Report on the Epidemiology of Tuberculosis in Ireland 1998

April 2000

Contents

Health Boards in Ireland

Health Board:	Counties:
Eastern (EHB):	Dublin, Kildare,Wicklow
Mid-Western (MWHB):	Clare, Limerick, Tipperary N.R.
Midland (MHB):	Laois, Longford, Offaly, Westmeath
North Eastern (NEHB):	Cavan, Louth, Meath, Monaghan,
North Western (NWHB):	Donegal, Leitrim, Sligo
South Eastern (SEHB):	Carlow, Kilkenny, Tipperary S.R., Waterford, Wexford
Southern (SHB):	Cork, Kerry
Western (WHB):	Galway, Mayo, Roscommon

Acknowledgements

This report has been prepared by Dr Alan Smith, Dr Derval Igoe and Dr Darina O'Flanagan, National Disease Surveillance Centre, Sir Patrick Dun's Hospital, Dublin.

We would like to thank all those who participated in the collection of information in each Health Board used in the preparation of this report. Thank you to the regional TB collaborative committees. In particular, thank you to notifying physicians, public health doctors, microbiologists, nurses and laboratory staff without whom this report would not have been possible.

Introduction

This document presents the aggregated epidemiological data for cases of tuberculosis notified to each of the eight Health Boards in Ireland during 1998. Individual case notification forms were completed by Area Medical Officers using the clinical, microbiological and histological data available to them. They were then collated regionally at public health departments by the responsible Specialist in Public Health Medicine. Quarterly returns were made to the Department of Health and Children and copies of the TB notification forms were sent to NDSC.

In September 1999 all TB notifications were entered onto an Epi-Info database at the National Disease Surveillance Centre (NDSC). Individual Health Board notification forms were the data source.

In October 1999 a summary report was produced for each Health Board requesting (a) validation of data and (b) missing data on each individual case.

In December 1999 complete and validated data had been returned from all eight Health Boards.

Materials and methods

Case definitions: For full case definitions please refer to the "Guide to the completion of the National TB Notification form" produced by NDSC as part of the National TB Surveillance System (NTBSS 2000.)

A notified case of TB refers to clinically active disease due to infection with organisms of the *Mycobacterium tuberculosis* complex. Active disease is presumed if the patient was commenced on a full curative course of anti-tuberculosis chemotherapy.

Persons placed on chemoprophylaxis for preventive treatment or infected by mycobacterium other than *M. tuberculosis* complex are not included as cases.

Definite case: A definite case of tuberculosis is a case with a culture confirmed disease due to *M. tuberculosis* complex.

Other than definite: Notification is also required for cases which meet **both** of the following conditions (a) a clinicians judgement that the patient's clinical and/or radiological signs and/or symptoms are compatible with tuberculosis and (b) a clinicians decision to treat the patient with a full course of anti-tuberculosis therapy.

Pulmonary TB: defined as a laboratory confirmed case (positive smear, histology or culture) with or without radiological abnormalities consistent with active pulmonary TB or a decision taken by a physician that the patient's clinical and/or radiological signs/symptoms are compatible with pulmonary TB.

Extra-pulmonary TB: defined as a patient with a smear, culture or histology specimen from an extra-pulmonary site positive for *M.tuberculosis* complex or with clinical signs of active extra-pulmonary disease and the attending physician treating the patient with a full curative course of anti-tuberculosis chemotherapy.

Pulmonary and Extra-pulmonary TB: A case defined by the previous two definitions above.

Primary tuberculosis: Primary TB was defined as a patient with a negative smear, culture or histology specimen but with an abnormal chest X-ray (hilar lympadenopathy +/- ghon focus), positive skin test or clinical evidence leading the physician to treat with a curative course of antituberculosis chemotherapy.

Data analysis

Population data were taken from the 1991 and/or 1996 census of population. Data analysis involved Epi-Info software version 6.04c. A three year moving average was calculated by applying the formula (a+2b+c/4) to each three successive points a, b and c (each letter represents a year) in the series and using the result as the smoothed value of b. X^2 (Chi square) test was used to compare proportions in groups and 95% confidence intervals were used to compare rates between groups of interest. Direct methods of standardisation were used to allow comparison of rates between geographical areas.

Results

(A) Sociodemographic Details

Four hundred and twenty four cases (**424**) of TB, 262 males (61.8%) and 162 females (38.2%) were notified to the eight Health Boards in 1998. The notification rate was **11.7/100,000** population, which is a 1.7% increase on 1997 (11.5/100,000). See Table 1.

Table 1. Notified cases of Tuberculosis in Ireland 1991-1998

Year	Number	Crude Rate per 100,000	3 year moving average.
1991	640	18.2	
1992	604	17.1	621
1993	598	16.9	581
1994	524	14.5	526
1995	458	12.6	468
1996	434	12	438
1997	416	11.5	426
1998	424	11.7	

The number of cases in each Health Board and the associated crude rate/100,000 is shown in Table 2.

