



## **National TB Surveillance**

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

### **Quarter 1-3 2015 TB Report**

Report produced 27<sup>th</sup> November 2015\*

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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 19/11/2015

## Introduction

This Quarter 1 to 3 2015 TB Report presents an epidemiological summary of the cases of tuberculosis (TB) notified to eight HSE areas in Ireland during January - September 2015.

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 1-3 2015:

- 220 TB cases<sup>†</sup> were notified to HPSC
- HSE East reported the highest number of cases at 98 (44.5% of total)
- The male to female ratio was 1.5:1.0
- The highest proportion of cases occurred in those aged 65 years and older (24.1%) and those aged 25-34 years (23.2%)
- 45.9% of all cases were foreign born
- Two cases of TB meningitis were notified
- 145 cases (65.9%) were culture positive, 20 (9.1%) were culture negative and eleven (5.0%) were reported as not having been culture tested (table 9). Culture result was not reported for the remaining 44 cases (20.0%).
- Of the 145 culture positive cases, *M. tuberculosis* was isolated in 127 (92.7%) and *M. tuberculosis* complex<sup>‡</sup> in fourteen (9.7%) and *M. bovis* in three (2.1%). The remaining culture positive case did not report species<sup>134</sup> (92.4%) culture positive cases had drug sensitivity details
- One case of multidrug-resistant TB (MDR-TB) was notified for this period
- HIV status was reported for 49 (22.3%) 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

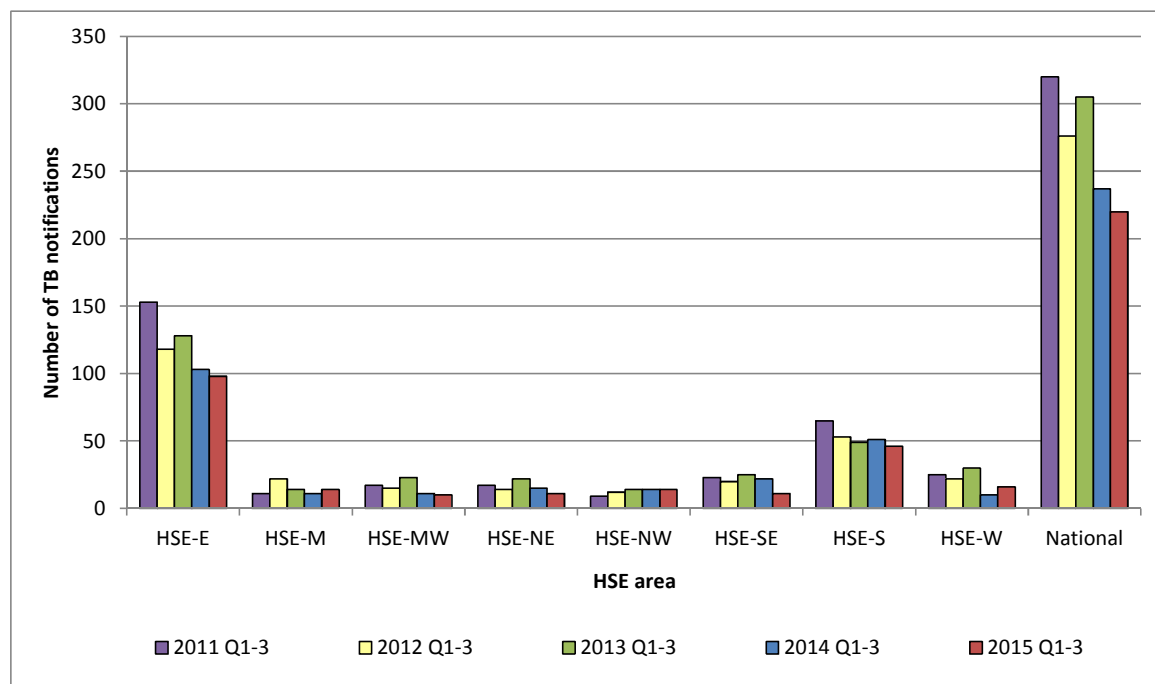
## Results

### Total cases of tuberculosis notified in Q1-3 2015

There were 220 cases of TB notified during the period 1<sup>st</sup> January to 30<sup>th</sup> September 2015. 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, Q1-3 2015**

