



National TB Surveillance

A report by the Health Protection Surveillance Centre

Provisional

Quarter 1 - 4 2014 TB Report

Report produced 25th February 2015*

* 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.

Introduction

This Quarter 1-4 2014 TB Report presents an epidemiological summary of the cases of tuberculosis (TB) notified to eight HSE areas in Ireland during January - December 2014.

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 2014:

- 328 TB cases[†] were notified to HPSC, corresponding to a provisional crude incidence rate of 7.1 per 100,000 population.
- HSE East reported the highest number of cases at 137 (41.8% of total), with 36.9% of total cases being reported in Dublin.
- More cases were reported in males (53.7%).
- The highest proportion of cases (23.2%) occurred in those aged 65 years and older years followed by 22.0% of cases in those aged 25-34 years.
- 40.9% of all cases were foreign born.
- One case of TB meningitis was notified.
- 229 cases (69.8%) were culture positive, 35 (10.7%) were culture negative, 15 (4.6%) were reported as not having been culture tested and 49 (14.9%) cases did not have culture results available
- Of the 229 culture positive cases, *M. tuberculosis* was isolated in 218 (95.2%), *M. tuberculosis* complex in five (2.2%) cases, *M. africanum* in three (1.3%) cases and *M. bovis* in three (1.3%) cases.
- 222 (96.9%) culture positive cases had drug sensitivity details.
- Two 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.

Results

Total cases of tuberculosis notified in Q1 - 4 2014

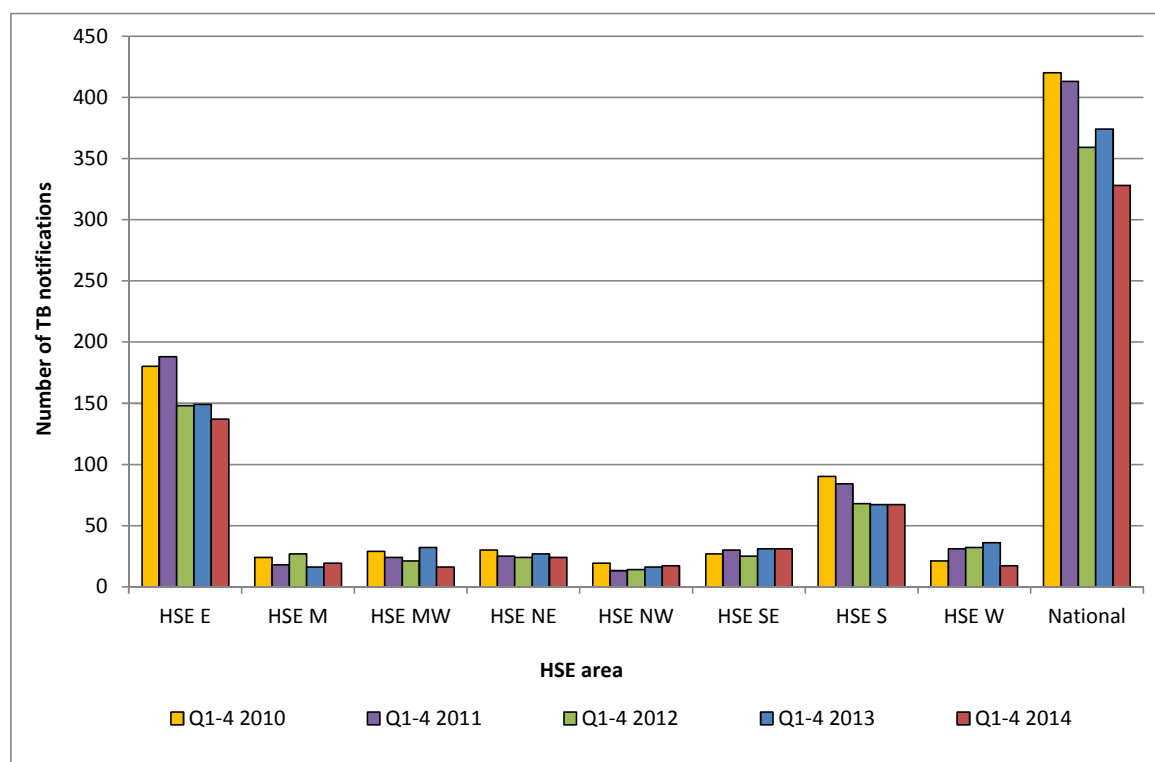
There were 328 cases of TB notified during the period 1st January to 31st December 2014. This is lower than the number of TB notifications reported for quarter 1 - 4 2013 (374), and is the lowest number of notifications for quarter 1 to 4 since TB surveillance began in 1998 (table 1). The number of cases notified in each HSE area for Q 1-4 2014 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	359	8.2
2014	328	-	7.1