Table 2. Notified cases of TB in each Health Board in Ireland 1998

Health Board	Cases	Crude Rate per 100,000	95% CI for Rate
EHB	152	11.7	9.9-13.6
MHB	10	4.9	1.9-7.9
MWHB	47	14.8	10.6-19.1
NEHB	29	9.5	6.0-12.9
NWHB	19	9	5.0-13.1
SEHB	35	8.9	6.0-12.0
SHB	78	14.3	11.1-17.4
WHB	54	15.3	11.2-19.4
IRELAND	**424**	**11.7**	**10.6-12.8**

The number of notifications in each quarter of 1998 is outlined in Table 3. Notification of TB was lowest in the first quarter of the year and highest in the third quarter.

Table 3. Number of notifications of TB in each quarter in Ireland 1998

1998	No. of cases notified	Percentage
January-March	94	22.2%
April-June	111	26.2%
July-September	118	27.8%
October-December	101	23.8%
Total*	**424***	**100%**

*The exact date of notification was missing in 15 cases. In these cases the date of diagnosis, the date of admission or the date treatment was started, was used to allocate them to a yearly quarter.

The crude notification rates in each of the Health Boards for the period 1992-1998 are outlined in Table 4.

Table 4. Crude rate per 100,000 for notified cases of TB by Health Board in Ireland 1992-1998

Health Board	1992	1993	1994	1995	1996	1997	1998
EHB	16.2	11.6	13.4	12.4	8.7	9.9	11.7
MHB	18.7	10.8	14.7	8.9	8.3	9.7	4.9
MWHB	20.9	18	17.7	15.4	17.7	15.1	14.8
NEHB	10	7.8	18.3	8.7	10.1	9.8	9.5
NWHB	15.9	26.3	9.1	11.5	7.1	10	9
SEHB	12.3	16.4	11.2	9.7	6.9	12.8	8.9
SHB	21.5	23.3	17.8	21	22.5	17.4	14.3
WHB	22.2	22.5	23.3	11.4	13.1	10.8	15.3
Total	17.1	17	14.9	13	12	11.5	11.7

Table 5 gives the 3 year moving average incidence rate for each Health Board for the years 1992-1997. Reading from left to right in the table the trend in each Health Board over this period can be plotted.

Table 5. Three year moving average incidence rate per 100,000 in each Health Board 1992-1997

Health Board	1992	1993	1994	1995	1996	1997
EHB	14.5	13.2	12.7	11.7	9.9	10.1
MHB	15.8	13.7	12.3	10.2	8.8	8.2
MWHB	20	18.7	17.2	17.2	16.5	15.7
NEHB	10	11	13.3	11.3	9.7	9.8
NWHB	20.3	19.4	14	9.3	8.6	8.3
SEHB	12.5	14.1	12.1	9.4	9.1	10.4
SHB	21.6	21.5	20	20.6	20.9	17.9
WHB	26	22.6	20	14.6	12.1	12.5

Table 6 and Figure 1 show the age standardised incidence rate/100,000 and associated 95% Confidence Intervals (CI)in each of the Health Boards for the year 1998.

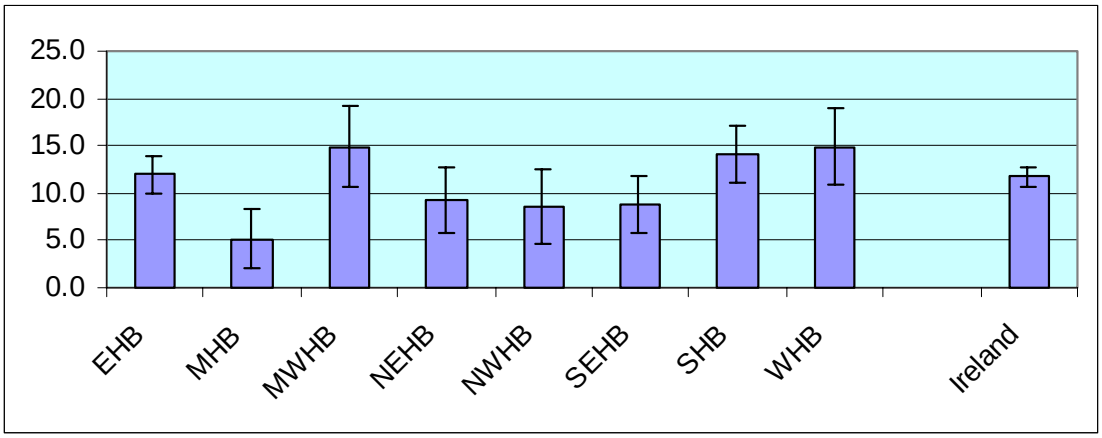
Table 6. Age standardised TB incidence rate in Ireland 1998

Health Board	TB Cases	Age standardised incidence rate per 100,000	95% CI
EHB	152	12.0	10.0-13.9
MHB	10	4.8	1.8-7.8
MWHB	47	14.8	10.6-19.1
NEHB	29	9.3	5.8-12.7
NWHB	19	8.6	4.7-12.6
SEHB	35	8.9	5.9-11.8
SHB	78	14.1	11.0-17.2
WHB	54	14.9	10.9-18.9
Ireland	**424**	**11.7**	**10.6-12.8**

After direct standardisation, rates in four Health Boards, EHB, MWHB, SHB and WHB were higher than the national rate of 11.7. However these are non-significant in view of the overlapping confidence intervals.