HSE Area	Quarter 1	Quarter 2	Quarter 3	Total	% Total
East	34	26	38	<b>98</b>	<b>44.5</b>
Midland	6	5	3	<b>14</b>	<b>6.4</b>
Mid-West	3	5	2	<b>10</b>	<b>4.5</b>
North East	3	4	4	<b>11</b>	<b>5.0</b>
North West	4	7	3	<b>14</b>	<b>6.4</b>
South East	4	4	3	<b>11</b>	<b>5.0</b>
South	11	21	14	<b>46</b>	<b>20.9</b>
West	4	5	7	<b>16</b>	<b>7.3</b>
<b>Total</b>	<b>69</b>	<b>77</b>	<b>74</b>	<b>220</b>	<b>100.0</b>



**Figure 1: Number of TB notifications by HSE area, Q1-3 2011-2015**

**Table 2: Number and percentage of TB notifications by county, Q1-3 2015**

County	Number of TB Cases	% Total
Carlow	2	0.9
Cavan	2	0.9
Clare	4	1.8
Cork	39	17.7
Donegal	5	2.3
Dublin	81	36.8
Galway	8	3.6
Kerry	7	3.2
Kildare	10	4.5
Kilkenny	2	0.9
Laois	3	1.4
Limerick	6	2.7
Longford	2	0.9
Louth	2	0.9
Mayo	5	2.3
Meath	4	1.8
Monaghan	3	1.4
Offaly	3	1.4
Roscommon	3	1.4
Sligo	9	4.1
Tipperary	3	1.4
Waterford	2	0.9
Westmeath	6	2.7
Wexford	2	0.9
Wicklow	7	3.2
<b>Total</b>	<b>220</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, Q1-3 2015

HSE Area	LHO	Number of TB Cases
East	CCA1	5
	CCA2	4
	CCA3	11
	CCA4	6
	CCA5	14
	CCA6	17
	CCA7	14
	CCA8	10
	CCA9	11
	CCA10	6
	<b>Total</b>	<b>98</b>
Midland	Longford/Westmeath	8
	Laois/Offaly	6
	<b>Total</b>	<b>14</b>
Mid-West	Clare	4
	Limerick	6
	Tipperary North/East Limerick	0
	<b>Total</b>	<b>10</b>
North East	Cavan	2
	Louth/South Monaghan	2
	Meath	4
	Monaghan	3
	<b>Total</b>	<b>11</b>
North West	Donegal	5
	Sligo/Leitrim	9
	<b>Total</b>	<b>14</b>
South East	Carlow/Kilkenny	4
	Tipperary South	3
	Waterford	2
	Wexford	2
	<b>Total</b>	<b>11</b>
South	Kerry	7
	North Cork	7
	North/South Lee	32
	West Cork	0
	<b>Total</b>	<b>46</b>
West	Galway	8
	Mayo	5
	Roscommon	3
	<b>Total</b>	<b>16</b>
<b>Ireland</b>		<b>220</b>

## Sex

There were 130 males (59.1%) and 88 females (40.0%) in Q1 - Q3 2015. Sex was not reported for the remaining two cases.

## 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, Q1-3 2015**

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	1	0	<b>1</b>	0.5
5-9	1	0	0	0	1	0	1	0	<b>3</b>	1.4
10-14	0	0	0	1	2	0	0	0	<b>3</b>	1.4
15-19	2	1	0	0	2	1	2	1	<b>9</b>	4.1
20-24	7	0	2	0	0	1	0	2	<b>12</b>	5.5
25-34	25	4	1	1	1	4	10	5	<b>51</b>	23.2
35-44	19	2	2	5	3	1	7	1	<b>40</b>	18.2
45-54	11	0	0	1	0	2	8	2	<b>24</b>	10.9
55-64	16	1	2	0	2	0	3	0	<b>24</b>	10.9
65+	17	6	3	3	3	2	14	5	<b>53</b>	24.1
Unknown	0	0	0	0	0	0	0	0	<b>0</b>	0.0
<b>Total</b>	<b>98</b>	<b>14</b>	<b>10</b>	<b>11</b>	<b>14</b>	<b>11</b>	<b>46</b>	<b>16</b>	<b>220</b>	<b>100.0</b>

