Annex A - Antimicrobial resistance in *Salmonella* spp.

Annex to:

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A.1. Antimicrobial resistance in *Salmonella* spp. from humans

Table 1: Antimicrobial resistance in *Salmonella* spp. (all non-typhoidal serovars) from humans per country in 2020

Country	Gentamicin		Chloramphenicol		Ampicillin		Cefotaxime		Ceftazidime		Meropenem		Tigecycline	
	N	% Res	N	% Res	N	% Res	N	% Res	N	% Res	N	% Res	N	% Res
Austria	894	0.4	894	4.5	894	14.9	894	0.4	894	0.4	894	0	894	0
Belgium	706	2.1	706	6.5	706	44.1	706	0.8	-	-	706	0.1	4	NA
Cyprus	106	7.5	-	-	106	24.5	45	4.4	106	0.9	106	0	-	-
Denmark	252	0.8	252	2.8	252	22.2	252	0.4	252	0.4	252	0.4	252	0.4
Estonia	95	1.1	95	10.5	95	23.2	95	0	95	0	95	0	95	0
Finland	100	0	100	3.0	100	31.0	100	0	-	-	100	0	-	-
France	713	2.2	713	4.6	713	21.9	713	0.7	713	0.4	713	0	713	0.3
Hungary[a]	426	2.3	425	24.7	627	54.9	532	0.2	541	1.1	423	0	-	-
Ireland[e]	183	1.6	183	3.3	183	20.8	183	0.5	-	-	183	0	-	-
Italy	872	1.8	872	6.0	872	45.2	872	2.2	872	2.1	872	0	349	0
Latvia[a]	-	-	-	-	18	11.1	-	-	-	-	-	-	-	-
Luxembourg	90	1.1	90	4.4	90	34.4	90	0	90	0	90	0	-	-
Malta[d]	164	1.8	-	-	164	21.3	164	1.2	164	0.6	164	0	-	-
Netherlands	494	1.6	494	6.9	494	32.8	494	1.0	494	0.8	494	0	494	0.4
Portugal	238	2.5	238	10.5	238	32.4	238	0	238	0	238	0	238	0.4
Romania	36	0	36	0	36	16.7	36	0	36	0	36	0	-	-
Slovakia[a]	-	-	6	NA	471	11.3	390	0.8	209	1.0	236	0	-	-
Slovenia	184	0.5	184	4.9	185	21.1	185	1.6	184	2.7	184	0	-	-
Spain	768	1.2	768	4.0	768	28.1	768	0.7	768	0.4	767	0	-	-
Sweden[e]	344	0.3	344	1.2	344	17.2	344	0.9	344	0.6	344	0	344	0
Total (MSs 20)	**6,665**	**1.6**	**6,400**	**6.4**	**7,356**	**29.8**	**7,101**	**0.8**	**6,000**	**0.8**	**6,897**	**0**	**3,383**	**0.2**
Iceland[a]	-	-	-	-	20	50.0	2	0	-	-	-	-	-	-
Norway	-	-	232	4.7	232	11.2	232	0.4	232	0.4	232	0	-	-

Table 1: Continued

Country	Nalidixic acid		Ciprofloxacin[b]		Azithromycin		Colistin		Sulfamethoxazole[c]		Trimethoprim		Co-trimoxazole		Tetracycline	
	N	% Res	N	% Res	N	% Res	N	% Res	N	% Res	N	% Res	N	% Res	N	% Res
Austria	894	20.5	894	21.4	894	0.3	-	-	894	14.0	894	3.2	-	-	894	14.3
Belgium	-	-	706	18.6	-	-	-	-	706	39.7	706	12.2	-	-	706	39.1
Cyprus	-	-	105	24.8	-	-	58	3.4	-	-	-	-	104	9.6	-	-
Denmark	252	4.0	252	3.6	252	1.2	252	6.7	252	22.6	252	4.8	-	-	252	22.6
Estonia	95	14.7	95	14.7	-	-	95	16.8	95	22.1	95	3.2	-	-	95	23.2
Finland	100	5.0	100	7.0	-	-	-	-	-	-	100	8	-	-	100	22
France	713	11.8	713	11.9	713	1.8	713	6.6	713	26.5	713	3.2	-	-	713	27.6
Hungary[a]	-	-	382	18.8	-	-	-	-	-	-	426	5.6	804	5.1	426	69.5
Ireland[e]	-	-	182	15.9	183	0.5	183	0.5	183	19.1	183	2.7	-	-	183	13.1
Italy	872	10.4	872	11.2	349	0.3	728	2.9	872	49.2	872	7.3	-	-	872	47.7
Latvia[a]	-	-	18	0	-	-	-	-	-	-	-	-	18	11.1	-	-
Luxembourg	-	-	90	6.7	-	-	90	1.1	90	54.4	-	-	90	10	90	30.0
Malta[d]	-	-	32	9.4	-	-	-	-	-	-	-	-	-	-	-	-
Netherlands	494	16.4	494	15.6	494	0.2	494	21.5	494	30.4	494	7.1	-	-	494	33.4
Portugal	238	6.7	238	7.1	238	2.5	-	-	238	37.8	238	8	-	-	238	35.7
Romania	36	47.2	36	47.2	-	-	-	-	36	11.1	36	0	36	0	36	19.4
Slovakia[a]	-	-	402	13.4	-	-	-	-	-	-	-	-	228	4.4	279	25.1
Slovenia	-	-	183	18.6	-	-	-	-	174	20.1	184	11.4	185	12.4	184	17.9
Spain	768	10.7	768	10.9	-	-	-	-	767	32.3	768	6.4	-	-	768	26.4
Sweden[e]	-	-	344	6.4	344	0	344	0	344	15.4	344	2.0	-	-	344	16.3
Total (MSs 20)	**4462**	**13.1**	**6906**	**14.1**	**3467**	**0.8**	**2957**	**7.1**	**5858**	**30.1**	**6305**	**6.1**	**1,465**	**9.6**	**6674**	**31.2**
Iceland[a]	-	-	21	14.3	-	-	-	-	-	-	-	-	21	0	-	-
Norway	-	-	232	14.7	-	-	-	-	-	-	-	-	-	-	232	18.5

N: number of isolates tested; % Res: percentage of microbiologically resistant isolates (either interpreted as non-wild type by ECOFFs or I/R according to CBPs); –: no data reported; NA: not applicable – if fewer than 10 isolates were tested, the percentage of resistance was not calculated; MSs: Member States.
(a): Data interpreted with clinical breakpoints
(b): In most countries doing disk diffusion, pefloxacin is used for screening for fluoroquinolone resistance, as recommended by EUCAST.
(c): Combined data on the class of sulfonamides and the substance sulfamethoxazole within this group.
(d): Fewer test results available for ciprofloxacin/perfloxacin due to change of method late in the year to encompass the *Salmonella*-specific ECOFF and CBP.
(e): Microbiological resistance predicted from whole genome sequencing

Table 2: Antimicrobial resistance in *Salmonella* Enteritidis from humans per country in 2020

Country	Gentamicin		Chloramphenicol		Ampicillin		Cefotaxime		Ceftazidime		Meropenem		Tigecycline	
	N	% Res	N	% Res	N	% Res	N	% Res	N	% Res	N	% Res	N	% Res
Austria	386	0	386	0.3	386	3.1	386	0	386	0	386	0	386	0
Belgium	172	0.6	172	0	172	12.8	172	1.2	-	-	172	0.6	1	NA
Cyprus	50	0	-	-	50	4.0	15	0	50	0	50	0	-	-
Denmark	2	NA	2	NA	2	NA	2	NA	2	NA	2	NA	2	NA
Estonia	47	0	47	0	47	2.1	47	0	47	0	47	0	47	0
Finland	3	NA	3	NA	3	NA	3	NA	-	-	3	NA	-	-
France	94	0	94	1.1	94	1.1	94	0	94	0	94	0	94	0
Hungary[a]	-	-	-	-	114	2.6	55	0	50	4	-	-	-	-
Ireland[e]	50	0	50	0	50	6.0	50	0	-	-	50	0	-	-
Italy	80	1.3	80	1.3	80	3.8	80	0	80	0	80	0	35	0
Latvia[a]	-	-	-	-	11	0	-	-	-	-	-	-	-	-
Luxembourg	19	0	19	0	19	0	19	0	19	0	19	0	-	-
Malta[d]	75	0	-	-	75	0	75	0	75	0	75	0	-	-
Netherlands	109	0	109	0.9	109	12.8	109	0	109	0	109	0	109	0
Portugal	69	0	69	0	69	4.3	69	0	69	0	69	0	69	0
Romania	18	0	18	0	18	0	18	0	18	0	18	0	-	-
Slovakia[a]	-	-	6	33.3	403	6.2	331	0.9	170	0.6	196	0	-	-
Slovenia	41	0	41	0	42	9.5	42	0	41	0	41	0	-	-
Spain	263	0	263	0	263	1.5	263	0	263	0	263	0	-	-
Sweden[e]	59	0	59	0	59	8.5	59	0	59	0	59	0	59	0
Total (MSs 20)	**1,537**	**0.1**	**1,418**	**0.4**	**2,066**	**4.9**	**1,889**	**0.3**	**1,532**	**0.2**	**1,733**	**0.1**	**802**	**0**
Iceland[a]	-	-	-	-	6	NA	-	-	-	-	-	-	-	-
Norway	-	-	62	1.6	62	8.1	62	0	62	0	62	0	-	-

Table 2: Continued

Country	Nalidixic acid		Ciprofloxacin[b]		Azithromycin		Colistin		Sulfamethoxazole[c]		Trimethoprim		Co-trimoxazole		Tetracycline	
	N	% Res	N	% Res	N	% Res	N	% Res	N	% Res	N	% Res	N	% Res	N	% Res
Austria	386	36.8	386	37.3	386	0	-	-	386	0	386	0.8	-	-	386	0.3
Belgium	-	-	172	25.0	-	-	-	-	172	7.0	172	3.5	-	-	172	11.0
Cyprus	-	-	49	16.3	-	-	31	6.5	-	-	-	-	48	0	-	-
Denmark	2	NA	2	NA	2	NA	2	NA	2	NA	2	NA	-	-	2	NA
Estonia	47	10.6	47	10.6	-	-	47	27.7	47	0	47	0	-	-	47	2.1
Finland	3	NA	3	NA	-	-	-	-	-	-	3	NA	-	-	3	NA
France	94	7.4	94	7.4	94	0	94	5.3	94	1.1	94	1.1	-	-	94	1.1
Hungary[a]	-	-	159	25.2	-	-	-	-	-	-	-	-	201	0	-	-
Ireland[e]	-	-	50	44.0	50	0	50	0	50	0	50	0	-	-	50	2.0
Italy	80	13.8	80	13.8	35	0	66	9.1	80	7.5	80	1.3	-	-	80	6.3
Latvia[a]	-	-	11	0	-	-	-	-	-	-	-	-	11	18.2	-	-
Luxembourg	-	-	19	5.3	-	-	19	5.3	19	31.6	-	-	19	0	19	0
Malta[d]	-	-	17	0	-	-	-	-	-	-	-	-	-	-	-	-
Netherlands	109	21.1	109	21.1	109	0	109	65.1	109	6.4	109	1.8	-	-	109	9.2
Portugal	69	5.8	69	4.3	69	0	-	-	69	7.2	69	1.4	-	-	69	2.9
Romania	18	72.2	18	72.2	-	-	-	-	18	0	18	0	18	0	18	0
Slovakia[a]	-	-	343	13.4	-	-	-	-	-	-	-	-	196	4.6	245	24.1
Slovenia	-	-	41	36.6	-	-	-	-	39	0	41	0	42	0	41	0
Spain	263	13.3	263	12.2	-	-	-	-	263	1.1	263	0	-	-	263	0.4
Sweden[e]	-	-	59	22.0	59	0	59	0	59	0	59	0	-	-	59	3.4
Total (MSs 20)	**1,071**	**22.5**	**1,991**	**21.4**	**804**	**0**	**477**	**20.5**	**1,407**	**2.8**	**1,393**	**1.0**	**535**	**2.1**	**1,657**	**6.2**
Iceland[a]	-	-	6	NA	-	-	-	-	-	-	-	-	6	NA	-	-
Norway	-	-	62	19.4	-	-	-	-	-	-	-	-	-	-	62	8.1

N: number of isolates tested; % Res: percentage of microbiologically resistant isolates (either interpreted as non-wild type by ECOFFs or I/R according to CBPs); –: no data reported; NA: not applicable – if fewer than 10 isolates were tested, the percentage of resistance was not calculated; MSs: Member States.
(a): Data interpreted with clinical breakpoints
(b): In countries doing disk diffusion, pefloxacin is used for screening for fluoroquinolone resistance, as recommended by EUCAST.
(c): Combined data on the class of sulfonamides and the substance sulfamethoxazole within this group.
(d): Fewer test results available for ciprofloxacin/perfloxacin due to change of method late in the year to encompass the *Salmonella*-specific ECOFF and CBP.
(e): Microbiological resistance predicted from whole genome sequencing

Table 3: Antimicrobial resistance in *Salmonella* Typhimurium from humans per country in 2020

Country	Gentamicin		Chloramphenicol		Ampicillin		Cefotaxime		Ceftazidime		Meropenem		Tigecycline	
	N	% Res	N	% Res	N	% Res	N	% Res	N	% Res	N	% Res	N	% Res
Austria	92	0	92	12.0	92	38.0	92	0	92	0	92	0	92	0
Belgium	130	2.3	130	13.1	130	69.2	130	0.8	-	-	130	0	1	NA
Cyprus	26	0	-	-	26	53.8	9	0	26	0	26	0	-	-
Denmark	38	0	38	7.9	38	13.2	38	0	38	0	38	0	38	2.6
Estonia	13	0	13	53.8	13	53.8	13	0	13	0	13	0	13	0
France	98	0	98	25.5	98	34.7	98	1.0	98	0	98	0	98	0
Hungary[a]	143	2.8	142	39.4	147	53.7	145	0	162	0.6	142	0	-	-
Ireland[e]	20	5.0	20	10.0	20	20.0	20	0	-	-	20	0	-	-
Italy	68	2.9	68	22.1	68	58.8	68	0	68	0	68	0	34	0
Latvia[a]	-	-	-	-	4	NA	-	-	-	-	-	-	-	-
Luxembourg	17	5.9	17	11.8	17	41.2	17	0	17	0	17	0	-	-
Netherlands	82	1.2	82	26.8	82	52.4	82	1.2	82	1.2	82	0	82	0
Portugal	41	0	41	24.4	41	41.5	41	0	41	0	41	0	41	0
Romania	11	0	11	0	11	54.5	11	0	11	0	11	0	-	-
Slovakia[a]	-	-	-	-	18	50.0	15	0	10	0	10	0	-	-
Slovenia	39	2.6	39	17.9	39	23.1	39	0	39	0	39	0	-	-
Spain	31	0	31	6.5	31	45.2	31	0	31	0	31	0	-	-
Sweden[e]	68	1.5	68	4.4	68	8.8	68	2.9	68	1.5	68	0	68	0
Total (MSs 18)	**917**	**1.5**	**890**	**20.4**	**943**	**44.6**	**917**	**0.5**	**796**	**0.4**	**926**	**0**	**467**	**0.2**
Iceland[a]	-	-	-	-	12	83.3	1	NA	-	-	-	-	-	-
Norway	-	-	52	7.7	52	9.6	52	1.9	52	1.9	52	0	-	-

Table 3: Continued

Country	Nalidixic acid		Ciprofloxacin[b]		Azithromycin		Colistin		Sulfamethoxazole[c]		Trimethoprim		Co-trimoxazole		Tetracycline	
	N	% Res	N	% Res	N	% Res	N	% Res	N	% Res	N	% Res	N	% Res	N	% Res
Austria	92	3.3	92	3.3	92	1.1	-	-	92	37.0	92	6.5	-	-	92	35.9
Belgium	-	-	130	10.0	-	-	-	-	130	38.5	130	27.7	-	-	130	36.2
Cyprus	-	-	26	23.1	-	-	17	0	-	-	-	-	26	3.8	-	-
Denmark	38	2.6	38	2.6	38	0	38	2.6	38	13.2	38	5.3	-	-	38	10.5
Estonia	13	46.2	13	46.2	-	-	13	15.4	13	53.8	13	0	-	-	13	53.8
France	98	12.2	98	12.2	98	0	98	2	98	40.8	98	2.0	-	-	98	38.8
Hungary[a]	-	-	43	7.0	-	-	-	-	-	-	143	4.9	166	4.2	143	42.0
Ireland[e]	-	-	20	5.0	20	0	20	0	20	10.0	20	5.0	-	-	20	20.0
Italy	68	16.2	68	17.6	34	0	62	0	68	60.3	68	4.4	-	-	68	52.9
Latvia[a]	-	-	4	NA	-	-	-	-	-	-	-	-	4	NA	-	-
Luxembourg	-	-	17	5.9	-	-	17	0	17	47.1	-	-	17	23.5	17	29.4
Netherlands	82	12.2	82	12.2	82	0	82	8.5	82	39.0	82	9.8	-	-	82	37.8
Portugal	41	17.1	41	17.1	41	2.4	-	-	41	46.3	41	7.3	-	-	41	36.6
Romania	11	9.1	11	9.1	-	-	-	-	11	36.4	11	0	11	0	11	36.4
Slovakia[a]	-	-	17	0	-	-	-	-	-	-	-	-	10	0	8	NA
Slovenia	-	-	39	17.9	-	-	-	-	37	24.3	39	25.6	39	17.9	39	25.6
Spain	31	9.7	31	9.7	-	-	-	-	31	51.6	31	6.5	-	-	31	19.4
Sweden[e]	-	-	68	2.9	68	0	68	0	68	10.3	68	5.9	-	-	68	8.8
Total (MSs 18)	**474**	**11.4**	**838**	**10.5**	**473**	**0.4**	**415**	**2.9**	**746**	**36.7**	**874**	**9.6**	**273**	**7.0**	**899**	**34.1**
Iceland[a]	-	-	13	0	-	-	-	-	-	-	-	-	13	0	-	-
Norway	-	-	52	11.5	-	-	-	-	-	-	-	-	-	-	52	17.3