The MHB rate (4.8/100,000; 95%CI 1.8-7.8) was significantly lower than the national rate (11.7/100,000; 95%CI 10.6-12.8)

Figure 1. Age standardised TB incidence rate/100,000 with 95% CI in Ireland 1998



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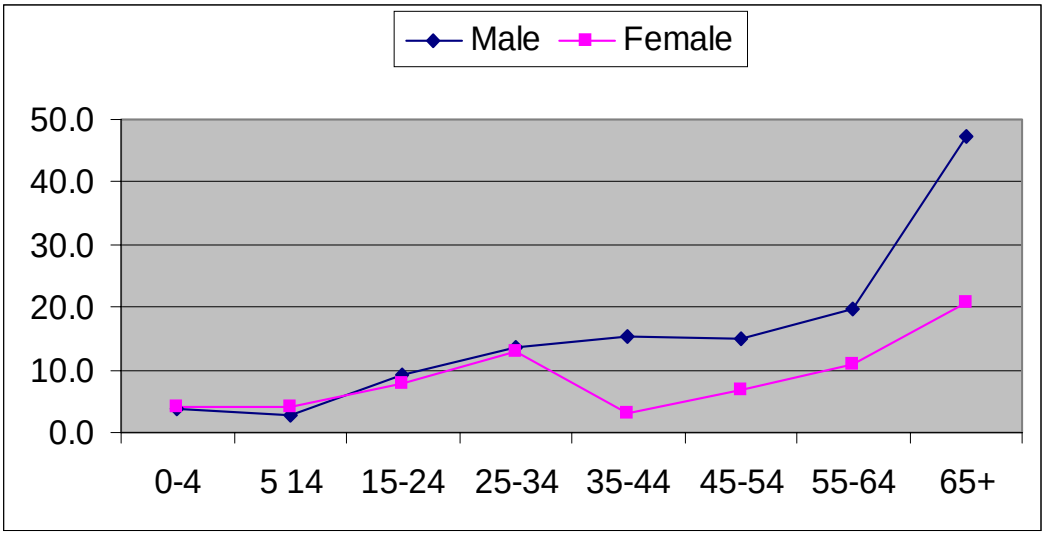
The age specific rates of TB per 100,000 population in Ireland are shown in Table 7 and Figure 2.

Table 7. Age specific rates per 100,000 population in Ireland 1998*

Age group	Male rate per 100,000	Female rate per 100,000	Total rate per 100,000	95% CI (Ire)
0-4	3.9	4.1	4.0	1.5-6.5
5-14	2.6	2.7	3.3	1.9-4.7
15-24	9.3	7.4	8.5	6.3-10.8
25-34	13.6	12.9	13.3	10.1-16.4
35-44	15.4	2.8	9.3	6.6-11.9
45-54	14.9	6.9	10.9	7.8-14.6
55-64	19.1	11.0	15.1	10.9-20.0
65+	48.5	19.9	32.6	26.7-37.6
Total	**14.5**	**8.4**	**11.7**	**10.6-12.8**

*Age data missing in 2 cases

Figure 2. Age and sex specific rates (per 100,0000) in Ireland 1998



Thirty-five (8.3%) patients were born outside Ireland. The numbers in each Health Board are summarised in Table 8, and their country of origin in Table 9.

Table 8. Cases of TB in foreign-born TB patients

Health Board	Born Outside Ireland	% of cases in Health Board
EHB	23	15.1%
MHB	0	
MWHB	4	8.5%
NEHB	1	3.5%
NWHB	2	10.5%
SEHB	0	
SHB	2	2.6%
WHB	3	5.4%
Total	35	8.3%

Table 9. Country of origin of foreign-born TB patients

Country of Birth	Number of Cases
Australia	1
Brazil	1
China	1
Congo	1
England	2
Hong Kong	1
India	6
Liberia	1
Libya	1
Malaysia	1
Nigeria	3
Pakistan	3
Romania	2
Scotland	3
Somalia	2
South Africa	1
Spain	1
Vietnam	2
Zaire	2
Total	**35**

EuroTB recommends that countries should provide information on geographic origin based on birthplace. In November 1999 EuroTB reported that 19 countries, including Ireland, provided information on geographic origin based on this recommendation in relation to 1997 notification data. Table 10 shows the proportion of cases in foreign born TB patients in these 19 countries.

Table 10. Proportion of cases in foreign-born TB patients (1997 EuroTB data)

0%	1-9%	10-49%	>50%
Armenia	Czech Republic	Iceland	Andorra
Moldova	Estonia	Luxembourg	Denmark
Slovakia	Finland	Malta	Israel
	Hungary	Slovenia	Norway
	Ireland		Sweden
	Latvia		Switzerland
	Lithuania		

In countries providing information on geographic origin based on citizenship the proportion of cases in foreigners was:

- 0% in Georgia and Romania
- 10-49% in 5 countries: Austria (25%), Belgium (33%), France (24%), Germany (31%) and Italy (13%)
- 55% in the Netherlands

