



Public Health
England

Protecting and improving the nation's health

Tuberculosis in England

2019 report

(presenting data to end of 2018)

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SUSTAINABLE DEVELOPMENT GOALS

Aim of report

This report describes the recent epidemiology of TB in England, providing an update on trends and burden of TB at a national and sub-national level. It also presents data on the implementation of the UK pre-entry TB screening programme, the national roll-out of systematic latent TB infection (LTBI) testing and treatment programme, and BCG vaccination coverage estimates. The data presented is used to inform recommendations on the ongoing implementation of the *Collaborative TB Strategy for England 2015 to 2020* [1], and support the development of a new 5-year national TB Action Plan beyond April 2020, when the current strategy ends.

Data sources

This report presents detailed data on TB notifications made to the Enhanced Tuberculosis Surveillance system (ETS) in England to the end of 2018. Data from notifications made to ETS from 2000 is updated annually to take into account denotifications, late notifications and other updates. The data presented in this year's report supersedes data in previous reports.

Experimental BCG coverage data for areas with universal BCG vaccination is presented using the Cover of Vaccination Evaluated Rapidly (COVER) programme data from April 2017 to March 2019.

Public Health England (PHE) receives 3 different types of LTBI testing and treatment data:

- LTBI testing data: data collected by GPs using clinical templates. This is available for 3 GP systems (EMISWeb, SystemOne and VISION). Clinical and demographic information on tested patients is available through these systems
- LTBI treatment data: This data is collected from secondary care (TB nursing services) using a Microsoft Excel worksheet template providing details of treatment provided to LTBI positive patients with the exception of a few Clinical Commissioning Groups (CCGs), where treatment is provided in either primary or community care.
Information includes prescribing data, treatment outcomes and test results for routine follow-up tests
- Laboratory data: This data is collected by laboratories carrying out the LTBI testing and include basic demographic information and IGRA test results.

Data from the LTBI testing and treatment database (England) are presented for calendar years 2016 and 2018 inclusive.

Data from the UK wide pre-entry screening database is presented to the end of 2018.

Other data displays

High-level data on TB notifications in the UK to the end of 2018, and breakdowns by country, can be found in the Official Statistics for TB, '*Reports of cases of TB to UK enhanced tuberculosis surveillance systems: 2000 to 2018*'. This is available at <https://www.gov.uk/government/collections/tuberculosis-and-other-mycobacterialdiseases-diagnosis-screening-management-and-data>.

As part of the *Collaborative TB Strategy for England 2015 to 2020*, a suite of TB Strategy Monitoring Indicators has been developed ([https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/403231 / Collaborative_TB_Strategy_for_England_2015_2020_.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/403231/Collaborative_TB_Strategy_for_England_2015_2020_.pdf)). Where data for these indicators is presented in this report, the indicator name is shown (in red boxes), and a summary table of national-level indicators is presented in Appendix V. Data for indicators that are presented by upper-tier local authority and CCGs can be found at <http://fingertips.phe.org.uk/profile/tb-monitoring> and will be updated with data for 2018 on 6 August 2019. Hyperlinks (in red boxes) for specific indicators are also shown throughout the report where data is presented.

10. Latent TB infection testing and treatment programme for migrants

Important messages

Poor data submissions continue to impact the programme's monitoring capabilities despite the improved quality and frequency of data submissions between 2017 and 2018.

In 2018, 15,883 LTBI tests were received, a slight increase of 3.5% from 2017.

All TBCBs saw a reduction or levelling off for LTBI testing activity apart from London and Yorkshire and Humber and the North East, which saw increased testing activity.

A higher proportion of men tested positive for LTBI than women in all age groups between 2016 to 2018.

The LTBI test positivity rate has declined to 15.8% (2,509/15,835) in 2018 from 17% (2,569/15,115) in 2017 and 18.1% (1,566/8,663) in 2016.

People born in India and Pakistan were the 2 most commonly tested groups between 2016 and 2018.

The proportion of people with a positive LTBI test that accessed LTBI treatment has seen an annual decline from 78.3% (632/807) in 2016, to 65.7% (912/1409) in 2017 to 58.3% (671/1151) in 2018.

Overall LTBI treatment completion has increased annually from 65.1% (358/550) in 2016, to 65.3% (503/770) in 2017 to 76.5% (349/456) in 2018.

Implementing and monitoring programmatic LTBI testing and treatment in England

The national LTBI testing and treatment programme is in its fifth year of operation since it commenced in 2015. This report covers 2016, 2017 and 2018. The implementation and delivery of the programme is supported by NHS England. The eligible population for the treatment and testing programme consists of new migrants aged 16 to 35 years, who entered the UK from a high incidence country ($\geq 150/100,000$ or sub-Saharan Africa) within the last 5 years and have been previously living in that high incidence country for 6 months or longer [10].

