



Public Health
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Protecting and improving the nation's health

Latent TB infection testing and treatment programme for migrants

Presenting data between 1 April 2015 to
31 March 2020

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Notes on the report

Intended audience

This report is aimed at healthcare professionals involved in the testing and treatment of migrants in the latent TB infection (LTBI) testing and treatment programme, commissioners involved in planning and financing of the programme, public health professionals working in the control of tuberculosis or health of at-risk populations, researchers with an interest in TB, and government and non-governmental organisations working in the field of TB.

Aim of report

This report provides data on the key indicators used to monitor the LTBI testing and treatment programme. The performance of the programme has also been used to inform the development of a new 5-year national TB Action Plan for April 2021 to 2026.

Data sources

This report presents an analysis of the LTBI testing and treatment data that is collected by Public Health England for England and includes:

- LTBI testing data from laboratories processing Interferon Gamma Release Assay (IGRA) tests on behalf of primary care and TB services. This data includes basic demographic information and LTBI test results between 2015 to 2016 and 2019 to 2020
- LTBI testing data directly from TB services. This data includes more detailed demographic, clinical and testing information and LTBI test results between 2015 to 2016 and 2019 to 2020
- LTBI treatment data collected from TB services which includes prescribing data and treatment outcomes for LTBI positive patients between 2015 to 2016 and 2019 to 2020

Executive summary

The national LTBI testing and treatment programme was established in 2015 as part of the NHS England and PHE Collaborative TB Strategy for England, 2015 to 2020. The LTBI programme aims to reduce TB by testing and treating LTBI in migrants aged 16 to 35 years who have recently arrived in England from countries with a high TB incidence. This report summarises the data submitted to PHE during the 2015 to 2020 TB Strategy for England and informs the development of the new 5-year TB Action Plan, 2021 to 2026.

The number of tests submitted to the programme has increased substantially each year. In 2019 to 2020 22,221 tests were received, an increase of 30% compared to the previous year. The majority of this rise was seen in London CCGs, which accounted for 51% of total tests submitted in 2019 to 2020. Over time, the LTBI test positivity rate has steadily declined from 22% in 2015 to 2016 to 16% in 2019 to 2020.

The demographic characteristics of the people who are reached through the programme remains similar each year. More women than men are tested for LTBI, whilst the male population invariably have higher test positivity rates. People who are born in India and Pakistan consistently represent the largest proportion of people tested in the programme each year, accounting for 56% of all people tested since 2015 to 2016.

There is incomplete treatment data on a large proportion of people who test positive for LTBI and it is therefore not known how many of these people access treatment. For the total positive LTBI tests received between 2015 to 2016 and 2019 to 2020, PHE received treatment data for just under 30% of these people. This is due to many CCGs experiencing a delay in setting up the submission of treatment data.

For the CCGs that did submit treatment data during 2019 to 2020, treatment data was available for 45% of people with a positive test (912/2,035). For people known to have started treatment, the known treatment completion rates averaged at 75% across England in 2019 to 2020, a slight decline from previous years.

There are several areas that have had great successes in improving local programmes and provide examples of best practice. In particular, Yorkshire and the Humber have had strong engagement with local services, maintained high levels of data returns and improved on the key indicators.

Since March 2020 the COVID-19 pandemic has posed many challenges to CCGs delivering their LTBI programmes. The LTBI programme was paused for 6 months in response to the pandemic. PHE and NHS England and NHS Improvement (NHSE/I) are working closely with CCGs to re-establish local LTBI testing and treatment programmes and return to the momentum of 2019.

Preface

The national LTBI testing and treatment programme is in its sixth year of operation since it commenced in 2015. Data is included from financial years 2015 to 2016 to 2019 to 2020. The eligible population for the testing and treatment programme consists of new migrants aged between 16 and 35 years, who entered England from a high incidence country ($\geq 150/100,000$ or sub-Saharan Africa) within the last 5 years, having lived in that high incidence country for 6 months or longer (1).

To ensure the programme is delivered effectively, the following indicators are measured 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.

