



## **National TB Surveillance**

**A report by the Health Protection Surveillance Centre**

### **Quarter 1 2016 TB Report**

Report produced 20<sup>th</sup> May 2016<sup>\*</sup>

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<sup>\*</sup> The data in this report are provisional and will not be regarded as final until all notification data on individual cases are complete and the data have been validated.  
Data extracted from CIDR 17/05/2016

## Introduction

This Quarter 1 2016 TB Report presents an epidemiological summary of the cases of tuberculosis (TB) notified to eight HSE areas in Ireland during January - March 2016.

HPSC produces a quarterly TB report using data submitted to it by HSE areas after the end of each quarter. Quarterly returns from the areas consist of disaggregate data on new TB notifications and some additional data on notified TB cases from previous years. **Data in quarterly reports should be regarded as provisional until a process of validation has been completed at the end of that notification year.** Quarterly reports will invariably have incomplete data on cases until this process of validation has occurred.

## Summary

During Quarter 1 2016:

- 86 TB cases<sup>†</sup> were notified to HPSC
- HSE East reported the highest number of cases at 38 (44.2% of total)
- The male to female ratio was 1.3:1.0
- The highest proportion of cases occurred in those aged 65 years and older (23.3%)
- 37.2% of cases were born in Ireland, 36.0% were foreign born and 26.7% did not report country of birth
- No cases of TB meningitis were notified
- 51 cases (59.3%) were culture positive, three (3.5%) were culture negative and one (1.2%) was reported as not having been culture tested (table 9). Culture result was not reported for the remaining 31 cases (36.0%).
- *M. tuberculosis* was isolated in 44 (86.3%) and *M. tuberculosis* complex<sup>‡</sup> in five (9.8%) and *M. bovis* in two (3.9%).
- 43 (84.3%) culture positive cases had drug sensitivity details
- Resistance was reported in five cases, including two MDR-TB cases
- HIV status was reported for 25 (29.1%) TB cases, all of whom tested negative
- Four TB outbreaks were reported during this period

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<sup>†</sup> Data in quarterly reports should be regarded as provisional until a process of validation has been completed at the end of that notification year.

