

# **Epidemiology of tuberculosis in Northern Ireland**

Annual surveillance  
report 2008

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# Summary

- There were 66 tuberculosis (TB) cases notified in 2008, giving a Northern Ireland rate of 3.7/100,000 population. This contrasts with 69 notifications in 2007 (3.9/100,000).
- The former Eastern Health and Social Services Board (EHSSB) had the highest rates of tuberculosis in 2008.
- Thirty six case (55%) had pulmonary tuberculosis, of which 14 were smear positive.
- There was one notified case of tuberculosis in a child under 15 years in 2008.
- The proportion of patients diagnosed with tuberculosis during 2008 born outside the UK/ Ireland was 53%.
- Of 49 isolates of *M. tuberculosis*, one was resistant to at least rifampicin and isoniazid (multi-drug resistance) and three were resistant to isoniazid only.
- Four healthcare workers were notified with tuberculosis.
- There were two culture confirmed case of *M. bovis*, both had associated risk factors.

# Introduction

In the United Kingdom, clinicians and public health staff work together at local level to collect detailed clinical and demographic information on tuberculosis cases, which is reported to the enhanced surveillance scheme. Clinicians in Northern Ireland, similar to those throughout the UK, are required to notify all cases of tuberculosis to the Director of Public Health.

Notification forms (TBS1) are completed by clinicians, recording all available demographic, clinical, microbiological, histological and epidemiological details. In order to facilitate the export and central collation of data for England, Wales and Northern Ireland, outcome data are collected across these three regions of the UK on a standardised 'Tuberculosis Treatment Outcome Surveillance Form' (TBS2). This form has been customised for Northern Ireland use to facilitate collection of drug treatment and outcome data, together with any additional clinical and/or microbiological information not available at the time of initial notification.

If *M. bovis* infection is identified in a notified patient, an additional questionnaire is completed. This questionnaire collects data on case background information, travel history, un-pasteurised milk/milk product consumption, and occupational details (including animal contact).

This report presents the epidemiological data for tuberculosis cases reported in Northern Ireland from 1 January 2008 to 31 December 2008. As the data collection process can only be completed 12 months after the initial notification, an annual epidemiological report does not normally become available until 18 months after the end of the reporting period. The data provide information for inclusion in national, European and World Health Organization (WHO) reports, as well as for disease surveillance at a local level. Provisional data for 2009 is included where relevant.

This report reflects the health service structures in place during 2008/09, prior to the establishment of the Public Health Agency on 1 April 2009. Reference is made throughout the report to the former Health and Social Services Boards (HSSBs) to allow for comparisons with previous reports. Future reports will be based on the current health service structures and information will be provided by Trust area rather than by Board.

# Definitions

**Notified case:** Refers to clinically active disease caused, or thought to be caused, by infection with organisms of the *Mycobacterium tuberculosis* complex (*M. tuberculosis*, *M. bovis*, *M. africanum*).

**Culture confirmed cases:** Where the diagnosis has been confirmed by culture as *M. tuberculosis*, *M. bovis* or *M. africanum*.

**Other than culture confirmed cases:** In the absence of culture confirmation, a case with “a clinician’s judgement that the patient’s clinical and/or radiological signs and/or symptoms are compatible with tuberculosis *and* a clinician’s decision to treat the patient with a full course of anti-tuberculosis treatment”.<sup>1</sup>

**Pulmonary tuberculosis:** A disease involving the lung parenchyma and/or tracheo-bronchial tree, but which **excludes** pleural and intra-thoracic lymph node disease unless lung parenchyma and/or bronchial tree are also involved.

**Sputum smear result:** Sputum smear positive tuberculosis is defined as a positive microscopy result on spontaneously produced or induced sputum.

**Multi-drug resistance (MDR):** Resistance to at least isoniazid and rifampicin.

# Methods

## Data collection

Completed tuberculosis notification forms are forwarded to CDSC (NI) (now PHA) where the information is entered onto a secure database. Treatment outcome forms are generated and forwarded, approximately nine months after initial notification, to the patients' clinician, who then returns it to CDSC (NI).

Information on *Mycobacterium tuberculosis* complex isolates are obtained from local hospital diagnostic laboratories and the mycobacterial reference laboratory. Collected data include species (*M. tuberculosis*, *M. bovis* and *M. africanum*) and drug susceptibility.

Data on cause of death, including tuberculosis, are also collected from the Northern Ireland Statistics and Research Agency (NISRA).

Datasets are validated (using laboratory reports and anti-microbial susceptibility information), updated and analysed.

## Data analysis

Data are entered and analysed using the Health Protection Agency (HPA) National Enhanced TB Surveillance database. Tuberculosis rates per 100,000 of the population, stratified by age, sex and HSSB, were calculated using the mid-year estimates from NISRA.



# Results

## Overall number of cases and rates of infection

A total of 76 cases was reported through the surveillance scheme in Northern Ireland during 2008. Of these 76 cases, six were laboratory confirmed as an infection with a mycobacterium other than tuberculosis (MOTT), and four other cases were diagnosed as having an illness other than tuberculosis. These 10 patients were de-notified but recorded in the dataset, and excluded from the main analysis, giving a total of 66 cases of tuberculosis notified in 2008 in Northern Ireland. This represents a rate of 3.7/100,000 population, which is slightly lower than 2007 (3.9/100,000).

Follow-up information (treatment outcome forms and/or death certificates) was provided for 62 cases (94%) (Table 1).

**Table 1: Enhanced TB surveillance notification forms submitted in Northern Ireland, 2008**

HSSB	TBS1	Follow-up	Follow-up/TBS2 (%)
EHSSB	29	28	97
NHSSB	14	13	93
SHSSB	12	11	92
WHSSB	11	10	91
<b>Total</b>	<b>66</b>	<b>62</b>	<b>94</b>

Of the 66 notified cases of tuberculosis, 51 (77%) were culture confirmed. Forty nine of the isolates were identified as *M. tuberculosis* and two as *M. bovis*. Fifteen cases were notified on the basis of clinical or non-culture diagnosis and response to anti-tuberculosis therapy. Of these 15 cases, six were confirmed by histological (n=4) or microscopic examination (n=2) of lymph node or lung tissue.

