Summary Agenda

Group: Intrinsic Resistance Working Group

- *Dyan Luper* (Recording Secretary), Jeff Alder*, Rafael Canton, German Esparza*, Kate Murfitt, Sandy Richter, Susan Sharp*, Carole Shubert*, Paul Schreckenberger*, Tom Thomson**

Summary Agenda

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Presenter: Barbara Zimmer

Items to Vote on in June 2014:

*1.Serratia marcescens vs. tetracycline (**not doxycycline**), (not tigecycline nor minocycline)*

- *Amendment to Appendix B.1 Enterobacteriaceae.*
- *Breakpoints for tetracycline, doxycline, minocycline: 4/8/16*
- *Would state:* *****S. marcescens should be considered resistant to tetracycline, but not intrinsically resistant to doxycycline, minocycline or tigecycline"** (wording same as current note for P. stuartii)
- *See slides*

2.Appendix B1: insertion of the word "complex" with the name of *Enterobacter cloacae.* Voted 8-0 Yes

3.Appendix B3: insertion of the word "These" in front of Note 1: "These Gram-positive bacteria are also intrinsically resistant to aztreonam…" similar to the note in Appendix B2. Voted 8-0 Yes

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Tetracycline rules for *Serratia marcescens*

Mahlen, S., 2011 Serratia infections: from military experiments to current practice. Clin. Micro. Rev. 24:755.

- "All *S. marcescens* …isolates were resistant to tetracycline in the 2003 study by Stock and others…". (JAC 2003)
- "96.6% of *S. marcescens* isolates (*n* 678) in 2005 were sensitive to tigecycline…."

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Tetracyclines and *Serratia marcescens*

Data from IHMA:

- TEST (Tigecycline Evaluation Surveillance Trial) program: 13,924 isolates of S. marcescens, of which 73.4% are S to minocycline, and 95.7% S to tigecycline.
- IHMA database: 16,574 isolates, only 168 were tested against tetracycline (!); of those, only 11 were reported as S to tetracycline (and of those 11, 9 were right at the breakpoint of 4 mcg/ml, 1 was at 2 mcg/ml, and 1 was at 0.25 mcg/ml). No doxycycline data at all for Serratia.

Serratia marcescens vs. doxycycline (worldwide)