<sup>‡</sup> Species of mycobacteria not specified

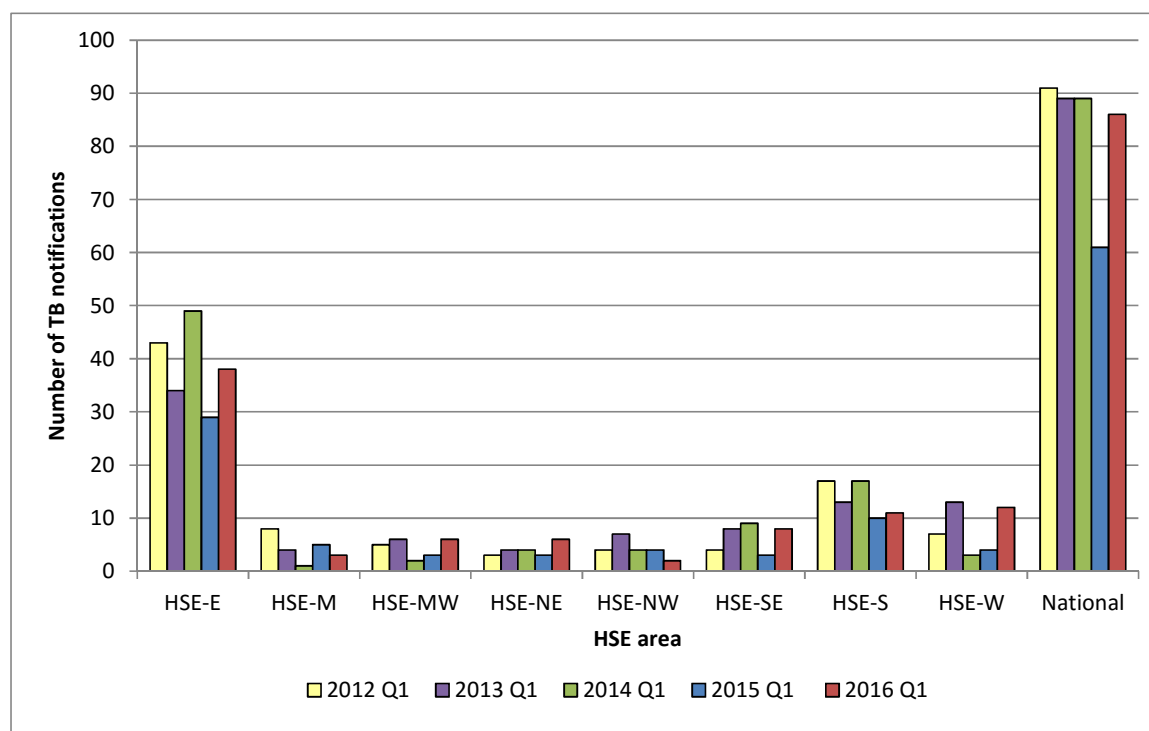
## Results

### Total cases of tuberculosis notified in Q1 2016

There were 86 cases of TB notified during the period 1<sup>st</sup> January to 31<sup>st</sup> March 2016. The number of cases notified in each HSE area is shown in table 1 and figure 1 and a breakdown of TB cases by county is shown in table 2. Table A1, appendix 1 displays the number of TB notifications, 3 year moving average and crude incidence rate by year.

**Table 1: Number and percentage of TB notifications by HSE area, Q1 2016**

HSE Area	Quarter 1	% Total
East	38	44.2
Midland	3	3.5
Mid-West	6	7.0
North East	6	7.0
North West	2	2.3
South East	8	9.3
South	11	12.8
West	12	14.0
<b>Total</b>	<b>86</b>	<b>100.0</b>



**Figure 1: Number of TB notifications by HSE area, Q1 2012-2016**

**Table 2: Number and percentage of TB notifications by county, Q1 2016**

County	Number of TB Cases	% Total
Carlow	2	2.3
Cavan	3	3.5
Clare	1	1.2
Cork	7	8.1
Dublin	34	39.5
Galway	6	7.0
Kerry	4	4.7
Kildare	2	2.3
Kilkenny	3	3.5
Leitrim	1	1.2
Limerick	5	5.8
Longford	1	1.2
Louth	1	1.2
Mayo	4	4.7
Meath	2	2.3
Roscommon	2	2.3
Sligo	1	1.2
Tipperary	1	1.2
Waterford	1	1.2
Westmeath	2	2.3
Wexford	1	1.2
Wicklow	2	2.3
<b>Total</b>	<b>86</b>	<b>100.0</b>

A further breakdown of cases by community care area is shown in table 3.

Table 3: Number and percentage of TB notifications by LHO, Q1 2016

HSE Area	LHO	Number of TB Cases
East	CCA1	4
	CCA2	1
	CCA3	5
	CCA4	2
	CCA5	6
	CCA6	7
	CCA7	5
	CCA8	4
	CCA9	2
	CCA10	2
	<b>Total</b>	<b>38</b>
Midland	Longford/Westmeath	3
	Laois/Offaly	0
	<b>Total</b>	<b>3</b>
Mid-West	Clare	1
	Limerick	5
	Tipperary North/East Limerick	0
	<b>Total</b>	<b>6</b>
North East	Cavan	3
	Louth/South Monaghan	1
	Meath	2
	Monaghan	0
	<b>Total</b>	<b>6</b>
North West	Donegal	0
	Sligo/Leitrim	2
	<b>Total</b>	<b>2</b>
South East	Carlow/Kilkenny	5
	Tipperary South	1
	Waterford	1
	Wexford	1
	<b>Total</b>	<b>8</b>
South	Kerry	4
	North Cork	0
	North/South Lee	7
	West Cork	0
	<b>Total</b>	<b>11</b>
West	Galway	6
	Mayo	4
	Roscommon	2
	<b>Total</b>	<b>12</b>
<b>Ireland</b>		<b>86</b>

## Sex

There were 37 females (43.0%) and 49 males (57.0%), corresponding to a male to female ratio of 1.3:1.

## Age groups

A breakdown of cases by age group and HSE area is shown in table 4.

