

Annex A – Data reported on 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 2021

Country	Gentamicin		Chloramphenicol		Ampicillin		Cefotaxime		Ceftazidime		Meropenem		Tigecycline	
	N	% Res	N	% Res	N	% Res	N	% Res	N	% Res	N	% Res	N	%
Austria	1,052	0.5	1,052	1.7	1,052	12.3	1,052	0.4	1,052	0.3	1,052	0	1,052	0
Belgium	747	1.1	747	6.3	747	42.6	747	0.3	-	-	747	0	-	-
Bulgaria	2	NA	-	-	1	NA	-	-	2	NA	1	NA	-	-
Cyprus	75	6.7	-	-	75	20.0	31	0	75	0	75	0	-	-
Denmark	343	0.6	343	3.8	343	20.4	343	0.3	343	0.3	343	0	343	2.6
Estonia	130	0	130	2.3	130	35.4	130	0	130	0	130	0	130	0
Finland	167	1.2	167	18.6	167	26.9	167	1.8	-	-	167	0	-	-
France	832	1.4	833	5.3	833	20.2	833	0.8	833	0.5	833	0	833	3.4
Germany	2,986	1.1	2,986	5.0	2,985	26.2	2,981	1.1	2,981	0.9	2,979	0	-	-
Greece	249	0.4	249	1.6	249	4.0	249	0.4	249	0.4	248	0	-	-
Hungary ^(a)	533	1.5	534	15.4	534	47.9	534	3.4	534	5.1	531	0	-	-
Italy	693	3.6	692	7.2	692	44.7	693	4.8	693	4.5	693	0	532	0.2
Latvia ^(a)	-	-	-	-	8	NA	-	-	-	-	-	-	-	-
Lithuania ^(a)	98	2.0	65	4.6	212	19.8	142	0	60	0	65	0	-	-
Luxembourg	116	1.7	116	4.3	116	25.0	116	0	116	0	116	0	-	-
Malta	205	2.0	-	-	205	33.2	205	0	205	0.5	205	0	-	-
Netherlands	612	3.9	612	6.7	612	28.1	612	1.0	612	0.5	612	0	612	3.4
Poland	75	2.7	75	2.7	75	9.3	75	1.3	75	1.3	75	0	75	1.3
Portugal	278	14.7	278	4.0	278	32.0	278	0.4	278	0	278	0	278	0.4
Romania	25	0	25	4.0	25	20.0	25	0	25	0	25	0	-	-
Slovakia ^(a)	-	-	2	NA	696	8.3	562	0.7	325	2.2	326	0	-	-
Slovenia	176	1.7	176	5.7	176	17.6	176	3.4	176	2.3	176	0	-	-
Spain	1,002	1.4	1,002	5.2	1,002	25.0	1,002	0.8	1,002	0.5	1,002	0	-	-
Sweden ^(d)	619	0.3	619	0.8	619	14.4	619	0.3	619	0.3	619	0	619	0
Total (24 MSs)	11,015	1.8	10,703	5.3	11,832	25.3	11,572	1.1	10,385	1.1	11,298	0	4,474	1.4
Iceland	-	-	-	-	48	14.6	-	-	-	-	-	-	-	-
Norway	-	-	200	6.5	200	16	200	0.5	200	0.5	200	0	-	-

Table 1. cont.d. *Salmonella* spp.

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	1,052	16	1,052	16.8	1,052	0.1	-	-	1,052	12.8	1,052	2.1	-	-	1,052	13.8
Belgium	-	-	747	11.1	-	-	-	-	747	38.7	747	10.3	-	-	747	35.1
Bulgaria	-	-	-	-	-	-	2	NA	-	-	1	NA	-	-	-	-
Cyprus	-	-	75	17.3	-	-	42	2.4	-	-	-	-	75	9.3	-	-
Denmark	343	6.4	343	7.0	343	0.6	343	2.6	343	21.6	343	3.8	-	-	343	24.5
Estonia	130	24.6	130	25.4	-	-	130	19.2	130	36.9	130	1.5	-	-	130	35.4
Finland	167	23.4	167	23.4	-	-	-	-	-	-	167	6.6	-	-	167	25.1
France	833	13.9	833	13.9	833	1.4	833	4.9	833	23.5	833	6.7	-	-	833	24.5
Germany	2,986	13.9	2,983	12.1	-	-	-	-	-	-	2,981	6.4	2,982	42.7	2,985	26.4
Greece	249	7.6	249	8.0	246	0.8	-	-	249	28.1	249	2.8	-	-	249	6.0
Hungary ^(a)	-	-	531	14.5	-	-	-	-	-	-	534	5.6	521	5.4	534	43.4
Italy	693	10.1	693	11.8	531	0.6	530	3.8	693	45.0	693	11.3	-	-	693	52.4
Latvia ^(a)	-	-	8	NA	-	-	-	-	-	-	5	NA	5	NA	-	-
Lithuania ^(a)	-	-	201	17.9	-	-	-	-	-	-	65	6.2	218	5.5	-	-
Luxembourg	-	-	116	12.9	-	-	-	-	116	75.0	-	-	116	5.2	116	22.4
Malta	-	-	205	9.3	-	-	-	-	-	-	-	-	-	-	-	-
Netherlands	612	10.5	612	9.3	612	0.3	612	9.6	612	26.1	612	5.2	-	-	612	26.5
Poland	75	90.7	75	90.7	75	1.3	5	NA	-	-	75	1.3	75	1.3	75	9.3
Portugal	278	8.6	278	15.8	278	0.4	-	-	278	32.7	278	3.2	-	-	278	30.6
Romania	25	16.0	25	16.0	-	-	-	-	25	32.0	25	0	25	4.0	25	28.0
Slovakia ^(a)	-	-	606	26.2	-	-	-	-	-	-	-	-	331	1.2	313	19.5
Slovenia	-	-	175	22.3	-	-	-	-	174	21.8	176	9.1	176	9.1	176	15.9
Spain	1,002	22.6	1,002	22.8	-	-	-	-	1,001	25.0	1,002	5.8	-	-	1,002	23.0
Sweden ^(d)	-	-	619	8.2	619	0	619	0	619	13.4	619	1.0	-	-	619	13.2
Total (24 MSs)	8,445	15.0	11,725	14.9	4,589	0.5	3,116	5.1	6,872	26.8	10,587	5.8	4,524	29.8	10,949	26.2
Iceland	-	-	48	10.4	-	-	-	-	-	-	-	-	48	12.5	-	-
Norway	-	-	200	12	-	-	-	-	-	-	-	-	-	-	200	14.0

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: 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): Microbiological resistance predicted from whole genome sequencing

Table 2: Antimicrobial resistance in *Salmonella* Enteritidis from humans per country in 2021

Country	Gentamicin		Chloramphenicol		Ampicillin		Cefotaxime		Ceftazidime		Meropenem		Tigecycline	
	N	% Res	N	% Res	N	% Res	N	% Res	N	% Res	N	% Res	N	% Res
Austria	376	0	376	0.3	376	1.3	376	0	376	0	376	0	376	0
Belgium	200	0	200	0.5	200	9.5	200	0.5	-	-	200	0	-	-
Bulgaria	2	NA	-	-	1	NA	-	-	2	NA	1	NA	-	-
Cyprus	31	0	-	-	31	6.5	13	0	31	0	31	0	-	-
Denmark	5	NA	5	NA	5	NA	5	NA	5	NA	5	NA	5	NA
Estonia	51	0	51	0	51	3.9	51	0	51	0	51	0	51	0
France	155	0	155	0	155	1.9	155	0	155	0	155	0	155	0.6
Germany	434	0.2	434	0.2	433	2.1	433	0	433	0	434	0	-	-
Greece	75	1.3	75	1.3	75	0	75	0	75	0	74	0	-	-
Hungary ^(a)	131	0	131	0	131	0.8	131	0.8	131	2.3	130	0	-	-
Italy	68	0	68	0	68	5.9	68	0	68	0	68	0	56	0
Latvia ^(a)	-	-	-	-	5	NA	-	-	-	-	-	-	-	-
Lithuania ^(a)	63	1.6	41	0	123	8.1	79	0	36	0	39	0	-	-
Luxembourg	41	0	41	2.4	41	0	41	0	41	0	41	0	-	-
Malta	74	0	-	-	74	0	74	0	74	0	74	0	-	-
Netherlands	143	0	143	0	143	4.2	143	0	143	0	143	0	143	0.7
Poland	67	0	67	0	67	0	67	0	67	0	67	0	67	0
Portugal	124	6.5	124	0	124	3.2	124	0	124	0	124	0	124	0
Romania	9	NA	9	NA	9	NA	9	NA	9	NA	9	NA	-	-
Slovakia	-	-	2	NA	605	5.6	484	0.2	284	1.4	284	0	-	-
Slovenia ^(a)	51	0	51	3.9	51	11.8	51	2.0	51	2.0	51	0	-	-
Spain	286	0	286	0.7	286	0.3	286	0	286	0	286	0	-	-
Sweden ^(d)	140	0	140	0	140	1.4	140	0	140	0	140	0	140	0
Total (23 MSs)	2,526	0.4	2,399	0.4	3,194	3.4	3,005	0.1	2,582	0.3	2,783	0	1,117	0.2
Iceland	-	-	-	-	3	NA	-	-	-	-	-	-	-	-
Norway	-	-	37	0	37	2.7	37	0	37	0	37	0	-	-

Table 2. cont.d. *Salmonella* Enteritidis

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	376	28.7	376	29	376	0	-	-	376	0.5	376	0.5	-	-	376	1.3
Belgium	-	-	200	7.0	-	-	-	-	200	5.5	200	2.5	-	-	200	5.5
Bulgaria	-	-	-	-	-	-	2	NA	-	-	1	NA	-	-	-	-
Cyprus	-	-	31	6.5	-	-	17	5.9	-	-	-	-	31	0	-	-
Denmark	5	NA	5	NA	5	NA	5	NA	5	NA	5	NA	-	-	5	NA
Estonia	51	45.1	51	47.1	-	-	51	49.0	51	3.9	51	2.0	-	-	51	3.9
France	155	9.7	155	9.7	155	0	155	5.8	155	0	155	0.6	-	-	155	0.6
Germany	434	20.3	432	15.7	-	-	-	-	-	-	432	0.5	432	25.7	434	1.6
Greece	75	8.0	75	8.0	72	1.4	-	-	75	28.0	75	0	-	-	75	0
Hungary ^(a)	-	-	129	26.4	-	-	-	-	-	-	131	0	129	0	131	0.8
Italy	68	14.7	68	14.7	56	0	56	17.9	68	5.9	68	1.5	-	-	68	7.4
Latvia ^(d)	-	-	5	NA	-	-	-	-	-	-	2	NA	3	NA	-	-
Lithuania ^(a)	-	-	115	23.5	-	-	-	-	-	-	40	0	126	1.6	-	-
Luxembourg	-	-	41	19.5	-	-	-	-	41	70.7	-	-	41	0	41	0
Malta	-	-	74	4.1	-	-	-	-	-	-	-	-	-	-	-	-
Netherlands	143	15.4	143	15.4	143	0	143	34.3	143	3.5	143	0	-	-	143	0.7
Poland	67	95.5	67	95.5	67	0	5	NA	-	-	67	0	67	0	67	1.5
Portugal	124	8.1	124	17.7	124	0	-	-	124	3.2	124	0.8	-	-	124	2.4
Romania	9	NA	9	NA	-	-	-	-	9	NA	9	NA	9	NA	9	NA
Slovakia ^(a)	-	-	527	23.5	-	-	-	-	-	-	-	-	274	0.7	260	15.0
Slovenia	-	-	50	36.0	-	-	-	-	51	7.8	51	5.9	51	3.9	51	5.9
Spain	286	32.9	286	32.2	-	-	-	-	286	0.7	286	0	-	-	286	0.3
Sweden ^(d)	-	-	140	25.7	140	0	140	0	140	0	140	0	-	-	140	1.4
Total (23 MSs)	1,793	24.8	3,103	22.6	1,138	0.1	574	17.6	1,724	4.9	2,356	0.7	1,163	10.1	2,616	3.1
Iceland	-	-	3	NA	-	-	-	-	-	-	-	-	3	NA	-	-
Norway	-	-	37	18.9	-	-	-	-	-	-	-	-	-	-	37	2.7

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: 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): Microbiological resistance predicted from whole genome sequencing

Table 3: Antimicrobial resistance in *Salmonella* Typhimurium from humans per country in 2021

