



Empirical Antibiotics for Common Conditions in Adult Patients Guideline

1. Guiding Principles

Prescribing of empirical antibiotics for adult patients should generally be guided by recommendations made in the Australian Therapeutic Guidelines or in more complicated cases as advised by an Infectious Diseases Specialist or Clinical Microbiologist.

The Therapeutic Guidelines cannot take into account differences in local patient populations or microbiology which is detailed annually in a regional antibiogram ([Appendix A](#)).

A local guideline can provide choice of an appropriate, alternative empirical regimen based on local conditions to guide safe and effective antimicrobial choice for common clinical presentations.

2. Guideline

The following antibiotic regimens can be used as empiric choice for each of the listed conditions for adult patients within the Goldfields region. All other conditions should be treated with empiric antimicrobials as recommended by the Therapeutic Guidelines or in consultation with an Infectious Diseases (ID) Specialist or Clinical Microbiologist (CM).

Cellulitis/ Osteomyelitis/ Septic arthritis

- For empiric therapy of bone, joint or soft tissue infection without features of systemic infection it is acceptable to use either
 - *Flucloxacillin (or dicloxacillin) 500mg PO QID OR*
 - *Cefalexin 500mg PO QID*
- For empiric therapy of bone, joint or soft tissue infection with features of systemic infection it is acceptable to use either
 - *Flucloxacillin 2g IV QID OR*
 - *Cephazolin 2g IV TDS*
- Consult Therapeutic Guidelines for alternatives in patients with immediate penicillin hypersensitivity
- *Vancomycin* can be added where the patient is at high risk of infection with MRSA

Urinary tract infection

- For empiric therapy of cystitis without features of systemic infection use
 - *Cefalexin 500mg PO BD*
- For empiric therapy of pyelonephritis or prostatitis requiring hospitalisation where there are no contraindications to the use of gentamicin then use:
 - *Amoxicillin 2g IV QID plus a single dose of gentamicin dosed according to ideal body weight*
- If there is a contraindication to the use of gentamicin, then use:

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- *Ceftriaxone 1g IV daily*
- *Gentamicin* should not be given to patients who have a documented past adverse reaction to the drug and should be avoided where possible in:
 - Elderly patients,
 - Patients with abnormal renal function,
 - Patients with pre-existing hearing loss,
 - Patients with neuromuscular disease.

It should always be dosed according to ideal body weight.

Intra-abdominal infection

- For empirical therapy of gastro-intestinal tract infection including but not limited to acute appendicitis, acute cholangitis and acute diverticulitis requiring hospitalisation where there are no contraindications to the use of gentamicin then use:
 - *Amoxicillin 2g IV QID plus Metronidazole 500mg IV BD plus Gentamicin dosed according to ideal body weight*
- If there is a contraindication to the use of Gentamicin, then use either:
 - *Ceftriaxone 2g IV daily plus Metronidazole 500mg IV BD OR*
 - *Augmentin 1.2g IV TDS (Piperacillin/ Tazobactam 4.5g IV TDS can be used instead of Augmentin in the setting of perforated viscus or infected, necrotic pancreatitis)*
- *Gentamicin* should not be given to patients who have a documented past adverse reaction to the drug and should be avoided where possible in:
 - Elderly patients,
 - Patients with abnormal renal function,
 - Patients with pre-existing hearing loss,
 - Patients with neuromuscular disease.

It should always be dosed according to ideal body weight.

- *Metronidazole* should be omitted from the regimen in the setting of acute cholecystitis

3. Definitions

Australian Therapeutic Guidelines	The most up to date edition of the Australian Therapeutic guidelines including the electronic version.
Infectious Diseases Specialist	A consultant physician with specialist registration in Infectious Diseases or their training registrar.
Clinical Microbiologist	A consultant microbiologist with specialist registration or their training registrar.
Ideal body weight	Adult males: ideal body weight (IBW) (kg) = 50kg + 0.9kg per cm over 152cm (2.3kg per inch over 5 feet) Adult females: ideal body weight (IBW) (kg) = 45.5kg + 0.9kg per cm over 152cm (2.3kg per inch over 5 feet)

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“Traffic light system” for antimicrobial prescribing	Antimicrobials are classified as “green” (unrestricted), “amber” (restricted) or “red” (highly restricted). All amber and red antimicrobials require approval from an ID specialist or CM within 24 hours of prescribing.
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4. Roles and Responsibilities

All prescribers are responsible to ensure adherence to this guideline in the prescription of empirical antibiotics for adult patients.

Clinical pharmacists are responsible for identifying prescribing practices not in line with this guideline and raising with prescribers the need to follow this guideline or obtain advice from an Infectious Diseases specialist or Clinical Microbiologist.

