Supplementary Table 1; Cross-resistance between last resort antimicrobials

First author-Year	Emergent resistance to (n);	Cross-resistance to (pre-resistance MIC→ post-resistance MIC in mg/l);							
		CST	TGC	AMK	GEN	TOB	MIN	SXT	SAM
Reid GE, 2007 [8]	TGC (n=1)	No (S→S)	NA (1.5→24)	Yes (S→R)	No (R→R)	NR	NR	NR	NR
Ruzin A, 2007 [9]	TGC (n=1)	NR	NA (1.5→4)	NR	Yes (8→48)	NR	NR	NR	NR
Anthony KB, 2008 [10]	TGC (n=1)	NR	NA (2→12)	NR	NR	NR	NR	NR	NR
David MD, 2008 [11]	COL (n=1)	NA (1→4)	NR	NR (R→?)	NR (R→?)	NR (R→?)	NR	NR	NR (R→?)
Higgins PG, 2010 [12]	TGC (n=1)	No (<1→<1)	NA (4→16)	No (≥64→ ≥64)	NR	No (2→4)	NR	No (40→ ≥320)	No (R→R)
Hornsey M, 2011 [13-15]	TGC (n=2)	No (≤0.5→≤0.5, 1 → 1)	NA (0.5→16, 0.5→8)	No (>64→4 [a], >64→>64)	No (32→8 [a], NR)	No (>32→2 [a], >32→>32)	NR	NR	NR
Beceiro A, 2011 [16]	COL (n=1)	NA (1→32)	NR	NR	NR	NR	NR	NR	NR
López-Rojas R, 2011 [17, 18]	COL (n=1)	NA (<0.03→ >16)	No (S→S)	No (S→S)	No (S→S)	No (S→S)	No (S→S)	NR	No (R→S)
Rolain JM, 2011 [19-21]	COL (n=1)	NA (0.064→32)	Unclear [b]	No (R→R) [b]	No (R→R) [b]	Unclear [b]	Unclear [b]	No (R→R) [b]	No (R→R)
Shields RK, 2011 [22]	COL (n=3)	NA (0.5→>256, ≤0.125→>64, 0.5→2)	NR	NR	NR	NR	NR	NR	NR
Lesho E, 2013 [23, 24]	COL (n=2)	NA (2→128, 1→16) [c]	No (4→8, 4→2) [c]	No (R→R)	No (R→R)	No (R→R)	No (2→2, 1.5→1) [c]	NR	No (8/4→8/4, >16/8→4/2) [c]

First author-Year	Emergent resistance to (n);	Cross-resistance to (pre-resistance MIC→ post-resistance MIC in mg/l);							
		CST	TGC	AMK	GEN	TOB	MIN	SXT	SAM
Snitkin ES, 2013 [25]	COL (n=4)	NA (all 1→128)	NR	NR	NR	NR	NR	NR	NR
Kim Y, 2014 [26]	COL (n=3)	NA (0.25→6, 0.25→16, 0.38→8)	No (all I→I)	No (all R→R) [d]	No (all R→R) [d]	No (R→R) [d]	NR	NR	NR
Pournaras S, 2014 [27]	COL (n=2)	NA (0.5→32, 0.5→128)	No (both S→S)	No (both R→R)	No (6→32[e], I→I)	No (8→64[e], I→I)	NR	No (both R→R)	No (both S→S)
Durante-Mangoni E, 2015 [28]	COL (n=1)	NA (0.5→128)	No (4→2)	No (R→R)	No (R→R)	No (R→R)	NR	No (R→R)	No (R→R)
Lim TP, 2015 [29]	PMB (n=2)	NA (2→≥32, 1→≥32)	No (8→16, 4→4)	No (both ≥128→≥128)	No (both ≥64→≥64)	NR	NR	NR	No (128/64→64/32, 128/64→32/16)
Liu L, 2016 [30]	TGC (n=2)	NR	NA (4→8, 4→8)	No (256→256, 64→128)	NR	NR	NR	NR	No (C/S) (64→32, 32→64)
Wright MS, 2016 [31]	COL (n=1)	NA (0.5→>4)	No (4→4)	No (R→R)	No (R→R)	No (S→S)	NR	NR	No (R→R)
Choi HJ, 2017 [32]	COL (n=1) TGC (n=1) [f]	NA (1→ >64) No (1→1)	No (2→2) NA (1→16)	No (>128→>128) No (>128→32)	NR	NR	NR	NR	NR
Dahdouh E, 2017 [33]	COL (n=1) COL + TGC (n=1)	NA (0.5→12, 0.5→8)	Yes (0.5→4, 1→2)	No (≤2→≤2, ≤2→≤2)	No (>8→>8, >8→8)	No (>8→>8)	No (≤1→≤1, ≤1→2)	No (>4/76→>4/76, >4/76→>4/76)	No (>16/8→>16/8, >16/8→>16/8)

