

**Table 4A. Antimicrobial Resistance among *Salmonella* by Animal Source, 1997-2007**

Year		1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007		
<b>Number of Isolates Tested</b>		Chicken	214	561	1438	1173	1307	1500	1158	1280	1989	1380	994	
		Turkey	107	240	713	518	550	244	262	236	227	304	271	
		Cattle	24	284	1610	1388	893	1008	670	607	329	389	439	
		Swine	111	793	876	451	418	379	211	308	301	304	211	
<b>Antimicrobial Class</b>	<b>Antimicrobial</b>	<b>Isolate Source</b>												
<b>Aminoglycosides</b>	Amikacin	Chicken	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
			0	0	0	0	0	0	0	0	0	0	0	
		Turkey	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
			0	0	0	0	0	0	0	0	0	0	0	0
	Cattle	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
		0	0	0	0	0	0	0	0	0	0	0	0	
	Swine	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.5%	
		0	0	0	0	0	0	0	0	0	0	0	1	
	Gentamicin	Chicken	17.8%	15.3%	10.4%	14.9%	7.9%	5.5%	6.3%	4.9%	4.3%	5.7%	4.5%	
			38	86	150	175	103	83	73	63	85	79	45	
		Turkey	20.6%	18.3%	17.5%	16.2%	20.9%	19.3%	21.0%	25.4%	22.9%	16.4%	12.9%	
			22	44	125	84	115	47	55	60	52	50	35	
	Cattle	0.0%	1.8%	1.6%	2.1%	2.1%	2.6%	2.7%	1.8%	2.4%	3.9%	1.6%		
		0	5	25	29	19	26	18	11	8	15	7		
	Swine	0.9%	0.8%	1.1%	1.3%	1.4%	0.8%	0.5%	1.3%	2.7%	2.0%	0.9%		
		1	6	10	6	6	3	1	4	8	6	2		
	Kanamycin	Chicken	2.3%	3.2%	1.2%	4.1%	2.4%	2.0%	2.8%	2.7%	2.5%	3.6%	3.4%	
			5	18	17	48	31	30	32	34	49	49	34	
		Turkey	24.3%	17.1%	21.5%	21.4%	22.9%	24.2%	16.0%	14.4%	19.8%	10.5%	16.2%	
			26	41	153	111	126	59	42	34	45	32	44	
Cattle	8.3%	9.5%	7.1%	6.6%	6.9%	10.1%	13.7%	8.9%	13.1%	9.5%	7.7%			
	2	27	115	92	62	102	92	54	43	37	34			
Swine	11.7%	7.2%	6.7%	9.3%	6.9%	4.2%	5.7%	3.9%	5.0%	8.6%	7.1%			
	13	57	59	42	29	16	12	12	15	26	15			
Streptomycin	Chicken	24.3%	27.8%	27.5%	28.6%	21.0%	22.9%	19.6%	22.2%	23.3%	21.2%	19.3%		
		52	156	396	335	275	343	227	284	464	293	192		
	Turkey	34.6%	40.8%	43.6%	41.9%	46.7%	37.7%	29.4%	33.9%	40.1%	28.9%	34.7%		
		37	98	311	217	257	92	77	80	91	88	94		
Cattle	12.5%	16.2%	15.4%	21.3%	20.3%	25.9%	28.7%	20.9%	24.3%	23.7%	19.8%			
	3	46	248	296	181	261	192	127	80	92	87			
Swine	27.9%	29.4%	29.3%	39.2%	35.6%	40.1%	30.8%	36.4%	36.5%	26.3%	27.0%			
	31	233	257	177	149	152	65	112	110	80	57			
<b>Aminopenicillins</b>	Ampicillin	Chicken	11.7%	12.8%	12.4%	13.0%	9.4%	14.3%	13.7%	14.5%	14.0%	14.9%	17.0%	
			25	72	179	152	123	215	159	185	279	205	169	
		Turkey	12.1%	10.4%	17.7%	16.2%	19.5%	18.0%	18.7%	22.0%	22.9%	25.3%	36.9%	
			13	25	126	84	107	44	49	52	52	77	100	
Cattle	12.5%	9.2%	12.5%	18.7%	17.9%	23.9%	28.1%	19.3%	26.7%	22.4%	20.0%			
	3	26	202	259	160	241	188	117	88	87	88			
Swine	16.2%	12.9%	10.8%	18.8%	11.7%	13.7%	12.8%	16.2%	13.6%	11.5%	18.0%			
	18	102	95	85	49	52	27	50	41	35	38			