The Antimicrobial Stewardship lead clinician will conduct regular Antimicrobial Stewardship rounds to ensure compliance with this guideline for the prescribing of restricted empirical antimicrobials in line with the locally approved “traffic light system”.

5. Compliance

This guideline is aligned to the WACHS Antimicrobial Stewardship Policy. Failure to comply with that policy may constitute a breach of the WA Health Code of Conduct (Code).

This guideline is designed to provide staff with evidence-based recommendations to support appropriate actions in specific settings and circumstances. WACHS guidelines should be followed in the first instance. In the clinical context, where a patient’s management should vary from an endorsed WACHS guideline, this variation and the clinical opinion as to reasons for variation must be documented in accordance with the [Documentation Clinical Practice Standard](#).

WACHS staff are reminded that compliance with all policies is mandatory.

6. Records Management

All WACHS clinical records must be managed in accordance with [Health Record Management Policy](#).

7. Evaluation

Monitoring of compliance with this document will be assessed through regular Antimicrobial Stewardship rounds and incidences of non-compliance will be discussed at the monthly Antimicrobial Stewardship subcommittee meeting.

8. Standards

[National Safety and Quality Health Service Standards](#) – 3.15

[Australian Aged Care Quality Agency Accreditation Standards](#) – 3g, 8e

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2020 Antimicrobial Stewardship Clinical Care Standard

9. Legislation

Medicines and Poisons Act 2014 (WA)
Medicines and Poisons Regulations 2016 (WA)

10. References

MIMS Online [Internet]. St Leonards: MIMS Australia; 2020 [cited Jan 2020]. Available from: [MIMS | Search \(health.wa.gov.au\)](http://www-mimsonline-com-au.wachslibresources.health.wa.gov.au/Search/Search.aspx)
<http://www-mimsonline-com-au.wachslibresources.health.wa.gov.au/Search/Search.aspx>
Australian Therapeutic Guidelines

11. Related Forms

Nil

12. Related Policy Documents

WACHS Antimicrobial Stewardship Policy

13. Related WA Health System Policies

MP 0131/20 – High Risk Medication Policy

14. Policy Framework

Clinical Governance, Safety and Quality

15. Appendix

Appendix A: Regional Antibigram - Goldfields

**This document can be made available in alternative formats
on request for a person with a disability**

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Appendix A: Regional Antibiogram - Goldfields

Goldfields Region Antibiogram Blood Culture Isolates

ANTIBIOGRAM: Blood Culture

2019 Susceptibility of common Blood Culture isolates (73% of total isolates tabulated)



Organism Group	No. Strains	% Total	Routinely reported Antibiotics										Restricted or 2nd line antibiotics					
			Benzylpenicillin	Amoxycillin	Amoxycillin/Clavulanate	Cephalexin/Cefazolin/Cephalothin	Flucloxacillin	Azithromycin	Clindamycin	Sulpha/Trimethoprim	Doxycycline	Piperacillin/Tazobactam	Gentamicin	Ciprofloxacin	Ceftriaxone	Meropenem	Vancomycin	
All Isolates	124	100																
<i>Staphylococcus aureus</i>	28	22.6	14			54	54		74	100	100			96				100
<i>E. coli</i>	29	23.4	R	34	71	82	R		R	59		86	97	86	86	100	R	
<i>Streptococcus pneumoniae</i>	12	9.7	98					89				100		R	100	100	100	
Beta Haemolytic Strept (Group A,C,G)	22	17.7	11					8				12		R	100	100	100	

	≥90% of isolates susceptible.
	70%-89% of isolates susceptible.
	<70% of isolates susceptible.
R	Intrinsic resistance.
	Not tested or not clinically effective.
	Number of isolates tested.
	<95% of isolates have been tested. % resistance data from tertiary PathWest laboratories.
	Antibiotic not recommended to be used in children without specialist advice.

1. Data processed according to guideline CLSI M39-A3: Analysis and presentation of Cumulative Antimicrobial Susceptibility Data; Approved Guideline - Third edition. and ACSQHC Specification for a Hospital Cumulative Antibiogram
2. Data processed to exclude multiple isolates so only the first isolate of a given species per patient per year per specimen group (e.g Urine) is included.
3. Only organisms with greater than 30 isolates tested against an antibiotic will produce a susceptibility value considered significant.
4. ESCAPPM group includes *Enterobacter*, *Serratia*, *Citrobacter* (excluding *C. koseri*), *Aeromonas*, *Providencia*, *Proteus vulgaris/penneri*, *Morganella*
5. Antimicrobial susceptibility Testing: CLSI microbroth dilution, agar dilution and disc diffusion.

