



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

Funded by the European Centre for Disease Prevention and Control

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Enter-net Quarterly *Campylobacter* Report 2007/1
April-June 2007

Summary.

Data on campylobacteriosis were supplied by 19 of the participating countries (including two nil returns). In total there were 33,847 cases of *Campylobacter* infection reported to Enter-net during the second quarter of 2007. Rates of infection varied from 0.3 to 68.4 per 100,000 population. The average across the countries reporting was 13.3. However, the surveillance systems which monitor *Campylobacter* infection vary considerably. In some countries campylobacteriosis is a notifiable disease, whilst in others, surveillance is carried out on a voluntary basis, and some countries are only just introducing national reference facilities. It is not therefore possible to directly compare the infection rates of different countries.

Species Differentiation.

Species differentiation among all or a sub-set of *Campylobacter* isolates was undertaken by 12 of the countries that submitted data (70.6%). In the other countries no further identification is done. *Campylobacter jejuni* was the predominant species identified (Table 1).

Table 1 Number and proportion of isolates by species.

Species	Number	% of total	% of those speciated
<i>C. jejuni</i>	9,613	28.4	93.6
<i>C. coli</i>	328	1.0	3.2
Other	327	1.0	3.2
Not speciated	23,579	69.7	
Total	33,847	100.0	100.0

Annual trend Q2 2007 compared with Q2 2006.

There are 16 countries from whom compatible data are available for both 2007 and 2006, and it is clear that there is an increase in the total number of *Campylobacter* cases being identified (table 2). The numbers went up from 8,754 in 2006 to 10,035 in 2007 (+14.6%). In total, this increase was seen in 13 of these 16 countries.

Q2 2007	<i>Jejuni</i>		<i>Coli</i>		Other		Sub-total	Not speciated	Total
	Freq	%	Freq	%	Freq	%			
Total	2,981	88.7	327	9.7	52	1.5	3,360	6,675	10,035
(2006)	(2,615)	(92.6)	(149)	(5.3)	(60)	(2.1)	(2,824)	(5,930)	(8,754)

Table 2 Quarterly totals for the 16 countries with data for both 2007 and 2006.

September 2007

All data are provisional

Age and gender.

Just under 60% of all cases were between 15 and 64 years of age (Table 3). There were more males than females in every age group with the exception of those aged over 65y.

	Male		Female		Not known		All	
	Freq*	%	Freq*	%	Freq*	%	Freq*	%
0-11m	367	2.2	276	1.6	3	0.0	646	3.8
1-5y	1,644	9.7	1,403	8.2	6	0.0	3,053	17.9
6-14y	1,218	7.2	899	5.3	6	0.0	2,123	12.5
15-64y	4,912	28.9	4,795	28.2	30	0.2	9,737	57.2
65y+	666	3.9	703	4.1	4	0.0	1,373	8.1
Not known	20	0.1	13	0.1	48	0.3	81	0.5
Total	8,827	51.9	8,089	47.5	97	0.6	17,013	100.0

Table 3 Age and gender breakdown of all *Campylobacter* isolates reported to Enter-net during the first quarter of 2007.

Travel associated cases.

Travel data were available for 2,283 cases. A large number were travel-associated but with the country not stated/other (1,148, 50.3%). The top ten destinations were Spain (310, 13.6%), Thailand (169, 7.4%), Turkey (165, 7.3%), India (121, 5.3%), Greece (92, 4.0%), Tunisia (76, 3.3%), Morocco (49, 2.1%), France (48, 2.1%), Bulgaria (20, 0.9%), and Hungary (20, 0.9%), the remaining 65 cases (2.8%) were from 15 other countries.

Multi-drug resistance.

Multi-drug resistance results showing the proportion (%) of isolates by species that were found to be resistant to four or more different classes of antimicrobials. MDR was seen in 16.9% of *Campylobacter* isolates tested, but mainly in *C. coli* and not typed cases.

Number MDR (≥4) by species			
Species	No. MDR (≥4)	Total tested	%
Jejuni	101	831	12.2
Coli	63	184	34.2
Others	1	30	3.3
Not typed	14	15	93.3
Total	179	1,060	16.9

Table 4 Antimicrobial susceptibility testing results showing the proportion (%) of isolates resistant to the testing panel of antimicrobials by species.

Antimicrobial resistance testing results.

Antimicrobial susceptibility testing of *Campylobacter* isolates was undertaken by eight of the countries that submitted data (47.1%). The most common antimicrobials tested against were Erythromycin, Tetracyclines and Ciprofloxacin. The proportion of resistant isolates varied by species (Tables 5a, b, c, d).

<i>C. jejuni</i>	Resistant		Intermediate		Sensitive		Total tested
	Freq	%	Freq	%	Freq	%	Freq
Gentamicin	7	0.8	11	1.3	813	97.8	831
Ampicillin	279	33.6	58	7.0	494	59.4	831
Amoxicillin/Clavulanic acid	3	0.4	3	0.4	790	99.2	796
Erythromycin	23	1.5	35	2.3	1,497	96.3	1,555
Tetracyclines	353	26.1	43	3.2	954	70.7	1,350
Nalidixic Acid	355	38.3	5	0.5	567	61.2	927
Ciprofloxacin	739	44.7	13	0.8	900	54.5	1,652

Table 5a

<i>C. coli</i>	Resistant		Intermediate		Sensitive		Total tested
	Freq	%	Freq	%	Freq	%	Freq
Gentamicin	9	4.9	3	1.6	172	93.5	184
Ampicillin	54	29.3	24	13.0	106	57.6	184
Amoxicillin/Clavulanic acid	1	0.7	4	2.6	148	96.7	153
Erythromycin	36	15.4	30	12.8	168	71.8	234
Tetracyclines	122	54.5	7	3.1	95	42.4	224
Nalidixic Acid	103	55.4	4	2.2	79	42.5	186
Ciprofloxacin	139	58.4	0	0.0	99	41.6	238

Table 5b

Other species	Resistant		Intermediate		Sensitive		Total tested
	Freq	%	Freq	%	Freq	%	Freq
Gentamicin	0	0.0	0	0.0	30	100.0	30
Ampicillin	6	20.0	0	0.0	24	80.0	30
Amoxicillin/Clavulanic acid	1	3.3	0	0.0	29	96.7	30
Erythromycin	3	7.3	1	2.4	37	90.2	41
Tetracyclines	4	12.1	1	3.0	28	84.8	33
Nalidixic Acid	23	76.7	2	6.7	5	16.7	30
Ciprofloxacin	12	29.3	0	0.0	29	70.7	41

Table 5c

Not typed	Resistant		Intermediate		Sensitive		Total tested
	Freq	%	Freq	%	Freq	%	Freq
Gentamicin	0	0.0	1	6.7	14	93.3	15
Ampicillin	14	93.3	1	6.7	0	0.0	15
Amoxicillin/Clavulanic acid	0	0.0	0	0.0	0	0.0	0
Erythromycin	4	6.9	6	10.3	48	82.8	58
Tetracyclines	11	21.6	4	7.8	36	70.6	51
Nalidixic Acid	8	53.3	0	0.0	7	46.7	15
Ciprofloxacin	23	39.7	2	3.4	33	56.9	58

Table 5d

Tables 5 Antimicrobial susceptibility testing results showing the % of isolates designated as resistant, intermediate and sensitive to the panel of antimicrobials by species.