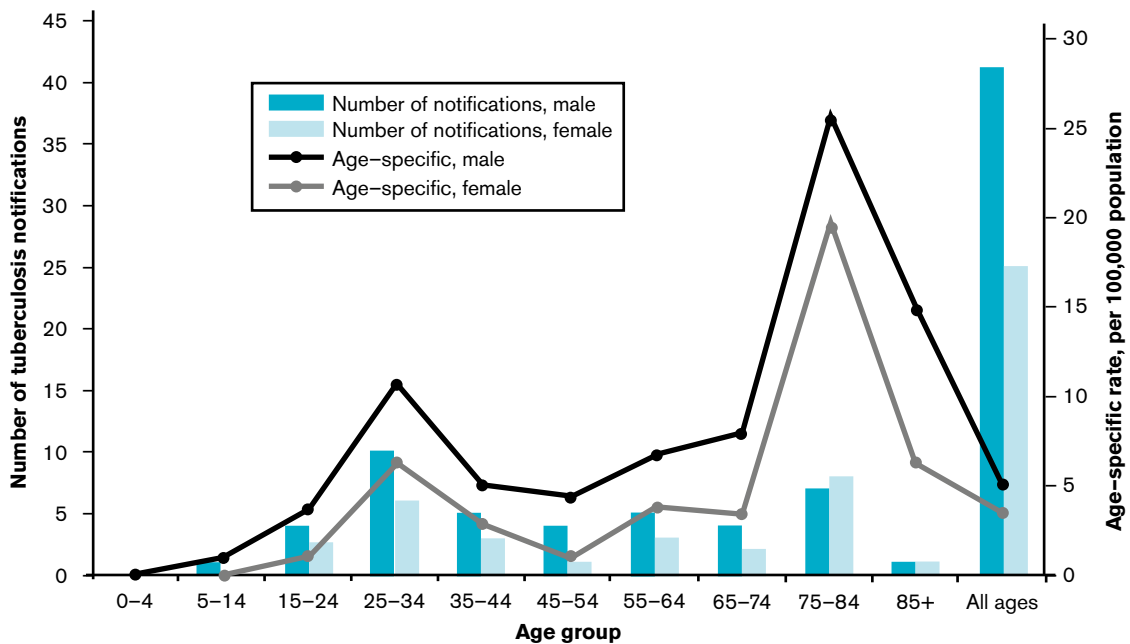
**Table 2: Tuberculosis cases in Northern Ireland, 2008**

HSSB	Culture confirmed	Non-culture confirmed	Total	Rate per 100,000
EHSSB	22	7	29	4.3
NHSSB	12	2	14	3.1
SHSSB	10	2	12	3.4
WHSSB	7	4	11	3.7
<b>Total</b>	<b>51</b>	<b>15</b>	<b>66</b>	<b>3.7</b>

Based on notified cases

Of the 66 tuberculosis cases, 41 were male and 25 were female, giving a sex ratio male/female (M/F) of 1.6 (a decrease on the ratio of 1.9 recorded in 2007). The ages ranged from 14 years to 92 years, with a median of 46 years and a mean of 52 years. The age-sex distribution is shown in Figure 1. The EHSSB had both the highest proportion of cases and the highest incidence rate of tuberculosis (Table 2).

**Figure 1: Notified cases of tuberculosis, by age and sex, and age-specific rates per 100,000 population, Northern Ireland, 2008**



The highest proportion of male cases was recorded in the 25–34 years age group, with the highest proportion of female cases in the 75–84 years age group. Similar to previous years, the highest age-specific rate for both male and female patients occurred in those aged over 75 years (Tables 3a and 3b).

**Table 3a: Rates of notification of tuberculosis per 100,000 population in Northern Ireland by age and sex, 2008**

Age group	Male	Female	Total
0–4	0.0	0.0	0.0
5–14	0.8	0.0	0.4
15–24	3.0	0.8	1.9
25–34	8.5	5.1	6.8
35–44	4.0	2.3	3.1
45–54	3.5	0.9	2.2
55–64	5.4	3.1	4.3
65–74	6.3	2.8	4.4
75–84	20.5	15.7	17.6
85+	11.9	5.1	7.1
<b>Total</b>	<b>4.7</b>	<b>2.8</b>	<b>3.7</b>

**Table 3b: Tuberculosis notifications in Northern Ireland, by age and sex, 2008**

Age group	Male	Female
0–4	0	0
5–14	1	0
15–24	4	1
25–34	10	6
35–44	5	3
45–54	4	1
55–64	5	3
65–74	4	2
75–84	7	8
85+	1	1
<b>Total</b>	<b>41</b>	<b>25</b>

In 2008, the country of birth was recorded for 57 of the 66 notified cases. Twenty seven were known to have been born in the UK/Ireland and 30 were known to have been born elsewhere. Of these 30 cases, 15 were born in Asia (seven in southeast Asia, six in south Asia and two in east Asia), six were born in European countries, six in African countries, one in the Middle East and for two cases, the country of origin was unknown. In the 10 years between 1992 and 2002, an average of 10% of all notified individuals were known to have been born outside the UK/Ireland. This proportion has been steadily increasing, accounting for 26% in 2005, 38% in 2006, 53% in 2007 and of the 57 cases recorded in 2008, 53% were born outside the UK/Ireland.

Information regarding previous tuberculosis infection was recorded for 63 of the 66 notified cases during 2008. Seven individuals (two were born outside the UK and one unknown) aged between 24 and 84 years, with a mean age of 66 and median of 77 years, were reported to have a previous history of tuberculosis. Of these seven cases, time interval data from the current date of onset and the previous tuberculosis infection episode was available for six of the individuals. The time period ranged from four months to 79 years, with an estimated mean of 39 years and a median time interval of 42 years.

## Site of the disease

### Pulmonary tuberculosis cases

Of the 66 notified cases, 36 (55%) were diagnosed with pulmonary tuberculosis and 30 (83%) of the 36 cases were confirmed by culture (28 *M. tuberculosis*, two *M.bovis*). Fourteen (39%) of the 36 pulmonary tuberculosis cases were found to be sputum smear positive at the time of notification and all were, subsequently, confirmed by culture as *M. tuberculosis* (Table 4). This is lower than in 2007, when 55% of pulmonary tuberculosis cases were found to be sputum smear positive.