N: number of isolates tested; % Res: percentage of microbiologically resistant isolates (either interpreted as non-wild type by ECOFFs or I/R according to CBPs); –: no data reported; NA: not applicable – if fewer than 10 isolates were tested, the percentage of resistance was not calculated; MSs: Member States.
(a): Data interpreted with clinical breakpoints
(b): In countries doing disk diffusion, pefloxacin is used for screening for fluoroquinolone resistance, as recommended by EUCAST.
(c): Combined data on the class of sulfonamides and the substance sulfamethoxazole within this group.
(d): Fewer test results available for ciprofloxacin/perfloxacin due to change of method late in the year to encompass the *Salmonella*-specific ECOFF and CBP.
(e): Microbiological resistance predicted from whole genome sequencing

Table 4: Antimicrobial resistance in monophasic *Salmonella* Typhimurium 1,4,[5],12:i:- from humans per country in 2020

Country	Gentamicin		Chloramphenicol		Ampicillin		Cefotaxime		Ceftazidime		Meropenem		Tigecycline	
	N	% Res	N	% Res	N	% Res	N	% Res	N	% Res	N	% Res	N	% Res
Austria	71	1.4	71	5.6	71	73.2	71	1.4	71	1.4	71	0	71	0
Belgium	186	2.2	186	8.6	186	89.8	186	1.1	-	-	186	0	2	NA
Denmark	56	1.8	56	3.6	56	82.1	56	0	56	0	56	0	56	0
Estonia	15	6.7	15	20	15	86.7	15	0	15	0	15	0	15	0
France	99	0	99	0	99	77.8	99	0	99	0	99	0	99	0
Hungary[(a)]	129	2.3	129	14.7	131	92.4	135	0	142	0	128	0	-	-
Ireland[(e)]	27	7.4	27	11.1	27	100	27	0	-	-	27	0	-	-
Italy	296	3.4	296	5.7	296	91.2	296	1.7	296	1.7	296	0	108	0
Luxembourg	28	0	28	7.1	28	82.1	28	0	28	0	28	0	-	-
Malta[(d)]	12	0	-	-	12	83.3	12	0	12	0	12	0	-	-
Netherlands	109	1.8	109	6.4	109	79.8	109	0	109	0	109	0	109	0
Portugal	73	6.8	73	11	73	69.9	73	0	73	0	73	0	73	0
Slovenia	19	0	19	10.5	19	100	19	15.8	19	15.8	19	0	-	-
Spain	189	0.5	189	5.8	189	85.7	189	0.5	189	0	189	0	-	-
Sweden[(e)]	49	0	49	0	49	91.8	49	2.0	49	2.0	49	0	49	0
Total (MSs 15)	**1,358**	**2.2**	**1,346**	**7.0**	**1,360**	**86.0**	**1,364**	**1.0**	**1,158**	**0.9**	**1357**	**0**	**582**	**0**
Norway	-	-	14	14.3	14	78.6	14	0	14	0	14	0	-	-

Table 4: Continued

Country	Nalidixic acid		Ciprofloxacin[b]		Azithromycin		Colistin		Sulfamethoxazole[c]		Trimethoprim		Co-trimoxazole		Tetracycline	
	N	% Res	N	% Res	N	% Res	N	% Res	N	% Res	N	% Res	N	% Res	N	% Res
Austria	71	0	71	1.4	71	0	-	-	71	71.8	71	5.6	-	-	71	71.8
Belgium	-	-	186	11.3	-	-	-	-	186	87.6	186	11.3	-	-	186	83.9
Denmark	56	0	56	0	56	1.8	56	0	56	82.1	56	14.3	-	-	56	83.9
Estonia	15	13.3	15	13.3	-	-	15	0	15	86.7	15	13.3	-	-	15	86.7
France	99	2	99	2.0	99	0	99	0	99	74.7	99	2.0	-	-	99	76.8
Hungary[a]	-	-	40	10.0	-	-	-	-	-	-	129	5.4	148	6.8	129	82.9
Ireland[e]	-	-	26	0	27	0	27	0	27	100	27	11.1	-	-	27	55.6
Italy	296	6.4	296	7.1	108	0	237	1.7	296	89.9	296	4.1	-	-	296	88.2
Luxembourg	-	-	28	10.7	-	-	28	0	28	92.9	-	-	28	10.7	28	75.0
Malta[d]	-	-	1	NA	-	-	-	-	-	-	-	-	-	-	-	-
Netherlands	109	14.7	109	14.7	109	0.9	109	4.6	109	7.08	109	6.4	-	-	109	87.2
Portugal	73	4.1	73	6.8	73	1.4	-	-	73	68.5	73	5.5	-	-	73	76.7
Slovenia	-	-	19	15.8	-	-	-	-	18	88.9	19	36.8	19	57.9	19	78.9
Spain	189	3.7	189	4.2	-	-	-	-	189	85.7	189	5.3	-	-	189	77.8
Sweden[e]	-	-	49	2.0	49	0	49	0	49	85.7	49	2.0	-	-	49	89.8
Total (MSs 15)	**908**	**5.4**	**1,257**	**6.9**	**592**	**0.5**	**620**	**1.5**	**1,216**	**84.0**	**1,318**	**6.7**	**195**	**12.3**	**1,346**	**82.0**
Iceland[a]	-	-	14	7.1	-	-	-	-	-	-	-	-	-	-	14	92.9
Norway																

N: number of isolates tested; % Res: percentage of microbiologically resistant isolates (either interpreted as non-wild type by ECOFFs or I/R according to CBPs); –: no data reported; NA: not applicable – if fewer than 10 isolates were tested, the percentage of resistance was not calculated; MSs: Member States.
(a): Data interpreted with clinical breakpoints
(b): In //countries doing disk diffusion, pefloxacin is used for screening for fluoroquinolone resistance, as recommended by EUCAST.
(c): Combined data on the class of sulfonamides and the substance sulfamethoxazole within this group.
(d): Fewer test results available for ciprofloxacin/perfloxacin due to change of method late in the year to encompass the *Salmonella*-specific ECOFF and CBP.
(e): Microbiological resistance predicted from whole genome sequencing

Table 5: Antimicrobial resistance in *Salmonella* Infantis from humans per country in 2020

Country	Gentamicin		Chloramphenicol		Ampicillin		Cefotaxime		Ceftazidime		Meropenem		Tigecycline	
	N	% Res	N	% Res	N	% Res	N	% Res	N	% Res	N	% Res	N	% Res
Austria	35	2.9	35	5.7	35	14.3	35	2.9	35	2.9	35	0	35	0
Belgium	42	0	42	2.4	42	26.2	42	0	-	-	42	0	-	-
Cyprus	4	NA	-	-	4	NA	3	NA	4	NA	4	NA	-	-
Denmark	4	NA	4	NA	4	NA	4	NA	4	NA	4	NA	4	NA
Estonia	1	NA	1	NA	1	NA	1	NA	1	NA	1	NA	1	NA
France	80	2.5	80	0	80	7.5	80	0	80	0	80	0	80	0
Hungary[a]	-	-	-	-	23	21.7	11	0	17	5.9	-	-	-	-
Ireland[e]	2	NA	2	NA	2	NA	2	NA	-	-	2	NA	-	-
Italy	30	6.7	30	6.7	30	53.3	30	40.0	30	36.7	30	0	18	0
Luxembourg	3	NA	3	NA	3	NA	3	NA	3	NA	3	NA	-	-
Malta[d]	25	0	-	-	25	4.0	25	0	25	0	25	0	-	-
Netherlands	29	3.4	29	6.9	29	13.8	29	6.9	29	3.4	29	0	29	3.4
Portugal	1	NA	1	NA	1	NA	1	NA	1	NA	1	NA	1	NA
Romania	1	NA	1	NA	1	NA	1	NA	1	NA	1	NA	-	-
Slovakia[a]	-	-	-	-	7	NA	5	NA	3	NA	2	NA	-	-
Slovenia	8	0	8	NA	8	NA	8	NA	8	NA	8	NA	-	-
Spain	18	0	18	5.6	18	5.6	18	5.6	18	0	18	0	-	-
Sweden[e]	4	NA	4	NA	4	NA	4	NA	4	NA	4	NA	4	NA
Total (MSs 18)	**287**	**2.1**	**258**	**3.1**	**317**	**17.4**	**302**	**5.6**	**263**	**6.1**	**289**	**0**	**172**	**0.6**
Norway	-	-	3	NA	3	NA	3	NA	3	NA	3	NA	-	-

Table 5: Continued

Country	Nalidixic acid		Ciprofloxacin[b]		Azithromycin		Colistin		Sulfamethoxazole[c]		Trimethoprim		Co-trimoxazole		Tetracycline	
	N	% Res	N	% Res	N	% Res	N	% Res	N	% Res	N	% Res	N	% Res	N	% Res
Austria	35	71.4	35	71.4	35	0	-	-	35	68.6	35	8.6	-	-	35	68.6
Belgium	-	-	42	59.5	-	-	-	-	42	64.3	42	23.8	-	-	42	57.1
Cyprus	-	-	4	NA	-	-	1	NA	-	-	-	-	4	NA	-	-
Denmark	4	NA	4	NA	4	NA	4	NA	4	NA	4	NA	-	-	4	NA
Estonia	1	NA	1	NA	-	-	1	NA	1	NA	1	NA	-	-	1	NA
France	80	16.3	80	17.5	80	1.3	80	0	80	15	80	7.5	-	-	80	12.5
Hungary[a]	-	-	42	31	-	-	-	-	-	-	-	-	45	13.3	-	-
Ireland[e]	-	-	2	NA	2	NA	2	NA	2	NA	2	NA	-	-	2	NA
Italy	30	76.7	30	76.7	18	0	29	3.4	30	80.0	30	66.7	-	-	30	80
Luxembourg	-	-	3	NA	-	-	3	NA	3	NA	-	-	3	NA	3	NA
Malta[d]	-	-	3	NA	-	-	-	-	-	-	-	-	-	-	-	-
Netherlands	29	34.5	29	31.0	29	0	29	0	29	41.4	29	20.7	-	-	29	37.9
Portugal	1	NA	1	NA	1	NA	-	-	1	NA	1	NA	-	-	1	NA
Romania	1	NA	1	NA	-	-	-	-	1	NA	1	NA	1	NA	1	NA
Slovakia[a]	-	-	4	NA	-	-	-	-	-	-	-	-	5	NA	4	NA
Slovenia	-	-	8	NA	-	-	-	-	8	NA	8	NA	8	NA	8	NA
Spain	18	55.6	18	55.6	-	-	-	-	18	55.6	18	33.3	-	-	18	50.0
Sweden[e]	-	-	4	NA	4	NA	4	NA	4	NA	4	NA	-	-	4	NA
Total (MSs 18)	**199**	**41.2**	**311**	**43.7**	**173**	**0.6**	**153**	**1.3**	**258**	**46.9**	**255**	**20.4**	**66**	**12.1**	**262**	**43.9**
Norway	-	-	3	NA	-	-	-	-	-	-	-	-	-	-	3	NA

N: number of isolates tested; % Res: percentage of microbiologically resistant isolates (either interpreted as non-wild type by ECOFFs or I/R according to CBPs); –: no data reported; NA: not applicable – if fewer than 10 isolates were tested, the percentage of resistance was not calculated; MSs: Member States.
(a): Data interpreted with clinical breakpoints
(b): In countries doing disk diffusion, pefloxacin is used for screening for fluoroquinolone resistance, as recommended by EUCAST.
(c): Combined data on the class of sulfonamides and the substance sulfamethoxazole within this group.
(d): Fewer test results available for ciprofloxacin/perfloxacin due to change of method late in the year to encompass the *Salmonella*-specific ECOFF and CBP.
(e): Microbiological resistance predicted from whole genome sequencing

Table 6: Antimicrobial resistance in *Salmonella* Kentucky from humans per country in 2020

Country	Gentamicin		Chloramphenicol		Ampicillin		Cefotaxime		Ceftazidime		Meropenem		Tigecycline	
	N	% Res	N	% Res	N	% Res	N	% Res	N	% Res	N	% Res	N	% Res
Austria	3	NA	3	NA	3	NA	3	NA	3	NA	3	NA	3	NA
Belgium	4	NA	4	NA	4	NA	4	NA	-	-	4	NA	-	-
Cyprus	1	NA	-	-	1	NA	1	NA	1	NA	1	NA	-	-
France	32	40.6	32	9.4	32	75	32	6.3	32	3.1	32	0	32	3.1
Italy	1	NA	1	NA	1	NA	1	NA	1	NA	1	NA	1	NA
Malta[(d)]	7	NA	-	-	7	NA	7	NA	7	NA	7	NA	-	-
Netherlands	4	NA	4	NA	4	NA	4	NA	4	NA	4	NA	4	NA
Spain	2	NA	2	NA	2	NA	2	NA	2	NA	2	NA	-	-
Sweden[(e)]	1	NA	1	NA	1	NA	1	NA	1	NA	1	NA	1	NA
Total (MSs 9)	**55**	**40.0**	**47**	**10.6**	**55**	**80.0**	**55**	**10.9**	**51**	**7.8**	**55**	**0**	**41**	**2.4**

Country	Nalidixic acid		Ciprofloxacin[(b)]		Azithromycin		Colistin		Sulfamethoxazole [(c)]		Trimethoprim		Co-trimoxazole		Tetracycline	
	N	% Res	N	% Res	N	% Res	N	% Res	N	% Res	N	% Res	N	% Res	N	% Res
Austria	3	NA	3	NA	3	NA	-	-	3	NA	3	NA	-	-	3	NA
Belgium	-	-	4	NA	-	-	-	-	4	NA	4	NA	-	-	4	NA
Cyprus	-	-	1	NA	-	-	1	NA	-	-	-	-	1	NA	-	-
France	32	87.5	32	87.5	32	6.3	32	0	32	71.9	32	21.9	-	-	32	81.3
Italy	1	NA	1	NA	1	NA	1	NA	1	NA	1	NA	-	-	1	NA
Malta[(d)]	-	-	2	NA	-	-	-	-	-	-	-	-	-	-	-	-
Netherlands	4	NA	4	NA	4	NA	4	NA	4	NA	4	NA	-	-	4	NA
Spain	2	NA	2	NA	-	-	-	-	2	NA	2	NA	-	-	2	NA
Sweden[(e)]	-	-	1	NA	1	NA	1	NA	1	NA	1	NA	-	-	1	NA
Total (MSs 9)	**42**	**81.0**	**50**	**82.0**	**41**	**4.9**	**39**	**0**	**47**	**72.3**	**47**	**21.3**	**1**	**NA**	**47**	**78.7**

N: number of isolates tested; % Res: percentage of microbiologically resistant isolates (either interpreted as non-wild type by ECOFFs or I/R according to CBPs); –: no data reported; NA: not applicable – if fewer than 10 isolates were tested, the percentage of resistance was not calculated; MSs: Member States.
(a): Data interpreted with clinical breakpoints
(b): In countries doing disk diffusion, pefloxacin is used for screening for fluoroquinolone resistance, as recommended by EUCAST.
(c): Combined data on the class of sulfonamides and the substance sulfamethoxazole within this group.
(d): Fewer test results available for ciprofloxacin/perfloxacin due to change of method late in the year to encompass the *Salmonella*-specific ECOFF and CBP.
(e): Microbiological resistance predicted from whole genome sequencing

Table 7: Combined 'microbiological' and 'clinical' resistance to ciprofloxacin and cefotaxime among *Salmonella* spp. isolates from human cases in 2020

Country	N	Microbiologically resistant to CIP and CTX (%)	Clinically resistant to CIP and CTX (%)
Austria	894	0.3	0.3
Belgium	706	0.4	0.3
Cyprus	44	4.5	4.5
Denmark	252	0.0	0.0
Estonia	95	0.0	0.0
Finland	100	0.0	0.0
France	713	0.4	0.3
Hungary	164	0.0	0.0
Ireland	182	0.5	ND
Italy	872	1.7	1.7
Luxembourg	90	0.0	0.0
Malta	32	0.0	0.0
Netherlands	494	0.8	0.6
Portugal	238	0.0	0.0
Romania	36	0.0	0.0
Slovakia	352	0.3	0.3
Slovenia	183	1.1	1.1
Spain	768	0.4	0.4
Sweden	344	0.6	ND
Total (MSs 19)	**6,559**	**0.6**	**0.5**
Iceland	2	NA	NA
Norway	232	0.4	0.4

N: number of isolates; CIP: ciprofloxacin; CTX: cefotaxime; NA: not applicable –fewer than 10 isolates tested; ND: not determined as resistance predicted from whole genome sequencing

Table 8: Combined 'microbiological' and 'clinical' resistance to ciprofloxacin and cefotaxime among *S.* Enteritidis isolates from human cases in 2020

Country	N	Microbiologically resistant to CIP and CTX (%)	Clinically resistant to CIP and CTX (%)
Austria	386	0.0	0.0
Belgium	172	0.0	0.0
Cyprus	14	0.0	0.0
Denmark	2	NA	NA
Estonia	47	0.0	0.0
Finland	3	NA	NA
France	94	0.0	0.0
Hungary	55	0.0	0.0
Ireland	50	0.0	ND
Italy	80	0.0	0.0
Luxembourg	19	0.0	0.0
Malta	17	0.0	0.0
Netherlands	109	0.0	0.0
Portugal	69	0.0	0.0
Romania	18	0.0	0.0
Slovakia	298	0.3	0.3
Slovenia	41	0.0	0.0
Spain	263	0.0	0.0
Sweden	59	0.0	ND
Total (MSs 19)	**1,796**	**0.1**	**0.1**
Norway	62	0.0	0.0

N: number of isolates; CIP: ciprofloxacin; CTX: cefotaxime; NA: not applicable –fewer than 10 isolates tested; ND: not determined as resistance predicted from whole genome sequencing

Table 9: Combined 'microbiological' and 'clinical' resistance to ciprofloxacin and cefotaxime among *S.* Typhimurium isolates from human cases in 2020

Country	N	Microbiologically resistant to CIP and CTX (%)	Clinically resistant to CIP and CTX (%)
Austria	92	0.0	0.0
Belgium	130	0.8	0.8
Cyprus	9	NA	NA
Denmark	38	0.0	0.0
Estonia	13	0.0	0.0
France	98	1.0	1.0
Hungary	23	0.0	0.0
Ireland	20	0.0	ND
Italy	68	0.0	0.0
Luxembourg	17	0.0	0.0
Netherlands	82	0.0	0.0
Portugal	41	0.0	0.0
Romania	11	0.0	0.0
Slovakia	15	0.0	0.0
Slovenia	39	0.0	0.0
Spain	31	0.0	0.0
Sweden	68	1.5	ND
Total (MSs 17)	**795**	**0.4**	**0.3**
Iceland	1	NA	NA
Norway	52	1.9	1.9

