



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

Funded by the European Centre for Disease Control

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**Enter-net Quarterly VTEC Report 2007/2**  
**April-July 2007**  
**Confidential**

**Summary.**

This report gives details of the number of isolates identified by the national reference laboratories in the 2<sup>nd</sup> quarter of 2007 and incorporated in the Enter-net VTEC database. Twenty countries have supplied the relevant data electronically (or reported a nil return). Five hundred and thirty-six cases have been reported. *E. coli* O157 was the most commonly identified serogroup; other serogroups identified are detailed in table 1, within the 24 (4.5%) others there were 18 different serogroups, eight cases (1.5%) were non-O157s with no specific serogroup identified.

Details in the tables below refer to the twenty countries that have supplied data electronically for 2007 and 2006.

**Quarterly data – major trends.**

The total number of reports in the database shows a decrease of 16.6% over the same period last year with 536 cases as compared to 643 in 2006. Where phage typing is performed PT21/28 was the predominant strain as it was in 2006 (table 2). The breakdown of serogroups by country is given in table 7.

The phrase 'NT' is used throughout this report and stands for untyped, untypable or not definitively typed for whatever reason. All data are **provisional**; the month of report is based on the date of receipt in the reference laboratory. Report prepared – September, 2007.

Serogroup	2007		2006	
	Freq	%	Freq	%
O157	354	66.0	394	61.3
O26	29	5.4	43	6.7
O103	15	2.8	24	3.7
O91	10	1.9	23	3.6
O145	9	1.7	11	1.7
O111	8	1.5	7	1.1
O146	6	1.1	9	1.4
O76	4	0.7	2	0.3
O113	3	0.6	3	0.5
O166	3	0.6	2	0.3
Non-O157	8	1.5	4	0.6
NT	63	11.8	68	10.6
Other	24	4.5	53	8.2
<b>Total</b>	<b>536</b>	<b>100.0</b>	<b>643</b>	

Table 1

O157 PT	2007		2006	
	Freq	%	Freq	%
21/28	115	40.8	112	35.0
8	51	18.1	49	15.3
2	32	11.3	37	11.6
32	23	8.2	22	6.9
14	13	4.6	22	6.9
4	7	2.5	3	0.9
33	6	2.1	8	2.5
1	4	1.4	1	0.3
54	4	1.4	2	0.6
49	3	1.1	3	0.9
NT	12	4.3	32	10.0
	12	4.3	29	9.1
<b>Total</b>	<b>282</b>		<b>320</b>	

Table 2

### Antimicrobial susceptibility testing results.

Antimicrobial susceptibility test results were available for 118 records. The majority of these are tested against the full panel of antimicrobials recommended by Enter-net, although not all strains are necessarily 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 3.

AST results by each Antimicrobial							
	Resistant		Intermediate		Sensitive		Tested
Streptomycin	18	18.9	5	5.3	72	75.8	95
Gentamicin	0	0.0	1	1.0	102	99.0	103
Kanamycin	3	2.9	1	1.0	99	96.1	103
Ampicillin	8	7.8	70	68.0	25	24.3	103
Cefotaxime	0	0.0	0	0.0	103	100	103
Sulphonamides	23	23.0	36	36.0	41	41.0	100
Trimethoprim	8	7.8	0	0.0	95	92.2	103
Chloramphenicol	2	2.1	0	0.0	93	97.9	95
Tetracyclines	15	15.8	43	45.3	37	38.9	95
Nalidixic Acid	1	1.0	0	0.0	102	99.0	103
Ciprofloxacin	0	0.0	0	0.0	103	100	103

Table 3

### Multi-drug resistance.

Table 4 shows the total number of strains with multi-resistance (to four or more antimicrobials) and the percent of the total for that serogroup with an associated antibiogram.

\* No other serogroups were MDR.

Serogroup	No MDR (≥4)	Total	%
untyped/untypable	2	24	8.3
O157	0	14	0.0
O103	3	10	30.0
O55	1	2	50.0
O118	1	1	100.0
O174	1	1	100.0
Others*	0	51	0.0
Total	8	103	7.8

Table 4

### Age and gender.

The age and gender breakdown is detailed in table 5.