Country	Gentamicin		Chloramphenicol		Ampicillin		Cefotaxime		Ceftazidime		Meropenem		Tigecycline	
	N	% Res	N	% Res	N	% Res	N	% Res	N	% Res	N	% Res	N	% Res
Austria	149	0	149	3.4	149	17.4	149	0	149	0	149	0	149	0
Belgium	126	2.4	126	13.5	126	64.3	126	0.8	-	-	126	0	-	-
Cyprus	23	0	-	-	23	30.4	9	NA	23	0	23	0	-	-
Denmark	81	0	81	7.4	81	14.8	81	1.2	81	1.2	81	0	81	6.2
Estonia	19	0	19	10.5	19	15.8	19	0	19	0	19	0	19	0
France	101	2.0	102	21.6	102	24.5	102	1	102	1	102	0	102	2.0
Germany	306	0.7	306	15.7	306	40.5	306	0.7	305	0.3	304	0	-	-
Greece	42	0	42	2.4	42	9.5	42	0	42	0	42	0	-	-
Hungary ^(a)	124	0	124	25	124	42.7	124	5.6	124	4.8	122	0	-	-
Italy	43	4.7	43	27.9	43	53.5	43	4.7	43	2.3	43	0	40	0
Latvia ^(a)	-	-	-	-	3	NA	-	-	-	-	-	-	-	-
Lithuania ^(a)	6	NA	6	NA	11	90.9	9	NA	6	NA	6	NA	-	-
Luxembourg	14	0	14	0	14	35.7	14	0	14	0	14	0	-	-
Malta	1	NA	-	-	1	NA	1	NA	1	NA	1	NA	-	-
Netherlands	133	6.8	133	13.5	133	38.3	133	2.3	133	0.8	133	0	133	3.0
Poland	2	NA	2	NA	2	NA	2	NA	2	NA	2	NA	2	NA
Portugal	26	11.5	26	26.9	26	38.5	26	3.8	26	0	26	0	26	0
Romania	11	0	11	9.1	11	45.5	11	0	11	0	11	0	-	-
Slovakia ^(a)	-	-	-	-	39	33.3	31	3.2	17	0	18	0	-	-
Slovenia	40	7.5	40	17.5	40	30.0	40	2.5	40	0	40	0	-	-
Spain	27	0	27	33.3	27	40.7	27	3.7	27	0	27	0	-	-
Sweden ^(d)	60	1.7	60	0	60	18.3	60	1.7	60	1.7	60	0	60	0
Total (22 MSs)	1,334	1.9	1,311	14.5	1,382	35.5	1,355	1.6	1,225	1.0	1,349	0	612	1.8
Iceland	-	-	-	-	23	26.1	-	-	-	-	-	-	-	-
Norway	-	-	32	18.8	32	31.2	32	0	32	0	32	0	-	-

Table 3. cont.d. *Salmonella* Typhimurium

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	149	0.7	149	0.7	149	0	-	-	149	18.1	149	2.0	-	-	149	15.4
Belgium	-	-	126	4.8	-	-	-	-	126	37.3	126	15.1	-	-	126	37.3
Cyprus	-	-	23	13.0	-	-	13	0	-	-	-	-	23	4.3	-	-
Denmark	81	1.2	81	3.7	81	0	81	0	81	16.0	81	6.2	-	-	81	13.6
Estonia	19	5.3	19	5.3	-	-	19	0	19	21.1	19	0	-	-	19	15.8
France	102	11.8	102	11.8	102	0	102	6.9	102	27.5	102	3.9	-	-	102	29.4
Germany	306	7.5	306	6.5	-	-	-	-	-	-	306	7.2	306	50.7	306	30.7
Greece	42	2.4	42	2.4	42	0	-	-	42	23.8	42	2.4	-	-	42	11.9
Hungary ^(a)	-	-	123	8.9	-	-	-	-	-	-	124	3.2	121	3.3	124	31.5
Italy	43	7	43	14.0	40	0	40	2.5	43	53.5	43	11.6	-	-	43	65.1
Latvia ^(a)	-	-	3	NA	-	-	-	-	-	-	3	NA	2	NA	-	-
Lithuania ^(a)	-	-	10	10.0	-	-	-	-	-	-	6	NA	11	27.3	-	-
Luxembourg	-	-	14	7.1	-	-	-	-	14	71.4	-	-	14	7.1	14	7.1
Malta	-	-	1	NA	-	-	-	-	-	-	-	-	-	-	-	-
Netherlands	133	5.3	133	5.3	133	0.8	133	1.5	133	30.8	133	7.5	-	-	133	31.6
Poland	2	NA	2	NA	2	NA	-	-	-	-	2	NA	2	NA	2	NA
Portugal	26	7.7	26	15.4	26	0	-	-	26	46.2	26	7.7	-	-	26	42.3
Romania	11	9.1	11	9.1	-	-	-	-	11	54.5	11	0	11	0	11	45.5
Slovakia ^(a)	-	-	32	34.4	-	-	-	-	-	-	-	-	23	4.3	25	40.0
Slovenia	-	-	40	20.0	-	-	-	-	39	33.3	40	12.5	40	12.5	40	27.5
Spain	27	18.5	27	18.5	-	-	-	-	27	37.0	27	14.8	-	-	27	18.5
Sweden ^(d)	-	-	60	1.7	60	0	60	0	60	11.7	60	5.0	-	-	60	10.0
Total (22 MSs)	941	6.2	1,373	7.6	635	0.2	448	2.2	872	28.8	1,300	6.8	553	30.7	1,330	28.0
Iceland	-	-	23	4.3	-	-	-	-	-	-	-	-	23	8.7	-	-
Norway	-	-	32	21.9	-	-	-	-	-	-	-	-	-	-	32	31.2

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: 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): 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 2021

Country	Gentamicin		Chloramphenicol		Ampicillin		Cefotaxime		Ceftazidime		Meropenem		Tigecycline	
	N	% Res	N	% Res	N	% Res	N	% Res	N	% Res	N	% Res	N	% Res
Austria	95	2.1	95	5.3	95	70.5	95	1.1	95	0	95	0	95	0
Belgium	192	0.5	192	8.9	192	94.3	192	0	-	-	192	0	-	-
Denmark	66	3.0	66	3.0	66	81.8	66	0	66	0	66	0	66	0
Estonia	41	0	41	2.4	41	100	41	0	41	0	41	0	41	0
France	103	2.9	103	6.8	103	88.3	103	1	103	0	103	0	103	3.9
Germany	567	1.4	567	5.1	567	87.3	566	2.1	566	1.9	567	0	-	-
Greece	1	NA	1	NA	1	NA	1	NA	1	NA	1	NA	-	-
Hungary ^(a)	106	2.8	106	11.3	106	78.3	106	3.8	106	5.7	106	0	-	-
Italy	243	5.3	242	9.5	243	90.1	243	2.9	243	2.9	243	0	146	0
Luxembourg	21	4.8	21	9.5	21	90.5	21	0	21	0	21	0	-	-
Malta	44	0	-	-	44	93.2	44	0	44	0	44	0	-	-
Netherlands	106	0.9	106	7.5	106	90.6	106	0	106	0	106	0	106	0.9
Poland	4	NA	4	NA	4	NA	4	NA	4	NA	4	NA	4	NA
Portugal	80	30.0	80	2.5	80	88.8	80	0	80	0	80	0	80	1.2
Slovenia	9	NA	9	NA	9	NA	9	NA	9	NA	9	NA	-	-
Spain	209	2.9	209	8.6	209	88.5	209	1.9	209	1	209	0	-	-
Sweden ^(d)	71	1.4	71	2.8	71	100	71	0	71	0	71	0	71	0
Total (17 MSs)	1,958	3.4	1,913	6.7	1,958	88.2	1,957	1.7	1,765	1.7	1,958	0	712	1.0
Norway	-	-	15	20.0	15	86.7	15	0	15	0	15	0	-	-

Table 4. cont.d *Salmonella* Typhimurium 1,4,[5],12:i:-

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	95	7.4	95	7.4	95	0	-	-	95	63.2	95	6.3	-	-	95	71.6
Belgium	-	-	192	9.9	-	-	-	-	192	91.7	192	14.6	-	-	192	84.4
Denmark	66	10.6	66	10.6	66	0	66	0	66	80.3	66	3.0	-	-	66	97.0
Estonia	41	17.1	41	17.1	-	-	41	0	41	100	41	0	-	-	41	97.6
France	103	8.7	103	9.7	103	2.9	103	1	103	84.5	103	9.7	-	-	103	81.6
Germany	567	7.2	567	5.5	-	-	-	-	-	-	566	7.4	567	84.7	566	84.1
Greece	1	NA	1	NA	1	NA	-	-	1	NA	1	NA	-	-	1	NA
Hungary ^(a)	-	-	106	6.6	-	-	-	-	-	-	106	10.4	101	8.9	106	75.5
Italy	243	5.8	243	7.8	146	0	143	0	243	81.5	243	9.9	-	-	243	91.4
Luxembourg	-	-	21	9.5	-	-	-	-	21	95.2	-	-	21	9.5	21	90.5
Malta	-	-	44	2.3	-	-	-	-	-	-	-	-	-	-	-	-
Netherlands	106	6.6	106	6.6	106	0	106	0	106	86.8	106	1.9	-	-	106	91.5
Poland	4	NA	4	NA	4	NA	-	-	-	-	4	NA	4	NA	4	NA
Portugal	80	13.8	80	20.0	80	1.2	-	-	80	86.2	80	5.0	-	-	80	81.2
Slovenia	-	-	9	NA	-	-	-	-	9	NA	9	NA	9	NA	9	NA
Spain	209	15.3	209	15.8	-	-	-	-	208	85.1	209	8.6	-	-	209	78.0
Sweden ^(d)	-	-	71	5.6	71	0	71	0	71	100	71	0	-	-	71	95.8
Total (17 MSs)	1,515	9.0	1,958	8.9	672	0.7	530	0.2	1,236	85.2	1,892	8.0	702	70.7	1,913	84.5
Norway	-	-	15	0	-	-	-	-	-	-	-	-	-	-	15	73.3

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: 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): Microbiological resistance predicted from whole genome sequencing

Table 5: Antimicrobial resistance in *Salmonella* Infantis from humans per country in 2021

Country	Gentamicin		Chloramphenicol		Ampicillin		Cefotaxime		Ceftazidime		Meropenem		Tigecycline	
	N	% Res	N	% Res	N	% Res	N	% Res	N	% Res	N	% Res	N	% Res
Austria	53	3.8	53	9.4	53	26.4	53	1.9	53	1.9	53	0	53	0
Belgium	39	0	39	5.1	39	25.6	39	0	-	-	39	0	-	-
Cyprus	4	NA	-	-	4	NA	1	NA	4	NA	4	NA	-	-
Denmark	7	NA	7	NA	7	NA	7	NA	7	NA	7	NA	7	NA
Estonia	4	NA	4	NA	4	NA	4	NA	4	NA	4	NA	4	NA
France	123	0	123	2.4	123	5.7	123	0.8	123	0	123	0	123	8.9
Germany	155	3.9	155	4.5	155	10.3	155	3.2	155	3.2	153	0	-	-
Greece	9	NA	9	NA	9	NA	9	NA	9	NA	9	NA	-	-
Italy	32	9.4	32	12.5	32	65.6	32	59.4	32	56.2	32	0	30	0
Lithuania ^(a)	7	NA	6	NA	6	NA	7	NA	6	NA	7	NA	-	-
Luxembourg	2	NA	2	NA	2	NA	2	NA	2	NA	2	NA	-	-
Malta	13	0	-	-	13	0	13	0	13	0	13	0	-	-
Netherlands	18	5.6	18	5.6	18	5.6	18	5.6	18	5.6	18	0	18	11.1
Poland	1	NA	1	NA	1	NA	1	NA	1	NA	1	NA	1	NA
Portugal	3	NA	3	NA	3	NA	3	NA	3	NA	3	NA	3	NA
Romania	3	NA	3	NA	3	NA	3	NA	3	NA	3	NA	-	-
Slovakia ^(a)	-	-	-	-	15	26.7	12	0	8	NA	8	NA	-	-
Slovenia	8	NA	8	NA	8	NA	8	NA	8	NA	8	NA	-	-
Spain	30	3.3	30	3.3	30	6.7	30	0	30	0	30	0	-	-
Sweden ^(d)	5	NA	5	NA	5	NA	5	NA	5	NA	5	NA	5	NA
Total (20 MSs)	516	2.5	498	4.8	530	15.7	525	5.3	484	5.2	522	0	244	5.3
Iceland	-	-	-	-	1	NA	-	-	-	-	-	-	-	-
Norway	-	-	1	NA	1	NA	1	NA	1	NA	1	NA	-	-

