



## TUBERCULOSIS 2001, PART II

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### Occupational infection

The notification system provided information on possible infection at work in 12 cases; 10 Danes and two immigrants. Among the Danes, there was an equal number of males and females, while both of the immigrants were female.

Two nurses had been in contact with TB patients within the preceding three years, while two doctors had previously been in contact with TB patients.

Two patients had worked for aid organisations in Africa more than three years previously, but were not known to be in contact with TB patients. The remaining six patients had a history of certain or uncertain exposure to TB through other types of occupation.

(P. Andersen, Dept. of Epidemiology)

### Drug resistance

The result of determination of resistance is available for TB isolates from 380 patients, representing 99% of all culture-confirmed cases. Resistance to at least one of the anti-tuberculous agents rifampicin, isoniazid, ethambutol, pyrazinamide or streptomycin was demonstrated in 49 (13%) patients, of whom 45 (92%) were registered as first-time cases of TB.

Mono-resistance was demonstrated in 33 (9%) patients, of whom 30 (91%) were registered as first-time cases of TB. A total of 27 of the patients with mono-resistance were streptomycin-resistant, five were isoniazid-resistant and one was ethambutol-resistant. Resistance to two or more agents was demonstrated in 16 (4%) patients, of whom 15 were resistant to isoniazid and streptomycin, and one was resistant to isoniazid, ethambutol and streptomycin.

No case of multi-drug resistant (MDR) TB was detected in 2001. MDR TB is defined as resistance to at least rifampicin and isoniazid.

### Comments

The continued decline in the proportion of culture-confirmed cases of TB from approximately 90% of all cases at the start of the 1990's to about 75% now is worrying, EPI-NEWS 44/01 and 48/02. It is crucial for the surveillance of the development of resistance in Denmark that, as far as possible, specimens be sent for culture and resistance determination for all patients. Determination of resistance can also have crucial significance for the course of the individual patient's treatment.

The continued high incidence of streptomycin mono-resistance reflects inadequate use abroad and former use of this antibiotic in Denmark. This no longer has clinical relevance, as streptomycin is now only seldomly used.

Resistance to isoniazid and streptomycin simultaneously has fallen by 38% relative to 2000. This resistance is related to active spread of infection among Somalis in Denmark in cluster 27.

(T. Lillebæk, V. Ø. Thomsen, Int. Ref. Lab. of Mycobacteriology)

### TUBERCULOSIS OUTBREAK IN THISTED

In September 2002, a Danish student at Thisted Upper Secondary School was found to have smear-positive pulmonary TB.

The patient presented with a history of cough and expectoration for about six months. The student's girlfriend was also diagnosed with TB, but extrapulmonary.

The Medical Officer of Health and the local pulmonary physician decided that the social investigation should include screening of a choir and two classes at the school, in addition to the household. The index patient had also been with the choir on tour in the United States during the potentially infectious period. In the primary social investigation, a Mantoux test was performed on 100 persons, of whom 27 were positive with severe reactions of 16-44 mm (15 in the choir and 12 in the two school classes).

On this basis and after consultation with the Medical Officer of Health, pulmonary physician, SSI and the National Board of Health, it was decided that there were grounds to extend the social investigation in the school. As it was not possible to delimit further classes with specific increased risk, it was decided to screen the rest of the school's pupils and teachers (about 600 persons). As a supplement to the Mantoux test, it was decided to evaluate a new blood-based immunological test from SSI as part of contact tracing. The test – which has not yet been implemented in clinical practice – reacts to proteins belonging to the *M. tuberculosis* complex and can therefore differentiate between actual TB infection and reaction due to previous BCG vaccination.

The blood test was primarily offered to the Mantoux-positive and BCG-vaccinated persons, but for reasons

related to the test, a series of specimens were also taken from Mantoux-negative persons.

In the extended social investigation, a further 10 Mantoux-positive persons were found, some of whom had to be characterised as doubtful positive.

The result of the blood test showed concordance with the Mantoux-positive persons. On performing the blood test, six BCG-vaccinated persons were also found to be infected. From the group of Mantoux-negative persons, four had a positive blood test and were judged to be infected. In five cases, the analysis was just below the agreed threshold value and will therefore be repeated.

All of the infected persons have been offered prophylactic treatment to prevent development of actual tuberculous illness. A further one person is being treated for active TB. DNA analysis of isolate from the index patient showed a cluster type that is known among Danes in the local area.