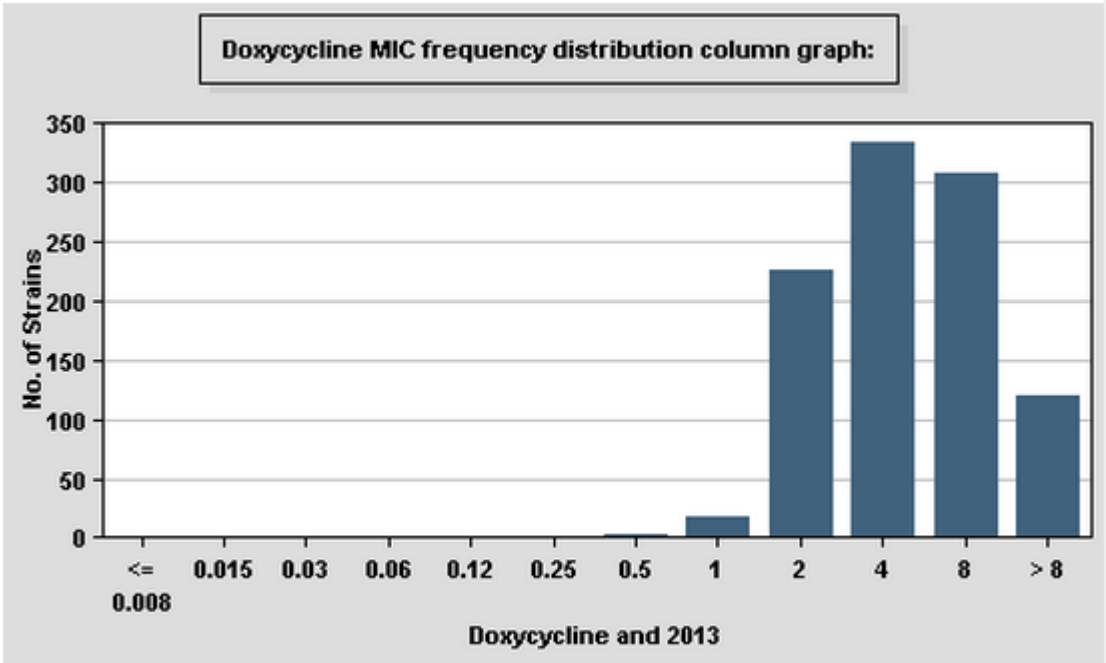
Doxycycline: *Serratia marcescens*

Validated: sentryMICValidated

2013

Total: 1013

MIC	<= 0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	> 8	MIC_{50}	MIC_{90}
Count	0	0	0	1	0	0	2	18	227	335	309	121	4	>
Percent	0.00	0.00	0.00	0.10	0.00	0.00	0.20	1.78	22.41	33.07	30.50	11.94		
Cum Pct	0.00	0.00	0.00	0.10	0.10	0.10	0.30	2.07	24.48	57.55	88.06	100.00		



Serratia marcescens vs. tetracycline (worldwide)

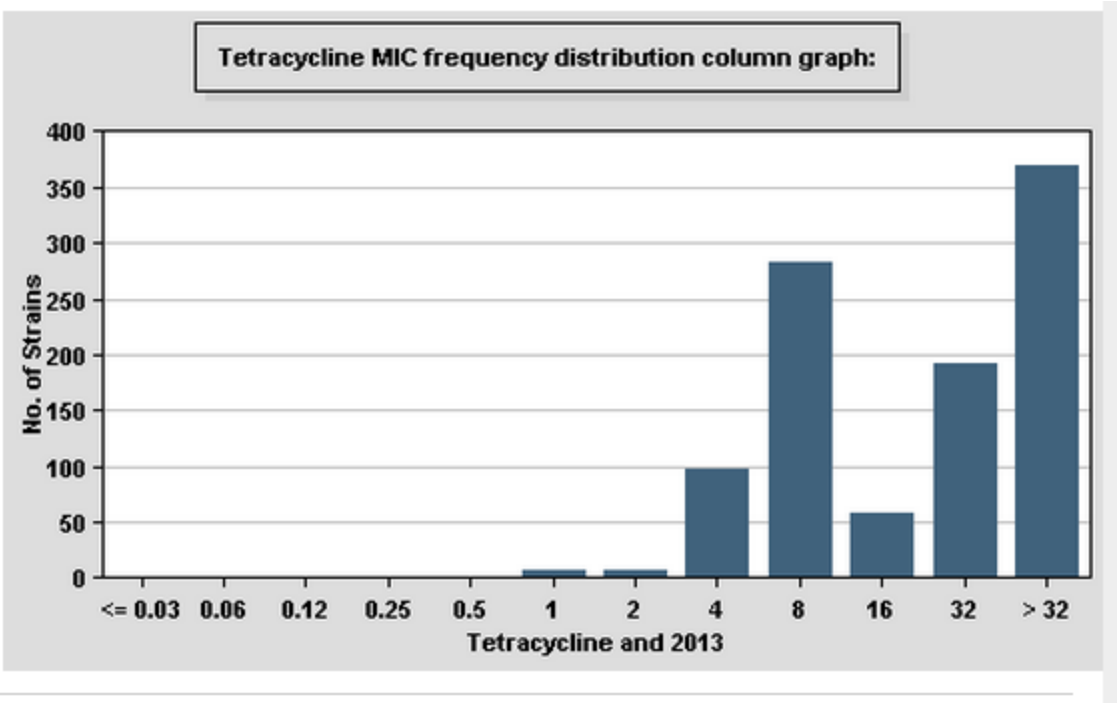
Tetracycline: *Serratia marcescens*

Validated: sentryMICValidated

2013

Total: 1013

MIC	<= 0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	> 32	MIC_{50}	MIC_{90}
Count	0	0	0	0	0	6	7	98	283	58	192	369	32	>
Percent	0.00	0.00	0.00	0.00	0.00	0.59	0.69	9.67	27.94	5.73	18.95	36.43		
Cum Pct	0.00	0.00	0.00	0.00	0.00	0.59	1.28	10.96	38.89	44.62	63.57	100.00		



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Tetracycline rules for *Serratia marcescens*.

