



CAMPYLOBACTER OUTBREAKS

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Campylobacter species are the most frequent cause of bacterial gastroenteritis in Denmark, EPI-NEWS 12/07. Most infections are registered as sporadic cases while outbreaks are rarely reported. Whenever outbreaks are detected, it is important that they are thoroughly investigated to identify the source of infection and prevent further spread of the disease. This is illustrated by the three company-related outbreaks described below.

Outbreak 1: May 2005

The employees of eight companies reported gastroenteritis on suspicion that the disease had been acquired in a shared company canteen. Stool samples from four employees demonstrated Campylobacter growth. A retrospective cohort survey was undertaken among employees of the three largest companies. A total of 79 (32%) of 247 employees reported gastroenteritis. The disease risk was increased among employees who had lunched in the canteen on 25 May (relative risk (RR) 3.2; 95% confidence interval (CI) 1.3-8.2), and among employees who had ordered the chicken salad on this day (RR 2.3; 95% CI 1.3-4.1). The kitchen staff reported that juice from raw chicken stored in the refrigerator had probably dripped onto the fried chicken used in the salad.

Outbreak 2: May 2006

A total of 27 (28%) of 95 employees in a company experienced gastroenteritis after dining in their canteen. Stool samples from six employees demonstrated Campylobacter growth. A retrospective cohort survey found an increased disease risk for one particular dish among several served in the canteen; the fish fillet served with remoulade on 15 May (RR 2.1; 95% CI 1.0-4.5). Frozen chicken had been thawed in the refrigerator directly above the bowl used to store the remoulade. Consequently, the chicken juice may have dripped into the remoulade.

Outbreak 3: January 2007

A total of 11 (15%) of 71 employees in a company experienced gastroenteritis after dining in their canteen. Stool samples from three employees demonstrated Campylobacter

growth. A retrospective cohort survey found an increased disease risk among employees who had dined in the canteen on 2 and 3 January. The mixed green salad served on the two days in question was associated with the highest disease risk (RR 6.3; 95% CI 0.9-46.4 and RR 6.9; 95% CI 0.9-52.6, respectively). Kitchen staff stated that chicken kebab dressing had been drained into a sink which had subsequently been used to rinse the salad served on the two days in question.

Commentary

Broilers and other poultry are the major Campylobacter reservoir and are considered primary sources of infection. It is, however, probable that a substantial number of patients acquire infection from other foods that have become contaminated with meat juice from chickens. However, this relationship may only be substantiated through the study of outbreaks. In the three outbreaks described, epidemiological studies identified cross contamination from raw poultry to ready-to-eat products as the probable cause of infection. These outbreaks illustrate that kitchen staff should pay particular attention to avoiding cross contamination in connection with the thawing, storing and handling of raw poultry. The three outbreaks occurred in company canteens, but similar problems may occur in any type of kitchen, including those of private homes.

Raw meat and poultry should always be kept apart from ready-to-eat foods. In the upcoming summer period it is essential to stress that separation is also relevant to the preparation of grilled foods. Furthermore, dishes containing poultry should be cooked thoroughly or heat-treated to ensure core temperatures of $\geq 75^{\circ}\text{C}$. There are several reasons why Campylobacter outbreaks are rare compared to the substantial number of sporadic cases diagnosed. It is probable that Campylobacter is transmitted by cross contamination, frequently exposing only a limited number of people. Furthermore, in comparison to Salmonella which multiplies in food, providing that the physical and chemical conditions permit, Campylobacter does not.

The first outbreak described is in line with the microbiological verification of Campylobacter infections in the adult population - one in approx. every twenty infections. In the two remaining outbreaks, samples were collected actively, which led to a higher proportion of microbiologically verified cases.

Determination of the aetiological agent is essential to any outbreak investigation. It is therefore vital to secure stool samples on suspicion of food-borne infection. Furthermore, the treating clinician should report any suspicion of food-borne infection on form 1515.

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HEALTH TECHNOLOGY ASSESSMENT (HTA) ON THE REDUCTION OF CERVICAL CANCER RISK IN CONNECTION WITH HPV VACCINATION

The Danish National Board of Health has published a HTA to form part of the basis for a decision on whether vaccination against human papillomavirus (HPV) should be introduced in Denmark. One of the report's conclusions is that a substantial number of cases of cervical cancer may be prevented by vaccination. However, the long-term results of a vaccination programme are not known, and therefore the overall effects on public health of such programme remain uncertain. The report is available for download at www.sst.dk. (Department of Epidemiology)

SSI INFECTION PREPAREDNESS REPORT

The SSI has published a report on the development, occurrence and possible courses of action for a number of infectious diseases in Denmark. The report draws attention to the high overall level of monitoring of infectious diseases in Denmark. However, challenges remain, e.g. in connection with antibiotic resistant bacteria and food-borne diseases. The report is available for download at www.ssi.dk. (Department of Epidemiology)

