



**STREPTOCOCCUS PNEUMONIAE**

No. 14, 2000

*Streptococcus pneumoniae* (the pneumococcus) is a frequent cause not only of less serious infections such as upper respiratory tract and middle ear infections, but also of serious, life-threatening infections such as pneumonia, septicaemia and meningitis. These infections are especially seen in smaller children and in the elderly, as well as in patients with certain chronic diseases and impaired immune defences. The Streptococcus Unit receives the vast majority of pneumococcal strains isolated from patients with invasive pneumococcal disease in Danish hospitals. This makes it possible to exercise surveillance of the frequency and type-distribution of the pneumococci and their antibiotic resistance patterns.

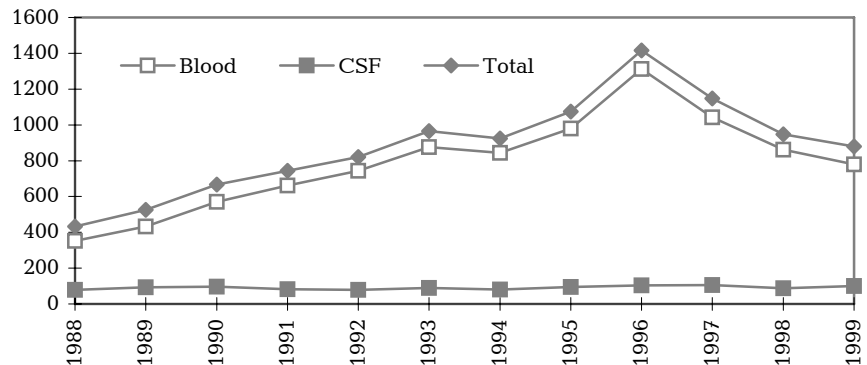
The annual number of pneumococcal isolates from cerebrospinal fluid has been fairly stable throughout the period 1988-99, whereas the number of isolates from blood has been variable, Fig. 1. The number of isolates from patients with invasive disease rose gradually from 432 in 1988 to 1416 in 1996. Since then the figure has fallen to 880 cases in 1999. This decline appears to be real and is not due to a change in surveillance procedures.

The age-specific incidence of invasive pneumococcal infection in 1995 and 1999 is shown in Fig. 2. In 1995, when occurrence was rising, and in 1999, when it was falling, the incidence was more or less the same for the under 70 year age groups, whereas 1999 showed a fall in incidence in those over 70 years of age.

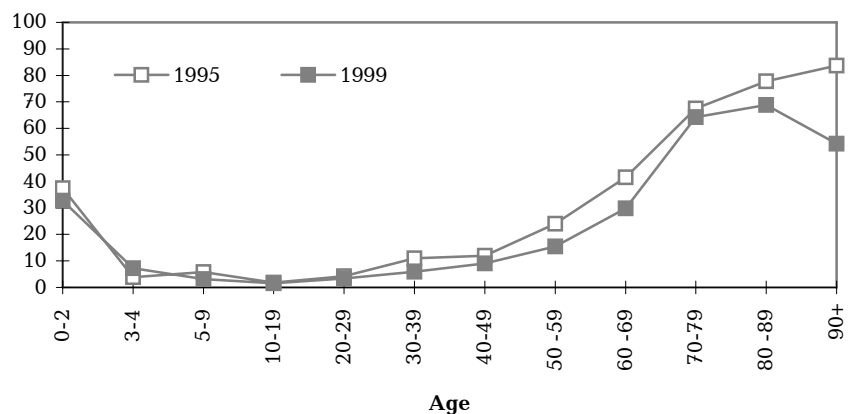
**Pneumococcal vaccination**

From 1996 a pneumococcal vaccine has been registered in Denmark for persons at special risk of pneumococcal infection, EPI-NEWS 44/99. The vaccine contains capsular material from the 23 types of pneumococci responsible for about 90% of the most serious pneumococcal infections in Denmark. The vaccine is expected to provide about 70% protection against serious pneumococcal infection in immunocompetent persons over the age of 2 years. Consumption of this vaccine has risen sharply during the period 1996-99. Thus 1881 doses were issued in 1996 as against 23,458 doses in 1999. Issues of influenza vaccine have also risen during the same period from 404,036 to 445,447 doses. This increased use of both influenza and

**Fig. 1. Annual no. of pneumococcal isolates from patients with invasive disease, 1988-1999**



**Fig. 2. Age-specific incidence of invasive pneumococcal infection per 100,000, 1995 and 1999**



pneumococcal vaccine coincides with the fall in incidence of invasive pneumococcal disease in persons over 70 years of age. Biological variation in the occurrence of invasive disease in the elderly could, however, also explain this phenomenon. Just under 90% of the types causing invasive disease in the elderly are included in the 23-valent vaccine. Indications and side effects, etc. are described in EPI-NEWS 44/99.