To ensure the programme is delivered effectively, the following indicators are reported for programme monitoring:

1. LTBI testing and treatment programme coverage
The number of priority CCGs that have implemented their LTBI programme as a proportion of the total number of priority CCGs
2. LTBI testing acceptance
The number of people tested for LTBI as a proportion of the total number of individuals offered a test
3. IGRA test performance and LTBI positivity
The number of people tested positive for LTBI as a proportion of the total number tested with a known result
4. LTBI treatment uptake
The number of people who access LTBI treatment as a proportion of the number of people who tested positive for LTBI
5. LTBI treatment completion
The number of people who complete treatment as a proportion of the number who started treatment for LTBI
6. Adverse events from LTBI treatment
The number of people who reported adverse events due to LTBI treatment as a proportion of the number that started treatment

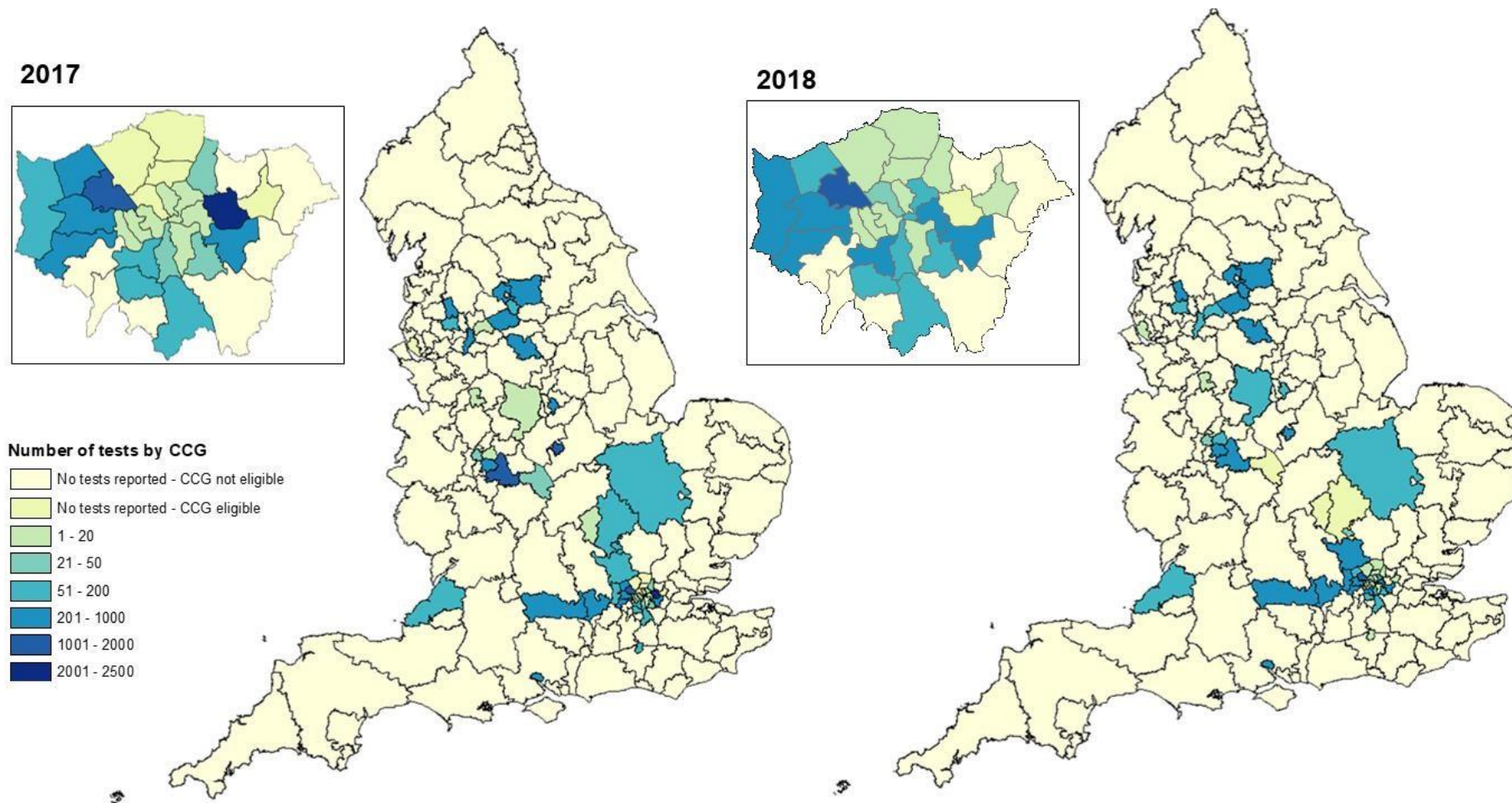
Data in this chapter

CCGs and their LTBI programme providers are required to submit data to PHE for monitoring and surveillance purposes. Data presented in this chapter were reported from 27 CCGs (primary care data), 32 CCGs (secondary/community care data) and 58 CCGs (laboratory data). Data that meets the programme eligibility criteria, submitted to PHE between January 2016 and December 2018, is included in this report. The availability of data submitted from each CCG are shown in Table Ai.10.1. It is important to note that data submissions for some CCGs were poor, which impacted the quality of data and the confidence that can be placed on some reported outcomes. For more information on the data presented in this chapter, please refer to the methods section.

