



## **National TB Surveillance**

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

### **Quarter 1 & 2 2016 TB Report**

Report produced 18<sup>th</sup> August 2016\*

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\* 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 09/08/2016

## Introduction

This Quarter 1 and 2 2016 TB Report presents an epidemiological summary of the cases of tuberculosis (TB) notified to eight HSE areas in Ireland during January - June 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 and 2 2016:

- 186 TB cases<sup>†</sup> were notified to HPSC
- HSE East reported the highest number of cases 84 (45.2% of total)
- The male to female ratio was 1.4:1
- The highest proportion of cases occurred in those aged 25-34 years (20.4%) and in those aged 65 years and older (19.9%)
- 40.3% of all cases were foreign born
- No cases of TB meningitis were notified
- 126 cases (67.7%) were culture positive, 13 (7.0%) were culture negative and three (1.6%) were reported as not having been culture tested (table 9). Culture result was not reported for the remaining 44 cases (23.7%).
- *M. tuberculosis* was isolated in 121 (96.0%), *M. tuberculosis* complex<sup>‡</sup> in three (2.4%) and one each (0.8%) were *M. africanum* and *M. bovis*
- 109 (86.5%) culture positive cases had drug sensitivity details
- 3 cases of multidrug-resistant TB (MDR-TB) were notified for this period.
- No XDR-TB cases were reported during this period
- HIV status was reported for 61 (32.8%) TB cases
- Four 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 and 2 2016

There were 186 cases of TB notified during the period 1<sup>st</sup> January to 30<sup>th</sup> June 2016. Figure 1 illustrates the trend the number of TB notifications by HSE from Q1-2 2012 to Q1-2 2016. The number of cases notified in each HSE area and LHO is shown in table 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.

