

Table S1. Origin of samples and isolates for this study.

Samples were collected at 18 dairy farms, a subset of 30 farms described previously (1). For 21 of the 30 farms in that study non-selective culture media were used in addition to media supplemented with beta-lactam antimicrobials. Among those 21 farms, three had no samples that were positive for *E. coli* carrying *bla*<sub>CTX-M</sub>, leaving 18 farms for the current study. On each of those 18 farms an average of 45 samples was collected including one to four samples from adult cows and 1 to 4 from each age group of pre-weaned calves between 0 and 63 days of age in one-week intervals. The isolates for the current study were chosen to include equal numbers of *bla*<sub>CTX-M</sub>-negative and *bla*<sub>CTX-M</sub>-positive isolates from each age group of pre-weaned calves and adult cows on the farm.

Calf age in days (7-day intervals)														
Region <sup>a</sup>	Farm	Adult	1-7	8-14	15-21	22-28	29-35	36-42	43-49	50-56	57-63	Total	<i>bla</i> <sub>CTX-M</sub> <sup>+</sup>	<i>bla</i> <sub>CTX-M</sub> <sup>-</sup>
2	1	6	4	2	3	3	2		2	2		24	12	12
1	6	4	1	1		2				4		12	6	6
1	9	4	1	1	1		1	1		2	1	12	6	6
1	11		1	1	1	1	1	2	1			8	4	4
1	13	1	1									2	1	1
1	15	4	3	1				1		2	1	12	6	6
2	18		2	1				2		1		6	3	3

2	21	5			1	2	2			2		12	6	6
1	25	4	1	1	3	1	1	1	3		1	16	8	8
1	28	2				2	2		3	1		10	5	5
2	29	4		4	1	1	4		1		1	16	8	8
2	32	4		2	2	1	3	2			2	16	8	8
2	38	4		1	2	3	1	2	2	1		16	8	8
2	41		1			3	2	4	4		2	16	8	8
2	54	6	1	1	2	1	1	3	1	2		18	9	9
2	55	4	1	1	1	1	3	2	1	1	1	16	8	8
2	65	6	3	2	2	3	3			3	2	24	12	12
2	120	4	3	2	1		1	3		2		16	8	8
	Total	62	23	21	20	24	27	23	18	23	11	252	126	126

<sup>a</sup> Region 1, northwestern Washington State; Region 2, eastern Washington State.

1. **Davis MA, Sischo WM, Jones LP, Moore DA, Ahmed S, Short DM, Besser TE.** 2015. Recent Emergence of Escherichia coli with Cephalosporin Resistance Conferred by blaCTX-M on Washington State Dairy Farms. *Appl Environ Microbiol* **81**:4403-4410.

Table S2. Listing of commensal *E. coli* used in this study.