Table 5. cont.d. *Salmonella* Infantis

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	53	73.6	53	73.6	53	1.9	-	-	53	64.2	53	9.4	-	-	53	64.2
Belgium	-	-	39	43.6	-	-	-	-	39	51.3	39	17.9	-	-	39	38.5
Cyprus	-	-	4	NA	-	-	3	NA	-	-	-	-	4	NA	-	-
Denmark	7	NA	7	NA	7	NA	7	NA	7	NA	7	NA	-	-	7	NA
Estonia	4	NA	4	NA	-	-	4	NA	4	NA	4	NA	-	-	4	NA
France	123	15.4	123	15.4	123	1.6	123	0	123	18.7	123	9.8	-	-	123	14.6
Germany	155	25.2	155	21.9	-	-	-	-	-	-	155	11.0	155	32.9	155	25.8
Greece	9	NA	9	NA	9	NA	-	-	9	NA	9	NA	-	-	9	NA
Italy	32	81.2	32	81.2	30	6.7	28	0	32	81.2	32	75.0	-	-	32	81.2
Lithuania ^(a)	-	-	7	NA	-	-	-	-	-	-	7	NA	7	NA	-	-
Luxembourg	-	-	2	NA	-	-	-	-	2	NA	-	-	2	NA	2	NA
Malta	-	-	13	7.7	-	-	-	-	-	-	-	-	-	-	-	-
Netherlands	18	22.2	18	22.2	18	0	18	11.1	18	22.2	18	16.7	-	-	18	22.2
Poland	1	NA	1	NA	1	NA	-	-	-	-	1	NA	1	NA	1	NA
Portugal	3	NA	3	NA	3	NA	-	-	3	NA	3	NA	-	-	3	NA
Romania	3	NA	3	NA	-	-	-	-	3	NA	3	NA	3	NA	3	NA
Slovakia ^(a)	-	-	12	50.0	-	-	-	-	-	-	-	-	8	NA	7	NA
Slovenia	-	-	8	NA	-	-	-	-	8	NA	8	NA	8	NA	8	NA
Spain	30	36.7	30	36.7	-	-	-	-	30	36.7	30	10.0	-	-	30	33.3
Sweden ^(d)	-	-	5	NA	5	NA	5	NA	5	NA	5	NA	-	-	5	NA
Total (20 MSs)	438	33.3	528	33.9	249	2.0	188	1.1	336	40.5	497	15.5	188	30.3	499	34.1
Iceland	-	-	1	NA	-	-	-	-	-	-	-	-	1	NA	-	-
Norway	-	-	1	NA	-	-	-	-	-	-	-	-	-	-	1	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: 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): Microbiological resistance predicted from whole genome sequencing

Table 6: Antimicrobial resistance in *Salmonella* Kentucky from humans per country in 2021

Country	Gentamicin		Chloramphenicol		Ampicillin		Cefotaxime		Ceftazidime		Meropenem		Tigecycline	
	N	% Res	N	% Res	N	% Res	N	% Res	N	% Res	N	% Res	N	% Res
Austria	5	NA	5	NA	5	NA	5	NA	5	NA	5	NA	5	NA
Belgium	7	NA	7	NA	7	NA	7	NA	-	-	7	NA	-	-
France	35	17.1	35	8.6	35	65.7	35	2.9	35	2.9	35	0	35	2.9
Germany	23	56.5	23	17.4	23	60.9	23	8.7	23	8.7	23	0	-	-
Greece	2	NA	2	NA	2	NA	2	NA	2	NA	2	NA	-	-
Italy	1	NA	1	NA	1	NA	1	NA	1	NA	1	NA	1	NA
Malta	18	22.2	-	-	18	72.2	18	0	18	5.6	18	0	-	-
Netherlands	2	NA	2	NA	2	NA	2	NA	2	NA	2	NA	2	NA
Poland	1	NA	1	NA	1	NA	1	NA	1	NA	1	NA	1	NA
Slovakia ^(a)	-	-	-	-	1	NA	1	NA	-	-	-	-	-	-
Spain	5	NA	5	NA	5	NA	5	NA	5	NA	5	NA	-	-
Sweden ^(d)	5	NA	5	NA	5	NA	5	NA	5	NA	5	NA	5	NA
Total (12 MSs)	104	27.9	86	12.8	105	62.9	105	5.7	97	6.2	104	0	49	2
Norway	-	-	1	NA	1	NA	1	NA	1	NA	1	NA	-	-

Table 6. cont.d. *Salmonella* Kentucky

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	5	NA	5	NA	5	NA	-	-	5	NA	5	NA	-	-	5	NA
Belgium	-	-	7	NA	-	-	-	-	7	NA	7	NA	-	-	7	NA
France	35	80.0	35	80.0	35	5.7	35	0	35	51.4	35	31.4	-	-	35	57.1
Germany	23	87.0	23	87.0	-	-	-	-	-	-	23	17.4	23	78.3	23	73.9
Greece	2	NA	2	NA	2	NA	-	-	2	NA	2	NA	-	-	2	NA
Italy	1	NA	1	NA	1	NA	1	NA	1	NA	1	NA	-	-	1	NA
Malta	-	-	18	66.7	-	-	-	-	-	-	-	-	-	-	-	-
Netherlands	2	NA	2	NA	2	NA	2	NA	2	NA	2	NA	-	-	2	NA
Poland	1	NA	1	NA	1	NA	-	-	-	-	1	NA	1	NA	1	NA
Slovakia ^(a)	-	-	1	NA	-	-	-	-	-	-	-	-	1	NA	-	-
Spain	5	NA	5	NA	-	-	-	-	5	NA	5	NA	-	-	5	NA
Sweden ^(d)	-	-	5	NA	5	NA	5	NA	5	NA	5	NA	-	-	5	NA
Total (12 MSs)	74	79.7	105	78.1	51	3.9	43	0	62	51.6	86	24.4	25	72.0	86	58.1
Norway	-	-	1	NA	-	-	-	-	-	-	-	-	-	-	1	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: 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): Microbiological resistance predicted from whole genome sequencing

Table 7: Antimicrobial resistance in *Salmonella* Derby from humans per country in 2021

Country	Gentamicin		Chloramphenicol		Ampicillin		Cefotaxime		Ceftazidime		Meropenem		Tigecycline	
	N	% Res	N	% Res	N	% Res	N	% Res	N	% Res	N	% Res	N	% Res
Austria	5	NA	5	NA	5	NA	5	NA	5	NA	5	NA	5	NA
Belgium	26	3.8	26	0	26	19.2	26	0	-	-	26	0	-	-
Denmark	8	NA	8	NA	8	NA	8	NA	8	NA	8	NA	8	NA
Estonia	5	NA	5	NA	5	NA	5	NA	5	NA	5	NA	5	NA
France	65	0	65	1.5	65	10.8	65	0	65	0	65	0	65	1.5
Germany	109	0	109	0.9	109	9.2	109	3.7	109	3.7	109	0	-	-
Italy	19	0	19	0	19	0	19	0	19	0	19	0	16	0
Luxembourg	3	NA	3	NA	3	NA	3	NA	3	NA	3	NA	-	-
Malta	1	NA	-	-	1	NA	1	NA	1	NA	1	NA	-	-
Netherlands	7	NA	7	NA	7	NA	7	NA	7	NA	7	NA	7	NA
Portugal	1	NA	1	NA	1	NA	1	NA	1	NA	1	NA	1	NA
Slovakia ^(a)	-	-	-	-	2	NA	2	NA	1	NA	1	NA	-	-
Slovenia	1	NA	1	NA	1	NA	1	NA	1	NA	1	NA	-	-
Spain	9	NA	9	NA	9	NA	9	NA	9	NA	9	NA	-	-
Total (14 MSs)	259	0.4	258	1.6	261	10.3	261	1.5	234	1.7	260	0	107	0.9
Norway	-	-	1	NA	1	NA	1	NA	1	NA	1	NA	-	-

Table 7. cont.d. *Salmonella* Derby

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	5	NA	5	NA	5	NA	-	-	5	NA	5	NA	-	-	5	NA
Belgium	-	-	26	3.8	-	-	-	-	26	26.9	26	11.5	-	-	26	23.1
Denmark	8	NA	8	NA	8	NA	8	NA	8	NA	8	NA	-	-	8	NA
Estonia	5	NA	5	NA	-	-	5	NA	5	NA	5	NA	-	-	5	NA
France	65	1.5	65	1.5	65	3.1	65	1.5	65	43.1	65	9.2	-	-	65	32.3
Germany	109	10.1	108	8.3	-	-	-	-	-	-	109	5.5	109	36.7	109	8.3
Italy	19	0	19	0	16	0	16	6.2	19	31.6	19	0	-	-	19	31.6
Luxembourg	-	-	3	NA	-	-	-	-	3	NA	-	-	3	NA	3	NA
Malta	-	-	1	NA	-	-	-	-	-	-	-	-	-	-	-	-
Netherlands	7	NA	7	NA	7	NA	7	NA	7	NA	7	NA	-	-	7	NA
Portugal	1	NA	1	NA	1	NA	-	-	1	NA	1	NA	-	-	1	NA
Slovakia ^(a)	-	-	2	NA	-	-	-	-	-	-	-	-	1	NA	1	NA
Slovenia	-	-	1	NA	-	-	-	-	-	-	1	NA	1	NA	1	NA
Spain	9	NA	9	NA	-	-	-	-	9	NA	9	NA	-	-	9	NA
Total (14 MSs)	228	6.6	260	5.4	102	2.0	101	2.0	148	32.4	255	6.3	114	35.1	259	19.3
Norway	-	-	1	NA	-	-	-	-	-	-	-	-	-	-	1	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: 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.

Table 8: Combined 'microbiological' and 'clinical' resistance to ciprofloxacin and cefotaxime among *Salmonella* spp. isolates from human cases in 2021

Country	N	Microbiologically resistant to CIP and CTX(%)	Clinically resistant to CIP and CTX(%)
Austria	1,052	0.2	0.2
Belgium	747	0.1	0.1
Cyprus	31	0	0
Denmark	343	0	0
Estonia	130	0	0
Finland	167	1.2	1.2
France	833	0.6	0.4
Germany	2,978	0.8	0.8
Greece	249	0.4	0.4
Hungary	531	2.1	2.1
Italy	693	3.2	3.2
Lithuania	126	0	0
Luxembourg	116	0	0
Malta	205	0	0
Netherlands	612	1.0	1.0
Poland	75	1.3	1.3
Portugal	278	0.4	0.4
Romania	25	0	0
Slovakia	545	0.7	0.7
Slovenia	175	2.9	2.9
Spain	1,002	0.5	0.5
Sweden	619	0.2	ND
Total (MSs 22)	11,532	0.8	0.8
Norway	200	0.5	0.5

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. Enteritidis* isolates from human cases in 2021

Country	N	Microbiologically resistant to CIP and CTX(%)	Clinically resistant to CIP and CTX(%)
Austria	376	0	0
Belgium	200	0	0
Cyprus	13	0	0
Denmark	5	NA	NA
Estonia	51	0	0
France	155	0	0
Germany	431	0	0
Greece	75	0	0
Hungary	129	0	0
Italy	68	0	0
Lithuania	69	0	0
Luxembourg	41	0	0
Malta	74	0	0
Netherlands	143	0	0
Poland	67	0	0
Portugal	124	0	0
Romania	9	NA	NA
Slovakia	467	0.2	0.2
Slovenia	50	0	0
Spain	286	0	0
Sweden	140	0	ND
Total (MSs 21)	2,973	0	0
Norway	37	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 10: Combined ‘microbiological’ and ‘clinical’ resistance to ciprofloxacin and cefotaxime among *S. Typhimurium* isolates from human cases in 2021

Country	N	Microbiologically resistant to CIP and CTX(%)	Clinically resistant to CIP and CTX(%)
Austria	149	0	0
Belgium	126	0	0
Cyprus	9	NA	NA
Denmark	81	0	0
Estonia	19	0	0
France	102	1.0	1
Germany	306	0	0
Greece	42	0	0
Hungary	123	2.4	2.4
Italy	43	2.3	2.3
Lithuania	8	NA	NA
Luxembourg	14	0	0
Malta	1	NA	NA
Netherlands	133	2.3	2.3
Poland	2	NA	NA
Portugal	26	3.8	3.8
Romania	11	0	0
Slovakia	31	3.2	3.2
Slovenia	40	2.5	2.5
Spain	27	3.7	3.7
Sweden	60	0	ND
Total (MSs 21)	1,353	0.9	0.9
Norway	32	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 monophasic *S. Typhimurium* isolates from human cases in 2021

Country	N	Microbiologically resistant to CIP and CTX(%)	Clinically resistant to CIP and CTX(%)
Austria	95	1.1	1.1
Belgium	192	0	0
Denmark	66	0	0
Estonia	41	0	0
France	103	1.0	1.0
Germany	566	1.9	1.9
Greece	1	NA	NA
Hungary	106	1.9	1.9
Italy	243	0.4	0.4
Luxembourg	21	0	0
Malta	44	0	0
Netherlands	106	0	0
Poland	4	NA	NA
Portugal	80	0	0
Slovenia	9	NA	NA
Spain	209	1.9	1.9
Sweden	71	0	ND
Total (MSs 17)	1,957	1.2	1.2
Norway	15	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 12: Combined 'microbiological' and 'clinical' resistance to ciprofloxacin and cefotaxime among *S. Infantis* isolates from human cases in 2021

Country	N	Microbiologically resistant to CIP and CTX(%)	Clinically resistant to CIP and CTX(%)
Austria	53	1.9	1.9
Belgium	39	0	0
Cyprus	1	NA	NA
Denmark	7	NA	NA
Estonia	4	NA	NA
France	123	0.8	0
Germany	155	2.6	2.6
Greece	9	NA	NA
Italy	32	56.3	56.3
Lithuania	7	NA	NA
Luxembourg	2	NA	NA
Malta	13	0	0
Netherlands	18	5.6	5.6
Poland	1	NA	NA
Portugal	3	NA	NA
Romania	3	NA	NA
Slovakia	12	0	0
Slovenia	8	NA	NA
Spain	30	0	0
Sweden	5	NA	NA
Total (MSs 20)	525	5.0	4.8
Norway	1	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 13: Combined ciprofloxacin and cefotaxime among *S. Kentucky* isolates from human cases in 2021