First author-Year	Emergent resistance to (n);	Cross-resistance to (pre-resistance MIC→ post-resistance MIC in mg/l);							
		CST	TGC	AMK	GEN	TOB	MIN	SXT	SAM
Lenhard JR, 2017 [34]	COL (n=1)	NA (0.5→32)	NR [g]	NR [g]	NR [g]	NR [g]	NR [g]	NR [g]	No (32/16→32/16)
Savari M, 2017 [35]	COL (n=1)	NA (1.5→≥256)	No (1.5→1.5)	No (R→R)	No (R→R)	No (R→R)	NR	No (R→R)	No (S→S)
Cafiso V, 2018 [36]	COL (n=2)	NA (0.125→64, 0.125→256)	No (2→2, 2→2)	No (128→128, 64→32)	No (8→16, 8→8)	NR	NR	No (8→8, 16→16)	No (≥256→≥256, ≥256→≥256)
Deveson Lucas D, 2018 [37]	COL (n=1)	NA (8→128) [h]	Unclear (?-->I)	Unclear (S→?)	No (I→I)	No (S→S)	No (S→S)	NR	NR
Farshadzadeh Z, 2018 [38]	COL (n=2)	NA (0.25→256, 0.5→128)	No (2→2, 4→4)	No (16→16, 32→16)	No (128→128, 128→128)	No (64→64, 32→32)	No (16→16, 16→8)	NR	No (4→4, 32→32)
Gerson S, 2018 [39]	TGC (n=4)	No (2→4, 2→2, 2→2, ≥256→≥256)	NA (1→16, 2→16, 2→4, 2→4)	Yes (64→≥256, 8→≥256, 16→16, ≥256→≥256)	Yes (16→128, 8→128, ≥256→≥256, ≥256→≥256)	NR	Yes (8→16, 4→16, 4→32, 2→2)	NR	NR
Jaidane N, 2018 [40]	COL (n=1)	NA (0.5→≥128)	No (<0.5→<0.5)	No (>32→>32)	No (>4→>4)	NR	NR	No (<0.125→<0.125)	NR
Mustapha MM, 2018 [41, 42]	COL (n=14)	NA	No (all S→S)	No (all R→R)	No (all R→R)	No (all R→R)	No (S→R in one case)	No (all R→R)	No (2 case R→S, all other R→R)
Saun TJ, 2018 [43]	COL (n=2)	NA	NR	No (both R→R)	No (both R→R)	No (R→R)	NR	No (both R→R)	No (both R→R)
Gerson S, 2019 [44]	COL (n=3)	NA (2→256, 2→256 [i], 1→256)	Yes (1→4, 32→4 [i], 1→2)	No (64→64, ≥256→≥256 [i], 64→128)	No (16→16, ≥256→8 [i], 4→2)	NR	No (8→8, 128→16 [i], 32→32)	NR	NR

First author-Year	Emergent resistance to (n);	Cross-resistance to (pre-resistance MIC→ post-resistance MIC in mg/l);							
		CST	TGC	AMK	GEN	TOB	MIN	SXT	SAM
Cheng J, 2020 [45]	TGC (n=1)	NR	NA	NR	NR	NR	NR	NR	NR
Marano V, 2020 [46]	COL (n=3)	NA (0.5→16, 0.5→32, 0.5→128)	NR	NR	NR	NR	NR	NR	NR

Abbreviations; AMK=amikacin, C/S= cefoperazone/sulbactam, CST=colistin, GEN= gentamicin, I= intermediate susceptibility, MIC= minimum inhibitory concentration, MIN= minocycline, NA= not applicable, NR= not reported, PMB= polymyxin B, R=resistant, S=susceptible, SAM= ampicillin/sulbactam, SXT= trimethoprim/sulfamethoxazole, TOB= tobramycin.

[a] Loss of resistance to aminoglycosides was the result of a deletion containing several genes encoding aminoglycoside resistance determinants; *aac*(*6'*)-*Ib*, *aadA* and *armA*.

[b] Both strains were described as "resistant to all of the antibiotics tested, including cefepime and sulbactam", but the list of antibiotics tested is not reported. *SulI* (responsible for SXT resistance), as well as aminoglycoside resistance genes (*aadB* and *aadA2*) were found in both isolates.

[c] Variable MIC changes (multiple *A. baumannii* isolations per patient). The pairs selected for the MIC changes presented in this table are the last colistin-susceptible and first colistin-resistant isolates from each patient.

[d] "All of the isolates also harbored the armA gene and showed high-level resistance to aminoglycosides"

[e] Decreased susceptibility to gentamicin and tobramycin in one isolate was probably associated with overexpression of the AdeT efflux pump.

[f] Multiple *A. baumannii* isolates from the same patients. Some isolates developed resistance to colistin, while one isolate developed resistance to tigecycline. The pairs selected for the MIC changes presented in this table are the last colistin-susceptible and first-colistin resistant isolate, as well as the last tigecycline-susceptible and first tigecycline-resistant strain.

[g] The colistin-resistant isolate was "resistant to all the investigated antimicrobials".

[h] The initial colistin-susceptible isolate was susceptible according to Vitek-2 and E-test, but had an MIC of 6-12mg/l according to broth microdilution.

[i] In this case colistin resistance developed without prior exposure to colistin (therefore cross-infection may be more likely than in vivo development of resistance). Loss of aminoglycoside resistance genes aadA1 and aac(3)-Ia was observed in the resistant isolate.

Supplementary Table 2; Association between fitness/virulence cost and treatment failure

Impact of emergent resistance	Reduced fitness/virulence	
	Yes n (%)	No n (%)
Treatment failure [a]	3 (30%)	6 (86%)
Colonization	4 (40%)	0
Not reported	3 (30%)	1 (14%)

[a] Emergent resistance was considered to be responsible for treatment failure when associated with persistent or recurrent symptoms and/or sings of infection necessitating further treatment. Fisher's exact p=0.07