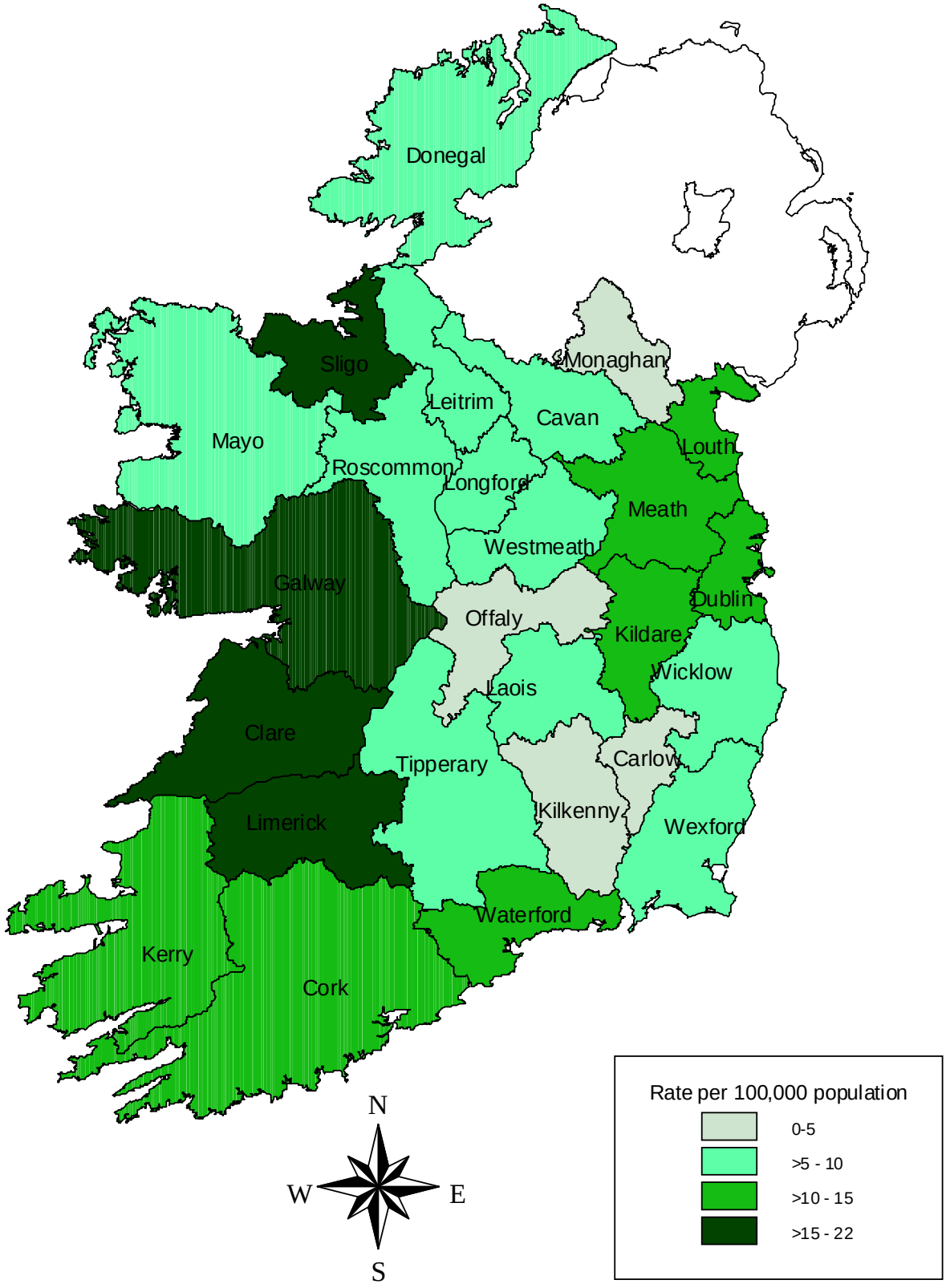
Based on these figures Ireland has one of the lowest proportions of TB cases in foreign-born patients in the EU.

In Ireland the age standardised incidence rate in each county is shown in Table 11 and Figure 3 overleaf.

Table 11. Age standardised incidence rate and 95 % CI by county in Ireland 1998

County	Incidence rate/100,000	95% CI
Offaly	No cases reported in 1998	
Galway	21.7	15.1-28.4
Clare	20.1	11.0-29.1
Limerick	17.1	10.8-23.4
Sligo	15.4	5.3-25.5
Cork	14.5	10.8-18.1
Waterford	13.6	6.2-20.9
Louth	13.2	5.8-20.7
Dublin	12.9	10.7-15.0
Kerry	12.1	6.3-17.9
Kildare	11.3	4.5-17.2
Meath	10.1	3.8-16.4
Laois	9.2	1.1-17.2
Roscommon	8.7	0.8-16.6
Cavan	7.8	0.6-15.6
Tipperary	7.2	2.7-11.7
Leitrim	6.6	0-15.9
Wexford	6.6	1.7-11.5
Westmeath	6.5	0.1-12.8
Mayo	6.3	1.9-10.7
Donegal	6.0	1.8-10.2
Longford	5.5	0-13.1
Wicklow	5.1	0.6-9.7
Carlow	5.0	0-11.8
Kilkenny	4.2	0-9.0
Monaghan	3.5	0-8.4
Ireland	**11.7**	**10.6-12.8**

Figure 3. Age Standardised Incidence of TB in Ireland 1998



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For 1998 notifications, counties Donegal (6/100,000; 95%CI 1.8-10.2), Kilkenny (4.2/100,000; 95%CI 0-9), Monaghan (3.5/100,000; 95%CI 0-8.4) and Wicklow (5.1/100,000; 95%CI 0.6-9.7) have **significantly lower** rates than the national rate (11.7/100,000; 95%CI 10.6-12.8).

