



**International surveillance network for  
the enteric infections -  
Salmonella, VTEC O157 and Campylobacter**

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**Enter-net Quarterly Salmonella Report Jul-Sept 2005/3**

This report gives details of the number of isolates identified by the national reference laboratories in the 3rd quarter of 2005 and incorporated in the Enter-net salmonella database. Twenty-seven countries have supplied data. The top fifteen serotypes reported this quarter with comparable data for the same quarter of 2004 are detailed in table one. Table two illustrates Salmonella drug resistance data received for the quarter. Table three gives details on serotypes that have shown an

unusual increase this quarter. The total number of human salmonella isolates reported this quarter are 40,188 with 33,034 (82.2%) being *S. Enteritidis*, *S. Typhimurium* and *S. Virchow*.

<b>Top 15 serotypes reported in Q3 2005 (Q3 2004)</b>		
<b>Serotype</b>	<b>Freq</b>	<b>%</b>
Enteritidis	23,766 (26,362)	67.3 (69.8)
Typhimurium	4,539 (4,936)	13.0 (13.0)
Hadar	1,503 (252)	4.2 (0.6)
Virchow	364 (389)	1.0 (1.0)
Infantis	335 (398)	0.9 (1.0)
Typhi	220 (195)	0.6 (0.5)
Newport	207 (391)	0.5 (1.0)
Agona	160 (132)	0.5 (0.3)
Corvallis	153 (99)	0.4 (0.2)
Saintpaul	145 (140)	0.4 (0.3)
Derby	143 (147)	0.4 (0.3)
Stanley	141 (121)	0.4 (0.3)
Isangi	127 (7)	0.3 (0.1)
Paratyphi A	113 (153)	0.3 (0.4)
Napoli	105 (144)	0.2 (0.3)
Others	3,269 (3,868)	9.6 (10.2)
<b>Total</b>	<b>35,290 (37,734)</b>	<b>100 (100)</b>

**Table 1**

**Quarterly data - major trends.**

Details below refer to the twenty-four countries that have supplied comparable data electronically for 2005 and 2004. The total number of reports in the database shows a decrease over the same period in 2004 from 37,734 to 35,290, down 6.5%. *S. Enteritidis* (23,766, 67.3%) decreased by 10.8%, *S. Typhimurium* (4,539, 13.0%) decreased by 8.1% and *S. Virchow* (364, 1.0%) decreased by 6.4%. Fourteen serotypes were identified more than 100 times during the quarter; *S. Hadar* (1,503, 4.2%), *S. Infantis* (335, 0.9%), *S. Typhi* (220, 0.6%) *S. Newport* (207, 0.5%), *S. Agona* (160, 0.5%), *S. Corvallis* (153, 0.4%), *S. Saintpaul* (145, 0.4%), *S. Derby* (143, 0.4%), *S. Stanley* (141, 0.3%) *S. Isangi* (127, 0.3%), *S. Paratyphi A* (113, 0.3%), *S. Napoli* (105, 0.2%), *S. Kentucky* (104, 0.2%) and *S. Anatum* (100, 0.3%). Eleven other serotypes were isolated between 50 and 99 times, *S. Bovismorbificans*, *S. Braenderup*, *S. Brandenburg*, *S. Bredeney*, *S. Kottbus*, *S. Mbandaka*, *S. Montevideo*, *S. Ohio*, *S. Paratyphi B*, and *S. Thompson* (745, 2.1%). Forty-five serotypes were reported between 49 and 10 times totaling 1,294, 3.6% and 189, (434, 1.2%) of the total were reported less than 10 times. 837, 2.3% were untyped.

The cases reported are based on the date of receipt in the reference laboratory.

### Antimicrobial susceptibility testing results.

Antimicrobial susceptibility test results were available for 4,802 cases. The majority of these are tested against the 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<sup>1</sup>) are given in table 2.