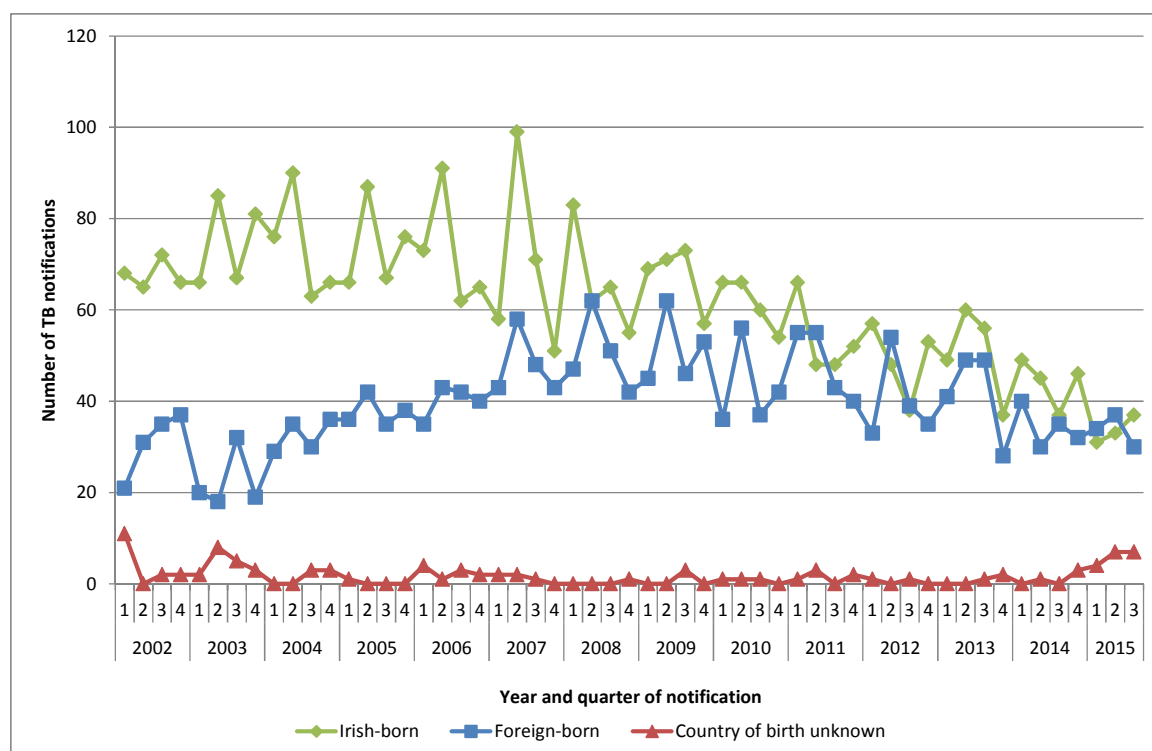
## Country of origin

During Q1 - Q3 2015, 101 (45.9%) TB cases were born in Ireland and 101 (45.9%) were born outside Ireland. Country of birth was not reported for 18 cases (8.2%) cases. Table 5 summarises the countries of birth of cases.

Of those 101 cases born outside Ireland, 10 (9.9%) were reported as asylum seekers or refugees. Four were from HSE-E, four from HSE-NW and one each from HSE-M and -S. Figure 2 shows the annual number of TB cases by geographic origin from 2002 to Q3 2015.

