



**International surveillance network for
The enteric infections -
Salmonella and VTEC O157**

Funded by the European Commission – DG SANCO

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Enter-net Quarterly Salmonella Report - 02/1
January – March 2002

Summary.

This report gives details of the number of isolates identified by the national reference laboratories in the first quarter of 2002 and incorporated in the Enter-net salmonella database. sixteen countries have supplied data electronically. Table one illustrates Salmonella drug resistance data received for the quarter. Table two details the top fifteen serotypes isolated this quarter and gives comparable data for the same period in 2001 where available. The total number of human salmonella isolates reported this quarter are 11,215 with 7,478 (66.7%) being *S. Enteritidis*, *S. Typhimurium*, *S. Virchow* or *S. Hadar*.

Quarterly data - major trends.

Details below refer to the sixteen countries that have supplied comparable data electronically for 2002 and 2001. The total number of reports in the database show a decrease over the same period of 2001 from 14,549 to 11,215 down 22.9%. All the main serotypes have decreased in comparison to isolates in the 1st quarter of 2001, *S. Enteritidis* (3,875 isolates in the 1st quarter of 2002, 34.0% of the total) decreased by 25.4%, *S. Typhimurium* (2,956, 25.9%) by 34.0%, *S. Virchow* (371, 3.3%) decreased by 31.8%, and *S. Hadar* (276, 2.4%) by 26.0%. Ten other serotypes were identified more than 100 times during the quarter; *S. Saintpaul* (256, 2.2%), *S. Oranienburg* (203, 2.0%), *S. Infantis* (166, 1.5%), *S. Newport* (143, 1.3%), *S. Stanley* (139, 1.2%), *S. Agona* (121, 1.1%), *S. Heidelberg* (115, 1.0%), *S. Birkenhead* (115, 1.1%) and *S. Typhi* (103, 0.9%) and *S. Bovismorbificans* (105 0.9%).

Twelve other serotypes were isolated between 50 and 99 times, *S. Muenchen*, *S. Hvitvingfoss*, *S. Derby*, *S. Panama*, *S. Braenderup*, *S. Chester*, *S. Anatum*, *S. Java*, *S. Montevideo*, *S. Paratyphi A*, *S. Aberdeen*, and *S. Dublin* – 899 of the total, 8.1%. Forty-one serotypes were reported between 10 and 49 times totaling 1,003, 8.9% and 148 serotypes were reported less than 10 times, 308, 3.2%, 61 isolates have not been serotyped at the time of report.

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All data are provisional

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Antimicrobial susceptibility testing results¹

Antimicrobial susceptibility test results were available for 1,575 cases. The majority of these are tested against the full panel of 11 antimicrobials recommended by Enter-net, although not all strains are tested against each one. The frequency and percent in the categories resistant, intermediate and sensitive (as defined by each reference laboratory) are given in table 2.

Antimicrobial agent	Resistant Freq (%)	Intermediate Freq (%)	Sensitive Freq (%)
Streptomycin	375 (28.3)	145 (11.0)	804 (60.7)
Gentamicin	14 (1.1)	292 (22.1)	1,018 (76.8)
Kanamycin	30 (2.1)	230 (16.4)	1,146 (81.5)
Ampicillin	433 (27.5)	48 (3.0)	1,094 (69.5)
Cefotaxime	4 (0.3)	0 (0.0)	1,315 (99.7)
Sulphonamides	938 (70.9)	69 (5.2)	317 (23.9)
Trimethoprim	94 (6.7)	23 (1.6)	1,289 (91.7)
Chloramphenicol	253 (17.9)	1 (0.1)	1,157 (82.0)
Tetracyclines	387 (27.4)	626 (44.4)	398 (28.2)
Nalidixic Acid	118 (8.9)	1 (0.1)	1,205 (91.0)
Ciprofloxacin	5 (0.4)	2 (0.1)	1,399 (99.5)

Table 1

Serotypes with unusual increases this quarter;

other than *S. Oranienburg* (201 in 2002, cf 46 in the same quarter in 2001) and *S. Hvittingfoss* (75, 61), no unusual increases were seen this quarter.

