ECDC **SURVEILLANCE REPORT**

Food- and Waterborne Diseases and Zoonoses Surveillance Network

Quarterly Salmonella Report
Q1 2008, January–March 2008

Overview

This report gives detailed information on the number of confirmed salmonellosis cases identified by national surveillance centres in EU Member States and EEA/EFTA countries in the first quarter of 2008.

Eighteen countries submitted case-based data for the first quarter of 2008 and of these, 17 countries also submitted data for Q1 2007. No aggregated data could be included: either submitted data contained only total cases (which may include more than just confirmed cases, i.e. probable or possible cases) or cases were reported without a timestamp, e.g. the month of occurrence. All tables use 'notification' data, except for those on antimicrobial susceptibility, which use more comprehensive laboratory data.

The 15 most frequently identified serotypes are listed in Table 1. Table 2 illustrates *Salmonella* drug-resistance data received for this period, and Figure 1 provides details on multidrug-resistant isolates. Figure 2 shows the serotypes with an unusual increase when compared with the same quarter a year ago.

Note: This report was prepared by the ECDC FWD team on behalf of the participating countries.

Quarterly data trends

For the first quarter of 2008, a total of 10,300 confirmed cases were reported by 18 countries. 9,853 cases reported by 17 countries were included in the analysis[1]. A total of 9,271 cases had been reported for the corresponding quarter in 2007 by these 17 countries. When compared with Q1 2007, the total number of confirmed cases increased somewhat in Q1 2008. While *S.* Enteritidis decreased by 21.2%, *S.* Typhimurium increased by 40.9% (Table 1). More than 100 cases (excluding Enteritidis and Typhimurium) were reported for Stanley, Virchow, Anatum, Infantis and Newport serotypes. Ten serotypes were reported with 50 to 99 cases: Derby, Paratyphi A, Agona, Corvallis, Hadar, Kentucky, Montevideo, Saintpaul, Panama and Rissen. Forty-one serotypes were reported with 10 to 49 cases, and 158 serotypes were reported with nine cases or less. For 2,138 cases, the serotype was unknown, which was considerably higher than during the same quarter in 2007.

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[1] Only countries that reported data for the same quarter over two subsequent years (2007/2008) were included in the analysis.
In some tables, totals do not add up to the total number of cases reported for each quarter due to missing values.

Table 1. The 15 most frequently reported *Salmonella* serotypes, Q1 of 2008 and Q1 2007 and percent change

Serotype	Q1 2008		Q1 2007		% change
	Freq	Percent	Freq	Percent	2007/2008
Enteritidis	2,758	28.2	3,502	38	−21.2
Typhimurium	2,048	20.9	1,453	15.7	40.9
Stanley	173	1.8	189	2	−8.5
Virchow	161	1.6	216	2.3	−25.5
Anatum	150	1.5	25	0.3	500.0
Infantis	127	1.3	160	1.7	−20.6
Newport	115	1.2	142	1.5	−19.0
Derby	81	0.8	63	0.7	28.6
Paratyphi A	80	0.8	45	0.5	77.8
Agona	73	0.8	56	0.6	30.4
Corvallis	65	0.7	59	0.6	10.2
Hadar	65	0.7	82	0.9	−20.7
Kentucky	61	0.6	32	0.3	90.6
Montevideo	56	0.6	61	0.7	−8.2
Saintpaul	54	0.6	74	0.8	−27.0
Unknown	2,138	21.8	1,278	13.9	67.3
Other	1,531	15.6	1,737	18.8	−11.9
Total	**9,790**	100.0	**9,226**	100.0	**6.1**

Antimicrobial susceptibility testing results

Antimicrobial susceptibility test (AST) results were available for 3,635 cases (or less, depending on antimicrobial), representing 36.9% of all cases. In Q1 of 2007, results were available for 4,381 cases, representing 47.2% of all cases. The majority of isolates was tested against the panel of antimicrobials collected in TESSy, but not all isolates were tested against all antimicrobials. The frequency and percentage for the categories 'resistant', 'intermediate' and 'sensitive' (as defined by each reference laboratory) are given in Table 2. Antimicrobial resistance was highest to tetracycline (31.1%), ampicillin (22.4%) and sulphonamides (16.4%). Similar results were reported in Q1 of 2007, with the highest resistance to tetracycline (21.9%), ampicillin (21.6%) and sulphonamides (18.9%).

