



## **National TB Surveillance**

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

**Provisional**

### **Quarter 1 - 4 2015 TB Report**

Report produced 24<sup>th</sup> February 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 17/02/2016

## Introduction

This Quarter 1-4 2015 TB Report presents an epidemiological summary of the cases of tuberculosis (TB) notified to eight HSE areas in Ireland during January - December 2015.

In January 2011, all HSE areas moved to using CIDR (computerised infectious disease reporting) to record TB case notification data.

HPSC produces a quarterly TB report, using data submitted to it by HSE areas. 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 - 4 2015:

- 318 TB cases<sup>†</sup> were notified to HPSC, corresponding to a provisional crude incidence rate of 6.9 per 100,000 population.
- HSE East reported the highest number of cases at 143 (45.0% of total), with 38.4% of total cases being reported in Dublin.
- More cases were reported in males (59.4%).
- The highest proportion of cases (24.8%) occurred in those aged 25-34 years followed by 22.0% of cases in those aged 65 years and older.
- 39.9% of all cases were foreign born.
- Two cases of TB meningitis were notified.
- 197 cases (61.9%) were culture positive, 35 (11.0%) were culture negative, 16 (5.0%) were reported as not having been culture tested and 70 (22.0%) cases did not have culture results available.
- Of the 197 culture positive cases, *M. tuberculosis* was isolated in 168 (85.3%), *M. tuberculosis* complex in 21 (10.7%) cases and *M. bovis* in five (2.5%). Organism details were not reported for the remaining three culture positive cases.
- 178 (90.4%) culture positive cases had drug sensitivity details completed
- One case of multidrug-resistant TB (MDR-TB) was notified for 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.

## Results

### Total cases of tuberculosis notified in Q1 - 4 2015

There were 318 cases of TB notified during the period 1<sup>st</sup> January to 31<sup>st</sup> December 2015. This is the same as the number of TB notifications reported for quarter 1-4 2014. Both years represent the lowest number of notifications for quarter 1-4 since TB surveillance began in 1998 (table 1).

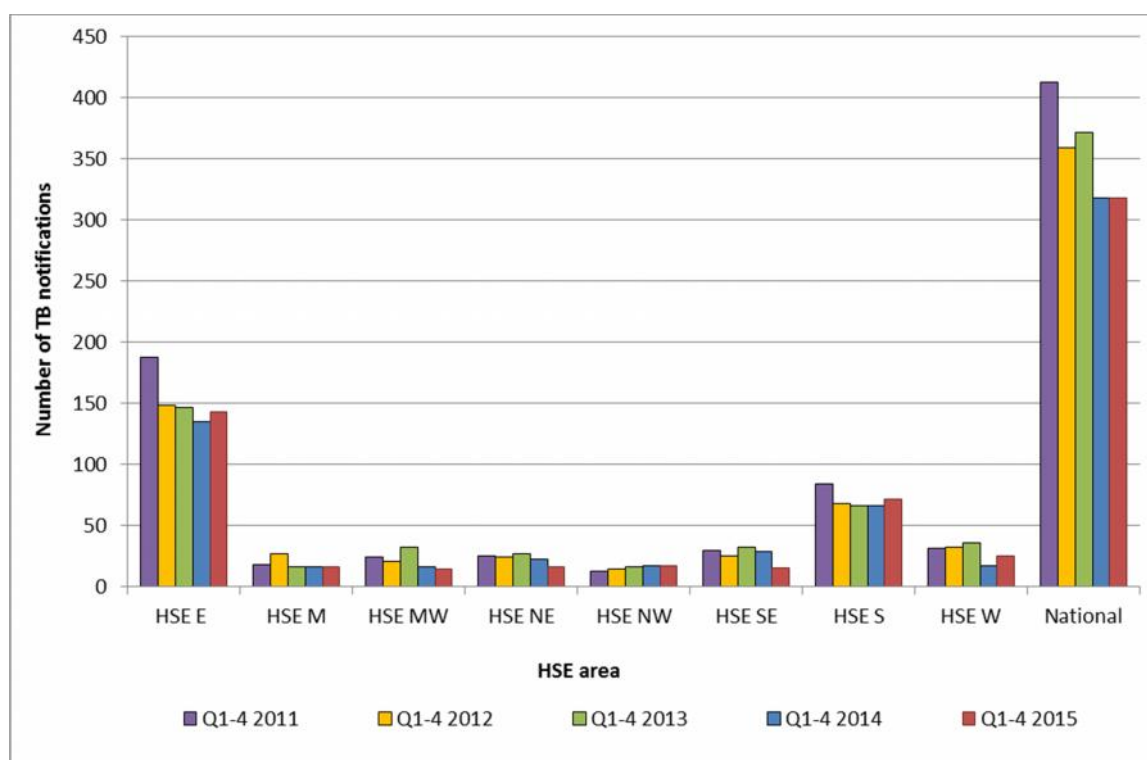
The number of cases notified in each HSE area for Q 1-4 2015 is shown in table 2 and figure 1 and a breakdown of TB cases by county and Local Health Authority (LHO) area is shown in tables 3 and 4.

