

## ZOONOTIC ENTERIC INFECTIONS 2002

No. 9, 2003

Zoonoses are diseases that are transferred from animals to humans. In zoonotic enteric infections, illness arises after consumption of contaminated foodstuffs or water, or after contact with infected animals.

### General development

*Campylobacter jejuni/coli* is the most common bacterial zoonosis. In the laboratory notification system, 4,379 cases (82 per 10<sup>5</sup>) were recorded in 2002, a decrease of 5% relative to the year before, [fig 1](#). The incidence has been increasing for the past 10 years, however, recent figures suggest that this trend has been halted.

The main source of infections acquired in Denmark is thought to be poultry: both imported and Danish-produced. The poultry industry and the Danish Veterinary & Food Administration have taken steps to develop an action plan to eliminate *Campylobacter* in food production.

Apart from a minor increase in 2001, the incidence of *Salmonella* has been declining since 1997. In 2002, 2,072 cases (39 per 10<sup>5</sup>) were recorded, 29% fewer than the previous year.

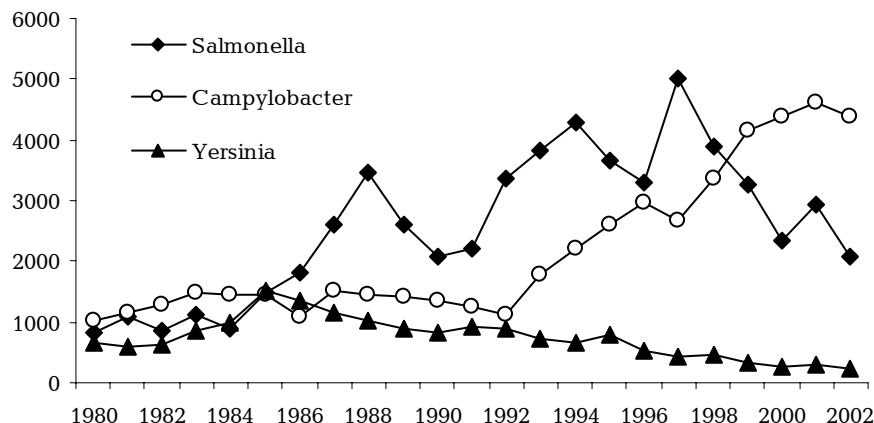
This is the lowest number since 1986. The decrease is seen for both *S. Enteritidis* (21%) and *S. Typhimurium* (36%). *S. Enteritidis*, which comes primarily from chicken eggs, is still the most common serotype, [table 1](#).

Thus, there is still a need for a special effort to combat *Salmonella* in consumer egg production. A few *Salmonella* serotypes, including *S. Dublin*, are on the increase. In 2002, 43 cases were recorded, compared with 26 in 2001. *S. Dublin* is found in cattle, and most cases are thought to be due to infection from beef or veal, unpasteurised milk or

**Table 1. No. of cases of *Salmonella*, by serotype, 2002**

Serotype	No.	(%)
<i>S. Enteritidis</i>	1121	(54)
<i>S. Typhimurium</i>	383	(18)
<i>S. Java</i>	48	(2)
<i>S. Dublin</i>	43	(2)
<i>S. Agona</i>	42	(2)
<i>S. Bovismorbificans</i>	41	(2)
<i>S. Stanley</i>	33	(2)
<i>S. Virchow</i>	31	(1)
<i>S. Hadar</i>	27	(1)
<i>S. Infantis</i>	27	(1)
<i>S. Newport</i>	27	(1)
Others	249	(12)
Total	2072	(100)

**Fig 1. No. of notified infections caused by *Campylobacter*, *Salmonella* and *Yersinia enterocolitica*, 1980-2002**



**Table 2. Age-specific incidence per 10<sup>5</sup> of zoonotic enteric infections, 2002**

Age (yrs)	Campylobacter	<i>Salmonella</i> Enteritidis	<i>Salmonella</i> Typhimurium	<i>Yersinia</i> enterocolitica	Verotoxigenic <i>E. coli</i> (VTEC)
< 1	91	24	37	17	14
1-4	144	42	23	20	17
5-14	62	20	5	7	2
15-24	138	19	8	5	3
25-44	104	18	6	3	1
45-64	53	23	7	2	2
65+	39	16	5	3	1
Total	82	21	7	4	3

contact with cattle or their manure. *S. Dublin* is highly invasive and associated with a high mortality. In 2002, an action plan was implemented to monitor *S. Dublin* in cattle production. There were 240 notifications of *Yersinia enterocolitica* (4.5 per 10<sup>5</sup>), a decrease of 16% relative to 2001. Verocytotoxin-producing *E. coli* (VTEC) was recorded in 142 cases (2.6 per 10<sup>5</sup>). This represents an increase of 58% relative to 2001, as more faeces samples are being investigated for VTEC. VTEC is presumably still under-diagnosed because testing of all samples is far from complete. However, monitoring is now at a level where small outbreaks are being detected, for example as a result of contact with other infected people, cattle or unpasteurised milk.