Programme coverage and data submissions

The LTBI programme was launched in 2015 in 59 high incidence CCGs that had a TB rate of ≥ 20 per 100,000 population and/or $\geq 0.5\%$ England's total TB notification numbers. There are now 56 CCGs (due to CCG mergers), from which 55 and 39 submit LTBI testing and treatment data to the programme, respectively.

Initially, most CCGs implemented testing for the LTBI programme through primary care. This has gradually changed with just half of CCGs continuing to operate a primary care model where testing occurs in primary care services and treatment occurs in TB services¹. Other CCGs follow a TB service model where testing and treatment occurs in TB services. Some CCGs deliver an LTBI programme through a mixture of the 2 models and Newham CCG delivers testing and treatment in primary care.

Yorkshire and the Humber: case study

The CCGs delivering the LTBI programme in Yorkshire and Humber are actively engaged with the programme and consistently submit complete data. Some of the developments that have been made to achieve this include:

- CCGs moving from primary care models to TB service or mixed models of programme delivery to suit the local need
- use of Flag 4² data in TB services to identify and invite those who are eligible for testing
- appointment of a project officer to support LTBI programme implementation across the priority CCGs
- strong leadership and engagement with local services to maintain high levels of data returns and focusing on the monitoring indicators for the programme, led by an LTBI sub group that reports into the TB control board

¹ 'TB Services' encompasses both hospital based and community based specialised secondary care TB services.

² Flag 4 data is data acquired from the NHS Patient Registration Data System which provides information on those that have registered for the first time with an NHS general practitioner in England and were born outside the UK, or have a previous address outside the UK. This data is used to determine who is eligible for LTBI testing.

LTBI testing outcomes and demographics

Main messages

Thirty per cent more tests were conducted in 2019 to 2020 (22,221) than in 2018 to 2019 (17,104).

All TBCB areas saw an increase in LTBI testing activity apart from the East of England and the East Midlands which saw a reduction in testing activity.

The positivity rate for LTBI tests has declined from 22% in 2015 to 2016 (627/2,858) to 16% in 2019 to 2020 (3,550/21,904).

A higher proportion of men tested positive for LTBI than women in all age groups between 2015 to 2016 and 2019 to 2020.

People born in India and Pakistan represent the largest proportion of people tested in the programme.

Number of tests and test positivity

Between the start of the 2015 to 2016 financial year and the end of the 2019 to 2020 financial year, 67,824 tests have been carried out under the national LTBI programme. The annual number of tests carried out in the programme has increased substantially each year and is summarised in [Table 1.1](#) for each TB Control Board (TBCB³). Several factors have contributed to this increase, including a greater focus by NHSE/I on the LTBI programme working with CCGs and easier data submission to the PHE LTBI database. The overall positivity rate for England has declined each year since 2015 to 2016, a decline which has not been seen equally across TBCBs, particularly those with smaller numbers of people tested for LTBI ([Table 1.1](#)). The annual proportion of national tests with an inconclusive result has remained stable at 2% since 2015 to 2016.

During 2019 to 2020, 51% (11,404/22,221) of the total tests were conducted in London. Most TBCB's have seen an annual increase in testing between 2015 to 2016 and 2019 to 2020, while the East Midlands and East of England have seen a slight decrease in testing ([Table 1.1](#)). [Figures 1.1a-g](#) show the variation in testing and positivity rate for each TBCB over the last 3 years. Please note that the London TBCB processes many more tests than the other TBCBs so has a different scale on the y-axis.