**Table 4A (continued). Resistance among *Salmonella* by Animal Source, 1997-2007**

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<b>Number of Isolates Tested</b>		Chicken	214	561	1438	1173	1307	1500	1158	1280	1989	1380	994	
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		Cattle	24	284	1610	1388	893	1008	670	607	329	389	439	
		Swine	111	793	876	451	418	379	211	308	301	304	211	
<b>Antimicrobial Class</b>	<b>Antimicrobial</b>	<b>Isolate Source</b>												
<b><math>\beta</math>-Lactam/<math>\beta</math>-Lactamase Inhibitor Combinations</b>	Amoxicillin-Clavulanic Acid	Chicken	0.5%	2.0%	4.9%	7.3%	4.5%	10.2%	9.7%	12.4%	12.1%	12.9%	15.6%	
			1	11	70	86	59	153	112	159	241	178	155	
		Turkey	4.7%	0.4%	4.3%	3.5%	6.9%	3.7%	1.5%	4.7%	3.5%	5.6%	11.1%	
			5	1	31	18	38	9	4	11	8	17	30	
		Cattle	8.3%	2.5%	3.9%	9.9%	11.8%	17.7%	21.0%	13.5%	21.0%	18.5%	15.5%	
	2	7	62	138	105	178	141	82	69	72	68			
	Swine	0.0%	0.4%	1.0%	1.8%	2.6%	3.7%	3.8%	1.9%	4.3%	2.3%	3.3%		
		0	3	9	8	11	14	8	6	13	7	7		
<b>Cephalosporins</b>	Ceftiofur	Chicken	0.5%	2.0%	5.2%	7.6%	4.1%	10.2%	9.8%	12.4%	12.2%	12.8%	15.4%	
			1	11	75	89	54	153	113	159	242	177	153	
		Turkey	3.7%	0.4%	4.6%	3.3%	5.1%	3.3%	1.5%	4.7%	3.5%	5.3%	11.1%	
			4	1	33	17	28	8	4	11	8	16	30	
		Cattle	0.0%	2.1%	4.2%	9.8%	11.4%	17.4%	21.0%	13.3%	21.6%	18.8%	15.5%	
		0	6	67	136	102	175	141	81	71	73	68		
		Swine	0.0%	0.1%	1.9%	1.3%	2.2%	3.2%	4.3%	1.9%	3.7%	2.0%	2.8%	
			0	1	17	6	9	12	9	6	11	6	6	
		Ceftriaxone	Chicken	0.0%	0.0%	0.0%	0.1%	0.0%	0.3%	0.1%	0.5%	0.3%	0.1%	0.4%
			0	0	0	1	0	5	1	6	5	2	4	
			Turkey	0	0.0%	0.8%	0.4%	0.2%	0.0%	0.4%	0.4%	0.9%	0.0%	0.0%
			0	0	6	2	1	0	1	1	2	0	0	
			Cattle	0.0%	0.0%	0.1%	0.1%	0.1%	0.2%	0.1%	1.3%	2.1%	1.0%	0.7%
		0	0	1	1	1	2	1	8	7	4	3		
		Swine	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.5%	
		0	0	0	0	0	0	0	0	0	0	1		
		Cephalothin	Chicken	1.4%	4.5%	5.8%	7.8%	4.7%	10.5%	10.4%	10.4%			
		3	25	83	91	62	158	121	121					
		Turkey	5.6%	5.0%	10.5%	8.3%	13.1%	9.8%	11.1%	11.1%				
		6	12	75	43	72	24	29	29					
		Cattle	0.0%	2.1%	4.7%	9.9%	11.6%	17.7%	21.2%	21.2%				
		0	6	76	137	104	178	142	142					
		Swine	0.0%	0.1%	0.8%	2.4%	2.2%	3.2%	3.8%	3.8%				
		0	1	7	11	9	12	8	8					
<b>Cephamycins</b>	Cefoxitin	Chicken				7.2%	4.1%	8.7%	8.2%	12.4%	12.0%	12.8%	13.0%	
					85	53	130	95	159	238	176	129		
		Turkey				3.3%	4.5%	2.5%	1.1%	5.1%	3.5%	5.3%	9.2%	
					17	25	6	3	12	8	16	25		
		Cattle				9.1%	11.1%	15.9%	17.8%	13.2%	19.8%	17.7%	15.0%	
			126	99	160	119	80	65	69	66				
		Swine				1.3%	2.2%	2.9%	4.3%	1.9%	3.7%	2.0%	2.8%	
		6	9	11	9	6	11	6	11	6	6			