N: number of isolates; CIP: ciprofloxacin; CTX: cefotaxime; NA: not applicable –fewer than 10 isolates tested; ND: not determined as resistance predicted from whole genome sequencing

Table 10: Combined 'microbiological' and 'clinical' resistance to ciprofloxacin and cefotaxime among monophasic *S.* Typhimurium isolates from human cases in 2020

Country	N	Microbiologically resistant to CIP and CTX (%)	Clinically resistant to CIP and CTX (%)
Austria	71	1.4	1.4
Belgium	186	0.5	0.5
Denmark	56	0.0	0.0
Estonia	15	0.0	0.0
France	99	0.0	0.0
Hungary	27	0.0	0.0
Ireland	26	0.0	ND
Italy	296	0.7	0.7
Luxembourg	28	0.0	0.0
Malta	1	NA	NA
Netherlands	109	0.0	0.0
Portugal	73	0.0	0.0
Slovenia	19	10.5	10.5
Spain	189	0.5	0.5
Sweden	49	2.0	ND
Total (MSs 15)	**1244**	**0.6**	**0.6**
Norway	14	0.0	0.0

N: number of isolates; CIP: ciprofloxacin; CTX: cefotaxime; NA: not applicable –fewer than 10 isolates tested; ND: not determined as resistance predicted from whole genome sequencing

Table 11: Combined 'microbiological' and 'clinical' resistance to ciprofloxacin and cefotaxime among *S.* Infantis isolates from human cases in 2020

Country	N	Microbiologically resistant to CIP and CTX (%)	Clinically resistant to CIP and CTX (%)
Austria	35	2.9	2.9
Belgium	42	0.0	0.0
Cyprus	3	NA	NA
Denmark	4	NA	NA
Estonia	1	NA	NA
France	80	0.0	0.0
Hungary	11	0.0	0.0
Ireland	2	NA	NA
Italy	30	40.0	40.0
Luxembourg	3	NA	NA
Malta	3	NA	NA
Netherlands	29	6.9	3.4
Portugal	1	NA	NA
Romania	1	NA	NA
Slovakia	4	NA	NA
Slovenia	8	NA	NA
Spain	18	5.6	5.6
Sweden	4	NA	NA
Total (MSs 18)	**279**	**6.1**	**5.9**
Norway	3	NA	NA

N: number of isolates; CIP: ciprofloxacin; CTX: cefotaxime; NA: not applicable –fewer than 10 isolates tested; ND: not determined as resistance predicted from whole genome sequencing

Table 12: Combined 'microbiological' and 'clinical' resistance to ciprofloxacin and cefotaxime among *S.* Kentucky isolates from human cases in 2020

Country	N	Microbiologically resistant to CIP and CTX (%)	Clinically resistant to CIP and CTX (%)
Austria	3	NA	NA
Belgium	4	NA	NA
Cyprus	1	NA	NA
France	32	6.3	3.1
Italy	1	NA	NA
Malta	2	NA	NA
Netherlands	4	NA	NA
Spain	2	NA	NA
Sweden	1	NA	NA
Total (MSs 9)	**50**	**10.0**	**8.2**

N: number of isolates; CIP: ciprofloxacin; CTX: cefotaxime; NA: not applicable –fewer than 10 isolates tested; ND: not determined as resistance predicted from whole genome sequencing

Table 13: ESBL, AmpC and carbapenemase phenotypes in *Salmonella* spp. isolates from humans by country, 2020

Country	Tested for CTX and/or CAZ	Res to CTX and/or CAZ	Resistance Phenotype								Serovars
			ESBL		AmpC		AmpC + ESBL*		Carbapenemase		
	N	N	N	%	N	%	N	%	N	%	
Austria	894	4	4	0.4							*S.* Bovismorbificans (1), *S.* Kentucky (1), *S.* Infantis (1), monophasic *S.* Typhimurium (1)
Belgium	706	6	2	0.3	2	0.3			1	0.1	*S.* Enteritidis (2), *S.* Typhimurium (1), monophasic *S.* *S.* Typhimurium (1), *S.* Dublin (1)
Denmark	252	1							1	0.4	*S.* Kottbus
Estonia	95	0									
Finland	100	0									
France	713	5	2	0.3	2	0.3					*S.* Derby (1), *S.* Kentucky (1), *S.* Newport (1), *S.* Typhimurium (1)
Ireland	183	1			1	0.5					*S.* Thompson
Italy[(a)]	871	18	17	2.0	1	0.1					*S.* Infantis (11), monophasic *S.* Typhimurium (5), *S.* Derby (1), *S.* Winston (1)
Luxembourg	90	0									
Malta	164	2	1	0.6	1	0.6	1	0.6			*S.* Kentucky (1)
Netherlands	494	4	3	0.6	1	0.2					*S.* Derby (1), *S.* Infantis (1), *S.* Kentucky (1), *S.* Typhimurium (1)
Portugal	238	0									
Romania	36	0									
Spain	768	5	3	0.4	2	0.3					*S.* Bredney (2), *S.* Infantis (1), monophasic *S.* Typhimurium (1), *S.* Saintpaul (1)
Sweden	344	3	3	0.9							*S.* Typhimurium (2), monophasic *S.* Typhimurium (1)
Total (MSs 15)	**5,948**	**49**	**35**	**0.6**	**10**	**0.2**	**1**	**0.02**	**2**	**0.03**	
Iceland	2	0									
Norway	232	1	1	0.4							*S.* Typhimurium

ESBL: extended-spectrum b-lactamase; N: isolates with this phenotype; %: percentage of isolates with this phenotype from the total tested; CTX: cefotaxime; CAZ: ceftazidime; MSs: Member States.
* isolates with both ESBL and AmpC are a subset of those with ESBL and with AmpC
[(a)] In Italy, all isolates resistant to cefotaxime and/or ceftazidime are submitted to the national surveillance system (Enter-Net Italia) for monitoring of the ESBL/AmpC resistance.

Table 14: Complete susceptibility and multiresistance in *Salmonella* spp. from humans in 2020

Country	Susceptible to all (%)	Multiresistant (%)
Austria (N=894)	61.5	12.9
Belgium (N=706)	39.8	35.0
Denmark (N=252)	71.8	19.8
Estonia (N=95)	68.4	22.1
France (N=713)	64.7	19.9
Ireland (N=182)	65.4	12.6
Italy (N=872)	42.7	42.9
Luxembourg (N=90)	41.1	31.1
Netherlands (N=494)	55.3	28.9
Portugal (N=238)	50.8	29.8
Romania (N=36)	38.9	11.1
Slovenia (N=172)	62.8	19.8
Spain (N=766)	55.6	24.2
Sweden (N=344)	77.6	15.1
Total (MS=14) (N=5854)	**55.9**	**25.4**

MSs: Member States; N: number of isolates tested

Table 15: Complete susceptibility and multiresistance in *S.* Enteritidis from humans in 2020

Country	Susceptible to all (%)	Multiresistant (%)
Austria (N=386)	60.6	0.5
Belgium (N=172)	64.0	6.4
Denmark (N=2)	NA	NA
Estonia (N=47)	87.2	0
France (N=94)	91.5	1.1
Ireland (N=50)	52.0	2.0
Italy (N=80)	80.0	5.0
Luxembourg (N=19)	63.2	0
Netherlands (N=109)	71.6	7.3
Portugal (N=69)	85.5	2.9
Romania (N=18)	27.8	0
Slovenia (N=38)	57.9	0
Spain (N=263)	84.8	0
Sweden (N=59)	74.6	3.4
Total (MS=14) (N=1406)	**71.5**	**2.2**

MSs: Member States; N: number of isolates tested; NA: not applicable –fewer than 10 isolates tested

Table 16: Complete susceptibility and multiresistance in *S.* Typhimurium from humans in 2020

Country	Susceptible to all (%)	Multiresistant (%)
Austria (N=92)	50.0	29.3
Belgium (N=130)	25.4	33.8
Denmark (N=38)	84.2	10.5
Estonia (N=13)	38.5	53.8
France (N=98)	54.1	31.6
Ireland (N=20)	75.0	15.0
Italy (N=68)	35.3	50.0
Luxembourg (N=17)	41.2	41.2
Netherlands (N=82)	41.5	36.6
Portugal (N=41)	51.2	39.0
Romania (N=11)	45.5	36.4
Slovenia (N=37)	64.9	24.3
Spain (N=31)	32.3	22.6
Sweden (N=68)	88.2	7.4
Total (MS=14) (N=746)	**49.5**	**30.6**

MSs: Member States; N: number of isolates tested

Table 17: Complete susceptibility and multiresistance in monophasic *S.* Typhimurium from humans in 2020

Country	Susceptible to all (%)	Multiresistant (%)
Austria (N=71)	16.9	64.8
Belgium (N=186)	4.3	79.0
Denmark (N=56)	8.9	69.6
Estonia (N=15)	6.7	86.7
France (N=99)	12.1	62.6
Ireland (N=26)	0.0	57.7
Italy (N=296)	5.4	84.5
Luxembourg (N=28)	3.6	71.4
Netherlands (N=109)	7.3	73.4
Portugal (N=73)	6.8	56.2
Slovenia (N=18)	0.0	88.9
Spain (N=189)	3.7	70.4
Sweden (N=49)	4.1	81.6
Total (MS=13) (N=1215)	**6.3**	**74.2**

MSs: Member States; N: number of isolates tested

Table 18: Complete susceptibility and multiresistance in *S.* Infantis from humans in 2020

Country	Susceptible to all (%)	Multiresistant (%)
Austria (N=35)	22.9	68.6
Belgium (N=42)	28.6	59.5
Denmark (N=4)	NA	NA
Estonia (N=1)	NA	NA
France (N=80)	77.5	16.3
Ireland (N=2)	NA	NA
Italy (N=30)	20.0	80.0
Luxembourg (N=3)	NA	NA
Netherlands (N=29)	55.2	37.9
Portugal (N=1)	NA	NA
Romania (N=1)	NA	NA
Slovenia (N=8)	NA	NA
Spain (N=18)	38.9	50.0
Sweden (N=4)	NA	NA
Total (MS=14) (N=258)	**47.7**	**45.3**

MSs: Member States; N: number of isolates tested; NA: not applicable –fewer than 10 isolates tested

Table 19: Complete susceptibility and multiresistance in *S.* Kentucky from humans in 2020

Country	Susceptible to all (%)	Multiresistant (%)
Austria (N=3)	NA	NA
Belgium (N=4)	NA	NA
France (N=32)	9.4	75.0
Italy (N=1)	NA	NA
Netherlands (N=4)	NA	NA
Spain (N=2)	NA	NA
Sweden (N=1)	NA	NA
Total (MS=7) (N=47)	**10.6**	**76.6**

MSs: Member States; N: number of isolates tested; NA: not applicable –fewer than 10 isolates tested;

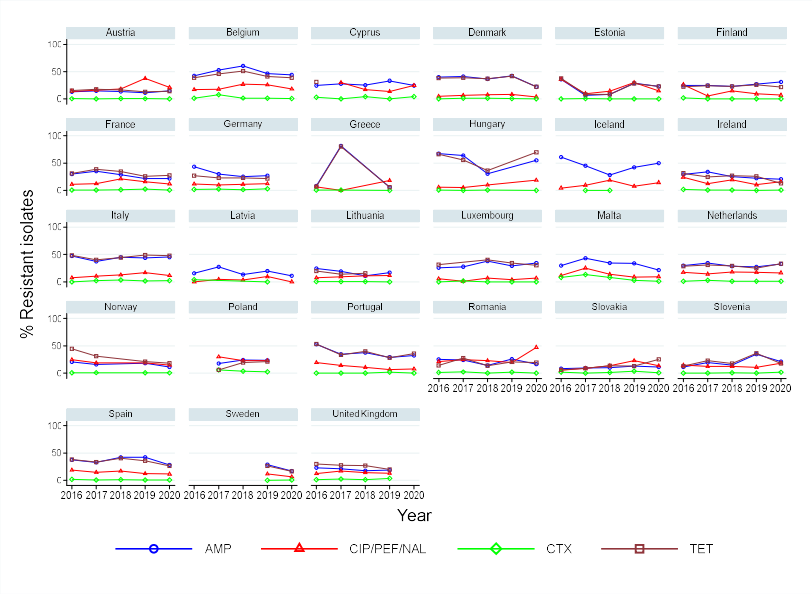

Figure 1: Trends in resistance to ampicillin, ciprofloxacin/pefloxacin/nalidixic acid, cefotaxime and tetracycline in *Salmonella* spp. from humans in 27 reporting countries, 2016–2020

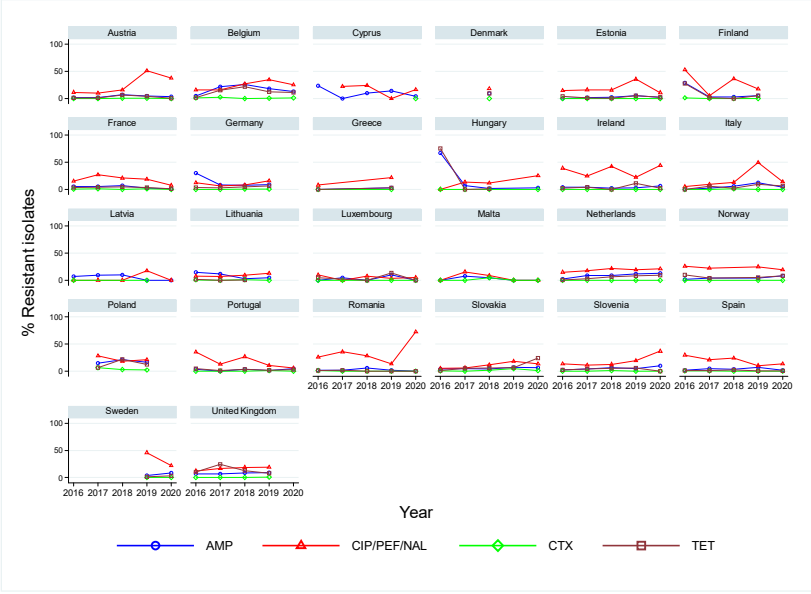

Figure 2: Trends in resistance to ampicillin, ciprofloxacin/pefloxacin/nalidixic acid, cefotaxime and tetracycline in *Salmonella* Enteritidis from humans in 27 reporting countries, 2016–2020

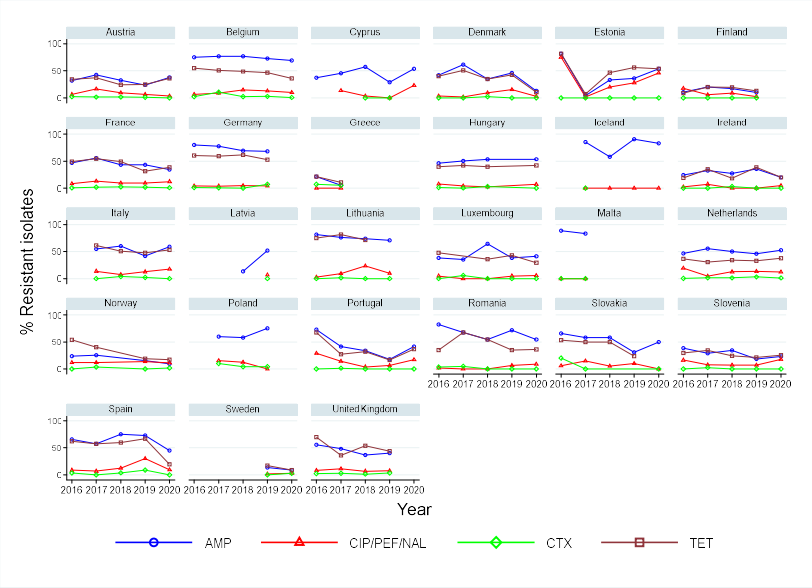

Figure 3: Trends in resistance to ampicillin, ciprofloxacin/pefloxacin/nalidixic acid, cefotaxime and tetracycline in *Salmonella* Typhimurium from humans in 27 reporting countries, 2016–2020

Figure 4: Trends in resistance to ampicillin, ciprofloxacin/pefloxacin/nalidixic acid, cefotaxime and tetracycline in monophasic *Salmonella* Typhimurium from humans in 17 reporting countries, 2016–2020

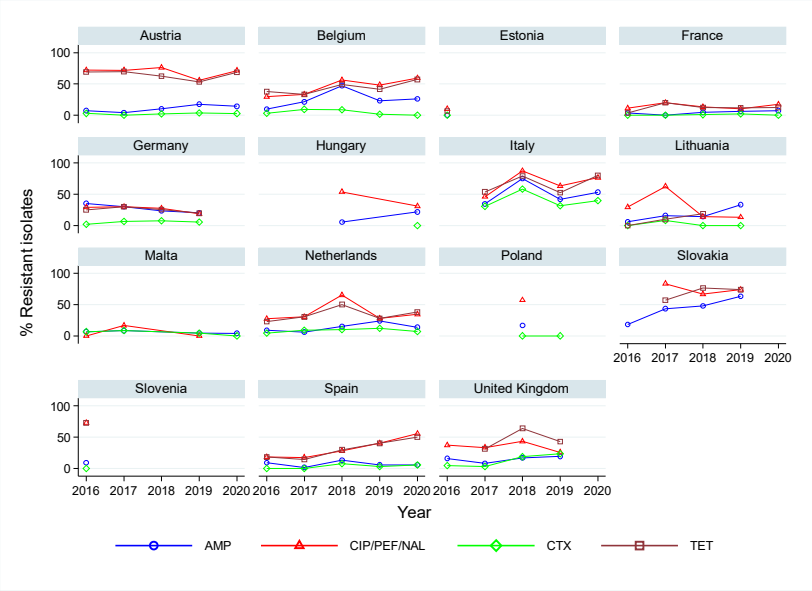

Figure 5: Trends in resistance to ampicillin, ciprofloxacin/pefloxacin/nalidixic acid, cefotaxime and tetracycline in *Salmonella* Infantis from humans in 12 reporting countries, 2016–2020