Provisional data for 2009 indicates that of 42 pulmonary tuberculosis cases, 36 (86%) were culture positive and 14 (33%) were smear positive.

**Table 4: Pulmonary tuberculosis notifications in Northern Ireland by HSSB, 2008**

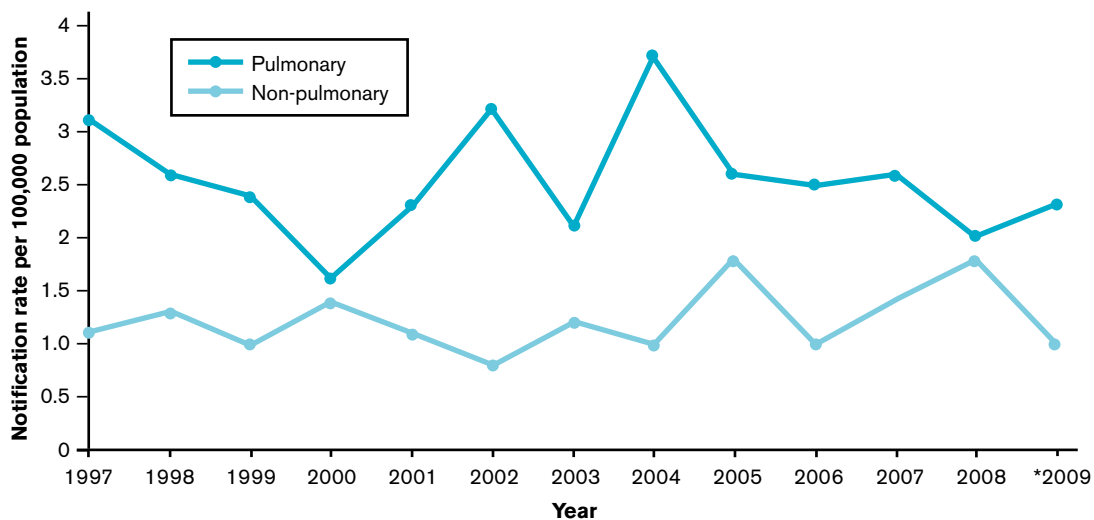
HSSB	Culture confirmed	Non-culture confirmed	Total	Rate per 100,000
EHSSB	15	4	19	2.8
NHSSB	8	1	9	2.0
SHSSB	4	0	4	1.1
WHSSB	3	1	4	1.3
<b>Total</b>	<b>30</b>	<b>6</b>	<b>36</b>	<b>2.0</b>

Sixteen pulmonary tuberculosis cases in 2008 were sputum smear negative at the time of notification. All were subsequently confirmed by culture (*M. tuberculosis*). The outcome of sputum smear testing was not recorded for the remaining six pulmonary tuberculosis cases; however, three of the six were confirmed by culture.

Outcome information was available for 34 (94%) of the 36 pulmonary tuberculosis notifications. Twenty three (64%) are known to have successfully completed a full course of anti-tuberculosis treatment. Three patients were still on treatment at the time of completion of the outcome form. Four patients were lost to follow up and four died soon after treatment commenced. Tuberculosis was cited as the primary cause of death for one of these patients. Treatment outcome forms were not completed for a further two patients.

The annual notification rate for pulmonary tuberculosis in Northern Ireland during 2008 was lower than 2007 (2.6/100,000) at two cases per 100,000 population (Table 4, Figure 2). The provisional rate for 2009 is 2.3/100,000 population.

**Figure 2: Rates of pulmonary and non-pulmonary tuberculosis per 100,000 population, Northern Ireland, by year**



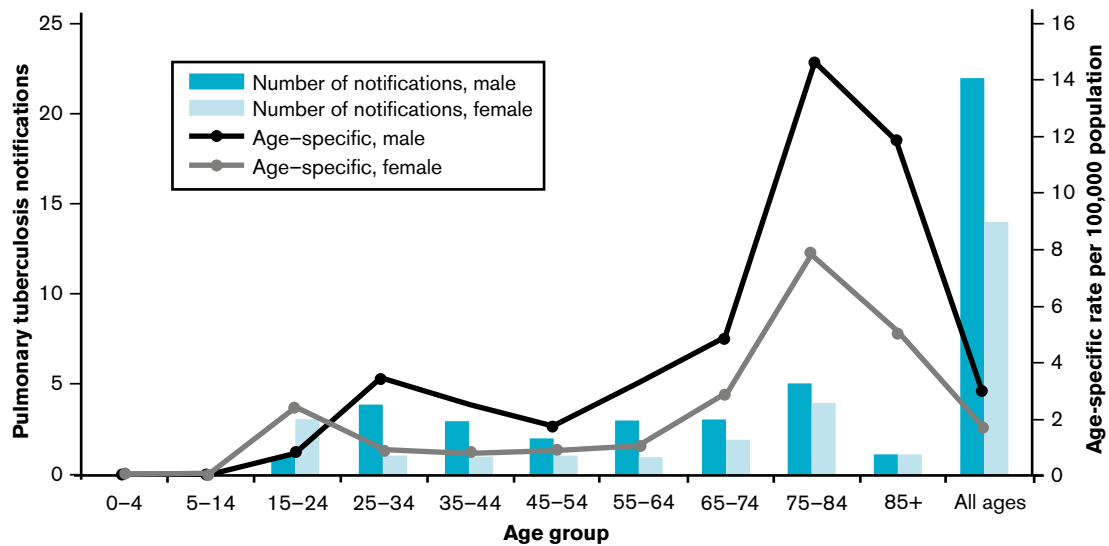
\* 2009 data provisional

Of the 36 pulmonary tuberculosis notified cases, 22 (61%) were male, of which 19 were culture confirmed cases. The remaining 14 cases (39%) were female, of which 11 were culture confirmed cases. The mean and median ages of the 36 cases were 58 and 64 years respectively. The incidence of pulmonary tuberculosis was spread over a wide age range for both men and women (Figure 3). Similar to previous years, the age-sex distribution shows that the highest age-specific rates for pulmonary tuberculosis continue to be recorded in older age groups. During 2008, the highest age-specific rates occurred in the 75–84 year age group, for both men and women (Table 5 and Figure 3).