Isolate number	Study <sup>a</sup>	Washington Region	Farm	Calf or Adult	Calf age in days	<i>bla</i> <sub>CTX-M</sub> PCR Result	CTXM Group	CTXM-Allele	Resistance profile <sup>b</sup>	MLST ST	ST complex	eBURSTCC	Replicon Type
15770	Study A	Eastern WA	41	Calf	22	+	9		AmCfTioCNaSGTeSxt	744		CC10	
15798	Study A	Eastern WA	21	Calf	26	+	1		AmCfTioSGTeSxt	540			
15807	Study A	Eastern WA	29	Adult		+	9		AmCfTioCGTeSxt	761		CC10	FIB
15818	Study A	Eastern WA	29	Calf	29	+	1		AmCfTioGSGTeSxt	3018			FIA
15823	Study A	Eastern WA	38	Adult		+	9		AmCfTio	4089			
15831	Study A	Eastern WA	38	Calf	19	+	9		AmCfTioCSGTeSxt	761		CC10	N
15832	Study A	Eastern WA	38	Calf	27	+	9		AmCfTioCSGTeSxt	761		CC10	F
15872	Study A	Eastern WA	54	Adult		+	9		AmCfTioSTe	48	ST10 Cplx	CC10	II
15879	Study A	Eastern WA	54	Adult		+	9		AmCfTioCNaGTe	224			NT
15884	Study A	Eastern WA	54	Calf	1	+	9		AmCfTioSTe	48	ST10 Cplx	CC10	
15901	Study A	Eastern WA	54	Calf	26	+	9		AmCfTioSTe	48	ST10 Cplx	CC10	NT
15907	Study A	Eastern WA	29	Adult		-				58	ST155 Cplx	CC58	
15909	Study A	Eastern WA	29	Adult		-			STe	29	ST29 Cplx	CC29	
15917	Study A	Eastern WA	29	Calf	10	-			AnAmCfTioCGNaSGTeSxt	4090			
15919	Study A	Eastern WA	29	Calf	13	-			AnGSGTeSxt	23	ST23 Cplx	CC88	
15927	Study A	Eastern WA	29	Calf	22	-			GTe	4091		CC58	
15936	Study A	Eastern WA	29	Calf	33	-				336	ST278 Cplx		
15938	Study A	Eastern WA	29	Calf	35	-			Te	56	ST155 Cplx		
15978	Study A	Northwestern WA	25	Calf	44	+	1		AmCfTio	3476		CC10	
15988	Study A	Northwestern WA	25	Calf	60	+	1		AmCfTioSTe	58	ST155 Cplx	CC58	
15991	Study A	Northwestern WA	25	Adult		+	1		AmCfTio	154			
15994	Study A	Northwestern WA	9	Calf	42	+	9		AmCfTioSTe	48	ST10 Cplx	CC10	
16006	Study A	Northwestern WA	11	Calf	36	+	9	CTXM-65	AmCfTio	540			N
16007	Study A	Northwestern WA	9	Adult		+	9		AmCfTioSTe	48	ST10 Cplx	CC10	
16009	Study A	Northwestern WA	11	Calf	2	+	9		AmCfTioSTe	48	ST10 Cplx	CC10	
16025	Study A	Eastern WA	29	Calf	57	-			CGTe	765		CC29	
16030	Study A	Eastern WA	120	Calf	1	-			AmCfGNaSGSxt	117			
16034	Study A	Eastern WA	120	Calf	5	-			Te	1122			
16036	Study A	Eastern WA	120	Calf	9	-				3042			
16060	Study A	Eastern WA	120	Calf	39	-				660			
16061	Study A	Eastern WA	120	Calf	41	-				1326			
16072	Study A	Eastern WA	55	Adult		+	9		AmCfTio	58	ST155 Cplx	CC58	
16091	Study A	Eastern WA	55	Calf	21	+	1		AnAmCfTioGNaSGTeSxt	648			
16092	Study A	Eastern WA	21	Calf	17	-			AmCfTioSGTe	88	ST23 Cplx	CC88	
16105	Study A	Northwestern WA	6	Adult		+	9		AmCfTioCNaSGTeSxt	162	ST469 Cplx		
16108	Study A	Northwestern WA	6	Calf	12	+	9		AmCfTioCNaSGTeSxt	162	ST469 Cplx		
16114	Study A	Eastern WA	21	Adult		-				101	ST101 Cplx		
16116	Study A	Northwestern WA	6	Calf	54	+	9		AmCfTioCNaSGTeSxt	410	ST23 Cplx		
16122	Study A	Northwestern WA	28	Calf	24	+	1	CTXM-15	AmCfTioSGTe	88	ST23 Cplx	CC88	FIA/FIB
16126	Study A	Northwestern WA	28	Calf	44	+	9	CTXM-14	AmCfTioCSGTeSxt	155	ST155 Cplx	CC58	B/O

