

## Antimicrobial Resistance

## Pseudomonas and similar organisms

The “Non Fermentative Gram Negative Bacilli” are a diverse group of relatively low pathogenicity organisms, usually found in wet environments. Some species, such as *Pseudomonas aeruginosa* cause a significant number of infections but most are opportunistic. *Pseudomonas aeruginosa* develops resistance during treatment and can acquire and disseminate resistance genes to other species. *Acinetobacter baumannii* is notorious for acquiring multiple resistances and *Stenotrophomonas* is intrinsically resistant to most classes of antibiotics.

Data Source: Invasive isolates from blood cultures, tissue and aspirates. This analysis does not include isolates from urine. Repeat isolates from the same patient within 30 days excluded. HACEK organisms and *Pasteurella* spp. were excluded. 3 years to June 2016. Waikato Hospital and rural laboratories. Data here is phenotypic susceptibility of the first isolate. Vitek 2 testing and CLSI interpretation methods were used during this period.

*Pseudomonas aeruginosa* were largely susceptible to the three main classes of antipseudomonal antibiotics. Meropenem appears to offer little advantage over ceftazidime. Piperacillin-Tazobactam and cefepime were tested against very few isolates so no conclusions should be drawn for empirical use and each isolate should be tested.

*Acinetobacter baumannii* complex was a very uncommon cause of invasive infection, with only 17 patients affected over 3 years. Very little antimicrobial resistance is present in isolates from the Waikato region.

*Stenotrophomonas maltophilia* was a very uncommon cause of proven invasive infection, although it is often covered by speculative empiric treatment and sometimes found as a coloniser. All 11 invasive isolates tested were susceptible to cotrimoxazole.

The other species grouped together here showed unpredictable susceptibility and, if deemed significant, would require two empiric antibiotics until susceptibility results are available.

<i>Pseudomonas aeruginosa</i>	Tobramycin	Ceftazidime	Gentamicin	Ciprofloxacin	Meropenem	Pip-Taz	Cefepime
Percent S	100%	99%	98%	97%	96%	92%	91%
Percent I	0%	0%	2%	1%	1%	4%	5%
Percent R	0%	1%	1%	2%	3%	4%	5%
N tested	158	166	162	166	156	25	22
Number of patient episodes	174						

<i>Acinetobacter baumannii</i>	Ciprofloxacin	Gentamicin	Tobramycin	Cotrimoxazole	Amikacin	Cefepime	Meropenem
Percent S	100%	100%	100%	100%	100%	100%	94%
Percent I	0%	0%	0%	0%	0%	0%	0%
Percent R	0%	0%	0%	0%	0%	0%	6%
N tested	17	17	16	16	15	6	16

Ceftazidime	Pip-Taz	Amox-Clav	Trimeth	Amoxicillin	Ceftriaxone	Nitrofurantoin
88%	83%	31%	20%	7%	0%	0%
6%	8%	6%	0%	20%	0%	0%
6%	8%	63%	80%	73%	100%	100%
16	12	16	15	15	16	15

Other organisms	
Achromobacter spp.	6
Acinetobacter spp.	21
Eizabethkingia	3
No species reported	13
Pseudomonas spp.	20
Sphingomonas	5

<i>Stenotrophomonas maltophilia</i>	Cotrimoxazole	Tic-Clav
Percent S	100%	20%
Percent I	0%	20%
Percent R	0%	60%
N tested	11	5
Number of patient episodes	12	

Other Species	Ciprofloxacin	Meropenem	Gentamicin	Ceftazidime	Tobramycin
Percent S	90%	90%	81%	76%	76%
Percent I					
Percent R	0%	10%	14%	14%	17%
N tested	42	39	42	42	41
Number of patient episodes	68				