

Table 7A. Distribution of MICs and Occurrence of Resistance for Top Serotypes Tested from Cattle, 2009¹

Antimicrobial	Serotype (# of Isolates)	%I ²	%R ³	95% CI ⁴	Distribution (%) of MICs (µg/ml) ⁵														
					0.015	0.03	0.06	0.125	0.25	0.50	1	2	4	8	16	32	64	128	256
Aminoglycosides																			
Amikacin	Montevideo (59)	0.0	0.0	0.0-7.6							20.3	74.6	5.1						
	Dublin (21)	0.0	0.0	0.0-19.2							23.8	71.4	4.8						
	Newport (17)	0.0	0.0	0.0-22.9						5.9	88.2	5.9							
	Typhimurium (12)	0.0	0.0	0.0-30.1							50.0	50.0							
	Kentucky (10)	0.0	0.0	0.0-34.5						10.0	40.0	50.0							
Gentamicin	Montevideo (59)	0.0	0.0	0.0-7.6						8.5	89.8	1.7							
	Dublin (21)	0.0	9.5	1.7-31.8						19.0	66.7	4.8				9.5			
	Newport (17)	0.0	0.0	0.0-22.9						70.6	29.4								
	Typhimurium (12)	0.0	0.0	0.0-30.1						41.7	33.3	25.0							
	Kentucky (10)	0.0	0.0	0.0-34.5						50.0	50.0								
Kanamycin	Montevideo (59)	0.0	0.0	0.0-7.6										100.0					
	Dublin (21)	0.0	33.3	15.5-56.9										66.7				33.3	
	Newport (17)	0.0	5.9	0.3-30.8										94.1				5.9	
	Typhimurium (12)	0.0	33.3	11.3-64.5										66.7				33.3	
	Kentucky (10)	0.0	0.0	0.0-34.5										100.0					
Streptomycin	Montevideo (59)	N/A	1.7	0.1-10.3											98.3			1.7	
	Dublin (21)	N/A	52.4	30.4-73.6										47.6				52.4	
	Newport (17)	N/A	70.6	44.1-88.6										29.4	5.9		64.7		
	Typhimurium (12)	N/A	75.0	42.8-93.3										25.0	33.3		41.7		
	Kentucky (10)	N/A	0.0	0.0-34.5										100.0					
β-Lactam/β-Lactamase Inhibitor Combinations																			
Amoxicillin-Clavulanic Acid	Montevideo (59)	0.0	1.7	0.1-10.3						96.6	1.7							1.7	
	Dublin (21)	0.0	42.9	22.6-65.6						38.1	9.5	4.8	4.8			9.5		33.3	
	Newport (17)	0.0	58.8	33.4-80.6						35.3		5.9				41.2		17.6	
	Typhimurium (12)	25.0	25.0	6.7-57.2						16.7		33.3	25.0					25.0	
	Kentucky (10)	0.0	0.0	0.0-34.5						100.0									

¹ Data is only presented for serotypes with at least 10 or more isolates

² Percent of isolates with intermediate susceptibility

³ Percent of isolates that were resistant

⁴ 95% confidence intervals for percent resistant (%R) were calculated using the Wilson interval with continuity correction method

⁵ The unshaded areas indicate the range of dilutions tested for each antimicrobial. Single vertical bars indicate the breakpoints for susceptibility, while double vertical bars indicate the breakpoints for resistance. Numbers in the shaded area indicate the percentages of isolates with MICs greater than the highest tested concentrations. Numbers listed for the lowest tested concentrations represent the percentages of isolates with MICs equal to or less than the lowest tested concentration. CLSI breakpoints were used when available. There are no CLSI breakpoints for streptomycin.

