

ANTIMICROBIAL SUSCEPTIBILITY PATTERNS 2021

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GENERAL NOTES

- The antimicrobial agents selected for routine or first-line susceptibility testing are chosen because they have the narrowest spectrum that will treat and contain an infection.
- The data presented are from tests performed from January to December 2021. Results are for antimicrobial/organism combinations where more than 30 isolates were tested (95% confidence interval of $\pm 15\%$).
- Test methods are predominantly those recommended by EUCAST (www.eucast.org).
- Antimicrobial susceptibility test results are provided for Gram-positive (page 1) and Gram-negative (page 2) isolates.

Colour interpretation:

No data or not tested
$\geq 90\%$ susceptible
70 - 89% susceptible
< 70% susceptible, or intrinsically resistant (R)

GRAM-POSITIVE ISOLATES

Table 1: Antimicrobial susceptibility test results for Gram-positive isolates recovered from all sites (2021)

Organism Name	Antibiotics in common use (1st line reporting)										Reserved (2nd line reporting)				Topical	
	Number tested	Ampicillin/amoxicillin	Penicillin	Methicillin/flucloxacillin	Erythromycin	Clindamycin #	Gentamicin	Nitrofurantoin ^d	Trimethoprim ^d	Trimethoprim+sulfamethoxazole	Fusidic Acid #	Tetracycline/doxycycline	Ciprofloxacin #	Vancomycin #	Chloramphenicol	Mupirocin (high-level)
<i>S. aureus</i> (not MRSA)	3324		19	100	90	91	98		94	99	94	98	97	100	98	99
MRSA	217		R	R	67	76	90			97	83	98	85	100	98	100
<i>S. epidermidis</i>	273		R	46	39	61			53	53	52	84	47	100		
<i>S. saprophyticus</i>	145	99		99			100	95	98					100		
<i>Enterococcus faecalis</i>	519	100 ^b					100					98	100			
<i>Enterococcus faecium</i>	69	16											100			
<i>Streptococcus pneumoniae</i>	151	98 ^c	97 ^c		88	90 [*]			76			86	100			
Streptococcus Grp A	29	100	100		93	97			100			68	100			

Notes:

* Tested on 10-30 isolates

^a *S. aureus* susceptibility to methicillin/flucloxacillin denotes susceptibility to ceftazolin and amoxicillin-clavulanate

^b Enterococcus species are intrinsically resistant to cephalosporins

^c Includes Intermediate (Susceptible, Increased Exposure) results

^d Treatment of uncomplicated urinary tract infections only

Use requires patient-specific Infectious Diseases/Clinical Microbiology approval (document this in the clinical notes) unless following a CDHB antimicrobial guideline e.g. 'The Pink Book'.

GRAM-NEGATIVE ISOLATES

Table 2: Antimicrobial susceptibility test results for Gram-negative isolates recovered from all sites (2021)

Organism Name	Antibiotics in common use (1st line reporting)										Reserved (2nd line reporting)						
	Number tested	Ampicillin/amoxicillin	Amoxicillin+clavulanate	Cefuroxime IV	Cefalexin	Gentamicin	Nitrofurantoin ^d	Trimethoprim ^d	Trimethoprim+sulfamethoxazole	Tobramycin	Tetracycline	Ceftriaxone	Piperacillin+tazobactam [§]	Cefepime [#]	Meropenem [#]	Fosfomycin [#]	Ciprofloxacin [#]
<i>Citrobacter freundii</i> complex	39	R	R	R	R	95		87	92			82	87	100	100		100
<i>Citrobacter koseri</i>	106	R	96	99	99	100		98	98			99	98	99	100		100
<i>Enterobacter cloacae</i> complex	133	R	R	R	R	100		93	93			75	79	98	100		96
<i>Escherichia coli</i>	4549	56	72	93	94	94	99	79	81			94	98	96	100	99	91
<i>Klebsiella aerogenes</i>	33	R	R	R	R	97		100	100			88	88	100	100		100
<i>Klebsiella oxytoca</i>	186	R	86	92	86	99		96	98			92	88	99	100		98
<i>Klebsiella pneumoniae</i>	394	R	87	91	93	97		83	86			93	94	94	100		90
<i>Morganella morganii</i>	52	R	R	R	R	96	R	74	85			98	98	100	100		90
<i>Proteus mirabilis</i>	211	89	98	96	95	81	R	85	90			99	100	99	100		99
<i>Serratia marcescens</i>	71	R	R	R	R	100	R	83	96			96	97	100	100		94
<i>Pseudomonas aeruginosa</i>	515	R	R	R	R		R	R	R	97			95	91	97		89
<i>Acinetobacter baumannii</i> complex	32	R	R	R	R	76	R	R	100						100		97
<i>Haemophilus influenzae</i>	318	63	84	69					76		99						100

Table 3: Antimicrobial susceptibility test results for Gram-negative isolates from urinary tract infections (2021)

Organism Name	Antibiotics in common use (1st line reporting)										Reserved (2nd line reporting)						
	Number tested	Ampicillin/amoxicillin	Amoxicillin+clavulanate	Cefalexin	Gentamicin	Nitrofurantoin ^d	Trimethoprim ^d	Trimethoprim+sulfamethoxazole				Ceftriaxone	Piperacillin+tazobactam [§]	Cefepime [#]	Meropenem [#]	Fosfomycin [#]	Ciprofloxacin [#]
<i>Citrobacter freundii</i> complex	30	R	R	R	93			87	90			87	90	100	100		100
<i>Citrobacter koseri</i>	93	R	96	99	100			98	98			99	99	99	100		100
<i>Enterobacter cloacae</i> complex	66	R	R	R	100			94	94			83	82	100	100		97
<i>Escherichia coli</i>	4090	58	74	94	95	99		79	82			97	98	98	100	99	93
<i>Klebsiella aerogenes</i>	23	R	R	R	96			100	100			91	91	100	100		100
<i>Klebsiella oxytoca</i>	93	R	88	91	98			97	98			94	90	99	100		99
<i>Klebsiella pneumoniae</i>	303	R	90	93	98			83	87			96	96	97	100		93
<i>Morganella morganii</i>	34	R	R	R	97	R		74	80			97	97	100	100		88
<i>Proteus mirabilis</i>	182	91	98	95	85	R		85	91			99	100	99	100		98
<i>Serratia marcescens</i>	42	R	R	R	100	R		83	93			95	95	100	100		93

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[§] Use requires patient-specific Infectious Diseases/Clinical Microbiology/Respiratory Specialist approval (document this in the clinical notes) unless following a CDHB antimicrobial guideline e.g. 'The Pink Book'.

Extended spectrum β-lactamase (ESBL) producers

- 6.1% (276/4549) of all *E. coli* and 8.9% (35/394) of all *K. pneumoniae* isolates were ESBL producers.