



National TB Surveillance

A report by the Health Protection Surveillance Centre

Quarter 1 - 4 2013 TB Report

Report produced 18th February 2014^{*}

^{*} 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 12/02/2014

Introduction

This Quarter 1 - 4 2013 TB Report presents an epidemiological summary of the cases of tuberculosis (TB) notified to eight HSE areas in Ireland during January - December 2013.

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 2013:

- 384 TB cases[†] were notified to HPSC, corresponding to a provisional crude incidence rate of 8.4 per 100,000 population.
- HSE East reported the highest number of cases at 151 (39.3% of total).
- More cases were reported in males (63.0%).
- The highest proportion of cases (23.2%) occurred in those aged 25-34 years followed by 21.4% of cases in those aged 35-44 years.
- 44.3% of all cases were foreign born.
- Three cases of TB meningitis were notified.
- 275 cases (71.6%) were culture positive, 31 (8.1%) were culture negative, 10 (2.6%) were reported as not having been culture tested and 68 (17.7%) cases did not have culture results available
- Of the 275 culture positive cases, *M. tuberculosis* was isolated in 253 (92.0%), *M. tuberculosis* complex in 11 (4.0%) cases, *M. africanum* in four (1.5%) cases, *M. bovis* in five (1.8%) cases and *Mycobacterium* species[‡] in one (0.4%) case. Isolate was not specified for the remaining culture positive case.
- 258 (93.8%) culture positive cases had drug sensitivity details.
- Four cases of multidrug-resistant TB (MDR-TB) were notified for this period.

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

[‡] Species of mycobacteria not specified

Results

Total cases of tuberculosis notified in Q1 - 4 2013

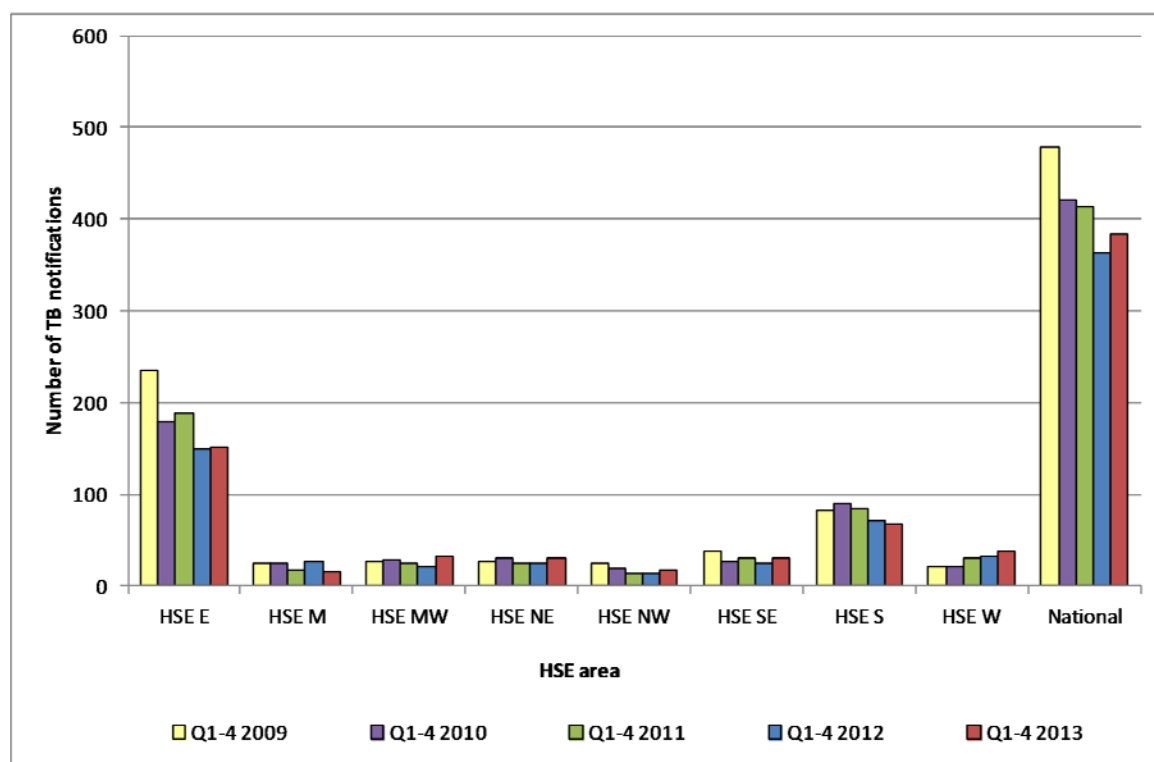
There were 384 cases of TB notified during the period 1st January to 31st December 2013. This is slightly higher than the number of TB notifications reported for quarter 1 - 4 2012 (364), and is the second lowest number of notifications for quarter 1 to 4 since TB surveillance began in 1998 (table 1). The number of cases notified in each HSE area is shown in table 2 and figure 1 and a breakdown of TB cases by county is shown in table 3.