Table 2: Number and percentage of TB notifications by HSE area, Q1 - 4 2014

HSE Area	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total	% Total
East	49	31	23	34	137	41.8
Midland	1	6	7	5	19	5.8
Mid-West	2	5	4	5	16	4.9
North East	4	9	4	7	24	7.3
North West	4	9	1	3	17	5.2
South East	9	6	7	9	31	9.5
South	17	12	22	16	67	20.4
West	3	1	6	7	17	5.2
Total	89	79	74	86	328	100.0

**Figure 1: Number of TB notifications by HSE area, Q1 to Q4 2010-2014[‡]**

[‡] 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 2014

County	Q1	Q2	Q3	Q4	Number of TB cases	% Total
Carlow	1	1	2	1	5	1.5
Cavan	2	1		1	4	1.2
Clare		3	1	4	8	2.4
Cork	11	9	20	13	53	16.2
Donegal	2	7		1	10	3.0
Dublin	42	27	22	30	121	36.9
Galway	1	1	1	6	9	2.7
Kerry	6	3	2	3	14	4.3
Kildare	6	3	1	2	12	3.7
Kilkenny [§]	1	2		2	5	1.5
Laois		1	2		3	0.9
Leitrim		2		1	3	0.9
Limerick	2	2	3	1	8	2.4
Longford		3	1	2	6	1.8
Louth		3	3	3	9	2.7
Mayo	2		1	1	4	1.2
Meath	1	5		2	8	2.4
Monaghan	1		1	1	3	0.9
Offaly		1	1		2	0.6
Roscommon			4		4	1.2
Sligo	2		1	1	4	1.2
Tipperary	3	1	2		6	1.8
Waterford	2	1	3	3	9	2.7
Westmeath	1	1	3	3	8	2.4
Wexford	2	1		3	6	1.8
Wicklow	1	1		2	4	1.2
Total	89	79	74	86	328	100.0

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

§ One Kilkenny case was resident in Waterford LHO.

Table 4: Number and percentage of TB notifications by Local Health Authority, Q1 – Q4 2014

HSE Area	LHO	Number of TB cases
East	Dublin South	6
	Dublin South East	10
	Dublin South City	12
	Dublin South West	14
	Dublin West	15
	Dublin North West	25
	Dublin North Central	27
	Dublin North	12
	Kildare/West Wicklow	14
	Wicklow	2
	Total	137
Midland	Longford/Westmeath	14
	Laois/Offaly	5
	Total	19
Mid-West	Clare	8
	Limerick	8
	Tipperary Nth/E Limerick	0
	Total	16
North East	Cavan	4
	Louth	9
	Meath	8
	Monaghan	3
	Total	24
North West	Donegal	10
	Sligo/Leitrim	7
	Total	17
South East	Carlow/Kilkenny	9
	Tipperary South	6
	Waterford**	10
	Wexford	6
	Total	31
South	Kerry	14
	North Cork	10
	North/South Lee	40
	West Cork	3
	Total	67
West	Galway	9
	Mayo	4
	Roscommon	4
	Total	17
Ireland	Total	328

** One Kilkenny case was resident in Waterford LHO.

Sex

There were 152 females (46.3%) and 176 males (53.7%) in Q1 to Q4 2014.