Isolate number	Study <sup>a</sup>	Washington Region	Farm	Calf or Adult	Calf age in days	<i>bla</i> <sub>CTX-M</sub> PCR Result	CTXM Group	CTXM-Allele	Resistance profile <sup>b</sup>	MLST ST	ST complex	eBURSTCC	Replicon Type
16131	Study A	Northwestern WA	15	Calf	2	+	9	CTXM-14	AmCfTioTe	48	ST10 Cplx	CC10	FIB
16137	Study A	Eastern WA	21	Adult		-				10	ST10 Cplx	CC10	
16138	Study A	Eastern WA	21	Adult		-				155	ST155 Cplx	CC58	
16180	Study A	Eastern WA	120	Adult		-				4250			
16182	Study A	Eastern WA	120	Adult		-				187			
16188	Study A	Eastern WA	120	Calf	42	-			AmS	69	ST69 Cplx		
16206	Study A	Eastern WA	54	Calf	37	+	9		AmCfTioSTe	48	ST10 Cplx	CC10	
16207	Study A	Northwestern WA	15	Calf	54	+	9		AmCfTioCNaSGTeSxt	162	ST469 Cplx		
16214	Study A	Northwestern WA	15	Adult		+	9	CTXM-14	AmCfTioCNaSGTeSxt	162	ST469 Cplx		FIA/FIB
16218	Study A	Northwestern WA	1	Adult		+	1	CTXM-15	AmCfTio	4249			FIB
16219	Study A	Northwestern WA	1	Adult		+	1		AmCfTio	227	ST10 Cplx		
16221	Study A	Northwestern WA	1	Calf	3	+	1		AmCfTioCNaSGTeSxt	744		CC10	
16223	Study A	Northwestern WA	1	Calf	8	+	1		AmCfTioCNaSGTeSxt	744		CC10	
16224	Study A	Northwestern WA	1	Calf	7	+	1		AmCfTioCNaSGTeSxt	744		CC10	
16229	Study A	Northwestern WA	1	Calf	16	+	1		AmCfTioCNaGTeSxt	10	ST10 Cplx	CC10	
16245	Study A	Eastern WA	55	Adult		-				4094			
16247	Study A	Eastern WA	55	Adult		-				937			
16248	Study A	Eastern WA	55	Calf	1	-			AnAmGNaSGTeSxt	58	ST155 Cplx	CC58	
16253	Study A	Eastern WA	55	Calf	9	-			AmcAmCfCSGTeSxt	398	ST398 Cplx		
16269	Study A	Eastern WA	55	Calf	31	-			AmcAmCfCSGTeSxt	21	ST29 Cplx	CC29	
16274	Study A	Eastern WA	55	Calf	38	-			AmCfCGNaSGTeSxt	648			
16277	Study A	Eastern WA	55	Calf	42	-			AmSGTe	56	ST155 Cplx		
16291	Study A	Eastern WA	55	Calf	62	-			CSTe	10	ST10 Cplx	CC10	
16301	Study A	Eastern WA	18	Calf	7	-			AnAmcAmCfTioCGNaSGTeSxt	540			
16304	Study A	Eastern WA	18	Calf	10	-			AnAmcAmCfGSGTe	10	ST10 Cplx	CC10	
16393	Study A	Eastern WA	65	Calf	2	+	1		AmCfTioNaSGTeSxt	44	ST10 Cplx	CC10	
16406	Study A	Eastern WA	65	Calf	13	+	1	CTXM-15	AmCfTioNaSGTeSxt	44	ST10 Cplx	CC10	II
16409	Study A	Eastern WA	65	Calf	16	+	1	CTXM-15	AmCfTioNaSGTeSxt	44	ST10 Cplx	CC10	FIA/FIB
16416	Study A	Eastern WA	65	Calf	25	+	1		AmCfTioCNaSGTeSxt	744		CC10	NT
16420	Study A	Eastern WA	65	Calf	35	+	1	CTXM-15	AmCfTioNaSGTeSxt	44	ST10 Cplx	CC10	FIA/FIB
16422	Study A	Eastern WA	41	Calf	38	+	1	CTXM-15	AmCfTioNaSGTeSxt	44	ST10 Cplx	CC10	FIA/FIB
16438	Study A	Eastern WA	65	Calf	55	+	1	CTXM-15	AmcAmCfTioSGTeSxt	362			II
16440	Study A	Eastern WA	65	Calf	58	+	1		AmcAmCfTioCSGTeSxt	761		CC10	
16444	Study A	Eastern WA	65	Adult		+	1	CTXM-15	AmCfTioGSGTeSxt	88	ST23 Cplx	CC88	II
16445	Study A	Eastern WA	65	Adult		+	1		AmCfTioCSGTeSxt	3042			II
16451	Study A	Eastern WA	41	Calf	34	+	9	CTXM-27	AmCfTioCNaSGTeSxt	744		CC10	II
16452	Study A	Eastern WA	41	Calf	36	+	9	CTXM-27	AmCfTio	1629			II
16454	Study A	Eastern WA	41	Calf	37	+	9	CTXM-27	AmCfTioCNaSGTeSxt	744		CC10	FIA/FIB
16457	Study A	Eastern WA	41	Calf	43	+	9		AmCfTioCNaSGTeSxt	744		CC10	NT
16524	Study A	Eastern WA	54	Calf	38	+	1	CTXM-15	AmCfTioSGTeSxt	48	ST10 Cplx	CC10	II
16545	Study A	Eastern WA	65	Calf	4	-			AmCNaSGTeSxt	744		CC10	

