

## Sponsors

---

### *We thank the following sponsors:*

#### **Gold**

Boehringer-Ingelheim Vetmedica, Inc.  
Pfizer Animal Health

#### **Bronze**

Alpharma Animal Health  
Bayer Animal Health  
Intervet/Schering Plough Animal Health  
National Pork Board

#### **Copper**

AgStar Financial Services  
American Association of Swine Veterinarians  
IDEXX  
IVESCO  
Novartis Animal Health US, Inc.  
Novus International Inc.  
PIC USA  
PigCHAMP

#### **University of Minnesota Institutional Partners**

College of Veterinary Medicine  
University of Minnesota Extension  
College of Food, Agriculture and Natural Resources Sciences

#### **Formatting**

Tina Smith Graphics  
[www.tinasmithgraphics.com](http://www.tinasmithgraphics.com)

#### **CD-ROM**

David Brown  
[www.davidhbrown.us](http://www.davidhbrown.us)

#### **Logo Design**

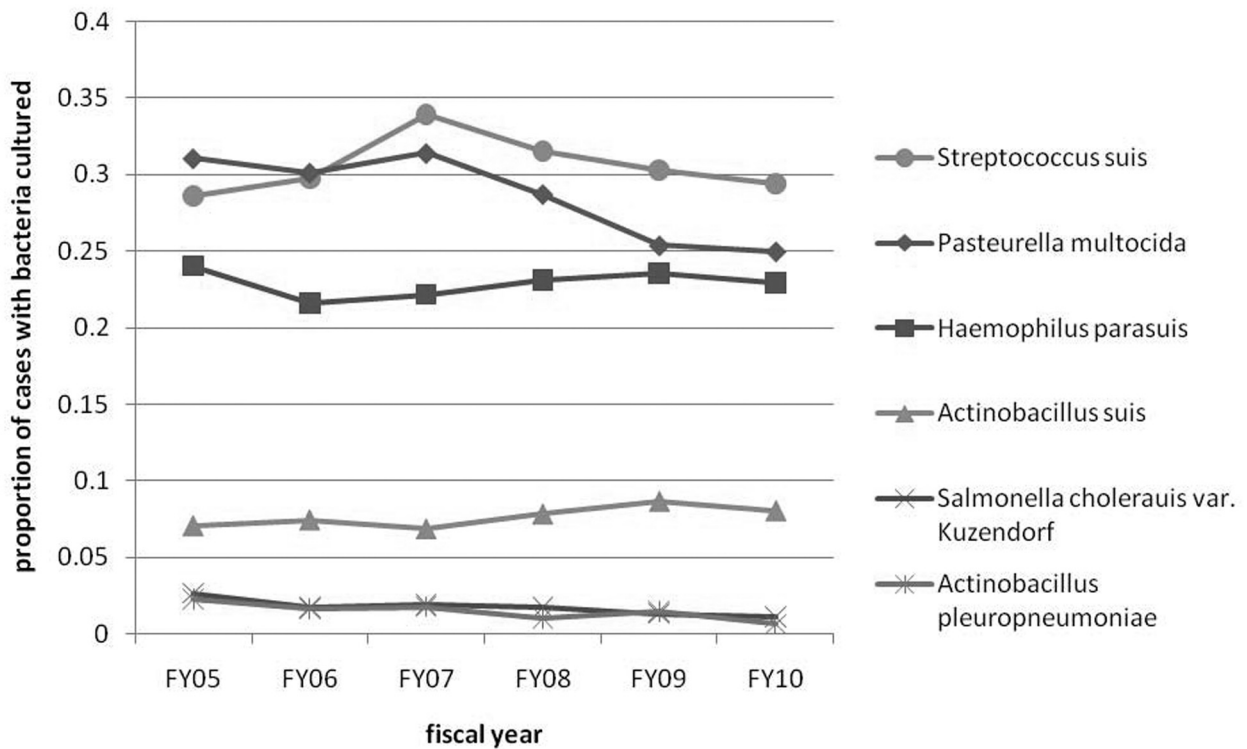
Ruth Cronje, and Jan Swanson;  
based on the original design by Dr. Robert Dunlop

The University of Minnesota is committed to the policy that all persons shall have equal access to its programs, facilities, and employment without regard to race, color, creed, religion, national origin, sex, age, marital status, disability, public assistance status, or sexual orientation.

# Bacterial trends, demystifying MICs

Jerry Torrison, DVM, PhD, Dipl. ACVPM  
 University of Minnesota Veterinary Diagnostic Laboratory

**Figure 1:** Annual proportion of porcine respiratory diagnostic tissue cases with bacteria cultured: University of Minnesota Veterinary Diagnostic Laboratory. Results from July 1, 2004 - June 30, 2010 (n = 2, 301).