**Table 5: Number and percentage of TB notifications by country of birth, Q1-3 2015**

Country of Birth	Number of TB Cases	% Total
Ireland	101	45.9
Afghanistan	2	0.9
Algeria	2	0.9
Bangladesh	2	0.9
Brazil	3	1.4
China	1	0.5
Congo	1	0.5
Congo, The Democratic Republic of the	1	0.5
Eritrea	1	0.5
India	23	10.5
Iraq	1	0.5
Latvia	1	0.5
Lesotho	1	0.5
Lithuania	1	0.5
Malawi	2	0.9
Niger	1	0.5
Nigeria	1	0.5
Pakistan	16	7.3
Philippines	10	4.5
Poland	4	1.8
Romania	9	4.1
Somalia	1	0.5
South Africa	5	2.3
Sri Lanka	1	0.5
Sudan	2	0.9
Syrian Arab Republic	1	0.5
United kingdom	2	0.9
Viet Nam	2	0.9
Zambia	1	0.5
Zimbabwe	3	1.4
Not specified	5	2.3
Unknown	13	5.9
<b>Total</b>	<b>220</b>	<b>100.0</b>



**Figure 2: Number of TB notifications by year and quarter of notification and geographic origin, 2002-Q1-3 2015**

### Case ascertainment

Table 6 summarises the method by which reported cases were detected in Q1 - Q3 2015.

**Table 6: Number and percentage of TB notifications by method of case finding, Q1-3 2015**

Found by	Number of TB Cases	% Total
Presenting as case	170	77.3
Contact tracing	10	4.5
Immigrant screening	1	0.5
Pre-employment screening	0	0.0
Post-mortem diagnosis	0	0.0
Other	10	4.5
Other screening	0	0.0
Not reported	29	13.2
<b>Total</b>	<b>220</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, Q1-3 2015**

HSE area	Pulmonary	Pulmonary & Extrapulmonary (P+E)	Extrapulmonary	Not reported	Total
HSE-E	51	5	36	6	<b>98</b>
HSE-M	7	1	5	1	<b>14</b>
HSE-MW	8	0	2	0	<b>10</b>
HSE-NE	8	0	2	1	<b>11</b>
HSE-NW	7	2	5	0	<b>14</b>
HSE-SE	4	0	7	0	<b>11</b>
HSE-S	26	1	19	0	<b>46</b>
HSE-W	11	2	3	0	<b>16</b>
<b>Total</b>	<b>122</b>	<b>11</b>	<b>79</b>	<b>8</b>	<b>220</b>
<b>%</b>	<b>55.5</b>	<b>5.0</b>	<b>35.9</b>	<b>3.6</b>	<b>100.0</b>

Ninety cases (40.9%) had an extra-pulmonary disease component reported (table 8).

**Table 8: Number and percentage of TB notifications by extrapulmonary site of disease, Q1-3 2015**

Extrapulmonary sites	Number of TB cases	% Total
Lymphatic extrathoracic	27	30.0
Pleural	13	14.4
Lymphatic intrathoracic	9	10.0
Other	8	8.9
Peritoneal/digestive	8	8.9
Bone/joint other than spine	5	5.6
Spine	5	5.6
Genito-urinary	3	3.3
Disseminated	2	2.2
Meningitis	2	2.2
Site not specified	8	8.9
<b>Total</b>	<b>90</b>	<b>100.0</b>

## TB meningitis

Two cases of TB meningitis were reported during Q1 - Q3 2015. One case was in a foreign-born individual aged 35-44 years old and one was in an Irish-born individual aged 65 years old and older with an occupational risk factor. BCG status was unknown for both cases. Culture result was negative for one case and positive for *M. bovis* in the other case.

## Microbiological results:

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

Of the 133 cases with a pulmonary component reported during Q1 - Q3 2015, 56 (42.1%) were sputum smear positive at diagnosis. Twenty-two of these cases (39.3%) reported a second sputum smear positive result.

### *Culture – first sample and isolates*

In Q1 - Q3 2015, 145 cases (65.9%) were culture positive, 20 (9.1%) were culture negative and eleven (5.0%) were reported as not having been culture tested (table 9). Culture result was not reported for the remaining 44 cases (20.0%).