**Table 5: Rates of notification of pulmonary tuberculosis per 100,000 population by age and sex, Northern Ireland, 2008**

Age group	Male	Female	Total
0–4	0.0	0.0	0.0
5–14	0.0	0.0	0.0
15–24	0.8	2.4	1.5
25–34	3.4	0.8	2.1
35–44	2.4	0.8	1.6
45–54	1.8	0.9	1.3
55–64	3.3	1.0	2.1
65–74	4.7	2.8	3.7
75–84	14.6	7.8	10.6
85+	11.9	5.1	7.1
<b>Total</b>	<b>2.5</b>	<b>1.5</b>	<b>2.0</b>

**Figure 3: Notified cases of pulmonary tuberculosis, by age and sex, and age-specific rates per 100,000 population in Northern Ireland, 2008**



### Non-pulmonary tuberculosis cases

Thirty notifications of non-pulmonary tuberculosis were received during 2008. Twenty one (70%) of these cases were culture confirmed (*M. tuberculosis*). The annual notification rate for non-pulmonary tuberculosis in 2008 was 1.7 cases per 100,000 population, with the Western Health and Social Services Board (WHSSB) and Southern Health and Social Services Board (SHSSB) having the highest incidence rates at 2.4 and 2.3 per 100,000 population, respectively (Table 6a). This is an increase from the figure recorded in 2007, when the annual rate for the WHSSB was two per 100,000 and the SHSSB rate was 1.2 per 100,000 population. However, with smaller numbers of non-pulmonary notifications, fluctuations in rates are to be expected and caution should be exercised when interpreting trends

**Table 6a: Non-pulmonary tuberculosis notifications in Northern Ireland, by HSSB and case definition, 2008**

HSSB	Culture confirmed	Non-culture confirmed	Total	Rate per 100,000
EHSSB	7	3	10	1.5
NHSSB	4	1	5	1.1
SHSSB	6	2	8	2.3
WHSSB	4	3	7	2.4
<b>Total</b>	<b>21</b>	<b>9</b>	<b>30</b>	<b>1.7</b>

**Table 6b: Non-pulmonary tuberculosis site of disease, by category, Northern Ireland, 2008**

Organ/part affected	Number
<b>Lymph nodes</b>	
Intra-thoracic	5
Extra-thoracic	18
<i>All lymph nodes</i>	23
<b>Other sites</b>	
Pleura	4
Bone	4
CNS	2
Miliary	1
Genitourinary	1
Gastrointestinal/peritoneal	1
Pericardial	1
Cutaneous	1
Neck	1
Unknown	1
<i>All other sites</i>	17

\* Numbers are greater than cases due to cases with disease in multiple sites

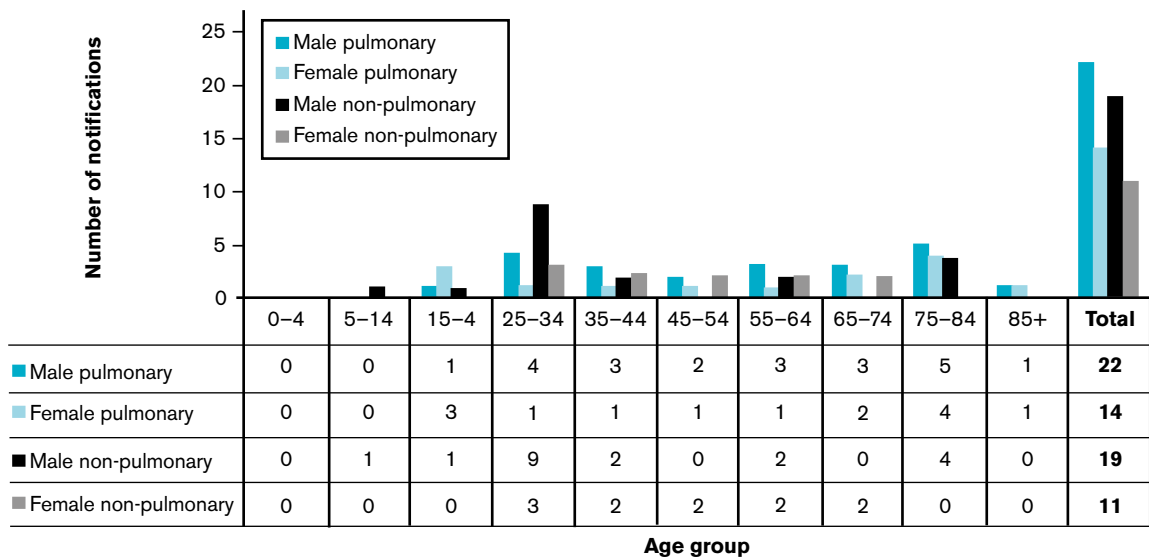
The principal site of disease in non-pulmonary tuberculosis cases was the lymph nodes (Table 6b). Of the 30 non-pulmonary tuberculosis cases notified during 2008, 19 were male and 11 were female, giving a male/female ratio of 1:1.7, compared with a male/female ratio of 1:1.2 in 2007. The ages ranged from 14 to 84 years, with a median of 38 years and a mean of 45 years. The highest age-specific rate for non-pulmonary tuberculosis among males occurred in the 75–84 years age group, and among women, it occurred in the 65–74 years age group (Table 7).

**Table 7: Rates of notification of non-pulmonary tuberculosis in Northern Ireland per 100,000 population by age and sex, 2008**

Age group	Male	Female	Total
0-4	0.0	0.0	0.0
5-14	0.8	0.0	0.4
15-24	0.8	0.0	0.4
25-34	7.7	2.5	5.1
35-44	1.6	1.5	1.6
45-54	0.0	1.7	0.9
55-64	2.2	2.1	2.1
65-74	0.0	2.8	1.5
75-84	11.7	0.0	4.7
85+	0.0	0.0	0.0
<b>Total</b>	<b>2.2</b>	<b>1.2</b>	<b>1.7</b>

The number of notified cases of both pulmonary and non-pulmonary tuberculosis, stratified by age group, can be seen in Figure 4.