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	403	9.0
2012*	364	381	7.9
2013*	384		8.4

Table 2: Number and percentage of TB notifications by HSE area, Q1 - 4 2013

HSE Area	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total	% Total
East	36	50	45	20	151	39.3
Midland	4	3	7	2	16	4.2
Mid-West	6	11	6	10	33	8.6
North East	5	11	9	5	30	7.8
North West	7	4	4	2	17	4.4
South East	8	7	9	7	31	8.1
South	13	19	18	18	68	17.7
West	14	8	10	6	38	9.9
Total	93	113	108	70	384	100.0

**Figure 1:** Number of TB notifications by HSE area, Q1 to Q4 2009-2013[§]

[§] 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 2013

County	Q1	Q2	Q3	Q4	Number of TB cases	% Total
Carlow	1	0	1	1	3	<i>0.8</i>
Cavan	0	3	1	1	5	<i>1.3</i>
Clare	1	6	2	1	10	<i>2.6</i>
Cork	12	17	14	16	59	<i>15.4</i>
Donegal	2	3	3	1	9	<i>2.3</i>
Dublin	31	45	33	18	127	<i>33.1</i>
Galway	9	5	5	5	24	<i>6.3</i>
Kerry	1	2	4	2	9	<i>2.3</i>
Kildare	4	4	7	2	17	<i>4.4</i>
Kilkenny	4	3	1	1	9	<i>2.3</i>
Laois	1	1	1	1	4	<i>1.0</i>
Leitrim	1	0	0	0	1	<i>0.3</i>
Limerick	4	4	2	9	19	<i>4.9</i>
Longford	0	0	1	1	2	<i>0.5</i>
Louth	2	1	5	4	12	<i>3.1</i>
Mayo	5	3	5	1	14	<i>3.6</i>
Meath	3	7	3	0	13	<i>3.4</i>
Offaly	0	1	2	0	3	<i>0.8</i>
Sligo	4	1	1	1	7	<i>1.8</i>
Tipperary	2	3	3	2	10	<i>2.6</i>
Waterford	0	1	4	2	7	<i>1.8</i>
Westmeath	3	1	3	0	7	<i>1.8</i>
Wexford ^{**}	2	1	2	1	6	<i>1.6</i>
Wicklow ^{††}	1	1	5	0	7	<i>1.8</i>
Total	93	113	108	70	384	100.0

A further breakdown of cases by community care area is shown in table 4.