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 2014

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	0	0.0
05-09	2	0	0	0	0	0	1	0	3	0.9
10-14	2	0	0	0	0	1	1	0	4	1.2
15-19	3	0	1	2	1	1	0	2	10	3.0
20-24	12	0	2	0	0	2	5	0	21	6.4
25-34	38	2	2	2	3	6	14	5	72	22.0
35-44	25	5	2	7	3	3	11	2	58	17.7
45-54	19	2	2	3	2	6	8	2	44	13.4
55-64	15	0	3	1	2	4	12	3	40	12.2
65+	21	10	4	9	6	8	15	3	76	23.2
Unknown	0	0	0	0	0	0	0	0	0	0.0
Total	137	19	16	24	17	31	67	17	328	100.0

Country of origin

During Q1 – Q4 2014, 177 (54.0%) TB cases were born in Ireland and 134 (40.9%) were born outside Ireland. Country of birth was not reported for 17 (5.2%) cases. Table 6 summarises the countries of birth of cases.

Of those 134 cases born outside Ireland, 13 (9.7%) were reported as asylum seekers or refugees. There were six from HSE-E, five from –S and two from HSE-SE. Figure 2 shows the annual number of TB cases by geographic origin from 2002 to 2014.

Table 6: Number and percentage of TB notifications by country of birth, Q1 – Q4 2014

Country of birth	Q1	Q2	Q3	Q4	Number of TB cases	% Total
Ireland	49	47	37	44	177	54.0
Afghanistan		1			1	0.3
Algeria	1	1			2	0.6
Bangladesh			1	2	3	0.9
Bolivia			1		1	0.3
Botswana	1		2		3	0.9
Brazil				2	2	0.6
Bulgaria	1	1			2	0.6
Cameroon		1			1	0.3
Canada				1	1	0.3
Cape Verde	1				1	0.3
China		1			1	0.3
Ethiopia	1				1	0.3
Hong Kong		1			1	0.3
Hungary			1		1	0.3
India	9	8	7	2	26	7.9
Latvia	1		1		2	0.6
Lithuania				1	1	0.3
Malawi	1	1	1	1	4	1.2
Malaysia	2		1		3	0.9
Mauritius			1		1	0.3
Mongolia	1				1	0.3
Nepal				3	3	0.9
Nigeria	5	1	5	4	15	4.6
Norway				1	1	0.3
Pakistan	3	1	2	5	11	3.4
Philippines	1	3	1	2	7	2.1
Poland	1	3	1	3	8	2.4
Romania	2				2	0.6
Saudi Arabia	1				1	0.3
Somalia		3			3	0.9
South Africa	1	1	1	3	6	1.8
Syrian Arab Republic	1				1	0.3
Thailand		1	2		3	0.9
Uganda		1			1	0.3
United Kingdom		1	2		3	0.9
United States			1		1	0.3
Venezuela	2				2	0.6
Viet Nam	1		2		3	0.9
Zambia	1				1	0.3
Zimbabwe	1		2		3	0.9
Not specified	1	2	1	4	8	2.4
Unknown			1	8	9	2.7
Total	89	79	74	86	328	100.0