Country	N	Microbiologically resistant to CIP and CTX(%)	Clinically resistant to CIP and CTX(%)
Austria	5	NA	NA
Belgium	7	NA	NA
France	35	2.9	2.9
Germany	23	8.7	8.7
Greece	2	NA	NA
Italy	1	NA	NA
Malta	18	0	0
Netherlands	2	NA	NA
Poland	1	NA	NA
Slovakia	1	NA	NA
Spain	5	NA	NA
Sweden	5	NA	NA
Total (MSs 12)	105	5.7	4.8
Norway	1	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 14: Combined ciprofloxacin and cefotaxime among *S. Derby* isolates from human cases in 2021

Country	N	Microbiologically resistant to CIP and CTX(%)	Clinically resistant to CIP and CTX(%)
Austria	5	NA	NA
Belgium	26	0	0
Denmark	8	NA	NA
Estonia	5	NA	NA
France	65	0	0
Germany	108	2.8	2.8
Italy	19	0	0
Luxembourg	3	NA	NA
Malta	1	NA	NA
Netherlands	7	NA	NA
Portugal	1	NA	NA
Slovakia	2	NA	NA
Slovenia	1	NA	NA
Spain	9	NA	NA
Total (MSs 14)	260	1.2	1.2
Norway	1	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 15: ESBL, AmpC and carbapenemase phenotypes in *Salmonella* spp. isolates from humans by country, 2021

Country	Tested for CTX and/or CAZ	Res to CTX and/or CAZ	Resistance Phenotype								Tested negative to ESBL, AmpC, CP		Positive serovars
			ESBL		AmpC		AmpC + ESBL		Carba-penemase				
			N	%	N	%	N	%	N	%	N	%	
Austria	1,052	4	4	0.4									Infantis (1), Java_Paratyphi B (1), Monophasic Typhimurium 1.4.[5].12:I:- (1), Worthington (1)
Belgium	747	1	1	0.1									Typhimurium (1)
Denmark	343	1			1	0.3							Typhimurium (1)
Finland	167	3	2	1.2	1	0.6							Brandenburg (1), Infantis (1), Monophasic Typhimurium 1.4.[5].12:I:- (1)
France	833	7	3	0.4	1	0.1					3	0.4	Kentucky (1), Monophasic Typhimurium 1.4.[5].12:I:- (1), Rissen (1), Typhimurium (1)
Germany	2985	32	19	0.6							3	0.1	Derby (3), Infantis (5), Monophasic Typhimurium 1.4.[5].12:I:- (11),
Italy	693	33	24	3.5	9	1.3							Brandenburg (1), Enterica (1), Goldcoast (2), Infantis (19), Kenya (1), Monophasic Typhimurium 1.4.[5].12:I:- (7), Typhimurium (2)
Malta	205	1									1	0.5	
Netherlands	612	6	6	1.0									Infantis (1), Kentucky (2), Typhimurium (3)
Poland	75	1	1	1.3									Monophasic Typhimurium 1.4.[5].12:I:- (1)
Portugal	278	1	1	0.4									Typhimurium (1)
Slovenia	176	6	5	2.8							1	0.6	Enteritidis (1), Monophasic Typhimurium 1.4.[5].12:I:- (3), Typhimurium (1)
Spain	1,002	8	8	0.8									Give (1), Kedougou (1), Monophasic Typhimurium 1.4.[5].12:I:- (4), Subspi (1), Typhimurium (1)
Sweden	619	2	2	0.3									Kentucky (1), Typhimurium (1)
Total (MSs 14)	9,787	106	76	0.8	12	0.1					8	0.1	
Norway	200	1	1	0.5									Newport (1)

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.

Table 16: Complete susceptibility and multiresistance in *Salmonella* spp. from humans in 2021

Country	Susceptible to all (%)	Multiresistant (%)
Austria (N=1,052)	72.0	12.0
Belgium (N=747)	47.5	34.0
Denmark (N=343)	70.8	20.1
Estonia (N=130)	44.6	35.4
France (N=832)	66.6	19.7
Greece (N=248)	66.9	5.6
Italy (N=691)	38.9	40.5
Luxembourg (N=116)	20.7	19.8
Netherlands (N=612)	62.9	24.7
Portugal (N=278)	49.6	28.8
Romania (N=25)	64.0	32.0
Slovenia (N=173)	64.7	17.3
Spain (N=1,001)	55.5	22.3
Sweden (N=619)	78.4	12.9
Total (14 MSs) (N=6,867)	60.0	22.6

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

Table 17: Complete susceptibility and multiresistance in *S. Enteritidis* from humans in 2021

Country	Susceptible to all (%)	Multiresistant (%)
Austria (N=376)	70.2	1.1
Belgium (N=200)	83.0	5.0
Denmark (N=5)	NA	NA
Estonia (N=51)	51.0	3.9
France (N=155)	88.4	0.6
Greece (N=74)	67.6	0
Italy (N=68)	75.0	4.4
Luxembourg (N=41)	24.4	0
Netherlands (N=143)	83.2	3.5
Portugal (N=124)	71.8	1.6
Romania (N=9)	NA	NA
Slovenia (N=50)	54.0	6.0
Spain (N=286)	66.1	0
Sweden (N=140)	74.3	1.4
Total (14 MSs) (N=1,722)	72.1	1.9

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

Table 18: Complete susceptibility and multiresistance in *S. Typhimurium* from humans in 2021

Country	Susceptible to all (%)	Multiresistant (%)
Austria (N=149)	77.9	14.1
Belgium (N=126)	27.0	31.7
Denmark (N=81)	84.0	13.6
Estonia (N=19)	78.9	15.8
France (N=101)	64.4	23.8
Greece (N=42)	73.8	7.1
Italy (N=43)	20.9	46.5
Luxembourg (N=14)	14.3	14.3
Netherlands (N=133)	54.1	27.1
Portugal (N=26)	46.2	38.5
Romania (N=11)	45.5	54.5
Slovenia (N=39)	64.1	28.2
Spain (N=27)	48.1	33.3
Sweden (N=60)	76.7	6.7
Total (14 MSs) (N=871)	58.9	23.0

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

Table 19: Complete susceptibility and multiresistance in monophasic *S. Typhimurium* from humans in 2021

Country	Susceptible to all (%)	Multiresistant (%)
Austria (N=95)	21.1	58.9
Belgium (N=192)	2.1	82.3
Denmark (N=66)	0	75.8
Estonia (N=41)	0	97.6
France (N=103)	7.8	76.7
Greece (N=1)	NA	NA
Italy (N=242)	3.3	78.1
Luxembourg (N=21)	0	81.0
Netherlands (N=106)	0.9	82.1
Portugal (N=80)	2.5	77.5
Slovenia (N=9)	NA	NA
Spain (N=208)	5.3	73.1
Sweden (N=71)	0	97.2
Total (13 MSs) (N=1,235)	4.5	78.4

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

Table 20: Complete susceptibility and multiresistance in *S. Infantis* from humans in 2021

Country	Susceptible to all (%)	Multiresistant (%)
Austria (N=53)	26.4	64.2
Belgium (N=39)	41.0	48.7
Denmark (N=7)	NA	NA
Estonia (N=4)	NA	NA
France (N=123)	79.7	16.3
Greece (N=9)	NA	NA
Italy (N=32)	9.4	78.1
Luxembourg (N=2)	NA	NA
Netherlands (N=18)	77.8	22.2
Portugal (N=3)	NA	NA
Romania (N=3)	NA	NA
Slovenia (N=8)	NA	NA
Spain (N=30)	56.7	33.3
Sweden (N=5)	NA	NA
Total (14 MSs) (N=336)	54.5	38.1

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

Table 21: Complete susceptibility and multiresistance in *S. Kentucky* from humans in 2021

Country	Susceptible to all (%)	Multiresistant (%)
Austria (N=5)	NA	NA
Belgium (N=7)	NA	NA
France (N=35)	17.1	54.3
Greece (N=2)	NA	NA
Italy (N=1)	NA	NA
Netherlands (N=2)	NA	NA
Spain (N=5)	NA	NA
Sweden (N=5)	NA	NA
Total (8 MSs) (N=62)	19.4	54.8

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

Table 22: Complete susceptibility and multiresistance in *S. Derby* from humans in 2021

Country	Susceptible to all (%)	Multiresistant (%)
Austria (N=5)	NA	NA
Belgium (N=26)	65.4	19.2
Denmark (N=8)	NA	NA
Estonia (N=5)	NA	NA
France (N=65)	50.8	9.2
Italy (N=19)	63.2	0
Luxembourg (N=3)	NA	NA
Netherlands (N=7)	NA	NA
Portugal (N=1)	NA	NA
Spain (N=9)	NA	NA
Total (10 MSs) (N=148)	61.5	10.1

MS: 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* Enteritidis from humans in 25 reporting countries and EU MSs group, 2013–2021

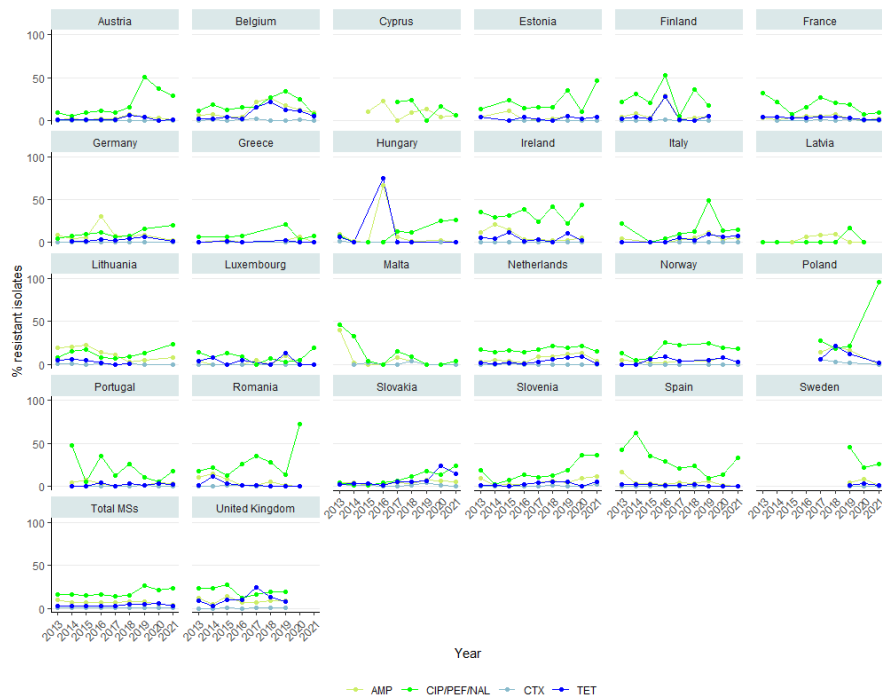


Figure 2. Trends in resistance to ampicillin, ciprofloxacin/pefloxacin/nalidixic acid, cefotaxime and tetracycline in *Salmonella* Typhimurium from humans in 26 reporting countries and EU MSs group, 2013–2021

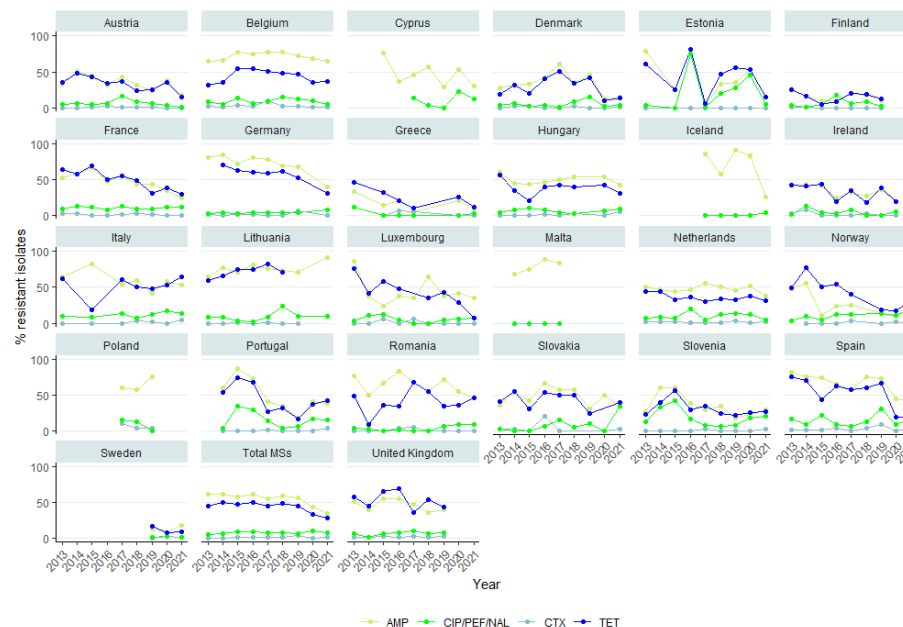


Figure 3. Trends in resistance ampicillin, ciprofloxacin/pefloxacin/nalidixic acid, cefotaxime, and tetracycline in monophasic *Salmonella* Typhimurium from humans in 17 reporting countries and EU MSs group, 2013–2021

