



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

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Enter-net Quarterly Salmonella Report - 02/4 October – December 2002

Summary.

This report gives details of the number of isolates identified by the national reference laboratories in the fourth quarter of 2002 and incorporated in the Enter-net salmonella database. Seventeen countries have supplied data electronically. Table one illustrates Salmonella drug resistance data received for the quarter. Table two gives further details on multi-resistant isolates and the antimicrobials to which they are resistant, table three compares the most significant of these with data from 2001. Table four details the top fifteen serotypes isolated in total and gives comparable data for the same period in 2001 where available. The total number of human salmonella isolates reported this quarter are 19,357 with 15,245 (78.8%) being *S. Enteritidis*, *S. Typhimurium*, *S. Virchow* or *S. Hadar*.

Quarterly data - major trends.

Details below refer to the seventeen countries that have supplied comparable data electronically for 2002 and 2001. The total number of reports in the database shows a decrease over the same period of 2001 from 28,126 to 19,357 down 31.2%. All the main serotypes have decreased in comparison to isolates in the 4th quarter of 2001, *S. Enteritidis* (10,573 isolates in the 4th quarter of 2002, 54.6% of the total) decreased by 45.0%, *S. Typhimurium* (4,094 21.1%) decreased by 27%, *S. Virchow* (331, 1.7%) by 21.0% and *S. Hadar* (235, 1.2%) by 45.2%. Eight other serotypes were identified more than 100 times during the quarter. *S. Infantis* (247, 1.3%), *S. Agona* (147, 0.8%), *S. Saintpaul* (146, 0.8%), *S. Newport* (142, 0.7%) *S. Braenderup* (120, 0.7%) *S. Brandenburg* (112, 0.6%) *S. Typhi* (111, 0.6%) and *S. Heidelberg* (101, 0.5%). Sixteen other serotypes were isolated between 50 and 99 times, *S. Muenchen*, *S. Stanley*, *S. Derby*, *S. Bovismorbificans*, *S. Anatum*, *S. Blockley*, *S. Montevideo*, *S. Java*, *S. Potsdam*, *S. Bredeney*, *S. Rissen*, *S. Panama*, *S. Dublin*, *S. Kottbus* and *S. Chester* – 1,190 of the total, 6.1%. Forty-four serotypes were reported between 10 and 49 times totaling 1,068, 5.5% and 163, 0.9% serotypes were reported less than 10 times, 567, 2.9%, 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 3,473 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 1.

| Antimicrobial agent | Resistant Freq (%) | Intermed Freq (%) | Sensitive Freq (%) |
|---------------------|--------------------|-------------------|--------------------|
| Streptomycin | 477(20.9) | 177(7.8) | 1,625 (71.3) |
| Gentamicin | 35 (1.5) | 171 (7.5) | 2,073 (91.0) |
| Kanamycin | 54 (2.4) | 127 (5.6) | 2,098 (92.1) |
| Ampicillin | 567 (24.9) | 32 (1.4) | 1,680 (73.7) |
| Cefotaxime | 6 (0.3) | 2 (0.1) | 2,271 (99.6) |
| Sulphonamides | 1,101 (48.3) | 26(1.1) | 1,152 (50.5) |
| Trimethoprim | 153 (6.7) | 16 (0.7) | 2,110 (92.6) |
| Chloramphenicol | 265 (11.6) | 4 (0.2) | 2,010 (88.2) |
| Tetracyclines | 533 (23.4) | 512 (22.5) | 1,234 (54.1) |
| Nalidixic Acid | 423 (18.6) | 3 (0.1) | 1,853 (81.3) |
| Ciprofloxacin | 12 (0.5) | 4 (0.2) | 2,263 (99.3) |

Table 1

Multi-drug

resistance; Table two shows the number of strains with multiple-resistance (five or more antimicrobials) by serotype and the percent of the total for that serotype.