**Table 2.** Antimicrobial susceptibility testing results. Salmonella, Q1 of 2008

Antimicrobial agent	Resistant		Intermediate		Sensitive		Total
	Freq	(%)	Freq	(%)	Freq	(%)	(Freq)
Ampicillin	803	22.4	15	0.4	2,768	77.2	3,586
Cefotaxime	25	0.7	3	0.1	3,424	99.2	3,452
Chloramphenicol	260	8.5	3	0.1	2,781	91.4	3,044
Ciprofloxacin	322	9.0	53	1.5	3,210	89.5	3,585
Gentamicin	117	3.3	16	0.5	3,414	96.3	3,547
Kanamycin	53	1.6	53	1.6	3,273	96.9	3,379
Naladixic acid	496	14.4	13	0.4	2,928	85.2	3,437
Streptomycin	511	15.1	193	5.7	2,674	79.2	3,378
Sulphonamides	448	16.4	2	0.1	2,284	83.5	2,734
Tetracycline	372	31.1	23	1.9	801	67.0	1,196
Trimethoprim	109	6.9	11	0.7	1,456	92.4	1,576

Multi-drug resistance

Figure 1 shows the proportion of the number of isolates for each serotype which were found to be multi-drug resistant (four or more antimicrobials), resistant (one to three antimicrobials) or sensitive (sensitive to all antimicrobials tested in a country). The number of isolates for which antimicrobial susceptibility testing (AST) was done is shown in brackets,

thus also including isolates with intermediate resistance. Only serotypes with MDR in at least 15% of the tested isolates and with at least ten submitted isolates are shown. Also included are *S.* Enteritidis and *S.* Typhimurium.

Figure 1. Serotypes with MDR (≥4 antimicrobials), resistance (1–3) and sensitivity by proportion Q1 2008 and Q1 2007
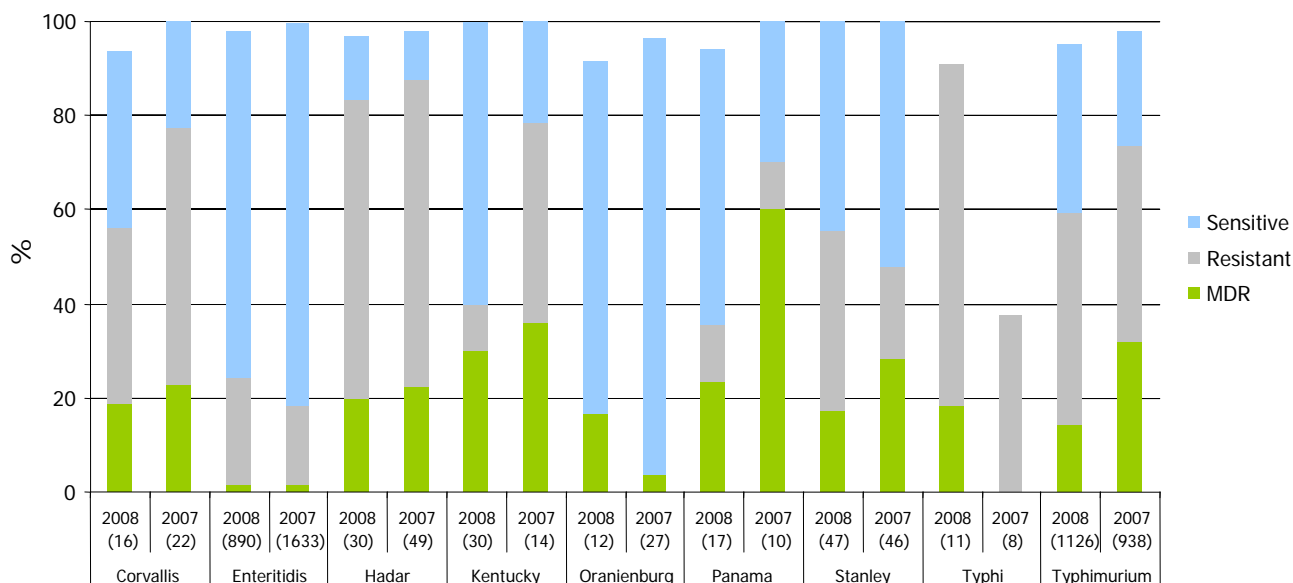
Serotypes with unusual increases

