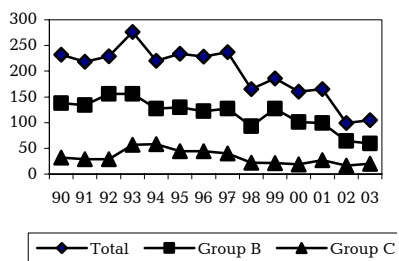


In 2003, a total of 105 cases of meningococcal disease were notified, which is at the same low level as in 2002 (99 cases), [fig. 1](#). In 63 (60%) cases, a reminder was sent to ask for written notification.

Fig. 1. Notified cases of meningococcal disease, 1990-2003



Of the 105 patients, 21 had meningitis, 38 septicaemia and 46 both meningitis and septicaemia as clinical manifestation. In addition, one patient had arthritis as sole manifestation. Distribution by county and incidence appears in [table 1](#).

Table 1. Patients with meningococcal disease notified in 2003, by county, and incidence per 10⁵. Incidence 2002 in ()

County	No.	Incidence
Cph. Municip.	7	1.4 (1.4)
Frb. Municip.	0	- (1.1)
Copenhagen	14	2.3 (1.1)
Frederiksborg	4	1.1 (1.3)
Roskilde	1	0.4 (2.1)
West Zealand	4	1.3 (1.7)
Storstrøm	2	0.8 (3.1)
Bornholm	0	-
Funen	7	1.5 (2.3)
South Jutland	8	3.2 (1.2)
Ribe	4	1.8 (1.8)
Vejle	10	2.8 (2.3)
Ringkøbing	11	4.0 (2.6)
Aarhus	11	1.7 (1.6)
Viborg	8	3.4 (3.4)
North Jutland	14	2.8 (1.6)
Total	105	2.0 (1.8)

Like before, the incidence was highest among children under 2 years and in young people aged 14-17 years, [table 2](#).

Outcome of the disease

A total of nine patients (9%) died, [table 2](#). All had septicaemia with or without meningitis as clinical manifestation. Six of these had meningococci group B, two group C and one had clinical meningococcal disease. The case fatality rate was 5% for those aged 0-39 years and 29% for those over 40. For 11 patients, infor-

Table 2. Notified patients with meningococcal disease in 2003, by age, serogroup B and C, M/F ratio, incidence per 10⁵ and number of deaths

Age (yrs)	Gr B	Gr C	Total	M / F ratio	Incidence	Deaths
< 1	10	0	10	1.5	15.6	0
1-2	15	5	24	1.5	18.0	3
3-6	4	1	12	2.0	4.4	0
7-13	6	3	13	0.9	2.7	0
14-17	12	6	23	1.6	9.7	2
18-29	3	2	7	0.8	0.9	0
30-39	1	1	2	1.0	0.2	0
+ 40	8	2	14	0.6	0.5	4
Total	59	20	105	1.2	2.0	9

mation was provided about sequels: one developed unilateral deafness, one suffered hearing impairment, five developed skin necrosis and four developed reactive arthritis.

Diagnosis

Meningococci were detected in 84 (80%) patients by culture, and in two by counter immunoelectrophoresis (CIE). The remaining 19 patients had clinical meningococcal disease; 15 of these had positive meningococcal antibody titre (MAT), two had positive microscopy of spinal fluid and in two cases, diagnosis was purely clinical. In 82 of the 84 culture-verified and in the two CIE-verified cases, serological grouping was performed in the Neisseria Unit, SSI:
 Serogroup B 58
 Serogroup C 20
 Serogroup W135 2
 Serogroup Y 4
 Neither of the two patients with meningococcal disease group W135 had had foreign contact.

Case clusters

Five clusters were recorded, with a total of seven secondary cases:
 - One adult and one child with mutual social contact became ill at an interval of six days; both group B.
 - Three siblings. Both secondary cases became ill seven days after the primary case; one group B, two pos. MAT.
 - Two cousins became ill at an interval of 11 days; one group B, one pos. MAT.
 - Three young people with mutual social contact. Both secondary cases became ill 12 days after the primary case; two group B, one pos. MAT.
 - Two pupils at the same school became ill at an interval of one month; both group B.
 (A. H. Christiansen, S. Samuelsson, Dept. of Epidemiology)