Number of tests

In 2018, 15,883 LTBI tests that met the eligibility criteria for the programme were reported on by PHE. This was a small increase of 3.5% from 15,343 tests received in 2017, compared to an increase of 73.6% from 8,837 to 15,343 between 2016 and 2017 respectively. Newham CCG reported the highest number of tests in 2018, 15.2% (2,789/15,883) followed by Brent CCG, 9% (1,470/15,883) (Figure 10.1). Between 2017 and 2018, all TBCBs saw a levelling off or a decline in the number of people tested apart from London and Yorkshire and Humber and the North East, which increased LTBI testing activity (Figure 10.2) (Table Ai.10.2).

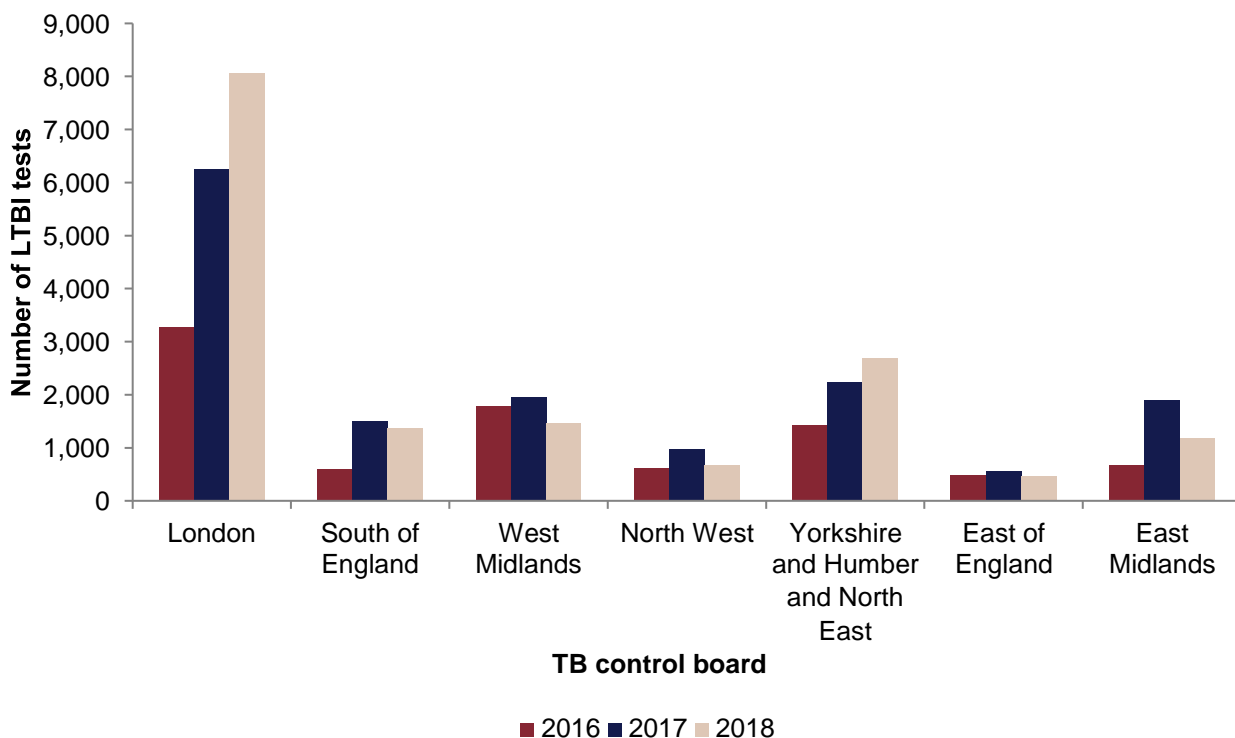
Figure 10.1: Number of LTBI tests by CCG and year, 2017 to 2018 (box shows enlarged map of London area)



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LTBI Indicator 1: The number of CCGs with systematic new entrant LTBI testing and treatment in place (England)

Figure 10.2: Number of LTBI tests by TB Control Board^a and year, 2016 to 2018



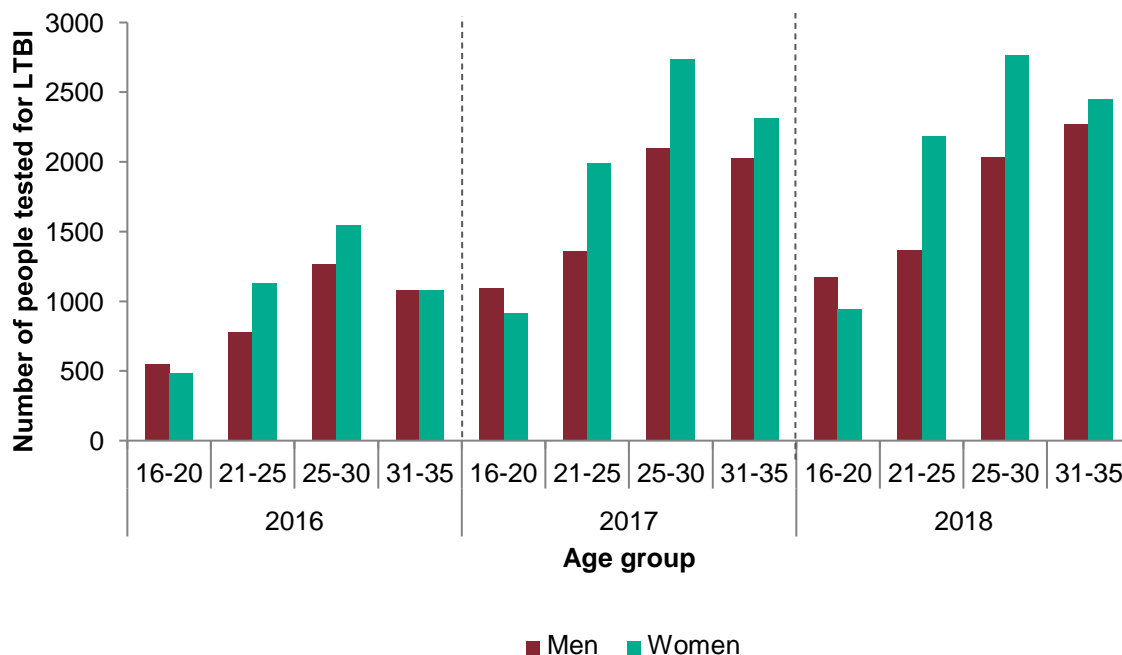
^a TB control boards presented by order of number of people notified with active TB in 2018

