



FOOD-BORNE ETEC AND SALMONELLA OUTBREAK

No. 51, 2006

On 14 November 2006, an outbreak of diarrhoea and vomiting was notified. The outbreak affected dinner guests who had attended a party at a grammar school in Greater Copenhagen on 11 November. To identify the source of infection, a retrospective cohort survey was performed among the approx. 750 students and teachers who had been present at the party. Information concerning food exposure and disease was retrieved through an electronic questionnaire made available via the school's intranet. The questionnaire was answered by 435 (58%) party participants. A case was defined as a student or teacher who had participated in the school party and subsequently presented with diarrhoea and/or vomiting within a 48-hour period. A total of 217 (50%) of the survey respondents conformed to the case definition. About 80% of the cases became ill within 24 hours after the dinner, **Figure 1**. The most frequent symptom was diarrhoea, 207 (95%) cases, while vomiting was reported by 67 (31%) cases. The disease risk was increased among participants who had eaten pasta salad with pesto (relative risk 2.6; 95% confidence interval 1.2 – 5.7); 98% of the cases had consumed pasta salad. Furthermore, a dose-response association was observed as the risk of disease increased with the ingested amount of pasta salad.

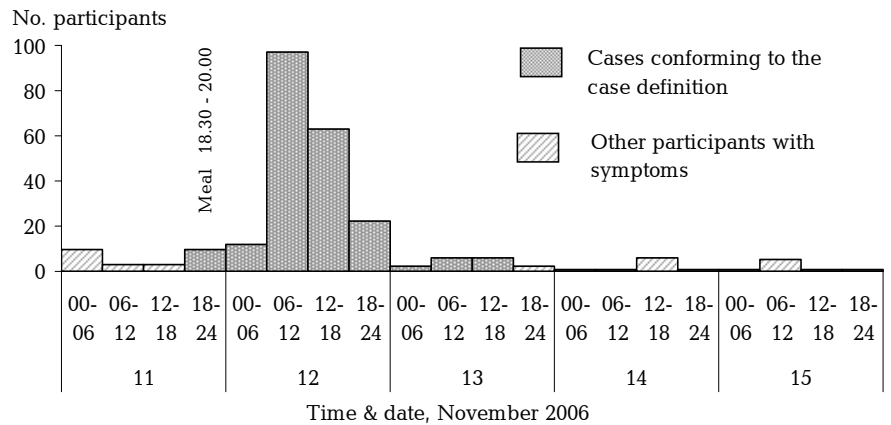
Microbiological analyses

E. coli ($>10^5$ bacteria/gram) and *Salmonella* serotype Anatum were found in left-overs of the pesto used to prepare the pasta salad. The pesto had been prepared without heat treatment two days before it was served; it was made from basil, pine nuts, garlic, olive oil and Parmesan cheese. Cultures of the pesto ingredients all tested negative for intestinal bacteria. However, only the pine nuts were from the batch used for the preparation of the pesto in question. Samples from 48 persons were examined. In 18 samples, enterotoxigenic *E. coli* (ETEC) of two different serotypes were found. *Salmonella* Anatum was found in four samples, and PFGE typing demonstrated that these strains were identical to the food isolate. No enteropathogenic microorganisms were found in stool samples from the food handlers.

Comment

Contaminated pesto very probably caused the outbreak. The presence

Figure 1. Dinner participants with diarrhoea and/or vomiting by time of onset of symptoms (n=253)



of three different enteropathogenic organisms in patients, combined with an extremely high *E. coli* count in the pesto, indicate that the pesto was massively contaminated with faecal bacteria. Contamination is believed not to have taken place during food preparation as none of the food handlers were sick when preparing the food, and as all their stool samples tested negative. The basil had been imported from Israel where surface and run-off water is frequently used for vegetable cultivation, etc. It is probable that the basil could have been the original source of infection and that bacterial growth after the pesto was mixed with inadequately cooled cooked pasta contributed to the high degree of contamination. ETEC is one of the most frequent causes of traveller's diarrhoea and childhood diarrhoea in the developing countries, but it is also known to cause food-borne outbreaks in industrialised countries, generally in connection with import of contaminated produce. The present outbreak is the largest and most thoroughly documented ETEC outbreak in Denmark. Consequently, it cannot be excluded that a minor proportion of sporadic ETEC infections in Denmark is caused by import of contaminated products such as produce and fresh herbs. When investigating cases of suspected food infection, Danish physicians should be aware that only some Danish microbiology laboratories test stool samples for ETEC. (J. Bagdonaite, G. Falkenhorst, K. Mølbak, Dept. of Epidemiology, K. Olsen, E.M. Nielsen, DBMP, A. Mygh, MOH Copenhagen, J. Boel, Danish Institute for Food and Veterinary Research, M. Lisby, S.B. Madsen, Food Inspectorate, Region East)

NEW NOTIFICATION FORMS

As from 1 January 2007, the HIV notification form (4001-7) and the form for notification of gonorrhoea and syphilis (1510-2) will be modified slightly. In both forms the county of residence is replaced with municipality of residence and postal code, where applicable. Immigrant status has been specified in both forms which now differentiate between immigrants, second or more-generation immigrants, and tourists, etc. Furthermore, year of entry has been included. Additionally, the HIV notification form inquires about the presumed time of infection and HIV RNA is discontinued as marker of new infection. The CD4 cell count is preserved on the form as the WHO is currently developing new HIV stage markers based on CD4 cell counts which will replace the AIDS diagnosis in the long term. The new HIV notification forms will be sent to HIV-confirming laboratories so that notifying physicians do not have to order the forms themselves. The obsolete forms for syphilis and gonorrhoea notification should be discarded. The new forms may, as previously, be ordered by the notifying physician at Dafolo, phone: +45 9620 6666.

