

**TUBERCULOSIS 2000, PART II**

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**Occupational infection**

Nine Danish patients were stated to have been possibly infected at their place of work; eight of these had positive culture for TB. Two were teachers who had taught refugees; one of these had been subject to exposure two years previously. In only one case did DNA typing support a source of infection at work. In the seven other cases in which DNA typing was possible, no evidence of a definite occupational source of infection was obtained.

**Outbreaks**

Some smaller outbreaks comprising two or three patients were noted. There were four outbreaks with four or more patients each:

- Nine Somalis, including seven children. Isolates from the seven cases with positive culture showed the same DNA profile.
- Five Danes, including a seven-year-old child. Isolates from the two cases with positive culture had the same DNA profile.
- Four Kosovo-Albanians, including three children below the age of nine years. Isolates from the two cases with positive culture had the same DNA profile.
- Four Somali siblings aged 11-17 years, all stated to be infected prior to arrival in Denmark. Isolates from the two cases with positive culture had the same DNA profile.

**Microbiological diagnosis**

The diagnosis was confirmed by culture in 432 cases (79%), which represents a continuing decline from 1995-99, when the average was 85%. The proportion (316/397) of culture-confirmed cases for pulmonary TB was not significantly different from that for extrapulmonary TB (116/151). In patients with pulmonary TB ( $\pm$  other localization), the diagnosis was culture-confirmed in 86% of Danish and 74% of immigrant patients. In those with extrapulmonary TB, the corresponding proportions were 76% and 77%. In 42 children below 15 years of age the diagnosis was culture-confirmed in 27 cases (64%). *Mycobacterium bovis* was found in five Danes: one had pulmonary TB, three had TB of bone and one had urogenital TB. 13 patients initially notified as having TB were later found to have non-tuberculous mycobacteria on culture. In three ca-

ses the diagnosis of TB was upheld on clinical grounds. Of all patients with culture-positive pulmonary TB ( $\pm$  other localization), 186 (59%), comprising 105 Danes and 81 immigrants, had positive microscopy in at least one pulmonary specimen and were regarded as infectious. Positive microscopy in patients with culture-positive pulmonary TB was found in 70% of Danish and 49% of immigrant cases. For patients with culture-confirmed TB, the microbiological diagnosis was made by microscopy ( $\pm$  PCR) in 186 patients (59%) with pulmonary TB ( $\pm$  other localization) and in 28 patients (24%) with extrapulmonary TB. PCR for *M. tuberculosis* complex was carried out on 28% of all specimens received and identified a further 46 patients (11%): 27 with pulmonary TB ( $\pm$  other localization) and 19 with extrapulmonary TB. In 260 patients (60%) provisional diagnosis could thus be made by microscopy or confirmed by PCR within days of receiving the specimen, while diagnosis had to await culture results in 172 cases (40%).

**Drug resistance**

Resistance to at least one of the primary antituberculous drugs (rifampicin (R), isoniazid (I), ethambutol (E), pyrazinamide (P)) or streptomycin (S) was demonstrated in 64 patients (15%) with culture-confirmed TB, comprising 13 Danes and 51 immigrants. Of 39 patients with relapse, 10 (26%) had resistant TB. The remaining 54 patients with resistant TB were diagnosed for the first time or information on previous TB was lacking. Monoresistance was demonstrated in 36 patients (8%), to isoniazid in 11 cases (10 immigrants and one Dane), to streptomycin in 18 cases (15 immigrants and three Danes) and to pyrazinamide in seven cases (two immigrants and five Danes). In five cases pyrazinamide monoresistance was due to *M. bovis*, which is naturally resistant to this agent. Resistance to two or more drugs was demonstrated in 28 patients (6%): I+S in 24 cases (20 immigrants and four Danes), and in one case each to I+E, I+E+P, R+I+E and R+I+E+P+S. These last four cases were in immigrants. Thus two patients were notified as having multi-drug-resistant (MDR) TB, defined as TB resistant to

at least rifampicin and isoniazid.

- A Somali woman who arrived in 1998 had MDR TB demonstrated in a cervical lymph node. The DNA profile of the TB isolate was identical with that from other Somali patients without MDR TB.
- An Iraqi man had fully sensitive TB in 1994, but then developed first isoniazid resistance and then rifampicin and ethambutol resistance as well. After prolonged treatment with secondary drugs, he fell ill again in 2000, having had six negative cultures in 1998-99. All the TB isolates from this patient had an identical DNA profile from 1994 to 2000, which points to relapse. In addition, a Danish man who had been notified in 1999 with rifampicin monoresistant TB, developed MDR TB in 2000.