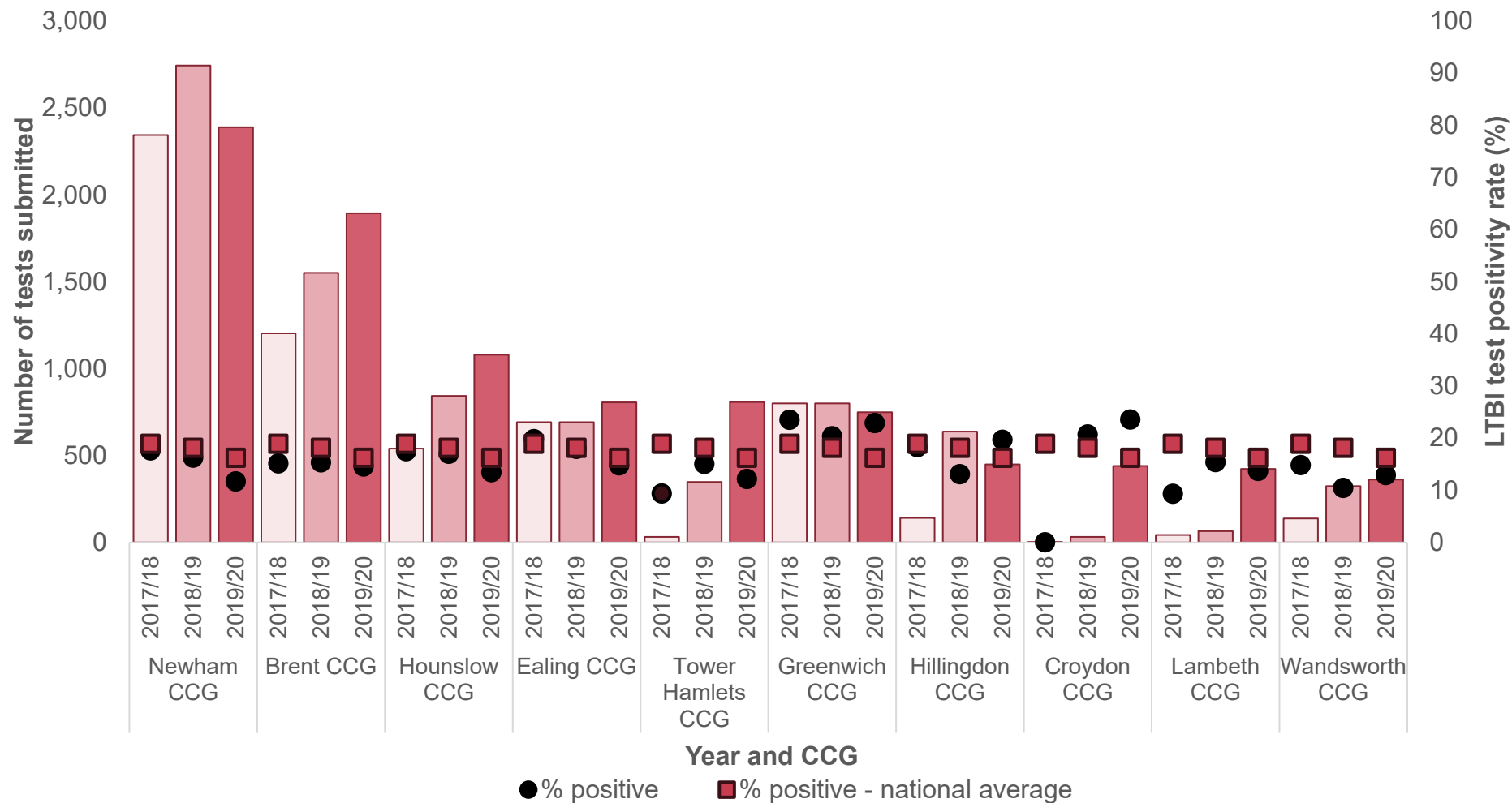
³ The TBCBs have been functioning since September 2015 and are aligned with Public Health England Centre (PHEC) boundaries other than the Yorkshire and the Humber PHECs, which together form the Yorkshire and Humber TBCB; and the South East and South West PHECs, which together form the South of England TBCB.

Table 1.1: Number of tests and test positivity rate by TBCB, England, 2015 to 2016 to 2019 2020*

TBCB	2015 to 2016		2016 to 2017		2017 to 2018		2018 to 2019		2019 to 2020	
	Total tests	% positive	Total tests	% positive	Total tests	% positive	Total tests	% positive	Total tests	% positive
East Midlands	0	-	1,124	14	1,409	19	1,230	18	1,087	16
East of England	0	-	245	17	435	14	323	17	221	15
London	2,406	22	4,205	21	6,346	18	8,780	16	11,404	15
North West	113	27	803	19	672	31	843	20	1,099	12
South of England	13	23	918	13	1,379	13	1,450	15	2,104	16
West Midlands	13	62	2,224	23	1,921	21	1,578	25	2,735	20
Yorkshire and the Humber	313	22	1,352	22	2,608	21	2,900	22	3,571	19
Total	2,858	22	10,871	20	14,770	19	17,104	18	22,221	16

*The total tests includes positive, negative and inconclusive test results.