**Table 1: 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	401	9.0
2012	359	376	7.8
2013	374	355	8.1
2014	318	332	6.9
2015	318		6.9

**Table 2: Number and percentage of TB notifications by HSE area, Q1 - 4 2015**

HSE Area	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total	% Total
East	34	26	37	46	<b>143</b>	45.0
Midland	6	5	2	3	<b>16</b>	5.0
Mid-West	3	5	2	4	<b>14</b>	4.4
North East	3	4	5	4	<b>16</b>	5.0
North West	4	7	3	3	<b>17</b>	5.3
South East	4	4	3	4	<b>15</b>	4.7
South	11	21	14	26	<b>72</b>	22.6
West	4	5	7	9	<b>25</b>	7.9
<b>Total</b>	<b>69</b>	<b>77</b>	<b>73</b>	<b>99</b>	<b>318</b>	<b>100.0</b>

**Figure 1: Number of TB notifications by HSE area, Q1 to Q4 2011-2015<sup>‡</sup>**

<sup>‡</sup> In January 2011, all HSE areas moved to using CIDR (computerised infectious disease reporting) to record TB case notification data.

**Table 3: Number and percentage of TB notifications by county, Q1 – Q4 2015**

County	Q1	Q2	Q3	Q4	Number of TB cases	% Total
Carlow	2			1	<b>3</b>	<i>0.9</i>
Cavan	1		1	1	<b>3</b>	<i>0.9</i>
Clare	2		2		<b>4</b>	<i>1.3</i>
Cork	9	20	10	23	<b>62</b>	<i>19.5</i>
Donegal	2	2	1	2	<b>7</b>	<i>2.2</i>
Dublin	27	24	29	42	<b>122</b>	<i>38.4</i>
Galway	3	2	3	5	<b>13</b>	<i>4.1</i>
Kerry	2	1	4	3	<b>10</b>	<i>3.1</i>
Kildare	4	2	4	3	<b>13</b>	<i>4.1</i>
Kilkenny		1	1	3	<b>5</b>	<i>1.6</i>
Laois	2		1		<b>3</b>	<i>0.9</i>
Leitrim				1	<b>1</b>	<i>0.3</i>
Limerick	1	5		4	<b>10</b>	<i>3.1</i>
Longford		2			<b>2</b>	<i>0.6</i>
Louth		1	1	3	<b>5</b>	<i>1.6</i>
Mayo		2	3	2	<b>7</b>	<i>2.2</i>
Meath	1	1	3		<b>5</b>	<i>1.6</i>
Monaghan	1	2			<b>3</b>	<i>0.9</i>
Offaly	1	2		2	<b>5</b>	<i>1.6</i>
Roscommon	1	1	1	2	<b>5</b>	<i>1.6</i>
Sligo	2	5	2		<b>9</b>	<i>2.8</i>
Tipperary	1	1	1		<b>3</b>	<i>0.9</i>
Waterford		1	1		<b>2</b>	<i>0.6</i>
Westmeath	3	1	1	1	<b>6</b>	<i>1.9</i>
Wexford	1	1			<b>2</b>	<i>0.6</i>
Wicklow	3		4	1	<b>8</b>	<i>2.5</i>
<b>Total</b>	<b>69</b>	<b>77</b>	<b>73</b>	<b>99</b>	<b>318</b>	<b><i>100.0</i></b>

A further breakdown of cases by Local Health Authority is shown in table 4.

