



## TUBERCULOSIS 2007, PART II

No. 51, 2008

### Microbiological diagnostics

In 2007, TB diagnosis was verified by culture in 292 of 391 (75%) notified cases, including 120 of 150 (80%) Danish cases and 172 of 241 (71%) immigrant cases.

Among a total of 299 notified cases of pulmonary TB ( $\pm$  other localisation), 229 (77%) cases were verified by culture, comprising 115 of 142 (81%) Danish cases and 114 of 157 (73%) immigrant cases.

Among 105 Danes with culture-verified pulmonary TB ( $\pm$  other localisation) and at least one test of sputum or tracheal secretion, 79 (75%) had positive microscopy and were regarded as infectious. Among immigrants, the proportion of infectious pulmonary TB cases was 70% (62 of 88 examined patients).

The proportion of infectious patients has followed an increasing trend in the 2002-2007 period for Danes as well as immigrants, [Figure 1](#).

2007 saw one case of pulmonary TB caused by *Mycobacterium Bovis* in an elderly Danish male, while the remaining 291 culture-verified cases were caused by classic *Mycobacterium tuberculosis*.

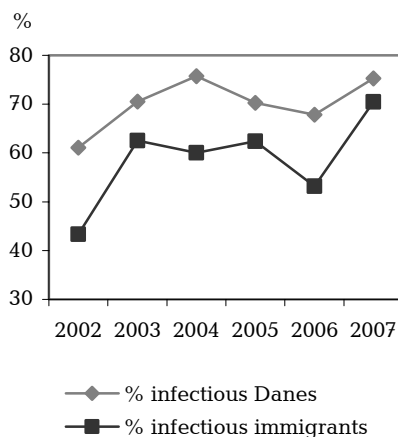
### Drug resistance

Drug resistance results were available for all 291 patients with culture-verified TB caused by *M. tuberculosis*: 119 Danes and 172 immigrants. A total of 24 patients (8%), three (3%) Danes and 21 (12%) immigrants were resistant to at least one of the first choice drugs rifampicin, isoniazid and/or ethambutol. All three Danes tested positive for isoniazid mono-resistance, while the group of 21 immigrants consisted of 17 cases of isoniazid mono-resistance, two cases of polyresistance to isoniazid and ethambutol and two cases of multidrug-resistant TB (MDR TB), i.e. resistance to rifampicin and isoniazid and any further resistance. Both MDR TB cases were newly diagnosed young adult immigrants. One of the cases was gastrointestinal disease in an immigrant from Eastern Europe, the other was disseminated TB with expectorate which tested negative in an immigrant from Southeast Asia.

*M. bovis* is naturally resistant to pyrazinamid and the only 2007 case was susceptible to rifampicin, isoniazid and ethambutol.

A total of 36 patients (ten Danes and

**Figure 1. Proportion of patients with infectious pulmonary tuberculosis 2002-2007, Danes and immigrants**



26 immigrants) were notified with TB relapse. Additionally, another eight cases of relapse (six Danes and two immigrants) were identified via the Mycobacteriology Laboratory's register. Drug resistance information was performed in specimens from 29 of the 44 patients. Isoniazid mono-resistance was detected in two (7%) relapse cases, one Dane and one immigrant.

### Clusters of infection and outbreaks

As in previous years, 2007 saw further cases of the major Danish clusters of TB infection, cluster 1 and cluster 2, across the country, EPI-NEWS 49/06 and 50/07. Since 1992, a total of 209 cluster 1 cases and 490 cluster 2 cases have been identified. A series of other outbreaks with fewer patients associated with drop-in centres, families, institutions and/or immigrant associations were also identified.

(V.Ø. Thomsen, Mycobacteriology Laboratory)

### Comments to parts I and II

Following a decrease in the 2000-2002 period, TB-occurrence has remained constant in the 2003-2007 period, EPI-NEWS 50/08. The mentioned previous decrease was almost exclusively seen in immigrants; among Danes the TB occurrence has remained practically stable since 1995.

It gives cause for concern that the proportion of infectious patients shows an increasing trend among Danes and immigrants. Such trend is probably the result of late diagnosis.

In 2007 approx. four in five Danish cases, but only one in five immigrant cases were notified with the infection in Denmark. For those who are already infected when entering the country, subsequent demonstration of active TB presupposes contact with Danish health care. In contrast, most persons who are infected in Denmark should ideally be comprised by the contact investigation performed in connection with all infectious tuberculosis cases. Infection tracing and contact investigation, early diagnosis and efficient anti-tuberculosis therapy - possibly also among carriers of latent infection - are therefore the primary measures in reducing the infection pressure and, therefore, the Danish TB occurrence. The WHO's long-term objective to eliminate TB corresponds to an incidence of < 1 per million by 2050, equivalent to 5-6 annual Danish cases. Even if the incidence were to be halved every ten years, such objective would hardly be realistic in the Danish context.

Concurrent HIV infection and therefore AIDS - even allowing for some under-reporting - is not a major problem in Denmark. The Department of Epidemiology heads an investigation to identify the share of TB patients that are offered an HIV test and to shed light on test results. The investigation will be repeated annually in the period 2007-2012. The preliminary 2007 results indicate under-reporting of HIV co-infection in the order of 50%. Resistant tuberculosis bacteria are still not a major obstacle to ensuring successful treatment outcomes in Denmark as the share of patients with multiresistant TB in 2007 was less than 1%.

Treatment results for patients notified in 2006 will be described in a future edition of EPI-NEWS.

(V. Ø. Thomsen, Mycobacteriology Laboratory, P. H. Andersen, Department of Epidemiology)

### MERRY CHRISTMAS & HAPPY NEW YEAR

The staff at the Department of Epidemiology wishes everyone a merry Christmas and a happy New Year. The next edition of EPI-NEWS will be published in week 2 unless special circumstances arise.