**Table 4: Number and percentage of TB notifications by age group and HSE area, Q1 2016**

Age group (years)	HSE-E	HSE-M	HSE-MW	HSE-NE	HSE-NW	HSE-SE	HSE-S	HSE-W	Total	% Total
0-4	0	0	0	0	0	0	0	0	<b>0</b>	0.0
5-9	1	0	1	0	0	0	0	1	<b>3</b>	3.5
10-14	1	0	1	0	0	0	0	0	<b>2</b>	2.3
15-19	0	0	0	0	0	0	0	0	<b>0</b>	0.0
20-24	2	0	0	0	0	0	1	1	<b>4</b>	4.7
25-34	10	0	1	0	0	0	1	3	<b>15</b>	17.4
35-44	8	0	1	0	0	1	2	2	<b>14</b>	16.3
45-54	2	0	2	1	0	2	1	2	<b>10</b>	11.6
55-64	6	1	0	2	1	2	4	2	<b>18</b>	20.9
65+	8	2	0	3	1	3	2	1	<b>20</b>	23.3
Unknown	0	0	0	0	0	0	0	0	<b>0</b>	0.0
<b>Total</b>	<b>38</b>	<b>3</b>	<b>6</b>	<b>6</b>	<b>2</b>	<b>8</b>	<b>11</b>	<b>12</b>	<b>86</b>	100.0

## Country of origin

During Q1 2016, 32 (37.2%) TB cases were born in Ireland and 31 (36.01%) were born outside Ireland. Country of birth was not reported for 23 cases (26.7%) cases. Table 5 summarises the countries of birth of cases.

Of those 31 cases born outside Ireland, four (12.9%) were reported as asylum seekers or refugees (one each from HSE-E and –S, and two from HSE-MW). Figure 2 shows the annual number of TB cases by geographic origin from 2011 to Q1 2016.

**Table 5: Number and percentage of TB notifications by country of birth, Q1 2016**

Country of Birth	Number of TB Cases	% Total
Ireland	32	37.2
Afghanistan	2	2.3
Bangladesh	1	1.2
China	2	2.3
Georgia	1	1.2
Germany	1	1.2
India	4	4.7
Latvia	1	1.2
Malawi	1	1.2
Nigeria	1	1.2
Norway	1	1.2
Pakistan	7	8.1
Philippines	2	2.3
Poland	2	2.3
Romania	4	4.7
Spain	1	1.2
Not specified	15	17.4
Unknown	8	9.3
<b>Total</b>	<b>86</b>	<b>100.0</b>