**Table 4: Number and percentage of TB notifications by Local Health Authority, Q1 – Q4 2015**

HSE Area	Number of TB cases	LHO	Number of TB cases
<b>East</b>	143	Dublin South	7
		Dublin South East	7
		Dublin South City	5
		Dublin South West	14
		Dublin West	11
		Dublin North West	20
		Dublin North Central	24
		Dublin North	20
		Kildare/West Wicklow	21
		Wicklow	14
<b>Midland</b>	16	Longford/Westmeath	8
		Laois/Offaly	8
<b>Mid-West</b>	14	Clare	4
		Limerick	10
		Tipperary Nth/E Limerick	0
<b>North East</b>	16	Cavan	3
		Louth	5
		Meath	5
		Monaghan	3
<b>North West</b>	17	Donegal	7
		Sligo/Leitrim	10
<b>South East</b>	15	Carlow/Kilkenny	7
		Tipperary South	3
		Waterford	3
		Wexford	2
<b>South</b>	72	Kerry	10
		North Cork	12
		North/South Lee	47
		West Cork	3
<b>West</b>	25	Galway	13
		Mayo	7
		Roscommon	5
<b>Ireland</b>	<b>318</b>	<b>Total</b>	<b>318</b>

## Sex

There were 128 females (40.3%) and 189 males (59.4%) in Q1 to Q4 2015. Sex was unknown for the remaining case.

## Age groups

A breakdown of cases by age group and HSE area is shown in table 5.

**Table 5: Number and percentage of TB notifications by age group and HSE area, Q1 – Q4 2015**

Age group (years)	HSE-E	HSE-M	HSE-MW	HSE-NE	HSE-NW	HSE-SE	HSE-S	HSE-W	Total	% Total
0-4							2		<b>2</b>	0.6
05-09	1				1	1	2	1	<b>6</b>	1.9
10-14			1	1	2		1	1	<b>6</b>	1.9
15-19	4	1			2	1	2	1	<b>11</b>	3.5
20-24	10		2			1		2	<b>15</b>	4.7
25-34	39	4	3	1	2	4	16	10	<b>79</b>	24.8
35-44	25	1	2	7	3	1	13	1	<b>53</b>	16.7
45-54	16			2		3	11	2	<b>34</b>	10.7
55-64	21	2	3	1	3	2	8	2	<b>42</b>	13.2
65+	27	8	3	4	4	2	17	5	<b>70</b>	22.0
Unknown									<b>0</b>	0.0
<b>Total</b>	<b>143</b>	<b>16</b>	<b>14</b>	<b>16</b>	<b>17</b>	<b>15</b>	<b>72</b>	<b>25</b>	<b>318</b>	<b>100.0</b>