^{**} One case resident in county Wexford is included in CCA CW/KK figures

^{††} One case resident in county Wicklow is included in CCA9 figures

Table 4: Number and percentage of TB notifications by community care area, Q1 – Q4 2013

HSE Area	Community Care Area	Number of TB cases
East	CCA1	9
	CCA2	6
	CCA3	17
	CCA4	14
	CCA5	17
	CCA6	24
	CCA7	24
	CCA8	16
	CCA9 ^{††}	18
	CCA10	6
	Total	151
Midland	Longford/Westmeath	9
	Laois/Offaly	7
	Total	16
Mid-West	Clare	10
	Limerick	19
	Tipperary Nth/E Limerick	4
	Total	33
North East	Cavan	5
	Louth	12
	Meath	13
	Monaghan	0
	Total	30
North West	Donegal	9
	Sligo/Leitrim	8
	Total	17
South East	Carlow/Kilkenny ^{§§}	13
	Tipperary South	6
	Waterford	7
	Wexford	5
	Total	31
South	Kerry	9
	North Cork	12
	North/South Lee	44
	West Cork	3
	Total	68
West	Galway	24
	Mayo	14
	Roscommon	0
	Total	38
Ireland	Total	384

^{††} One case resident in county Wicklow is included in CCA9 figures

^{§§} One case resident in county Wexford is included in CCA CW/KK figures

Sex

There were 140 females (36.5%) and 242 males (63.0%) in Q1 to Q4 2013. Sex was not reported for two cases (0.5%).

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 2013

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	1	0	0	1	0	1	3	0.8
5-09	0	0	0	0	0	0	2	1	3	0.8
10-14	0	0	0	0	0	1	1	0	2	0.5
15-19	6	0	1	2	0	1	0	1	11	2.9
20-24	13	1	5	2	0	3	6	8	38	9.9
25-34	34	3	7	8	6	10	13	8	89	23.2
35-44	38	4	6	4	3	5	16	6	82	21.4
45-54	25	2	4	2	2	4	11	6	56	14.6
55-64	23	2	5	3	0	3	6	3	45	11.7
65+	12	4	4	9	6	3	13	4	55	14.3
Unknown	0	0	0	0	0	0	0	0	0	0.0
Total	151	16	33	30	17	31	68	38	384	100.0

Country of origin

During Q1 – Q4 2013, 206 (53.6%) TB cases were born in Ireland and 170 (44.3%) were born outside Ireland. Country of birth was not reported for eight (2.1%) cases. Table 6 summarises the countries of birth of cases.

Of those 170 cases born outside Ireland, 10 (5.9%) were reported as asylum seekers or refugees. There were two each from HSE-E, -NW and -W, and one each from HSE-M, -MW, -SE and -S. Figure 2 shows the annual number of TB cases by geographic origin from 2002 to 2013.

Table 6: Number and percentage of TB notifications by country of birth, Q1 – Q4 2013

Country of birth	Q1	Q2	Q3	Q4	Number of TB cases	% Total
Ireland	49	64	56	37	206	53.6
Algeria	0	0	0	1	1	0.3
Bangladesh	1	1	1	0	3	0.8
Belgium	0	0	1	0	1	0.3
Brazil	0	1	1	0	2	0.5
Cape Verde	1	0	0	0	1	0.3
China	1	2	0	0	3	0.8
Congo	0	1	0	0	1	0.3
Congo, The Democratic Republic of the	1	2	0	0	3	0.8
Czech Republic	0	0	1	0	1	0.3
Ethiopia	0	0	1	0	1	0.3
Georgia	1	0	0	0	1	0.3
Hong Kong	0	0	0	2	2	0.5
India	11	8	9	2	30	7.8
Indonesia	0	0	1	0	1	0.3
Iran, Islamic Republic of	1	0	0	0	1	0.3
Kenya	1	1	0	0	2	0.5
Korea, Republic of	1	0	0	0	1	0.3
Kosovo	0	0	1	0	1	0.3
Latvia	1	0	0	1	2	0.5
Lithuania	1	3	0	1	5	1.3
Madagascar	0	0	0	1	1	0.3
Malawi	1	0	0	0	1	0.3
Mauritius	0	0	1	0	1	0.3
Morocco	0	0	0	1	1	0.3
Nigeria	2	1	3	2	8	2.1
Pakistan	5	7	6	3	21	5.5
Philippines	2	5	11	1	19	4.9
Poland	1	2	2	4	9	2.3
Portugal	1	0	0	0	1	0.3
Reunion	0	1	0	0	1	0.3
Romania	3	3	2	3	11	2.9
Russian Federation	0	1	0	1	2	0.5
Saudi Arabia	1	0	0	0	1	0.3
Serbia	0	0	1	0	1	0.3
Somalia	0	2	2	0	4	1.0
South Africa	2	2	3	2	9	2.3
Spain	0	1	0	0	1	0.3
Sudan	1	1	0	0	2	0.5
Thailand	1	0	0	1	2	0.5
Turkey	0	0	1	0	1	0.3
Uganda	0	1	0	0	1	0.3
United Kingdom	0	3	1	2	6	1.6
United States	0	0	1	0	1	0.3
Viet Nam	1	0	0	0	1	0.3
Zimbabwe	0	0	0	1	1	0.3
Not specified	2	0	2	3	7	1.8
Unknown	0	0	0	1	1	0.3
Total	93	113	108	70	384	100.0