Antimicrobial agent	Resistant Freq (%)	Intermed Freq (%)	Sensitive Freq (%)
Streptomycin	1,082 (34.1)	172 (5.4)	1,918 (60.5)
Gentamicin	69 (1.7)	40 (1.0)	3,864 (97.3)
Kanamycin	266 (7.3)	40 (1.1)	3,321 (91.6)
Ampicillin	1,447 (30.4)	44 (0.9)	3,272 (68.7)
Cefotaxime	226 (6.1)	12 (0.3)	3,495 (93.6)
Sulphonamides	1,530 (46.6)	21 (0.6)	1,734 (52.8)
Trimethoprim	461 (10.5)	39 (0.9)	3,874 (88.6)
Chloramphenicol	590 (14.4)	42 (1.0)	3,475 (84.6)
Tetracyclines	1,346 (34.8)	573 (14.8)	1,942 (50.3)
Nalidixic Acid	779 (22.7)	52 (1.5)	2,602 (75.8)
Ciprofloxacin	256 (5.6)	12 (0.3)	4,286 (94.1)

Table 2

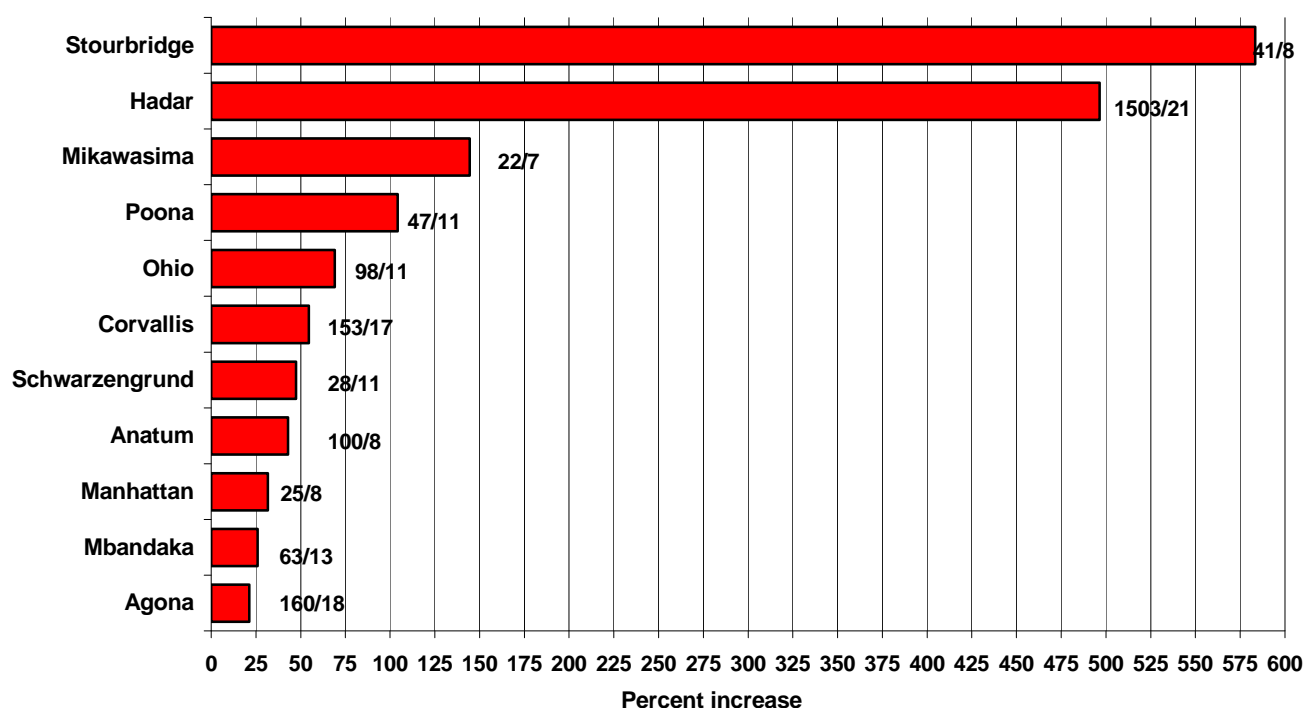
**Multi-drug resistance;** Table three shows the total number of strains with multiple-resistance (to four or more antimicrobials) with comparative data for the same period of last year by serotype and the percent of the total for that serotype with an associated antibiogram.