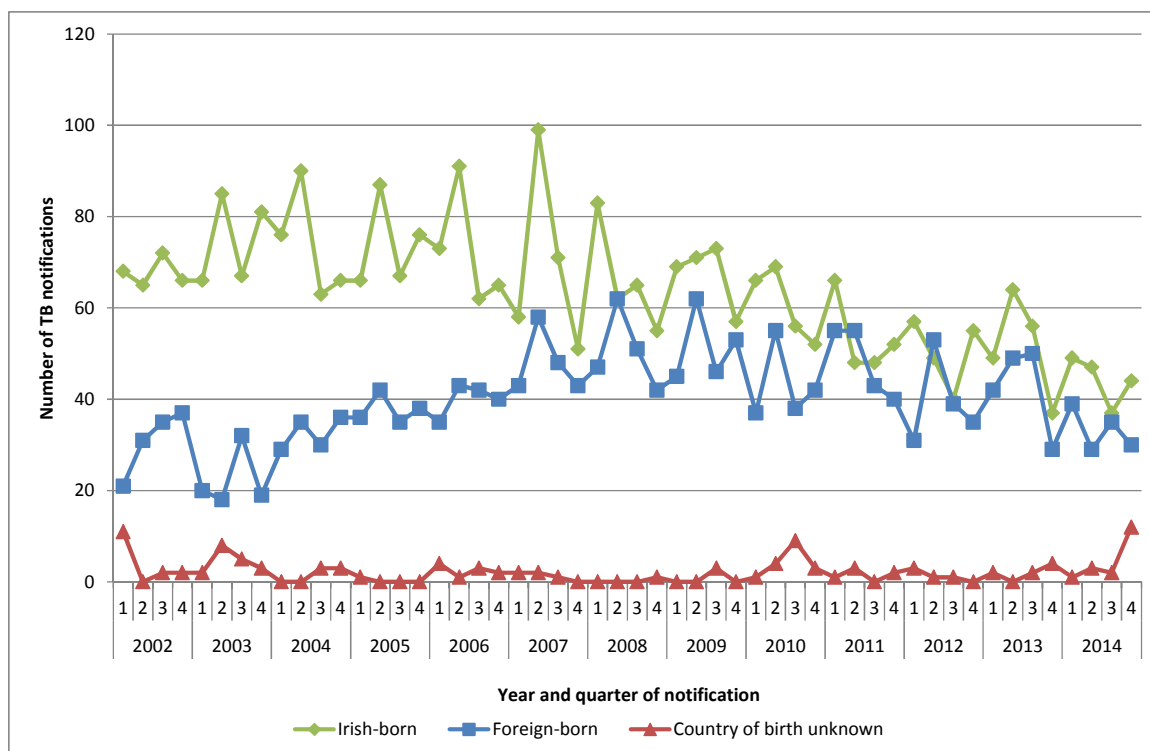


Figure 2: Number of TB notifications by year and quarter of notification and geographic origin, 2002–2014

Case ascertainment

Table 7 summarises the method by which reported cases were detected in Q1 to Q4 2014.

Table 7: Number and percentage of TB notifications by method of case finding, Q1 – Q4 2014

Found by	Number of TB cases	% Total
Presenting as case	262	79.9
Contact tracing	22	6.7
Immigrant screening	1	0.3
Pre-employment screening	1	0.3
Post-mortem diagnosis	1	0.3
Other	15	4.6
Not specified	26	7.9
Total	328	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 2014

HSE area	Pulmonary	Pulmonary & Extrapulmonary (P+E)	Extrapulmonary	Not reported	Total
HSE-E	80	8	49	0	137
HSE-M	10	0	4	5	19
HSE-MW	9	1	5	1	16
HSE-NE	14	2	6	2	24
HSE-NW	6	1	10	0	17
HSE-SE	15	2	14	0	31
HSE-S	33	8	26	0	67
HSE-W	6	2	8	1	17
Total	173	24	122	9	328
%	52.7	7.3	37.2	2.7	100.0

One hundred and forty-six cases (44.5%) had an extra-pulmonary disease component reported (table 9).

Table 9: Number and percentage of TB notifications by extrapulmonary site of disease, Q1-4 2014

Extra-pulmonary sites	Number of TB cases	% Total
Lymphatic extrathoracic	37	25.3
Pleural	29	19.9
Lymphatic intrathoracic	22	15.1
Other	16	11.0
Peritoneal/digestive	10	6.8
Genito-urinary	9	6.2
Spine	7	4.8
Disseminated	4	2.7
Bone/joint other than spine	4	2.7
Meningitis	1	0.7
Unknown	1	0.7
EP site not reported	6	4.1
Total	146	100.0

TB meningitis

One case of TB meningitis was reported during Q1-4 2014, due to *M. africanum*. This case was born in Ireland and was in the 0-14 year age group. The case had received the BCG and no previous history of TB was reported for this case.

Sputum-smear status - at initial diagnosis

Of the 197 cases with a pulmonary component reported during Q1 to Q4 2014, 98 (49.7%) were sputum smear positive at diagnosis. Thirty-six of these cases (36.7%) reported a second sputum smear positive result.

Culture and isolates - at initial diagnosis

During Q1 to Q4 2014, 229 cases (69.8%) were culture positive, 35 (10.7%) were culture negative, 15 (4.6%) were reported as not having been culture tested and 49 (14.9%) cases did not have culture results available (table 10).