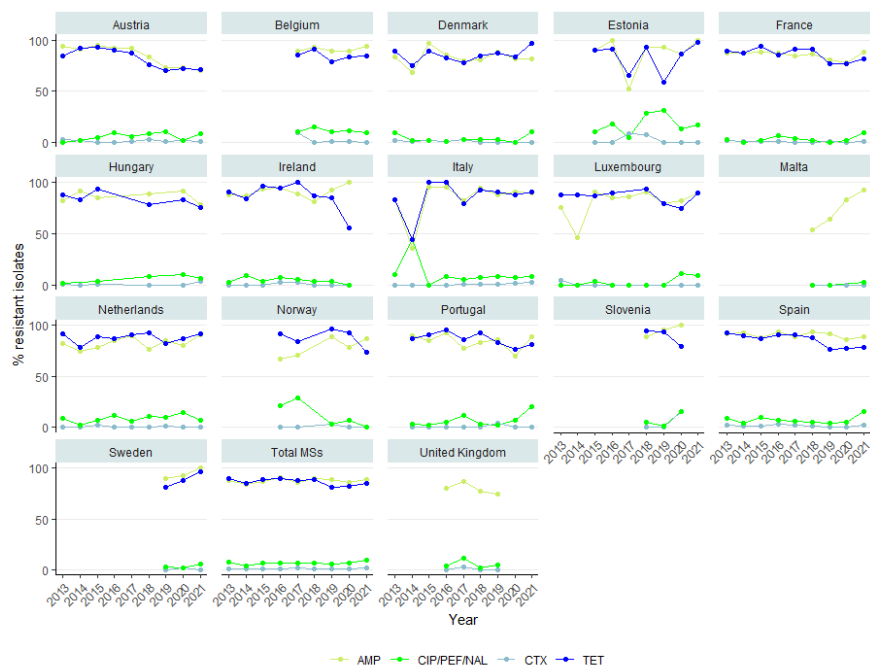


Figure 4. Trends in resistance to ampicillin, ciprofloxacin/pefloxacin/nalidixic acid, cefotaxime and tetracycline in *Salmonella* Infantis from humans in 13 reporting countries and EU MSs group, 2013–2021

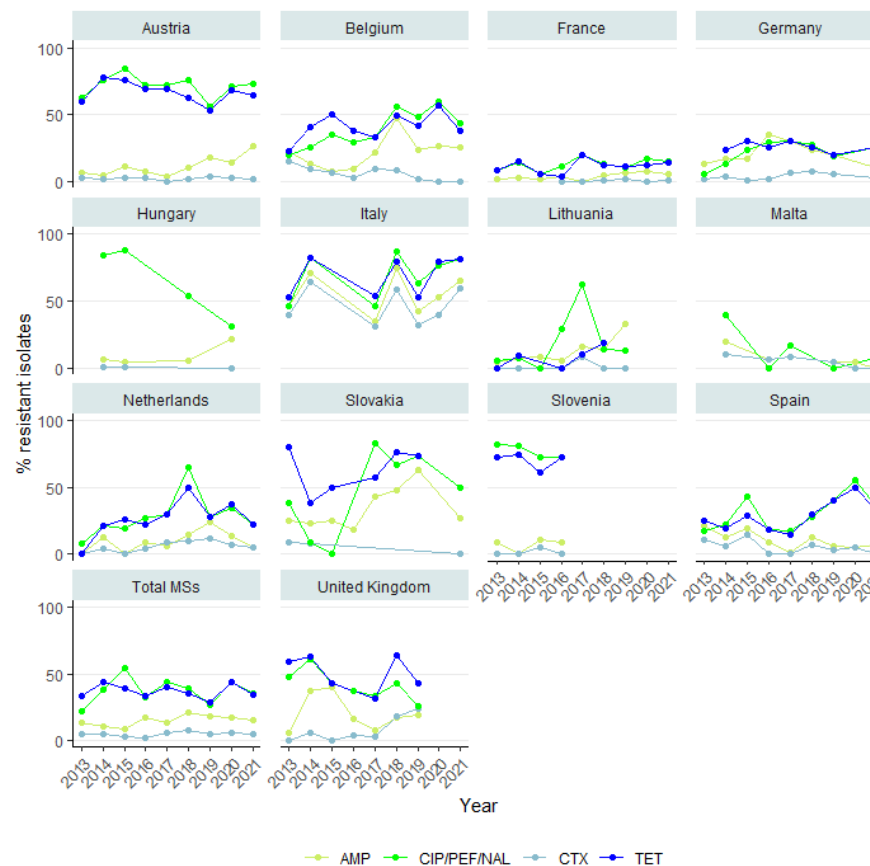


Figure 5. Trends in resistance to ampicillin, ciprofloxacin/pefloxacin/nalidixic acid, cefotaxime and tetracycline in *Salmonella* Kentucky from humans in 8 reporting countries and EU MSs group, 2013–2021

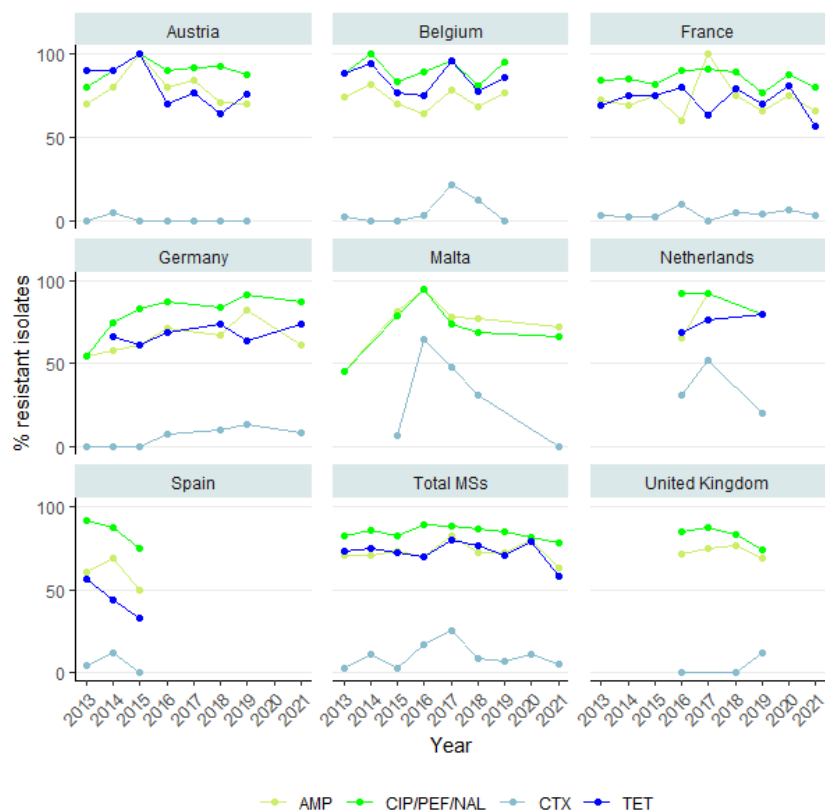
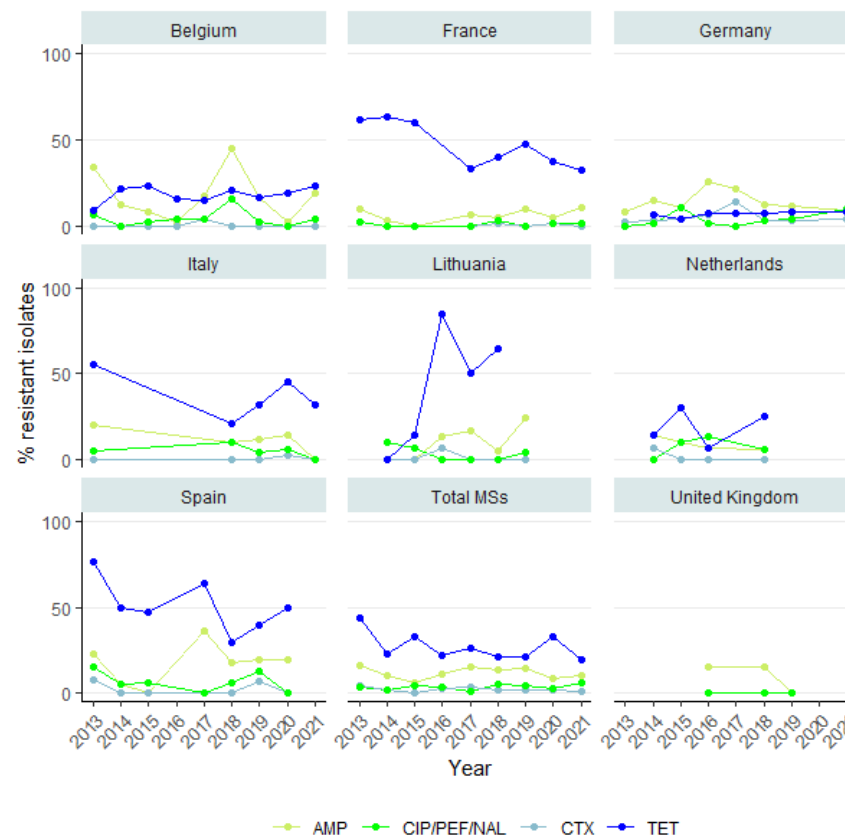


Figure 6. Trends in resistance to ampicillin, ciprofloxacin/pefloxacin/nalidixic acid, cefotaxime and tetracycline in *Salmonella* Derby from humans in 7 reporting countries, 2013–2021



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

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 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	73.8	73.8	0	0	73.8	0	73.8	26.2	73.8	0	0
Belgium	28	0	0	60.7	0	0	0	0	85.7	85.7	3.6	0	64.3	57.1	53.6	0	78.6	0	0
Bulgaria ^(a)	6	0	0	16.7	0	0	0	0	33.3	100	0	0	33.3	16.7	33.3	0	33.3	0	0
Croatia	55	0	0	21.8	0	0	0	0	76.4	76.4	0	0	27.3	0	23.6	20.0	21.8	0	0
Cyprus ^(a)	8	12.5	12.5	12.5	0	0	0	25.0	75.0	75.0	0	12.5	75.0	37.5	75.0	25.0	75.0	0	0
Czechia	25	0	0	8.0	0	0	0	0	52.0	56.0	0	0	32.0	0	32.0	44.0	32.0	0	0
France	106	4.7	14.2	11.3	0	0	0	0	0.9	0.9	0	0.9	9.4	8.5	1.9	74.5	9.4	0	0
Germany	23	0	4.3	21.7	0	0	0	0	43.5	43.5	4.3	4.3	21.7	26.1	13.0	56.5	39.1	0	0
Hungary	121	0	0	22.3	0	0	0	2.5	86.0	93.4	0	0	57.9	0	66.1	6.6	58.7	0	0
Ireland ^(a)	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0
Italy	14	0	7.1	42.9	7.1	7.1	0	0	78.6	71.4	21.4	0	42.9	35.7	64.3	14.3	42.9	7.1	0
Malta	10	30.0	0	50.0	0	0	0	0	20.0	20.0	10.0	0	30.0	10.0	20.0	50.0	30.0	0	0
Poland	167	7.2	0	24.6	0	0	0	0	79.0	82.6	5.4	1.2	63.5	5.4	63.5	17.4	63.5	0	0
Portugal ^(a)	1	0	0	0	0	0	0	0	0	0	0	100	0	0	0	100	0	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	125	0	0	27.2	0	0	0	0	72.0	76.0	0	0	47.2	0	46.4	24.0	46.4	0	0
Slovenia ^(a)	7	0	0	14.3	0	0	0	14.3	85.7	85.7	0	0	85.7	0	85.7	14.3	85.7	0	0
Spain	124	0	13.7	2.4	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
Total (18 MSs)	905	2.3	3.9	18.6	0.1	0.1	0	1.6	66.6	69.3	2.0	1.5	53.1	16.2	52.6	24.4	53.6	0.1	0
Median	-	0	0	15.5	0	0	0	0	74.4	75.0	0	0	45.0	6.9	50.0	22.0	44.6	0	0
Iceland	10	0	0	10.0	10.0	10.0	0	0	10.0	10.0	0	0	10.0	10.0	10.0	90.0	10.0	10.0	0
United Kingdom	69	0	1.4	23.2	0	0	0	0	0	21.7	1.4	1.4	29.0	29.0	26.1	69.6	26.1	0	0
Total (MSs and non-MSs)	984	2.1	3.7	18.8	0.2	0.2	0	1.4	61.4	65.3	1.9	1.5	51.0	17.1	50.3	28.2	51.2	0.2	0
Median	-	0	0	15.5	0	0	0	0	72.9	74.4	0	0	38.1	9.2	39.9	24.5	41.0	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 *Salmonella* spp; 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 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 carcasses of fattening turkeys, 8 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)	2	0	100	100	0	0	0	0	50.0	50.0	0	0	100	50.0	100	0	100	0	0
Czechia ^(a)	3	0	66.7	66.7	0	0	0	0	0	0	0	0	66.7	0	66.7	33.3	66.7	0	0
France	148	0	2.0	6.1	0	0	0	1.4	17.6	17.6	0	1.4	4.0	2.7	59.5	40.5	6.8	0	0
Germany	67	0	0	14.9	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	13.0	65.2	87.0	2.2	0	23.9	2.2	54.4	8.7	43.5	0	0
Italy ^(a)	1	0	0	100	0	0	0	0	100	100	0	0	0	0	0	0	0	0	0
Poland	19	15.8	10.5	42.1	0	0	0	0	21.0	84.2	0	0	47.4	0	52.6	5.3	42.1	0	0
Spain	34	2.9	8.8	32.4	0	0	0	0	47.1	58.8	0	0	20.6	14.7	50.0	32.4	26.5	0	0
Total (8 MSs)	320	2.5	4.4	19.1	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
Median	-	0	6.6	40.6	0	0	0	0	42.9	63.7	0	0	22.2	1.8	53.5	12.6	34.3	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 *Salmonella* spp; 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 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 fattening pigs, 25 MSs, United Kingdom (Northern Ireland) and 1 non-MSs, 2021