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		Turkey	107	240	713	518	550	244	262	236	227	304	271
		Cattle	24	284	1610	1388	893	1008	670	607	329	389	439
		Swine	111	793	876	451	418	379	211	308	301	304	211
<b>Antimicrobial Class</b>	<b>Antimicrobial</b>	<b>Isolate Source</b>											
<b>Folate Pathway Inhibitors</b>	Sulfonamides	Chicken	24.8%	23.7%	15.9%	18.4%	11.8%	8.9%	10.3%	11.9%	8.5%	10.7%	10.4%
			53	133	229	216	154	133	119	152	169	148	103
		Turkey	37.4%	32.1%	36.0%	25.1%	38.0%	30.3%	28.2%	36.4%	37.0%	27.3%	25.5%
			40	77	257	130	209	74	74	86	84	83	69
		Cattle	20.8%	15.5%	15.0%	19.9%	19.7%	22.3%	25.1%	22.7%	27.4%	24.2%	21.6%
			5	44	242	276	176	225	168	138	90	94	95
		Swine	34.2%	29.0%	30.7%	35.7%	34.9%	34.6%	25.1%	37.0%	32.9%	26.6%	30.8%
			38	230	269	161	146	131	53	114	99	81	65
	Trimethoprim-Sulfamethoxazole	Chicken	0.5%	1.2%	1.1%	0.4%	0.5%	0.8%	0.3%	0.2%	0.2%	0.1%	0.0%
			1	7	16	5	6	12	4	3	4	1	0
		Turkey	3.7%	2.5%	4.2%	1.5%	2.5%	2.5%	2.3%	0.8%	1.8%	1.0%	1.1%
			4	6	30	8	14	6	6	2	4	3	3
		Cattle	4.2%	2.5%	2.4%	2.2%	2.6%	2.5%	3.3%	1.5%	4.9%	4.6%	3.0%
			1	7	39	30	23	25	22	9	16	18	13
		Swine	1.8%	0.3%	1.1%	0.9%	0.0%	1.6%	2.4%	1.6%	2.3%	2.0%	1.9%
			2	2	10	4	0	6	5	5	7	6	4
<b>Phenicol</b>	Chloramphenicol	Chicken	2.3%	2.9%	1.8%	4.6%	2.5%	2.4%	2.1%	1.3%	1.8%	1.7%	1.8%
			5	16	26	54	33	36	24	16	36	24	18
		Turkey	3.7%	0.8%	4.1%	4.1%	3.8%	5.3%	4.2%	4.7%	4.8%	3.9%	5.5%
			4	2	29	21	21	13	11	11	11	12	15
	Cattle	4.2%	5.6%	8.5%	15.1%	16.5%	20.6%	25.1%	17.6%	21.9%	19.8%	20.0%	
		1	16	137	209	147	208	168	107	72	77	88	
	Swine	11.7%	8.4%	8.0%	12.4%	7.7%	10.0%	8.5%	12.7%	10.6%	7.9%	15.2%	
			13	67	70	56	32	38	18	39	32	24	32
<b>Quinolones</b>	Ciprofloxacin	Chicken	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%
			0	0	0	0	0	0	1	0	0	0	0
		Turkey	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
			0	0	0	0	0	0	0	0	0	0	0
		Cattle	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
			0	0	0	0	0	0	0	0	0	0	0
		Swine	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
			0	0	0	0	0	0	0	0	0	0	0
	Nalidixic Acid	Chicken	0.0%	0.2%	0.2%	0.5%	0.0%	0.8%	0.4%	0.5%	0.3%	0.1%	0.1%
			0	1	3	6	0	12	5	6	6	2	1
		Turkey	4.7%	2.1%	5.3%	5.4%	5.1%	5.3%	3.8%	2.1%	2.2%	0.7%	1.1%
			5	5	38	28	28	13	10	5	5	2	3
		Cattle	0.0%	0.4%	0.1%	0.4%	0.4%	0.4%	0.4%	2.0%	1.5%	0.5%	0.7%
			0	1	1	6	4	4	3	12	5	2	3
		Swine	0.0%	0.0%	0.0%	0.2%	0.0%	0.3%	0.0%	0.0%	0.3%	0.0%	0.0%
			0	0	0	1	0	1	0	0	1	0	0
<b>Tetracyclines</b>	Tetracycline	Chicken	20.6%	20.5%	25.0%	26.3%	21.9%	24.9%	26.2%	27.4%	28.3%	31.8%	35.5%
			44	115	359	308	286	374	303	351	563	439	353
		Turkey	52.3%	45.8%	52.9%	56.2%	54.9%	54.5%	58.8%	48.3%	54.6%	61.8%	73.8%
			56	110	377	291	302	133	154	114	124	188	200
	Cattle	25.0%	24.3%	20.9%	25.8%	26.3%	32.0%	36.9%	31.8%	34.0%	30.3%	27.3%	
		6	69	336	358	235	323	247	193	112	118	120	
	Swine	52.3%	47.5%	48.4%	54.3%	53.1%	57.8%	43.1%	58.8%	54.8%	62.8%	54.5%	
			58	377	424	245	222	219	91	181	165	191	115