County Galway (21.7/100,000; 95%CI 15.1-28.4) has a **significantly higher** rate than the national rate (11.7/100,000; 95%CI 10.6-12.8) for 1998.

(B) Diagnostic & Clinical Details

There were four hundred and twenty four notified cases (424) of TB in Ireland in 1998 which were broken down into the diagnostic categories shown in Table 12.

Three hundred and fifteen cases (315) were diagnosed with pulmonary or combined pulmonary and extrapulmonary TB, of whom 192 (61.0%) were laboratory confirmed i.e. either sputum smear positive or culture positive or both (Table 14.).

Pulmonary TB alone was diagnosed in 284 (67%) cases, of which 172 (60.6%) were laboratory confirmed.

There were 31 cases of combined *pulmonary and extrapulmonary TB*, of which 20 (64.5%) were laboratory confirmed.

Table 12. Diagnostic categories of TB cases in Ireland in 1998

Diagnosis	Number of cases (%)
Pulmonary	284 (66.9%)
Pulmonary+Extrapulmonary	31 (7.3%)
Extrapulmonary	102 (24.1%)
Primary	7 (1.7%)
Total	**424 (100%)**

In the 7 primary cases no specific mention of the site(s) of disease were recorded. Six of seven cases were in the age group 0-14 with the remaining case aged 50. Sputum smear and culture status were negative in all 7 cases.

The diagnostic breakdown in each Health Board is shown in Table 13.

Table 13. Diagnostic categories of TB by Health Board in 1998

Health Board	Pulmonary	Pulmonary + Extrapulmonary	Extrapulmonary	Primary	Total
EHB	110	12	29	1	152
MHB	8	0	2	0	10
MWHB	35	6	6	0	47
NEHB	21	2	5	1	29
NWHB	14	2	3	0	19
SEHB	23	1	10	1	35
SHB	38	8	29	3	78
WHB	35	0	18	1	54
Total	284	31	102	7	424

Table 14. Sputum smear and culture status for notified pulmonary TB cases* in Ireland 1998

	Sputum positive	Sputum negative	Sputum not done	Sputum unknown	Total
Culture positive	119	61	8	4	192
Culture negative	0	76	3	2	81
Culture not done	0	1	1	2	4
Culture unknown	2	13	17	6	38
Total	**121**	**151**	**29**	**14**	**315**

*WHO requirements for analysing data requires that any case which has a pulmonary component be classified as pulmonary TB.

In 1999 EuroTB [1] reported (1997 TB data) that amongst the 32 countries in which sputum smear results were available, the median proportion of smear positive cases was 48% in pulmonary TB cases. In Ireland the figure for 1998 is 38.4% (95%CI 33%-43.8%).

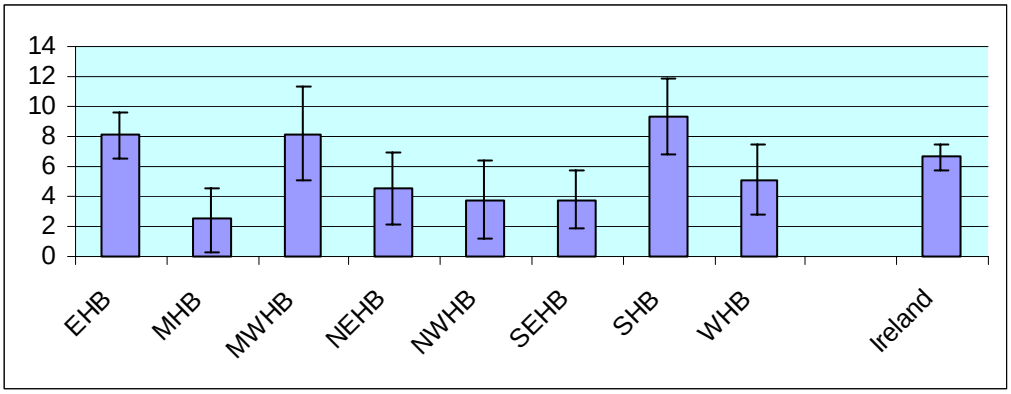
Similarly, information on culture status in pulmonary TB cases was available in 21 countries. The median proportion of cases with a positive culture was 58% (range 16-90%). In Ireland the figure for 1998 is 60.9% (95%CI 55.6%-66.3%)

In countries where laboratories capable of identification of *Mycobacterium tuberculosis* complex are routinely available, a definite case is a case with **culture confirmed** disease due to *M.tuberculosis* complex [2]. Using this definition, the notification rates of definite cases of TB in Ireland are shown in Table 15 and Figure 4.