Figure 2. Serotypes with unusual increases in Q1 2008 compared with Q1 2007 (in brackets number of cases in Q1 2008 and number of countries reporting)
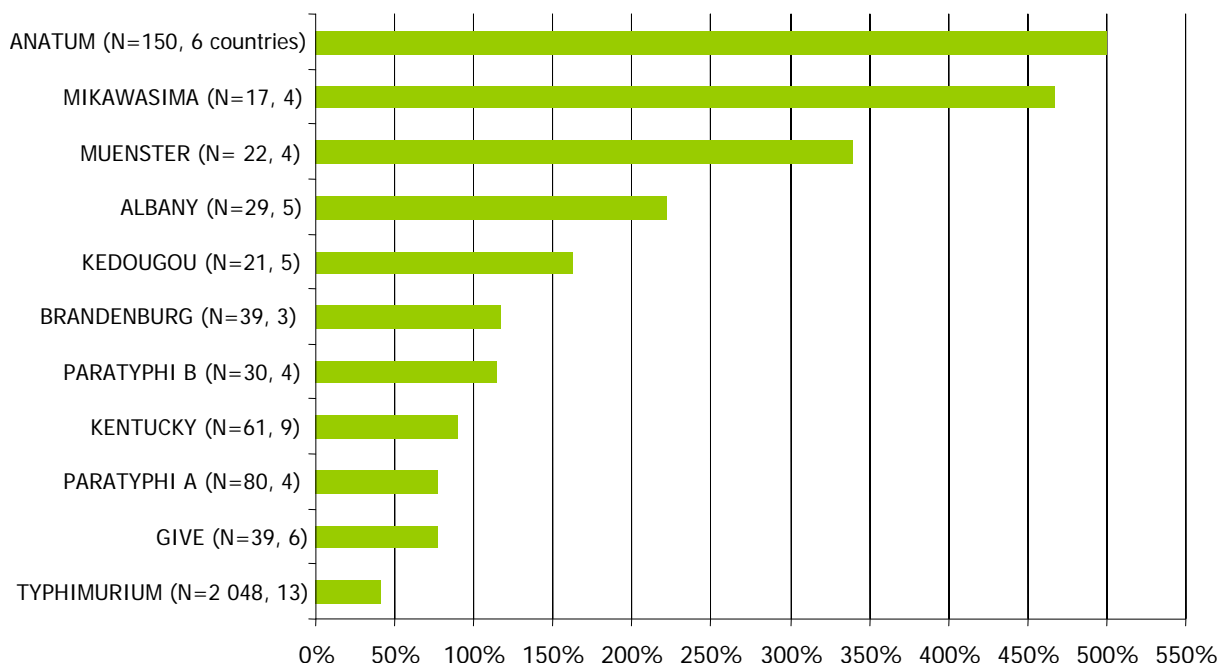
S. Anatum (N=150)

Increase of 500% between Q1 2007 and Q1 2008. The majority of cases were in people over 45 years, and there were more women than men. Twenty-seven cases were reported to be travel-related, with Thailand as the most common destination (19 cases), followed by two cases from Egypt and one each from France, Poland, Estonia and Brazil. The

increase in *S.* Anatum was largest in the United Kingdom (accounting for 113 of 150 cases) and could be explained by a country-wide outbreak starting in the last quarter of 2007 and continuing in 2008[2].

Table 3. S. Anatum

Age group	Male	Female	Unknown	Total
0-4 years	7	2	0	9
5-14 years	1	1	0	2
15-24 years	2	4	0	6
25-44 years	5	9	0	14
45-64 years	15	28	2	45
>=65 years	25	36	2	63
Total	55	80	4	139

S. Mikawasima (N=17)

Increase of 467% between Q1 2007 and Q1 2008. Finland reported the most cases (10). Two cases were travel-related, one to Thailand and one to Italy.