**Resistance**

The frequency of pneumococci with reduced sensitivity to penicillin (MIC > 0.06 mg/l) has historically been low in Denmark, in contrast to many other European countries. However, there has been a steadily rising frequency of invasive pneumococcal isolates with reduced sensitivity to penicillin from 0.8% in 1990 to 3.8% in 1999. On the other hand, the frequency of pneumococcal isolates showing full resistance to penicillin (MIC ≥ 2 mg/l) has been

fairly steady at 0.4-0.8% since 1995. The number of invasive pneumococcal isolates with reduced sensitivity to erythromycin has also risen during this period. Thus 3.3% were resistant to erythromycin in 1999, as against 0.2% in 1990. Most of the resistant invasive pneumococci have been isolated from blood. During the period 1995-99, 87.3% of these were isolated from blood and 12.7% from cerebrospinal fluid. Even though the occurrence of penicillin- and erythromycin-resistant pneumococci remains low in Denmark, there has been a steadily rising tendency. It therefore remains important to maintain a restrictive antibiotic prescription policy to avoid the increasing occurrence of resistant strains. (H. Bossen Konradsen, Strep. Unit)

**NEW STAFF MEMBER**

Dorte Alnor Wandall has been appointed Registrar at the Department of Epidemiology from 1 April 2000.

## Patients with positive cultures of pathogenic intestinal bacteria in 2000, by county



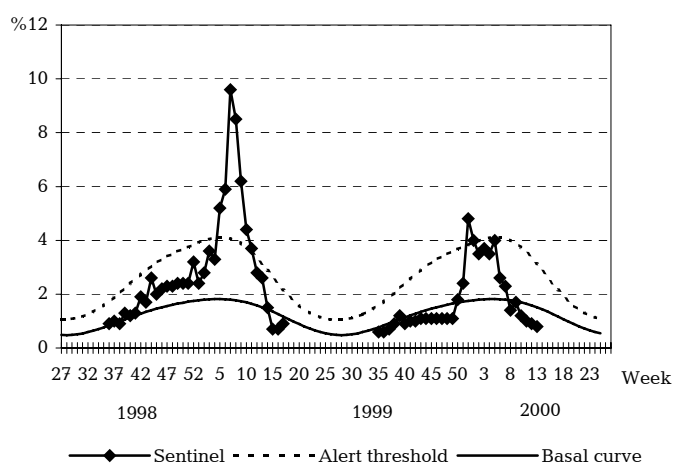
	Campylobacter		Yersinia enteritidis		S. typhimurium		S. enteritidis		Other zoon. Salmonella spp.	
	Jan.	Feb.	Jan.	Feb.	Jan.	Feb.	Jan.	Feb.	Jan.	Feb.
	Copenhagen Municip.	22	32	5	-	1	2	1	4	10
Frederiksberg Municip.	3	6	-	1	-	-	-	-	-	2
Copenhagen *	-	2	-	-	-	-	1	1	1	-
Frederiksborg	16	13	3	2	1	1	5	5	3	1
Roskilde	5	7	1	-	-	1	3	2	3	3
West Zealand	8	4	2	-	-	3	4	5	1	-
Storstrøms	8	10	1	-	-	-	2	2	-	2
Bornholms	1	-	1	-	-	-	-	-	1	-
Funen	22	18	2	1	-	3	6	6	4	5
South Jutland	7	13	-	-	3	2	5	-	1	3
Ribe	7	18	1	1	-	2	4	6	4	5
Vejle	10	6	-	-	2	2	7	5	2	1
Ringkøbing	21	8	-	-	1	1	8	5	-	2
Aarhus	29	21	4	1	3	4	8	4	8	7
Viborg	6	9	1	1	-	1	2	1	2	1
North Jutland	11	19	2	1	3	1	10	7	1	3
Unknown	-	1	-	-	-	-	1	-	-	-
DK Jan. / Feb. 2000	176	187	23	8	14	23	67	53	41	41
DK Jan. / Feb. 1999	194	126	25	11	14	16	122	69	43	38

\* Figures for Copenhagen county comprise only part of the diagnosed cases

(Dept. of Gastrointestinal Infections)

## Sentinel surveillance of influenza activity

Weekly percentage of consultations, 1998/1999/2000



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

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

**Alert threshold:** Possible incipient epidemic

(Dept. of Epidemiology)