Table 15. Notification rates of definite cases of TB in Ireland 1998

Health Board	Number of culture positive	% of Health Board cases	Rate per 100,000	95% CI
EHB	105	69.1%	8.1	6.5-9.6
MHB	5	50.0%	2.5	0.30-4.6
MWHB	26	54.2%	8.2	5.1-11.4
NEHB	14	48.3%	4.6	2.2-7.0
NWHB	8	42.1%	3.8	1.2-6.4
SEHB	15	42.9%	3.8	1.9-5.8
SHB	51	65.4%	9.3	6.8-11.9
WHB	17	33.3%	5.1	2.8-7.5
Ireland	**241**	**56.8%**	**6.7**	**5.8-7.5**

Figure 4. Rate/100,000 of definite cases of TB in Ireland with 95% CI



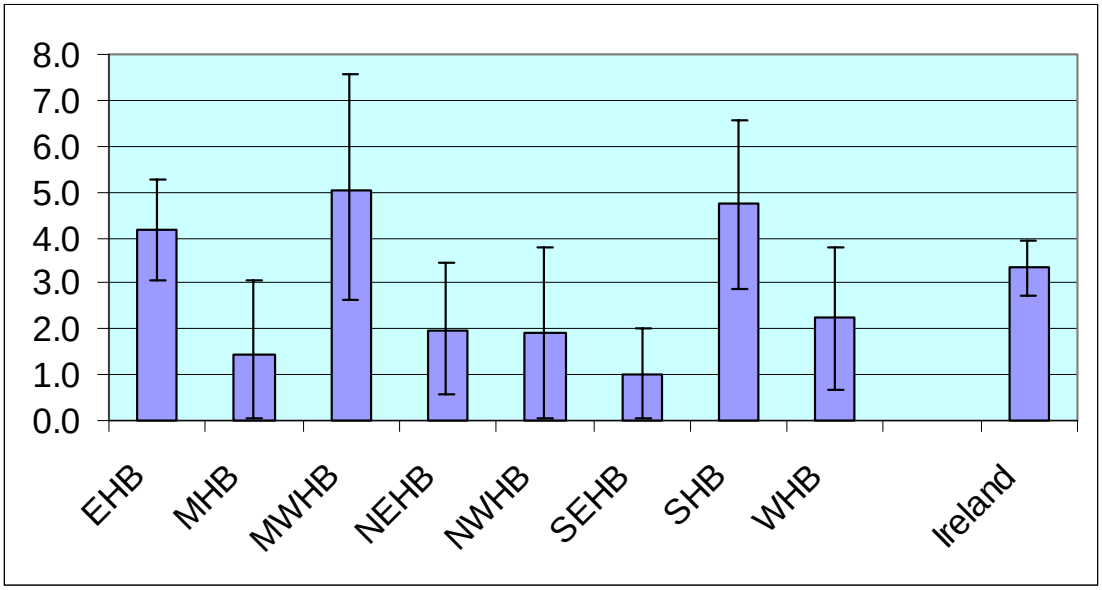
This data reveals that the MHB has the lowest rate of culture positive cases which is significantly lower than the national figure.

As reported by the Working Party on Tuberculosis in 1996[3] one of the criteria that must be fulfilled prior to considering discontinuation of a BCG vaccination programme is when the average annual notification rate of sputum smear positive pulmonary tuberculosis is 5 cases/100,000 or less during the **previous three years**. The notification rate with corresponding confidence intervals for each Health Board in relation to sputum, smear positive pulmonary cases for the year 1998 is shown in Table 16 and Figure 5.

Table 16. Notification rates of sputum smear positive pulmonary cases in Ireland 1998

Health Board	Cases	% of Health Board pulmonary cases	Rate per 100,000	95% CI
EHB	54	44.3%	4.2	3.1-5.3
MHB	3	37.5%	1.5	0-3.1
MWHB	16	40.0%	5.0	2.6-7.5
NEHB	6	26.1%	2.0	0.4-3.5
NWHB	4	25.0%	1.9	0.04-3.8
SEHB	4	16.7%	1.0	0.02-2.0
SHB	26	56.5%	4.8	2.9-6.6
WHB	8	22.9%	2.3	0.7-3.8
Ireland	**121**	**38.4%**	**3.3**	**2.7-3.9**

Figure 5. Rate/100,000 of sputum smear positive pulmonary cases 1998 with 95% CI



This data reveals that the SEHB has the lowest rate of sputum smear positive cases (1/100,000; 95%CI 0.02-2.0) which is significantly lower than the national figure (3.3/100,000; 95%CI 2.7-3.9).

Extrapulmonary TB alone was notified in 102 cases. There was a further 31 cases of pulmonary+extrapulmonary TB giving a total of 133 cases with an extrapulmonary component. Extrapulmonary sites were recorded in 101 of these cases which are shown in Table 17.

Table 17. Extrapulmonary disease sites in notified cases in Ireland 1998

Site	Number of cases
Pleural	25
Lymph-intrathoracic	1
Lymph-extrathoracic	21
Spinal	4
Bone	6
Meningeal	7
Genitourinary	16
Disseminated	5
Peritoneal	3
Other*	13
Total	**101**

*These other sites included skin, ear, vocal cords, ileum, retroperitoneal sinus, pericardium, liver granulomas,and a chest wall abscess.