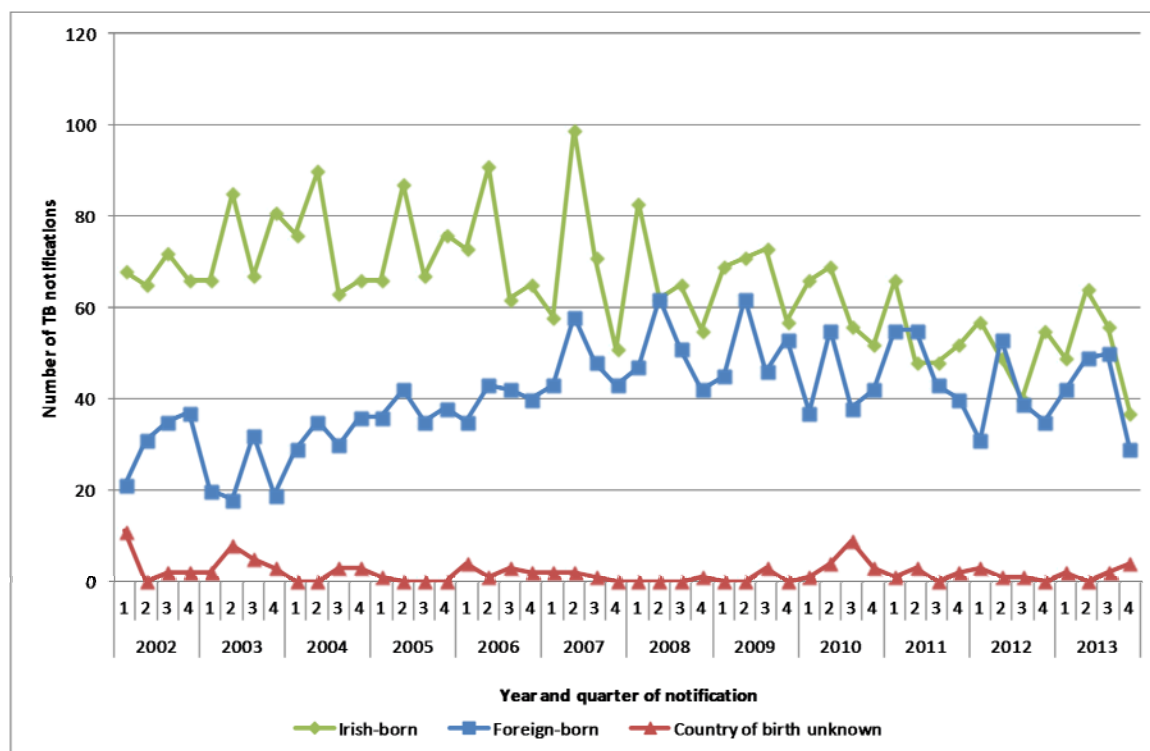


Figure 2: Number of TB notifications by year and quarter of notification and geographic origin, 2002–2013

Case ascertainment

Table 7 summarises the method by which reported cases were detected in Q1 to Q4 2013.