CHILDHOOD VACCINATION PROGRAMME ADJUSTED

From 1 July 2004, revaccination with inactivated poliovirus vaccine (IPV) at the age of 5 years will be introduced. The new revaccination is a natural continuation of the completed phasing out of the live attenuated oral polio vaccine (OPV), EPI-NEWS 24/03. The vaccination is given as a tetravalent vaccine for revaccination against diphtheria, tetanus, pertussis and polio: DTaP-IPV Booster. After revaccination with IPV, a very long-lasting immunity against polio is achieved. The vaccine replaces DTaP Booster, which has been used since 1 September 2003, EPI-NEWS 26-33/03. In principle, the new vaccine should only be given to those children who have not received OPV, which means primarily children who reached the age of 2 years after 1 July 2001, EPI-NEWS 23/01. Some few of these children have nevertheless received one or more OPV:

- Children who have received a total of four polio vaccinations, typically three IPV and one OPV, are revaccinated with DTaP-IPV Booster.
- Children who have received a total of five polio vaccinations, typically three IPV and two OPV, are adequately protected against polio and should be revaccinated with DTaP Booster, which will continue to be available for a limited period. DTaP-IPV Booster may be ordered now and will be supplied from the week commencing 28 June, 2004. (P. Andersen, Dept. of Epidemiology, M. Stellfeld, Dept. of Medicine)

VTEC OUTBREAK

An outbreak of VTEC related to a farm open to the public and recommendations on hygienic precautions are described on the back page.

OUTBREAK OF VTEC O157:H7 RELATED TO FARM OPEN TO THE PUBLIC

In the period 3 May - 1 June 2004, 10 cases of disease caused by VTEC were recorded in the County of Frederiksborg. The patients had diarrhoea and abdominal pains. Of these, three had bloody diarrhoea and one was admitted to hospital for a short period. Five patients, four children and one teacher had visited the same farm which was open to the public. They came from four different kindergardens. Otherwise, there was no common exposure for the patients.

The farm in question has sheep, goats and rabbits which the children are allowed to pet. When the possible association between the outbreak and the farm emerged, samples of droppings from sheep and goats were examined. They contained VTEC with a serotype and a DNA profile that could not be distinguished from that which was found in three of the children. It was thus confirmed that the farm was the source of disease in at least three children.

It is well known that animal herds can be infected with more than one subtype of VTEC and that the different subtypes cannot always be detected at the same time. Consequently, it cannot be excluded that the other two patients who had visited the farm became infected there.

On the basis of the above, all visits to the farm have been provisionally stopped and the hygienic procedures are being reviewed.

Diarrhoea after contact with domestic animals and pets

Zoonoses are infections that humans receive from animals. The animals are often healthy carriers of the microorganisms that cause the infection. The most common zoonoses in Denmark are diarrhoeal infections caused by Salmonella, Campylobacter, Yersinia or verocytotoxin-producing E. coli (VTEC). These bacteria are usually transmitted via food that is contaminated with intestinal contents from the animals, but they can also cause infection by direct contact with the animals.

In recent years, it has become popular to keep domestic animals in child-care institutions and to arrange expeditions for children from institutions to farms that are open to the public. Most zoos nowadays have areas where children can pet the animals. This direct contact may unintentionally result in the children becoming infected with a zoonotic agent.

Hygienic precautions

The outbreak described illustrates the fact that contact with animals or animal manure can constitute an infection risk. All domestic animals and pets constitute a potential risk of infection. Experience has shown that not only VTEC, but also Salmonella, Yersinia and Campylobacter may cause infection after contact with animals. However, simple hygienic precautions can prevent these infections:

1. Stalls, stables and pens, including fenced areas where the animals are kept, must be kept clean.
2. The animals must not be kissed.
3. Footwear that becomes soiled with manure must be cleaned on leaving the pen.
4. Thorough hand washing with soap and water after contact with the animals. Both the person responsible for the enterprise and teachers responsible for the children must monitor and ensure that the children perform the necessary hand hygiene measures.
5. Eating areas must be physically separated from the animals.

The rules do not just apply to farms that are open to the public but also to animals in child-care institutions and zoos where the public has direct contact with the animals.

(C. Jensen, P. Gerner-Smidt, Department of Bacteriology, Mycology and Parasitology, M. Søbey, ELI, County of Frederiksborg, B. Olesen, Clinical Microbiology Department, Hillerød, M. Lisby, Regional Food Control Centre North-East Zealand)

SUMMER HOLIDAYS

Unless special circumstances arise, EPI-NEWS will not be published in the weeks from 21 June to 8 August. The Department of Epidemiology wishes everybody an enjoyable summer.

16 June 2004