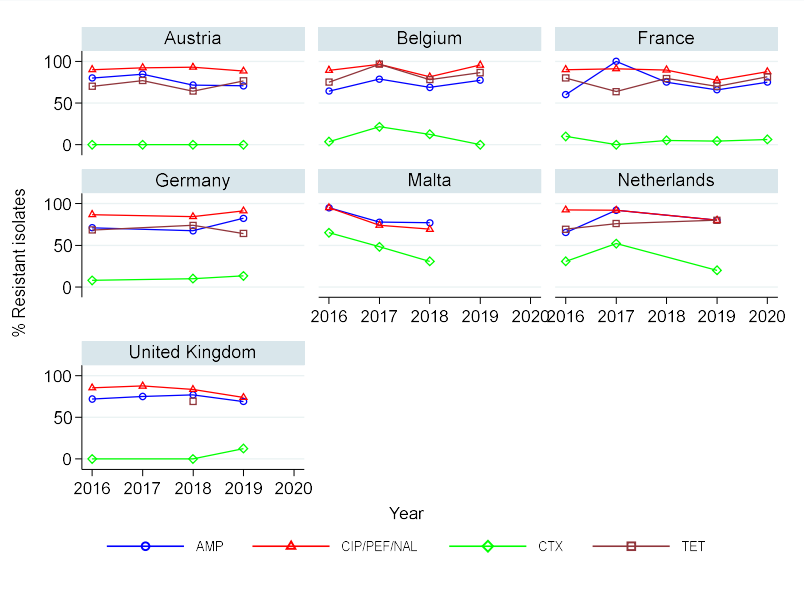

Figure 6: Trends in resistance to ampicillin, ciprofloxacin/pefloxacin/nalidixic acid, cefotaxime and tetracycline in *Salmonella* Kentucky from humans in 7 reporting countries, 2016–2020

A.2. Antimicrobial resistance in *Salmonella* spp. from animal carcases

Table 20: Occurrence of resistance (%) to selected antimicrobials, using harmonised ECOFFs, complete susceptibility and multiresistance to all antimicrobials tested and co-resistance to (fluoro)quinolones and third-generation cephalosporins, in *Salmonella* spp. from fattening pig carcases, 26 MSs and 1 non-MSs, 2019

Country	N	GEN (%)	CHL (%)	AMP (%)	CTX (%)	CAZ (%)	MEM (%)	TGC (%)	NAL (%)	CIP (%)	AZM (%)	COL (%)	SMX (%)	TMP (%)	TET (%)	CS	MDR	Resistance to both CIP/CTX, applying ECOFFs	Resistance to both CIP/CTX, applying CBPs
Austria[a]	5	100	0	100	0	0	0	0	0	0	0	0	100	0	100	0	100	0	0
Belgium	103	0	12.6	56.3	0	0	0	0	1.9	2.9	1	4.9	53.4	28.2	43.7	34	43.7	0	0
Bulgaria[a]	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0
Croatia	46	4.3	34.8	41.3	0	0	0	0	4.3	13	4.3	0	56.5	26.1	45.7	28.3	43.5	0	0
Cyprus[a]	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0
Czechia	11	0	27.3	63.6	9.1	9.1	0	0	9.1	9.1	0	0	63.6	0	72.7	9.1	63.6	0	0
Denmark	125	4	6.4	45.6	0	0	0	0	0	0	1.6	0	52.8	19.2	45.6	39.2	42.4	0	0
Estonia[a]	9	0	0	11.1	0	0	0	0	0	0	0	0	0	0	0	88.9	0	0	0
Finland[a]	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0
France	204	1	4.9	44.1	0	0	0	1.5	0	0.5	0	2.5	58.8	2.5	58.8	33.3	37.7	0	0
Germany	15	6.7	20	53.3	0	0	0	0	0	0	0	0	40	26.7	26.7	46.7	33.3	0	0
Greece[a]	2	0	50	50	0	0	0	0	0	0	0	0	50	50	50	50	50	0	0
Hungary	30	0	3.3	43.3	0	0	0	0	13.3	13.3	0	0	43.3	6.7	46.7	46.7	43.3	0	0
Ireland	62	19.4	21	67.7	0	0	0	1.6	1.6	1.6	0	1.6	66.1	25.8	56.5	24.2	50	0	0
Italy	197	4.6	18.8	47.2	1	1	0	0	5.6	8.1	2.5	0	43.7	13.7	54.8	35.5	40.1	0	0
Latvia[a]	6	0	0	50	0	0	0	0	0	0	0	0	50	0	50	50	50	0	0
Malta	10	10	0	10	0	0	0	0	10	10	0	0	10	0	20	80	10	0	0
Netherlands	23	4.3	0	26.1	4.3	4.3	0	21.7	4.3	4.3	0	4.3	30.4	17.4	34.8	52.2	21.7	4.3	0
Poland	20	0	25	45	0	0	0	0	0	5	0	0	45	40	40	40	45	0	0
Portugal	17	5.9	23.5	82.4	0	0	0	0	0	0	64.7	17.6	88.2	64.7	82.4	5.9	88.2	0	0
Romania[a]	3	0	33.3	33.3	33.3	33.3	0	0	0	33.3	0	0	33.3	33.3	0	66.7	33.3	33.3	0

Slovakia	9	0	11.1	33.3	0	0	0	0	0	0	0	0	33.3	0	33.3	66.7	33.3	0	0
Slovenia[(a)]	4	0	25	25	0	0	0	0	0	25	0	0	25	25	25	75	25	0	0
Spain	166	10.8	24.7	59	0	0	0	0.6	26.5	30.7	3	1.8	59.6	25.3	67.5	21.7	57.8	0	0
Sweden[(a)]	1	0	100	100	0	0	0	0	0	0	0	0	100	0	100	0	100	0	0
United Kingdom[(a)]	9	0	0	11.1	0	0	0	0	0	0	0	22.2	11.1	0	33.3	66.7	11.1	0	0
Total (26 MSs)	**1,088**	**5.2**	**14.6**	**48.9**	**0.5**	**0.5**	**0**	**0.9**	**6.2**	**8.1**	**2.4**	**1.8**	**52.1**	**17.2**	**52.7**	**34.7**	**43.4**	**0.2**	**0**
Iceland	10	0	0	40	0	0	0	0	0	0	0	0	40	50	40	40	30	0	0
Total (MSs and non-MSs)	**1098**	**5.2**	**14.5**	**48.8**	**0.5**	**0.5**	**0**	**0.9**	**6.1**	**8**	**2.4**	**1.8**	**52**	**17.5**	**52.6**	**34.7**	**43.3**	**0.2**	**0**

N: total number of isolates tested; %: percentage of isolates with this phenotype from the total tested; GEN: gentamicin; CHL: chloramphenicol; AMP: ampicillin; CTX: cefotaxime; CAZ: Ceftazidime; MEM: meropenem; TGC: tigecycline, NAL: nalidixic acid; CIP: ciprofloxacin; AZM: azithromycin; COL: colistin; SMX: sulfamethoxazole; TMP: trimethoprim; TET: tetracycline.
CS: percentage of isolates showing complete susceptibility to all antimicrobial classes of the harmonised set for *Escherichia coli*; MDR: percentage of isolates showing resistance to at least 3 antimicrobial classes of the harmonised set for *Escherichia coli*
MSs: Member States; ECOFFS: epidemiological cut-off values; CBPs: clinical breakpoints
(a): The occurrence of resistance is assessed on less than 10 isolates and should only be considered as part of the total of MSs data and/or the total of MSs and non-MSs.

Table 21: Occurrence of resistance (%) to selected antimicrobials, using harmonised ECOFFs, complete susceptibility and multiresistance to all antimicrobials tested and co-resistance to (fluoro)quinolones and third-generation cephalosporins, in *Salmonella* spp. from carcases of calves under one year of age, 7 MSs, 2019

Country	N	GEN (%)	CHL (%)	AMP (%)	CTX (%)	CAZ (%)	MEM (%)	TGC (%)	NAL (%)	CIP (%)	AZM (%)	COL (%)	SMX (%)	TMP (%)	TET (%)	CS	MDR	Resistance to both CIP/CTX, applying ECOFFs	Resistance to both CIP/CTX, applying CBPs
Belgium[a]	2	0	0	50	0	0	0	0	0	0	0	100	100	50	50	0	50	0	0
Croatia[a]	4	0	0	25	0	0	0	0	0	0	0	0	25	25	25	75	25	0	0
Denmark[a]	4	0	0	0	0	0	0	0	0	0	0	100	0	0	0	- [b]	0	0	0
France	43	0	9.3	25.6	0	0	0	7	0	2.3	0	14	34.9	7	55.8	41.9	27.9	0	0
Germany[a]	4	0	0	25	0	0	0	0	0	0	0	50	25	0	25	75	25	0	0
Netherlands[a]	2	0	0	0	0	0	0	0	0	0	0	100	0	0	0	- [b]	0	0	0
Spain	32	0	0	18.8	0	0	0	0	3.1	3.1	0	0	31.3	6.3	34.4	53.1	18.8	0	0
Total (7 MSs)	**91**	**0**	**4.4**	**22**	**0**	**0**	**0**	**3.3**	**1.1**	**2.2**	**0**	**17.6**	**31.9**	**7.7**	**41.8**	**51.6**	**23.1**	**0**	**0**

N: total number of isolates tested; %: percentage of isolates with this phenotype from the total tested; GEN: gentamicin; CHL: chloramphenicol; AMP: ampicillin; CTX: cefotaxime; CAZ: Ceftazidime; MEM: meropenem; TGC: tigecycline, NAL: nalidixic acid; CIP: ciprofloxacin; AZM: azithromycin; COL: colistin; SMX: sulfamethoxazole; TMP: trimethoprim; TET: tetracycline.
CS: percentage of isolates showing complete susceptibility to all antimicrobial classes of the harmonised set for Escherichia coli; MDR: percentage of isolates showing resistance to at least 3 antimicrobial classes of the harmonised set for Escherichia coli
MSs: Member States; ECOFFS: epidemiological cut-off values; CBPs: clinical breakpoints
(a): The occurrence of resistance is assessed on less than 10 isolates and should only be considered as part of the total of MSs data and/or the total of MSs and non-MSs.
(b): Colistin is not included in the calculation of complete susceptibility. Further information is found in Appendix F. Materials and Methods available at https://doi.org/10.2903/j.efsa.2022.7209

Table 22: Occurrence of resistance (%) to selected antimicrobials, using harmonised ECOFFs, complete susceptibility and multiresistance to all antimicrobials tested and co-resistance to (fluoro)quinolones and third-generation cephalosporins, in *Salmonella* spp. from carcasses of broilers, 18 MSs and 2 non-MSs, 2020

Country	N	GEN (%)	CHL (%)	AMP (%)	CTX (%)	CAZ (%)	MEM (%)	TGC (%)	NAL (%)	CIP (%)	AZM (%)	COL (%)	SMX (%)	TMP (%)	TET (%)	CS	MDR	Resistance to both CIP/CTX, applying ECOFFs	Resistance to both CIP/CTX, applying CBPs
Austria	61	0.0	0.0	0.0	0.0	0.0	0.0	0.0	73.8	73.8	0.0	0.0	73.8	0.0	73.8	26.2	73.8	0.0	0.0
Belgium	28	0.0	0.0	60.7	0.0	0.0	0.0	0.0	85.7	85.7	3.6	0.0	64.3	57.1	53.6	0.0	78.6	0.0	0.0
Bulgaria[(a)]	6	0.0	0.0	16.7	0.0	0.0	0.0	0.0	33.3	100	0.0	0.0	33.3	16.7	33.3	0.0	33.3	0.0	0.0
Croatia	55	0.0	0.0	21.8	0.0	0.0	0.0	0.0	76.4	76.4	0.0	0.0	27.3	0.0	23.6	20.0	21.8	0.0	0.0
Cyprus[(a)]	8	12.5	12.5	12.5	0.0	0.0	0.0	25.0	75.0	75.0	0.0	12.5	75.0	37.5	75.0	25.0	75.0	0.0	0.0
Czechia	25	0.0	0.0	8.0	0.0	0.0	0.0	0.0	52.0	56.0	0.0	0.0	32.0	0.0	32.0	44.0	32.0	0.0	0.0
France	106	4.7	14.2	11.3	0.0	0.0	0.0	0.0	0.9	0.9	0.0	0.9	9.4	8.5	1.9	74.5	9.4	0.0	0.0
Germany	23	0.0	4.3	21.7	0.0	0.0	0.0	0.0	43.5	43.5	4.3	4.3	21.7	26.1	13.0	56.5	39.1	0.0	0.0
Hungary	121	0.0	0.0	22.3	0.0	0.0	0.0	2.5	86.0	93.4	0.0	0.0	57.9	0.0	66.1	6.6	58.7	0.0	0.0
Ireland[(a)]	2	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	100	0.0	0.0	0.0
Italy	14	0.0	7.1	42.9	7.1	7.1	0.0	0.0	78.6	71.4	21.4	0.0	42.9	35.7	64.3	14.3	42.9	7.1	0.0
Malta	10	30.0	0.0	50.0	0.0	0.0	0.0	0.0	20.0	20.0	10.0	0.0	30.0	10.0	20.0	50.0	30.0	0.0	0.0
Poland	167	7.2	0.0	24.6	0.0	0.0	0.0	0.0	79.0	82.6	5.4	1.2	63.5	5.4	63.5	17.4	63.5	0.0	0.0
Portugal[(a)]	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100	0.0	0.0	0.0	100	0.0	0.0	0.0
Romania	22	0.0	0.0	4.5	0.0	0.0	0.0	0.0	100	100	0.0	0.0	81.8	13.6	81.8	0.0	81.8	0.0	0.0
Slovakia	125	0.0	0.0	27.2	0.0	0.0	0.0	0.0	72.0	76.0	0.0	0.0	47.2	0.0	46.4	24.0	46.4	0.0	0.0
Slovenia[(a)]	7	0.0	0.0	14.3	0.0	0.0	0.0	14.3	85.7	85.7	0.0	0.0	85.7	0.0	85.7	14.3	85.7	0.0	0.0
Spain	124	0.0	13.7	2.4	0.0	0.0	0.0	6.5	75.0	75.0	2.4	6.5	83.9	75.8	83.1	8.9	83.1	0.0	0.0
Total (18 MSs)	**905**	**2.3**	**3.9**	**18.6**	**0.1**	**0.1**	**0.0**	**1.5**	**66.6**	**69.3**	**2.0**	**1.5**	**53.1**	**16.2**	**52.6**	**24.4**	**53.6**	**0.1**	**0.0**
Iceland[(a)]	10	0.0	0.0	10.0	10.0	10.0	0.0	0.0	10.0	10.0	0.0	0.0	10.0	10.0	10.0	90.0	10.0	10.0	0.0
United Kingdom	69	0.0	1.4	23.2	0.0	0.0	0.0	0.0	0.0	21.7	1.4	1.4	29.0	29.0	26.1	69.6	26.1	0.0	0.0

N: total number of isolates tested; %: percentage of isolates with this phenotype from the total tested; GEN: gentamicin; CHL: chloramphenicol; AMP: ampicillin; CTX: cefotaxime; CAZ: Ceftazidime; MEM: meropenem; TGC: tigecycline, NAL: nalidixic acid; CIP: ciprofloxacin; AZM: azithromycin; COL: colistin; SMX: sulfamethoxazole; TMP: trimethoprim; TET: tetracycline.
CS: percentage of isolates showing complete susceptibility to all antimicrobial classes of the harmonised set for *Escherichia coli*; MDR: percentage of isolates showing resistance to at least 3 antimicrobial classes of the harmonised set for *Escherichia coli;* MSs: Member States; ECOFFS: epidemiological cut-off values; CBPs: clinical breakpoints
(a): The occurrence of resistance is assessed on less than 10 isolates and should only be considered as part of the total of MSs data and/or the total of MSs and non-MSs.

Table 23: Occurrence of resistance (%) to selected antimicrobials, using harmonised ECOFFs, complete susceptibility and multiresistance to all antimicrobials tested and co-resistance to (fluoro)quinolones and third-generation cephalosporins, in *Salmonella* spp. from carcasses of fattening turkeys, 8MSs, 2020

Country	N	GEN (%)	CHL (%)	AMP (%)	CTX (%)	CAZ (%)	MEM (%)	TGC (%)	NAL (%)	CIP (%)	AZM (%)	COL (%)	SMX (%)	TMP (%)	TET (%)	CS	MDR	Resistance to both CIP/CTX, applying ECOFFs	Resistance to both CIP/CTX, applying CBPs
Austria[(a)]	2	0.0	100.0	100.0	0.0	0.0	0.0	0.0	50.0	50.0	0.0	0.0	100.0	50.0	100.0	0.0	100.0	0	0
Czechia[(a)]	3	0.0	66.7	66.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	66.7	0.0	66.7	33.3	66.7	0	0
France	148	0.0	2.0	6.1	0.0	0.0	0.0	1.4	17.6	17.6	0.0	1.4	4.1	2.7	59.5	40.5	6.8	0	0
Germany	67	0.0	0.0	14.9	0.0	0.0	0.0	0.0	38.8	68.7	1.5	4.5	14.9	1.5	14.9	16.4	14.9	0	0
Hungary	46	8.7	4.3	39.1	0.0	0.0	0.0	13.0	65.2	87.0	2.2	0.0	23.9	2.2	54.3	8.7	43.5	0	0
Italy[(a)]	1	0.0	0.0	100.0	0.0	0.0	0.0	0.0	100.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0
Poland	19	15.8	10.5	42.1	0.0	0.0	0.0	0.0	21.1	84.2	0.0	0.0	47.4	0.0	52.6	5.3	42.1	0	0
Spain	34	2.9	8.8	32.4	0.0	0.0	0.0	0.0	47.1	58.8	0.0	0.0	20.6	14.7	50.0	32.4	26.5	0	0
Total (8MSs)	**320**	**2.5**	**4.4**	**19.1**	**0.0**	**0.0**	**0.0**	**2.5**	**32.5**	**46.9**	**0.6**	**1.6**	**14.7**	**3.8**	**48.1**	**27.5**	**19.1**	**0**	**0**

N: total number of isolates tested; %: percentage of isolates with this phenotype from the total tested; GEN: gentamicin; CHL: chloramphenicol; AMP: ampicillin; CTX: cefotaxime; CAZ: Ceftazidime; MEM: meropenem; TGC: tigecycline, NAL: nalidixic acid; CIP: ciprofloxacin; AZM: azithromycin; COL: colistin; SMX: sulfamethoxazole; TMP: trimethoprim; TET: tetracycline.
CS: percentage of isolates showing complete susceptibility to all antimicrobial classes of the harmonised set for *Escherichia coli*; MDR: percentage of isolates showing resistance to at least 3 antimicrobial classes of the harmonised set for *Escherichia coli*
MSs: Member States; ECOFFS: epidemiological cut-off values; CBPs: clinical breakpoints
(a): The occurrence of resistance is assessed on less than 10 isolates and should only be considered as part of the total of MSs data and/or the total of MSs and non-MSs.