Country	N	GEN (%)	AMK (%)	CHL (%)	AMP (%)	CTX (%)	CAZ (%)	MEM (%)	TGC (%)	NAL (%)	CIP (%)	AZM (%)	COL (%)	SMX (%)	TMP (%)	TET (%)	CS	MDR	Resistance to both CIP/CTX, applying ECOFFs
Austria ^(a)	7	0	14.3	14.3	71.4	0	0	0	14.3	14.3	14.3	0	0	71.4	14.3	85.7	14.3	71.4	0
Belgium	45	2.2	0	13.3	46.7	0	0	0	4.4	2.2	4.4	0	0	42.2	11.1	31.1	46.7	31.1	0
Bulgaria	14	0	0	14.3	28.6	0	0	0	7.1	7.1	14.3	0	7.1	42.9	0	35.7	35.7	21.4	0
Croatia	31	9.7	0	38.7	77.4	0	0	0	0	12.9	6.5	0	0	74.2	19.4	77.4	16.1	74.2	0
Cyprus ^(a)	3	0	0	0	33.3	0	0	0	0	33.3	33.3	0	0	33.3	0	33.3	66.7	33.3	0
Czechia	21	0	0	14.3	38.1	0	0	0	0	0	0	0	0	42.9	0	38.1	57.1	38.1	0
Denmark	92	2.2	0	5.4	33.7	0	0	0	3.3	0	0	4.3	1.1	40.2	14.1	40.2	48.9	34.8	0
Estonia	11	0	0	0	54.5	0	0	0	27.3	0	0	0	0	54.5	45.5	54.5	45.5	54.5	0
France	95	1.1	0	3.2	29.5	0	0	0	6.3	0	0	0	0	50.5	5.3	50.5	40.0	28.4	0
Germany	30	0	3.3	6.7	60.0	0	0	0	0	3.3	3.3	0	0	60.0	6.7	56.7	33.3	53.3	0
Greece	10	10.0	0	0	30.0	0	0	0	0	0	0	0	0	30.0	0	30.0	70.0	30.0	0
Hungary	80	7.5	0	5.0	28.7	5.0	5.0	0	2.5	3.8	3.8	0	3.8	23.8	3.8	30.0	57.5	23.8	2.5
Ireland	123	14.6	0	18.7	56.1	0	0	0	14.6	3.3	3.3	0.8	0.8	58.5	21.1	56.9	32.5	52.9	0
Italy	91	4.4	0	11.0	28.6	1.1	1.1	0	4.4	4.4	3.3	0	1.1	39.6	7.7	40.7	50.5	28.6	0
Latvia	42	4.8	0	0	2.4	0	0	0	0	0	0	0	2.4	7.1	2.4	2.4	92.9	2.4	0
Lithuania	17	5.9	0	17.6	82.4	0	0	0	11.8	23.5	23.5	5.9	5.9	58.8	52.9	23.5	5.9	41.2	0
Luxembourg	37	0	0	2.7	13.5	0	0	0	0	0	0	0	0	21.6	2.7	8.1	75.7	8.1	0
Malta	59	0	0	3.4	22.0	0	0	0	1.7	1.7	1.7	0	0	16.9	3.4	23.7	61.0	11.9	0
Netherlands	63	0	4.8	6.3	23.8	0	0	0	0	0	0	0	0	23.8	7.9	22.2	61.9	17.5	0
Poland	48	0	0	4.2	37.5	0	0	0	16.7	16.7	18.8	0	6.2	35.4	12.5	41.7	35.4	35.4	0
Portugal	19	0	0	15.8	84.2	0	0	0	21.1	21.1	21.1	21.1	0	78.9	36.8	73.7	10.5	79.0	0
Romania	104	1.0	1.0	20.2	42.3	5.8	5.8	0	13.5	26.9	28.8	9.6	0	39.4	24.0	37.5	33.7	34.6	4.8
Slovakia	12	0	0	8.3	41.7	0	0	0	8.3	16.7	16.7	0	0	41.7	0	41.7	50.0	41.7	0
Slovenia	18	44.4	0	33.3	72.2	0	0	0	0	22.2	22.2	22.2	0	66.7	22.2	50.0	27.8	72.2	0
Spain	170	8.8	0.6	21.8	72.9	0	0	0	10.0	29.4	30.6	0	0	71.8	27.6	75.3	11.2	68.8	0
United Kingdom (Northern Ireland)	16	25.0	0	18.8	68.8	0	0	0	6.2	12.5	12.5	0	0	75.0	37.5	87.5	0	75.0	0
Total (18 MSs)	1,258	5.3	0.6	12.2	43.4	0.9	0.9	0	7.0	9.8	10.1	1.9	1.0	45.5	14.8	44.9	40.5	39.1	0.6
Median	-	1.0	0	9.7	39.9	0	0	0	4.4	4.1	4.1	0	0	42.5	9.5	40.4	42.7	35.1	0
Iceland ^(a)	3	0	0	0	33.3	0	0	0	0	0	0	0	0	33.3	33.3	33.3	66.7	33.3	0

Total (18 MSs and 1 non-MS)	1,261	5.3	0.6	12.2	43.4	0.9	0.9	0	7.0	9.8	10.1	1.9	1.0	45.4	14.8	44.9	40.6	39.1	0.6
Median	-	1.0	0	8.3	38.1	0	0	0	4.4	3.8	3.8	0	0	42.2	11.1	40.2	45.5	34.8	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 *Salmonella* spp; 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;

(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 calves under one year of age, 10 MSs, 2021

Country	N	GEN (%)	AMK (%)	CHL (%)	AMP (%)	CTX (%)	CAZ (%)	MEM (%)	TGC (%)	NAL (%)	CIP (%)	AZM (%)	COL (%)	SMX (%)	TMP (%)	TET (%)	CS	MDR	Resistance to both CIP/CTX, applying ECOFFs
Belgium ^(a)	3	0	0	0	0	0	0	0	0	0	0	0	33.3	66.7	0	66.7	33.3	0	0
Croatia	16	6.2	0	18.8	18.8	0	0	0	0	0	0	0	0	18.8	0	12.5	81.2	18.8	0
Denmark ^(a)	2	0	0	0	0	0	0	0	0	0	0	0	50.0	0	0	0	100	0	0
France ^(a)	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0
Germany ^(a)	6	0	0	0	66.7	0	0	0	0	0	0	0	33.3	66.7	0	66.7	33.3	66.7	0
Italy	20	5.0	0	25.0	35.0	5.0	5.0	0	20.0	15.0	25.0	0	5.0	60.0	25.0	60.0	40.0	50.0	5.0
Netherlands ^(a)	1	0	0	0	100	0	0	0	0	0	0	0	0	100	0	100	0	100	0
Portugal ^(a)	6	0	0	0	16.7	0	0	0	0	33.3	33.3	0	33.3	16.7	0	16.7	50.0	16.7	0
Romania ^(a)	4	0	0	0	0	0	0	0	50.0	25.0	25.0	0	0	50.0	0	50.0	50.0	50.0	0
Spain	20	5.0	0	10.0	10.0	5.0	0	0	10.0	10.0	10.0	0	10.0	30.0	20.0	25.0	60.0	15.0	5.0
Total (10 MSs)	79	3.8	0	12.7	22.8	2.5	1.3	0	10.1	10.1	12.7	0	11.4	39.2	11.4	36.7	55.7	30.4	2.5
Median	-	0	0	0	13.3	0	0	0	0	0	0	0	7.5	40.0	0	37.5	50.0	17.7	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 *Salmonella* spp; 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;

(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 broiler flocks, 22 MSs and three 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	170	0	0	2.9	1.2	1.2	0	0.6	72.4	72.4	0	0	70.6	1.8	70.6	25.9	71.8	1.2	0
Belgium	164	4.3	9.1	37.8	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
Bulgaria ^(a)	4	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
Croatia	85	0	0	11.8	0	0	0	0	68.2	68.2	0	0	11.8	4.7	7.1	30.6	10.6	0	0
Cyprus	16	25.0	25.0	31.2	0	0	0	0	43.8	43.8	0	12.5	100	93.8	100	0	100	0	0
Czechia	85	0	0	5.9	0	0	0	0	27.1	34.1	0	8.2	7.1	0	7.1	64.7	7.1	0	0
Denmark ^(a)	9	0	11.1	33.3	0	0	0	0	0	0	0	0	22.2	11.1	44.4	55.6	22.2	0	0
Finland ^(a)	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0
France	167	1.8	1.8	9.6	0	0	0	0	4.2	4.2	0	2.4	13.2	8.4	10.8	78.4	11.4	0	0
Germany	17	0	5.9	5.9	0	0	0	0	35.3	41.2	0	23.5	35.3	17.6	23.5	41.2	29.4	0	0
Greece	20	0	0	10.0	0	0	0	0	25.0	65.0	5.0	10.0	30.0	15.0	25.0	35.0	30.0	0	0
Hungary	170	1.2	0	20.0	0.6	1.8	0	4.1	89.4	91.8	1.8	1.2	59.4	0	65.3	7.1	60.6	0.6	0
Ireland ^(a)	6	0	0	0	0	0	0	0	16.7	16.7	0	0	0	0	0	83.3	0	0	0
Italy	214	1.9	8.9	35.0	13.6	13.1	0	0	71.5	73.4	4.2	2.3	59.3	47.2	58.9	23.4	61.7	13.6	0
Latvia	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0
Malta	52	9.6	7.7	46.2	13.5	13.5	0	0	34.6	34.6	1.9	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	0.5	82.2	84.6	5.3	2.9	47.6	3.8	46.6	15.4	47.6	0	0
Portugal	16	0	0	18.8	0	0	0	0	0	0	0	0	18.8	6.2	18.8	81.2	18.8	0	0
Romania	170	2.9	0.6	21.2	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
Slovakia	35	0	0	48.6	0	0	0	0	65.7	65.7	0	0	57.1	0	57.1	31.4	57.1	0	0
Slovenia	164	0	0	36.0	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
Spain	170	0	5.9	11.8	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
Total (22 MSs)	1,953	1.6	3.1	21.7	2.0	2.0	0	1.0	54.1	57.5	2.1	2.5	45.0	15.0	42.2	34.0	44.0	2.0	0.4
Median (MSs)	-	0	0	15.3	0	0	0	0	33.5	41.5	0	0.9	31.8	4.0	26.0	35.1	30.6	0	0
Iceland	10	0	0	10.0	0	0	0	0	0	0	0	0	10.0	0	10.0	90.0	10.0	0	0
Norway	1	0	0	0	0	0	0	0	0	0	0	100	0	0	0	100	0	0	0
United Kingdom	168	0	0.6	4.2	0	0	0	2.4	0	2.4	0	0	25.0	19.6	18.5	72.0	17.9	0	0
Total 22 MSs and 3 non-MSs)	2,132	1.5	2.9	20.3	1.8	1.9	0	1.1	49.5	52.9	1.9	2.3	43.2	15.2	40.2	37.3	41.8	1.8	0.3
Median	-	0	0	11.8	0	0	0	0	28.7	34.6	0	0.6	29.4	3.8	24.4	40.4	29.4	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 *Salmonella* spp; 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 laying hens, 24 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	26	0	0	0	0	0	0	0	0	0	0	19.2	0	0	7.7	92.3	0	0	0
Belgium	40	2.5	2.5	15.0	0	0	0	0	12.5	10.0	0	22.5	20.0	7.5	17.5	77.5	17.5	0	0
Bulgaria	23	0	0	0	0	0	0	0	17.4	17.4	0	0	30.4	0	8.7	60.9	8.7	0	0
Croatia	31	0	0	3.2	0	0	0	0	6.5	6.5	0	0	6.5	3.2	3.2	83.9	0	0	0
Cyprus	23	13.0	13.0	13.0	0	0	0	0	30.4	30.4	0	34.8	30.4	30.4	30.4	69.6	30.4	0	0
Czechia	20	0	0	0	0	0	0	0	10.0	10.0	0	0	0	0	0	90.0	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	166	0	0.6	3.0	0	0	0	0	0.6	0.6	0	4.2	1.8	0.6	0.6	96.4	1.2	0	0
Germany	78	0	1.3	2.6	0	0	0	0	1.3	1.3	0	26.9	2.6	0	2.6	96.2	2.6	0	0
Greece	19	5.3	0	5.3	0	0	0	0	10.5	21.1	5.3	0	10.5	0	0	63.2	0	0	0
Hungary	30	3.3	0	16.7	6.7	6.7	0	0	16.7	16.7	0	6.7	13.3	0	13.3	73.3	13.3	0	0
Ireland ^(a)	3	0	0	33.3	0	0	0	0	0	0	0	0	33.3	33.3	33.3	66.7	33.3	0	0
Italy	172	0.6	1.7	5.2	1.2	1.2	0	0	60.5	60.5	1.7	2.9	8.1	5.2	9.9	36.6	7.0	1.2	0
Latvia ^(a)	5	0	0	20.0	0	0	0	0	20.0	20.0	0	60.0	0	0	20.0	60.0	0	0	0
Malta	30	0	3.3	3.3	0	0	0	0	0	0	0	0	0	0	0	96.7	0	0	0
Netherlands ^(a)	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0
Poland	104	0	1.0	1.9	0	0	0	1.0	22.1	25.0	0	1.0	1.9	0	1.9	72.1	1.0	0	0
Portugal	16	0	0	0	0	0	0	0	0	0	0	6.2	0	0	0	100	0	0	0
Romania	41	7.3	2.4	14.6	0	0	0	0	29.3	34.1	0	2.4	22.0	0	22.0	58.5	26.8	0	0
Slovakia	12	8.3	0	8.3	0	0	0	0	25.0	33.3	0	0	16.7	0	16.7	58.3	16.7	0	0
Slovenia ^(a)	6	0	0	0	0	0	0	0	50.0	50.0	0	0	33.3	0	33.3	50.0	33.3	0	0
Spain	170	0.6	2.4	5.3	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
Sweden	8	0	0	0	0	0	0	0	12.5	12.5	0	12.5	0	0	0	87.5	0	0	0
Total (24 MSs)	1,030	1.2	1.6	5.1	0.4	0.4	0	0.2	18.2	19.0	0.5	7.2	7.2	2.8	7.0	75.6	6.0	0.2	0
Median	-	0	0	3.1	0	0	0	0	11.5	11.2	0	2.7	3.9	0	5.1	75.4	1.1	0	0
Republic 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	74	2.7	2.7	9.5	0	0	0	0	0	5.4	0	12.2	10.8	10.8	9.5	89.2	10.8	0	0