Table 3 compares the data for 2002 against 2001 for those serotypes with five or more multi-resistant strains

| Serotype | N° MR | Total | % | Serotype | N° MR | Total | % |
|-------------|-------|--------|------|-------------|-------|-------|------|
| Albany | 3 | 23 | 13.0 | Kentucky | 1 | 50 | 2.0 |
| Blockley | 5 | 55 | 9.0 | Muenchen | 1 | 65 | 1.5 |
| Braenderup | 1 | 120 | 0.8 | Muenster | 2 | 13 | 15.3 |
| Brandenburg | 1 | 98 | 1.0 | Newport | 3 | 137 | 2.1 |
| Bredeney | 2 | 49 | 4.7 | Ohio | 1 | 32 | 2.8 |
| Enteritidis | 6 | 10,573 | 0.1 | Paratyphi B | 1 | 38 | 2.6 |
| Goldcoast | 1 | 36 | 2.7 | Saintpaul | 9 | 133 | 6.7 |
| Hadar | 20 | 235 | 8.5 | Stanley | 6 | 98 | 6.1 |
| Heidelberg | 2 | 83 | 2.4 | Thompson | 1 | 36 | 2.7 |
| Infantis | 2 | 247 | 0.8 | Typhi | 1 | 109 | 0.9 |
| Java | 1 | 74 | 1.3 | Typhimurium | 310 | 4,094 | 7.5 |
| Kapemba | 1 | 2 | 50.0 | Virchow | 13 | 331 | 3.9 |