Ageband	O157								non-O157							
	Male		Female		NK		Total		Male		Female		NK		Total	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
0-11m	9	2.5	1	0.3	0	0.0	10	2.8	8	6.7	1	0.8		0.0	9	7.5
1-5y	37	10.5	35	9.9	5	1.4	77	21.8	32	26.7	20	16.7		0.0	52	43.3
6-14y	29	8.2	26	7.3	0	0.0	55	15.5	7	5.8	5	4.2		0.0	12	10.0
16-64y	68	19.2	92	26.0	0	0.0	160	45.2	18	15.0	19	15.8	0	0.0	37	30.8
65y+	17	4.8	27	7.6	2	0.6	46	13.0	4	3.3	4	3.3		0.0	8	6.7
NK	1	0.3	4	1.1	1	0.3	6	1.7	1	0.8	1	0.8		0.0	2	1.7
Total	161	45.5	185	52.3	8	2.3	354	100	70	58.3	50	41.7	0	0.0	120	100

Table 5

### Clinical manifestation.

The clinical manifestation is detailed for 303 of the cases in the database. Bloody diarrhoea is more common in cases with O157 infections compared to non-O157 infections (table 6).

Clinical Manifestation	O157		non-O157		Serogroup not known	
	Freq	%	Freq	%	Freq	%
Diarrhoea	113	54.1	50	70.4	14	60.9
Bloody diarrhoea	77	36.8	6	8.5	5	21.7
HUS	13	6.2	12	16.9	4	17.4
Asymptomatic	6	2.9	3	4.2	0	0.0
Total	209		71		23	

Table 6

Table 7

Top Serogroups by country Q2 2007 (Q2 2006)

Austria			Australia			Belgium		
Serotype	Freq	%	Serotype	Freq	%	Serotype	Freq	%
O26	1	11.1	No laboratory data available			O103	2	25.0
	(1)	(11.1)				O157	2	25.0
O80	1	11.1					(5)	(41.7)
	(0)	(0.0)				O145	1	12.5
O91	1	11.1					(0)	(0.0)
	(0)	(0.0)						
O111	1	11.1						
	(0)	(0.0)						
O112	1	11.1						
	(0)	(0.0)						
O113	1	11.1						
	(1)	(11.1)						
O118	1	11.1						
	(0)	(0.0)						
O146	1	11.1						
	(0)	(0.0)						
Non-O157	1	11.2				Non-O157	3	37.5
	(0)	(0.0)					(3)	(25.0)
Other	0	0.0	Other			Other	0	0.0
	(7)	(77.8)					(4)	(33.3)
NT	0	0.0	NT			NT	0	0.0
	(0)	(0.0)					(0)	(0.0)
Total	9	100	Total		100	Total	8	100
	(9)	(100)			(100)		(12)	(100)

Bulgaria			Canada			Cyprus		
Serotype	Freq	%	Serotype	Freq	%	Serotype	Freq	%
Other			Other			Other		
NT			NT			NT		
Total		100	Total		100	Total		100
		(100)			(100)			(100)

Table 7

Top Serogroups by country Q4 2006 (Q4 2005)

Czech Republic			Denmark			England & Wales		
Serotype	Freq	%	Serotype	Freq	%	Serotype	Freq	%
			O26	6	24.0	O157	219	99.5
				(4)	(12.1)		(215)	(100)
			O157	5	20.0			
				(4)	(12.1)			
			O128ab	3	12.0			
				(0)	(0.0)			
			O76	2	8.0			
				(0)	(0.0)			
			O103	2	8.0			
				(4)	(12.1)			
			O75	1	4.0			
				(0)	(0.0)			
			O91	1	4.0			
				(0)	(0.0)			
			O111	1	4.0			
				(2)	(6.1)			
			O146	1	4.0			
				(1)	(3.0)			
Other			Other	3	12.0	Other		
				(11)	(33.4)			
NT			NT	0	0.0	NT	1	0.5
				(7)	(21.2)			
Total		100	Total	25	100	Total	220	100
	(100)			(33)	(100)		(215)	(100)

Estonia			Finland			France		
Serotype	Freq	%	Serotype	Freq	%	Serotype	Freq	%
No cases this qtr						O157	6	27.3
							(3)	(33.3)
						O26	3	13.6
							(0)	(0.0)
						O111	2	9.1
							(1)	(11.1)
						O91	1	4.5
							(0)	(0.0)
						O118	1	4.5
							(0)	(0.0)
						O145	1	4.5
							(1)	(11.1)
			Non-O157	2	100.0			
				(1)	(50.0)			
Other			Other			Other		
				(1)	(50.0)		(1)	(14.3)
NT			NT			NT	8	36.5
							(4)	(44.5)
Total		100	Total	2	100	Total	22	100
	(100)			(2)	(100)		(9)	(100)

Table 7

Top Serogroups by country Q4 2006 (Q4 2005)