Multi-drug resistance; The table below shows the number of strains with multi-drug resistance (to five or more antimicrobials) by serotype and the percent resistant to each antimicrobial in the Enter-net panel.

Serotype	No MDR ([≥] 5)	% R to Amp	% R to Chl	% R to Gen	% R to Kan	% R to Str	% R to Sul	% R to Tet	% R to Tm	% R to Cip	% R to Nal	% R to Cef
Blockley	7	0.0	85.7	0.0	100.0	100.0	28.6	100.0	0.0	14.3	100.0	0.0
Enteritidis	3	100.0	33.3	0.0	0.0	66.7	100.0	100.0	66.7	0.0	33.3	0.0
Galiema	1	0.0	100.0	0.0	0.0	100.0	100.0	100.0	100.0	0.0	0.0	0.0
Goldcoast	1	100.0	0.0	0.0	0.0	100.0	100.0	100.0	100.0	0.0	0.0	0.0
Hadar	3	100.0	33.3	0.0	33.3	100.0	66.7	100.0	0.0	33.3	100.0	0.0
Heidelberg	1	100.0	100.0	0.0	0.0	100.0	100.0	100.0	100.0	0.0	0.0	0.0
Kentucky	1	100.0	0.0	0.0	0.0	100.0	100.0	100.0	0.0	0.0	100.0	0.0
Newport	1	100.0	100.0	0.0	0.0	100.0	100.0	100.0	100.0	0.0	0.0	0.0
Paratyphi A	1	100.0	100.0	0.0	0.0	100.0	100.0	100.0	100.0	0.0	0.0	0.0
Paratyphi B	1	100.0	100.0	0.0	0.0	100.0	100.0	100.0	0.0	0.0	0.0	0.0
Saintpaul	2	100.0	0.0	0.0	0.0	100.0	100.0	100.0	100.0	0.0	50.0	0.0
Senftenberg	2	100.0	100.0	50.0	100.0	100.0	100.0	50.0	100.0	0.0	100.0	0.0
Stanley	1	100.0	100.0	0.0	100.0	100.0	100.0	100.0	100.0	0.0	0.0	0.0
Typhi	3	100.0	100.0	0.0	0.0	100.0	100.0	100.0	100.0	0.0	100.0	0.0
Typhimurium	193	99.5	93.8	0.0	5.7	100.0	100.0	99.5	14.0	0.0	2.6	0.5
Virchow	2	50.0	0.0	0.0	0.0	100.0	100.0	100.0	100.0	0.0	100.0	0.0

1 E John Threlfall, Ian ST Fisher, Linda R Ward, Helmut Tschäpe and Peter Gerner-Smidt. Harmonisation of antibiotic susceptibility testing for *Salmonella* - results of a study by 18 national reference laboratories within the European Union-funded Enter-net group. *Microb Drug Resist* 1999; **5**: 195-200.

**Table 2 – Enter-net Salmonella database
Top 15 serotypes reported in Q1 2002
(Q1 2001).**

Serotype	Freq	%
Enteritidis	3,875 (4,669)	34.0 (32.1)
Typhimurium	2,956 (4,107)	25.9 (28.2)
Virchow	371 (488)	3.3 (3.4)
Hadar	276 (396)	2.4 (2.7)
Saintpaul	256 (237)	2.2 (1.6)
Oranienburg	203 (47)	1.8 (0.3)
Infantis	166 (243)	1.5 (1.7)
Newport	143 (136)	1.3 (0.9)
Stanley	139 (124)	1.2 (0.9)
Agona	121 (115)	1.1 (0.8)
Birkenhead	115 (162)	1.0 (1.1)
Heidelberg	115 (142)	1.0 (1.0)
Bovismorbificans	105 (140)	0.9 (1.0)
Typhi	103 (130)	0.9 (0.9)
Muenchen	87 (101)	0.8 (0.7)
Others	2,184 (3,312)	20.7 (22.7)
Total	11,215 (14,540)	100 (100)