

**Table S1a.** *E. coli* minimum inhibitory concentration (MIC) Model results for Group-Housed Calves where enrofloxacin was the antimicrobial drug (AMD) of exposure. Coefficients represent MIC ratios for all AMD evaluated using Accelerated Failure Time Models for fixed effects of exposure, days post exposure (DPE), and their two-way interactions.

Variable	Enrofloxacin		Ceftiofur		Danofloxacin	
	MIC Ratio (95% CI)	p-value	MIC Ratio (95% CI)	p-value	MIC Ratio (95% CI)	p-value
Intercept	1.39 (0.522 3.692)	0.512	1.29 (0.358 4.676)	0.694	0.76 (0.308 1.875)	0.552
Unexposed	Referent		Referent		Referent	
Exposed	0.64 (0.140 2.907)	0.562	0.51 (0.039 6.692)	0.607	0.63 (0.152 2.593)	0.520
Before Exposure	Referent		Referent		Referent	
1-3 DPE	5.30 (1.074 26.110)	0.041	0.28 (0.077 1.044)	0.058	5.01 (1.069 23.476)	0.041
4-14 DPE	27.87 (3.045 255.071)	0.003	0.33 (0.073 1.494)	0.150	25.76 (2.847 233.191)	<0.01
Exposed x Before Exposure			Referent			
Exposed x 1-3 DPE			3.52 (0.207 59.805)	0.384		
Exposed x 4-14 DPE			50.86 (3.547 729.207)	<0.01		

**Table S1b.** *E. coli* minimum inhibitory concentration (MIC) Model results for Group-Housed Calves where enrofloxacin was the antimicrobial drug (AMD) of exposure. Coefficients represent MIC ratios for all AMD evaluated using Accelerated Failure Time Models for fixed effects of exposure, days post exposure (DPE), and their two-way interactions.

Variable	Neomycin		Ampicillin	
	MIC Ratio (95% CI)	p	MIC Ratio (95% CI)	p
Intercept	66.51 (23.021 192.165)	<0.01	8.49 (1.989 36.256)	<0.01
Unexposed	Referent		Referent	
Exposed	0.97 (0.142 6.637)	0.975	3.12 (0.322 30.319)	0.326
Before Exposure			Referent	
1-3 days			11.80 (2.481 56.169)	<0.01
			34.48 (7.296	
4-14 DPE			162.977)	<0.01
After exposure	6.13 (1.151 32.686)	0.034		

**Table S1c.** *E. coli* minimum inhibitory concentration (MIC) Model results for Group-Housed Calves where enrofloxacin was the antimicrobial drug (AMD) of exposure. Coefficients represent MIC ratios for all AMD evaluated using Accelerated Failure Time Models for fixed effects of exposure, days post exposure (DPE), and their two-way interactions.

Variable	Tetracycline		Florfenicol		Spectinomycin	
	MIC Ratio (95% CI)	p	MIC Ratio (95% CI)	p	MIC Ratio (95% CI)	p
Intercept	22.75 (2.491 207.761)	0.006	5.16 (3.357 7.921)	0.000	23.94 (13.753 41.659)	0.000
Unexposed	Referent		Referent		Referent	
Exposed	1.87 (0.132 26.474)	0.644	1.03 (0.565 1.888)	0.916	1.15 (0.608 2.162)	0.674
Before Exposure			Referent		Referent	
1-3 days			1.00 (0.534 1.884)	0.992	1.38 (0.593 3.210)	0.455
4-14 DPT			0.82 (0.388 1.721)	0.596	1.73 (0.671 4.475)	0.256
After exposure	11.54 (1.278 104.182)	0.029				