There were 66 *M.tuberculosis* isolates and 1 *M.bovis* isolate amongst the 133 cases with an extrapulmonary component.

Of note, TB meningitis was reported in 7 cases, two of which were laboratory confirmed. The first of these definite cases occurred in a one year old girl (EHB) in whom there was no history of BCG or evidence of a BCG scar. The second definite case was in a fifty six year old man (SEHB). BCG data was unavailable on this case.

Of the 424 cases of TB there were 241 (56.8%) culture positive cases. The isolate of 1 of these cases was unavailable. See Table 18.

Table 18. Isolates detected in TB notifications in Ireland 1998

Isolate	No. (% isolate)
M.tuberculosis	234 (97.1%)
M.bovis	6 (2.5%%)
Total	**241***

*Isolate on 1 case awaited.

As defined by the UK Mycobacterial Resistance Network (MYCOBNET)[4] primary resistance is defined as the level of drug resistance in those who have never received anti-tuberculosis therapy. Resistance may occur to one or more than one of the antibiotics used. Multi-Drug Resistance (MDR) is defined as resistance to isoniazid **and** rifampicin with or without resistance to other antituberculosis drugs.

Resistance was documented in 4 *M.tuberculosis* cases out of a total of 241 sensitivity reports (1.6%). See Table 19. None of these cases had previously been treated for TB. These involved resistance to isoniazid (two cases) and streptomycin (two cases). There were no cases of multi-drug resistance in1998.

Table 19. Sensitivity results of resistance cases in Ireland 1998

		Resistance to (+)				
Case	Isolate	Isoniazid	Rifampicin	Pyrazinamide	Streptomycin	Ethambutol
Pulmonary (EHB)	M.TB				+	
Extrapulmonary (EHB)	M.TB	+				
Pulmonary(NWHB)	M.TB	+				
Pulmonary (WHB)	M.TB				+	

The countries of origin of these four cases were Nigeria (EHB), Vietnam (EHB), Scotland (NWHB) and Ireland (WHB).

Mycobacterium bovis, the cause of bovine-type tuberculosis has an exceptionally wide host range. Susceptible species include cattle, humans, non-human primates, goats, cats, dogs, pigs, buffalo, badgers, possums, deer and bison.

Notification data for 1998 reveal that there were 6 *M.bovis* isolates (1.4% of total cases). Details on these cases are summarised in Table 20.

Table 20. *Mycobacterium bovis* cases in 1998

Case	Sex	Age	Drinks unpasteurised milk ?	Occupational/other risk ?
Pulmonary	M	42	No	Works in environmental pollution control services (water waste/aquaculture/oil contamination)
Pulmonary	F	3	No	Born in Congo
Pulmonary	M	82	No	Retired farmer
Pul+Ext	M	64	No	No
Pulmonary	F	86	No	No
Pulmonary	F	73	No	No

Two patients had HIV in association with TB. Both cases were pulmonary TB and both were culture positive for *M.tuberculosis* and fully sensitive to standard TB chemotherapy.

There were 41 deaths amongst the 424 notified cases of TB in Ireland in 1998. In six cases (1.4%) TB was the recorded cause of death giving a crude death rate of 0.2/100,000 population. Details are outlined in Table 21.

Table 21. Deaths attributed to TB in 1998

Health Board	Sex	Age
EHB (pul+ext)	M	52
EHB (pulmonary)	M	57
EHB (pulmonary)	M	77
MWHB (pul+ext)	M	47
MWHB (pulmonary)	F	64
NWHB (pulmonary)	M	73

Discussion

This is the first time that national data describing in detail the epidemiology of TB has been presented. In Ireland there was a 1.7% increase in the notification rate in 1998 compared to 1997. This was not reflected in the 3 year moving average, which reflects a steady downward trend in the period 1991-1997. However the crude rate has increased in the EHB for the second year running which although not dramatic is a cause for concern.

EuroTB[2] has reported that in European countries with low TB notification rates (<20 cases/100,000), rates were observed to be higher in younger (0-4yrs) than in older (5-14yrs) children. It has been reported that this probably reflects the fact that young children have a much higher risk of developing tuberculosis after infection than older children[5]. This pattern, while observed in the Irish notifications for 1998, was not significant as confidence intervals were overlapping.

As seen in other European countries with notification rates <20/100,000 (Appendix 1) the sharpest increase was observed in those over 65 years. Above age 14 years, rates were higher in males than females in all age groups.

Examination of the notification rates according to culture and sputum smear status reveals that the SHB has the highest culture confirmed rate at 9.3/100,000 but the MWHB with the highest smear positive rate (pulmonary cases) at 5/100,000.

The rate in Ireland compares unfavourably with the low rate experienced in countries such as Norway (4.6/100,000) and Sweden (5.1/100,000) but is lower than countries such as Austria (17/100,000), Czech Republic (17.7/100,000), Germany (13.6/100,000) and Belgium (12.4/100,000).

In several European countries more than 50% of tuberculosis cases were in patients of foreign origin, e.g. Norway, Sweden, Denmark and Switzerland.

Ireland's figure of 8.3% means we have one of the lowest proportions of TB cases in foreign born patients in the EU. However, to allow for the most valid comparison of these proportions, the immigration, notification and screening procedures of different countries need to be compared also.