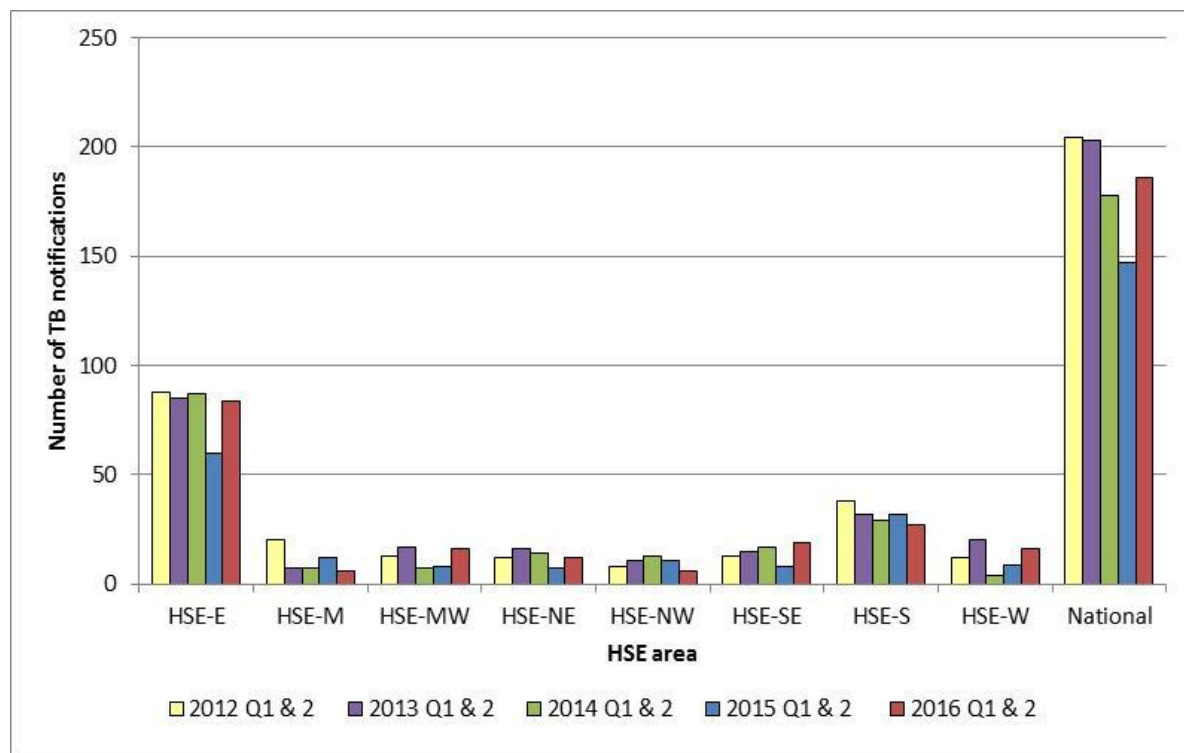


Figure 1: Number of TB notifications by HSE area, Q1 & Q2 2012-2016

**Table 1: Number and percentage of TB notifications by HSE and LHO, Q1 & Q2 2016**

HSE Area	Number of TB cases	% of Total	LHO	Number of TB cases
East	84	45.2	Dublin South	7
			Dublin South East	6
			Dublin South City	5
			Dublin South West	6
			Dublin West	3
			Dublin North West	10
			Dublin North Central	15
			Dublin North	14
			Kildare/West Wicklow	9
			Wicklow	9
Midland	6	3.2	Longford/Westmeath	3
			Laois/Offaly	3
Mid-West	16	8.6	Clare	6
			Limerick	9
			Tipperary Nth/E Limerick	1
North East	12	6.5	Cavan	4
			Louth	5
			Meath	3
			Monaghan	0
North West	6	3.2	Donegal	1
			Sligo/Leitrim	5
South East	19	10.2	Carlow/Kilkenny	10
			Tipperary South	1
			Waterford	5
			Wexford	3
South	27	14.5	Kerry	3
			North Cork	4
			North/South Lee	19
			West Cork	1
West	16	8.6	Galway	9
			Mayo	4
			Roscommon	3
<b>Ireland</b>	<b>186</b>	<b>100.0</b>	<b>Total</b>	<b>186</b>

**Table 2: Number and percentage of TB notifications by county, Q1 & Q2 2016**

County	Number of TB Cases	% Total
Carlow	4	2.2
Cavan	4	2.2
Clare	6	3.2
Cork	24	12.9
Donegal	1	0.5
Dublin	69	37.1
Galway	9	4.8
Kerry	3	1.6
Kildare	9	4.8
Kilkenny	6	3.2
Laois	3	1.6
Leitrim	2	1.1
Limerick	9	4.8
Longford	1	0.5
Louth	5	2.7
Mayo	4	2.2
Meath	3	1.6
Roscommon	3	1.6
Sligo	3	1.6
Tipperary	2	1.1
Waterford	5	2.7
Westmeath	2	1.1
Wexford	3	1.6
Wicklow	6	3.2
<b>Total</b>	<b>186</b>	<b>100.0</b>

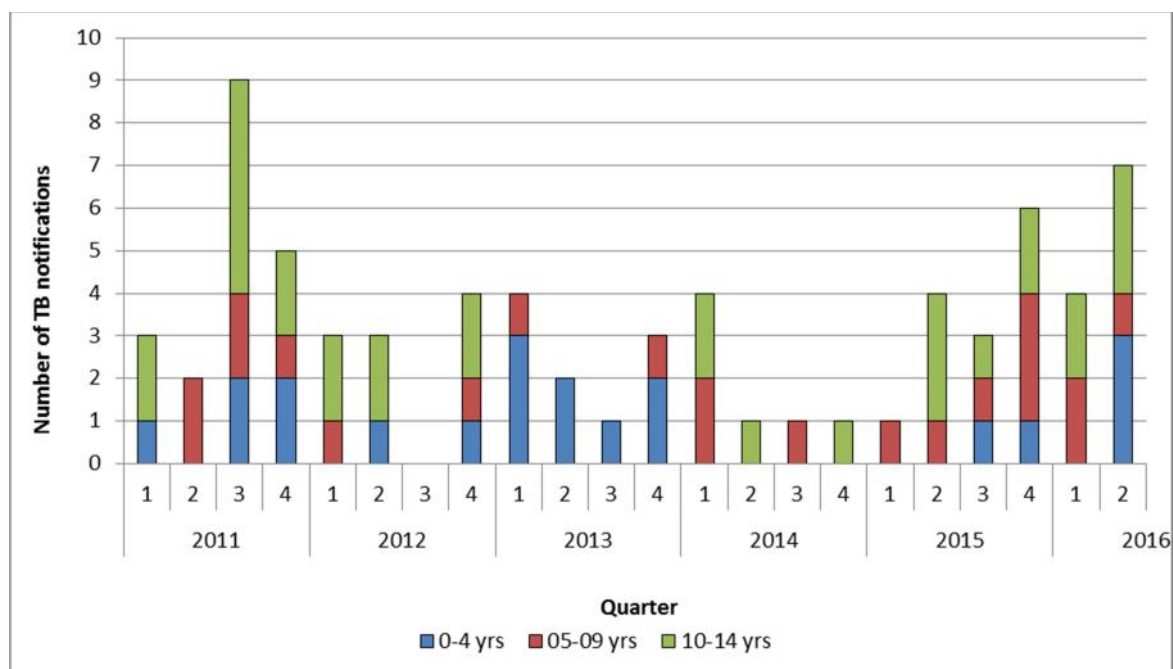
## Age groups

A breakdown of cases by age group and HSE area is shown in table 3 while figure 2 displays the trend in the 0-14 year age group by year.