Table 7A (continued). Distribution of MICs and Occurrence of Resistance for Top Serotypes Tested from Cattle, 2009¹

Antimicrobial	Serotype (# of Isolates)	%I ²	%R ³	95% CI ⁴	Distribution (%) of MICs (µg/ml) ⁵														
					0.015	0.03	0.06	0.125	0.25	0.50	1	2	4	8	16	32	64	128	256
Cephems																			
Cefoxitin	Montevideo (59)	0.0	1.7	0.1-10.3															
	Dublin (21)	9.5	38.1	19.0-61.3							39.0	47.5	10.2	1.7			1.7		
	Newport (17)	5.9	52.9	28.5-76.1							4.8	9.5	33.3	4.8	9.5	9.5	28.6		
	Typhimurium (12)	0.0	25.0	6.7-57.2							17.6	23.5			5.9	35.3	17.6		
	Kentucky (10)	0.0	0.0	0.0-34.5							8.3	58.3	8.3			8.3	16.7		
											60.0	40.0							
Ceftiofur	Montevideo (59)	0.0	1.7	0.1-10.3															
	Dublin (21)	4.8	38.1	19.0-61.3							62.7	35.6					1.7		
	Newport (17)	0.0	58.8	33.4-80.6							14.3	28.6	9.5	4.8	4.8	4.8	33.3		
	Typhimurium (12)	0.0	25.0	6.7-57.2							17.6	23.5					58.8		
	Kentucky (10)	0.0	0.0	0.0-34.5							25.0	50.0					25.0		
											10.0	90.0							
Ceftriaxone	Montevideo (59)	0.0	1.7	0.1-10.3															
	Dublin (21)	4.8	38.1	19.0-61.3							98.3						1.7		
	Newport (17)	0.0	58.8	33.4-80.6							57.1		4.8	4.8		19.0	14.3		
	Typhimurium (12)	0.0	25.0	6.7-57.2							41.2				5.9	41.2	11.8		
	Kentucky (10)	0.0	0.0	0.0-34.5							75.0				8.3	16.7			
											100.0								
Folate Pathway Inhibitors																			
Sulfonamides	Montevideo (59)	N/A	1.7	0.1-10.3															
	Dublin (21)	N/A	71.4	47.7-87.8													35.6	57.6	5.1
	Newport (17)	N/A	70.6	44.1-88.6													23.8	4.8	
	Typhimurium (12)	N/A	75.0	42.8-93.3													5.9	17.6	5.9
	Kentucky (10)	N/A	0.0	0.0-34.5													8.3	16.7	75.0
																40.0	50.0	10.0	
Trimethoprim-Sulfamethoxazole	Montevideo (59)	N/A	0.0	0.0-7.6															
	Dublin (21)	N/A	0.0	0.0-19.2							94.9	5.1							
	Newport (17)	N/A	0.0	0.0-22.9							19.0	66.7	9.5	4.8					
	Typhimurium (12)	N/A	8.3	0.4-40.2							88.2	11.8							
	Kentucky (10)	N/A	0.0	0.0-34.5							58.3	33.3					8.3		
											90.0	10.0							

¹ Data is only presented for serotypes with at least 10 or more isolates

² Percent of isolates with intermediate susceptibility

³ Percent of isolates that were resistant

⁴ 95% confidence intervals for percent resistant (%R) were calculated using the Wilson interval with continuity correction method

⁵ The unshaded areas indicate the range of dilutions tested for each antimicrobial. Single vertical bars indicate the breakpoints for susceptibility, while double vertical bars indicate the breakpoints for resistance. Numbers in the shaded area indicate the percentages of isolates with MICs greater than the highest tested concentrations. Numbers listed for the lowest tested concentrations represent the percentages of isolates with MICs equal to or less than the lowest tested concentration. CLSI breakpoints were used when available. There are no CLSI breakpoints for streptomycin.