A.3. Antimicrobial resistance in *Salmonella* spp. from food-producing animals

Table 24: Occurrence of resistance (%) to selected antimicrobials, using harmonised ECOFFs, complete susceptibility and multiresistance to all antimicrobials tested and co-resistance to (fluoro)quinolones and third-generation cephalosporins, in *Salmonella* spp. from fattening pigs, 8 MSs, 2019

Country	N	GEN (%)	CHL (%)	AMP (%)	CTX (%)	CAZ (%)	MEM (%)	TGC (%)	NAL (%)	CIP (%)	AZM (%)	COL (%)	SMX (%)	TMP (%)	TET (%)	CS	MDR	Resistance to both CIP/CTX, applying ECOFFs	Resistance to both CIP/CTX, applying CBPs
Croatia	60	1.7	13.3	53.3	0	0	0	0	20	20	0	0	55	21.7	53.3	35	50	0	0
Denmark	122	6.6	6.6	35.2	0	0	0	0	0	0	0	0	41	18	46.7	43.4	36.1	0	0
Estonia[(a)]	5	0	20	40	0	0	0	0	0	0	0	0	40	0	20	60	20	0	0
Finland[(a)]	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0
Germany	42	0	19	47.6	0	0	0	0	2.4	2.4	2.4	4.8	47.6	21.4	50	42.9	42.9	0	0
Italy	109	8.3	16.5	37.6	3.7	3.7	0	0.9	1.8	6.4	0	0.9	41.3	13.8	45	46.8	36.7	0.9	0
Netherlands	10	0	10	50	0	0	0	0	0	0	0	0	30	0	40	40	30	0	0
Slovenia[(a)]	9	0	22.2	22.2	0	0	0	0	11.1	11.1	0	0	22.2	11.1	11.1	77.8	22.2	0	0
Total (8 MSs)	**359**	**5**	**12.8**	**40.4**	**1.1**	**1.1**	**0**	**0.3**	**4.5**	**5.8**	**0.3**	**0.8**	**43.2**	**16.7**	**46**	**44.3**	**38.4**	**0.3**	**0**

N: total number of isolates tested; %: percentage of isolates with this phenotype from the total tested; GEN: gentamicin; CHL: chloramphenicol; AMP: ampicillin; CTX: cefotaxime; CAZ: Ceftazidime; MEM: meropenem; TGC: tigecycline, NAL: nalidixic acid; CIP: ciprofloxacin; AZM: azithromycin; COL: colistin; SMX: sulfamethoxazole; TMP: trimethoprim; TET: tetracycline.
CS: percentage of isolates showing complete susceptibility to all antimicrobial classes of the harmonised set for *Escherichia coli*; MDR: percentage of isolates showing resistance to at least 3 antimicrobial classes of the harmonised set for *Escherichia coli*
MSs: Member States; ECOFFS: epidemiological cut-off values; CBPs: clinical breakpoints
(a): The occurrence of resistance is assessed on less than 10 isolates and should only be considered as part of the total of MSs data and/or the total of MSs and non-MSs.

Table 25: Occurrence of resistance (%) to selected antimicrobials, using harmonised ECOFFs, complete susceptibility and multiresistance to all antimicrobials tested and co-resistance to (fluoro)quinolones and third-generation cephalosporins, in *Salmonella* spp. from calves under one year of age, 3 MSs, 2019

Country	N	GEN (%)	CHL (%)	AMP (%)	CTX (%)	CAZ (%)	MEM (%)	TGC (%)	NAL (%)	CIP (%)	AZM (%)	COL (%)	SMX (%)	TMP (%)	TET (%)	CS	MDR	Resistance to both CIP/CTX, applying ECOFFs	Resistance to both CIP/CTX, applying CBPs
Croatia[(a)]	8	0	12.5	37.5	0	0	0	0	0	0	0	0	25	0	25	62.5	25	0	0
Italy	20	30	35	70	0	0	0	5	15	25	0	0	60	30	75	25	75	0	0
Spain	36	0	5.6	11.1	0	0	0	0	5.6	8.3	0	5.6	16.7	2.8	33.3	58.3	16.7	0	0
Total (3 MSs)	**64**	**9.4**	**15.6**	**32.8**	**0**	**0**	**0**	**1.6**	**7.8**	**12.5**	**0**	**3.1**	**31.3**	**10.9**	**45.3**	**48.4**	**35.9**	**0**	**0**

N: total number of isolates tested; %: percentage of isolates with this phenotype from the total tested; GEN: gentamicin; CHL: chloramphenicol; AMP: ampicillin; CTX: cefotaxime; CAZ: Ceftazidime; MEM: meropenem; TGC: tigecycline, NAL: nalidixic acid; CIP: ciprofloxacin; AZM: azithromycin; COL: colistin; SMX: sulfamethoxazole; TMP: trimethoprim; TET: tetracycline.
CS: percentage of isolates showing complete susceptibility to all antimicrobial classes of the harmonised set for *Escherichia coli*; MDR: percentage of isolates showing resistance to at least 3 antimicrobial classes of the harmonised set for *Escherichia coli*
MSs: Member States; ECOFFS: epidemiological cut-off values; CBPs: clinical breakpoints
(a): The occurrence of resistance is assessed on less than 10 isolates and should only be considered as part of the total of MSs data and/or the total of MSs and non-MSs.

Table 26: Occurrence of resistance (%) to selected antimicrobials, using harmonised ECOFFs, complete susceptibility and multiresistance to all antimicrobials tested and co-resistance to (fluoro)quinolones and third-generation cephalosporins, in *Salmonella* spp. from broiler flocks, 22 MSs and 3 non-MS, 2020

Country	N	GEN (%)	CHL (%)	AMP (%)	CTX (%)	CAZ (%)	MEM (%)	TGC (%)	NAL (%)	CIP (%)	AZM (%)	COL (%)	SMX (%)	TMP (%)	TET (%)	CS	MDR	Resistance to both CIP/CTX, applying ECOFFs	Resistance to both CIP/CTX, applying CBPs
Austria	170	0.0	0.0	2.9	1.2	1.2	0.0	0.6	72.4	72.4	0.0	0.0	70.6	1.8	70.6	25.9	71.8	1.2	0.0
Belgium	164	4.3	9.1	37.8	0.0	0.0	0.0	0.6	28.7	29.3	1.8	4.3	59.8	51.8	24.4	33.5	41.5	0.0	0.0
Bulgaria[a]	4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0
Croatia	85	0.0	0.0	11.8	0.0	0.0	0.0	0.0	68.2	68.2	0.0	0.0	11.8	4.7	7.1	30.6	10.6	0.0	0.0
Cyprus	17	23.5	23.5	29.4	5.9	5.9	5.9	0.0	47.1	47.1	0.0	17.6	100.0	94.1	100.0	0.0	100.0	5.9	0.0
Czechia	85	0.0	0.0	5.9	0.0	0.0	0.0	0.0	27.1	34.1	0.0	8.2	7.1	0.0	7.1	64.7	7.1	0.0	0.0
Denmark[a]	9	0.0	11.1	33.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.2	11.1	44.4	55.6	22.2	0.0	0.0
Finland[a]	1	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	100.0	0.0	0.0	0.0
France	168	1.8	1.8	10.1	0.6	0.6	0.0	0.0	4.8	4.8	0.0	2.4	13.1	8.3	10.7	78.0	11.9	0.6	0.0
Germany	17	0.0	5.9	5.9	0.0	0.0	0.0	0.0	35.3	41.2	0.0	23.5	35.3	17.6	23.5	41.2	29.4	0.0	0.0
Greece	20	0.0	0.0	10.0	0.0	0.0	0.0	0.0	25.0	65.0	5.0	10.0	30.0	15.0	25.0	35.0	30.0	0.0	0.0
Hungary	170	1.2	0.0	20.0	0.6	1.8	0.0	4.1	89.4	91.8	1.8	1.2	59.4	0.0	65.3	7.1	60.6	0.6	0.0
Ireland[a]	6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.7	16.7	0.0	0.0	0.0	0.0	0.0	83.3	0.0	0.0	0.0
Italy	214	1.9	8.9	35.0	13.6	13.1	0.0	0.0	71.5	73.4	4.2	2.3	59.3	47.2	58.9	23.4	61.7	13.6	0.0
Latvia	10	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	100.0	0.0	0.0	0.0
Malta	52	9.6	7.7	46.2	13.5	13.5	0.0	0.0	34.6	34.6	1.9	0.0	23.1	1.9	26.9	40.4	34.6	13.5	13.5
Poland	208	0.5	1.0	22.6	0.0	0.0	0.0	0.5	82.2	84.6	5.3	2.9	47.6	3.8	46.6	15.4	47.6	0.0	0.0
Portugal	16	0.0	0.0	18.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.8	6.3	18.8	81.3	18.8	0.0	0.0
Romania	170	2.9	0.6	21.2	0.0	0.0	0.0	1.2	48.8	61.8	2.9	3.5	29.4	4.1	37.1	35.3	35.9	0.0	0.0
Slovakia	35	0.0	0.0	48.6	0.0	0.0	0.0	0.0	65.7	65.7	0.0	0.0	57.1	0.0	57.1	31.4	57.1	0.0	0.0
Slovenia	164	0.0	0.0	36.0	0.0	0.0	0.0	3.7	75.6	75.6	3.0	0.6	72.6	1.8	70.7	20.1	72.0	0.0	0.0
Spain	170	0.0	5.9	11.8	0.0	0.0	0.0	0.6	32.4	41.8	1.8	1.8	33.5	25.3	32.9	50.6	31.2	0.0	0.0
Total (22 MSs)	**1,955**	**1.6**	**3.1**	**21.7**	**2.1**	**2.1**	**0.1**	**1.0**	**54.1**	**57.5**	**2.1**	**2.6**	**45.0**	**15.0**	**42.3**	**34.0**	**44.1**	**2.1**	**0.4**

Iceland	10	0.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	0.0	10.0	90.0	10.0	0.0	0.0
Norway[(a)]	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0
United Kingdom	168	0.0	0.6	4.2	0.0	0.0	0.0	2.4	0.0	2.4	0.0	0.0	25.0	19.6	18.5	72.0	17.9	0.0	0.0
Total (MSs and non-MSs)	**2,134**	**1.5**	**2.9**	**20.3**	**1.9**	**2**	**0**	**1.1**	**49.6**	**52.9**	**1.9**	**2.4**	**43.2**	**15.3**	**40.2**	**37.3**	**41.8**	**1.9**	**0.3**

N: total number of isolates tested; %: percentage of isolates with this phenotype from the total tested; GEN: gentamicin; CHL: chloramphenicol; AMP: ampicillin; CTX: cefotaxime; CAZ: Ceftazidime; MEM: meropenem; TGC: tigecycline, NAL: nalidixic acid; CIP: ciprofloxacin; AZM: azithromycin; COL: colistin; SMX: sulfamethoxazole; TMP: trimethoprim; TET: tetracycline.
CS: percentage of isolates showing complete susceptibility to all antimicrobial classes of the harmonised set for *Escherichia coli*; MDR: percentage of isolates showing resistance to at least 3 antimicrobial classes of the harmonised set for *Escherichia coli*
MSs: Member States; ECOFFS: epidemiological cut-off values; CBPs: clinical breakpoints
(a): The occurrence of resistance is assessed on less than 10 isolates and should only be considered as part of the total of MSs data and/or the total of MSs and non-MSs.

Table 27: Occurrence of resistance (%) to selected antimicrobials, using harmonised ECOFFs, complete susceptibility and multiresistance to all antimicrobials tested and co-resistance to (fluoro)quinolones and third-generation cephalosporins, in *Salmonella* spp. from laying hen flocks, 24 MSs and 2 non-MS, 2020

Country	N	GEN (%)	CHL (%)	AMP (%)	CTX (%)	CAZ (%)	MEM (%)	TGC (%)	NAL (%)	CIP (%)	AZM (%)	COL (%)	SMX (%)	TMP (%)	TET (%)	CS	MDR	Resistance to both CIP/CTX, applying ECOFFs	Resistance to both CIP/CTX, applying CBPs
Austria	26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.2	0.0	0.0	7.7	92.3	0.0	0.0	0.0
Belgium	40	2.5	2.5	15.0	0.0	0.0	0.0	0.0	12.5	10.0	0.0	22.5	20.0	7.5	17.5	77.5	17.5	0.0	0.0
Bulgaria	23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.4	17.4	0.0	0.0	30.4	0.0	8.7	60.9	8.7	0.0	0.0
Croatia	31	0.0	0.0	3.2	0.0	0.0	0.0	0.0	6.5	6.5	0.0	0.0	6.5	3.2	3.2	83.9	0.0	0.0	0.0
Cyprus	23	13.0	13.0	13.0	0.0	0.0	0.0	0.0	30.4	30.4	0.0	34.8	30.4	30.4	30.4	69.6	30.4	0.0	0.0
Czechia	20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	10.0	0.0	0.0	0.0	0.0	0.0	90.0	0.0	0.0	0.0
Estonia[a]	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.3	33.3	0.0	66.7	0.0	0.0	0.0	66.7	0.0	0.0	0.0
Finland[a]	1	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	100	0.0	0.0	0.0
France	166	0.0	0.6	3.0	0.0	0.0	0.0	0.0	0.6	0.6	0.0	4.2	1.8	0.6	0.6	96.4	1.2	0.0	0.0
Germany	78	0.0	1.3	2.6	0.0	0.0	0.0	0.0	1.3	1.3	0.0	26.9	2.6	0.0	2.6	96.2	2.6	0.0	0.0
Greece	19	5.3	0.0	5.3	0.0	0.0	0.0	0.0	10.5	21.1	5.3	0.0	10.5	0.0	0.0	63.2	0.0	0.0	0.0
Hungary	30	3.3	0.0	16.7	6.7	6.7	0.0	0.0	16.7	16.7	0.0	6.7	13.3	0.0	13.3	73.3	13.3	0.0	0.0
Ireland[a]	3	0.0	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.3	33.3	33.3	66.7	33.3	0.0	0.0
Italy	172	0.6	1.7	5.2	1.2	1.2	0.0	0.0	60.5	60.5	1.7	2.9	8.1	5.2	9.9	36.6	7.0	1.2	0.0
Latvia[a]	5	0.0	0.0	20.0	0.0	0.0	0.0	0.0	20.0	20.0	0.0	60.0	0.0	0.0	20.0	60.0	0.0	0.0	0.0
Malta	30	0.0	3.3	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	96.7	0.0	0.0	0.0
Netherlands[a]	3	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	100	0.0	0.0	0.0
Poland	104	0.0	1.0	1.9	0.0	0.0	0.0	1.0	22.1	25.0	0.0	1.0	1.9	0.0	1.9	72.1	1.0	0.0	0.0
Portugal	16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.3	0.0	0.0	0.0	100	0.0	0.0	0.0
Romania	41	7.3	2.4	14.6	0.0	0.0	0.0	0.0	29.3	34.1	0.0	2.4	22.0	0.0	22.0	58.5	26.8	0.0	0.0
Slovakia	12	8.3	0.0	8.3	0.0	0.0	0.0	0.0	25.0	33.3	0.0	0.0	16.7	0.0	16.7	58.3	16.7	0.0	0.0
Slovenia[a]	6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	50.0	0.0	0.0	33.3	0.0	33.3	50.0	33.3	0.0	0.0
Spain	170	0.6	2.4	5.3	0.0	0.0	0.0	0.6	5.9	7.1	0.6	4.7	5.3	4.1	7.1	85.9	5.3	0.0	0.0

Sweden[(a)]	8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.5	12.5	0.0	12.5	0.0	0.0	0.0	87.5	0.0	0.0	0.0
Total (24 MSs)	**1,030**	**1.2**	**1.6**	**5.1**	**0.4**	**0.4**	**0.0**	**0.2**	**18.2**	**19.0**	**0.5**	**7.2**	**7.2**	**2.8**	**7.0**	**75.6**	**6.0**	**0.2**	**0.0**
Rep. of North Macedonia[(a)]	7	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	28.6	71.4	0.0	0.0	0.0
United Kingdom	74	2.7	2.7	9.5	0.0	0.0	0.0	0.0	0.0	5.4	0.0	12.2	10.8	10.8	9.5	89.2	10.8	0.0	0.0
Total (MSs and non-MSs)	**1,111**	**1.3**	**1.6**	**5.4**	**0.4**	**0.4**	**0**	**0.2**	**16.8**	**18**	**0.5**	**7.5**	**7.4**	**3.3**	**7.3**	**76.5**	**6.3**	**0.2**	**0**

N: total number of isolates tested; %: percentage of isolates with this phenotype from the total tested; GEN: gentamicin; CHL: chloramphenicol; AMP: ampicillin; CTX: cefotaxime; CAZ: Ceftazidime; MEM: meropenem; TGC: tigecycline, NAL: nalidixic acid; CIP: ciprofloxacin; AZM: azithromycin; COL: colistin; SMX: sulfamethoxazole; TMP: trimethoprim; TET: tetracycline.
CS: percentage of isolates showing complete susceptibility to all antimicrobial classes of the harmonised set for *Escherichia coli*; MDR: percentage of isolates showing resistance to at least 3 antimicrobial classes of the harmonised set for *Escherichia coli*
MSs: Member States; ECOFFS: epidemiological cut-off values; CBPs: clinical breakpoints
(a): The occurrence of resistance is assessed on less than 10 isolates and should only be considered as part of the total of MSs data and/or the total of MSs and non-MSs.