**Figure 4: Notified cases of pulmonary and non-pulmonary tuberculosis, by age and sex, in Northern Ireland, 2008**



## Anti-tuberculosis treatment

### Initial therapy

Initial therapy was recorded for 55 (83%) of the 66 tuberculosis patients notified in 2008. As in previous years, the most commonly reported treatment regimen was the concurrent use of the four drugs: rifampicin, isoniazid, pyrazinamide and ethambutol (Table 8a).



**Table 8a: Initial therapies employed for the treatment of tuberculosis in Northern Ireland, 2008**

Initial therapy	Number of cases
Rifampicin/isoniazid/pyrazinamide/ethambutol	51
Rifampicin/isoniazid/ethambutol	2
Other combinations	3

### Continuation therapy

In 2008, continuation therapy was recorded for 52 (79%) of the 66 tuberculosis cases. The majority of cases (87%) were treated with rifampicin and isoniazid (Table 8b).

**Table 8b: Continuation therapies employed for the treatment of tuberculosis in Northern Ireland, 2008**

Continuation therapy	Number of cases
Rifampicin/isoniazid	45
Rifampicin/ethambutol	4
Other combinations	3

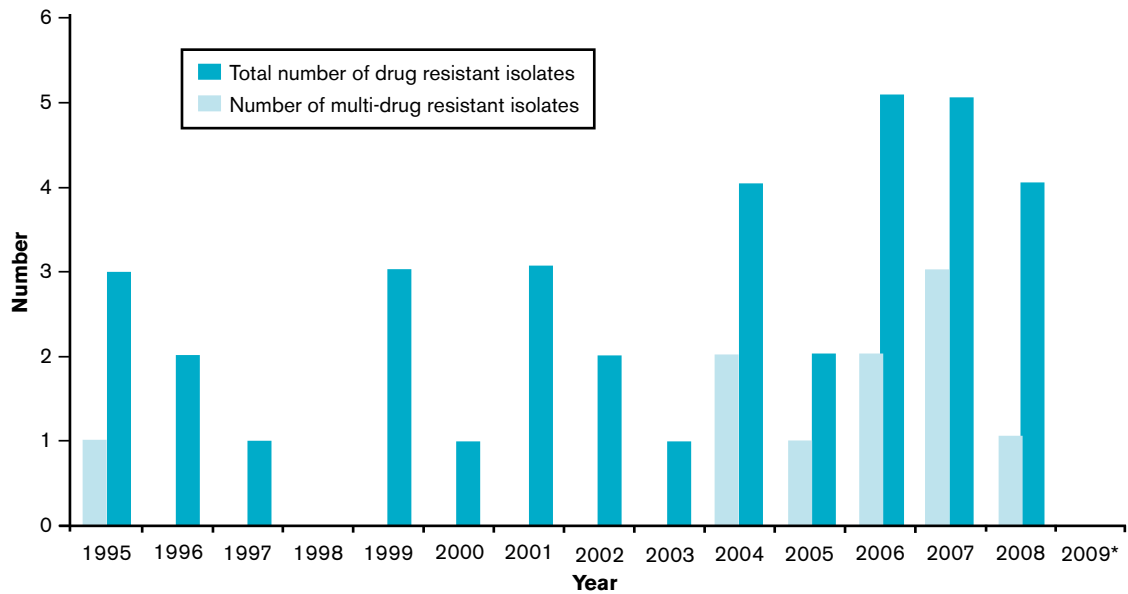
### Surveillance of mycobacterial isolates' susceptibility to anti-tuberculosis drugs

Antimicrobial susceptibility information was received on 49 *M. tuberculosis* isolates, 30 of which were pulmonary. Antimicrobial susceptibility data was also available on both *M. bovis* isolates.

One *M. tuberculosis* pulmonary isolate (sputum positive) was found to be resistant to both isoniazid and rifampicin (MDR). The patient was born outside the UK. An additional *M. tuberculosis* pulmonary and two non-pulmonary isolates were found resistant to isoniazid and, as expected, both *M. bovis* isolates were found to be pyrazinamide resistant.

The number of *M. tuberculosis* drug resistant isolates during 2008 was four, compared with five in 2007 (Figure 5). Additionally both bovis cases were resistant to pyrazinamide. Provisional data for 2009 indicates no resistant isolates, with the exception of an *M. bovis* isolate that has resistance to pyrazinamide. MDR isolates have been reported for each of the years between 2004 and 2008.