Serotype	N° MDR	Total	%
Typhimurium	580	1,207	48.1
	(525)	(1,346)	(39.0)
Hadar	202	227	88.9
	(22)	(75)	(29.3)
Isangi	117	124	94.3
	(3)	(6)	(50.0)
Enteritidis	18	2,248	0.8
	(39)	(3,585)	(1.1)
Virchow	9	62	14.5
	(21)	(82)	(25.6)
Newport	10	48	20.8
	(11)	(69)	(15.9)
Typhi	11	92	11.9
	(5)	(36)	(13.9)
Blockley	8	10	80.0
	(12)	(21)	(57.1)
Infantis	7	39	17.9
	(5)	(120)	(4.2)
Stanley	4	27	14.8
	(2)	(21)	(9.5)
Paratyphi B	4	18	22.2
	(4)	(37)	(10.8)
Agona	5	32	15.6
	(0)	(12)	(18.4)
Others	78	668	11.7
	(307)	(816)	(37.6)
Total	1,053	4,802	21.9
	(973)	(6,226)	(15.8)

Table 3

ut Tschäpe and Peter Gerner-Smidt. Harmonisation of a study by 18 national reference laboratories within the st 1999; 5: 195-200.

**Serotypes with unusual increases Q3 2005 (Q3 2004)  
(number of cases/number of countries reporting)**



**Serotypes with unusual increases.**

**S. Stourbridge** – Forty-one cases were reported this quarter; most of these cases were related to the outbreak associated with unpasteurised cheese.  
(Refs <http://www.eurosurveillance.org/ew/2005/050721.asp#1> and <http://www.eurosurveillance.org/ew/2005/050811.asp#3>).

**S. Hadar** – The majority of the 1,503 cases reported were connected to the outbreak in Spain associated with cooked Chicken,  
(Ref <http://www.eurosurveillance.org/ew/2005/050811.asp#1>).

**S. Mikawasima** - Of the total number reported there were one male, one female and one unknown aged 1-5y, there was one female aged 6-14y, three males, nine females, aged 15-64y and one male, one female aged 65y+, two cases were unspecified. One case was travel related.

**S. Poona** – Forty-six cases reported. Three males, two females, one unspecified aged 0-11m, seven males, four females, one unspecified aged 1-5y, two males were 6-14y, 10 males, six females were 15-64y and there were three males, two females aged 65y+. Ten cases were travel related; one each to Sudan and Somalia, eight other travel related cases were unspecified.

**S. Ohio** – Of the 98 cases reported this quarter there were four males, two females aged 0-11m, four males, three females aged 1-5y, 28 males, 22 females aged 15-64y and 11 males and 15 females aged 65y+. Four cases were unknown. No cases were travel related.

**S. Corvallis** - There were two males, one female aged 0-11m, six males, nine females aged 1-5y, five males, four females were 6-14y, 49 males, 61 females were 15-64y and one male aged 65y+. Forty-five cases were travel related; 21 traveled to Bulgaria, six each to India and Turkey, five each to Malaysia and Thailand and one each to Singapore and Tunisia.

**S. Schwarzengrund** - Of the 28 cases reported there were two males, two females aged 0-11m, four females aged 1-5y, one male aged 6-14y, seven males, eight females aged 15-64y and two males, two females were 65y+. Six cases were related to travel; two to Tunisia, one each to Taiwan, Venezuela and Saudi Arabia.

**S. Anatum** – One-hundred cases reported this quarter. Four males, four females were 0-11m, four males, five females 1-5y, two females were 6-14y; 18 males, 38 females were 15-64y and eight males, nine females were aged 65y+, two males, one female were unspecified. Eight cases were travel related; two cases traveled to Tunisia, one each traveled to Egypt, Spain and Thailand.

**S. Manhattan** – One female aged 0-11m, one male, one female were 1-5y, two males, eight females were 15-64y and four males, five females were 65y+. Two cases were related to travel to unspecified countries.

**S. Mbandaka** – Of the 64 cases reported this quarter there was one male aged 0-11m, two females, six males aged 1-5y, one female aged 6-14y, 16 males, 27 females aged 15-64y, three males and three females were 65y+, one male, one female age unknown. Twenty-seven cases were related to travel; two each to Tunisia and Thailand and one each to Pakistan, Turkey and Niger, twenty were unspecified.

**S. Agona** – There were six males, five females aged 0-11m, 22 males, 15 females aged 1-5y, 10 males and four females were 6-14y; 30 males, 38 females were 15-64y and four males, eight females were 65y+. Age was unknown for six females and six males. Twenty-three cases were travel related; three each traveled to Bangladesh and Turkey, two to Thailand and one each to India, Sudan and Vietnam, 12 were not stated.