Demographic Characteristics

Age and Sex

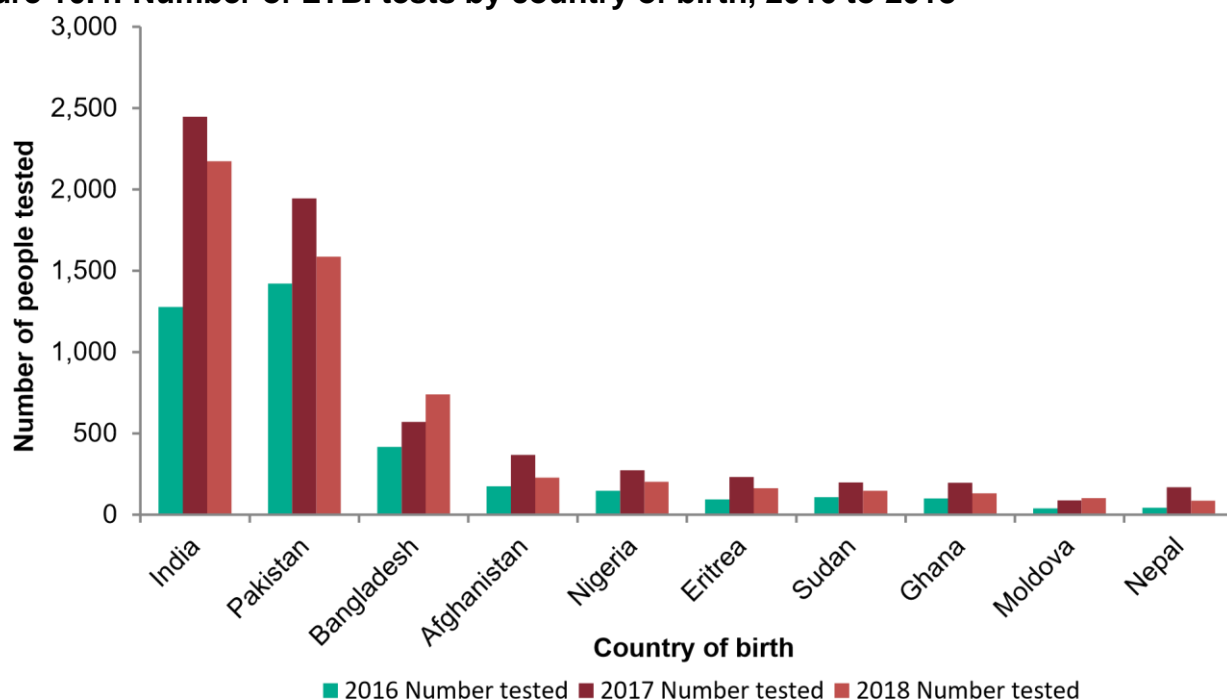
Of the eligible tests received between 2016 and 2018, gender was reported for 93.9% (37,626/40,063) of all tests. Those aged 25-30 years old were the highest tested age group in 2016 (2,808/7,911), 2017 (4,835/14,530) and 2018 (4,801/15,185). The proportion of tests in women remained higher than that in men. 55% of total LTBI tests were in women in 2018 (8,348/15,185), 55.2% (7,959/14,530) in 2017 and 53.4% (4,240/7,911) in 2016. Distribution by age and sex are shown in Figure 10.3.

Figure 10.3: Number of people tested for LTBI by sex and age group, 2016 to 2018



Country of birth

Country of birth was available for 40.9% (6,490/15,883) of tests in 2018, 49.1% (7,531/15,343) in 2017 and 49.4% (4,362/8,837) in 2016. People born in India represented the highest number tested in 2018 and 2017, 33.5% (2,173/6,490) and 32.5% (2,443/7,531), respectively. People born in Pakistan represented the second highest group tested in 2018 and 2017. The number of LTBI tests by country of birth are shown in Figure 10.4 (Table Ai.10.3).