Isolate number	Study <sup>a</sup>	Washington Region	Farm	Calf or Adult	Calf age in days	<i>bla</i> <sub>CTX-M</sub> PCR Result	CTXM Group	CTXM-Allele	Resistance profile <sup>b</sup>	MLST ST	ST complex	eBURSTCC	Replicon Type
16549	Study A	Eastern WA	65	Calf	13	-			AmcAmCfCSGTeSxt	16	ST29 Cplx	CC29	
16550	Study A	Eastern WA	65	Calf	15	-			AmcAmCfTioCSGTeSxt	16	ST29 Cplx	CC29	
16556	Study A	Eastern WA	65	Calf	23	-			AmcAmCfTioCSGTeSxt	16	ST29 Cplx	CC29	
16559	Study A	Eastern WA	65	Calf	26	-			AmcAmCfTioCSGTeSxt	3042			
16563	Study A	Eastern WA	65	Calf	32	-			CSGTeSxt	4092		CC58	
16577	Study A	Eastern WA	65	Calf	53	-			AmG	101	ST101 Cplx		
16578	Study A	Eastern WA	65	Calf	55	-				4088			
16582	Study A	Eastern WA	65	Calf	59	-				1415		CC10	
16585	Study A	Eastern WA	65	Adult		-				2040			
16586	Study A	Eastern WA	65	Adult		-			CGSGTe	1408			
16587	Study A	Eastern WA	65	Adult		-				95	ST95 Cplx		
16588	Study A	Eastern WA	41	Calf	2	-				1137		CC10	
16608	Study A	Eastern WA	41	Calf	27	-				29	ST29 Cplx	CC29	
16611	Study A	Eastern WA	41	Calf	30	-			AmcAmCfTio	723		CC29	
16613	Study A	Eastern WA	41	Calf	36	-			AmSTe	1139			
16619	Study A	Eastern WA	41	Calf	43	-				446	ST446 Cplx		
16620	Study A	Eastern WA	41	Calf	44	-				1125			
16629	Study A	Eastern WA	41	Calf	60	-				10	ST10 Cplx	CC10	
16630	Study A	Eastern WA	41	Calf	60	-				58	ST155 Cplx	CC58	
16652	Study A	Northwestern WA	11	Calf	21	-			SGTeSxt	69	ST69 Cplx		
16657	Study A	Northwestern WA	11	Calf	30	-			SGTe	88	ST23 Cplx	CC88	
16662	Study A	Northwestern WA	11	Calf	40	-				4251			
16666	Study A	Northwestern WA	11	Calf	47	-			SGTe	56	ST155 Cplx		
16683	Study A	Eastern WA	38	Calf	38	-				58	ST155 Cplx	CC58	
16687	Study A	Eastern WA	38	Calf	45	-				3042			
16694	Study A	Eastern WA	38	Calf	54	-			AmcAmCfTioCSGTe	1889			
16700	Study A	Northwestern WA	1	Adult		-				345			
16701	Study A	Northwestern WA	1	Adult		-				58	ST155 Cplx	CC58	
16702	Study A	Northwestern WA	1	Adult		-				388			
16709	Study A	Northwestern WA	1	Calf	6	-			AmcAmCfCSGTeSxt	761		CC10	
16712	Study A	Northwestern WA	1	Calf	10	-			AmCfSGTeSxt	69	ST69 Cplx		
16717	Study A	Northwestern WA	1	Calf	18	-			AmCGSGTeSxt	362			
16720	Study A	Northwestern WA	1	Calf	21	-			AmSGTeSxt	3057			
16722	Study A	Northwestern WA	1	Calf	24	-			AmcAmCfTioCSGTeSxt	16	ST29 Cplx	CC29	
16725	Study A	Northwestern WA	1	Calf	28	-			AmCNaSGTeSxt	4025			
16726	Study A	Northwestern WA	1	Calf	30	-			AmSTe	58	ST155 Cplx	CC58	
16739	Study A	Northwestern WA	1	Calf	48	-			AmCSGTeSxt	336	ST278 Cplx		
16740	Study A	Northwestern WA	1	Calf	49	-			CSGTeSxt	3042			
16759	Study A	Eastern WA	32	Calf	57	+	9		AmCfTioCGTe	86	ST86 Cplx		NT
16765	Study A	Eastern WA	32	Adult		+	9		AmCfTioSGTeSxt	746			FIB
16810	Study A	Eastern WA	32	Calf	9	+	9		AnAmCfTioCGNaSGTeSxt	58	ST155 Cplx	CC58	II

Isolate number	Study <sup>a</sup>	Washington Region	Farm	Calf or Adult	Calf age in days	<i>bla</i> <sub>CTX-M</sub> PCR Result	CTXM Group	CTXM-Allele	Resistance profile <sup>b</sup>	MLST ST	ST complex	eBURSTCC	Replicon Type
16868	Study A	Eastern WA	32	Calf	19	+	9		AnAmCfTioCGNaSGTeSxt	58	ST155 Cplx	CC58	II
16879	Study A	Eastern WA	32	Calf	32	+	9	CTXM-27	AmCfTioCGTe	10	ST10 Cplx	CC10	II
16903	Study A	Eastern WA	38	Adult		-				4093			
16904	Study A	Eastern WA	38	Adult		-			AmCGTe	4086			
16912	Study A	Eastern WA	38	Calf	11	-			AmcAmCfTioSGTeSxt	46	ST46 Cplx		
16917	Study A	Eastern WA	38	Calf	17	-				58	ST155 Cplx	CC58	
16923	Study A	Eastern WA	38	Calf	27	-				1086			
16948	Study A	Eastern WA	32	Calf	17	-			AnAmCfTioCGNaSGTeSxt	617	ST10 Cplx		
16952	Study A	Eastern WA	32	Calf	23	-			AmcAmCfTioCNaSGTeSxt	17	ST20 Cplx		
16958	Study A	Eastern WA	32	Calf	30	-			AmcAmCfTioCSGTeSxt	10	ST10 Cplx	CC10	
16966	Study A	Eastern WA	32	Calf	42	-			AmcAmCfCSGTeSxt	410	ST23 Cplx		
16980	Study A	Eastern WA	21	Calf	56	+	1		AmCfTioSGTeSxt	540			
16994	Study A	Eastern WA	120	Calf	50	+	1	CTXM-15	AmCfTioCNaSGTeSxt	744		CC10	II
17002	Study A	Eastern WA	120	Adult		+	9		AmcAmCfTioGTeSxt	46	ST46 Cplx		NT
17006	Study A	Eastern WA	32	Calf	60	-			AmcAmCfTioCSGTeSxt	10	ST10 Cplx	CC10	
17008	Study A	Eastern WA	32	Adult		-			STe	327			
17010	Study A	Eastern WA	32	Adult		-				13	ST13 Cplx		
17015	Study A	Eastern WA	54	Adult		-				2766			
17016	Study A	Eastern WA	54	Adult		-				278	ST278 Cplx		
17017	Study A	Eastern WA	54	Adult		-				1704			
17029	Study A	Eastern WA	54	Calf	14	-			AmcAmCfTioCSGTeSxt	4085			
17033	Study A	Eastern WA	54	Calf	19	-			AmSGTe	21	ST29 Cplx	CC29	
17035	Study A	Eastern WA	54	Calf	21	-			CSGTe	540			
17051	Study A	Eastern WA	54	Calf	46	-			AmcAmCfCSGTe	48	ST10 Cplx	CC10	
17058	Study A	Eastern WA	54	Calf	56	-			AmcAmCfCSGTe	48	ST10 Cplx	CC10	
17072	Study A	Eastern WA	21	Calf	34	-			CNaSGTeSxt	16	ST29 Cplx	CC29	
17079	Study A	Eastern WA	21	Calf	33	-			AmCGGTeSxt	336	ST278 Cplx		
17105	Study A	Northwestern WA	25	Calf	1	-				155	ST155 Cplx	CC58	
17112	Study A	Northwestern WA	25	Calf	9	-			AmcAmCfs	69	ST69 Cplx		
17121	Study A	Northwestern WA	25	Calf	23	-			AmcAmCfTioSGTeSxt	117			
17128	Study A	Northwestern WA	25	Calf	33	-			GTe	2522			
17232	Study A	Eastern WA	29	Calf	45	+	9	CTXM-27	AmcAmCfTioCSGTeSxt	761		CC10	FIB
17237	Study A	Eastern WA	120	Calf	12	+	1	CTXM-15	AmcAmCfTioCNaSGTeSxt	744		CC10	N
17240	Study A	Eastern WA	120	Calf	15	+	9		AmcAmCfTioSGTeSxt	46	ST46 Cplx		NT
17254	Study A	Eastern WA	120	Calf	35	+	9		AmcAmCfTioCSGTe	23	ST23 Cplx	CC88	NT
17269	Study A	Northwestern WA	15	Calf	36	-				4035			
17280	Study A	Northwestern WA	15	Calf	58	-				677			
17283	Study A	Northwestern WA	15	Adult		-				1432			
17284	Study A	Northwestern WA	15	Adult		-				4095			
17299	Study A	Eastern WA	55	Calf	44	+	9		AmCfTioCGTe	1252			
17303	Study A	Eastern WA	55	Calf	51	+	1		AmCfTioCNaSGTeSxt	361			