Table 28: Occurrence of resistance (%) to selected antimicrobials, using harmonised ECOFFs, complete susceptibility and multiresistance to all antimicrobials tested and co-resistance to (fluoro)quinolones and third-generation cephalosporins, in *Salmonella* spp. from fattening turkey flocks, 16 MS and 1 non-MS, 2020

Country	N	GEN (%)	CHL (%)	AMP (%)	CTX (%)	CAZ (%)	MEM (%)	TGC (%)	NAL (%)	CIP (%)	AZM (%)	COL (%)	SMX (%)	TMP (%)	TET (%)	CS	MDR	Resistance to both CIP/CTX, applying ECOFFs	Resistance to both CIP/CTX, applying CBPs
Austria	10	0.0	10.0	20.0	0.0	0.0	0.0	0.0	0.0	10.0	0.0	0.0	10.0	0.0	10.0	80.0	10.0	0.0	0.0
Belgium[(a)]	3	0.0	33.3	33.3	0.0	0.0	0.0	0.0	33.3	33.3	0.0	33.3	33.3	0.0	33.3	0.0	33.3	0.0	0.0
Croatia	9	0.0	0.0	11.1	0.0	0.0	0.0	0.0	22.2	33.3	0.0	0.0	0.0	0.0	22.2	55.6	0.0	0.0	0.0
Cyprus[(a)]	2	50.0	0.0	50.0	0.0	0.0	0.0	0.0	50.0	50.0	0.0	0.0	100	50.0	100	0.0	100.0	0.0	0.0
Czechia	8	12.5	0.0	12.5	0.0	0.0	0.0	0.0	12.5	12.5	0.0	0.0	12.5	0.0	12.5	87.5	12.5	0.0	0.0
France	94	0.0	5.3	16.0	0.0	0.0	0.0	0.0	5.3	5.3	0.0	2.1	17.0	6.4	16.0	73.4	13.8	0.0	0.0
Germany[(a)]	4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	75.0	75.0	0.0	0.0	50.0	0.0	75.0	25.0	50.0	0.0	0.0
Hungary	170	4.7	0.6	50.0	0.0	0.0	0.0	21.2	77.1	91.8	2.9	0.0	35.3	8.8	84.1	8.2	69.4	0.0	0.0
Ireland	5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.0	20.0	0.0	0.0	40.0	0.0	40.0	40.0	0.0	0.0	0.0
Italy	170	4.1	3.5	56.5	1.2	1.2	0.0	0.0	23.5	60.6	2.4	0.6	37.6	27.6	44.7	24.1	44.1	1.2	0.0
Poland	22	9.1	31.8	63.6	4.5	4.5	0.0	0.0	63.6	72.7	4.5	0.0	54.5	4.5	63.6	13.6	54.5	4.5	0.0
Portugal[(a)]	2	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	50.0	50.0	50.0	50.0	50.0	0.0	0.0
Romania[(a)]	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100	100	0.0	100	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Slovakia[(a)]	2	0.0	0.0	100	0.0	0.0	0.0	0.0	100	100	0.0	0.0	100	0.0	100	0.0	100.0	0.0	0.0
Slovenia	2	0.0	0.0	50.0	0.0	0.0	0.0	50.0	50.0	50.0	0.0	0.0	50.0	0.0	0.0	50.0	50.0	0.0	0.0
Spain	170	2.4	4.1	57.6	0.0	0.0	0.0	0.0	35.3	84.1	0.0	0.0	31.2	25.9	31.8	12.9	30.6	0.0	0.0
Total (16MSs)	**674**	**3.4**	**4.2**	**47.2**	**0.4**	**0.4**	**0.0**	**5.5**	**39.0**	**65.0**	**1.5**	**0.9**	**32.3**	**17.1**	**47.0**	**25.8**	**41.7**	**0.4**	**0.0**
United Kingdom	166	0.0	0.0	36.7	0.0	0.0	0.0	2.4	6.0	7.8	0.0	0.0	38.0	23.5	37.3	21.1	24.1	0.0	0.0
Total (MSs and non-MSs)	**840**	**2.7**	**3.3**	**45.1**	**0.4**	**0.4**	**0**	**4.9**	**32.5**	**53.7**	**1.2**	**0.7**	**33.5**	**18.3**	**45.1**	**24.9**	**840**	**2.7**	**3.3**

N: total number of isolates tested; %: percentage of isolates with this phenotype from the total tested; GEN: gentamicin; CHL: chloramphenicol; AMP: ampicillin; CTX: cefotaxime; CAZ: Ceftazidime; MEM: meropenem; TGC: tigecycline, NAL: nalidixic acid; CIP: ciprofloxacin; AZM: azithromycin; COL: colistin; SMX: sulfamethoxazole; TMP: trimethoprim; TET: tetracycline.

CS: percentage of isolates showing complete susceptibility to all antimicrobial classes of the harmonised set for *Escherichia coli*; MDR: percentage of isolates showing resistance to at least 3 antimicrobial classes of the harmonised set for *Escherichia coli*
MSs: Member States; ECOFFS: epidemiological cut-off values; CBPs: clinical breakpoints
(a): The occurrence of resistance is assessed on less than 10 isolates and should only be considered as part of the total of MSs data and/or the total of MSs and non-MSs.

Occurrence of resistance to selected antimicrobials in *Salmonella* Derby

Table 29: Occurrence of resistance (%) to selected antimicrobials, using harmonised ECOFFs, complete susceptibility and multiresistance to all antimicrobials tested and co-resistance to (fluoro)quinolones and third-generation cephalosporins in *S.* Derby from fattening pig carcases, 19 MSs, 2019

Country	N	GEN (%)	CHL (%)	AMP (%)	CTX (%)	CAZ (%)	MEM (%)	TGC (%)	NAL (%)	CIP (%)	AZM (%)	COL (%)	SMX (%)	TMP (%)	TET (%)	CS	MDR	Resistance to both CIP/CTX, applying ECOFFs	Resistance to both CIP/CTX, applying CBPs
Belgium	21	0	0	0	0	0	0	0	0	0	0	4.8	4.8	0	4.8	95.2	0	0	0
Croatia	15	0	6.7	0	0	0	0	0	0	20	13.3	0	26.7	20	13.3	53.3	13.3	0	0
Czechia[(a)]	4	0	0	0	0	0	0	0	25	25	0	0	25	0	25	25	0	0	0
Denmark	56	1.8	1.8	16.1	0	0	0	0	0	0	0	0	25	23.2	21.4	64.3	17.9	0	0
Estonia[(a)]	8	0	0	12.5	0	0	0	0	0	0	0	0	0	0	0	87.5	0	0	0
Finland[(a)]	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0
France	63	0	1.6	3.2	0	0	0	0	0	0	0	1.6	50.8	1.6	50.8	47.6	4.8	0	0
Hungary[(a)]	4	0	0	25	0	0	0	0	0	0	0	0	25	25	25	75	25	0	0
Ireland[(a)]	5	0	0	0	0	0	0	0	0	0	0	0	20	0	20	80	0	0	0
Italy	55	0	1.8	23.6	0	0	0	0	0	0	0	0	14.5	3.6	12.7	65.5	3.6	0	0
Latvia[(a)]	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0
Netherlands[(a)]	6	0	0	0	0	0	0	16.7	0	0	0	0	16.7	16.7	16.7	66.7	0	0	0
Poland[(a)]	5	0	20	40	0	0	0	0	0	20	0	0	0	20	0	60	20	0	0
Portugal[(a)]	1	0	0	0	0	0	0	0	0	0	0	100	0	0	0	-[(b)]	0	0	0
Romania[(a)]	1	0	100	100	100	100	0	0	0	100	0	0	100	100	0	0	100	100	0
Slovakia[(a)]	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0
Slovenia[(a)]	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0
Spain	22	9.1	4.5	4.5	0	0	0	0	0	4.5	0	0	36.4	31.8	59.1	40.9	36.4	0	0
United Kingdom[(a)]	2	0	0	0	0	0	0	0	0	0	0	0	0	0	50	50	0	0	0
Total (19 MSs)	**283**	**1.1**	**2.5**	**10.6**	**0.4**	**0.4**	**0**	**0.4**	**0.4**	**2.5**	**0.7**	**1.1**	**25.4**	**10.6**	**25.4**	**62.9**	**9.9**	**0.4**	**0**

N: total number of isolates tested; %: percentage of isolates with this phenotype from the total tested; GEN: gentamicin; CHL: chloramphenicol; AMP: ampicillin; CTX: cefotaxime; CAZ: Ceftazidime; MEM: meropenem; TGC: tigecycline, NAL: nalidixic acid; CIP: ciprofloxacin; AZM: azithromycin; COL: colistin; SMX: sulfamethoxazole; TMP: trimethoprim; TET: tetracycline.
CS: percentage of isolates showing complete susceptibility to all antimicrobial classes of the harmonised set for *Escherichia coli*; MDR: percentage of isolates showing resistance to at least 3 antimicrobial classes of the harmonised set for *Escherichia coli*
MSs: Member States; ECOFFS: epidemiological cut-off values; CBPs: clinical breakpoints
(a): The occurrence of resistance is assessed on less than 10 isolates and should only be considered as part of the total of MSs data and/or the total of MSs and non-MSs.
(b): Colistin is not included in the calculation of complete susceptibility. Further information is found in Appendix F. Materials and Methods available at https://doi.org/10.2903/j.efsa.2022.7209

Table 30: Occurrence of resistance (%) to selected antimicrobials, using harmonised ECOFFs, complete susceptibility and multiresistance to all antimicrobials tested and co-resistance to (fluoro)quinolones and third-generation cephalosporins, in *S.* Derby from carcases of calves of less than 1 year of age, 1 EU MSs, 2019

Country	N	GEN (%)	CHL (%)	AMP (%)	CTX (%)	CAZ (%)	MEM (%)	TGC (%)	NAL (%)	CIP (%)	AZM (%)	COL (%)	SMX (%)	TMP (%)	TET (%)	CS	MDR	Resistance to both CIP/CTX. applying ECOFFs	Resistance to both CIP/CTX. applying CBPs
France	12	0	25	8.3	0	0	0	25	0	8.3	0	0	41.7	8.3	41.7	58.3	33.3	0	0
Total (1 MS)	**12**	**0**	**25**	**8.3**	**0**	**0**	**0**	**25**	**0**	**8.3**	**0**	**0**	**41.7**	**8.3**	**41.7**	**58.3**	**33.3**	**0**	**0**

N: total number of isolates tested; %: percentage of isolates with this phenotype from the total tested; GEN: gentamicin; CHL: chloramphenicol; AMP: ampicillin; CTX: cefotaxime; CAZ: Ceftazidime; MEM: meropenem; TGC: tigecycline, NAL: nalidixic acid; CIP: ciprofloxacin; AZM: azithromycin; COL: colistin; SMX: sulfamethoxazole; TMP: trimethoprim; TET: tetracycline.
CS: percentage of isolates showing complete susceptibility to all antimicrobial classes of the harmonised set for *Escherichia coli*; MDR: percentage of isolates showing resistance to at least 3 antimicrobial classes of the harmonised set for *Escherichia coli*
MSs: Member States; ECOFFS: epidemiological cut-off values; CBPs: clinical breakpoints

Table 31: Occurrence of resistance (%) to selected antimicrobials, using harmonised ECOFFs, complete susceptibility and multiresistance to all antimicrobials tested and co-resistance to (fluoro)quinolones and third-generation cephalosporins, in *S.* Derby from fattening pigs, 7 EU MSs, 2019

Country	N	GEN (%)	CHL (%)	AMP (%)	CTX (%)	CAZ (%)	MEM (%)	TGC (%)	NAL (%)	CIP (%)	AZM (%)	COL (%)	SMX (%)	TMP (%)	TET (%)	CS	MDR	Resistance to both CIP/CTX. applying ECOFFs	Resistance to both CIP/CTX. applying CBPs
Croatia[(a)]	7	0	0	0	0	0	0	0	0	0	0	0	14.3	0	14.3	71.4	0	0	0
Denmark	67	1.5	4.5	13.4	0	0	0	0	0	0	0	0	20.9	20.9	31.3	55.2	17.9	0	0
Estonia[(a)]	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0
Finland[(a)]	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0
Italy	32	0	0	12.5	0	0	0	0	0	3.1	0	0	31.3	3.1	31.3	65.6	12.5	0	0
Slovenia[(a)]	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0
Total (6 MSs)	**115**	**0.9**	**2.6**	**11.3**	**0**	**0**	**0**	**0**	**0**	**0.9**	**0**	**0**	**21.7**	**13**	**27.8**	**62.6**	**13.9**	**0**	**0**

N: total number of isolates tested; %: percentage of isolates with this phenotype from the total tested; GEN: gentamicin; CHL: chloramphenicol; AMP: ampicillin; CTX: cefotaxime; CAZ: Ceftazidime; MEM: meropenem; TGC: tigecycline, NAL: nalidixic acid; CIP: ciprofloxacin; AZM: azithromycin; COL: colistin; SMX: sulfamethoxazole; TMP: trimethoprim; TET: tetracycline.
CS: percentage of isolates showing complete susceptibility to all antimicrobial classes of the harmonised set for *Escherichia coli*; MDR: percentage of isolates showing resistance to at least 3 antimicrobial classes of the harmonised set for *Escherichia coli*
MSs: Member States; ECOFFS: epidemiological cut-off values; CBPs: clinical breakpoints
(a): The occurrence of resistance is assessed on less than 10 isolates and should only be considered as part of the total of MSs data and/or the total of MSs and non-MSs.

Occurrence of resistance (%) to selected antimicrobials in *S.* Infantis

Table 32: Occurrence of resistance (%) to selected antimicrobials, complete susceptibility and multiresistance to all antimicrobials tested and co-resistance to (fluoro)quinolones and third-generation cephalosporins, in *S.* Infantis from broiler carcases, 13 EU MSs and 1 non-MS, 2020

Country	N	GEN (%)	CHL (%)	AMP (%)	CTX (%)	CAZ (%)	MEM (%)	TGC (%)	NAL (%)	CIP (%)	AZM (%)	COL (%)	SMX (%)	TMP (%)	TET (%)	CS	MDR	Resistance to both CIP/CTX, applying ECOFFs	Resistance to both CIP/CTX, applying CBPs
Austria	48	0	0	0	0	0	0	0	93.8	93.8	0	0	93.8	0	93.8	6.3	93.8	0	0
Belgium	16	0	0	56.3	0	0	0	0	100	100	6.3	0	75.0	37.5	62.5	0	87.5	0	0
Bulgaria[a]	2	0	0	50.0	0	0	0	0	100	100	0	0	100	50.0	100	0	100	0	0
Croatia	43	0	0	27.9	0	0	0	0	95.3	95.3	0	0	30.2	0	27.9	4.7	27.9	0	0
Cyprus[a]	5	0	0	0	0	0	0	40.0	100	100	0	0	100	40.0	100	0	100	0	0
Czechia	10	0	0	10	0	0	0	0	80.0	80.0	0	0	80.0	0	80.0	20.0	80	0	0
Hungary	100	0	0	22.0	0	0	0	3.0	96.0	97.0	0	0	69.0	0	71.0	3.0	69.0	0	0
Italy[a]	5	0	20.0	80.0	20.0	20.0	0	0	80.0	80.0	0	0	80.0	80.0	80.0	20.0	80.0	20.0	0
Poland	85	1.2	0	25.9	0	0	0	0	94.1	94.1	7.1	0	92.9	10.6	92.9	5.9	92.9	0	0
Romania	22	0	0	4.5	0	0	0	0	100	100	0	0	81.8	13.6	81.8	0	81.8	0	0
Slovakia	70	0	0	47.1	0	0	0	0	98.6	98.6	0	0	80.0	0	80.0	1.4	80.0	0	0
Slovenia[a]	6	0	0	16.7	0	0	0	16.7	100	100	0	0	100	0	100	0	100	0	0
Spain	88	0	17.0	1.1	0	0	0	9.1	97.7	97.7	3.4	0	92.0	81.8	92.0	2.3	92.0	0	0
Total (13 MSs)	**500**	**0.2**	**3.2**	**21.4**	**0.2**	**0.2**	**0**	**2.8**	**96.0**	**96.2**	**2.0**	**0**	**79.6**	**19.4**	**79.4**	**3.8**	**79.8**	**0**	**0**
Iceland[a]	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	80.0	20.0	0.2	0
Total (MSs and non-MSs)	**501**																		

N: total number of isolates tested; %: percentage of isolates with this phenotype from the total tested; GEN: gentamicin; CHL: chloramphenicol; AMP: ampicillin; CTX: cefotaxime; CAZ: Ceftazidime; MEM: meropenem; TGC: tigecycline, NAL: nalidixic acid; CIP: ciprofloxacin; AZM: azithromycin; COL: colistin; SMX: sulfamethoxazole; TMP: trimethoprim; TET: tetracycline.
CS: percentage of isolates showing complete susceptibility to all antimicrobial classes of the harmonised set for *Escherichia coli*; MDR: percentage of isolates showing resistance to at least 3 antimicrobial classes of the harmonised set for *Escherichia coli*
MSs: Member States; ECOFFS: epidemiological cut-off values; CBPs: clinical breakpoints
(a): The occurrence of resistance is assessed on less than 10 isolates and should only be considered as part of the total of MSs data and/or the total of MSs and non-MSs.

Table 33: Occurrence of resistance (%) to selected antimicrobials, using harmonised ECOFFs, complete susceptibility and multiresistance to all antimicrobials tested and co-resistance to (fluoro)quinolones and third-generation cephalosporins in *S.* Infantis from turkey carcases, 1 EU MSs, 2020

Country	N	GEN (%)	CHL (%)	AMP (%)	CTX (%)	CAZ (%)	MEM (%)	TGC (%)	NAL (%)	CIP (%)	AZM (%)	COL (%)	SMX (%)	TMP (%)	TET (%)	CS	MDR	Resistance to both CIP/CTX. applying ECOFFs	Resistance to both CIP/CTX. applying CBPs
Hungary[(a)]	4	0	0	0	0	0	0	25.0	75.0	75.0	0	0	100	0	100	0	75.0	0	0
Total (2MSs)	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**25.0**	**75.0**	**75.0**	**0**	**0**	**100**	**0**	**100**	**0**	**75.0**	**0**	**0**

N: total number of isolates tested; %: percentage of isolates with this phenotype from the total tested; GEN: gentamicin; CHL: chloramphenicol; AMP: ampicillin; CTX: cefotaxime; CAZ: Ceftazidime; MEM: meropenem; TGC: tigecycline, NAL: nalidixic acid; CIP: ciprofloxacin; AZM: azithromycin; COL: colistin; SMX: sulfamethoxazole; TMP: trimethoprim; TET: tetracycline.
CS: percentage of isolates showing complete susceptibility to all antimicrobial classes of the harmonised set for *Escherichia coli*; MDR: percentage of isolates showing resistance to at least 3 antimicrobial classes of the harmonised set for *Escherichia coli*
MSs: Member States; ECOFFS: epidemiological cut-off values; CBPs: clinical breakpoints
(a): The occurrence of resistance is assessed on less than 10 isolates and should only be considered as part of the total of MSs data and/or the total of MSs and non-MSs.