Figure 10.4: Number of LTBI tests by country of birth, 2016 to 2018

LTBI testing acceptance

Invitations to screening received varied acceptance rates across CCGs. In 2018, acceptance ranged from 3.5% (21/596) and 84.3% (182/216). In 2017 and 2016, the acceptance ranged from 0% (0/88) to 100% (7/7) in 2017 and from 0% (0/3) to 100% (4/4), respectively. These proportions are presented in Table 10.1 for CCGs that provided information on the number of people offered a test to PHE.

Table 10.1: Proportion of LTBI programme testing invitation acceptance by CCG, 2016 to 2018

Clinical commissioning group (CCG)	2016 (%)	2017 (%)	2018 (%)
NHS Barnet CCG	-	0.0	6.8
NHS Birmingham Crosscity CCG	3.1	4.9	41.9
NHS Bolton CCG	100.0	46.1	84.3
NHS Bradford City CCG and Bradford Districts CCG	NR	NR	NR
NHS Blackburn & Darwen CCG	-	-	33.6
NHS Camden CCG	-	-	3.5
NHS City & Hackney CCG	-	-	54.4
NHS Croydon CCG	-	-	NR
NHS Greater Huddersfield CCG	63.3	66.3	NR
NHS Hammersmith & Fulham CCG	0.0	100.0	NR

NHS Hounslow CCG	44.7	67.7	NR
NHS Leeds South CCG and Leeds East CCG	-	43.0	NR
NHS Newham CCG	25.6	34.2	30.2
NHS North Kirklees CCG	66.1	48.7	NR
NHS Oldham CCG	-	15.6	28.4
NHS Sandwell & West Birmingham CCG	3.2	6.9	32.0
NHS Slough CCG	75.7	NR	NR
NHS Sheffield CCG	68.4	46.6	NR
NHS Waltham Forest CCG	-	-	5.7
NHS West London CCG	-	-	NR
NHS North & Central Manchester CCG	11.8	25.7	22.4

Note: NHS Birmingham cross city and Birmingham South Central CCGs, NHS Bradford City and Districts CCGs and NHS Blackburn with Darwen and East Lancashire submitted joint treatment datasets
NR = Not Reported. The number of tests submitted through laboratories exceeded the number of invitations reported.

- Number of invitations not submitted by CCG

LTBI Indicator 2: Proportion of eligible new entrants covered by the LTBI testing programme who accept LTBI testing (England)

IGRA test performance and LTBI positivity

LTBI test results were available for 99.7% (15,835/15,883) of all tests in 2018, 98.5% of tests (15,115/15,343) in 2017 and 98% (8,663/8,837) in 2016.

The proportion of people who tested positive has been decreasing slightly since programme initiation, from 18.1% (1,566/8,663) in 2016, to 17% (2,569/15,115) in 2017 and 15.8% (2,509/15,835) in 2018. A higher proportion of men tested positive for LTBI than women in all age groups, between 2016 and 2018 (Figure 10.5). The proportion of people who tested positive for LTBI also varied by CCG in 2018, ranging between 0% (0/1) and 33.3% (24/72) (Figure 10.6, Table Ai.10.4).

Figure 10.5: Proportion of people that tested positive for LTBI by sex and age group, 2016 to 2018