## Individually notifiable diseases

Number of notifications received in the Department of Epidemiology, SSI (2008 figures are preliminary)

Table 1	Week 50 2008	Cum. 2008 <sup>1)</sup>	Cum. 2007 <sup>1)</sup>
AIDS	0	34	50
Cholera	0	1	0
Creutzfeldt-Jakob	0	4	9
Food-borne diseases	9	830	613
of these, infected abroad	1	135	119
Gonorrhoea	11	377	347
Hepatitis A	2	51	25
of these, infected abroad	2	25	11
Hepatitis B (acute)	1	24	28
Hepatitis B (chronic)	4	170	301
Hepatitis C (acute)	0	6	8
Hepatitis C (chronic)	2	411	563
HIV	6	245	301
Legionella pneumonia	3	123	116
of these, infected abroad	0	46	32
Leptospirosis	1	8	12
Measles	1	11	2
Meningococcal disease	0	53	68
of these, group B	1	25	38
of these, group C	0	16	20
of these, unspec. + other	0	13	10
Mumps	0	27	9
Neuroborreliosis	0	55	96
Ornithosis	1	7	11
Pertussis (children < 2 years)	2	93	79
Purulent meningitis			
Haemophilus influenzae	0	5	2
Listeria monocytogenes	0	1	10
Streptococcus pneumoniae	1	81	95
Other aetiology	0	19	13
Unknown aetiology	1	20	19
Under registration	4	11	-
Rubella (during pregnancy)	1	3	0
Rubella (congenital)	0	0	0
Shigellosis	3	82	214
of these, infected abroad	1	66	50
Syphilis	3	143	94
Tetanus	0	1	3
Tuberculosis	11	384	373
Typhoid/paratyphoid fever	0	32	23
of these, infected abroad	0	26	21
VTEC/HUS	3	145	153
of these, infected abroad	1	51	53

Table 1, comments

In 2008, none of the following have been reported: Anthrax, botulism, cholera, diphtheria, haemorrhagic fever, leprosy, plague, polio, rabies, typhus exanthematicus

1) Cumulative no. 2008 and corresponding period 2007

## Selected laboratory diagnosed infections

Number of specimens, isolates, and/or notifications received at Statens Serum Institut

Table 2	Week 50 2008	Cum. 2008 <sup>2)</sup>	Cum. 2007 <sup>2)</sup>
Bordetella pertussis (all ages)	6	189	200
Gonococci	4	352	341
of these, females	0	73	58
of these, males	4	279	283
Listeria monocytogenes	1	48	52
Mycoplasma pneumoniae			
Resp. specimens 3)	17	97	362
Serum specimens 4)	7	101	404
Streptococci 5)			
Group A streptococci	2	129	104
Group B streptococci	3	123	95
Group C streptococci	2	23	21
Group G streptococci	4	123	118
S. pneumoniae	18	886	1018

Table 3	Week 48 2008	Cum. 2008 <sup>2)</sup>	Cum. 2007 <sup>2)</sup>
MRSA	37	739	631
Pathogenic int. bacteria <sup>6)</sup>			
Campylobacter	52	3276	3777
S. Enteritidis	0	612	546
S. Typhimurium	28	1926	323
Other zoon. salmonella	3	950	695
Yersinia enterocolitica	3	309	263
Verocytotoxin-prod. E.coli	4	150	148
Enteropathogenic E. coli	6	213	175
Enterotoxigenic E. coli	2	385	299

Tables 2 & 3, comments

2) Cumulative no. 2008 and corresponding period 2007

3) Respiratory specimens with positive PCR

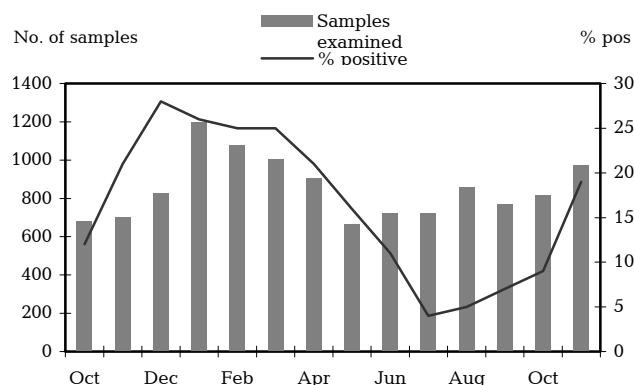
4) Serum specimens with pos. complement fixation test

5) Isolated in blood or spinal fluid

6) See also www.germ.dk

## Norovirus 2007-2008

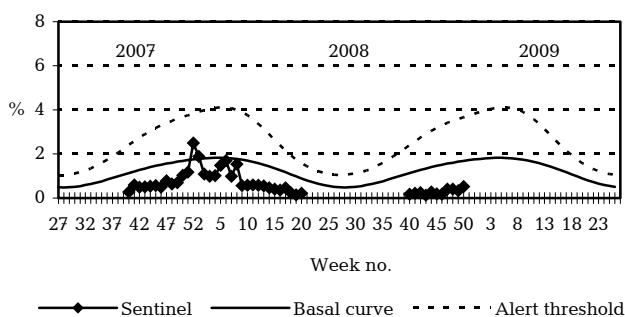
Examined samples and percent positive, Oct 07- Nov 08



Samples from clinical microbiology departments at Odense University Hospital, Copenhagen University Hospital, and the Department of Virology, SSI

## Sentinel surveillance of the influenza activity

Weekly percentage of consultations, 2007/2008/2009



Sentinel: Influenza consultations (as percentage of total consultations)

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

Alert threshold: Possible incipient epidemic