**Table 3: Number and percentage of TB notifications by age group and HSE area, Q1 & Q2 2016**

Age group (years)	HSE-E	HSE-M	HSE-MW	HSE-NE	HSE-NW	HSE-SE	HSE-S	HSE-W	Total	% Total
0-4					1		2		3	1.6
5-9	1		1					1	3	1.6
10-14	2	1	1				1		5	2.7
15-19	1		1	1					3	1.6
20-24	10						2	1	13	7.0
25-34	23	1	3	1	1	3	3	3	38	20.4
35-44	12		3	2		2	5	6	30	16.1
45-54	11	1	4	2		5	3	2	28	15.1
55-64	10	1		2	1	3	7	2	26	14.0
65+	14	2	3	4	3	6	4	1	37	19.9
Unknown	0	0	0	0	0	0	0	0	0	0.0
<b>Total</b>	<b>84</b>	<b>6</b>	<b>16</b>	<b>12</b>	<b>6</b>	<b>19</b>	<b>27</b>	<b>16</b>	<b>186</b>	<b>100.0</b>

During Q1-2 2016, 6 cases (54.5%) in the 0-14 year age group were born outside Ireland.



**Figure 2: Number of notifications in 0-14 year age group by quarter and year**

## Sex

There were 79 females (42.5%) and 107 males (57.5%) in Q1 and 2 2016.

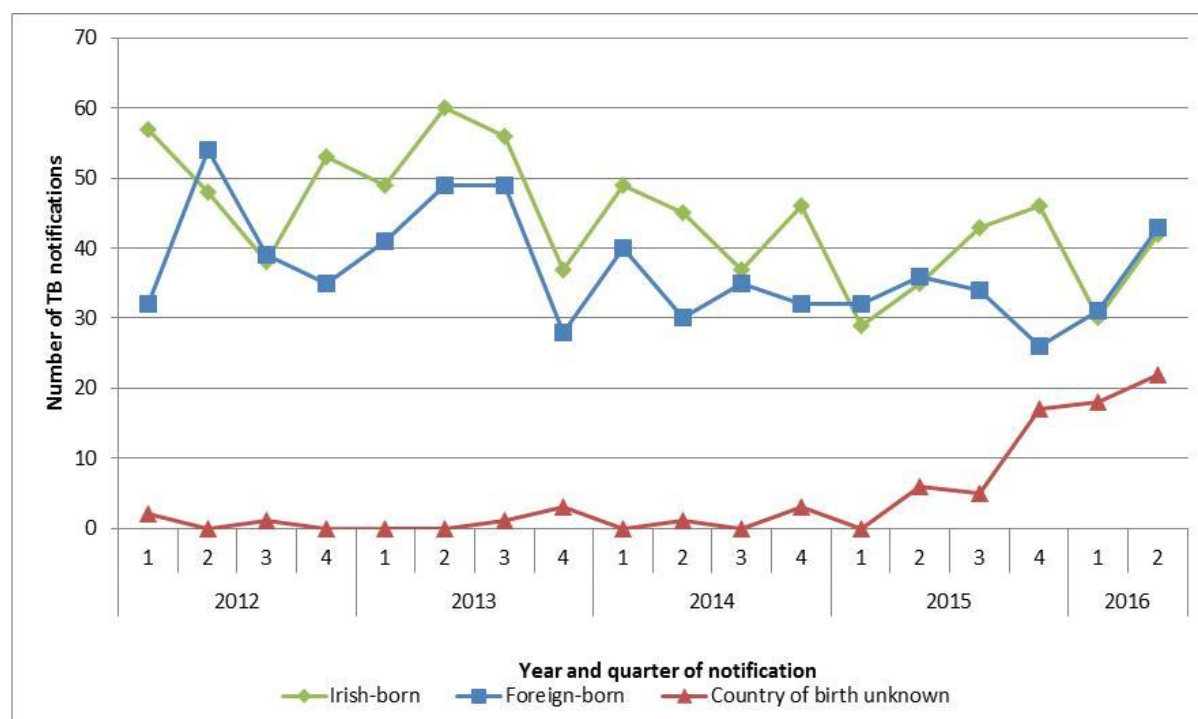
## Country of origin

During Q1 and Q2 2016, 71 (38.2%) TB cases were born in Ireland and 75 (40.3%) were born outside Ireland. Country of birth was not reported for 40 cases (21.5%) cases. Table 4 summarises the countries of birth of cases.