Germany			Greece			Hungary		
Serotype	Freq	%	Serotype	Freq	%	Serotype	Freq	%
O26	12	13.6						
	(14)	(9.2)						
O157	9	10.2						
	(19)	(12.4)						
O103	8	9.1						
	(12)	(7.8)						
O91	5	5.7						
	(20)	(13.1)						
O146	3	3.4						
	(6)	(3.9)						
O55	2	2.3						
	(4)	(2.6)						
O113	2	2.3						
	(2)	(1.3)						
O145	2	2.3						
	(6)	(3.9)						
O163	2	2.3						
	(0)	(0.0)						
Other	12	13.6	Other			Other		
	(33)	(21.6)						
NT	31	35.2	NT			NT		
	(37)	(24.2)						
Total	88	100	Total		100	Total		100
	(153)	(100)			(100)			(100)

Iceland			Ireland			Italy		
Serotype	Freq	%	Serotype	Freq	%	Serotype	Freq	%
			O157	25	100.0	O111	4	33.3
				(25)	(64.1)		(0)	(0.0)
			O26	0	0.0	O157	4	33.3
				(13)	(33.3)		(1)	(20.0)
			O103	0	0.0	O145	2	16.8
				(1)	(2.6)		(1)	(20.0)
						O26	1	8.3
							(3)	(60.0)
						O103	1	8.3
							(0)	(0.0)
			Non-O157					
Other			Other			Other		
							(2)	(66.7)
NT			NT			NT		
Total			Total	25	100	Total	12	100
	(100)			(39)	(100)		(5)	(100)

Table 7

Top Serogroups by country Q4 2006 (Q4 2005)

Japan			Latvia			Lithuania		
Serotype	Freq	%	Serotype	Freq	%	Serotype	Freq	%
Other			Other			Other		
NT			NT			NT		
Total		100	Total		100	Total		100
	(100)			(100)			(100)	

Luxembourg			Malta			Netherlands		
Serotype	Freq	%	Serotype	Freq	%	Serotype	Freq	%
O157	1	100				O157	1	100.0
	(1)	(33.3)					(9)	(66.7)
Other			Other			Other		
	(2)	(66.7)					(6)	(33.3)
NT			NT			NT		
Total	1	100	Total		100	Total	1	100
	(3)	(100)		(100)			(15)	(100)

Table 7

Top Serogroups by country Q4 2006 (Q4 2005)

New Zealand			Norway			Poland		
Serotype	Freq	%				Serotype	Freq	%
O157	21 (23)	100.0 (92.0)	O76	1 (0)	25.0 (0.0)			
			O145	1 (1)	25.0 (8.3)			
			O157	1 (2)	25.0 (16.7)			
			Non-O157					
Other				(0)	(0.0)	Other		
	(2)	(8.0)	Other	0 (9)	0.0 (75.0)			
NT			NT	1 (3)	25.0 (0.0)	NT		
Total	21 (25)	100 (100)	Total	4 (12)	100 (100)	Total		100 (100)

Portugal			Romania			Scotland		
Serotype	Freq	%	Serotype	Freq	%	Serotype	Freq	%
			No cases this qtr			O157	38 (62)	95.0 (96.9)
						Non-O157	2 (2)	5.0 (3.1)
Other			Other			Other		
NT			NT			NT	0 (0)	0.0 (0.0)
Total		100 (100)	Total		100 (100)	Total	40 (64)	100 (100)

Table 7

Top Serogroups by country Q2 2007 (Q2 2006)

Slovakia			Slovenia			South Africa		
Serotype	Freq	%	Serotype	Freq	%	Serotype	Freq	%
O157	1 (0)	100.0 (0.0)	No cases this qtr			No cases this qtr		
Other			Other			Other		
NT			NT			NT		
Total	1 (0)	100 (100)	Total			Total 100 (100)		

Spain			Sweden			Switzerland		
Serotype	Freq	%	Serotype	Freq	%	Serotype	Freq	%
			O157	21 (15)	36.8 (38.5)	No laboratory data available		
			O26	6 (0)	10.5 (0.0)			
			O91	2 (2)	3.5 (5.1)			
			O103	2 (1)	3.5 (2.6)			
			O145	2 (0)	3.5 (0.0)			
			O128	1 (1)	1.8 (2.6)			
			O146	1 (0)	1.8 (0.0)			
Other			Other	0 (1)	0.0 (2.6)	Other		
NT			NT	22 (19)	38.6 (48.6)	NT		
Total		100 (100)	Total	57 (39)	100 (100)	Total 100 (100)		