

ENTEROPATHOGENS AMONG STAFF IN FOOD COMPANIES

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Persons who are employed in food companies and who are infected with enteropathogens may transfer these to foodstuffs. The risk is greatest for pathogens that may be shed for a long time after the patient is clinically well (Salmonella), or that are very contagious, i.e. are infective at low doses (viruses, verocytotoxin-producing *E. coli* (VTEC) and Shigella). An account of this problem is provided below. The same principles can be used to deal with findings of enteropathogens among persons in other sensitive occupations, for example employees in institutions and the health care system.

Food legislation

According to the Danish Foodstuffs Act Section 11, staff who have or may be presumed to have an illness, infection or other injury that can be transferred to foodstuffs and make these unfit for human consumption, must not handle, sell or monitor foodstuffs. According to the Executive Order on Hygiene and the Executive Order on Health, such persons must inform the responsible person for the food company. The responsible person for the company must inform the Regional Food Inspectorate. The Executive Order on Hygiene states that persons who have been excluded from work because of infectious diseases must not be employed in foodstuff companies again before the Regional Food Inspectorate has given permission for this. The latter does not apply for wholesale companies that produce animal products, e.g. butchers and dairies. In order to ensure that persons who may transfer infectious diseases do not work in food companies, the Regional Food Inspectorate and the local Medical Office of Health should exchange information, see the Guidelines for the resolution of outbreaks of food- and waterborne diseases, 2002.

Guidelines

On suspicion of transmission of infection, the person should be temporarily moved to non-sensitive fields - of activity or be given sick leave. The food legislation provides the legal authority for this. In this legislation, there are no published precise criteria for when the person can resume work. The following guidelines may be used:

Zoonotic Salmonella

Persons infected with Salmonella may resume work when they are clinically healthy, afebrile and in good general condition, and have formed faeces. The person should understand the importance of personal hygiene, particularly the importance of hand-washing. On suspicion that a person employed in a food company is transferring Salmonella to foodstuffs, there is no legal authority to demand that this person be investigated. In practice, most people will cooperate. In this situation, there should be negative cultures from two separate consecutive faeces samples. The samples must be collected at an interval of at least 24 hours, and if antibiotics are given, at least five days should have passed since the last dose.

Salmonella Typhi and Paratyphi

The incidence of typhoid fever and paratyphoid are very low in Denmark, and chronic carriers are practically not seen anymore. Lower occurrence of gallstones and the use of new, effective antibiotics for the treatment of typhoid patients have contributed to this decline. Control culture is carried out as for zoonotic Salmonella, see above.

Verotoxin-producing E. coli

VTEC is highly contagious. According to the guidelines for doctors' notification of illness caused by haemolytic uraemic syndrome (HUS) and VTEC, the Regional Food Inspectorate should be informed on detection of VTEC in a person who is actively involved in handling foodstuffs in a company.

On suspicion of spread of the bacterium, the rest of the staff should be investigated.

On detection of VTEC, the person should be given sick leave until there are two separate consecutive negative faeces samples. If there are other cases of diarrhoea in the household, these should be investigated for VTEC. The problem concerning long-term carriers of VTEC was mentioned in EPI-NEWS 20/03.

Shigella

Shigella is highly contagious. As a main rule, two negative separate faeces samples are recommended before work in a food company can be resumed, EPI-NEWS 10/01.

Virus

Persons handling foodstuffs are a common source of outbreak of norovirus infection (formerly known as Norwalk-like virus). Other gastroenteritis viruses such as rotavirus and astrovirus can also cause outbreaks. Norovirus is most common and is the cause of a great proportion of outbreaks in which no other cause is detected. Usually, the virus is transferred from the ill person's hands to foodstuffs, or to the surroundings by way of vomitus or aerosol. A recommendation for sick leave until two days after cessation of symptoms should be followed carefully. It is particularly important to prevent spread of norovirus in hospitals and other institutions, EPI-NEWS 15/03.