## Country of origin

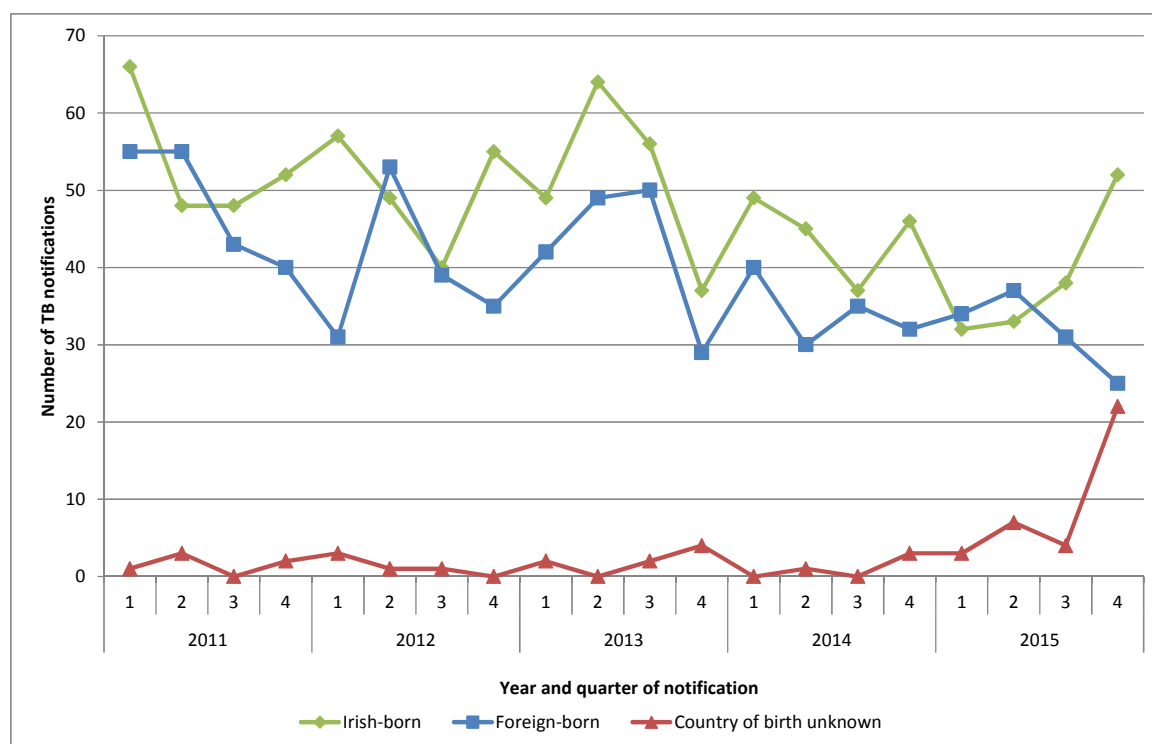
During Q1 – Q4 2015, 155 (48.7%) TB cases were born in Ireland and 127 (39.9%) were born outside Ireland. Country of birth was not reported for 36 (11.3%) cases. Table 6 summarises the countries of birth of cases.

Of those 127 cases born outside Ireland, 11 (8.7%) were reported as asylum seekers or refugees. There were four each from HSE-E and -NW, and one each from HSE-M, -SE and -S. Figure 2 shows the annual number of TB cases by geographic origin from 2011 to 2015.

**Table 6: Number and percentage of TB notifications by country of birth, Q1 – Q4 2015**

Country of birth	Q1	Q2	Q3	Q4	Number of TB cases	% Total
Ireland	32	33	38	52	<b>155</b>	<b>48.7</b>
Afghanistan		2			<b>2</b>	<b>0.6</b>
Algeria		1	1		<b>2</b>	<b>0.6</b>
Bangladesh	2				<b>2</b>	<b>0.6</b>
Brazil		3			<b>3</b>	<b>0.9</b>
Burundi				1	<b>1</b>	<b>0.3</b>
China	1				<b>1</b>	<b>0.3</b>
Congo	1				<b>1</b>	<b>0.3</b>
Congo, The Democratic Republic of the	1				<b>1</b>	<b>0.3</b>
Eritrea		1			<b>1</b>	<b>0.3</b>
Hong Kong				1	<b>1</b>	<b>0.3</b>
India	6	8	9	4	<b>27</b>	<b>8.5</b>
Indonesia				2	<b>2</b>	<b>0.6</b>
Iraq			<b>1</b>		<b>1</b>	<b>0.3</b>
Latvia	1		1		<b>2</b>	<b>0.6</b>
Lesotho	1				<b>1</b>	<b>0.3</b>
Lithuania	1			1	<b>2</b>	<b>0.6</b>
Malawi		1	1	1	<b>3</b>	<b>0.9</b>
Myanmar				1	<b>1</b>	<b>0.3</b>
Niger			1		<b>1</b>	<b>0.3</b>
Nigeria	1			2	<b>3</b>	<b>0.9</b>
Pakistan	5	8	3	5	<b>21</b>	<b>6.6</b>
Philippines	2	3	5		<b>10</b>	<b>3.1</b>
Poland		2	2	3	<b>7</b>	<b>2.2</b>
Romania	5	1	3	3	<b>12</b>	<b>3.8</b>
Somalia	1				<b>1</b>	<b>0.3</b>
South Africa	3	1	1		<b>5</b>	<b>1.6</b>
Sri Lanka		1			<b>1</b>	<b>0.3</b>
Sudan	1		1		<b>2</b>	<b>0.6</b>
Syrian Arab Republic		1			<b>1</b>	<b>0.3</b>
Thailand				1	<b>1</b>	<b>0.3</b>
United kingdom	1	1			<b>2</b>	<b>0.6</b>
Viet Nam		1	1		<b>2</b>	<b>0.6</b>
Zambia		1			<b>1</b>	<b>0.3</b>
Zimbabwe	1	1	1		<b>3</b>	<b>0.9</b>
Not specified	1	1		4	<b>6</b>	<b>1.9</b>
Unknown	2	6	4	18	<b>30</b>	<b>9.4</b>
<b>Total</b>	<b>69</b>	<b>77</b>	<b>73</b>	<b>99</b>	<b>318</b>	<b>100.0</b>