S. Muenster (N=22)

Increase of 340% between Q1 2007 and Q1 2008. France reported the most cases (17). Three cases were travel-related, with cases having travelled to Egypt, Senegal and Thailand

S. Albany (N=29)

Increase of 222% between Q1 2007 and Q1 2008. The majority of cases were among adults aged 25 to 64 years. The increase was highest in Finland; 18 cases were reported in Finland during Q1 2008; during the same period one year earlier only four cases were reported. The majority of cases (22) were travel-related, with cases having travelled to Thailand (19 cases), Brazil, Malaysia and Namibia.

Table 4. *S.* Albany

Age group	Male	Female	Unknown	Total
0-4 years	0	0	0	0
5-14 years	0	1	0	1
15-24 years	2	1	0	3
25-44 years	6	7	0	13
45-64 years	3	5	1	9
>=65 years	1	0	0	1
Total	12	14	1	27

S. Kedougou (N=21)

Increase of 163% between Q1 2007 and Q1 2008. France reported the largest increase and highest number of cases (9). Nine cases were travel-related, with cases having travelled to Thailand (8 cases) and India.

S. Brandenburg (N=39)

Increase of 117% between Q1 2007 and Q1 2008. Age information was missing for many cases and therefore data are not shown. Most cases were reported from France (24), followed by Belgium (11). No cases were related to travel.

S. Paratyphi B (N=30)

Increase of 114% between Q1 2007 and Q1 2008. Age information was missing for many cases. Although most cases were reported from France (14), Belgium reported ten cases in Q1 2008, compared with none in Q1 2007. Two cases were associated with travel to India and Niger.

S. Kentucky (N=61)

Increase of 91% between Q1 2007 and Q1 2008. Most cases were reported in adults 25 years of age and older. The United Kingdom reported the most cases (24). Twenty-four cases were associated with travel to Egypt (16 cases), Thailand, Morocco, Nigeria and Gambia.

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[2] http://www.hpa.org.uk/hpr/archives/2008/news0908.htm

Table 5. *S.* **Kentucky**

Age group	Male	Female	Unknown	Total
0-4 years	3	3	0	6
5-14 years	1	0	0	1
15-24 years	0	2	0	2
25-44 years	6	9	0	15
45-64 years	8	7	0	15
>=65 years	6	2	0	8
Total	24	23	0	47

S. Paratyphi A (N=80)

Increase of 78% between Q1 2007 and Q1 2008. A high proportion of adults 25 to 44 years of age were reported. The United Kingdom reported the most cases (62). Thirty-two cases were associated with travel to India (16 cases), Pakistan (9), Bangladesh (6) and Nepal.

Table 6. *S.* **Paratyphi A**

Age group	Male	Female	Unknown	Total
0-4 years	0	2	1	3
5-14 years	4	2	0	6
15-24 years	4	6	0	10
25-44 years	15	13	3	31
45-64 years	6	6	0	12
>=65 years	4	1	0	5
Total	33	30	4	67

S. Give (N=39)

Increase of 77% between Q1 2007 and Q1 2008. There were more males than females reported. The United Kingdom accounted for the most cases (20). Ten cases were travel-related, with cases having travelled to Thailand (7 cases), Gambia (2) and Nigeria.

Table 7. *S.* **Give**

Age group	Male	Female	Unknown	Total
0-4 years	2	0	0	2
5-14 years	1	0	0	1
15-24 years	5	1	0	6
25-44 years	2	5	0	7
45-64 years	8	4	0	12
>=65 years	2	1	2	5
Total	20	11	2	33

S. Typhimurium (N=2,048)

Increase of 41% between Q1 2007 and Q1 2008. France reported the highest number of cases (671), twice as many as were reported during Q1 2007. One hundred sixty-five cases were associated with travel to a variety of countries. Most cases were reported to have travelled to Thailand (75 cases) and India (28 cases).

Table 8. *S.* **Typhimurium**

Age group	Male	Female	Unknown	Total
0-4 years	223	213	15	451
5-14 years	103	96	6	205
15-24 years	47	60	3	110
25-44 years	84	125	6	215
45-64 years	94	108	4	206
>=65 years	63	108	1	172
Total	614	710	35	1359