Individually notifiable diseases

Number of notifications received in the Department of Epidemiology, SSI (2007 figures are preliminary)

Table 1	Week 20 2007	Cum. 2007 ¹⁾	Cum. 2006 ¹⁾
AIDS	2	24	16
Anthrax	0	0	0
Botulism	0	0	0
Cholera	0	0	0
Creutzfeldt-Jakob	1	4	4
Diphtheria	0	0	0
Food-borne diseases	1	175	138
of these, infected abroad	0	33	35
Gonorrhoea	3	137	177
Haemorrhagic fever	0	0	0
Hepatitis A	0	11	6
of these, infected abroad	0	4	1
Hepatitis B (acute)	2	9	10
Hepatitis B (chronic)	9	101	177
Hepatitis C (acute)	0	2	5
Hepatitis C (chronic)	5	107	275
HIV	0	106	80
Legionella pneumonia	0	30	28
of these, infected abroad	0	4	5
Leprosy	0	0	0
Leptospirosis	0	6	4
Measles	0	2	20
Meningococcal disease	0	21	37
of these, group B	0	10	19
of these, group C	0	6	6
of these, unspec. + other	0	5	12
Mumps	0	4	8
Neuroborreliosis	0	26	14
Ornithosis	0	1	6
Pertussis (children < 2 years)	1	29	24
Plague	0	0	0
Polio	0	0	0
Purulent meningitis			
Haemophilus influenzae	0	1	1
Listeria monocytogenes	0	5	4
Streptococcus pneumoniae	0	33	45
Other aethiology	0	4	2
Unknown aethiology	0	5	11
Under registration	4	31	-
Rabies	0	0	0
Rubella (congenital)	0	0	0
Rubella (during pregnancy)	0	0	0
Shigellosis	0	21	22
of these, infected abroad	0	12	20
Syphilis	0	35	27
Tetanus	0	0	0
Tuberculosis	5	145	139
Typhoid/paratyphoid fever	0	5	13
of these, infected abroad	0	5	13
Typhus exanthematicus	0	2	0
VTEC/HUS	0	58	44
of these, infected abroad	0	21	11

¹⁾ Cumulative number 2007 and in corresponding period 2006

Selected laboratory diagnosed infections

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

Table 2	Week 20 2007	Cum. 2007 ²⁾	Cum. 2006 ²⁾
Bordetella pertussis (all ages)	5	55	100
Gonococci	8	133	173
of these, females	1	19	33
of these, males	7	114	140
Listeria monocytogenes	0	20	11
Mycoplasma pneumoniae			
Resp. specimens ³⁾	3	226	215
Serum specimens ⁴⁾	6	258	191
Streptococci ⁵⁾			
Group A streptococci	0	57	81
Group B streptococci	3	37	38
Group C streptococci	0	8	9
Group G streptococci	2	46	51
S. pneumoniae	16	528	526
Table 3	Week 18 2007	Cum. 2007 ²⁾	Cum. 2006 ²⁾
Pathogenic int. bacteria ⁶⁾			
Campylobacter	41	772	563
S. Enteritidis	9	122	107
S. Typhimurium	3	99	90
Other zoon. salmonella	16	207	155
Yersinia enterocolitica	1	101	51
Verocytotoxin-producing E. coli	0	61	41
Enteropathogenic E. coli	1	45	67
Enterotoxigenic E. coli	1	52	68

²⁾ Cumulative number 2007 and in corresponding period 2006

³⁾ Resp. specimens with positive PCR

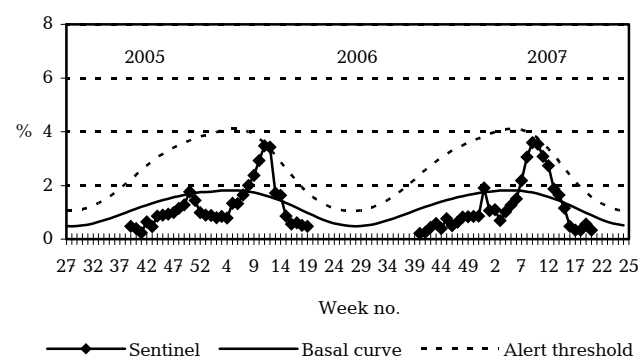
⁴⁾ Serum specimens with pos. complement fixation test

⁵⁾ Isolated in blood or spinal fluid

⁶⁾ See also www.germ.dk

Sentinel surveillance of the influenza activity

Weekly percentage of consultations, 2005/2006/2007



Sentinel: Influenza consultations (as percentage of total consultations)

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

Alert threshold: Possible incipient epidemic