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
Total (24 MSs and 2 non-MSs)	1,111	1.3	1.6	5.4	0.4	0.4	0	0.2	16.8	18.0	0.5	7.5	7.4	3.3	7.3	76.5	6.3	0.2	0
Median	-	0	0	3.1	0	0	0	0	10.3	10.0	0	2.7	3.9	0	7.4	75.4	1.1	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 *Salmonella* spp; 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 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 *Salmonella* spp. from fattening turkeys, 16 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	10	0	10.0	20.0	0	0	0	0	0	10.0	0	0	10.0	0	10.0	80.0	10.0	0	0
Belgium ^(a)	3	0	33.3	33.3	0	0	0	0	33.3	33.3	0	33.3	33.3	0	33.3	0	33.3	0	0
Croatia ^(a)	9	0	0	11.1	0	0	0	0	22.2	33.3	0	0	0	0	22.2	55.6	0	0	0
Cyprus ^(a)	2	50.0	0	50.0	0	0	0	0	50.0	50.0	0	0	100	50.0	100	0	100	0	0
Czechia ^(a)	8	12.5	0	12.5	0	0	0	0	12.5	12.5	0	0	12.5	0	12.5	87.5	12.5	0	0
France	94	0	5.3	16.0	0	0	0	0	5.3	5.3	0	2.1	17.0	6.4	16.0	73.4	13.8	0	0
Germany ^(a)	4	0	0	0	0	0	0	0	75.0	75.0	0	0	50.0	0	75.0	25.0	50.0	0	0
Hungary	170	4.7	0.6	50.0	0	0	0	21.2	77.1	91.8	2.9	0	35.3	8.8	84.1	8.2	69.4	0	0
Ireland ^(a)	5	0	0	0	0	0	0	0	20.0	20.0	0	0	40.0	0	40.0	40.0	0	0	0
Italy	170	4.1	3.5	56.5	1.2	1.2	0	0	23.5	60.6	2.4	0.6	37.6	27.6	44.7	24.1	44.1	1.2	0
Poland	22	9.1	31.8	63.6	4.5	4.5	0	0	63.6	72.7	4.5	0	54.5	4.5	63.6	13.6	54.5	4.6	0
Portugal ^(a)	2	0	0	50.0	0	0	0	0	0	0	0	50.0	50.0	50.0	50.0	50.0	50.0	0	0
Romania ^(a)	1	0	0	0	0	0	0	0	100	100	0	100	0	0	0	0	0	0	0
Slovakia ^(a)	2	0	0	100	0	0	0	0	100	100	0	0	100	0	100	0	100	0	0
Slovenia ^(a)	2	0	0	50.0	0	0	0	50.0	50.0	50.0	0	0	50.0	0	0	50.0	50.0	0	0
Spain	170	2.4	4.1	57.6	0	0	0	0	35.3	84.1	0	0	31.2	25.9	31.8	12.9	30.6	0	0
Total (16 MSs)	674	3.4	4.2	47.2	0.4	0.4	0	5.5	39.0	65.0	1.5	0.9	32.3	17.1	47.0	25.8	41.7	0.4	0
Median	-	0	0	41.7	0	0	0	0	34.3	50.0	0	0	36.5	0	36.7	24.6	38.7	0	0
United Kingdom	166	0	0	36.7	0	0	0	2.4	6.0	7.8	0	0	38.0	23.5	37.3	21.1	24.1	0	0
Total (16 MSs and 1 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	38.2	0.4	0
Median	-	0	0	36.7	0	0	0	0	33.3	50.0	0	0	37.6	0	37.3	24.1	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 *Salmonella* spp 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 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 fattening pigs, 22 MSs and United Kingdom (Northern Ireland), 2021

Country	N	GEN (%)	AMK (%)	CHL (%)	AMP (%)	CTX (%)	CAZ (%)	MEM (%)	TGC (%)	NAL (%)	CIP (%)	AZM (%)	COL (%)	SMX (%)	TMP (%)	TET (%)	CS	MDR	Resistance to both CIP/CTX, applying ECOFFs
Belgium	11	9.1	0	9.1	9.1	0	0	0	0	0	9.1	0	0	9.1	9.1	9.1	81.8	9.1	0
Bulgaria ^(a)	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25.0	75.0	0	0
Croatia ^(a)	2	0	0	0	50.0	0	0	0	0	0	0	0	0	0	0	0	50.0	0	0
Czechia ^(a)	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0
Denmark	55	1.8	0	3.6	9.1	0	0	0	0	0	0	1.8	1.8	18.2	12.7	14.6	72.7	12.7	0
Estonia ^(a)	8	0	0	0	62.5	0	0	0	37.5	0	0	0	0	62.5	62.5	62.5	37.5	62.5	0
France	43	0	0	0	0	0	0	0	4.7	0	0	0	0	32.6	0	30.2	67.4	4.7	0
Germany ^(a)	7	0	0	0	14.3	0	0	0	0	0	0	0	0	14.3	14.3	14.3	85.7	14.3	0
Greece ^(a)	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0
Hungary	22	4.6	0	4.6	18.2	4.6	4.6	0	4.6	9.1	9.1	0	0	13.6	4.6	4.6	72.7	13.6	4.6
Ireland	27	3.7	0	3.7	3.7	0	0	0	7.4	0	0	0	0	14.8	11.1	22.2	70.4	11.1	0
Italy	43	2.3	0	11.6	13.9	0	0	0	4.7	2.3	2.3	0	2.3	39.5	7.0	32.6	55.8	16.3	0
Latvia	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0
Lithuania ^(a)	7	0	0	0	71.4	0	0	0	0	0	0	0	0	14.3	42.9	14.3	14.3	0	0
Luxembourg	20	0	0	0	0	0	0	0	0	0	0	0	0	5.0	0	0	95.0	0	0
Malta ^(a)	9	0	0	11.1	11.1	0	0	0	0	0	0	0	0	44.4	11.1	33.3	55.6	11.1	0
Netherlands	21	0	4.8	4.8	0	0	0	0	0	0	0	0	0	0	0	0	90.5	0	0
Poland	19	0	0	0	5.3	0	0	0	5.3	15.8	15.8	0	0	15.8	5.3	21.0	57.9	5.3	0
Romania	17	0	0	5.9	17.6	5.9	5.9	0	0	11.8	17.6	0	0	29.4	17.6	17.6	47.1	17.6	5.9
Slovakia ^(a)	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0
Slovenia ^(a)	8	0	0	0	37.5	0	0	0	0	0	0	0	0	25.0	37.5	37.5	62.5	37.5	0
Spain	12	0	0	0	8.3	0	0	0	0	25.0	25.0	0	0	8.3	0	58.3	33.3	8.3	0
United Kingdom (Northern Ireland) ^(a)	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0
Total (23 MSs)	371	1.4	0.3	3.5	10.2	0.5	0.5	0	3.0	3.0	3.5	0.3	0.5	19.4	8.6	19.7	69.0	10.2	0.5
Median	-	0	0	0	8.3	0	0	0	0	0	0	0	0	13.6	4.6	14.6	70.4	5.3	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 *Salmonella* spp 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;

(b): 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 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 calves of less than 1 year of age, 2 MSs, 2021

Country	N	GEN (%)	AMK (%)	CHL (%)	AMP (%)	CTX (%)	CAZ (%)	MEM (%)	TGC (%)	NAL (%)	CIP (%)	AZM (%)	COL (%)	SMX (%)	TMP (%)	TET (%)	CS	MDR	Resistance to both CIP/CTX, applying ECOFFs
Italy ^(a)	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0
Spain ^(a)	1	100	0	100	100	100	0	0	0	100	100	0	0	100	100	100	0	100	100
Total (2 MSs)	2	50.0	0	50.0	50.0	50.0	0	0	0	50.0	50.0	0	0	50.0	50.0	50.0	50.0	50.0	50.0
Median	-	50.0	0	50.0	50.0	50.0	0	0	0	50.0	50.0	0	0	50.0	50.0	50.0	50.0	50.0	50.0

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 *Salmonella* spp; 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;

(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 carcasses, 13 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	6.2	93.8	0	0
Belgium	16	0	0	56.2	0	0	0	0	100	100	6.2	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	0	80.0	80.0	0	0	80.0	0	80.0	20.0	80.0	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	17.1	1.1	0	0	0	9.1	97.7	97.7	3.4	0	92.1	81.8	92.1	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	0.2	0
Median	-	0	0	22.0	0	0	0	0	97.7	97.7	0	0	81.8	10.6	81.8	2.3	87.5	0	0
Iceland	5	0	0	20.0	20.0	20.0	0	0	20.0	20.0	0	0	20.0	20.0	20.0	80.0	20.0	20.0	0
Total (13 MSs and 1 non-MSs)	505	0.2	3.2	21.4	0.4	0.4	0	2.8	95.2	95.4	2.0	0	79.0	19.4	78.8	4.6	79.2	0.4	0
Median	-	0	0	21.0	0	0	0	0	96.9	97.4	0	0	80.9	12.1	80.9	2.6	84.7	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 *Salmonella* spp; 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, complete susceptibility and multiresistance to all antimicrobials tested and co-resistance to (fluoro)quinolones and third-generation cephalosporins, in *S. Infantis* from turkey carcasses, 1 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 (1 MSs)	4	0	0	0	0	0	0	25.0	75.0	75.0	0	0	100	0	100	0	75.0	0	0
Median	-	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 *Salmonella* spp; 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 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
Median	-	0	0	7.7	0	0	0	0	98.7	98.7	0	0	93.0	1.2	82.1	0.5	87.7	0	0
Iceland	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0
Total (16 MSs and 1 non-MSs)	778	0.4	2.8	26.7	3.9	4.0	0	1.8	95.4	95.5	1.7	0.5	83.5	20.8	81.7	3.9	83.9	3.9	0
Median	-	0	0	2.4	0	0	0	0	98.4	98.4	0	0	91.2	0	78.6	0.9	87.1	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 *Salmonella* spp; 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 hen flocks, 16 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	82.6	0	0	42.9	0	42.9	27.1	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	0	50.0	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	39.8	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
Median		0	0	0	0	0	0	0	35.4	35.4	0	0	6.0	0	18.5	56.3	21.5	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 *Salmonella* spp; 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 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	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	26.2	1.2	1.2	0	3.8	95.0	96.2	1.2	0	87.5	30.0	92.5	3.8	88.8	1.2	0
Median	-	0	0	8.9	0	0	0	0	82.2	83.3	0	0	76.7	0	81.1	16.7	77.8	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 *Salmonella* spp; 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 carcasses, 5 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
Median	-	0	0	100	0	0	0	0	100	100	0	0	0	0	0	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 *Salmonella* spp; 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 carcasses, 4 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
Median	-	40.0	7.1	100	0	0	0	0	100	100	0	0	48.2	0	48.2	0	48.2	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 *Salmonella* spp; 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