**Figure 2: Number of TB notifications by year and quarter of notification and geographic origin, 2011 – 2015**

### Case ascertainment

Table 7 summarises the method by which reported cases were detected in Q1 to Q4 2015.

**Table 7: Number and percentage of TB notifications by method of case finding, Q1 – Q4 2015**

Found by	Number of TB cases	% Total
Presenting as case	234	73.6
Contact tracing	21	6.6
Immigrant screening	1	0.3
Pre-employment screening	1	0.3
Post-mortem diagnosis	1	0.3
Other	14	4.4
Not specified	46	14.5
<b>Total</b>	<b>318</b>	<b>100.0</b>

## Diagnostic categories

Cases are classified into one of three diagnostic categories based on the site of disease. Table 8 summarises the available data for each HSE area.

**Table 8: Number and percentage of TB notifications by diagnostic type and HSE area, Q1 – Q4 2015**

HSE area	Pulmonary	Pulmonary & Extrapulmonary (P+E)	Extrapulmonary	Not reported	Total
HSE-E	81	7	49	6	<b>143</b>
HSE-M	8	1	6	1	<b>16</b>
HSE-MW	9	2	3	0	<b>14</b>
HSE-NE	12	1	2	1	<b>16</b>
HSE-NW	10	2	5	0	<b>17</b>
HSE-SE	4	1	10	0	<b>15</b>
HSE-S	40	5	27	0	<b>72</b>
HSE-W	16	3	6	0	<b>25</b>
<b>Total</b>	<b>180</b>	<b>22</b>	<b>108</b>	<b>8</b>	<b>318</b>
<b>%</b>	<b>56.6</b>	<b>6.9</b>	<b>34.0</b>	<b>2.5</b>	<b>100.0</b>

One hundred and thirty cases (40.9%) had an extra-pulmonary disease component reported (table 9).

**Table 9: Number and percentage of TB notifications by extrapulmonary site of disease, Q1-4 2015**

Extra-pulmonary sites	Number of TB cases	% Total
Lymphatic extrathoracic	36	27.7
Pleural	17	13.1
Other	13	10.0
Peritoneal/digestive	10	7.7
Lymphatic intrathoracic	9	6.9
Spine	8	6.2
Bone/joint other than spine	6	4.6
Disseminated	5	3.8
Genito-urinary	4	3.1
Meningitis	2	1.5
Not reported	20	15.4
<b>Total</b>	<b>130</b>	<b>100.0</b>

### TB meningitis

Two cases of TB meningitis were reported during Q1-4 2015. One Irish-born case was aged 65 years and older and was culture positive for *M. bovis*. Information on previous history was not reported for this case. The second case was foreign-born and in the 35-44 year age group. This case was culture negative and had no previous history of TB. BCG status was not available for either case.

### Sputum-smear status - at initial diagnosis

Of the 202 cases with a pulmonary component reported during Q1-4 2015, 87 (43.1%) were sputum smear positive at diagnosis. Thirty of these cases (34.5%) reported a second sputum smear positive result.

### Culture and isolates - at initial diagnosis

During Q1-Q4 2015, 197 cases (61.9%) were culture positive, 35 (11.0%) were culture negative, 16 (5.0%) were reported as not having been culture tested and 70 (22.0%) cases did not have culture results available (table 10).