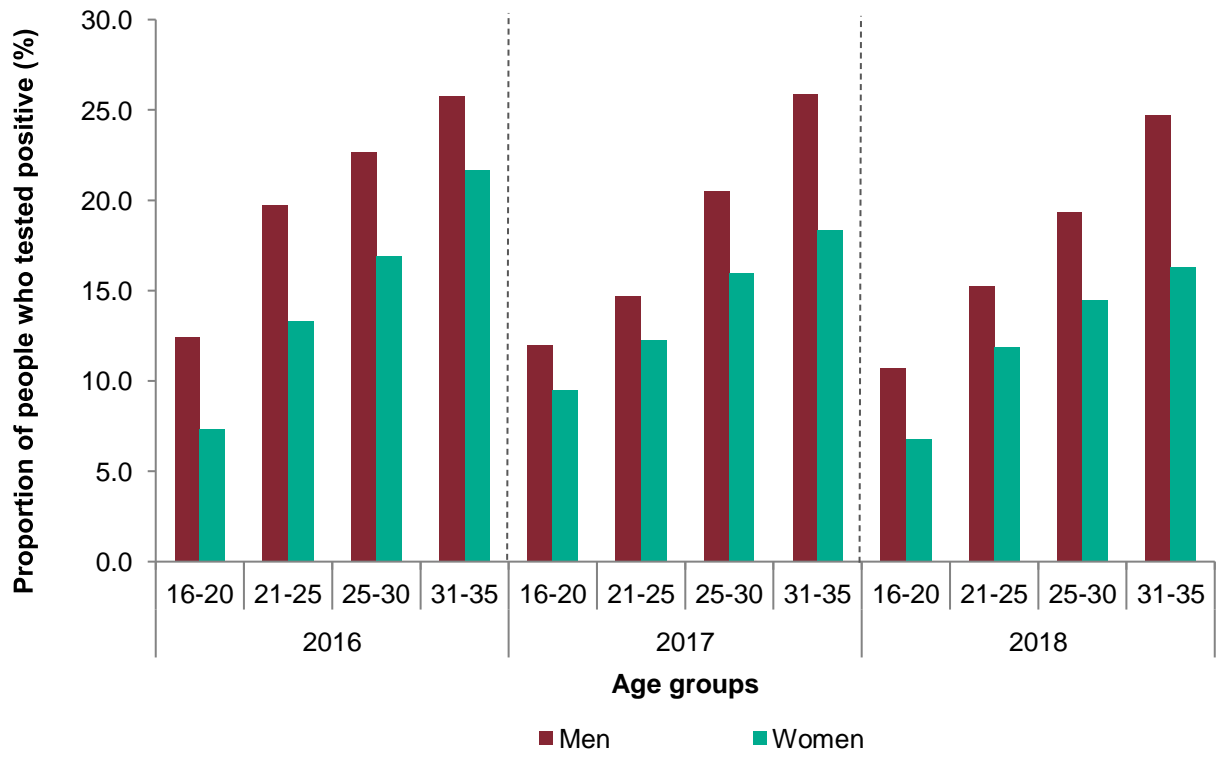
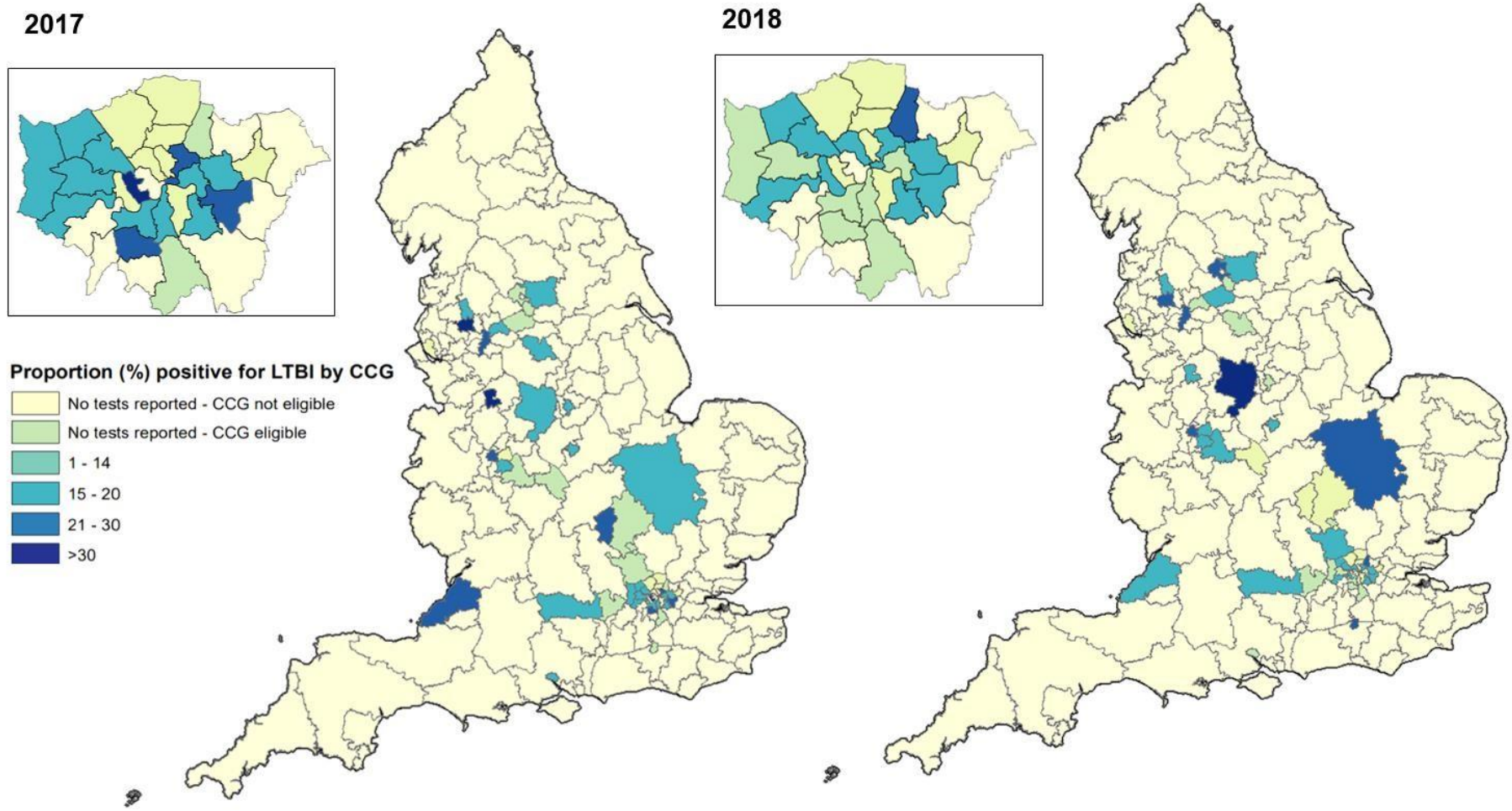


Figure 10.6: Proportion of people that tested positive for LTBI by CCG and year, 2017 to 2018 (box shows enlarged map of London area)



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LTBI Indicator 3: Proportion of eligible new entrants who tested positive for LTBI