Of the 229 culture positive cases, *M. tuberculosis* was isolated in 218 (95.2%), *M. tuberculosis* complex in five (2.2%) cases, *M. africanum* in three (1.3%) cases and *M. bovis* in three (1.3%).

Table 10: Number and percentage of TB notifications by culture result and HSE area, Q1 – Q4 2014

Culture	HSE E	HSE M	HSE MW	HSE NE	HSE NW	HSE SE	HSE S	HSE W	Total	% Total
Culture positive	105	10	10	20	10	20	43	11	229	69.8
Culture negative	6	1	2	0	5	3	15	3	35	10.7
Not done	0	1	0	1	2	1	8	2	15	4.6
Not specified	26	7	4	3	0	7	1	1	49	14.9
Total	137	19	16	24	17	31	67	17	328	100.0

Antibiotic resistance

Of the 229 culture positive cases reported, 222 (96.9%) had drug sensitivity details completed^{††}.

Resistance was reported in 21 cases (9.5% of 222 cases with drug sensitivity data reported and 6.4% of total cases reported). *M. tuberculosis* was isolated in 20 resistant cases and *M. bovis* was isolated in the remaining resistant case. Eighteen resistant cases (85.7%) were born outside Ireland while three resistant cases (14.3%) were born in Ireland. One of the resistant cases had a recorded previous history of TB (table 11).

Multidrug-resistant TB was reported in two cases, both of whom were foreign-born and reported no previous history of TB.^{‡‡}

No extensively drug resistant (XDR) TB cases were reported during Q1 to Q4 2014.

Table 11: Sensitivity results of drug resistant TB cases in Ireland, Q1 – Q4 2014

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	N	65+
<i>M. bovis</i>	R	S	S	N/A	S	No	N	45-54
<i>M. tb</i>	R	S	Unk	Unk	Unk	No	N	20-24
<i>M. tb</i>	R	S	S	S	S	No	Y	35-44
<i>M. tb</i>	R	S	S	S	Unk	No	Y	25-34
<i>M. tb</i>	R	S	S	S	S	No	Y	25-34
<i>M. tb</i>	R	S	S	S	R	No	Y	35-44
<i>M. tb</i>	R	R	Unk	R	R	No	Y	35-44
<i>M. tb</i>	R	S	S	S	S	No	Y	35-44
<i>M. tb</i>	R	S	Unk	Unk	Unk	Yes	Y	45-54
<i>M. tb</i>	R	R	R	R	R	No	Y	45-54
<i>M. tb</i>	R	S	S	S	S	No	Y	15-19
<i>M. tb</i>	S	S	S	S	R	No	Y	20-24
<i>M. tb</i>	S	S	S	R	S	No	Y	35-44
<i>M. tb</i>	S	S	S	S	R	No	Y	15-19
<i>M. tb</i>	S	S	S	S	R	No	Y	25-34
<i>M. tb</i>	S	S	S	R	S	No	Y	25-34
<i>M. tb</i>	S	S	S	S	R	No	Y	25-34
<i>M. tb</i>	S	S	S	R	S	No	Y	20-24
<i>M. tb</i>	S	S	S	R	S	No	Y	25-34
<i>M. tb</i>	S	S	S	R	S	No	Y	35-44

^{††} 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 197 cases with a pulmonary component, 118 (59.9% 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 2014

Chest X-ray	Number of TB cases	% Total
Active Cavitory TB	48	24.4
Active Non-cavitory TB	70	35.5
Inactive/Old TB	3	1.5
Pleural	4	2.0
Other	23	11.7
Normal	9	4.6
Not Done	1	0.5
Not specified	39	19.8
Total	197	100.0

Previous history

During Q1 – Q4 2014, 19 cases (5.8% of total reported) reported a previous history of TB. Fourteen cases with a previous history of TB were born in Ireland and five were born outside of Ireland. Year of previous TB diagnosis ranged from 1950 to 2012.