Isolate number	Study <sup>a</sup>	Washington Region	Farm	Calf or Adult	Calf age in days	<i>bla</i> <sub>CTX-M</sub> PCR Result	CTXM Group	CTXM-Allele	Resistance profile <sup>b</sup>	MLST ST	ST complex	eBURSTCC	Replicon Type
17308	Study A	Eastern WA	55	Calf	30	+	1		AmCfTioCNaSGTeSxt	361			
17322	Study A	Northwestern WA	9	Calf	18	-				20	ST20 Cplx		
17333	Study A	Northwestern WA	9	Calf	34	-			GTe	2522			
17346	Study A	Northwestern WA	9	Calf	52	-			AmCSGTe	34	ST10 Cplx	CC10	
17352	Study A	Northwestern WA	9	Calf	58	-			SGTe	85			
17354	Study A	Northwestern WA	9	Adult		-			STe	10	ST10 Cplx	CC10	
17355	Study A	Northwestern WA	9	Adult		-				4086			
17405	Study A	Northwestern WA	6	Adult		-				10	ST10 Cplx	CC10	
17406	Study A	Northwestern WA	6	Adult		-			Te	398	ST398 Cplx		
17412	Study A	Northwestern WA	6	Calf	23	-				10	ST10 Cplx	CC10	
17413	Study A	Northwestern WA	6	Calf	27	-				154			
17417	Study A	Northwestern WA	6	Calf	52	-				1079			
17419	Study A	Northwestern WA	6	Calf	56	-				58	ST155 Cplx	CC58	
17424	Study A	Northwestern WA	28	Calf	24	-			CSGTe	58	ST155 Cplx	CC58	
17427	Study A	Northwestern WA	28	Calf	29	-				446	ST446 Cplx		
17432	Study A	Northwestern WA	28	Calf	44	-			AmCfCGSGTeSxt	88	ST23 Cplx	CC88	
17433	Study A	Northwestern WA	28	Calf	54	-				58	ST155 Cplx	CC58	
17438	Study A	Northwestern WA	28	Adult		-				48	ST10 Cplx	CC10	
17439	Study A	Northwestern WA	15	Calf	1	-				10	ST10 Cplx	CC10	
17446	Study A	Northwestern WA	25	Calf	40	-				20	ST20 Cplx		
17451	Study A	Northwestern WA	25	Calf	45	-			AmCAmCfTio	32	ST32 Cplx		
17465	Study A	Northwestern WA	25	Adult		-				155	ST155 Cplx	CC58	
17466	Study A	Northwestern WA	25	Adult		-				348	ST156 Cplx		
17509	Study A	Northwestern WA	13	Adult		-				4087			
17573	Study A	Eastern WA	18	Calf	41	-			AmCfCGTe	4092		CC58	
17636	Study A	Eastern WA	21	Adult		+	1		AmCfTio	154			
17642	Study A	Eastern WA	54	Calf	41	-			AmCAmCfCSGTe	48	ST10 Cplx	CC10	
17657	Study A	Eastern WA	18	Calf	51	+	1	CTXM-15	AmCfTioNaSGTeSxt	44	ST10 Cplx	CC10	FIA/FIB
17699	Study A	Northwestern WA	1	Calf	24	+	1		AmCfTioCNaSGTeSxt	744		CC10	
17701	Study A	Northwestern WA	1	Calf	35	+	1	CTXM-15	AmCAmCfTioCSGTeSxt	761		CC10	II
17706	Study A	Northwestern WA	1	Calf	55	+	1		AmCfTioCNaSGTeSxt	744		CC10	
17720	Study A	Northwestern WA	25	Calf	15	+	1		AmCfTioSTe	58	ST155 Cplx	CC58	
17723	Study A	Northwestern WA	25	Calf	19	+	1		AmCfTio	224			NT
17734	Study A	Northwestern WA	9	Calf	4	+	9		AmCfTioSTe	48	ST10 Cplx	CC10	
19017	Study A	Eastern WA	29	Adult		+	9	CTXM-27	AmCfTioCSGTeSxt	761		CC10	NT
19018	Study A	Eastern WA	29	Calf	20	+	1	CTXM-15	AmCfTioGSGTeSxt	88	ST23 Cplx	CC88	II
19019	Study A	Eastern WA	29	Calf	32	+	1	CTXM-15	AmCfTioCNaSGTeSxt	744		CC10	NT
19020	Study A	Eastern WA	120	Calf	3	+	1	CTXM-15	AmCfTioCNaSGTeSxt	744		CC10	FIB
19021	Study A	Eastern WA	120	Calf	53	+	9	CTXM-27	AmCfTioCSGTe	23	ST23 Cplx	CC88	NT
19022	Study A	Eastern WA	120	Adult		+	1	CTXM-15	AmCfTioCSGTeSxt	744		CC10	II
19023	Study A	Eastern WA	65	Calf	3	+	1	CTXM-15	AmCfTioGSGTeSxt	88	ST23 Cplx	CC88	II