**Comments**

The rise in the number of TB cases over those of 1999 (536) can be attributed in part to the extended criteria for notification, EPI-NEWS 43/01. The number of cases in Danes has risen again, but has previously been at this level during the period 1995-99. Reporting of the number of infectious patients is now based on all primary specimens received, and not as earlier, just on the one specimen that first showed growth of *M. tuberculosis*. Danish patients with infectious (open) pulmonary TB make up a larger group than the equivalent immigrant group, in both relative and absolute terms. The proportion of patients with resistant TB is comparable with that for the three preceding years, but is still high in relation to 1991-96. The decline in the number of culture-confirmed cases is probably due to the fact that fewer specimens were cultured for mycobacteria. The decline from 30,480 specimens cultured in 1993, EPI-NEWS 46/99, is continuing, 19,891 specimens being cultured in 2000. Culture and species determination is a prerequisite for the definitive diagnosis of TB, as well as for DNA fingerprinting and resistance determination. It is unfortunate that it is impossible to determine resistance in an ever increasing number of cases. (V. Ø. Thomsen, International Reference Lab. of Mycobacteriology, P. Andersen, Dept of Epidemiology) 31 October 2001

## Patients with selected individually notifiable diseases

Notifications received during the 1st and 2nd quarters of 2001 compared with the equivalent period of 2000

County	AIDS		Hepatitis A		Meningococcal disease		Tuberculosis	
	2001	2000	2001	2000	2001	2000	2001	2000
Copenhagen Municip.	9	12	6	8	7	5	84	84
Frederiksberg Municip	4	2	1	-	-	-	4	8
Copenhagen County	3	3	2	3	8	9	46	31
Frederiksborg	2	-	3	3	7	6	8	10
Roskilde	-	1	-	-	4	3	4	14
West Zealand	1	1	-	1	4	6	4	5
Storstrøm	-	1	2	1	1	5	10	9
Bornholm	-	-	-	-	-	-	-	-
Funen	2	1	-	2	12	10	26	25
South Jutland	-	1	-	2	4	7	4	3
Ribe	-	1	-	3	5	2	2	4
Vejle	1	-	-	-	7	6	12	12
Ringkøbing	1	2	-	-	6	7	7	7
Aarhus	3	6	2	4	10	8	46	20
Viborg	-	-	1	-	16	4	9	11
North Jutland	2	-	-	3	20	14	18	11
Other	1	1	1	-	2	1	3	2
<b>Total</b>	<b>29</b>	<b>32</b>	<b>18</b>	<b>30</b>	<b>113</b>	<b>93</b>	<b>287</b>	<b>256</b>

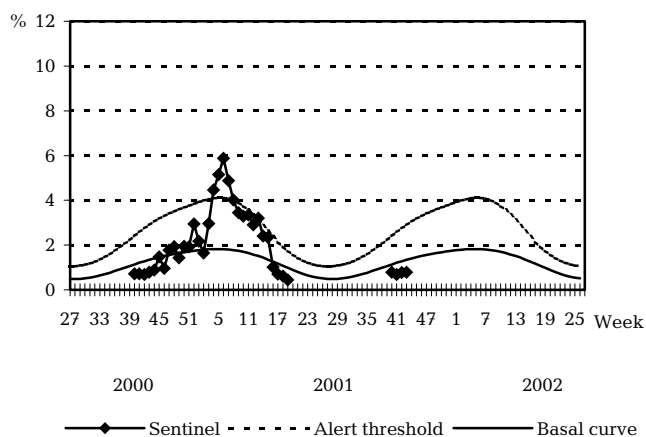
## Patients with other individually notifiable diseases

Notifications received during the 1st and 2nd quarters of 2001 and 2000, whole country

	1st and 2nd quarters	
	2001	2000
Bacterial meningitis	104	74
Hepatitis B	96	40
Hepatitis C	115	51
Hepatitis B+C	16	4
Legionellosis	37	34
Measles	3	2
Mumps	9	8
Paratyphoid fever	9	3
Psittacosis	7	20
Shigellosis	77	59
Typhoid fever	9	7
Whooping cough < 2 yrs	58	83

## Sentinel surveillance of influenza activity

Weekly percentage of consultations, 2000/2001/2002



- 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)