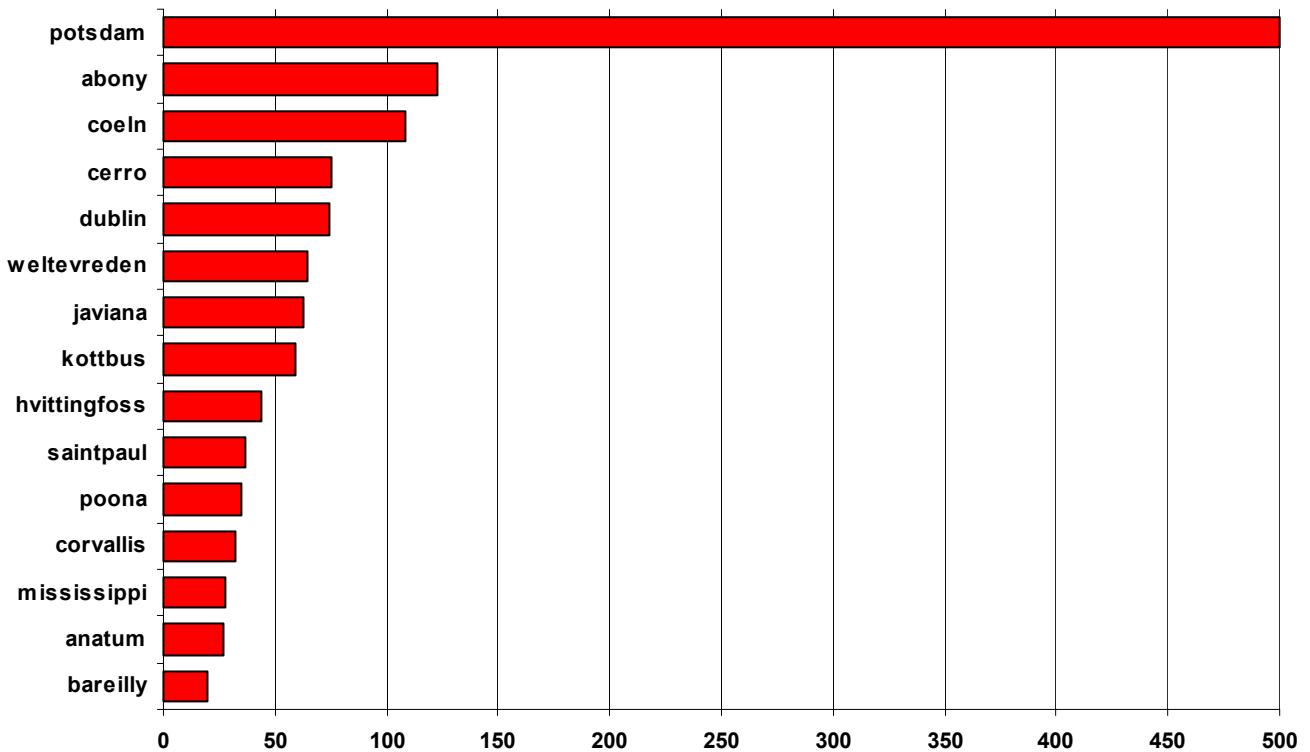
Table 2

| | N° | % R to Str | % R to Gen | % R to Kan | % R to Amp | % R to Cef | % R to Sul | % R to Tri | % R to Chl | % R to Tet | % R to Nal | % R to Cip |
|-------------|--------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Blockley | 55 | 28.0 | 0.0 | 26.8 | 2.4 | 0.0 | 1.2 | 0.0 | 4.9 | 29.3 | 24.4 | 0.0 |
| (2001) | 95 | 8.4 | 16.8 | 10.5 | 0.0 | 0.0 | 1.1 | 0.0 | 6.3 | 12.6 | 2.1 | 0.0 |
| Enteritidis | 10,573 | 0.2 | 0.1 | 0.1 | 1.4 | 0.0 | 4.9 | 0.2 | 0.0 | 0.4 | 2.6 | 0.1 |
| (2001) | 19,379 | 0.2 | 0.1 | 0.1 | 0.7 | 0.0 | 2.0 | 0.1 | 0.0 | 0.3 | 0.8 | 0.0 |
| Hadar | 235 | 16.6 | 0.0 | 1.3 | 10.6 | 0.0 | 1.3 | 0.4 | 0.0 | 17.4 | 15.7 | 0.9 |
| (2001) | 430 | 6.5 | 0.0 | 0.5 | 6.3 | 0.2 | 8.4 | 0.2 | 0.2 | 9.3 | 8.8 | 0.2 |
| Saintpaul | 133 | 6.2 | 4.8 | 4.8 | 7.5 | 0.0 | 6.2 | 1.4 | 4.8 | 4.8 | 6.2 | 0.0 |
| (2001) | 107 | 5.6 | 0.0 | 0.0 | 6.5 | 0.0 | 6.5 | 6.5 | 0.9 | 6.5 | 6.5 | 0.0 |
| Stanley | 99 | 7.1 | 1.0 | 3.0 | 3.0 | 0.0 | 7.1 | 4.0 | 2.0 | 7.1 | 2.0 | 0.0 |
| (2001) | 117 | 2.6 | 0.0 | 0.0 | 0.0 | 0.0 | 3.4 | 0.9 | 0.0 | 3.4 | 0.9 | 0.0 |
| Typhimurium | 4,094 | 11.4 | 0.9 | 0.5 | 14.3 | 0.4 | 14.0 | 3.2 | 7.4 | 14.0 | 16.9 | 0.0 |
| (2001) | 4,258 | 9.4 | 0.4 | 0.9 | 12.7 | 0.1 | 12.7 | 2.4 | 7.9 | 12.5 | 1.1 | 0.0 |
| Virchow | 331 | 2.1 | 0.3 | 0.3 | 4.5 | 0.6 | 5.1 | 4.2 | 0.3 | 3.6 | 13.6 | 15.7 |
| (2001) | 424 | 0.5 | 0.0 | 0.5 | 0.0 | 0.0 | 2.6 | 0.5 | 0.5 | 0.5 | 4.7 | 0.5 |

Table 3

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.

Serotypes with unusual increases Q4 2002 (Q4 2001)



Serotypes with unusual increases this quarter;

S. Potsdam – 72 cases reported this quarter. Two males and three females aged 0-11m, two males and four females aged 1-5y, twenty-seven males and thirty females aged 15-64y and two males and two females aged 65y+. Four cases were associated to travel, two each traveled to Australia, China and Tunisia.

S. Dublin – Of the cases reported there was one male aged 0-11m, two males and one female aged 1-5yr, one female aged 6-14y, eight males and six females aged 15-64y and two males and seven females aged 64y+. No cases were travel related.

S. Kentucky – 49 cases this quarter. One male aged 1-5y, two females aged 6-14y, 10 males and 16 females aged 15-64y and one male and three females aged 64y+ there were 15 cases reported with sex unknown. Fifteen cases were related to travel, four traveled to Egypt, four to Tunisia, 2 to Turkey the others were unstated.

