



## ZOONOTIC INTESTINAL INFECTIONS 2007

No. 10, 2008

Zoonoses are diseases transmitted from animals to humans. Zoonotic gastrointestinal infections are transferred via contaminated foods or water, or by contact with infected animals or persons.

### Overall development trends

Bacterial enteropathogens are monitored through the laboratory surveillance system. The development from 1980 onwards is shown in Figure 1. In 2007, a total of 3868 (71 per 100,000) Campylobacter jejuni/coli infections were reported.

This constitutes a 19% increase compared with the previous year.

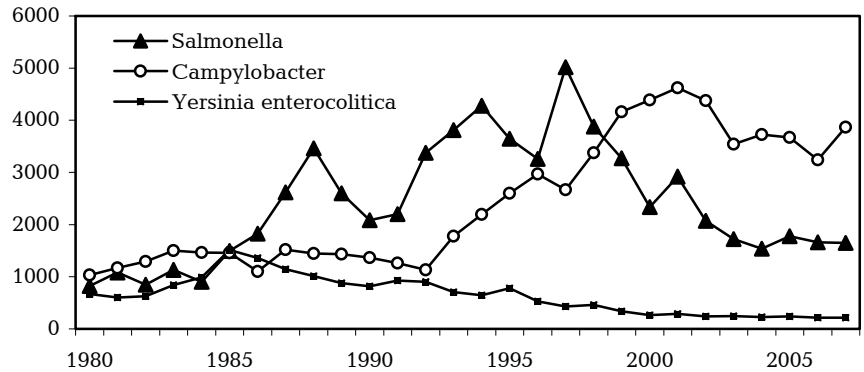
2007 saw nearly the same number of Salmonella episodes as the previous year, a total of 1649 episodes (30 per 10<sup>5</sup>). The most frequent serotypes are shown in Table 1.

**Table 1. Salmonella cases (episodes) by serotype, 2008**

Serotype	No.	(%)
S. Enteritidis	566	(34)
S. Typhimurium	343	(21)
S. Stanley	53	(3)
S. Agona	52	(3)
S. O:4,5,12; H:i:-	44	(3)
S. Java	42	(3)
S. Virchow	42	(3)
S. O:4,5,12; H:b:-	30	(2)
S. Dublin	26	(2)
S. Weltewreden	26	(2)
Other serotypes	425	(22)
<b>Total</b>	<b>1649</b>	<b>(100)</b>

In comparison with 2006, the number of S. Enteritidis infections remained unchanged (566 episodes), while a 17% decrease was observed for S. Typhimurium (343 episodes) and the group of all other serotypes showed an increase of 8% (740 cases). In 2007 these serotypes again totalled a higher number of infections than each of the traditionally predominant types: S. Enteritidis, which is primarily transmitted from eggs, and S. Typhimurium, primarily transmitted from pork and poultry. There were 215 notifications of Yersinia enterocolitica (4.0 per 100,000), exactly the same number as in 2006. It is assumed that these infections were mostly derived from pork. A total of 161 episodes of verocytotoxin-producing E. coli (VTEC) (3.0 per 100,000) were registered, a 10% increase compared with 2006. As in previous years, the geographic distribution was uneven, which primarily reflects heterogeneous diagnostic practices.

**Figure 1. Number of recorded infections caused by Salmonella, Campylobacter and Yersinia enterocolitica, 1980-2007**



**Table 2. Zoonotic intestinal infections 2007, age-specific incidence per 10<sup>5</sup>**

Age (yrs)	Campylobacter	S. Enteritidis	S. Typhimurium	Other salmonella	Yersinia enterocolitica	VTEC
< 1	73	8	26	67	25	23
1-4	103	18	17	28	27	18
5-14	47	12	6	8	5	2
15-24	121	9	6	17	5	3
25-44	92	8	4	12	3	2
45-64	53	11	6	12	3	1
65+	37	11	6	12	3	2
<b>Total</b>	<b>71</b>	<b>10</b>	<b>6</b>	<b>14</b>	<b>4</b>	<b>3</b>

In 2007, a total of 28 (17%) of the VTEC episodes were caused by serogroup O26 and 25 (16%) by serogroup O157. VTEC infections are clinically notifiable on form 1515, just as haemolytic uraemic syndrome (HUS) cases. In 2007, 142 VTEC cases and six HUS cases were notified. The age-specific incidence of zoonotic intestinal infections, Table 2, follows the pattern from previous years, EPI-NEWS 12/07. A series of outbreaks contributed to the number of infections in 2007, including a water-borne outbreak in the Municipality of Køge, where Campylobacter was the most frequent bacterium, EPI-NEWS 10/07, and a foodborne VTEC O26 outbreak, EPI-NEWS 16/07. Furthermore, the year saw a series of salmonella outbreaks. Further information concerning the number of bacterial intestinal infections is available at [www.germ.dk](http://www.germ.dk)

### Comment

The number of campylobacter infections rose to the highest level since 2002. Campylobacter therefore remains the most frequent bacterial zoonosis in Denmark, causing more than twice as many cases as salmonella. The primary source of infection in Denmark is fresh poultry. It is important to roast poultry

thoroughly, but it is also important to avoid meat contamination of other foods in the kitchen. Such contamination was established to be the cause of three recent campylobacter outbreaks of considerable size, EPI-NEWS 20-21/07. The infectious dose of Campylobacter is extremely low, and raw poultry should be kept from dripping on or in any other manner coming into contact with prepared foods. Current knowledge on Campylobacter epidemiology does not allow explanation of year-to-year fluctuations. Within the latest decade, the number of S. Enteritidis and S. Typhimurium infections has been reduced considerably as a consequence of comprehensive Danish salmonella control programmes. In the last three years, the total number of salmonella cases has remained practically unchanged, but an increase has been observed in the group named other salmonella types. A number of different food-stuffs were included among the sources of these infections and many patients are thought to have been infected during stays abroad. (S. Ethelberg, K.E.P. Olsen, F. Scheutz, Dept. of Bacteriology, Mycology & Parasitology, K. Mølbak, Dept. of Epidemiology)

