycin)</b>	amikacin	<b>Macrolides</b>	azithromycin
	gentamicin		clarithromycin
	neomycin		erythromycin
	tobramycin		roxithromycin
<b>Beta lactamase inhibitor combinations</b>	amoxicillin-clavulanate	<b>Nitroimidazole derivatives</b>	metronidazole (oral, rectal)
	ampicillin-sulbactam		tinidazole (oral, rectal)
	piperacillin-tazobactam	<b>Sulfonamide &amp; trimethoprim combinations</b>	trimethoprim-sulfamethoxazole
	ticarcillin-clavulanate		
<b>Beta lactamase resistant penicillins</b>	dicloxacillin	<b>Tetracyclines</b>	doxycycline
	flucloxacillin		minocycline
<b>Beta lactamase sensitive penicillins</b>	benzathine benzylpenicillin		tetracycline
	benzylpenicillin		tigecycline
	phenoxymethylpenicillin	<b>Third generation cephalosporins</b>	cefotaxime
	procaine benzylpenicillin		ceftazidime
	ceftazidime-tazobactam		
<b>Carbapenems</b>	doripenem		ceftriaxone
	ertapenem	<b>Trimethoprim and derivatives</b>	trimethoprim
	imipenem-cilastatin		daptomycin
	meropenem	fosfomycin	
	meropenem-vaborbactam	<b>Other antibacterials &amp; combinations</b>	linezolid
<b>Extended spectrum penicillins</b>	amoxicillin		methenamine hippurate
	ampicillin		tedizolid
	piperacillin		esomeprazole, amoxicillin and clarithromycin
	pivmecillinam		chloramphenicol
	temocillin	streptomycin	
<b>First generation cephalosporins</b>	cefalexin	colistin	
	cefazolin	polymyxin B	
<b>Fluoroquinolones</b>	ciprofloxacin	sodium fusidate	
	levofloxacin	cycloserine	
	moxifloxacin	rifabutin	
	norfloxacin	rifampicin	
	ofloxacin	rifapentine	
<b>Fourth generation cephalosporins</b>	cefepime		
<b>Other antibacterials &amp; combinations</b>	pristinamycin		cefiderocol
	quinupristin/dalfopristin		ceftaroline

National Antimicrobial Utilisation Surveillance Program

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aztreonam	<b>Other cephalosporins and penems</b>	ceftolozane-avibactam
nitrofurantoin		faropenem
cefaclor		
cefoxitin		
cefuroxime		

NAUSP is funded by the Commonwealth Department of Health and Aged Care (DOHAC). NAUSP is administered by the Communicable Disease Control Branch, Department for Health and Wellbeing, Government of South Australia. All individual hospital data contributed to this program will remain de-identified unless otherwise agreed in writing. Aggregated data may be provided to all contributors, the ACSQHC and the DOHAC.