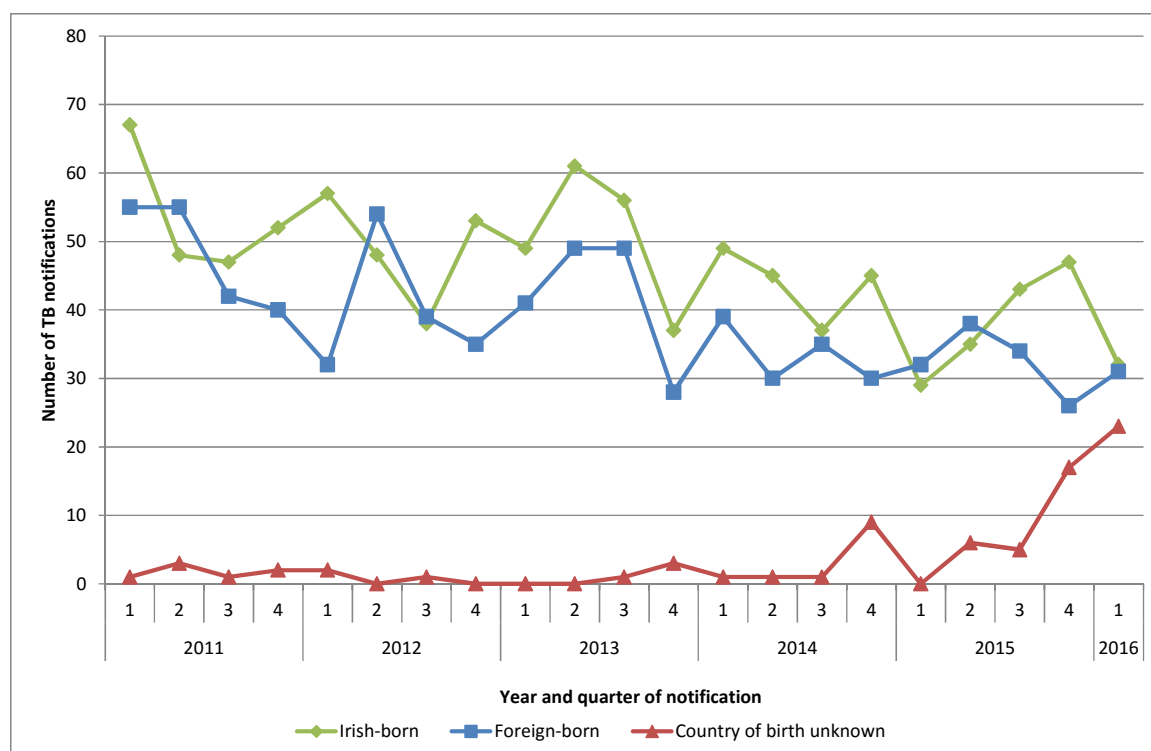


Figure 2: Number of TB notifications by year and quarter of notification and geographic origin, 2011-Q1 2016

### Case ascertainment

Table 6 summarises the method by which reported cases were detected.

Table 6: Number and percentage of TB notifications by method of case finding, Q1 2016

Found by	Number of TB Cases	% Total
Presenting as case	53	61.6
Contact tracing	3	3.5
Immigrant screening	1	1.2
Post-mortem diagnosis	1	1.2
Pre-employment screening	0	0.0
Other	3	3.5
Not reported	25	29.1
<b>Total</b>	<b>86</b>	<b>100.0</b>



## Diagnostic categories

Cases are classified into one of three diagnostic categories based on the site of disease. Table 7 summarises the available data for each HSE area.

**Table 7 Number and percentage of TB notifications by diagnostic type and HSE area, Q1 2016**

HSE area	Pulmonary	Pulmonary & Extrapulmonary (P+E)	Extrapulmonary	Not reported	Total
HSE-E	24	1	11	2	<b>38</b>
HSE-M	1	0	0	2	<b>3</b>
HSE-MW	2	1	3	0	<b>6</b>
HSE-NE	4	0	2	0	<b>6</b>
HSE-NW	1	0	1	0	<b>2</b>
HSE-SE	4	3	1	0	<b>8</b>
HSE-S	8	1	2	0	<b>11</b>
HSE-W	8	0	4	0	<b>12</b>
<b>Total</b>	<b>52</b>	<b>6</b>	<b>24</b>	<b>4</b>	<b>86</b>
<b>%</b>	<b>60.5</b>	<b>7.0</b>	<b>27.9</b>	<b>4.7</b>	<b>100.0</b>

Thirty cases (34.9%) had an extra-pulmonary disease component reported (table 8).

**Table 8: Number and percentage of TB notifications by extrapulmonary site of disease, Q1 2016**

Extrapulmonary sites	Number of TB cases	% Total
Pleural	8	26.7
Disseminated	2	6.7
Lymphatic intrathoracic	2	6.7
Spine	2	6.7
Bone/joint other than spine	1	3.3
Central nervous system other than meningitis	1	3.3
Genito-urinary	1	3.3
Lymphatic extrathoracic	1	3.3
Other	5	16.7
Not reported	7	23.3
<b>Total</b>	<b>30</b>	<b>100.0</b>

## TB meningitis

No cases of TB meningitis were reported during Q1 2016.

## Microbiological results:

### *Sputum-smear status - first sample*

Of the 58 cases with a pulmonary component reported, 26 (44.8%) were sputum smear positive at diagnosis. Eleven of these cases (42.3%) reported a second sputum smear positive result.

### *Culture – first sample and isolates*

In Q1 2016, 51 cases (59.3%) were culture positive, three (3.5%) were culture negative and one (1.2%) was reported as not having been culture tested (table 9). Culture result was not reported for the remaining 31 cases (36.0%).