Isolate number	Study <sup>a</sup>	Washington Region	Farm	Calf or Adult	Calf age in days	<i>bla</i> <sub>CTX-M</sub> PCR Result	CTXM Group	CTXM-Allele	Resistance profile <sup>b</sup>	MLST ST	ST complex	eBURSTCC	Replicon Type
19024	Study A	Eastern WA	65	Calf	32	+	1	CTXM-15	AmCfTioCSGTeSxt	761		CC10	F
19025	Study A	Eastern WA	65	Adult		+	1	CTXM-15	AmCfTioCSGTeSxt	761		CC10	II
19026	Study A	Eastern WA	41	Calf	28	+	9	CTXM-27	AmCfTioCNaSGTeSxt	744		CC10	F
19027	Study A	Eastern WA	41	Calf	46	+	9	CTXM-27	AmCfTioSGTeSxt	38	ST38 Cplx		FIB
19028	Study A	Eastern WA	32	Calf	12	+	1	CTXM-15	AnAmCfTioCGNaSGTeSxt	58	ST155 Cplx	CC58	II
19029	Study A	Eastern WA	32	Calf	36	+	1	CTXM-15	AmCfTioSTe	86	ST86 Cplx		NT
19030	Study A	Eastern WA	32	Adult		+	9	CTXM-27	AmCfTioCSGTe	10	ST10 Cplx	CC10	N
19031	Study A	Eastern WA	54	Adult		+	9	CTXM-27	AmCfTioSTe	48	ST10 Cplx	CC10	N
19032	Study A	Eastern WA	54	Calf	29	+	9	CTXM-27	AmCfTioSGTeSxt	48	ST10 Cplx	CC10	FIA
19033	Study A	Eastern WA	54	Calf	50	+	9	CTXM-27	AmCfTioCSGTeSxt	48	ST10 Cplx	CC10	FIA
19034	Study A	Eastern WA	21	Calf	27	+	9	CTXM-14	AmCfTioSGTeSxt	540			NT
19035	Study A	Eastern WA	21	Calf	52	+	9	CTXM-14	AmCfTioSGTeSxt	540			FIA
19036	Study A	Eastern WA	21	Adult		+	9	CTXM-14	AmCfTio	154			II
19037	Study A	Eastern WA	38	Adult		+	9	CTXM-14	AmCfTioCNaSGTeSxt	744		CC10	NT
19038	Study A	Eastern WA	38	Calf	30	+	9	CTXM-27	AmCfTioCSGTeSxt	761		CC10	
19039	Study A	Eastern WA	38	Calf	37	+	9	CTXM-27	AmCfTioCSGTeSxt	761		CC10	FIB
19040	Study A	Northwestern WA	1	Adult		+	1	CTXM-15	AmCfTio	227	ST10 Cplx		II
19041	Study A	Northwestern WA	1	Calf	5	+	1	CTXM-15	AmCfTio	219			II
19042	Study A	Northwestern WA	1	Calf	51	+	1	CTXM-15	AmCfTioCNaSGTeSxt	744		CC10	II
19043	Study A	Northwestern WA	25	Calf	16	+	1	CTXM-15	AmCfTioSTe	58	ST155 Cplx	CC58	II
19044	Study A	Northwestern WA	25	Calf	46	+	1	CTXM-15	AmCfTio	154			II
19045	Study A	Northwestern WA	25	Adult		+	1	CTXM-15	AmCfTio	154			II
19046	Study A	Northwestern WA	13	Calf	5	+	9	CTXM-14	AmCfTioCNaSGTeSxt	744		CC10	II
19047	Study A	Eastern WA	55	Adult		+	1	CTXM-15	AmCfTioCNaSGTeSxt	361			FIB
19048	Study A	Eastern WA	55	Calf	26	+	1	CTXM-15	AmCfTioCNaSGTeSxt	361			FIA/II
19049	Study A	Eastern WA	55	Calf	34	+	1	CTXM-15	AmCfTioCNaSGTeSxt	10	ST10 Cplx	CC10	
19050	Study A	Eastern WA	18	Calf	7	+	9	CTXM-27	AmCfTioCSGTeSxt	761		CC10	FIB
19051	Study A	Eastern WA	18	Calf	40	+	1	CTXM-15	AmCfTioCNaSGTeSxt	44	ST10 Cplx	CC10	
19052	Study A	Northwestern WA	9	Calf	10	+	9	CTXM-65	AmCfTioGSGTeSxt	69	ST69 Cplx		N
19053	Study A	Northwestern WA	9	Calf	51	+	9	CTXM-65	AmCfTio	540			II
19054	Study A	Northwestern WA	9	Adult		+	9	CTXM-27	AmCfTioSTe	48	ST10 Cplx	CC10	FIA
19055	Study A	Northwestern WA	11	Calf	9	+	9	CTXM-27	AmCfTioCNaSGTeSxt	744		CC10	N
19056	Study A	Northwestern WA	11	Calf	24	+	9	CTXM-14	AmCfTioCNaSGTeSxt	448	ST448 Cplx		FIA
19057	Study A	Northwestern WA	6	Adult		+	9	CTXM-24	AmCfTioTe	48	ST10 Cplx	CC10	FIB
19058	Study A	Northwestern WA	6	Calf	7	+	9	CTXM-24	AmCfTioTe	48	ST10 Cplx	CC10	
19059	Study A	Northwestern WA	6	Calf	52	+	9	CTXM-65	AmCfTio	540			N
19060	Study A	Northwestern WA	28	Calf	34	+	9	CTXM-14	AmCfTioCSGTeSxt	155	ST155 Cplx	CC58	FIB
19061	Study A	Northwestern WA	28	Calf	43	+	9	CTXM-14	AmCfTioCSGTeSxt	155	ST155 Cplx	CC58	FIB
19062	Study A	Northwestern WA	28	Adult		+	9	CTXM-14	AmCfTioCSGTeSxt	155	ST155 Cplx	CC58	FIB
19063	Study A	Northwestern WA	15	Calf	2	+	9	CTXM-14	AmCfTioCNaSGTeSxt	162	ST469 Cplx		FIB
19064	Study A	Northwestern WA	15	Calf	50	+	9	CTXM-14	AmCfTioCNaSGTeSxt	162	ST469 Cplx		FIB