**Figure 5: Incidence of drug resistance in isolates of *M. tuberculosis* in Northern Ireland, 1995–2009**

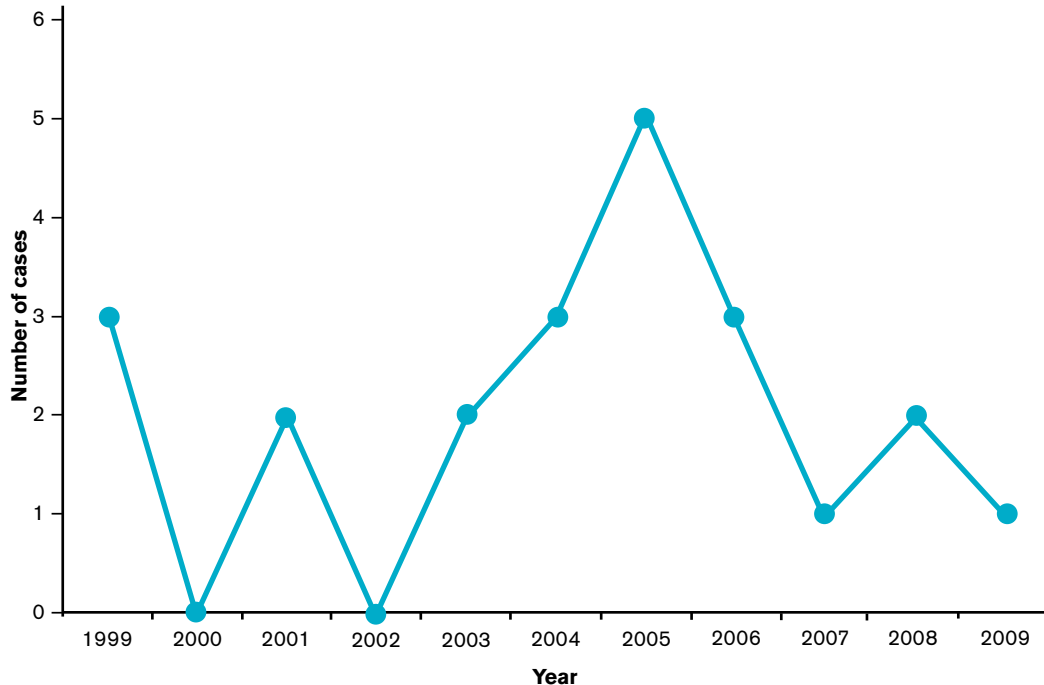


\* 2009 data provisional

Note: excludes *M. bovis* resistant isolates

## Incidence of *M. bovis* infection in Northern Ireland

**Figure 6: Incidence of *M. bovis* infection in Northern Ireland, 1999–2009**



From 1999 to 2008, there were 21 notified cases of *M. bovis* in Northern Ireland, of which 62% (n=13) were pulmonary and 38% (n=8) were non-pulmonary cases (Figure 6).

There were two culture confirmed pulmonary cases of *M. bovis* in 2008; both cases had associated risk factors identified. With the exception of 2005 when there were five cases, the number of *M. bovis* cases in Northern Ireland has averaged two per year.

## Tuberculosis in healthcare workers

In 2008, there were four healthcare workers notified with tuberculosis, approximately 6% of all notified cases. Two cases were pulmonary and the remaining two cases were non-pulmonary. Three cases were born outside the UK and the remaining case was born in the UK. Provisional data for 2009 indicates five healthcare worker notifications, three of which are culture confirmed and all three cases were pulmonary. The proportion of notified cases of tuberculosis in healthcare workers in Northern Ireland can be seen in Table 9.

**Table 9: Number of tuberculosis notifications and proportion (%) of healthcare workers (HCW), 1997–2008**

Year	Total number of cases	Number of HCW cases	%
1997	70	1	1
1998	66	0	0
1999	57	1	2
2000	51	1	2
2001	55	2	4
2002	67	6	9
2003	57	2	4
2004	81	1	1
2005	75	8	11
2006	63	6	10
2007	69	8	12
<b>2008</b>	<b>66</b>	<b>4</b>	<b>6</b>
<b>2009*</b>	<b>59</b>	<b>5</b>	<b>8</b>

Note: There were no HCW cases reported in 1998

\* 2009 data provisional

# Discussion

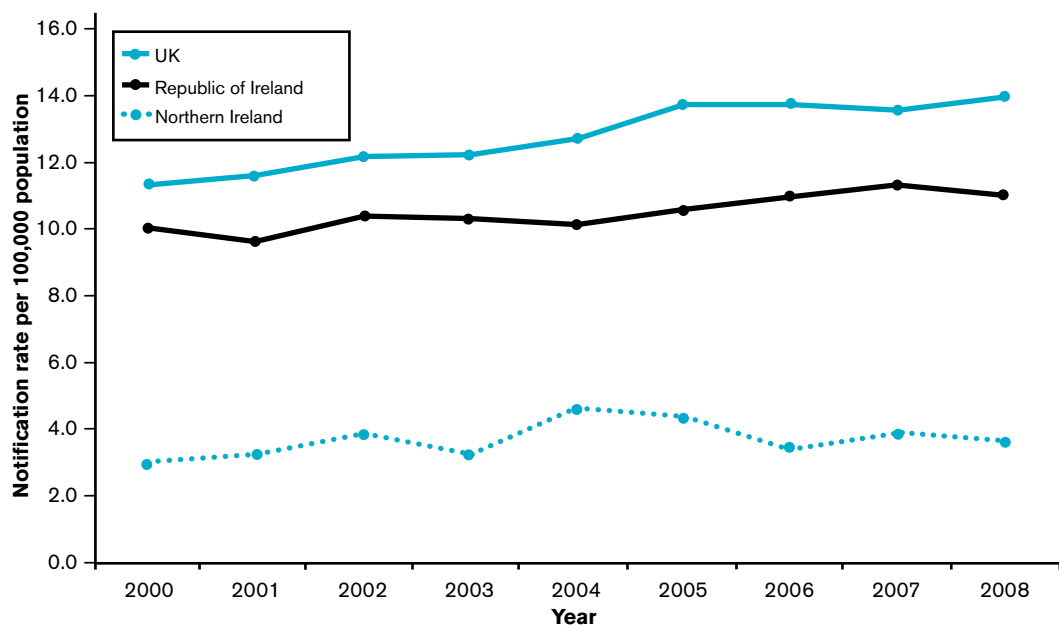
## Enhanced surveillance of tuberculosis in the UK

The overall notification rate for the enhanced surveillance of tuberculosis in the UK has been steadily rising from the late 1980s. In 2000, the rate was 11.4/100,000 population, rising to 14.1/100,000 in 2005 and only slightly fluctuating from this figure in the intervening years, with the rate in 2008 remaining at 14/100,000 (Figure 7).

The 2008 notification rate in Northern Ireland (3.7/100,000) remains low at approximately one quarter of that recorded in the rest of the UK. London still accounts for the highest rate (44.3/100,000) and proportion of cases, accounting for 39% of all cases reported in the UK. In comparison, the lowest regional rate in England was 5.7/100,000 in the South West region.

Provisional data from the Republic of Ireland (ROI) for 2008 indicates a crude notification rate of 11/100,000, which is a slight decrease compared with the rate for 2007 (11.3/100,000). The highest crude incidence rates in ROI were in the Health Service Executive (HSE) eastern region, with a rate of 15.8/100,000. The HSE regions bordering Northern Ireland had lower crude incidence rates (northwest: 5.9/100,000 and northeast: 4.6/100,000).