Of the 51 culture positive cases, *M. tuberculosis* was isolated in 44 (86.3%) and *M. tuberculosis* complex<sup>§</sup> in five (9.8%) and *M. bovis* in two (3.9%).

**Table 9: Number and percentage of TB notifications by first culture result and HSE area, Q1 2016**

Culture	HSE E	HSE M	HSE MW	HSE NE	HSE NW	HSE SE	HSE S	HSE W	Total	% Total
Culture positive	20	1	4	3	2	6	9	6	<b>51</b>	<b>59.3</b>
Culture negative	1	0	0	0	0	0	1	1	<b>3</b>	<b>3.5</b>
Not done	1	0	0	0	0	0	0	0	<b>1</b>	<b>1.2</b>
Not reported	16	2	2	3	0	2	1	5	<b>31</b>	<b>36.0</b>
<b>Total</b>	<b>38</b>	<b>3</b>	<b>6</b>	<b>6</b>	<b>2</b>	<b>8</b>	<b>11</b>	<b>12</b>	<b>86</b>	<b>100.0</b>

### *MIRU VNTR results*

Of the 51 culture positive cases, MIRU-VNTR typing results were reported for 34 cases (66.7%). Of the 34 typed isolates, all were unique within this quarter.

### *Antibiotic resistance*

Of the 51 culture positive cases reported, 43 (84.3%) had drug sensitivity details completed. Resistance was reported in five cases (11.6% of 43 cases with drug sensitivity data reported and 5.8% of total cases reported).

*Mycobacterium tuberculosis* was isolated in three resistant cases, *M. bovis* is one case and the remaining resistant case was reported as *M. tuberculosis* complex. All five resistant cases were foreign-born, one of whom reported a previous history of TB. (table 10).

Of the five resistant cases, two were multidrug-resistant (MDR) TB<sup>\*\*</sup>, one of whom reported a previous history of tuberculosis.

No XDR-TB cases were reported during this period.

<sup>§</sup> Species of mycobacteria not specified

<sup>\*\*</sup> MDR TB is defined as a TB case resistant to at least isoniazid and rifampicin with or without resistance to ethambutol and streptomycin.

**Table 10: Sensitivity results of drug resistant TB cases in Ireland, Q1 2016**

Isolate	Isoniazid sensitivity	Rifampicin sensitivity	Ethambutol sensitivity	Pyrazinamide sensitivity	Streptomycin sensitivity	Previous history of TB disease	Born outside Ireland	Age group (years)
<i>M. bovis</i>	S	S	S	n/a	R	No	FB	35-44
<i>M. tb</i>	R	R	R	R	R	No	FB	35-44
<i>M. tb</i>	R	S	S	S	S	No	FB	25-34
<i>M. tb</i>	R	S	R	S	R	Unk	FB	25-34
<i>M. tb</i> complex	R	R	Unk	Unk	Unk	Yes	FB	55-64

### Chest X-ray

Thirty-three cases with a pulmonary component (56.9% of pulmonary cases) had X-ray findings consistent with active pulmonary TB (table 11).

**Table 11: Chest X-ray results of TB cases with a pulmonary component, Q1 2016**

Chest X-ray	Number of TB cases	% Total
Active Cavitary TB	17	29.3
Active Non-cavitary TB	16	27.6
Pleural	3	5.2
Other	1	1.7
Inactive/Old TB	2	3.4
Normal	3	5.2
No reported	16	27.6
<b>Total</b>	<b>58</b>	<b>100.0</b>

### Previous history

Four cases (4.7% of total reported) had a previous history of TB. Two of these cases were born outside Ireland. Year of previous diagnosis ranged from 1956 to 2002 for these cases.

### HIV status

HIV status was reported for 25 TB cases, all of whom tested negative for HIV (29.1% of total cases).

### Outcome

Two deaths were reported during Q1 2016. Neither death had TB reported as the cause of death.

## Outbreaks<sup>††</sup>

Four TB outbreaks were reported to HPSC during this period. These outbreaks comprised 16 cases of active TB, 13 of whom were hospitalised. No cases of latent TB infection were reported for these outbreaks.