S. Kottbus – Of the cases reported in total, there were two males and one female aged 0-11m, two males and four females aged 1-5y, one female aged 6-14y, 9 males and 12 females aged 15-64y, three males and four females aged 65y+. Four of the reported cases were related to travel, one traveled to Spain, one to Turkey and one to Tunisia.

S. Hvittingfoss – Only one of the 33 cases were related to travel to Tunisia. Of the total, 57% of cases reported being in the 15-64y ageband.

S. Bareilly - 29 cases reported, one female aged 0-11m, one male aged 1-5y, six males and 10 females aged 6-14y, one female aged 65y+. There were 10 unknown. Thirteen cases were related to travel; seven traveled to India, one each of the cases traveled to China, Indonesia, Thailand and Vietnam.

S. Abony – Of the 28 cases reported there were three females aged 1-5y, four males aged 6-14y, seven males and 10 females aged 15-64y one female aged 65y + and one male and

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one female age unknown. Four cases were related to travel, three cases traveled to Egypt, one was unspecified.

S. Corvallis - 29 cases reported in total. One male aged 0-11m, one male aged 0-5y, six males and 12 females aged 15-64y, one male and two females aged 65y+. Seven cases were travel related. Two cases traveled to Malaysia, two to Thailand, one each of the remaining cases traveled to Gambia, Spain and Morocco.

S. Poona - There were 25 cases reported this quarter. Three males aged 0-11m, three males and four females aged 1-5y, two females aged 6 –14y, two males and five females aged 15-64y, one male and one female aged 65y+. Four cases were associated to travel, One each traveled to Afghanistan, Kenya, Thailand and Zimbabwe.

S. Javiana - 26 cases reported. One male and one female aged 1-5y, one male aged 6-14y, 12 males and eight females aged 15-64y, one case was unspecified. Eleven cases reported to travel, three traveled to Thailand, two to Indonesia, two to the United States, one to Cuba and one to Vietnam.

**Table 4 – Enter-net Salmonella database
Top 15 serotypes reported in Q4 2002
(Q4 2001).**

| Serotype | Freq | % |
|------------------|----------------------------------|----------------------------|
| Enteritidis | 10,573 (19,379) | 54.6 (66.1) |
| Typhimurium | 4,094 (4,258) | 21.1 (14.5) |
| Virchow | 331 (424) | 1.7 (1.4) |
| Infantis | 247 (397) | 1.3 (1.4) |
| Hadar | 235 (430) | 1.2 (1.5) |
| Agona | 147 (167) | 0.8 (0.6) |
| Saintpaul | 146 (107) | 0.8 (0.4) |
| Newport | 142 (193) | 0.7 (0.7) |
| Braenderup | 120 (135) | 0.6 (0.5) |
| Brandenburg | 112 (144) | 0.6 (0.5) |
| Typhi | 111 (109) | 0.6 (0.4) |
| Heidelberg | 101 (96) | 0.5 (0.3) |
| Muenchen | 99 (73) | 0.5 (0.2) |
| Stanley | 99 (117) | 0.5 (0.4) |
| Derby | 98 (137) | 0.5 (0.5) |
| Bovismorbificans | 88 (111) | 0.5 (0.4) |
| Others | 2,614 (3,044) | 13.5 (10.3) |
| Total | 19,357 (29,321) | 100 (100) |

S. Coeln – There were no cases related to travel. Of the 24 cases reported this quarter there were one female and seven unknown aged 1-5y, one male and six unknown aged 6-14y. There were three females and two unknown aged 15-64y and two unknown aged 65y+.

S. Mississippi – 23 cases reported in total four of these cases were related to travel to New Caledonia. There was one male, one female aged 0-11m, four male and one female aged 1-5y, one male aged 6-14y, seven males and six females aged 15-64y, one male and one female aged 65y+.

S. Weltevreden - Of the 23 cases reported the was one male and two female aged 0-11m, one male aged 6-14y, six males and nine females aged 15-64y, one female aged 65y+ and three unspecified. Six cases were travel associated.

S. Cerro – Of the total reported there were four males, 14 females and three unspecified. One case was associated to travel.

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