**Figure 7: Rate of tuberculosis per 100,000 population in the UK (England and Wales), Republic of Ireland and Northern Ireland, 2000–2008**



The number of notifications in Northern Ireland in 2008 (n=66) is slightly lower than in 2007 (n=69). From 1992, when enhanced surveillance of tuberculosis began in Northern Ireland, the notification rate was at its highest in 1994 at 5.3/100,000 population. The lowest rate was in 2000 at 3/100,000 population (Table 10). Provisional analysis for 2009 indicates that the number and rate of notification continues to decrease, with 59 notifications (3.3/100,000).

**Table 10: Number of tuberculosis notifications and rates per 100,000 population, Northern Ireland, 1992–2009**

Year	Number of cases	Rate
1992	71	4.4
1993	77	4.7
1994	87	5.3
1995	84	5.1
1996	78	4.7
1997	70	4.2
1998	66	3.9
1999	57	3.4
2000	51	3.0
2001	55	3.3
2002	67	3.9
2003	57	3.3
2004	81	4.7
2005	75	4.4
2006	61	3.5
2007	69	3.9
<b>2008</b>	<b>66</b>	<b>3.7</b>
<b>2009*</b>	<b>59</b>	<b>3.3</b>

\* 2009 data provisional

### Incidence of tuberculosis in Northern Ireland, by age

In 2000, 53% of tuberculosis notifications were in those aged over 65 years. However, from 2000 to 2005, the proportion of those that were 65 years of age or over at the time of notification fell. By 2002, the figure was 42% and by 2005, it had fallen further to 28%.

The figures for 2006 indicated a slight rise, with 31% of notifications in the over 65 years age group, and this trend continues in both 2007 and 2008, with 35% of cases now in this age group (Table 11a).

The number of cases known to be born outside the UK or Ireland remained similar to 2007 at 53% (Table 11b).

**Table 11a: Mean and median ages of all tuberculosis cases notified, Northern Ireland, 2000–2009**

Year	Total number of cases notified	Age range	Mean age	Median age
2000	51	2–99	61.0	68.0
2001	55	3–92	55.0	58.0
2002	67	2–94	53.8	56.0
2003	57	1–89	52.8	53.0
2004	81	0–90	45.8	51.0
2005	75	0–87	48.5	49.0
2006	61	17–96	53.0	53.5
2007	69	1–88	44.9	39.0
<b>2008</b>	<b>66</b>	<b>14–92</b>	<b>51.6</b>	<b>46.0</b>
<b>2009*</b>	<b>59</b>	<b>6–94</b>	<b>50.0</b>	<b>46.0</b>

\* 2009 data provisional

**Table 11b: Mean and median ages of tuberculosis cases in Northern Ireland known not to have been born in the UK, Republic of Ireland or Northern Ireland, 2000–2009**

Year	Total number of notified cases	Number of cases	Percentage of total cases (%)	Age range	Mean age	Median age
2000	51	4	7.8%	32–43	39	41
2001	55	7	12.7%	27–85	41.7	34
2002	67	9	13.4%	24–49	37.6	38
2003	57	12	21.1%	21–44	34.1	35
2004	81	25	30.9%	19–73	34.1	28
2005	75	19	25.3%	13–65	30.9	27
2006	61	23	37.7%	17–73	33.7	33
2007	69	36	52.9%*	19–46	31.4	30
<b>2008</b>	<b>66</b>	<b>35</b>	<b>52.6%**</b>	<b>23–83</b>	<b>35.0</b>	<b>32.0</b>
<b>2009#</b>	<b>59</b>	<b>24</b>	<b>42.0%***</b>	<b>13–65</b>	<b>37</b>	<b>37</b>

# 2009 data provisional

\* In 2007, the country of birth was not known for one case; % figure based on 68 cases

\*\* In 2008, the country of birth was not known for nine cases; % figure based on 57 cases

\*\*\* In 2008, the country of birth was not known for two cases; % figure based on 57 cases

The average age at the time of notification, for cases known to have been born in the UK or Ireland, continues to remain above 50 years old (Table 11c). The number of cases of tuberculosis from within the UK/Ireland decreased again in 2008; however, the proportion of all cases remained similar to 2007, with an estimated 47% of cases being indigenous cases. Provisional data for 2009 indicates a slight increase in numbers born in the UK or Ireland. The ages of those notified, who were born outside the UK/Ireland, are significantly lower than those born within the UK/Ireland. This continues the trend from previous years.

**Table 11c: Mean and median ages of tuberculosis cases known to be born in the UK, Republic of Ireland or Northern Ireland, 2000–2009**

Year	Total number of notified cases	Number of cases	Percentage of total cases (%)	Age range	Mean age	Median age
2000	51	43	84.3	2–99	64.6	70
2001	55	36	65.5	3–85	57.8	64
2002	67	58	86.6	2–94	56.4	62
2003	57	45	78.9	1–89	57.8	66
2004	81	55	67.9	0–90	51.6	56
2005	75	55	73.3	0–87	54.9	58
2006	61	38	62.3	21–96	64.7	62
2007	69	32	47.0*	1–88	61.3	65
<b>2008</b>	<b>66</b>	<b>27</b>	<b>47.0**</b>	<b>14–92</b>	<b>67.0</b>	<b>74</b>
<b>2009#</b>	<b>59</b>	<b>33</b>	<b>58.0***</b>	<b>6–94</b>	<b>58</b>	<b>64</b>

# 2009 data provisional

\* In 2007, the country of birth was not known for one case; % figure based on 68 cases

\*\* In 2008, the country of birth was not known for nine cases; % figure based on 57 cases

\*\*\* In 2009, the country of birth was not known for two cases; % figure based on 57 cases

## Pulmonary tuberculosis cases in Northern Ireland

The rate of pulmonary tuberculosis notifications in 2008 decreased in comparison with that recorded in 2007 (2.0/100,000 and 2.6/100,000 respectively). The EHSSB had the highest rate at 2.8/100,000 population.