Two outbreaks were family outbreaks, one of which occurred in a private house and one occurred across an extended family. These family outbreaks occurred in HSE-E and –S.

Two outbreaks were general outbreaks occurring in a community setting in HSE-W and –NW.

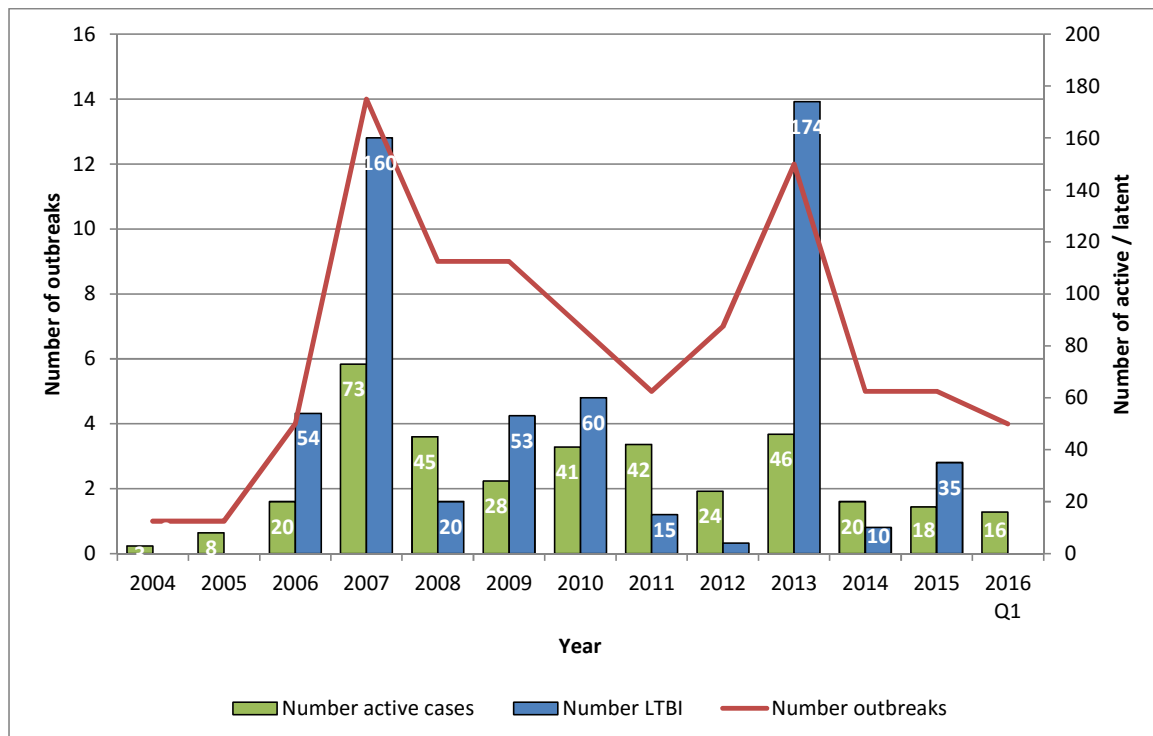


Figure 3: TB outbreak summary by year, 2004-2016

<sup>††</sup> Outbreak data taken from CIDR on 14/05/2014

## Appendix 1:

**Table A1: TB notifications, 3 year moving average and crude incidence rate by year**

Year	Number of cases	3 year moving average - Cases	Crude rate per 100,000 population
1991	640		18.2
1992	604	612	17.1
1993	598	581	17.0
1994	524	526	14.5
1995	458	469	12.6
1996	434	436	12.0
1997	416	423	11.5
1998	424	433	11.7
1999	469	439	12.9
2000	395	410	10.1
2001	381	392	9.7
2002	410	402	10.5
2003	406	413	10.4
2004	433	430	10.2
2005	448	448	10.6
2006	463	464	10.9
2007	481	473	11.3
2008	467	474	11.0
2009	479	461	10.4
2010	420	433	9.2
2011	413	403	9.0
2012	364	376	7.8
2013	372	354	8.1
2014	311	327	6.8
2015*	312		6.8