Comments

The carriage time of Salmonella varies with age and serotype. Small children carry the bacterium longer than others, and the secretion time is shorter for patients infected with *S. Typhimurium* than with other serotypes. Treatment with antibiotics can extend shedding of zoonotic Salmonella. The median duration of carriage is approx. five weeks, and approx. 10% of patients with *S. Typhimurium* shed for more than nine weeks. About 1% are positive a year after onset of symptoms. On introduction of contaminated ingredients into a food company, both employees and clients may become infected. Thus, asymptomatic carriers among staff may contribute to maintaining spread because of inadequate personal hygiene. During investigations of outbreaks of gastroenteritis, it is important also to ask about illness and recent foreign travel among staff. It may also be relevant to examine faeces samples from the staff, even in absence of gastrointestinal illness. Suspicions about carriers are particularly relevant when the following criteria are fulfilled: members of staff handle products that are ready to eat

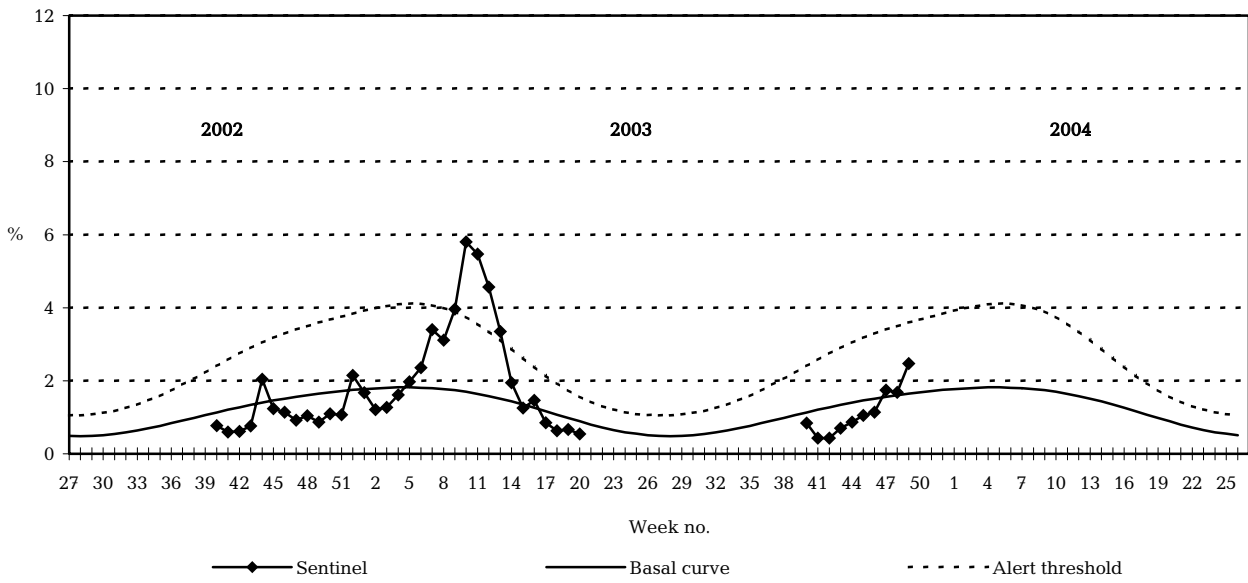
- the outbreak has lasted a long time
- it is improbable that contaminated ingredients or persistent cross-contamination as a result of poor production hygiene are sources of infection, EPI-NEWS 42/03.

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Sentinel surveillance of influenza activity

Weekly percentage of consultations, 2002/2003/2004



- Sentinel:** Influenza consultations as percentage of total consultations
- Basal curve:** Expected frequency of influenza consultations under non-epidemic conditions
- Alert threshold:** Possible incipient epidemic

(Dept. of Epidemiology)

Secretion specimens received from the sentinel surveillance

Week no.	2003										2004																		
	44	45	46	47	48	49	50	51	52	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
No. received	0	5	6	12	9	10	4																						
Influenza A						6																							
A/H3				3	1																								
A/H1																													
Influenza B																													

(Depts. of Epidemiology & Virology)