

## TUBERCULOSIS 1999, PART II

**Occupational infection**

In 1999 a total of five patients were thought to have been infected with TB at work. This was investigated by DNA analysis, which is routinely performed on all TB isolates in the SSI Int. Ref. Lab. for Mycobacteriology. One patient employed at a youth college had been in contact with an immigrant there, and the isolates from these two patients were identical. Another patient had worked with alcoholics and drug addicts in central Copenhagen. DNA analysis showed that this patient was part of a larger chain of infection in this area (cluster 3). A third patient had looked after a client with TB at a social care hostel. Isolates from these two patients were not identical, however. There were no positive cultures for the fourth and fifth patients and it was thus impossible to investigate the source of infection further. One was the teacher of a pupil with TB and the other was a nursing auxiliary on a medical ward.

**TB in children**

In 1999 a total of 48 children under 15 years of age were notified as having TB, one Danish child and 47 immigrant children. In comparison, 13 Danish and 37 immigrant children were notified in 1998. Age and sex distributions are shown in [Table 1](#).

**Table 1. No. of children notified with TB, by age and sex, 1999**

	Immigr.		Danes		Total	(%)
	M	F	M	F		
0-4	15	5	0	1	21	(44)
5-9	3	6	0	0	9	(19)
10-15	10	8	0	0	18	(37)
Total	28	19	0	1	48	(100)

The Danish child had pulmonary TB. Of the immigrant children 28 had pulmonary TB, two of these with concurrent lymph-node TB and one with concurrent bone TB, and 12 had lymph-node TB only. 33 immigrant children had been infected abroad and 14 in Denmark. The Danish child and 25 immigrant children (53%) were thought to have been infected by a member of the close family or circle of acquaintance.

**Outbreaks**

From the notifications and following DNA analyses three outbreaks could be identified, comprising respective-

ly six, five and three patients notified in 1999. The first outbreak involved four Somali children aged 1-5 years from the same address and two further patients: a 3-year-old immigrant child from the same street and the 30-year-old acquaintance of a family member. DNA analysis of isolates from the three culture-positive patients showed an identical pattern (cluster 27). The second outbreak comprised four Somali siblings aged 1-7 years whose father had been treated for open TB. The third outbreak involved two children aged 3 and 6 years, born in Denmark of immigrant parents and thought to have been infected by an adult member of the family. DNA analysis made this probable for one of the children, while the other child was culture-negative. An isolate from a fourth family member, from the same address as the presumed source of infection, turned out to have a different DNA pattern.

(P. Andersen, Dept. of Epid., T. Lillebæk, Int. Ref. Lab. for Mycobact.)

**Drug resistance**

Results of resistance determination were available for 416 TB isolates, comprising 97% of the culture-confirmed cases. 69 patients (17%) had TB resistant to at least one of the primary antituberculous drugs or to streptomycin. Monoresistance was demonstrated in isolates from 44 patients (11%), showing chiefly streptomycin resistance (31 isolates). Resistance to other drugs was limited; one isolate each was resistant to rifampicin and ethambutol and six and five, respectively, to isoniazid and pyrazinamide. Isolates from the remaining 25 patients (6%) showed isoniazid- and streptomycin-resistant strains. Thus no cases of multi-drug-resistant (MDR) TB, defined as TB resistant to at least rifampicin and isoniazid, were demonstrated in 1999. One patient who had rifampicin-monoresistant TB diagnosed in 1999 has developed MDR TB this year. The proportion of patients with resistant mycobacteria has risen sharply from the period 1991-1998, when an average of 11% showed resistance. The rise is principally due to isoniazid- and streptomycin-resistant strains that are chiefly found among the Somalis in Copenhagen. Some of the resistant

strains have been imported, but active spread of these strains is also taking place within Denmark.

(I. S. Johansen, V. Ø. Thomsen, Int. Ref. Lab. for Mycobacteriology)

**Comments**

The incidence of TB has risen since the mid-1980's but has levelled off since 1997. 537 cases were notified in 1999, a fall of 3% from 1997. The number of cases in Danes is falling while the number in immigrants has risen. Over the last three years immigrants have thus accounted for 2/3 of total TB cases. In one of the outbreaks described, no study of social circumstances had been made for the index case, which is of importance for preventing the spread of infection. The high prevalence of monoresistance to streptomycin is not clinically relevant, as this antibiotic is now rarely used for treating TB in Denmark. From 1 April 2000 notification requirements have been extended to include the entire Mycobacterium tuberculosis complex. (P. Andersen, E. Smith, Dept of Epid.)

**Use and interpretation of PCR tests**

The SSI Int. Ref. Lab. for Mycobacteriology is getting many inquiries about PCR testing for mycobacteria. This technique can be used for the rapid detection of bacteria causing TB, i.e. bacteria of the Mycobacterium tuberculosis complex. Classical microscopy only reveals acid-fast bacilli in about 50% of TB patients who are eventually found to be culture-positive, but the results of culture are only available about 3 weeks later. PCR testing is positive in these cases as well as in a further 20-30% of the patients who are later found to be culture-positive. A rapid diagnosis can thus be obtained in up to 80% of all TB cases. In microscopy-positive specimens PCR can differentiate indirectly between TB and atypical mycobacteria. PCR will almost always be positive for TB and negative for atypical mycobacteria. About half the microscopy-positive specimens from Danes are due to atypical mycobacteria. PCR only rarely gives false positive results, in the order of 1-2 per 1000 tests.

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

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## Patients with laboratory-confirmed pertussis

3rd quarter 2000 compared with 3rd quarter 1999

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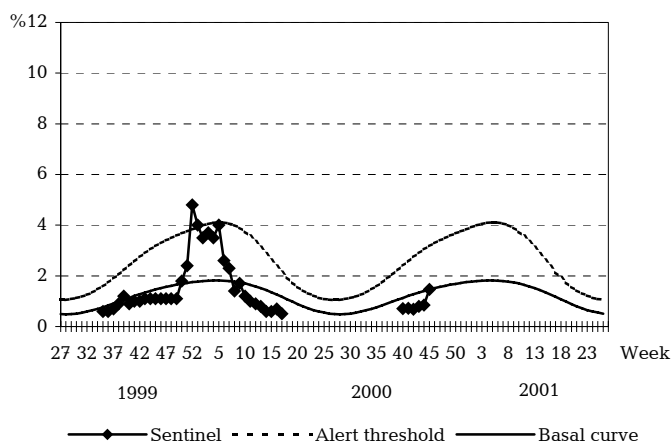
	July	August	September	3rd quarter 2000	3rd quarter 1999
< 2 years	15	17	17	49	74
2-17 years	25	45	58	128	220
≥ 18 years	15	13	10	38	63
<b>Total</b>	<b>55</b>	<b>75</b>	<b>85</b>	<b>215</b>	<b>357</b>

From 01.01.1999 the data includes all cases of pertussis confirmed by culture or PCR

(Dept. of Respiratory Infections, Meningitis and STIs)

## Sentinel surveillance of influenza activity

Weekly percentage of consultations, 1999/2000/2001



**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)