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Goldfields Region AntibioGram All NON Urine Isolates

ANTIBIOGRAM: NON Urine

2019 Susceptibility of common Non-Urine isolates



Organism Group	No. Strains	% Total	Routinely reported Antibiotics										Restricted or 2nd Line Antibiotics					
			Benzylpenicillin	Amoxicillin	Amoxicillin/Clavulanate	Cefazolin/Cephalexin	Flucloxacillin	Azithromycin	Clindamycin	Sulpha/Trimethoprim	Doxycycline	Piperacillin/Tazobactam	Gentamicin	Ciprofloxacin	Ceftazoxime	Cefepime	Meropenem	Vancomycin
Major isolates reported	1170	100																
<i>Staphylococcus aureus</i>	554	47.4	11			59	59		78	99	98			97				100
<i>S. aureus</i> (MRSA)	230	19.6	R	R		R	R	R	68	100	98	R		521	R		R	458
<i>S. aureus</i> (MSSA)	335	28.6							226	226	216			224				185
Beta Haemolytic Strept (Group A,C,G)	335	28.6	19			100	100		86	99	98			97				100
<i>Pseudomonas aeruginosa</i>	281	24.0	333						333	333	324			308				282
<i>Haemophilus influenzae</i>	77	6.6	100			100	100		87		52			R	100			100
<i>Streptococcus pneumoniae</i>	77	6.6	R	R	R	R	R	R	R	R	R	96	97	95	R	97	93	R
	68	5.8										77	76	77		77	66	
	68	5.8	R	79	94			R	98	R	76	97		100	99			R
	49	4.2		68	68				67		68	65		24	24			
	49	4.2	98					76				84		R	96		100	100
			34					49				49		20				

	≥ 90% of isolates susceptible.
	70%-89% of isolates susceptible.
	<70% of isolates susceptible.
R	Intrinsic resistance.
	Not tested or not clinically effective.
	Number of isolates tested.
	<95% of isolates have been tested. % resistance data from tertiary PathWest laboratories.
	Antibiotic not recommended to be used in children without specialist advice.

1. Data processed according to guideline CLSI M39-A3: Analysis and presentation of Cumulative Antimicrobial Susceptibility Data; Approved Guideline - Third edition. and ACSQHC Specification for a Hospital Cumulative AntibioGram
2. Data processed to exclude multiple isolates so only the first isolate of a given species per patient per year per specimen group (e.g Urine) is included.
3. Only organisms with greater than 30 isolates tested against an antibiotic will produce a susceptibility value considered significant.
4. ESCAPPM group includes *Enterobacter*, *Serratia*, *Citrobacter* (excluding *C. koseri*), *Aeromonas*, *Providencia*, *Proteus vulgaris/penneri*, *Morganella*
5. Antimicrobial susceptibility Testing: CLSI microbroth dilution, agar dilution and disc diffusion.

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Goldfields Region Antibioqram Urine Isolates

ANTIBIOGRAM: URINE



2019 Susceptibility of common Urine isolates (99% of total isolates tabulated)

Organism Group	No. Strains	% Total	Routinely reported Antibiotics							Restricted or 2nd Line Antibiotics				
			Amoxicillin	Amoxicillin/Clavulanate	Cephalexin	Trimethoprim	Nitrofurantoin	Piperacillin/Tazobactam	Gentamicin	Norfloxacin/Ciprofloxacin	Ceftriaxone	Cefepime	Meropenem	Vancomycin
All Isolates	577	100												
<i>Escherichia coli</i>	414	71.8	33	80	90	70	95	92	91	89	85		99	R
<i>Klebsiella species</i>	49	8.5	0	84	92	76	61	93	97	94	92		99	R
<i>Enterococcus species</i>	32	5.5	91		R		91			76	R			99
ESCAPPM group	26	4.6	R	R	R	92	28	R	100	100	R		99	R
<i>Proteus mirabilis</i>	20	3.5	90	100	100	65	R	99	98	100	97		100	R
<i>Pseudomonas aeruginosa</i>	27	4.7	R	R	R	R	R	100	100	96	R	93	97	R

	≥ 90% of isolates susceptible.
	70%-89% of isolates susceptible.
	<70% of isolates susceptible.
R	Intrinsic resistance.
	Not tested or not clinically effective.
	Number of isolates tested.
	<95% of isolates have been tested. % resistance data from tertiary PathWest laboratories.
	Antibiotic not recommended to be used in children without specialist advice.

1. Data processed according to guideline CLSI M39-A3: Analysis and presentation of Cumulative Antimicrobial Susceptibility Data; Approved Guideline - Third edition. and ACSQHC Specification for a Hospital Cumulative Antibioqram
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