

SA Pathology State-wide Cumulative Antibigram: Gram-Positive Blood Culture Isolates (2020)

Organism	No. of isolates	Antibiotics						Restricted antibiotics	
		Benzyipenicillin	Ampicillin/ Amoxicillin	Amoxicillin- clavulanate	Cefazolin	Flucloxacillin/ Dicloxacillin	Sulfamethoxazole- trimethoprim	Clindamycin	Vancomycin
		%S	%S	%S	%S	%S	%S	%S	%S
<i>Enterococcus faecalis</i>	135	98	100						100
<i>Enterococcus faecium</i>	67	0	0						88
<i>Staphylococcus aureus</i> (all)	499	12	12	89	89	89	98	87	100
<i>Staphylococcus aureus</i> (MSSA)	444	14	14	100	100	100	99	89	100
<i>Staphylococcus aureus</i> (MRSA)	55	0	0	0	0	0	89	75	100
<i>beta-haemolytic Streptococci</i> (all)	216	100	100		100			85	100
<i>Streptococcus pyogenes</i> (Group A)	44	100	100		100			95	100
<i>Streptococcus sp.</i> (Group B)	87	100	100		100			75	100
<i>Streptococcus sp.</i> (Group C)	52	100	100		100			88	100
<i>Streptococcus sp.</i> (Group G)	33	100	100		100			94	100
<i>Streptococcus pneumoniae</i>	123	99							
<i>Streptococcus viridans</i> group	242	91							
<i>Streptococcus anginosus</i> group (microaerophilic streptococci)	90	100							
<i>Streptococcus bovis</i> group	33	100							
<i>Streptococcus mitis</i> group	81	98							

KEY

	<70% of isolates sensitive
	70-90% of isolates sensitive
	> 90% of isolates sensitive
	Antibiotic not recommended to be used in children without specialist
	<80% of isolates tested, not clinically effective or intrinsically resistant
	Broad spectrum & restricted antimicrobials

INTERPRETATIVE COMMENTARY

1. *E. faecalis* represents approximately 2/3 of enterococcal bacteraemias. All *E. faecalis* isolates were ampicillin susceptible, with 2% (n=5) being benzylpenicillin non-susceptible. Vancomycin resistant *E. faecium* (VRE) bacteraemia represented 12% of all *E. faecium* bacteraemias (2019 South Australian antibiogram: n=20, 31% VRE bacteraemias). Risk factors for VRE include admission to a haematology/ oncology unit and urinary catheterisation (1). All VRE isolates retained linezolid susceptibility.
2. Methicillin resistant *S. aureus* (MRSA) represented approximately 11% of all *S. aureus* bacteraemias. *S. aureus* bacteraemia in adults requires extended courses of intravenous antimicrobials, ideally with a β -lactams. Please refer to the Therapeutic Guidelines (2) or SAAGAR *S. aureus* bacteraemia guideline (3). Trimethoprim-sulfamethoxazole and clindamycin susceptibility profiles differed between MRSA and Methicillin susceptible *S. aureus* (MSSA) and likely reflects Strain Type. These oral antimicrobials should only be used as a step-down agent in conjunction with Infectious Diseases advice.
3. All beta-haemolytic streptococci are penicillin susceptible. Clindamycin susceptibility varies between species, with notable reduced susceptibility for Group B streptococci (75%) and Group G streptococci (88%).
4. *S. pneumoniae* bacteraemia with clinical meningitis with an MIC < 0.06mg/L requires increased doses of benzylpenicillin (2.4gm 4-hourly). Ceftriaxone (2gm 12-hourly) is recommended if penicillin resistant (MIC > 0.06mg/L) but ceftriaxone susceptible (MIC \leq 0.5mg/L). Vancomycin or moxifloxacin are alternatives if ceftriaxone non-susceptible or beta-lactam allergy. Please refer to Therapeutic Guidelines (2).
5. The susceptibility profile of viridans streptococci is species dependent and if clinically relevant, refer to the antimicrobial susceptibility testing. Benzylpenicillin or vancomycin are reasonable empiric antimicrobials.

References:

1. Cheah et al, *BMC Infectious Diseases* 2014, 14:353
2. Therapeutic Guidelines: Antibiotics 2021, www.tg.org.au
3. SAAGAR Antimicrobial guidelines: [Staphylococcus aureus bacteraemia](#)

Notes:

- For *S. pneumoniae*, percentages represent susceptible isolates and in brackets, combined susceptible and intermediate isolates, as per MIC testing.
- Percentages are only shown when more than 80% of isolates were tested for each organism.
- Susceptibility testing method: EUCAST 2019 Clinical breakpoints.

Disclaimer

The antibiograms displayed on this page are intended to provide data on local antimicrobial susceptibilities. Consult [clinical prescribing guidelines](#) for advice on treatment of particular medical conditions.