

Trends in Antimicrobial Resistance in *Acinetobacter baumannii* (ACB) in a Detroit Area Health System

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Background: The objective of this study was to analyze trends in antimicrobial resistance across our health system and to evaluate the activity of colistin and tigecycline.

Methods: DMC includes 8 hospitals, over 2000 beds, and one centralized microbiology laboratory. Standard Microscan panels for ACB were utilized to determine susceptibilities for most antimicrobial agents. Beginning in 2008, all isolates that were resistant to ampicillin-sulbactam (AS) and imipenem were tested against colistin and tigecycline using the E test. System-wide antibiograms were constructed using CLSI guidelines.

Results: From 2003-2008, there was a sharp increase in antimicrobial resistance among the 5214 isolates tested (Table). The total number of ACB tested more than doubled during this time period and susceptibility to AS and imipenem decreased from 89% and 99% respectively in 2003, to 40% and 42% in 2008. The other antimicrobials tested demonstrated a similar reduction in susceptibility, with the notable exception of tobramycin, which had a rise in susceptibility from 41% to 65%. During 2008, 348 isolates were resistant to AS and imipenem. Of these, 280 (80.4%) were non-susceptible to tigecycline and 8 (2.7%) were non-susceptible to colistin. The MIC50 and MIC90 to tigecycline were 4 ug/ml and 8 ug/ml respectively; and 0.5 ug/ml and 1 ug/ml for colistin.

Conclusion: Multidrug-resistant strains of ACB have invaded the DMC. From 2003 through 2008 we have noticed a sharp decrease in susceptibility to all tested antimicrobials, with the exception of tobramycin. Currently most of these strains are susceptible to colistin only.

Table: Susceptibility of ACB at DMC

	# of Isolates	Imipenem	Amp/Sulbactam	Ceftazidime	Ciprofloxacin	TMP/SMX	Amikacin	Tobramycin
2003	566	99%	89%	36%	32%	33%	90%	41%
2004	593	97%	86%	43%	31%	31%	77%	36%
2005	890	99%	87%	28%	24%	26%	81%	28%
2006	751	99%	62%	26%	24%	27%	92%	56%
2007	1175	65%	37%	16%	14%	17%	63%	60%
2008	1239	42%	40%	15%	15%	18%	33%	65%