Treatment for LTBI

Treatment uptake and completion

Of the 50 CCGs that lab data was available for, treatment data was reported by 25 CCGs in 2018. According to the received treatment data, the proportion of people that accessed treatment has seen an annual decline from 78.3% (632/807) in 2016, to 65.7% (912/1409) in 2017 to 58.3% (671/1151) in 2018. Treatment uptake varied by CCG in 2018, from 0% (0/3) to 93.6% (44/47). Overall treatment completion increased annually across the 25 CCGs, from 65.1% (358/550) in 2016, to 65.3% (503/770) in 2017 to 76.5% (349/456) in 2018. The percentages that completed treatment also varied by CCG in 2018, from 36% (9/25) to 100% (1/1) (Figure 10.2). These figures have been calculated to take into consideration that treatment uptake and completion can be subject to pathway delays, which may lower the observed figures (as eligible patients may still be on the pathway at the time of reporting). The method used is further explained in the methods section.

Table 10.2: Treatment acceptance and completion by for individuals tested positive for LTBI by CCG, 2016 to 2018

Clinical commissioning group (CCG)	Positives who should be referred for treatment			Cohort that accessed treatment (% of those who should have been referred)						Cohort who should have completed treatment			Cohort that completed treatment (% of those who should have completed)					
	2016	2017	2018	2016		2017		2018		2016	2017	2018	2016		2017		2018	
NHS Birmingham and Solihull CCG	180	176	140	146	(81.1%)	114	(64.8%)	15	(10.7%)	144	112	8	65	(45.1%)	41	(36.6%)	5	(62.5%)
NHS Blackburn with Darwen CCG	82	52	47	47	(57.3%)	43	(82.7%)	44	(93.6%)	43	36	41	34	(79.1%)	28	(77.8%)	32	(78%)
NHS Bolton CCG	0	54	54	5	-	21	(38.9%)	39	(72.2%)	5	21	19	3	(60%)	12	(57.1%)	30	NR
NHS Bradford City CCG	107	106	157	90	(84.1%)	105	(99.1%)	128	(81.5%)	84	101	124	32	(38.1%)	30	(29.7%)	46	(37.1%)
NHS Camden CCG	0	0	5	0	-	1	-	19	NR	0	1	11	0	-	1	(100%)	12	NR
NHS Coventry and Rugby CCG	0	8	0	6	-	5	(62.5%)	0	-	-	-	-	2	-	1	-	0	-
NHS Crawley CCG	11	11	2	9	(81.8%)	11	(100%)	3	NR	7	9	0	7	(100%)	10	NR	0	-
NHS Croydon CCG	0	3	0	1	-	0	(0%)	0	-	-	-	-	0	-	0	-	0	-
NHS Ealing CCG	28	99	97	11	(39.3%)	47	(47.5%)	33	(34%)	11	43	25	2	(18.2%)	16	(37.2%)	9	(36%)
NHS Greater Huddersfield CCG	55	54	79	46	(83.6%)	18	(33.3%)	23	(29.1%)	46	18	13	37	(80.4%)	3	(16.7%)	18	NR
NHS Greenwich CCG	10	167	121	16	NR	137	(82%)	27	(22.3%)	16	133	26	15	(93.8%)	124	(93.2%)	12	(46.2%)
NHS Hillingdon CCG	12	11	13	14	NR	13	NR	0	(0%)	12	2	0	13	NR	11	NR	0	-
NHS Leeds CCG	8	89	100	10	NR	27	(30.3%)	56	(56%)	10	26	20	10	(100%)	22	(84.6%)	14	(70%)
NHS Manchester CCG	39	123	48	31	(79.5%)	75	(61%)	35	(72.9%)	16	66	4	11	(68.8%)	30	(45.5%)	8	NR
NHS North Kirklees CCG	13	20	31	13	(100%)	13	(65%)	13	(41.9%)	13	9	4	9	(69.2%)	6	(66.7%)	11	NR
NHS Nottingham City CCG	22	34	14	13	(59.1%)	34	(100%)	92	NR	13	29	91	13	(100%)	28	(96.6%)	81	(89%)
NHS Sandwell and West Birmingham CCG	96	131	0	34	(35.4%)	7	(5.3%)	1	-	28	3	1	22	(78.6%)	0	(0%)	1	(100%)

NHS Sheffield CCG	53	69	17	35	(66%)	48	(69.6%)	4	(23.5%)	31	12	0	27	(87.1%)	22	NR	1	-
NHS Slough CCG	8	67	74	8	(100%)	53	(79.1%)	46	(62.2%)	7	45	32	3	(42.9%)	22	(48.9%)	20	(62.5%)
93																		
Clinical commissioning group (CCG)	Positives who should be referred for treatment			Cohort that accessed treatment (% of those who should have been referred)						Cohort who should have completed treatment			Cohort that completed treatment (% of those who should have completed)					
	2016	2017	2018	2016		2017		2018		2016	2017	2018	2016		2017		2018	
NHS South Reading CCG	16	47	33	20	NR	46	(97.9%)	29	(87.9%)	14	23	5	7	(50%)	20	(87%)	18	NR
NHS Southampton CCG	35	85	72	33	(94.3%)	83	(97.6%)	52	(72.2%)	32	79	24	32	(100%)	71	(89.9%)	25	NR
NHS Stoke On Trent CCG	-	-	-	19	-	9	-	0	-	18	2	0	14	(77.8%)	5	NR	0	-
NHS Tower Hamlets CCG	0	0	47	1	-	2	-	12	(25.5%)	0	0	8	0	-	0	-	6	(75%)
NHS Wolverhampton CCG	32	3	0	(75%)	0	(0%)	0	24	-	-	-	-	0	-	-	0	-	0
Total	807	1409	1151	(78.3%)	912	(64.7%)	671	632	(58.3%)	550	770	456	358	(65.1%)	503	(65.3%)	349	(62.5%)