Of those 75 cases born outside Ireland, six (8.0%) were reported as asylum seekers or refugees. Three were from HSE-E, two were from HSE-MW and one was from –SE. Figure 3 shows the annual number of TB cases by geographic origin from 2002 to Q2 2016.

**Table 4: Number and percentage of TB notifications by region of origin, Q1 & Q2 2016**

Region of origin	Number	%
Ireland	71	38.2
South Asia	36	19.4
Eastern Europe	15	8.1
Sub-Saharan Africa	8	4.3
Western Europe	5	2.7
Central Europe	5	2.7
Eastern Asia / Pacific	3	1.6
South America	1	0.5
North Africa / Middle East	1	0.5
Western Asia	1	0.5
Country of birth not reported	40	21.5
<b>Total</b>	<b>186</b>	<b>100.0</b>



**Figure 3: Number of TB notifications by year and quarter of notification and geographic origin, 2012-Q1&2 2016**

## Case ascertainment

Table 5 summarises the method by which reported cases were detected in Q1 and Q2 2016.

**Table 5: Number and percentage of TB notifications by method of case finding, Q1 & Q2 2016**

Found by	Number of TB Cases	% Total
Presenting as case	131	70.4
Contact tracing	9	4.8
Immigrant screening	1	0.5
Post-mortem diagnosis	2	1.1
Pre-employment screening	0	0.0
Other	6	3.2
Not reported	37	19.9
<b>Total</b>	<b>186</b>	<b>100.0</b>

## Diagnostic categories

Cases are classified into one of three diagnostic categories based on the site of disease. Table 6 summarises the available data for each HSE area.

**Table 6: Number and percentage of TB notifications by diagnostic type and HSE area, Q1 & Q2 2016**

HSE area	Pulmonary	Pulmonary & Extrapulmonary (P+E)	Extrapulmonary	Not reported	Total
HSE-E	50	7	22	5	<b>84</b>
HSE-M	1	1	2	2	<b>6</b>
HSE-MW	6	2	8	0	<b>16</b>
HSE-NE	8	1	3	0	<b>12</b>
HSE-NW	2	0	3	1	<b>6</b>
HSE-SE	9	4	6	0	<b>19</b>
HSE-S	18	2	7	0	<b>27</b>
HSE-W	9	1	6	0	<b>16</b>
<b>Total</b>	<b>103</b>	<b>18</b>	<b>57</b>	<b>8</b>	<b>186</b>
<b>%</b>	<b>55.4</b>	<b>9.7</b>	<b>30.6</b>	<b>4.3</b>	<b>100.0</b>

Seventy-five cases (40.3%) had an extra-pulmonary disease component reported (table 7).



**Table 7: Number and percentage of TB notifications by extrapulmonary site of disease, Q1 & Q2 2016**

Extrapulmonary sites	Number of TB cases	% Total
Pleural	18	24.0
Lymphatic extrathoracic	15	20.0
Bone/joint other than spine	5	6.7
Disseminated	3	4.0
Genito-urinary	3	4.0
Lymphatic intrathoracic	3	4.0
Peritoneal/digestive	2	2.7
Spine	2	2.7
Central nervous system other than meningitis	1	1.3
Other	14	18.7
Not reported	9	12.0
<b>Total</b>	<b>75</b>	<b>100.0</b>

**TB meningitis**

No cases of TB meningitis were reported during Q1 and Q2 2016.

**Microbiological results:****Sputum-smear status - first sample**

Of the 121 cases with a pulmonary component reported during Q1 and Q2 2016, 57 (47.1%) were sputum smear positive at diagnosis. Twenty-four of these cases (42.1%) reported a second sputum smear positive result.

**Culture – first sample and isolates**

In Q1 and Q2 2016, 126 cases (67.7%) were culture positive, 13 (7.0%) were culture negative and three (1.6%) were reported as not having been culture tested (table 8). Culture result was not reported for the remaining 44 cases (23.7%).

Of the 126 culture positive cases, *M. tuberculosis* was isolated in 121 (96.0%), *M. tuberculosis* complex<sup>§</sup> in three (2.4%) and one each (0.8%) were *M. africanum* and *M. bovis*.