The SHSSB rate was 1.1/100,000 population in 2008, a marked decrease from 2007 when the rate of pulmonary cases was 4.1/100,000, reflecting the small number of pulmonary cases in this area in 2008. However, care should be taken in interpreting any yearly fluctuations due to the small numbers involved.

Rates of pulmonary tuberculosis remained higher in males at 2.5/100,000 than in females at 1.5/100,000 population.

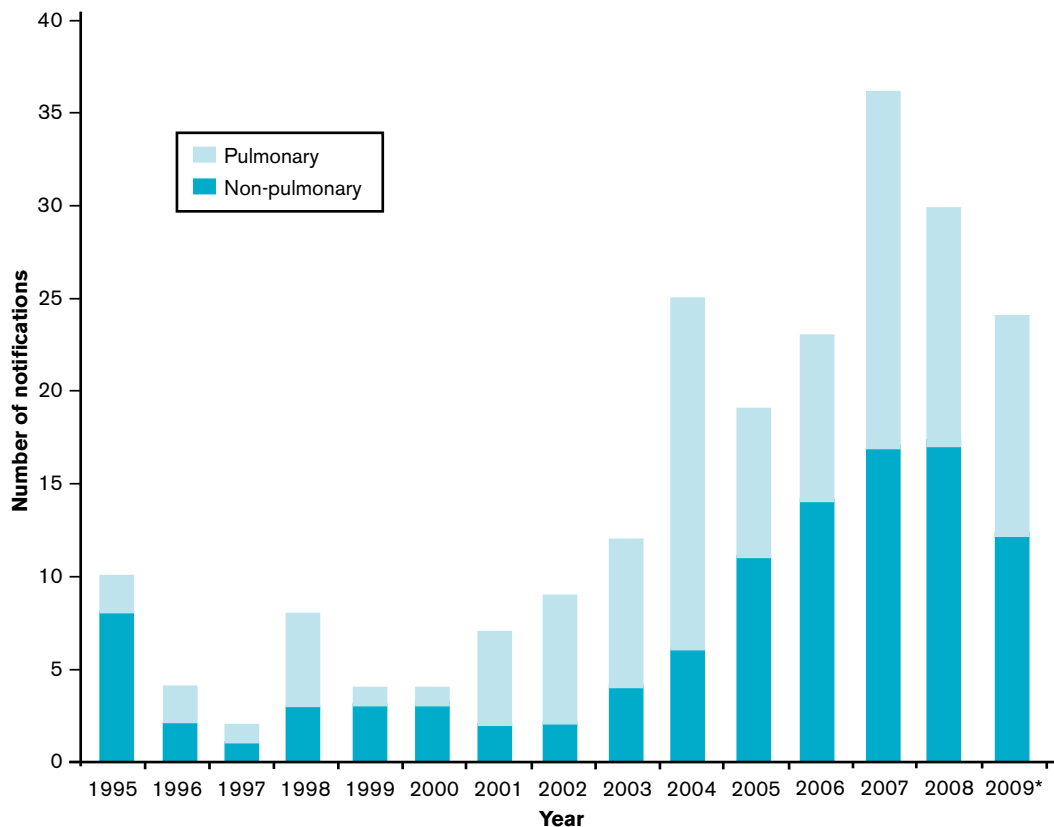
## Tuberculosis in Northern Ireland, by place of birth

The proportion of cases in Northern Ireland known to have been born outside the UK has remained stable. In 2008, 52.6% of notified cases were born abroad (Table 11b). The mean age of cases born outside the UK was 35 years, with a median of 32 years and an age range of 23–80 years. This compares with a mean age of cases born in the UK/Ireland of 67 years, with a median of 74 years and an age range of 14–92 years.

In Northern Ireland during 2008, 30 of the 66 notified cases occurred in individuals born abroad. Thirteen of the 30 cases were notified with pulmonary disease, of which five were both sputum smear and culture positive for *M. tuberculosis*.

The year of first entry into the UK was recorded for 22 of the 30 cases who were born overseas. An estimated seven (32%) of these cases developed the disease within one year or less of entry to the UK. The time interval from UK entry to the onset of symptoms ranged from less than a year to forty years, with a mean of four years and median time period of three years.

**Figure 8: Site of disease in notified tuberculosis cases born outside the UK, Republic of Ireland and Northern Ireland, 1995–2009**



\* 2009 data provisional



## Conclusion

The rate of tuberculosis in 2008 in Northern Ireland remains relatively stable with a slight decrease compared with 2007. The Northern Ireland rate remains significantly lower than that in the Republic of Ireland, England and Wales; however, rates continue to remain high within the UK overall. The number of notified cases among non-UK born individuals continues to remain slightly higher than the indigenous cases, however, future trends will be continue to be influenced by immigration patterns.

The proportion of cases with extra-pulmonary tuberculosis continues to increase, with nearly half of all cases in 2008 presenting with disease affecting an extra-pulmonary site. The majority of these cases occurred in non-UK born individuals.

The proportion of pulmonary cases in which the diagnosis is confirmed by culture was 83%, with the proportion confirmed by culture in both pulmonary and non-pulmonary cases being 77%.

The completeness of treatment outcome forms remains good at 94%. Ideally, however, all notified tuberculosis cases should have a treatment outcome reported.

## References

1. 2008/426/EC: Commission Decision of 28 April 2008 amending Decision 2002/253/EC laying down case definitions for reporting communicable diseases to the Community network under Decision No 2119/98/EC of the European Parliament and of the Council (notified under document number C(2008) 1589). OJ L159/46, 18.06.2008.

## Further reading

Tuberculosis in the UK. Annual report on tuberculosis surveillance in the UK 2008. London: Health Protection Agency Centre for Infections, 2008.

Epidemiology of tuberculosis in Northern Ireland: annual surveillance report 2006. Health Protection Agency, 2009.

Provisional report on 2007 TB data in Ireland. A report by the health protection surveillance centre, Ireland. 2008.

[www.hpsc.ie/hpsc/A-Z/VaccinePreventable/TuberculosisTB/SurveillanceReports/](http://www.hpsc.ie/hpsc/A-Z/VaccinePreventable/TuberculosisTB/SurveillanceReports/)



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