5 March 2008

## Individually notifiable diseases

Number of notifications received in the Department of Epidemiology, SSI (2008 figures are preliminary)

Table 1	Week 9 2008	Cum. 2008 <sup>1)</sup>	Cum. 2007 <sup>1)</sup>
AIDS	0	7	8
Anthrax	0	0	0
Botulism	0	0	0
Cholera	0	0	0
Creutzfeldt-Jakob	0	4	2
Diphtheria	0	0	0
Food-borne diseases	10	47	107
of these, infected abroad	1	11	14
Gonorrhoea	9	58	73
Haemorrhagic fever	0	0	0
Hepatitis A	2	13	9
of these, infected abroad	0	4	3
Hepatitis B (acute)	1	2	5
Hepatitis B (chronic)	13	40	48
Hepatitis C (acute)	1	3	1
Hepatitis C (chronic)	29	73	62
HIV	2	34	47
Legionella pneumonia	1	20	18
of these, infected abroad	0	10	2
Leprosy	0	0	0
Leptospirosis	0	1	4
Measles	0	2	0
Meningococcal disease	1	15	7
of these, group B	0	5	2
of these, group C	1	3	4
of these, unspec. + other	0	7	1
Mumps	0	9	2
Neuroborreliosis	3	15	20
Ornithosis	0	1	0
Pertussis (children < 2 years)	0	13	17
Plague	0	0	0
Polio	0	0	0
Purulent meningitis			
Haemophilus influenzae	0	0	0
Listeria monocytogenes	0	0	5
Streptococcus pneumoniae	0	16	20
Other aethiology	1	10	2
Unknown aethiology	0	6	0
Under registration	2	7	-
Rabies	0	0	0
Rubella (congenital)	0	0	0
Rubella (during pregnancy)	0	0	0
Shigellosis	1	13	8
of these, infected abroad	1	11	5
Syphilis	1	22	19
Tetanus	0	0	0
Tuberculosis	9	68	61
Typhoid/paratyphoid fever	0	5	1
of these, infected abroad	0	4	1
Typhus exanthematicus	0	0	0
VTEC/HUS	1	20	20
of these, infected abroad	0	4	6

<sup>1)</sup> Cumulative number 2008 and in corresponding period 2007

## Selected laboratory diagnosed infections

Number of specimens, isolates, and/or notifications received in SSI laboratories

Table 2	Week 9 2008	Cum. 2008 <sup>2)</sup>	Cum. 2007 <sup>2)</sup>
Bordetella pertussis (all ages)	6	25	30
Gonococci	11	66	67
of these, females	3	12	10
of these, males	8	54	57
Listeria monocytogenes	2	4	12
Mycoplasma pneumoniae			
Resp. specimens <sup>3)</sup>	4	32	178
Serum specimens <sup>4)</sup>	6	35	165
Streptococci <sup>5)</sup>			
Group A streptococci	1	25	27
Group B streptococci	1	19	15
Group C streptococci	0	3	1
Group G streptococci	0	23	23
S. pneumoniae	24	260	253
Table 3	Week 7 2008	Cum. 2008 <sup>2)</sup>	Cum. 2007 <sup>2)</sup>
MRSA	14	73	-
Pathogenic int. bacteria <sup>6)</sup>			
Campylobacter	22	180	327
S. Enteritidis	6	33	31
S. Typhimurium	7	41	26
Other zoon. salmonella	19	96	69
Yersinia enterocolitica	3	27	38
Verocytotoxin-producing E. coli	2	14	20
Enteropathogenic E. coli	4	13	28
Enterotoxigenic E. coli	7	44	19

<sup>2)</sup> Cumulative number 2008 and in corresponding period 2007

<sup>3)</sup> Resp. specimens with positive PCR

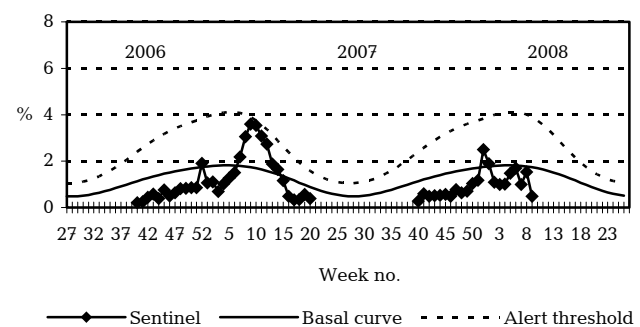
<sup>4)</sup> Serum specimens with pos. complement fixation test

<sup>5)</sup> Isolated in blood or spinal fluid

<sup>6)</sup> See also [www.germ.dk](http://www.germ.dk)

## Sentinel surveillance of the influenza activity

Weekly percentage of consultations, 2006/2007/2008



Sentinel: Influenza consultations (as percentage of total consultations)

Basal curve: Expected frequency of consultations under non-epidemic conditions

Alert threshold: Possible incipient epidemic

5 March 2008