The problem of contact tracing associated with the index patient's and choir's trip to the United States was managed by contacting the airline company and local public health units.

TB among younger Danes outside specific risk groups is rare. However, the current outbreak serves as a reminder that active transmission of TB still occurs in Denmark – even among Danes.

(K. S. Jakobsen, Dept. of Pulmonary Medicine, Skive Hospital, F. Stenz, MOH, Viborg County, P. Andersen, Department of Epidemiology)

### VACCINATION OF PILGRIMS TO SAUDI ARABIA

In order to be granted a visa, the Saudi Arabian health authorities require vaccination with the tetravalent polysaccharide vaccine against meningococcal disease serogroups A+C+W135+Y. All travellers over the age of 2 years, including those who have been vaccinated against groups A and C within the last three years, must be vaccinated once with the tetravalent vaccine no later than 10 days before entry to the country. Children aged 3-24 months must have two doses at a three months' interval. However, these can only expect protection against group A. (Department of Epidemiology)

## Patients with laboratory-diagnosed chlamydia, by sex and county

3rd quarter of 2002 compared with the corresponding period in 2001

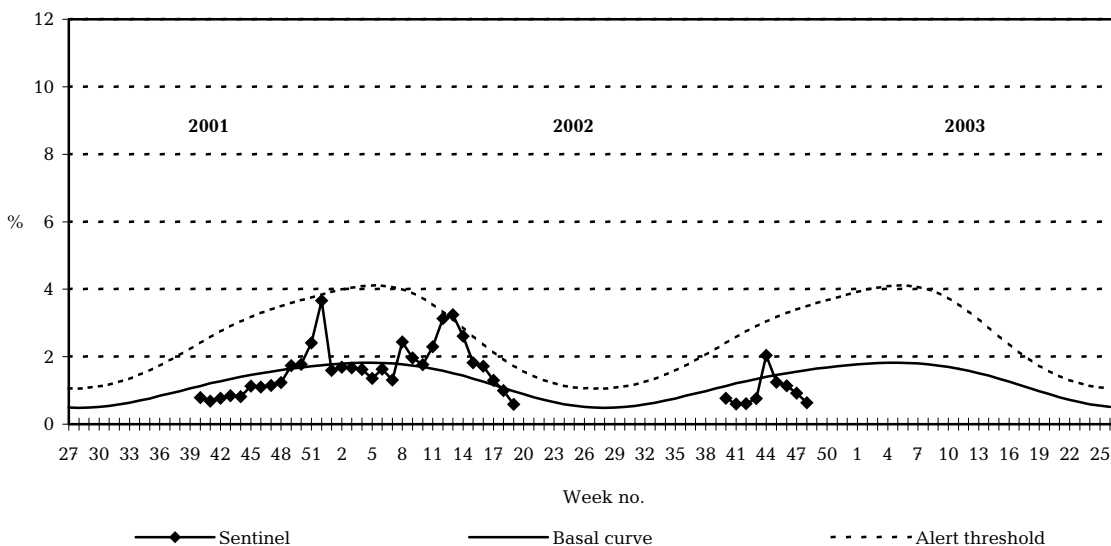
County	3rd quarter 2002			3rd quarter 2001		
	M	F	Total	M	F	Total
Cph. & Frb. Municipalities	274	521	796 *	276	524	801 *
Copenhagen	141	271	412	104	292	396
Frederiksborg	49	118	167	56	127	183
Roskilde	39	132	171	40	133	173
West Zealand	48	122	170	77	151	229 *
Storstrøm	49	117	168 *	54	111	165
Bornholm	3	29	32	1	13	14
Funen	114	260	375 *	93	219	313 *
South Jutland	44	136	180	77	241	319 *
Ribe	62	108	170	43	99	142
Vejle	76	181	257	67	156	223
Ringkøbing	46	136	182	55	121	176
Aarhus	203	382	585	101	387	489 *
Viborg	59	116	175	48	103	151
North Jutland	105	227	332	123	266	389
Total	1312	2856	4172 *	1215	2943	4163 *

\* In an unidentified number of persons gender was unknown

(Dept. of Respiratory Infections, Meningitis and STIs)

## Sentinel surveillance of influenza activity

Weekly percentage of consultations, 2001/2002/2003



- 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)