HIV status

HIV status was reported for 77 (23.5%) TB cases in 2014. Twelve TB cases were reported as HIV positive (3.7% of total case, 15.6% of cases with known HIV status) while 65 cases were reported as HIV negative (19.8% of total case, 84.4% of cases with known HIV status).

Outcome

Eleven cases died during Q1 – Q4 2014 (3.4% of total reported). TB was reported as the cause of death in three of these cases, four deaths were not due to TB and cause of death was not reported for the remaining four cases.

Outbreaks

During Q1-4 2014, five TB outbreaks were reported to HPSC, comprising 16 cases of active TB disease (none of whom were hospitalised) and 10 cases of latent TB infection (LTBI). All LTBI cases were reported from a single outbreak. Three outbreaks occurred in HSE-S, and one each occurred in HSE-E and -NE. All outbreaks notified during 2014 reported *M. tuberculosis* or *M. tuberculosis* complex as the causative pathogen.

Two general outbreaks occurred during 2014, one occurred in a community setting and one was associated with a public house.

Three family outbreaks also occurred during 2014, one of which occurred across an extended family and two were in private houses.

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 2014.

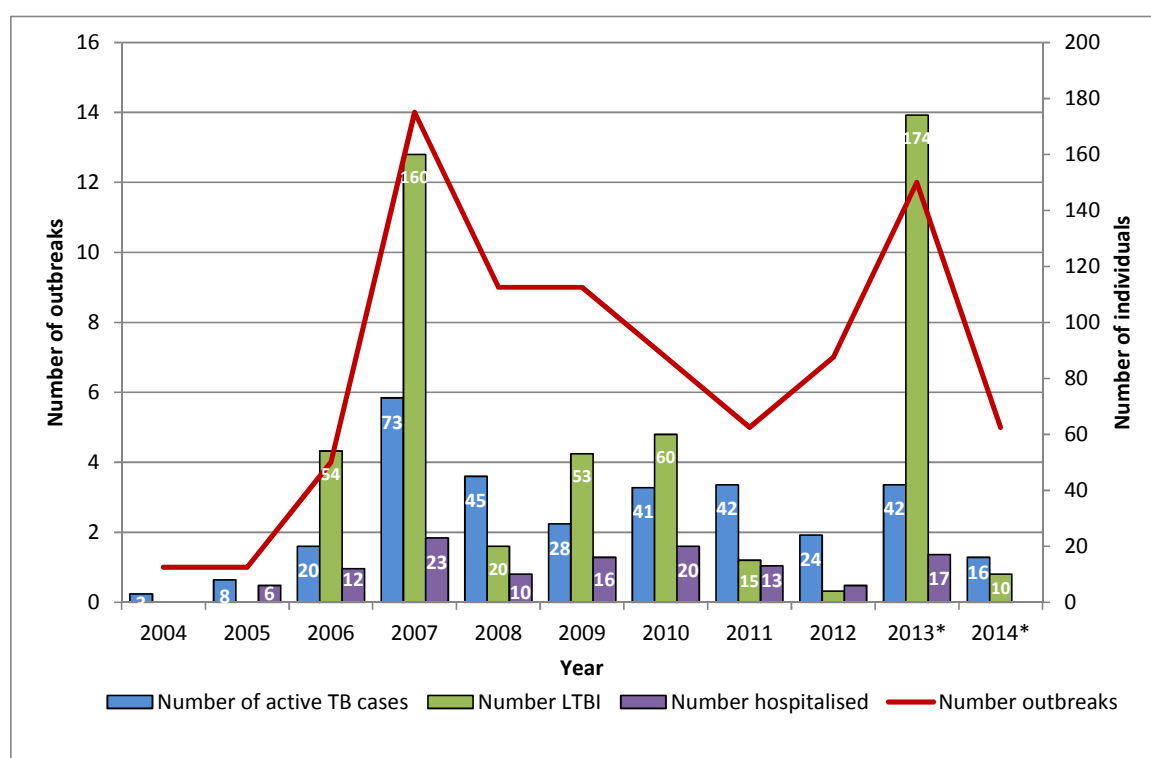


Figure 3: TB outbreak summary by year, 2004-2014^{§§}

^{§§} Data for 2014 are provisional data only