As reported by the Working Party on Tuberculosis in 1996[3] recent recommendations advise total cessation of routine BCG provided certain basic requirements are in place[6] i.e.

- There is a well functioning Tuberculosis Control Programme

- There has been a reliable reporting system over the previous five or more years, enabling the annual incidence of active tuberculosis by age and risk groups, with particular emphasis on tuberculosis meningitis and sputum smear positive pulmonary tuberculosis.

- Due consideration has been given to the possibility of an increase in the incidence of tuberculosis resulting from the epidemiological situation of AIDS in that country.

Specifically, the following criteria should be fulfilled prior to considering discontinuation of a

BCG Vaccination Programme in a country with a low prevalence of tuberculosis:

- The average annual notification rate of sputum smear positive pulmonary tuberculosis should be 5/100,000 or less during the previous **three** years.

or

- The average annual notification rate of tuberculosis meningitis in children under five years of age should be less than one case per ten million general population over the previous five years.

or

- The average annual risk of tuberculosis infection should be 0.1% or less.

There were no cases of multi-drug resistance in the 1998 TB notifications. This is encouraging and probably reflects a dedication to maintaining compliance with treatment in cases. However to safeguard this and in the context of surveillance of resistance the case for a TB reference laboratory is a strong one.

M. bovis infection was detected in only 6 cases which indicates that this is not a major public health problem in Ireland.

Further developments

The National Disease Surveillance Centre (NDSC), in consultation with the Health Boards and the National Working group on TB, has established an enhanced TB surveillance system in Ireland based on a European minimum data-set [2]. It is called the National TB Surveillance System (NTBSS 2000). The features of NTBSS 2000 consist of:

- A newly designed TB notification form to record individual case data
- An increased emphasis on the collection of outcome data
- An Epi-Info based TB notification database for use at regional (Health Board) level. The layout mirrors that of the TB notification form
- NTBSS 2000 contains all information required by the National Working Group on TB
- NTBSS 2000 will also contain the information required for submission to WHO and EuroTB data-sets
- NTBSS 2000 allows for the analysis of TB data at regional level, the easy transfer of regional TB data to NDSC quarterly and the **feedback** of national TB data from NDSC to Health Boards also on a quarterly basis

NTBSS 2000 is, at this stage of development a regional rather than a community care area

(CCA) based system with one person in each Health Board responsible for collating TB data either on the Epi-Info TB database or on paper, maintaining/co-ordinating the quality of data and "data cleaning". He or she would then send a quarterly report to NDSC (not >2 weeks after end of each quarter) which would contain all new cases and follow-up information on cases already on the system.

NDSC will analyse the quarterly data from each Health Board and **feed back** quarterly and annually to the regions, the National TB working group and the Department of Health and Children. In addition an annual return will be made to WHO and EuroTB.

A Working Group reporting to the National Tuberculosis Committee is to be formed to oversee further developments of NTBSS 2000 as we see it as a continually developing and evolving surveillance system based on the feedback of participants in Ireland and the recommendations concerning TB surveillance from our European partners.

References

[1] EuroTB (1999). Surveillance of Tuberculosis in Europe. Report on tuberculosis cases in 1997.

[2] Rieder H, Watson J, Raviglione M, Forssbohm M, Migliori GB, Schwoebel V et al (1996). Surveillance of tuberculosis in Europe. Recommendations of a Working group of the World Health Organisation (WHO) and the Europe Region of the International Union Against Tuberculosis and Lung Disease (IUATLD) for uniform reporting on tuberculosis cases. Eur Resp J 9:1097-1104.

[3] Report of the Working Party on Tuberculosis. September 1996.

[4] The UK Mycobacterial Resistance Network (1999). MYCOBNET fourth annual report for the period January to December 1997.

[5] Comstock GW, Livesay VT, Woolpert SF (1974). The prognosis of a positive tuberculin reaction in childhood and adolescence. AM J Epidemiol 99:131-138

[6] IUATLD Statement October 7, 1993. Criteria for discontinuation of vaccination programme using Bacille Calmette Guerin (BCG) in countries with a low prevalence of tuberculosis. IUATLD Newsletter: May 1994.

Appendix 1

European countries with notification rates <20/100,000 population

Country	TB notification rate (1997)
Czech Republic	17.7
Austria	17.0
Germany	13.6
Belgium	12.4
Ireland	**11.5**
France	11.4
Finland	11.1
United Kingdom	10.8
Denmark	10.6
Switzerland	10.1
Netherlands	9.4
Luxembourg	9.1
Italy	9.0
Israel	7.2
Sweden	5.1
Norway	4.6
Iceland	3.6
Malta	2.9

Source: EuroTB 1999. Report on tuberculosis cases notified in 1997

Appendix 2

Summary profile of the Epidemiology of TB in Ireland 1998	
Total number of cases	424
Notification rate per 100,000	11.7
New cases	421
Recurrent cases	3
Foreign born TB patients	35
Culture positive cases	241
Smear positive pulmonary cases	121
Cases resistant to isoniazid	2
Cases resistant to rifampicin	0
Cases resistant to ethambutol	0
Cases resistant to streptomycin	2
Multi-drug resistant cases	0

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