(b): 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 broiler flocks, 6 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	17.0	1.7	17.0	17.0	30.5	11.9	11.9
Median	-	3.3	0	34.8	0	0	0	0	78.3	78.3	0	0	0	0	0	15.2	3.3	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 *Salmonella* spp; 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 hen flocks, 7 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
Italy ^(a)	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0
Malta	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
Portugal ^(a)	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0
Romania ^(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 (7 MSs)	99	0	0	5.0	0	0	0	1.0	91.9	91.9	0	0	3.0	1.0	3.0	8.1	4.0	0	0
Median	-	0	0	0	0	0	0	0	98.8	98.8	0	0	0	0	0	1.2	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 *Salmonella* spp; 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 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 (MSs)	29	55.2	6.9	69.0	0	0	0	0	96.6	96.6	0	0	79.3	0	82.8	3.5	79.3	0	0
Median	-	61.9	0	100	0	0	0	0	100	100	0	0	96.4	0	96.4	0	96.4	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 *Salmonella* spp; 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 carcasses, 9 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 (9 MSs)	96	0	0	1.0	0	0	0	0	52.1	52.1	0	5.2	2.1	0	1.0	46.9	1.0	0	0
Median		0	0	0	0	0	0	0	33.3	0	0	0	0	0	0	66.7	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 *Salmonella* spp; 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 broiler flocks, 15 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	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	2.6	0	0	0	0.4	44.7	46.0	0.9	11.5	2.2	0.9	2.6	53.1	2.2	0	0
Median	-	0	0	0	0	0	0	0	12.5	12.5	0	11.3	0	0	0	75.0	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 *Salmonella* spp; 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 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 hen flocks, 20 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 ^(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 ^(a)	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	8.3	8.3	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	0	0	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	31.2	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
Median	-	0	0	0	0	0	0	0	13.9	13.9	0	3.3	0	0	0	80.0	0	0	0
Republic 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 (22 MSs and 2 non-MS)	283	0.4	0.4	2.8	0.4	0.4	0	0	15.5	15.9	0	17.7	1.4	0.4	1.8	80.6	0.7	0	0
Median	-	0	0	0	0	0	0	0	10.0	10.0	0	3.3	0	0	0	80.0	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 *Salmonella* spp; 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 45: 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 fattening turkeys, 6 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	4.6	4.6	0	0	0	0	18.2	18.2	0	9.1	4.6	4.6	0	72.7	4.6	0	0
Median	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45.0	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: Cefazidime; 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 *Salmonella* spp; 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. Typhimurium*

Table 46: 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. Typhimurium* from fattening pigs, 23 MSs and United Kingdom (Northern Ireland) in 2021

Country	N	GEN (%)	AMK (%)	CHL (%)	AMP (%)	CTX (%)	CAZ (%)	MEM (%)	TGC (%)	NAL (%)	CIP (%)	AZM (%)	COL (%)	SMX (%)	TMP (%)	TET (%)	CS	MDR	Resistance to both CIP/CTX, applying ECOFFs
Austria ^(a)	2	0	0	50.0	50.0	0	0	0	50.0	0	0	0	0	50.0	0	100	0	50.0	0
Belgium	10	0	0	10.0	60.0	0	0	0	20.0	0	0	0	10.0	30.0	20.0	40.0	30.0	30.0	0
Bulgaria ^(a)	2	0	0	50.0	50.0	0	0	0	0	50.0	50.0	0	0	100	0	50.0	0	50.0	0
Croatia	12	16.7	0	41.7	75.0	0	0	0	0	25.0	8.3	0	0	75.0	16.7	66.7	25.0	75.0	0
Czechia	10	0	0	30.0	60.0	0	0	0	0	0	0	0	0	70.0	0	60.0	30.0	60.0	0
Denmark ^(a)	7	0	0	14.3	57.1	0	0	0	28.6	0	0	0	0	85.7	14.3	57.1	0	57.1	0
France	16	0	0	12.5	50.0	0	0	0	6.2	0	0	0	0	62.5	0	75.0	12.5	50.0	0
Germany ^(a)	7	0	14.3	14.3	42.9	0	0	0	0	14.3	14.3	0	28.6	42.9	0	42.9	28.6	28.6	0
Greece ^(a)	1	100	0	0	100	0	0	0	0	0	0	0	0	100	0	100	0	100	0
Hungary ^(a)	6	33.3	0	16.7	66.7	0	0	0	0	0	0	0	0	50.0	0	83.3	16.7	66.7	0
Ireland	21	14.3	0	52.4	85.7	0	0	0	14.3	14.3	14.3	4.8	0	81.0	23.8	61.9	4.8	57.1	0
Italy ^(a)	1	0	0	100	100	0	0	0	0	0	0	0	0	100	100	0	0	100	0
Latvia ^(a)	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0
Lithuania ^(a)	4	25.0	0	50.0	75.0	0	0	0	0	25.0	25.0	0	0	100	75.0	0	0	75.0	0
Luxembourg ^(a)	4	0	0	25.0	50.0	0	0	0	0	0	0	0	0	100	0	25.0	0	25.0	0
Malta ^(a)	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0
Netherlands ^(a)	7	0	0	14.3	57.1	0	0	0	0	0	0	0	0	28.6	28.6	42.9	28.6	28.6	0
Poland ^(a)	3	0	0	0	33.3	0	0	0	33.3	0	0	0	0	33.3	0	33.3	66.7	33.3	0
Portugal ^(a)	1	0	0	100	100	0	0	0	0	0	0	0	0	0	0	100	0	100	0
Romania	18	0	0	22.2	72.2	0	0	0	0	16.7	16.7	0	0	44.4	22.2	38.9	22.2	33.3	0
Slovakia ^(a)	4	0	0	25.0	100	0	0	0	0	25.0	25.0	0	0	100	0	100	0	100	0
Slovenia ^(a)	4	100	0	100	100	0	0	0	0	100	100	0	0	100	0	100	0	100	0
Spain	20	0	0	45.0	85.0	0	0	0	15.0	40.0	45.0	0	0	85.0	25.0	70.0	5.0	80.0	0
United Kingdom (Northern Ireland) ^(a)	1	0	0	100	100	0	0	0	0	0	0	0	0	100	100	0	0	100	0
Total (24 MSs)	163	8.0	0.6	31.9	68.7	0	0	0	8.0	15.3	14.7	0.6	1.8	66.3	15.9	57.7	15.9	55.8	0
Median	-	0	0	25.0	63.3	0	0	0	0	0	0	0	0	72.5	0	53.6	4.9	57.1	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 *Salmonella* spp; 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;

(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 47: 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. Typhimurium* from calves under one year of age, 24 MSs, 2021

Country	N	GEN (%)	AMK (%)	CHL (%)	AMP (%)	CTX (%)	CAZ (%)	MEM (%)	TGC (%)	NAL (%)	CIP (%)	AZM (%)	COL (%)	SMX (%)	TMP (%)	TET (%)	CS	MDR	Resistance to both CIP/CTX, applying ECOFFs
Croatia ^(a)	5	20.0	0	20.0	20.0	0	0	0	0	0	0	0	0	20.0	0	0	80.0	20.0	0
Denmark ^(a)	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0
Italy ^(a)	3	0	0	66.7	66.7	0	0	0	66.7	0	33.3	0	0	100	66.7	100	0	100	0
Romania ^(a)	1	0	0	0	0	0	0	0	100	0	0	0	0	100	0	100	0	100	0
Total (4 MSs)	10	10.0	0	30.0	30.0	0	0	0	30.0	0	10.0	0	0	50.0	20.0	40.0	50.0	50.0	0
Median	-	0	0	10.0	10.0	0	0	0	33.3	0	0	0	0	60.0	0	50.0	40.0	60.0	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 *Salmonella* spp; 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;

(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 monophasic *S. Typhimurium*

Table 48: 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. Typhimurium*, monophasic from fattening pigs, 23 MSs and United Kingdom (Northern Ireland), 2021

Country	N	GEN (%)	AMK (%)	CHL (%)	AMP (%)	CTX (%)	CAZ (%)	MEM (%)	TGC (%)	NAL (%)	CIP (%)	AZM (%)	COL (%)	SMX (%)	TMP (%)	TET (%)	CS	MDR	Resistance to both CIP/CTX, applying ECOFFs
Austria ^(a)	4	0	25.0	0	100	0	0	0	0	25.0	25.0	0	0	100	25.0	100	0	100	0
Belgium	14	0	0	14.3	92.9	0	0	0	0	7.1	7.1	0	0	92.9	7.1	50.0	7.1	57.1	0
Bulgaria ^(a)	3	0	0	0	66.7	0	0	0	0	0	0	0	0	66.7	0	33.3	0	33.3	0
Croatia	17	5.9	0	41.2	82.3	0	0	0	0	5.9	5.9	0	0	82.3	23.5	94.1	5.9	82.3	0
Cyprus ^(a)	1	0	0	0	100	0	0	0	0	100	100	0	0	100	0	100	0	100	0
Czechia ^(a)	2	0	0	0	100	0	0	0	0	0	0	0	0	100	0	100	0	100	0
Denmark	26	3.9	0	7.7	84.6	0	0	0	3.9	0	0	11.5	0	80.8	19.2	96.2	3.9	80.8	0
Estonia ^(a)	1	0	0	0	100	0	0	0	0	0	0	0	0	100	0	100	0	100	0
France	19	5.3	0	5.3	79.0	0	0	0	5.3	0	0	0	0	84.2	10.5	79.0	5.3	68.4	0
Germany	13	0	0	0	100	0	0	0	0	0	0	0	0	100	0	92.3	0	92.3	0
Greece ^(a)	2	0	0	0	100	0	0	0	0	0	0	0	0	100	0	100	0	100	0
Ireland	50	28.0	0	18.0	90.0	0	0	0	20.0	2.0	2.0	0	0	92.0	28.0	98.0	2.0	90.0	0
Italy	20	10.0	0	10.0	85.0	5.0	5.0	0	5.0	5.0	5.0	0	0	80.0	5.0	80.0	10.0	75.0	0
Lithuania ^(a)	2	0	0	50.0	100	0	0	0	50.0	0	0	0	0	100	50.0	50.0	0	50.0	0
Luxembourg ^(a)	2	0	0	0	100	0	0	0	0	0	0	0	0	100	0	50.0	0	50.0	0
Malta ^(a)	7	0	0	0	100	0	0	0	0	0	0	0	0	71.4	0	85.7	0	71.4	0
Netherlands	13	0	7.7	0	76.9	0	0	0	0	0	0	0	0	76.9	7.7	69.2	7.7	53.9	0
Poland	16	0	0	12.5	87.5	0	0	0	18.8	12.5	18.8	0	0	68.8	18.8	87.5	0	81.2	0
Portugal	10	0	0	10.0	90.0	0	0	0	0	30.0	30.0	0	0	90.0	10.0	80.0	10.0	80.0	0
Romania	13	7.7	0	7.7	92.3	0	0	0	7.7	7.7	7.7	7.7	0	84.6	7.7	61.5	7.7	61.5	0
Slovakia ^(a)	1	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Slovenia ^(a)	2	0	0	100	100	0	0	0	0	0	0	0	0	100	50.0	100	0	100	0
Spain	81	9.9	0	13.6	95.1	0	0	0	4.9	24.7	24.7	0	0	90.1	13.6	86.4	2.5	84.0	0
United Kingdom (Northern Ireland) ^(a)	10	40.0	0	20.0	100	0	0	0	0	0	0	0	0	100	40.0	100	0	100	0
Total (24 MSs)	329	9.7	0.6	13.1	90.3	0.3	0.3	0	6.7	9.7	10.0	1.2	0	86.9	15.5	85.1	3.6	79.6	0
Median	-	0	0	6.5	97.5	0	0	0	0	0	0	0	0	91.1	7.7	87.0	0	81.0	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 *Salmonella* spp; 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;

(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 49: 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 *S. Typhimurium*, monophasic from calves under one year of age, 6 MSs, 2021

Country	N	GEN (%)	AMK (%)	CHL (%)	AMP (%)	CTX (%)	CAZ (%)	MEM (%)	TGC (%)	NAL (%)	CIP (%)	AZM (%)	COL (%)	SMX (%)	TMP (%)	TET (%)	CS	MDR	Resistance to both CIP/CTX, applying ECOFFs
Belgium ^(a)	2	0	0	0	0	0	0	0	0	0	0	0	0	100	0	100	0	0	0
Croatia ^(a)	3	0	0	66.7	66.7	0	0	0	0	0	0	0	0	66.7	0	66.7	33.3	66.7	0
Germany ^(a)	4	0	0	0	100	0	0	0	0	0	0	0	0	100	0	100	0	100	0
Italy ^(a)	2	0	0	50.0	100	0	0	0	0	0	0	0	0	100	50.0	100	0	100	0
Netherlands ^(a)	1	0	0	0	100	0	0	0	0	0	0	0	0	100	0	100	0	100	0
Portugal ^(a)	1	0	0	0	100	0	0	0	0	0	0	0	0	100	0	100	0	100	0
Total (6 MSs)	13	0	0	23.1	76.9	0	0	0	0	0	0	0	0	92.3	7.7	92.3	7.7	76.9	0
Median	-	0	0	0	100	0	0	0	0	0	0	0	0	100	0	100	0	100	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: Ceftriaxone; 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 *Salmonella* spp; 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;

(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.