Of the 145 culture positive cases, *M. tuberculosis* was isolated in 127 (92.7%) and *M. tuberculosis* complex<sup>§</sup> in fourteen (9.7%) and *M. bovis* in three (2.1%). The remaining culture positive case did not report species.

**Table 9: Number and percentage of TB notifications by first culture result and HSE area, Q1-3 2015**

Culture	HSE E	HSE M	HSE MW	HSE NE	HSE NW	HSE SE	HSE S	HSE W	Total	% Total
Culture positive	61	10	9	8	9	7	28	13	<b>145</b>	<b>65.9</b>
Culture negative	4	1	1	0	1	1	10	2	<b>20</b>	<b>9.1</b>
Not done	3	1	0	0	4	1	2	0	<b>11</b>	<b>5.0</b>
Not reported	30	2	0	3	0	2	6	1	<b>44</b>	<b>20.0</b>
<b>Total</b>	<b>98</b>	<b>14</b>	<b>10</b>	<b>11</b>	<b>14</b>	<b>11</b>	<b>46</b>	<b>16</b>	<b>220</b>	<b>100.0</b>

### *MIRU VNTR results*

Of the 145 culture positive cases, MIRU-VNTR typing results were reported for 121 cases (83.4%). Of the 121 typed isolates, 104 (86.0%) were unique. Seventeen isolates had a 24 loci match with one or more typed isolates. These clusters comprised one cluster of four matching isolates, one cluster with three matching isolates and five clusters of two matching isolates each. Six of the clusters were part of already documented clusters investigated by public health.

### *Antibiotic resistance*

Of the 145 culture positive cases reported, 134 (92.4%) had drug sensitivity details completed. Resistance was reported in nine cases (6.7% of 134 cases with drug sensitivity data reported and 4.1% of total cases reported).

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

One case of multidrug-resistant (MDR) TB was notified for this period<sup>\*\*</sup>. This was in a foreign-born case aged 35-44 years with no previous diagnosis of TB documented.

<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, Q1-3 2015**

Isolate	Isoniazid sensitivity	Rifampicin sensitivity	Ethambutol sensitivity	Pyrazinamide sensitivity	Streptomycin sensitivity	Previous history of TB disease	Born outside Ireland	Age group (years)
M. tb	<b>R</b>	<b>R</b>	S	S	S	No	Yes	35-44
M. tb	<b>R</b>	S	S	S	S	Unk	Yes	35-44
M. tb	<b>R</b>	S	S	S	<b>R</b>	No	Yes	35-44
M. tb	<b>R</b>	S	S	S	S	No	Yes	25-34
M. tb	<b>R</b>	S	S	S	S	Yes	Yes	65+
M. tb	S	S	S	S	<b>R</b>	No	Yes	15-19
M. tb	S	S	S	S	<b>R</b>	Yes	Yes	25-34
M. tb	S	S	S	S	<b>R</b>	No	Yes	25-34
M. tb	S	S	S	S	<b>R</b>	No	No	65+

### Chest X-ray

Seventy-one cases with a pulmonary component (53.4% 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, Q1-3 2015**

Chest X-ray	Number of TB cases	% Total
Active Cavitary TB	29	21.8
Active Non-cavitary TB	42	31.6
Inactive/Old TB	3	2.3
Other	18	13.5
Normal	5	3.8
Not done	1	0.8
Not reported	35	26.3
<b>Total</b>	<b>133</b>	<b>100.0</b>

### Previous history

During Q1 - Q3 2015, 14 cases (6.4% of total reported) had a previous history of TB. Six of these cases were born outside Ireland. Year of previous diagnosis ranged from 1950 to 2014 for these cases.

### HIV status

HIV status was reported for 49 (22.3%) TB cases. Four TB cases were reported as HIV positive (1.8% of total cases, 8.2% of cases with known HIV status) while 45 cases were reported as HIV negative (20.5% of total cases, 91.8% of cases with known HIV status).

### Outcome

Three deaths were reported during Q1 - Q3 2015. Two deaths were not due to TB and cause of death for the remaining case was not available at the time of this report.