New Developments

**Table 1:** University of Minnesota Veterinary Diagnostic Laboratory bacteriology results

	<b>2008/2009 % Susceptible</b>	<b>2009 MIC50</b>	<b>2009 MIC90</b>	<b>CLSI Breakpoint</b>
<i>Actinobacillus pleuropneumoniae</i>				
Ampicillin	80.00%	≤ 0.25	>16	
Ceftiofur	97.65%	≤ 0.5	≤ 0.5	≤ 2
Chlortetracycline	62.35%	8	>8	
Enrofloxacin	100.00%	≤ 0.12	≤ 0.12	
Florfenicol	97.65%	0.5	0.5	≤ 2
Gentamicin	17.65%	8	> 8	
Oxytetracycline	21.62%	> 8	> 8	
Penicillin	N/A	0.5	> 8	
Spectinomycin	12.94%	64	64	
Tetracycline	N/A	0	0	≤ 0.5
Tiamulin	87.06%	16	32	≤ 16
Tilmicosin	74.12%	8	16	≤ 16
Trimeth./Sulphamethoxazole	N/A	≤ 2	≤ 2	
Tulathromicin (Draxxin)	82.43%	16	16	
<i>Actinobacillus suis</i>				
	<b>2008/2009 ≤% Susceptible</b>	<b>2009 MIC50</b>	<b>2009 MIC90</b>	<b>CLSI Breakpoint</b>
Ampicillin	N/A	≤ 0.25	≤ 0.25	
Ceftiofur	98.69%	≤ 0.5	≤ 0.5	
Chlortetracycline	86.94%	1	4	
Enrofloxacin	99.52%	≤ 0.12	≤ 0.12	
Florfenicol	98.88%	0.5	1	
Gentamicin	96.46%	≤ 1	2	≤ 4
Oxytetracycline	70.15%	1	> 8	
Penicillin	12.69%	0.25	0.5	
Spectinomycin	2.61%	32	32	
Tetracycline	N/A	N/A	N/A	
Tiamulin	44.03%	8	16	
Tilmicosin	85.26%	8	32	
Trimeth./Sulphamethoxazole	98.69%	≤ 2	≤ 2	
Tulathromicin (Draxxin)	N/A	2	4	
<i>Haemophilus parasuis</i>				
	<b>2008/2009 % Susceptible</b>	<b>2009 MIC50</b>	<b>2009 MIC90</b>	<b>CLSI Breakpoint</b>
Ampicillin	N/A	≤ 1	≤ 1	
Ceftiofur	100.00%	≤ 2	≤ 2	
Chlortetracycline	100.00%	≤ 0.5	≤ 0.5	
Enrofloxacin	N/A	N/A	N/A	
Florfenicol	100.00%	0	0	
Gentamicin	100.00%	≤ 4	≤ 4	≤ 4
Oxytetracycline	N/A	N/A	N/A	
Penicillin	100.00%	≤ 0.03	≤ 0.03	
Spectinomycin	100.00%	≤ 8	≤ 8	
Tetracycline	100.00%	≤ 2	≤ 2	
Tiamulin	100.00%	≤ 8	≤ 8	
Tilmicosin	100.00%	≤ 8	≤ 8	
Trimethoprim/Sulphadiazine	N/A	N/A	N/A	
Trimeth./Sulphamethoxazole	100.00%	≤0.5	≤ 0.5	

New Developments

**Table 2:** University of Minnesota Veterinary Diagnostic Laboratory bacteriology result summary

	2008/2009 % Susceptible	2009 MIC50	2009 MIC90	CLSI Breakpoint
<i>Pasteruella multocida</i>				
Ampicillin	97.22%	≤ 0.25	0.5	
Ceftiofur	99.31%	≤ 0.5	≤ 0.5	≤ 2
Chlortetracycline	95.95%	1	4	
Enrofloxacin	99.55%	≤ 0.12	≤ 0.12	≤ 0.25
Florfenicol	98.26%	0.5	2	≤ 2
Gentamicin	94.27%	≤ 4	≤ 4	≤ 4
Oxytetracycline	75.17%	≤ 4	> 8	
Penicillin	N/A	≤ 0.12	0.25	
Spectinomycin	N/A	> 16	> 16	
Tetracycline	N/A	N/A	N/A	≤ 0.5
Tiamulin	N/A	32	> 32	
Tilmicosin	74.42%	≤ 8	32	≤ 16
Trimeth./Sulphamethoxazole	94.04%	≤ 2	≤ 2	
Tulathromicin (Draxxin)	96.01%	≤ 1	8	
<i>Salmonella choleraesuis (kunzendorf)</i>				
Amoxicillin	0.00%	N/A	N/A	
Ampicillin	22.22%	> 16	> 16	≤ 8
Ceftiofur	100.00%	1	2	≤ 2
Chlortetracycline	15.56%	> 8	> 8	
Enrofloxacin	100.00%	≤ 0.12	≤ 0.12	
Florfenicol	71.11%	2	4	≤ 4
Gentamicin	98.90%	≤ 1	≤ 1	≤ 4
Oxytetracycline	16.48%	> 8	> 8	
Penicillin	0.00%	> 8	> 8	
Spectinomycin	0.00%	64	> 64	
Tetracycline	0.00%	N/A	N/A	≤ 4
Tiamulin	1.11%	> 32	> 32	
Tilmicosin	N/A	> 32	> 32	
Trimeth./Sulphamethoxazole	98.90%	≤ 2	≤ 2	≤ 2/38
Tulathromicin (Draxxin)	N/A	16	16	
<i>Streptococcus suis</i>				
Ampicillin	98.51%	≤ 0.25	≤ 0.25	≤ 0.25
Ceftiofur	98.82%	≤ 0.5	≤ 0.5	≤ 2
Chlortetracycline	7.84%	> 8	> 8	
Enrofloxacin	92.93%	0.5	0.5	
Florfenicol	88.08%	2	2	≤ 2
Gentamicin	82.84%	4	8	≤ 4
Oxytetracycline	7.45%	> 8	0.8	
Penicillin	88.40%	≤ 0.12	0.25	≤ 0.12
Spectinomycin	5.49%	32	32	
Tetracycline	N/A	N/A	N/A	≤ 0.5
Tiamulin	88.08%	≤ 4	16	
Tilmicosin	24.08%	> 32	> 32	
Trimeth./Sulphamethoxazole	98.43%	≤ 2	≤ 2	
Tulathromicin (Draxxin)	N/A	> 64	> 64	

New Developments