Isolate number	Study <sup>a</sup>	Washington Region	Farm	Calf or Adult	Calf age in days	<i>bla</i> <sub>CTX-M</sub> PCR Result	CTXM Group	CTXM-Allele	Resistance profile <sup>b</sup>	MLST ST	ST complex	eBURSTCC	Replicon Type
19065	Study A	Northwestern WA	15	Adult		+	9	CTXM-14	AmCfTioCSGTeSxt	155	ST155 Cplx	CC58	FIB
19066	Study A	Eastern WA	29	Calf	11	+	9		AmCfTioCSGTeSxt	761		CC10	
19067	Study A	Eastern WA	29	Calf	13	+	9		AnGSGTeSxt	761		CC10	
19068	Study A	Eastern WA	38	Calf	25	+	9		AmCfTioCSGTeSxt	761		CC10	
19069	Study A	Eastern WA	38	Calf	45	+	1		AmCfTioSGTeSxt	38	ST38 Cplx		NT
19070	Study A	Eastern WA	32	Calf	34	-			AmCfTioSGTeSxt	196			
19072	Study A	Northwestern WA	15	Calf	10	-			AmCfTioSGTeSxt	156	ST156 Cplx		
18991	Study B	Eastern WA	35	Calf	29	+	1	CTXM-15	AmCfTioCSGTeSxt	88	ST23 Cplx	CC88	FIB
18992	Study B	Eastern WA	35	Calf	65	+	9	CTXM-27	AmCfTioCNaSGTeSxt	4096			FIB
18993	Study B	Eastern WA	35	Adult		+	9	CTXM-65	AmCfTio	685			FIB
18994	Study B	Eastern WA	3	Calf	7	+	9	CTXM-27	AmCfTio	32	ST32 Cplx		FIB
18995	Study B	Eastern WA	3	Calf	54	+	1	CTXM-15	AmCfTio	349	ST349 Cplx		FIB
18996	Study B	Eastern WA	3	Adult		+	1	CTXM-15	AmCfTio	345			II
18997	Study B	Eastern WA	60	Calf	22	+	1	CTXM-15	AnAmCfTioGNaSGTeSxt	744		CC10	FIB
18998	Study B	Eastern WA	60	Calf	32	+	1	CTXM-15	AnAmCfTioGNaSGTeSxt	744		CC10	II
18999	Study B	Eastern WA	60	Adult		+	1	CTXM-15	AmCfTioGSGSxt	88	ST23 Cplx	CC88	FIB
19000	Study B	Eastern WA	47	Calf	11	+	9	CTXM-14	AmCfTioCSGTeSxt	1163			A/C
19001	Study B	Eastern WA	47	Calf	33	+	1	CTXM-15	AmCfTioGNaSGSxt	744		CC10	FIB
19002	Study B	Eastern WA	47	Adult		+	1	CTXM-55	AmCfTioGTeSxt	38	ST38 Cplx		FIA
19004	Study B	Eastern WA	37	Adult		+	1	CTXM-15	AmCfTioNaSGTeSxt	361			FIA/FIB
19005	Study B	Eastern WA	37	Calf	2	+	1	CTXM-15	AmCfTioCNaSGTeSxt	761		CC10	II
19006	Study B	Eastern WA	39	Calf	41	+	9	CTXM-27	AmCfTioCSGTeSxt	761		CC10	FIB
19008	Study B	Eastern WA	49	Calf	16	+	1	CTXM-15	AmCfTioCNaSGTeSxt	744		CC10	II
19009	Study B	Eastern WA	49	Calf	46	+	9	CTXM-27	AmCfTioGSxt	58	ST155 Cplx	CC58	FIB
19010	Study B	Eastern WA	49	Adult		+	9	CTXM-27	AmCfTioCGSxt	58	ST155 Cplx	CC58	FIB
19011	Study B	Eastern WA	51	Calf	9	+	1	CTXM-15	AmCfTioCNaSGTeSxt	361			NT
19013	Study B	Eastern WA	51	Adult		+	1	CTXM-15	AmCfTioNa	90	ST23 Cplx	CC88	F
19014	Study B	Eastern WA	46	Calf	14	+	1	CTXM-15	AmCfTioGSGSxt	88	ST23 Cplx	CC88	NT
19015	Study B	Eastern WA	46	Calf	48	+	1	CTXM-15	AmCfTioGSGSxt	88	ST23 Cplx	CC88	NT
19016	Study B	Eastern WA	46	Adult		+	1	CTXM-15	AmCfTioGSGSxt	88	ST23 Cplx	CC88	NT