Of the 197 culture positive cases, *M. tuberculosis* was isolated in 168 (85.3%), *M. tuberculosis* complex in 21 (10.7%) cases and *M. bovis* in five (2.5%). Organism details were not reported for the remaining three culture positive cases.

**Table 10: Number and percentage of TB notifications by culture result and HSE area, Q1 – Q4 2015**

Culture	HSE E	HSE M	HSE MW	HSE NE	HSE NW	HSE SE	HSE S	HSE W	Total	% Total
Culture positive	82	11	12	11	12	9	41	19	<b>197</b>	<b>61.9</b>
Culture negative	4	2	1		1	2	23	2	<b>35</b>	<b>11.0</b>
Not done	3	1			4	2	6		<b>16</b>	<b>5.0</b>
Not specified	54	2	1	5		2	2	4	<b>70</b>	<b>22.0</b>
<b>Total</b>	<b>143</b>	<b>16</b>	<b>14</b>	<b>16</b>	<b>17</b>	<b>15</b>	<b>72</b>	<b>25</b>	<b>318</b>	<b>100.0</b>

### MIRU VNTR results

Of the 197 culture positive cases, MIRU-VNTR typing results were reported for 147 cases (74.6%). Of the 147 typed isolates, 123 (83.7%) were unique. Twenty-four isolates had a 24 loci match with one or more typed isolates. These matching isolates were spread over 9 clusters. Four of these clusters were already documented clusters previously investigated by public health. The remaining five clusters were of a small magnitude, comprising four pairs of clustered isolates and one cluster of three matching isolates.

## Antibiotic resistance

Of the 197 culture positive cases reported, 178 (90.4%) had drug sensitivity details completed<sup>§</sup>.

Resistance was reported in 11 cases (6.2% of 178 cases with drug sensitivity data reported and 3.5% of total cases reported). *M. tuberculosis* was isolated in all resistant cases. Nine resistant cases (81.8%) were born outside Ireland while one resistant case (9.1%) was born in Ireland. Country of birth was unknown for the remaining resistant case. Three resistant cases had a recorded previous history of TB (table 11).

Multidrug-resistant TB was reported in one foreign-born case with no reported previous history of TB. \*\*

No extensively drug resistant (XDR) TB cases were reported during Q1 to Q4 2015.

**Table 11: Sensitivity results of drug resistant TB cases in Ireland, Q1 – Q4 2015**

Isolate	Isoniazid sensitivity	Rifampicin sensitivity	Ethambutol sensitivity	Pyrazinamide sensitivity	Streptomycin sensitivity	Previous history of TB disease	Born outside Ireland?	Age group (years)
<i>M. tb</i>	R	S	S	S	S	Unk	Unk	25-34
<i>M. tb</i>	S	S	S	S	R	N	Y	15-19
<i>M. tb</i>	R	R	S	S	S	N	Y	35-44
<i>M. tb</i>	S	S	S	S	R	Y	Y	25-34
<i>M. tb</i>	S	S	S	S	R	N	Y	25-34
<i>M. tb</i>	R	S	S	S	S	Unk	Y	35-44
<i>M. tb</i>	R	S	S	S	R	N	Y	35-44
<i>M. tb</i>	R	S	S	S	S	Y	Y	45-54
<i>M. tb</i>	R	S	S	S	S	N	Y	25-34
<i>M. tb</i>	R	S	S	S	S	Y	Y	65+
<i>M. tb</i>	S	S	S	S	R	N	N	65+

<sup>§</sup> This relates to TB cases with susceptibility results reported for at least isoniazid and rifampicin

\*\* 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

Of the 202 cases with a pulmonary component, 107 (53.0% of total cases) had X-ray findings consistent with active pulmonary TB (table 12).

**Table 12: Chest X-ray results of TB cases with a pulmonary component, Q1 – Q4 2015**

Chest X-ray	Number of TB cases	% Total
Active Cavitory TB	43	21.3
Active Non-cavitory TB	64	31.7
Pleural	1	0.5
Inactive/Old TB	4	2.0
Other	6	3.0
Normal	30	14.9
Not Done	2	1.0
Not specified	52	25.7
<b>Total</b>	<b>202</b>	<b>100.0</b>

## Previous history

During Q1 – Q4 2015, 17 cases (5.3% of total reported) reported a previous history of TB. Nine cases with a previous history of TB were born in Ireland and eight were born outside of Ireland. Year of previous TB diagnosis ranged from 1950 to 2014.