Table 34: Occurrence of resistance (%) to selected antimicrobials, using harmonised ECOFFs, complete susceptibility and multiresistance to all antimicrobials tested and co-resistance to (fluoro)quinolones and third-generation cephalosporins, in *S.* Infantis, from broiler flocks, 16 MSs and 1 non-MS, 2020

Country	N	GEN (%)	CHL (%)	AMP (%)	CTX (%)	CAZ (%)	MEM (%)	TGC (%)	NAL (%)	CIP (%)	AZM (%)	COL (%)	SMX (%)	TMP (%)	TET (%)	CS	MDR	Resistance to both CIP/CTX, applying ECOFFs	Resistance to both CIP/CTX, applying CBPs
Austria	122	0	0	0	0	0	0	0.8	98.4	98.4	0	0	95.9	0	96.7	1.6	95.9	0	0
Belgium	34	0	5.9	73.5	0	0	0	2.9	88.2	88.2	2.9	0	91.2	73.5	73.5	2.9	88.2	0	0
Croatia	43	0	0	18.6	0	0	0	0	88.4	88.4	0	0	16.3	2.3	14.0	11.6	16.3	0	0
Cyprus[(a)]	3	0	0	0	0	0	0	0	66.7	66.7	0	0	100	66.7	100	0	100	0	0
Czechia[(a)]	7	0	0	42.9	0	0	0	0	100	100	0	0	85.7	0	85.7	0	85.7	0	0
Finland[(a)]	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0
France[(a)]	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0
Greece[(a)]	4	0	0	0	0	0	0	0	100	100	25.0	0	100	25.0	100	0	100	0	0
Hungary	132	0.8	0	12.9	0.8	2.3	0	4.5	100	100	2.3	0.8	75.0	0	77.3	0	75.0	0.8	0
Italy	140	1.4	13.6	47.1	20.7	20.0	0	0	93.6	94.3	1.4	1.4	83.6	69.3	78.6	5.0	87.1	20.7	0
Malta[(a)]	4	0	0	0	0	0	0	0	100	100	0	0	100	0	75.0	0	75.0	0	0
Poland	67	0	0	41.8	0	0	0	0	100	100	6.0	1.5	97.0	9.0	92.5	0	97.0	0	0
Romania	41	0	0	2.4	0	0	0	2.4	100	100	0	0	97.6	4.9	97.6	0	97.6	0	0
Slovakia	19	0	0	78.9	0	0	0	0	100	100	0	0	94.7	0	94.7	0	94.7	0	0
Slovenia	109	0	0	41.3	0	0	0	4.6	99.1	99.1	1.8	0	95.4	0	95.4	0.9	95.4	0	0
Spain	47	0	2.1	0	0	0	0	0	83.0	83.0	0	0	74.5	59.6	74.5	17.0	74.5	0	0
Total (16 MSs)	**777**	**0.4**	**2.8**	**26.8**	**3.9**	**4.0**	**0**	**1.8**	**95.5**	**95.6**	**1.7**	**0.5**	**83.7**	**20.8**	**81.9**	**3.7**	**84.0**	**3.9**	**0**
Iceland[(a)]	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0
Total (MSs and non-MSs)	**778**																		

N: total number of isolates tested; %: percentage of isolates with this phenotype from the total tested; GEN: gentamicin; CHL: chloramphenicol; AMP: ampicillin; CTX: cefotaxime; CAZ: Ceftazidime; MEM: meropenem; TGC: tigecycline, NAL: nalidixic acid; CIP: ciprofloxacin; AZM: azithromycin; COL: colistin; SMX: sulfamethoxazole; TMP: trimethoprim; TET: tetracycline.
CS: percentage of isolates showing complete susceptibility to all antimicrobial classes of the harmonised set for *Escherichia coli*; MDR: percentage of isolates showing resistance to at least 3 antimicrobial classes of the harmonised set for *Escherichia coli*
MSs: Member States; ECOFFS: epidemiological cut-off values; CBPs: clinical breakpoints
(a): The occurrence of resistance is assessed on less than 10 isolates and should only be considered as part of the total of MSs data and/or the total of MSs and non-MSs.

Table 35: Occurrence of resistance (%) to selected antimicrobials, using harmonised ECOFFs, complete susceptibility and multiresistance to all antimicrobials tested and co-resistance to (fluoro)quinolones and third-generation cephalosporins, in *S.* Infantis from laying hens, 16 EU MSs, 2020

Country	N	GEN (%)	CHL (%)	AMP (%)	CTX (%)	CAZ (%)	MEM (%)	TGC (%)	NAL (%)	CIP (%)	AZM (%)	COL (%)	SMX (%)	TMP (%)	TET (%)	CS	MDR	Resistance to both CIP/CTX. applying ECOFFs	Resistance to both CIP/CTX. applying CBPs
Belgium[(a)]	7	0	0	28.6	0	0	0	0	42.9	28.6	0	0	42.9	0	42.9	57.1	42.9	0	0
Bulgaria[(a)]	3	0	0	0	0	0	0	0	66.7	66.7	0	0	66.7	0	66.7	33.3	66.7	0	0
Croatia[(a)]	6	0	0	0	0	0	0	0	33.3	33.3	0	0	0	0	0	66.7	0	0	0
Cyprus[(a)]	5	0	0	0	0	0	0	0	80.0	80.0	0	0	80.0	80.0	80.0	20.0	80.0	0	0
France[(a)]	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0
Greece[(a)]	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0
Hungary[(a)]	2	0	0	0	0	0	0	0	50.0	50.0	0	0	50.0	0	50.0	50.0	50.0	0	0
Italy	16	0	6.3	18.8	12.5	12.5	0	0	37.5	37.5	0	0	37.5	37.5	31.3	62.5	37.5	12.5	0
Malta[(a)]	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0
Netherlands[(a)]	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0
Poland	16	0	0	0	0	0	0	0	0	0	0	0	6.3	0	0	93.8	0	0	0
Portugal[(a)]	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0
Romania[(a)]	4	0	0	25.0	0	0	0	0	100	100	0	0	100	0	100	0	100	0	0
Slovakia[(a)]	1	0	0	100	0	0	0	0	100	100	0	0	100	0	100	0	100	0	0
Slovenia[(a)]	2	0	0	0	0	0	0	0	100	100	0	0	100	0	100	0	100	0	0
Spain	18	0	0	0	0	0	0	0	5.6	5.6	0	0	5.6	5.6	5.6	94.4	5.6	0	0
Total (16 MSs)	**98**	**0**	**1.0**	**7.1**	**2.0**	**2.0**	**0**	**0**	**26.5**	**25.5**	**0**	**0**	**25.5**	**11.2**	**23.5**	**72.4**	**24.5**	**2.0**	**0**

N: total number of isolates tested; %: percentage of isolates with this phenotype from the total tested; GEN: gentamicin; CHL: chloramphenicol; AMP: ampicillin; CTX: cefotaxime; CAZ: Ceftazidime; MEM: meropenem; TGC: tigecycline, NAL: nalidixic acid; CIP: ciprofloxacin; AZM: azithromycin; COL: colistin; SMX: sulfamethoxazole; TMP: trimethoprim; TET: tetracycline.
CS: percentage of isolates showing complete susceptibility to all antimicrobial classes of the harmonised set for *Escherichia coli*; MDR: percentage of isolates showing resistance to at least 3 antimicrobial classes of the harmonised set for *Escherichia coli*
MSs: Member States; ECOFFS: epidemiological cut-off values; CBPs: clinical breakpoints
(a): The occurrence of resistance is assessed on less than 10 isolates and should only be considered as part of the total of MSs data and/or the total of MSs and non-MSs.

Table 36: Occurrence of resistance (%) to selected antimicrobials, using harmonised ECOFFs, complete susceptibility and multiresistance to all antimicrobials tested and co-resistance to (fluoro)quinolones and third-generation cephalosporins, in *S.* Infantis from fattening turkeys, 6 EU MSs, 2020

Country	N	GEN (%)	CHL (%)	AMP (%)	CTX (%)	CAZ (%)	MEM (%)	TGC (%)	NAL (%)	CIP (%)	AZM (%)	COL (%)	SMX (%)	TMP (%)	TET (%)	CS	MDR	Resistance to both CIP/CTX. applying ECOFFs	Resistance to both CIP/CTX. applying CBPs
Austria[(a)]	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0
Croatia[(a)]	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0
Hungary	45	0	0	17.8	0	0	0	6.7	97.8	100	2.2	0	86.7	0	95.6	0	88.9	0	0
Italy	27	0	0	44.4	3.7	3.7	0	0	100	100	0	0	96.3	81.5	96.3	0	96.3	3.7	0
Poland[(a)]	3	0	0	33.3	0	0	0	0	66.7	66.7	0	0	66.7	0	66.7	33.3	66.7	0	0
Spain[(a)]	3	0	0	0	0	0	0	0	100	100	0	0	100	66.7	100	0	100	0	0
Total (6 MSs)	**80**	**0**	**0**	**26.3**	**1.3**	**1.3**	**0**	**3.8**	**95.0**	**96.3**	**1.3**	**0**	**87.5**	**30**	**92.5**	**3.8**	**88.8**	**1.3**	**0**

N: total number of isolates tested; %: percentage of isolates with this phenotype from the total tested; GEN: gentamicin; CHL: chloramphenicol; AMP: ampicillin; CTX: cefotaxime; CAZ: Ceftazidime; MEM: meropenem; TGC: tigecycline, NAL: nalidixic acid; CIP: ciprofloxacin; AZM: azithromycin; COL: colistin; SMX: sulfamethoxazole; TMP: trimethoprim; TET: tetracycline.
CS: percentage of isolates showing complete susceptibility to all antimicrobial classes of the harmonised set for *Escherichia coli*; MDR: percentage of isolates showing resistance to at least 3 antimicrobial classes of the harmonised set for *Escherichia coli*
MSs: Member States; ECOFFS: epidemiological cut-off values; CBPs: clinical breakpoints
(a): The occurrence of resistance is assessed on less than 10 isolates and should only be considered as part of the total of MSs data and/or the total of MSs and non-MSs.

Occurrence of resistance (%) to selected antimicrobials in *S.* Kentucky

Table 37: Occurrence of resistance (%) to selected antimicrobials, using harmonised ECOFFs, complete susceptibility and multiresistance to all antimicrobials tested and co-resistance to (fluoro)quinolones and third-generation cephalosporins, in *S.* Kentucky from broiler carcases, 7 EU MSs, 2020

Country	N	GEN (%)	CHL (%)	AMP (%)	CTX (%)	CAZ (%)	MEM (%)	TGC (%)	NAL (%)	CIP (%)	AZM (%)	COL (%)	SMX (%)	TMP (%)	TET (%)	CS	MDR	Resistance to both CIP/CTX, applying ECOFFs	Resistance to both CIP/CTX, applying CBPs
Czechia[(a)]	1	0	0	100	0	0	0	0	100	100	0	0	0	0	0	0	0	0	0
Hungary[(a)]	4	0	0	100	0	0	0	0	100	100	0	0	0	0	0	0	0	0	0
Italy[(a)]	2	0	0	0	0	0	0	0	100	100	0	0	0	0	0	0	0	0	0
Malta[(a)]	2	100	0	100	0	0	0	0	100	100	0	0	100	0	100	0	100	0	0
Poland	12	91.7	0	100	0	0	0	0	100	100	0	0	91.7	0	91.7	0	91.7	0	0
Total (5 MSs)	**21**	**61.9**	**0**	**90.5**	**0**	**0**	**0**	**0**	**100**	**100**	**0**	**0**	**61.9**	**0**	**61.9**	**0**	**61.9**	**0**	**0**

N: total number of isolates tested; %: percentage of isolates with this phenotype from the total tested; GEN: gentamicin; CHL: chloramphenicol; AMP: ampicillin; CTX: cefotaxime; CAZ: Ceftazidime; MEM: meropenem; TGC: tigecycline, NAL: nalidixic acid; CIP: ciprofloxacin; AZM: azithromycin; COL: colistin; SMX: sulfamethoxazole; TMP: trimethoprim; TET: tetracycline.
CS: percentage of isolates showing complete susceptibility to all antimicrobial classes of the harmonised set for *Escherichia coli*; MDR: percentage of isolates showing resistance to at least 3 antimicrobial classes of the harmonised set for *Escherichia coli*
MSs: Member States; ECOFFS: epidemiological cut-off values; CBPs: clinical breakpoints
(a): The occurrence of resistance is assessed on less than 10 isolates and should only be considered as part of the total of MSs data and/or the total of MSs and non-MSs.

Table 38: Occurrence of resistance (%) to selected antimicrobials, using harmonised ECOFFs, complete susceptibility and multiresistance to all antimicrobials tested and co-resistance to (fluoro)quinolones and third-generation cephalosporins in *S.* Kentucky from turkey carcases, 3 EU MSs, 2020

Country	N	GEN (%)	CHL (%)	AMP (%)	CTX (%)	CAZ (%)	MEM (%)	TGC (%)	NAL (%)	CIP (%)	AZM (%)	COL (%)	SMX (%)	TMP (%)	TET (%)	CS	MDR	Resistance to both CIP/CTX, applying ECOFFs	Resistance to both CIP/CTX, applying CBPs
Hungary[(a)]	7	42.9	14.3	100	0	0	0	0	100	100	0	0	71.4	0	71.4	0	71.4	0	0
Italy[(a)]	1	0	0	100	0	0	0	0	100	100	0	0	0	0	0	0	0	0	0
Poland[(a)]	3	100	0	100	0	0	0	0	100	100	0	0	100	0	100	0	100	0	0
Spain[(a)]	4	25.0	25.0	75.0	0	0	0	0	25.0	75.0	0	0	25.0	25.0	25.0	25.0	25.0	0	0
Total (4 MSs)	**15**	**46.7**	**13.3**	**93.3**	**0**	**0**	**0**	**0**	**80.0**	**93.3**	**0**	**0**	**60.0**	**6.7**	**60.0**	**6.7**	**60.0**	**0**	**0**

N: total number of isolates tested; %: percentage of isolates with this phenotype from the total tested; GEN: gentamicin; CHL: chloramphenicol; AMP: ampicillin; CTX: cefotaxime; CAZ: Ceftazidime; MEM: meropenem; TGC: tigecycline, NAL: nalidixic acid; CIP: ciprofloxacin; AZM: azithromycin; COL: colistin; SMX: sulfamethoxazole; TMP: trimethoprim; TET: tetracycline.
CS: percentage of isolates showing complete susceptibility to all antimicrobial classes of the harmonised set for *Escherichia coli*; MDR: percentage of isolates showing resistance to at least 3 antimicrobial classes of the harmonised set for *Escherichia coli*
MSs: Member States; ECOFFS: epidemiological cut-off values; CBPs: clinical breakpoints
(a): The occurrence of resistance is assessed on less than 10 isolates and should only be considered as part of the total of MSs data and/or the total of MSs and non-MSs.

Table 39: Occurrence of resistance (%) to selected antimicrobials, using harmonised ECOFFs, complete susceptibility and multiresistance to all antimicrobials tested and co-resistance to (fluoro)quinolones and third-generation cephalosporins, in *S.* Kentucky from broilers, 6 EU MSs, 2020

Country	N	GEN (%)	CHL (%)	AMP (%)	CTX (%)	CAZ (%)	MEM (%)	TGC (%)	NAL (%)	CIP (%)	AZM (%)	COL (%)	SMX (%)	TMP (%)	TET (%)	CS	MDR	Resistance to both CIP/CTX, applying ECOFFs	Resistance to both CIP/CTX, applying CBPs
Hungary	15	6.7	0	100	0	0	0	0	100	100	0	0	0	0	0	0	6.7	0	0
Italy[(a)]	7	0	0	0	0	0	0	0	100	100	0	0	0	0	0	0	0	0	0
Malta	23	21.7	17.4	69.6	30.4	30.4	0	0	56.5	56.5	0	0	21.7	4.3	21.7	30.4	52.2	30.4	30.4
Portugal[(a)]	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0
Romania	11	45.5	0	100	0	0	0	0	100	100	0	0	45.5	0	45.5	0	45.5	0	0
Spain[(a)]	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0
Total (6 MSs)	**59**	**18.6**	**6.8**	**71.2**	**11.9**	**11.9**	**0**	**0**	**78.0**	**78.0**	**0**	**0**	**16.9**	**1.7**	**16.9**	**16.9**	**30.5**	**11.9**	**11.9**

N: total number of isolates tested; %: percentage of isolates with this phenotype from the total tested; GEN: gentamicin; CHL: chloramphenicol; AMP: ampicillin; CTX: cefotaxime; CAZ: Ceftazidime; MEM: meropenem; TGC: tigecycline, NAL: nalidixic acid; CIP: ciprofloxacin; AZM: azithromycin; COL: colistin; SMX: sulfamethoxazole; TMP: trimethoprim; TET: tetracycline.
CS: percentage of isolates showing complete susceptibility to all antimicrobial classes of the harmonised set for *Escherichia coli*; MDR: percentage of isolates showing resistance to at least 3 antimicrobial classes of the harmonised set for *Escherichia coli*
MSs: Member States; ECOFFS: epidemiological cut-off values; CBPs: clinical breakpoints
(a): The occurrence of resistance is assessed on less than 10 isolates and should only be considered as part of the total of MSs data and/or the total of MSs and non-MSs.