<sup>a</sup> Study A includes the 252 isolates chosen for the current study; Study B includes 23 additional isolates from the same region and times period that were used to add data concerning plasmid types and *bla*CTX-M alleles.

<sup>b</sup> An, amikacin; Amc, amoxicillin/clavulanic acid; Am, ampicillin; Tio, ceftiofur; Cf, cephalothin; C, chloramphenicol; G, gentamicin; Na, nalidixic acid; S, streptomycin; S, sulfisoxazole; Te, tetracycline; Sxt, trimethoprim/sulfamethoxazole. A blank indicates susceptibility to all antibiotics tested.

Table S3. Geographic distribution of Clonal Complexes between two regions of Washington State. There were no significant differences between the two regions with regard to the proportions of the major clonal complexes. The distributions of clonal complexes did not differ significantly between *bla*<sub>CTX-M</sub>-negative *E. coli* from the two regions and the same was true for *bla*<sub>CTX-M</sub>-positive *E. coli* from the two regions (R X C Fisher's Chi-square test  $P > 0.3$ ).

Clonal Complex	Northwestern Washington (Region 1)			Eastern Washington (Region 2)		
	<i>bla</i> <sub>CTX-M</sub> -negative N (%)	<i>bla</i> <sub>CTX-M</sub> - positive N (%)	Region 1 total N (%)	<i>bla</i> <sub>CTX-M</sub> -negative N (%)	<i>bla</i> <sub>CTX-M</sub> - positive N (%)	Region 2 total N (%)
CC10	7 (14.6)	19 (39.6)	26 (27.1)	12 (15.4)	44 (56.4)	56 (35.9)
CC29	1 (2.1)	0.0	1 (1.0)	10 (12.8)	0.0	10 (6.4)
CC58	7 (14.6)	8 (16.7)	15 (15.6)	9 (11.5)	4 (5.1)	13 (8.3)
CC88	2 (4.2)	1 (2.1)	3 (3.1)	2 (2.6)	5 (6.4)	7 (4.5)
Singletons, or no identified founder	31 (64.6)	20 (41.7)	51 (53.1)	45 (57.7)	25 (32.1)	70 (44.9)
Total	48 (100.0)	48 (100.0)	96 (100.0)	78 (100.0)	78 (100.0)	156 (100.0)