## HIV status

HIV status was reported for 94 (29.6%) TB cases in 2015. Eight TB cases were reported as HIV positive (2.5% of total case, 8.5% of cases with known HIV status) while 86 cases were reported as HIV negative (27.0% of total case, 91.5% of cases with known HIV status).

## Outcome

Eight cases died during 2015 (2.5% of total reported). TB was reported as the cause of death in two of these cases, four deaths were not due to TB and cause of death was not reported for the remaining two cases.

## Outbreaks

Five TB outbreaks were reported to HPSC during Q1 –Q4 2015. These outbreaks comprised 18 cases of active TB, two of whom were hospitalised, and 35 cases of latent TB infection. Four were family outbreaks occurring in private houses with three to four cases in each. These family outbreaks occurred in HSE-NW and –W and two were in HSE-S. The remaining outbreak was a general outbreak in a workplace in HSE-S with five TB cases and 35 cases of latent TB infection (LTBI) reported.

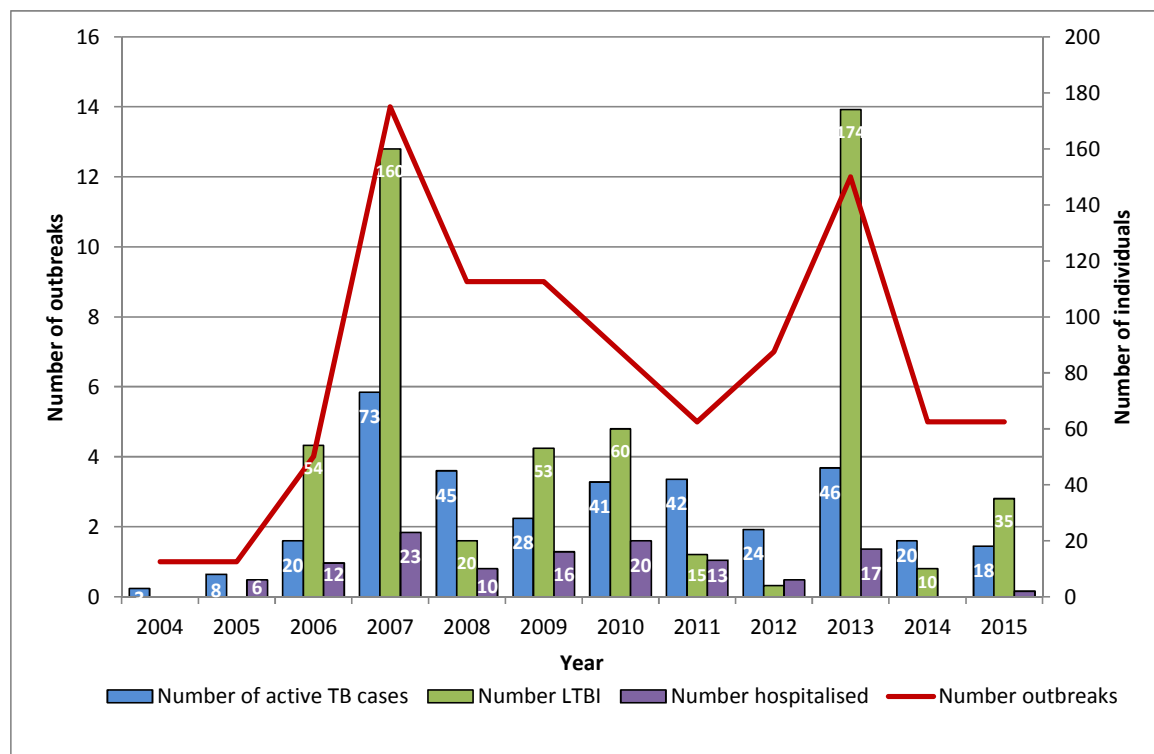


Figure 3: TB outbreak summary by year, 2004-2015<sup>††</sup>

<sup>††</sup> Data for 2015 are provisional data only