A total of 20 cases occurred in association with foreign travel. In 2002, only 23 cases (16%) were caused by serotype O157, which is considered to be the most virulent. In addition, notification was made of two cases of clinical haemolytic uraemic syndrome.

### Age-specific incidence

Most zoonoses have the highest incidence in the 1-4 year age group, with the exception of *S. Typhimurium*, [table 2](#), which occurs most frequently in infants. This is possibly due to the fact that, in comparison with other serotypes, it has a greater potential for person-to-person infection. *Campylobacter* has a characteristic two-humped age distribution, with a low incidence among those aged 5-14 years, after which a rise in incidence is seen. This is presumably due to inadequate kitchen hygiene and frequent travel activity among younger adults. As a result, this group is a particular target for campaigns to improve hygiene, particularly to reduce cross-contamination from raw poultry to salads, vegetables etc. The relatively low frequency of VTEC in the age group over 5 years may be due to the fact that this group is more thoroughly investigated with diagnostic tests.

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26 February 2003

## Patients with laboratory-diagnosed gonorrhoea, by sex and county

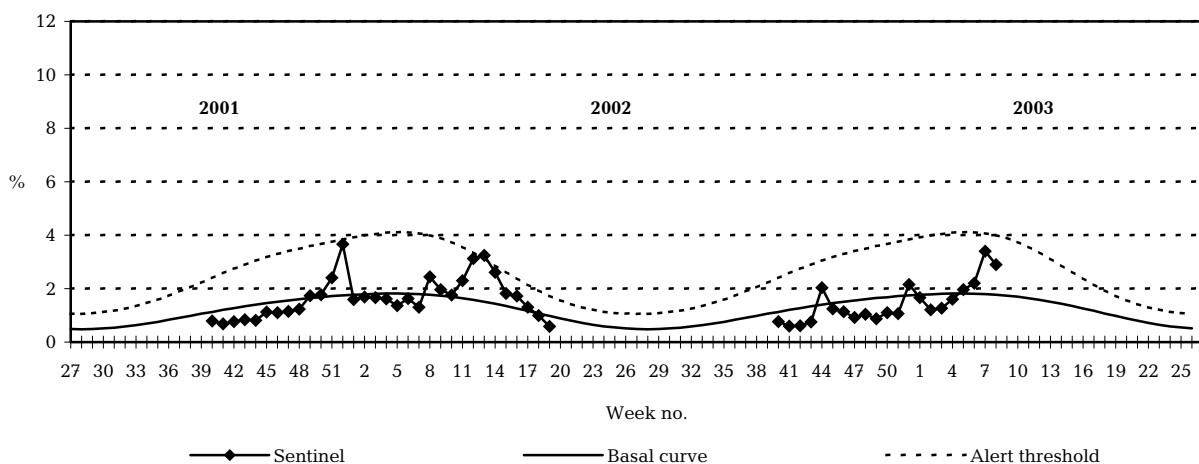
4th quarter of 2002 compared with the corresponding period of 2001

County	4th quarter 2002			4th quarter 2001		
	M	F	Total	M	F	Total
Cph. & Frb. Municipalities	36	6	42	26	4	30
Copenhagen County	5	1	6	7	3	10
Frederiksborg	4	-	4	2	-	2
Roskilde	3	1	4	1	-	1
West Zealand	2	1	3	1	-	1
Storstrøm	1	-	1	1	1	2
Bornholm	-	-	-	-	-	-
Funen	19	7	26	2	-	2
South Jutland	2	-	2	1	-	1
Ribe	1	1	2	2	-	2
Vejle	-	2	2	3	-	3
Ringkøbing	-	-	-	2	1	3
Aarhus	6	1	7	6	2	8
Viborg	-	-	-	1	-	1
North Jutland	1	2	3	2	1	3
<b>Total</b>	<b>80</b>	<b>22</b>	<b>102</b>	<b>57</b>	<b>12</b>	<b>69</b>

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## Sentinel surveillance of influenza activity

Weekly percentage of consultations, 2001/2002/2003



**Sentinel:** Influenza consultations as percentage of total consultations

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

**Alert threshold:** Possible incipient epidemic

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