(S. Cowan, Department of Epidemiology)

MERRY CHRISTMAS & HAPPY NEW YEAR

Unless special circumstances arise, EPI-NEWS will not appear in weeks 52/2006 and 01/2007.

The staff at the Department of Epidemiology wishes readers a merry Christmas and a happy New Year. (Department of Epidemiology)

Individually notifiable diseases

Number of notifications received in the Department of Epidemiology, SSI (2006 figures are preliminary)

Table 1	Week 50 2006	Cum. 2006 ¹⁾	Cum. 2005 ¹⁾
AIDS	1	45	55
Anthrax	0	0	0
Botulism	0	0	0
Cholera	0	0	0
Creutzfeldt-Jakob	0	23	2
Diphtheria	0	0	0
Food-borne diseases	13	553	559
of these, infected abroad	0	130	131
Gonorrhoea	5	407	488
Haemorrhagic fever	0	0	0
Hepatitis A	1	39	61
of these, infected abroad	0	19	23
Hepatitis B (acute)	1	20	32
Hepatitis B (chronic)	2	300	139
Hepatitis C (acute)	0	7	1
Hepatitis C (chronic)	3	433	309
HIV	5	239	265
Legionella pneumonia	2	130	108
of these, infected abroad	1	31	45
Leprosy	0	0	0
Leptospirosis	0	8	11
Measles	0	27	2
Meningococcal disease	0	68	93
of these, group B	0	33	44
of these, group C	0	14	22
of these, unspec. + other	0	21	27
Mumps	1	17	8
Neuroborreliosis	5	91	90
Ornithosis	0	11	20
Pertussis (children < 2 years)	3	52	141
Plague	0	0	0
Polio	0	0	0
Purulent meningitis			
Haemophilus influenzae	0	4	4
Listeria monocytogenes	0	7	2
Streptococcus pneumoniae	0	73	106
Other aethiology	0	11	17
Unknown aethiology	0	17	17
Under registration	4	28	-
Rabies	0	0	0
Rubella (congenital)	0	0	0
Rubella (during pregnancy)	0	0	0
Shigellosis	1	63	106
of these, infected abroad	1	53	84
Syphilis	1	69	122
Tetanus	0	2	2
Tuberculosis	8	388	411
Typhoid/paratyphoid fever	0	26	35
of these, infected abroad	0	24	32
Typhus exanthematicus	0	0	1
VTEC/HUS	3	140	154
of these, infected abroad	0	47	55

¹⁾ Cumulative number 2006 and in corresponding period 2005

Selected laboratory diagnosed infections

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

Table 2	Week 50 2006	Cum. 2006 ²⁾	Cum. 2005 ²⁾
Bordetella pertussis (all ages)	8	219	486
Gonococci	7	403	438
of these, females	1	73	45
of these, males	6	333	393
Listeria monocytogenes	0	53	41
Mycoplasma pneumoniae			
Resp. specimens ³⁾	26	522	1076
Serum specimens ⁴⁾	18	415	783
Streptococci ⁵⁾			
Group A streptococci	0	131	100
Group B streptococci	1	90	78
Group C streptococci	0	20	25
Group G streptococci	0	136	110
S. pneumoniae	18	907	1052
Table 3	Week 48 2006	Cum. 2006 ²⁾	Cum. 2005 ²⁾
Pathogenic int. bacteria ⁶⁾			
Campylobacter	65	3045	3550
S. Enteritidis	5	544	620
S. Typhimurium	8	395	535
Other zoon. salmonella	1	649	537
Yersinia enterocolitica	6	196	227
Verocytotoxin-producing E. coli	2	143	142
Enteropathogenic E. coli	4	261	256
Enterotoxigenic E. coli	4	233	355

²⁾ Cumulative number 2006 and in corresponding period 2005

³⁾ Resp. specimens with positive PCR

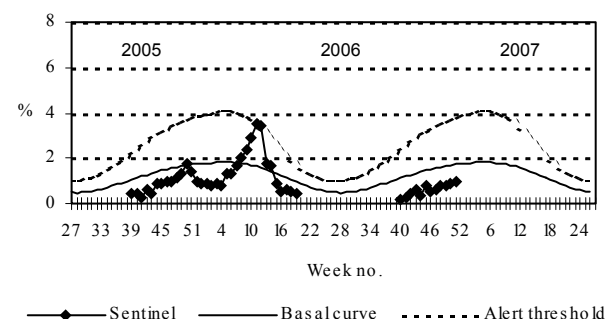
⁴⁾ Serum specimens with pos. complement fixation test

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