**Table 8: Number and percentage of TB notifications by first culture result and HSE area, Q1 & Q2 2016**

Culture	HSE E	HSE M	HSE MW	HSE NE	HSE NW	HSE SE	HSE S	HSE W	Total	% Total
Culture positive	53	5	13	10	4	13	19	9	<b>126</b>	67.7
Culture negative			1			3	7	2	<b>13</b>	7.0
Not done	2						1		<b>3</b>	1.6
Not reported	29	1	2	2	2	3		5	<b>44</b>	23.7
<b>Total</b>	<b>84</b>	<b>6</b>	<b>16</b>	<b>12</b>	<b>6</b>	<b>19</b>	<b>27</b>	<b>16</b>	<b>186</b>	<b>100.0</b>
% Culture positive	63.1	83.3	81.3	83.3	66.7	68.4	70.4	56.3		

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

**MIRU VNTR results**

Of the 126 culture positive cases, MIRU-VNTR typing results were reported for 84 cases (66.7%). Of the 84 typed isolates, 76 (90.5%) were unique. During Q1-2 2016, eight isolates had a 24 loci match with one other typed isolate. These clusters comprised four clusters of two matching isolates each. All four pairs of matching isolates were part of already documented clusters investigated by public health.

**Antibiotic resistance**

Of the 126 culture positive cases reported, 109 (86.5%) had drug sensitivity details completed. Resistance was reported in 10 cases (9.2% of 109 cases with drug sensitivity data reported and 5.4% of total cases reported).

*Mycobacterium tuberculosis* was isolated in all 10 resistant cases, all of whom were born outside Ireland. One resistant case reported a previous history of TB (table 9).

Three cases of multidrug-resistant (MDR) TB were notified for this period<sup>\*\*</sup>. No cases of XDR-TB were notified for this period.

**Table 9: Sensitivity results of drug resistant TB cases in Ireland, Q1 & Q2 2016**

Isolate	Isoniazid sensitivity	Rifampicin sensitivity	Ethambutol sensitivity	Pyrazinamide sensitivity	Streptomycin sensitivity	Previous history of TB disease	Born outside Ireland	Age group (years)
M. tb	R	R	R	R	S	Yes	Yes	55-64
M. tb	R	R	R	R	R	No	Yes	35-44
M. tb	R	R	S	S	R	No	Yes	25-34
M. tb	R	S	S	S	S	No	Yes	45-54
M. tb	R	S	S	S	S	No	Yes	35-44
M. tb	R	S	R	S	R	Unk	Yes	25-34
M. tb	R	S	S	S	S	No	Yes	25-34
M. tb	S	S	S	S	R	No	Yes	35-44
M. tb	S	S	S	S	R	No	Yes	25-34
M. tb	S	S	S	S	R	No	Yes	25-34

<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.

## Chest X-ray

X-ray findings consistent with active pulmonary TB were reported in 75 cases with a pulmonary component (62.0% of pulmonary cases) had (table 10).

**Table 10: Chest X-ray results of TB cases with a pulmonary component, Q1 & Q2 2016**

Chest X-ray	Number of TB cases	% Total
Active Cavitary TB	33	27.3
Active Non-cavitary TB	42	34.7
Inactive/Old TB	3	2.5
Other	5	4.1
Pleural	3	2.5
Normal	5	4.1
Not reported	30	24.8
<b>Total</b>	<b>121</b>	<b>100.0</b>

## Previous history

During Q1 and Q2 2016, 12 cases (6.5% of total reported) had a previous history of TB. Seven of these cases were born outside Ireland. Year of previous diagnosis ranged from 1956 to 2013 for these cases.

## HIV status

HIV status was reported for 61 (32.8%) TB cases. One TB case was reported as HIV positive (0.5% of total cases, 1.6% of cases with known HIV status) while 60 cases were reported as HIV negative (32.3% of total case, 98.4% of cases with known HIV status).

## Outcome

Nine deaths were reported during Q1 and Q2 2016. Two deaths were due to TB, two were not due to TB, three were awaiting a coroner's report and the cause of death for the remaining two cases was not available at the time of this report.

## Outbreaks<sup>††</sup>

Four TB outbreaks, comprising 16 active cases of TB and 13 associated hospitalisations, were reported to HPSC during Q1 and Q2 2016. Two family outbreaks occurred in a private house (3 cases, 2 hospitalised) and across an extended family (4 cases, 3 hospitalised). Two general outbreaks occurred in the community with six cases (5 hospitalised) and three cases (3 hospitalised) respectively. The number of latent TB infections (LTBI) was not reported for any outbreaks during Q1-2 2016. .

<sup>††</sup> Outbreak data taken from CIDR on 18/08/2016

## 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