Table 7: Number and percentage of TB notifications by method of case finding, Q1 – Q4 2013

Found by	Number of TB cases	% Total
Presenting as case	302	78.6
Contact tracing	29	7.6
Immigrant screening	1	0.3
Pre-employment screening	2	0.5
Post-mortem diagnosis	5	1.3
Other	14	3.6
Not specified	31	8.1
Total	384	100.0

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 2013

HSE area	Pulmonary	Pulmonary & Extrapulmonary (P+E)	Extrapulmonary	Not reported	Total
HSE-E	92	11	48	0	151
HSE-M	6	1	8	1	16
HSE-MW	16	3	14	0	33
HSE-NW	19	2	8	1	30
HSE-NW	8	1	8	0	17
HSE-SE	21	3	7	0	31
HSE-S	43	2	22	1	68
HSE-W	23	0	15	0	38
Total	228	23	130	3	384
%	59.4	6.0	33.9	0.8	100.0

One hundred and fifty-three cases (39.8%) had an extra-pulmonary disease component reported (table 9).

Table 9: Number and percentage of TB notifications by extrapulmonary site of disease, Q1-4 2013

Extra-pulmonary sites	Number of TB cases	% Total
Lymphatic extrathoracic	48	31.4
Pleural	29	19.0
Lymphatic intrathoracic	19	12.4
Other	13	8.5
Peritoneal/digestive	11	7.2
Spine	9	5.9
Genito-urinary	5	3.3
Bone/joint other than spine	4	2.6
Unknown	4	2.6
Disseminated	3	2.0
Meningitis	3	2.0
Central nervous system other than meningitis	1	0.7
Site not specified	4	2.6
Total	153	100.0

TB meningitis

Three cases of TB meningitis were reported during Q1-4 2013. One case was culture positive for *M. tuberculosis* and one for *M. africanum* while culture was not reported for the remaining case. There was one case each in the 25-34 year age group, 35-44 year age group and the 45-54 year age group. One case was foreign-born. BCG status was unavailable for all three cases.

Sputum-smear status - at initial diagnosis

Of the 251 cases with a pulmonary component reported during Q1 to Q4 2013, 128 (51.0%) were sputum smear positive at diagnosis. Sixty-five of these cases (50.8%) reported a second sputum smear positive result.

Culture and isolates - at initial diagnosis

During Q1 to Q4 2013, 275 cases (71.6%) were culture positive, 31 (8.1%) were culture negative, 10 (2.6%) were reported as not having been culture tested and 68 (17.7%) cases did not have culture results available (table 10).

Of the 275 culture positive cases, *M. tuberculosis* was isolated in 253 (92.0%), *M. tuberculosis* complex in 11 (4.0%) cases, *M. africanum* in four (1.5%) cases, *M. bovis* in five (1.8%) cases and *Mycobacterium* species*** in one (0.4%) case. Isolate was not specified for the remaining culture positive case.

Table 10: Number and percentage of TB notifications by culture result and HSE area, Q1 – Q4 2013

Culture	HSE E	HSE M	HSE MW	HSE NE	HSE NW	HSE SE	HSE S	HSE W	Total	% Total
Culture positive	109	9	27	22	15	26	42	25	275	71.6
Culture negative	7	3	3	2	1	2	7	6	31	8.1
Not done	4	0	3	0	0	0	2	1	10	2.6
Not specified	31	4	0	6	1	3	17	6	68	17.7
Total	151	16	33	30	17	31	68	38	384	100.0

*** Species of mycobacteria not specified

Antibiotic resistance

Of the 275 culture positive cases reported, 258 (93.8%) had drug sensitivity details completed^{†††}.