Table 7A (continued). Distribution of MICs and Occurrence of Resistance for Top Serotypes Tested from Cattle, 2009¹

Antimicrobial	Serotype (# of Isolates)	%I ²	%R ³	95% CI ⁴	Distribution (%) of MICs (µg/ml) ⁵												
					0.015	0.03	0.06	0.125	0.25	0.50	1	2	4	8	16	32	64
Penicillins																	
Ampicillin	Montevideo (59)	0.0	1.7	0.1-10.3	<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="width: 45%;"></div> <div style="width: 10%; text-align: center;">98.3</div> <div style="width: 10%;"></div> <div style="width: 10%; text-align: center;">1.7</div> </div>												
	Dublin (21)	0.0	52.4	30.4-73.6													
	Newport (17)	0.0	64.7	38.6-84.7													
	Typhimurium (12)	0.0	83.3	50.8-97.0													
	Kentucky (10)	0.0	0.0	0.0-34.5													
Phenolics																	
Chloramphenicol	Montevideo (59)	0.0	1.7	0.1-10.3	<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="width: 45%;"></div> <div style="width: 10%; text-align: center;">52.5</div> <div style="width: 10%; text-align: center;">45.8</div> <div style="width: 10%;"></div> <div style="width: 10%; text-align: center;">1.7</div> </div>												
	Dublin (21)	4.8	71.4	47.7-87.8													
	Newport (17)	0.0	52.9	28.5-76.1													
	Typhimurium (12)	0.0	75.0	42.8-93.3													
	Kentucky (10)	0.0	0.0	0.0-34.5													
Quinolones																	
Ciprofloxacin	Montevideo (59)	0.0	0.0	0.0-7.6	<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="width: 45%;"></div> <div style="width: 10%; text-align: center;">100.0</div> <div style="width: 10%;"></div> <div style="width: 10%;"></div> <div style="width: 10%;"></div> </div>												
	Dublin (21)	0.0	0.0	0.0-19.2													
	Newport (17)	0.0	0.0	0.0-22.9													
	Typhimurium (12)	0.0	0.0	0.0-30.1													
	Kentucky (10)	0.0	0.0	0.0-34.5													
Nalidixic Acid	Montevideo (59)	N/A	0.0	0.0-7.6	<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="width: 45%;"></div> <div style="width: 10%; text-align: center;">79.7</div> <div style="width: 10%; text-align: center;">20.3</div> <div style="width: 10%;"></div> <div style="width: 10%;"></div> </div>												
	Dublin (21)	N/A	9.5	1.7-31.8													
	Newport (17)	N/A	0.0	0.0-22.9													
	Typhimurium (12)	N/A	0.0	0.0-30.1													
	Kentucky (10)	N/A	0.0	0.0-34.5													
Tetracyclines																	
Tetracycline	Montevideo (59)	0.0	6.8	2.2-17.3	<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="width: 45%;"></div> <div style="width: 10%; text-align: center;">93.2</div> <div style="width: 10%;"></div> <div style="width: 10%;"></div> <div style="width: 10%;"></div> </div>												
	Dublin (21)	0.0	71.4	47.7-87.8													
	Newport (17)	0.0	70.6	44.1-88.6													
	Typhimurium (12)	0.0	83.3	50.8-97.0													
	Kentucky (10)	0.0	0.0	0.0-34.5													

¹ Data is only presented for serotypes with at least 10 or more isolates

² Percent of isolates with intermediate susceptibility

³ Percent of isolates that were resistant

⁴ 95% confidence intervals for percent resistant (%R) were calculated using the Wilson interval with continuity correction method

⁵ The unshaded areas indicate the range of dilutions tested for each antimicrobial. Single vertical bars indicate the breakpoints for susceptibility, while double vertical bars indicate the breakpoints for resistance. Numbers in the shaded area indicate the percentages of isolates with MICs greater than the highest tested concentrations. Numbers listed for the lowest tested concentrations represent the percentages of isolates with MICs equal to or less than the lowest tested concentration. CLSI breakpoints were used when available. There are no CLSI breakpoints for streptomycin.