Table 40: Occurrence of resistance (%) to selected antimicrobials, using harmonised ECOFFs, complete susceptibility and multiresistance to all antimicrobials tested and co-resistance to (fluoro)quinolones and third-generation cephalosporins, in *S.* Kentucky from laying hens, 7 EU MSs, 2020

Country	N	GEN (%)	CHL (%)	AMP (%)	CTX (%)	CAZ (%)	MEM (%)	TGC (%)	NAL (%)	CIP (%)	AZM (%)	COL (%)	SMX (%)	TMP (%)	TET (%)	CS	MDR	Resistance to both CIP/CTX, applying ECOFFs	Resistance to both CIP/CTX, applying CBPs
Greece[(a)]	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0
Hungary[(a)]	2	0	0	100	0	0	0	0	100	100	0	0	100	0	100	0	100	0	0
Ireland[(a)]	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0
Italy	86	0	0	2.3	0	0	0	0	98.8	98.8	0	0	1.2	1.2	0	1.2	1.2	0	0
Malta[(a)]	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0
Slovenia[(a)]	1	0	0	0	0	0	0	0	100	100	0	0	0	0	0	0	0	0	0
Spain[(a)]	3	0	0	33.3	0	0	0	33.3	100	100	0	0	0	0	33.3	0	33.3	0	0
Total (7MSs)	**99**	**0**	**0**	**5.1**	**0**	**0**	**0**	**1.0**	**91.9**	**91.9**	**0**	**0**	**3.0**	**1.0**	**3.0**	**8.1**	**4.0**	**0**	**0**

N: total number of isolates tested; %: percentage of isolates with this phenotype from the total tested; GEN: gentamicin; CHL: chloramphenicol; AMP: ampicillin; CTX: cefotaxime; CAZ: Ceftazidime; MEM: meropenem; TGC: tigecycline, NAL: nalidixic acid; CIP: ciprofloxacin; AZM: azithromycin; COL: colistin; SMX: sulfamethoxazole; TMP: trimethoprim; TET: tetracycline.
CS: percentage of isolates showing complete susceptibility to all antimicrobial classes of the harmonised set for *Escherichia coli*; MDR: percentage of isolates showing resistance to at least 3 antimicrobial classes of the harmonised set for *Escherichia coli*
MSs: Member States; ECOFFS: epidemiological cut-off values; CBPs: clinical breakpoints
(a): The occurrence of resistance is assessed on less than 10 isolates and should only be considered as part of the total of MSs data and/or the total of MSs and non-MSs.

Table 41: Occurrence of resistance (%) to selected antimicrobials, using harmonised ECOFFs, complete susceptibility and multiresistance to all antimicrobials tested and co-resistance to (fluoro)quinolones and third-generation cephalosporins, in *S.* Kentucky from fattening turkeys, 6 EU MSs, 2020

Country	N	GEN (%)	CHL (%)	AMP (%)	CTX (%)	CAZ (%)	MEM (%)	TGC (%)	NAL (%)	CIP (%)	AZM (%)	COL (%)	SMX (%)	TMP (%)	TET (%)	CS	MDR	Resistance to both CIP/CTX. applying ECOFFs	Resistance to both CIP/CTX. applying CBPs
Cyprus[(a)]	1	100	0	100	0	0	0	0	100	100	0	0	100	0	100	0	100	0	0
Czechia[(a)]	1	100	0	100	0	0	0	0	100	100	0	0	100	0	100	0	100	0	0
Hungary	14	57.1	0	92.9	0	0	0	0	100	100	0	0	92.9	0	92.9	0	92.9	0	0
Poland[(a)]	3	66.7	33.3	100	0	0	0	0	100	100	0	0	66.7	0	66.7	0	66.7	0	0
Slovakia[(a)]	2	0	0	100	0	0	0	0	100	100	0	0	100	0	100	0	100	0	0
Spain[(a)]	8	50.0	12.5	0	0	0	0	0	87.5	87.5	0	0	50.0	0	62.5	12.5	50.0	0	0
Total (6 MSs)	**29**	**55.2**	**6.9**	**69.0**	**0**	**0**	**0**	**0**	**96.6**	**96.6**	**0**	**0**	**79.3**	**0**	**82.8**	**3.4**	**79.3**	**0**	**0**

N: total number of isolates tested; %: percentage of isolates with this phenotype from the total tested; GEN: gentamicin; CHL: chloramphenicol; AMP: ampicillin; CTX: cefotaxime; CAZ: Ceftazidime; MEM: meropenem; TGC: tigecycline, NAL: nalidixic acid; CIP: ciprofloxacin; AZM: azithromycin; COL: colistin; SMX: sulfamethoxazole; TMP: trimethoprim; TET: tetracycline.
CS: percentage of isolates showing complete susceptibility to all antimicrobial classes of the harmonised set for *Escherichia coli*; MDR: percentage of isolates showing resistance to at least 3 antimicrobial classes of the harmonised set for *Escherichia coli*
MSs: Member States; ECOFFS: epidemiological cut-off values; CBPs: clinical breakpoints
(a): The occurrence of resistance is assessed on less than 10 isolates and should only be considered as part of the total of MSs data and/or the total of MSs and non-MSs.

Occurrence of resistance (%) to selected antimicrobials in *S.* Enteritidis

Table 42: Occurrence of resistance (%) to selected antimicrobials, using harmonised ECOFFs, complete susceptibility and multiresistance to all antimicrobials tested and co-resistance to (fluoro)quinolones and third-generation cephalosporins, in *S.* Enteritidis from broiler carcases, 9 EU MSs, 2020

Country	N	GEN (%)	CHL (%)	AMP (%)	CTX (%)	CAZ (%)	MEM (%)	TGC (%)	NAL (%)	CIP (%)	AZM (%)	COL (%)	SMX (%)	TMP (%)	TET (%)	CS	MDR	Resistance to both CIP/CTX, applying ECOFFs	Resistance to both CIP/CTX, applying CBPs
Croatia[(a)]	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0
Czechia[(a)]	7	0	0	0	0	0	0	0	57.1	57.1	0	0	0	0	0	42.9	0	0	0
France[(a)]	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0
Hungary[(a)]	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0
Italy[(a)]	1	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0
Poland	39	0	0	0	0	0	0	0	64.1	64.1	0	5.1	0	0	0	35.9	0	0	0
Portugal[(a)]	1	0	0	0	0	0	0	0	0	0	0	100	0	0	0	100	0	0	0
Slovakia	42	0	0	2.4	0	0	0	0	47.6	47.6	0	0	4.8	0	2.4	52.4	2.4	0	0
Spain[(a)]	3	0	0	0	0	0	0	0	33.3	33.3	0	66.7	0	0	0	66.7	0	0	0
Total (8 MSs)	**96**	**0**	**0**	**1.0**	**0**	**0**	**0**	**0**	**53.1**	**52.1**	**0**	**5.2**	**2.1**	**0**	**1.0**	**46.9**	**1.0**	**0**	**0**

N: total number of isolates tested; %: percentage of isolates with this phenotype from the total tested; GEN: gentamicin; CHL: chloramphenicol; AMP: ampicillin; CTX: cefotaxime; CAZ: Ceftazidime; MEM: meropenem; TGC: tigecycline, NAL: nalidixic acid; CIP: ciprofloxacin; AZM: azithromycin; COL: colistin; SMX: sulfamethoxazole; TMP: trimethoprim; TET: tetracycline.
CS: percentage of isolates showing complete susceptibility to all antimicrobial classes of the harmonised set for *Escherichia coli*; MDR: percentage of isolates showing resistance to at least 3 antimicrobial classes of the harmonised set for *Escherichia coli*
MSs: Member States; ECOFFS: epidemiological cut-off values; CBPs: clinical breakpoints
(a): The occurrence of resistance is assessed on less than 10 isolates and should only be considered as part of the total of MSs data and/or the total of MSs and non-MSs.

Table 43: Occurrence of resistance (%) to selected antimicrobials, using harmonised ECOFFs, complete susceptibility and multiresistance to all antimicrobials tested and co-resistance to (fluoro)quinolones and third-generation cephalosporins, in *S.* Enteritidis from broilers, 15 EU MSs, 2020

Country	N	GEN (%)	CHL (%)	AMP (%)	CTX (%)	CAZ (%)	MEM (%)	TGC (%)	NAL (%)	CIP (%)	AZM (%)	COL (%)	SMX (%)	TMP (%)	TET (%)	CS	MDR	Resistance to both CIP/CTX. applying ECOFFs	Resistance to both CIP/CTX. applying CBPs
Austria[(a)]	3	0	0	0	0	0	0	0	33.3	33.3	0	0	0	0	0	66.7	0	0	0
Belgium[(a)]	2	0	0	0	0	0	0	0	0	0	0	50	0	0	0	100	0	0	0
Croatia[(a)]	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0
Czechia	62	0	0	3.2	0	0	0	0	24.2	25.8	0	11.3	0	0	0	72.6	0	0	0
France	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0
Greece[(a)]	3	0	0	0	0	0	0	0	33.3	66.7	0	66.7	0	0	0	33.3	0	0	0
Hungary[(a)]	1	0	0	0	0	0	0	0	0	0	0	100	0	0	0	100	0	0	0
Italy[(a)]	4	0	0	0	0	0	0	0	100	100	0	50.0	0	0	0	0	0	0	0
Malta[(a)]	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0
Poland	91	0	0	2.2	0	0	0	0	75.8	76.9	0	5.5	2.2	1.1	3.3	23.1	2.2	0	0
Portugal[(a)]	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0
Romania	10	0	10.0	0	0	0	0	10.0	60.0	60.0	10.0	60.0	10.0	10.0	10.0	40.0	10.0	0	0
Slovakia	12	0	0	8.3	0	0	0	0	33.3	33.3	0	0	16.7	0	16.7	66.7	16.7	0	0
Slovenia[(a)]	8	0	0	12.5	0	0	0	0	12.5	12.5	12.5	12.5	0	0	0	75.0	0	0	0
Spain[(a)]	3	0	0	0	0	0	0	0	0	0	0	33.3	0	0	0	100	0	0	0
Total (15 MSs)	**226**	**0**	**0.4**	**2.7**	**0**	**0**	**0**	**0.4**	**44.7**	**46.0**	**0.9**	**11.5**	**2.2**	**0.9**	**2.7**	**53.1**	**2.2**	**0**	**0**

N: total number of isolates tested; %: percentage of isolates with this phenotype from the total tested; GEN: gentamicin; CHL: chloramphenicol; AMP: ampicillin; CTX: cefotaxime; CAZ: Ceftazidime; MEM: meropenem; TGC: tigecycline, NAL: nalidixic acid; CIP: ciprofloxacin; AZM: azithromycin; COL: colistin; SMX: sulfamethoxazole; TMP: trimethoprim; TET: tetracycline.
CS: percentage of isolates showing complete susceptibility to all antimicrobial classes of the harmonised set for *Escherichia coli*; MDR: percentage of isolates showing resistance to at least 3 antimicrobial classes of the harmonised set for *Escherichia coli*
MSs: Member States; ECOFFS: epidemiological cut-off values; CBPs: clinical breakpoints
(a): The occurrence of resistance is assessed on less than 10 isolates and should only be considered as part of the total of MSs data and/or the total of MSs and non-MSs.
(b): Colistin is not included in the calculation of complete susceptibility. Further information is found in Appendix F. Materials and Methods available at https://doi.org/10.2903/j.efsa.2022.7209

Table 44: Occurrence of resistance (%) to selected antimicrobials, using harmonised ECOFFs, complete susceptibility and multiresistance to all antimicrobials tested and co-resistance to (fluoro)quinolones and third-generation cephalosporins, in *S.* Enteritidis from laying hens, 20 MSs and 2 non-MS, 2020

Country	N	GEN (%)	CHL (%)	AMP (%)	CTX (%)	CAZ (%)	MEM (%)	TGC (%)	NAL (%)	CIP (%)	AZM (%)	COL (%)	SMX (%)	TMP (%)	TET (%)	CS	MDR	Resistance to both CIP/CTX, applying ECOFFs	Resistance to both CIP/CTX, applying CBPs
Austria[a]	7	0	0	0	0	0	0	0	0	0	0	71.4	0	0	0	100	0	0	0
Belgium	12	0	0	0	0	0	0	0	0	0	0	66.7	0	0	0	100	0	0	0
Bulgaria[a]	6	0	0	0	0	0	0	0	33.3	33.3	0	0	0	0	0	66.7	0	0	0
Croatia	12	0	0	8.3	0	0	0	0	0	0	0	0	0	0	8.3	91.7	0	0	0
Cyprus	12	8.3	8.3	8.3	0	0	0	0	8.3	8.3	0	58.3	8.3	8.3	8.3	91.7	8.3	0	0
Czechia	17	0	0	0	0	0	0	0	11.8	11.8	0	0	0	0	0	88.2	0	0	0
Estonia[a]	3	0	0	0	0	0	0	0	33.3	33.3	0	66.7	0	0	0	66.7	0	0	0
Finland[a]	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0
France	40	0	0	5.0	0	0	0	0	2.5	2.5	0	5.0	0	0	0	92.5	0	0	0
Greece[a]	3	0	0	0	0	0	0	0	0	0	0	0	66.7	0	0	33.3	0	0	0
Hungary	12	0	0	16.7	8.3	8.3	0	0	16.7	16.7	0	16.7	0	0	0	75.0	0	0	0
Italy	12	0	0	0	0	0	0	0	41.7	41.7	0	25.0	8.3	0	8.3	58.3	8.3	0	0
Latvia[a]	3	0	0	0	0	0	0	0	33.3	33.3	0	100	0	0	0	66.7	0	0	0
Malta[a]	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0
Netherlands[a]	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0
Poland	64	0	0	1.6	0	0	0	0	31.3	32.8	0	1.6	0	0	0	65.6	0	0	0
Romania	10	0	0	0	0	0	0	0	20.0	20.0	0	10.0	0	0	0	80.0	0	0	0
Slovakia[a]	7	0	0	0	0	0	0	0	28.6	28.6	0	0	0	0	0	71.4	0	0	0
Spain	25	0	0	4.0	0	0	0	0	16.0	16.0	0	28.0	0	0	0	80.0	0	0	0
Sweden[a]	1	0	0	0	0	0	0	0	100	100	0	0	0	0	0	0	0	0	0
Total (20 MSs)	**258**	**0.4**	**0.4**	**3.1**	**0.4**	**0.4**	**0**	**0**	**17.1**	**17.4**	**0**	**15.9**	**1.6**	**0.4**	**1.2**	**79.5**	**0.8**	**0**	**0**
Rep. of North Macedonia[a]	7	0	0	0	0	0	0	0	0	0	0	0	0	0	28.6	71.4	0	0	0
United Kingdom	18	0	0	0	0	0	0	0	0	0	0	50.0	0	0	0	100	0	0	0
Total (MSs and non-MSs)	**283**																		

N: total number of isolates tested; %: percentage of isolates with this phenotype from the total tested; GEN: gentamicin; CHL: chloramphenicol; AMP: ampicillin; CTX: cefotaxime; CAZ: Ceftazidime; MEM: meropenem; TGC: tigecycline, NAL: nalidixic acid; CIP: ciprofloxacin; AZM: azithromycin; COL: colistin; SMX: sulfamethoxazole; TMP: trimethoprim; TET: tetracycline.
CS: percentage of isolates showing complete susceptibility to all antimicrobial classes of the harmonised set for *Escherichia coli*; MDR: percentage of isolates showing resistance to at least 3 antimicrobial classes of the harmonised set for *Escherichia coli*
MSs: Member States; ECOFFS: epidemiological cut-off values; CBPs: clinical breakpoints

(a): The occurrence of resistance is assessed on less than 10 isolates and should only be considered as part of the total of MSs data and/or the total of MSs and non-MSs.
(b): Colistin is not included in the calculation of complete susceptibility. Further information is found in Appendix F. Materials and Methods available at https://doi.org/10.2903/j.efsa.2022.7209

Table 45: Occurrence of resistance (%) to selected antimicrobials, complete susceptibility and multiresistance to all antimicrobials tested and co-resistance to (fluoro)quinolones and third-generation cephalosporins, in *S.* Enteritidis from fattening turkeys, 6 EU MSs, 2020

Country	N	GEN (%)	CHL (%)	AMP (%)	CTX (%)	CAZ (%)	MEM (%)	TGC (%)	NAL (%)	CIP (%)	AZM (%)	COL (%)	SMX (%)	TMP (%)	TET (%)	CS	MDR	Resistance to both CIP/CTX, applying ECOFFs	Resistance to both CIP/CTX, applying CBPs
Belgium[a]	1	0	100	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0
Czechia[a]	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0
France	10	0	0	10.0	0	0	0	0	0	0	0	0	10.0	10.0	0	90.0	10.0	0	0
Hungary[a]	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0
Poland[a]	3	0	0	0	0	0	0	0	100	100	0	0	0	0	0	0	0	0	0
Romania[a]	1	0	0	0	0	0	0	0	100	100	0	100	0	0	0	0	0	0	0
Total (6 MSs)	**22**	**0**	**4.5**	**4.5**	**0**	**0**	**0**	**0**	**18.2**	**18.2**	**0**	**9.1**	**4.5**	**4.5**	**0**	**72.7**	**4.5**	**0**	**0**

N: total number of isolates tested; %: percentage of isolates with this phenotype from the total tested; GEN: gentamicin; CHL: chloramphenicol; AMP: ampicillin; CTX: cefotaxime; CAZ: Ceftazidime; MEM: meropenem; TGC: tigecycline, NAL: nalidixic acid; CIP: ciprofloxacin; AZM: azithromycin; COL: colistin; SMX: sulfamethoxazole; TMP: trimethoprim; TET: tetracycline.
CS: percentage of isolates showing complete susceptibility to all antimicrobial classes of the harmonised set for *Escherichia coli*; MDR: percentage of isolates showing resistance to at least 3 antimicrobial classes of the harmonised set for *Escherichia coli*
MSs: Member States; ECOFFS: epidemiological cut-off values; CBPs: clinical breakpoints
(a): The occurrence of resistance is assessed on less than 10 isolates and should only be considered as part of the total of MSs data and/or the total of MSs and non-MSs.
(b): Colistin is not included in the calculation of complete susceptibility. Further information is found in Appendix F. Materials and Methods available at https://doi.org/10.2903/j.efsa.2022.7209