Resistance was reported in 34 cases (13.2% of 258 cases with drug sensitivity data reported and 8.9% of total cases reported). *M. tuberculosis* was isolated in 33 resistant cases and *M. africanum* was isolated in the remaining resistant case. Nine resistant cases (26.5%) were born in Ireland. Twenty-four resistant cases (70.6%) were born outside Ireland, while country of birth was not available for one case. None of the resistant cases had a recorded previous history of TB (table 11).

Multi-drug resistant TB was reported in four cases, all of whom were foreign-born. Two MDR-TB cases reported no previous history of TB and previous history was not available for the remaining two MDR-TB cases.^{†††}

No extensively drug resistant (XDR) TB cases were reported during Q1 to Q4 2013.

Table 11: Sensitivity results of drug resistant TB cases in Ireland, Q1 – Q4 2013

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	S	S	S	S	No	Y	25-34
M. tb	R	S	S	S	Unk	No	Y	45-54
M. tb	R	S	S	S	S	No	N	55-64
M. tb	R	S	S	S	S	No	N	0-4
M. tb	R	S	S	S	R	No	N	20-24
M. tb	R	S	S	Unk	S	No	N	20-24
M. tb	R	S	S	S	S	No	N	20-24
M. tb	R	S	S	S	S	No	N	20-24
M. tb	R	S	S	S	S	No	N	20-24
M. tb	R	R	S	R	R	Unk	Y	45-54
M. tb	R	S	S	S	R	No	Y	25-34
M. tb	R	R	R	S	R	No	Y	35-44
M. tb	R	S	S	S	S	No	Y	35-44
M. tb	R	S	S	S	S	Unk	Y	25-34
M. tb	R	S	S	S	Unk	No	Y	55-64
M. tb	R	S	S	R	R	No	Y	55-64
M. tb	R	S	S	S	R	Unk	Y	45-54
M. tb	R	R	R	R	R	Unk	Y	35-44
M. tb	R	R	S	R	R	No	Y	20-24
M. tb	R	S	S	S	S	Unk	Y	25-34
M. tb	R	S	S	S	S	No	Y	35-44
M. tb	R	S	S	S	S	Unk	Y	35-44
M. tb	R	S	S	S	S	Unk	Y	45-54
M. tb	R	S	S	S	S	No	Y	45-54
M. tb	R	S	S	S	S	No	Y	35-44
M. tb	S	S	S	S	R	Unk	Y	55-64
M. tb	S	S	S	S	R	No	Y	45-54
M. tb	S	S	S	R	Unk	No	Y	45-54
M. tb	S	S	S	S	R	No	N	35-44
M. tb	S	S	S	S	R	No	N	25-34
M. africanum	S	S	S	S	R	No	Unk	35-44
M. tb	S	S	S	S	R	No	Y	35-44
M. tb	S	S	S	S	R	No	Y	35-44
M. tb	S	S	S	S	R	No	Y	20-24

^{†††} 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 251 cases with a pulmonary component, 170 (44.3% 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 2013

Chest X-ray	Number of TB cases	% Total
Active cavitary TB	65	25.9
Active non-cavitary TB	105	41.8
Inactive/old TB	1	0.4
Pleural	2	0.8
Other	16	6.4
Normal	11	4.4
Not done	1	0.4
Not specified	50	19.9
Total	251	100.0

Previous history

During Q1 – Q4 2013, 28 cases (7.3% of total reported) reported a previous history of TB. Nineteen cases with a previous history of TB were born in Ireland and seven were born outside of Ireland, country of birth was not known for the remaining two cases. Year of previous TB diagnosis ranged from 1934 to 2012.

Outcome

Nine cases died during Q1 – Q4 2013 (2.3% of total reported). TB was reported as the cause of death in four of these cases, four deaths were not due to TB and cause of death was not reported for the remaining case.