^a See methods for the protocol on determining the number of people that should be referred to treatment and should have completed treatment

NR: Not reported due to cohort accessing or completing treatment being larger than the cohort that should have been referred for or completed treatment

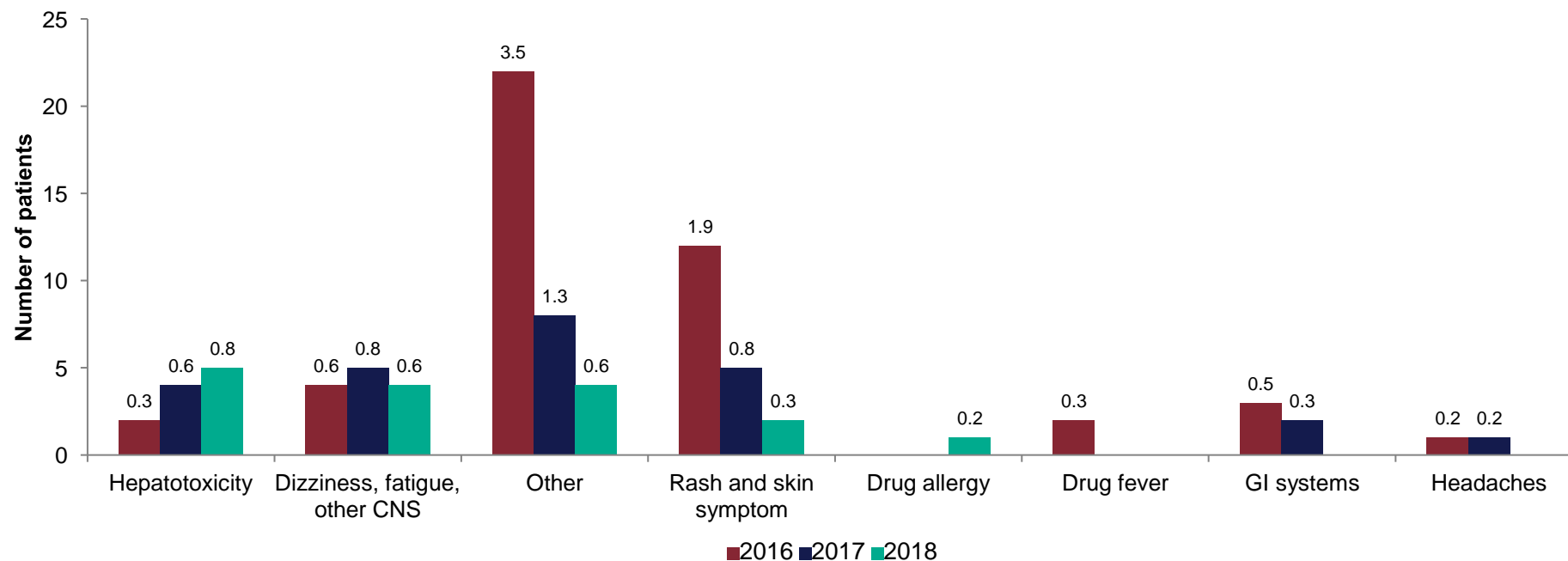
Note: NHS Birmingham cross city and Birmingham South Central CCGs, NHS Bradford City and Districts CCGs and NHS Blackburn with Darwen and East Lancashire submitted joint treatment datasets. Newham data is not presented due to the majority of treatment data coming from pharmacies.

LTBI Indicator 4: The proportion of patients who take up treatment amongst those who have been offered it (England) LTBI Indicator 5: The proportion of patients who complete LTBI treatment amongst those who start treatment (England)

Adverse events

In 2018, 2.4% (16/672) of people who started LTBI treatment experienced adverse effects, a decrease from 2.7% (25/915) in 2017 and 7.1% (46/646) in 2016. Among the adverse events reported in 2018, hepatotoxicity, dizziness and fatigue, rash and ‘other’ were the most common events. The percentage of patients reporting hepatotoxicity has seen a slight annual increase from 0.3% (2/646) in 2016 to 0.7% (5/672) in 2018. Figure 10.7 summarises all recorded adverse reactions.

Figure 10.7: Percentage and number of people reporting adverse treatment events following LTBI treatment, 2016 to 2018



^a Numbers besides bars represent the number of patients reporting adverse effects

LTBI Indicator 6: The proportion of patients who experience significant drug events amongst those who initiated treatment (England).