Working Group June 2014: Voted 5-3 to add footnote that S. marcescens was Resistant to Tetracycline, but not Minocycline, Doxycycline nor Tigecycline

Opposing votes thought that some organisms may test susceptible based on data in table, so all would not be R, and that tetracycline may be used for urinary tract infections, where it would be concentrated.

Appendix B1

Organism \ Antimicrobial Agent	Ampicillin	Amoxicillin-clavulanic acid	Ampicillin-sulbactam	Piperacillin	Ticarcillin	Cephalosporin I: Cefazolin, Cephalothin	Cephamycins: Cefoxitin, Cefotetan	Cephalosporin II: Cefuroxime	Imipenem	Tetracyclines/ Tigecycline	Nitrofurantoin	Polymyxin B Colistin	Aminoglycosides
Citrobacter freundii	R	R	R			R	R	R					
Citrobacter koseri	R			R	R								
Enterobacter aerogenes	R	R	R			R	R	R					
Enterobacter cloacae	R	R	R			R	R	R					
Escherichia coli	There is no intrinsic resistance to β-lactams in this organism.												
Escherichia hermannii	R				R								
Hafnia alvei	R	R	R			R	R						
Klebsiella pneumoniae	R				R								
Morganella morganii	R	R				R		R	*	R	R	R	
Proteus mirabilis	There is no intrinsic resistance to penicillins and cephalosporins in this organism.								*	R	R	R	
Proteus penneri	R					R		R	*	R	R	R	
Proteus vulgaris	R					R		R	*	R	R	R	
Providencia rettgeri	R	R				R			*	R	R	R	
Providencia stuartii	R	R				R				R	R	R	**
Salmonella and Shigella spp.	There is no intrinsic resistance to β-lactams in these organisms; see Table 2A, comment (6) for reporting.												
Serratia marcescens	R	R	R			R	R	R		***	R	R	
Yersinia enterocolitica	R	R			R	R							

*Proteus species, Providencia species, and Morganella species may have elevated MICs to imipenem by mechanisms ….

**P. stuartii should be considered resistant to gentamicin, tobramycin, and netilmycin, but not intrinsically resistant to amikacin.

*****S. marcescens should be considered resistant to tetracycline, but not intrinsically resistant to minocycline or tigecycline or doxycyclline**. And should be tested individually

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Items For Future Discussion

- Other intrinsic resistant tables, specifically for those organisms with AST methodology in M45; Initial worksheet of the M45 organisms to initiate this discussion.
- Should Intrinsic Resistance for M45 organisms be in M100 or M45 (or both)? (IR WG thought both)
- Work with M45 WG to develop list as they revise document and request antibiogram.
- Will also ask Anaerobe AST to develop list.

M45 Organisms

Organism	Notes	AM	AMX	penicillins	Cephalosporins	older cephalosporins (CF, FUR)	sulfonamides	VA
Aeromonas spp.	AMC and CZ differs among species (p. 13)	R						
Plesiomonas shigelloides	conflicting data, but not recommended (p. 13)			R				
Bacillus cereus	generally resistant, (p. 15)			R	R			
Erysipelothrix rhusiopathiae	p. 21							R
Lactobacillus spp. (aerobic species)	p. 27							R
Leuconostoc spp.	p. 28							R
L. monocytogenes	p. 29				R			
M. catarrhalis	most strains, p. 31	R	R					
Pediococcus spp.	p. 34							R
Halophilic Vibrio spp.	usually resistant, p. 37			R		R	R	