Outbreaks

During Q1-4 2013, 12 TB outbreaks were reported to HPSC, comprising 41 cases of active TB disease (17 of whom were hospitalised) and 155 cases of latent TB infection (LTBI). LTBI were reported from five outbreaks. This is the highest annual number of LTBI cases associated with outbreaks reported since 2007. Three outbreaks each occurred in HSE-E, -S and -W, two occurred in HSE-MW and one occurred in HSE- SE.

Six general outbreaks occurred during 2013. Two general outbreaks occurred in a community setting, one each were in a university/college, a workplace, a healthcare facility while the remaining general outbreak involved more than one location.

Six family outbreaks also occurred during 2013, three of which occurred across extended families and two were in private houses. The remaining outbreak involved more than one location

All outbreaks notified during 2013 reported *M. tuberculosis* or *M. tuberculosis* complex as the causative pathogen.

Figure 3 illustrates the number of TB outbreaks, number of cases of active TB disease, number LTBI and number hospitalised by year between 2004 and 2013.

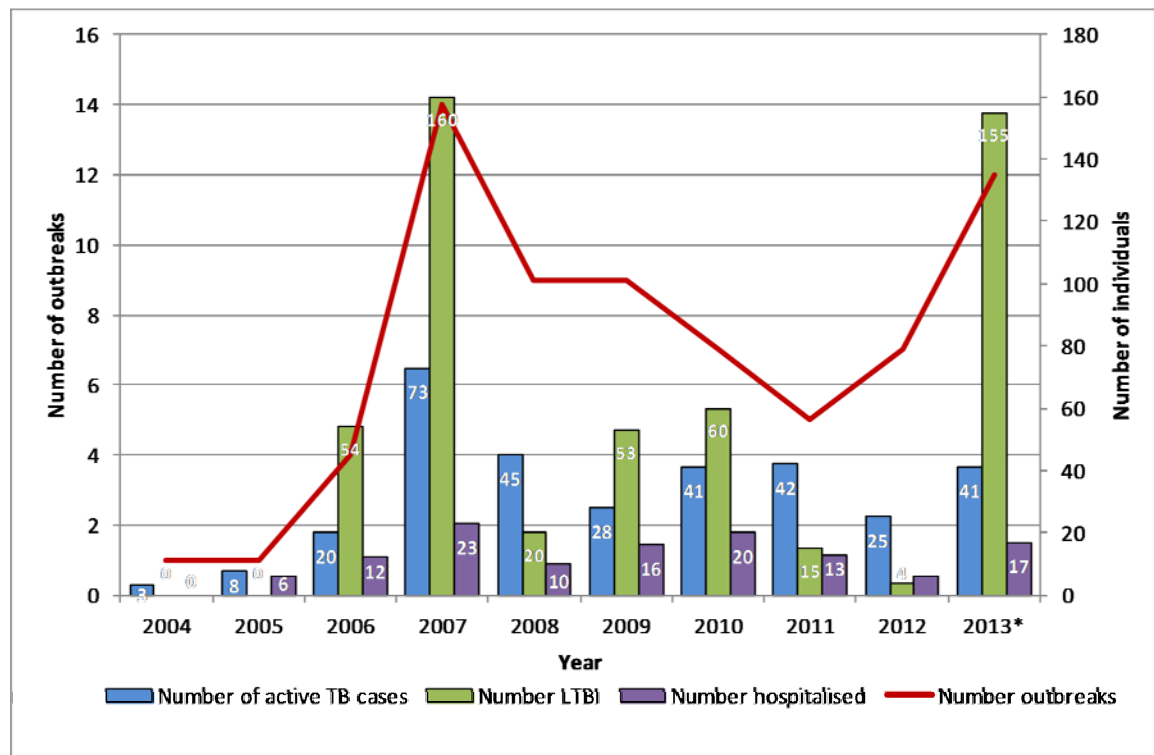


Figure 3: TB outbreak summary by year, 2004-2013^{§§§}

^{§§§} Data for 2013 are provisional data only