## Outbreaks<sup>††</sup>

Four TB outbreaks were reported to HPSC during Q1 –Q3 2015. These outbreaks comprised 15 cases of active TB, one of whom was hospitalised, and 35 cases of latent TB infection. Three were family outbreaks occurring in private houses in HSE-NW, -S and -W. 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).

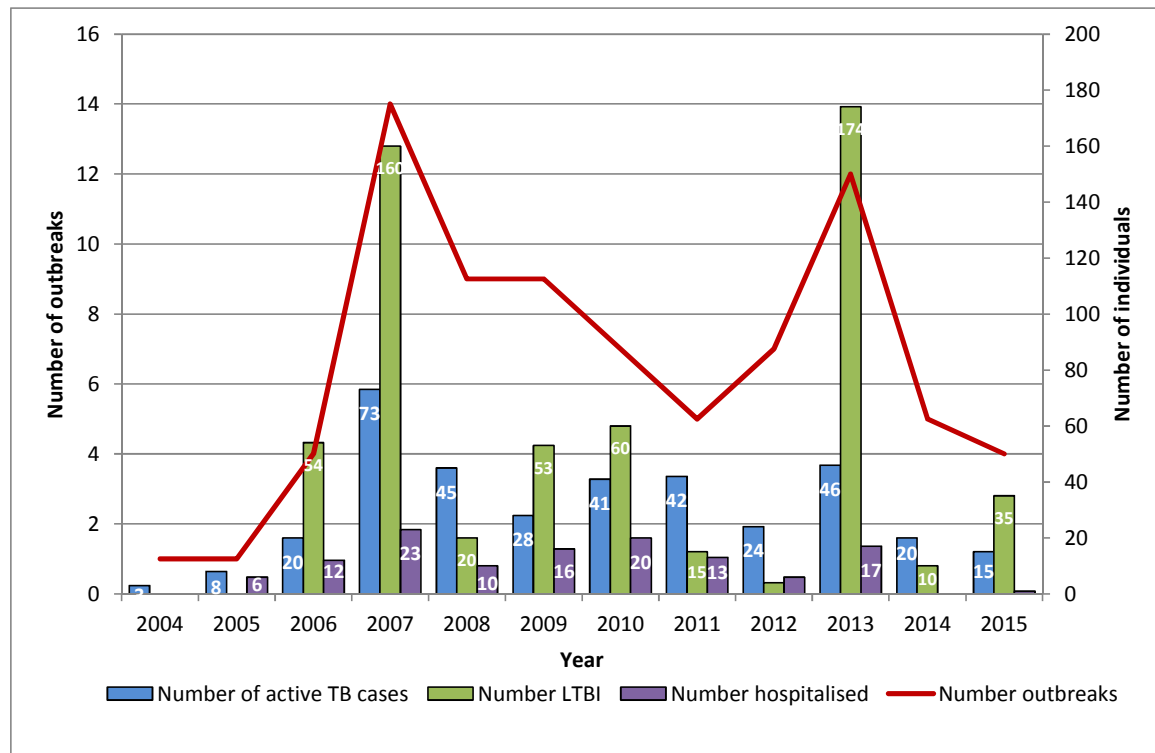


Figure 3: Outbreak summary by year

<sup>††</sup> Outbreak data taken from CIDR on 20/11/2015

## Appendix 1:

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

Year	Number of cases	Crude rate per 100,000 population	3 year moving average - Cases
1991	640	18.2	
1992	604	17.1	612
1993	598	17.0	581
1994	524	14.5	526
1995	458	12.6	469
1996	434	12.0	436
1997	416	11.5	423
1998	424	11.7	433
1999	469	12.9	439
2000	395	10.1	410
2001	381	9.7	392
2002	410	10.5	402
2003	406	10.4	413
2004	433	10.2	430
2005	448	10.6	448
2006	463	10.9	464
2007	481	11.3	473
2008	467	11.0	474
2009	479	10.4	461
2010	420	9.2	433
2011	413	9.0	401
2012	359	7.8	376
2013	372	8.1	355
2014	318	6.9	-
Q1-3 2015	220	4.8	-