Figure 1.1a: Number of tests and test positivity rate for CCGs in the London TBCB, England, 2017 to 2018 to 2019 to 2020*



* Only the 10 CCGs with the highest number of tests are shown. 15 other London CCGs submitted tests which are not shown here.

Figure 1.1b: Number of tests and test positivity rate for CCGs in the West Midland TBCB, England, 2017 to 2018 to 2019 to 2020

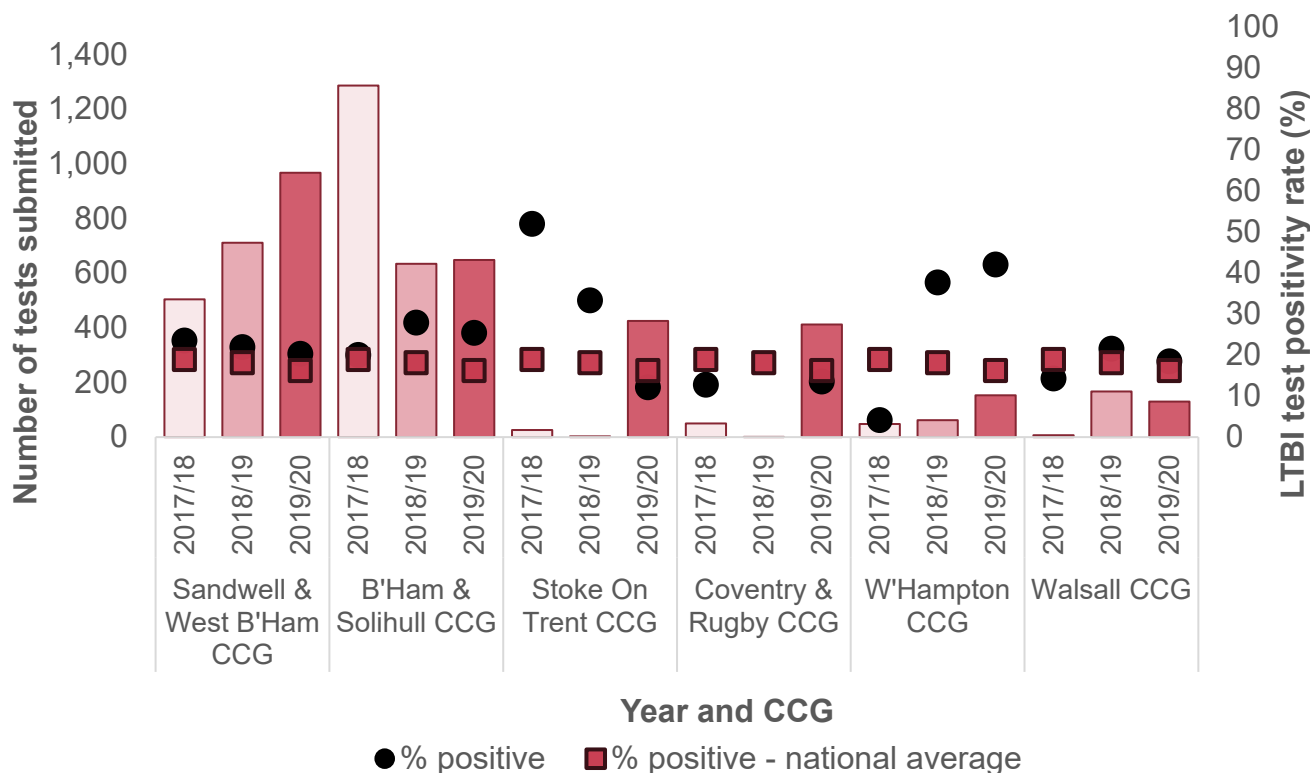


Figure 1.1c: Number of tests and test positivity rate for CCGs in the North West TBCB, England, 2017 to 2018 to 2019 to 2020

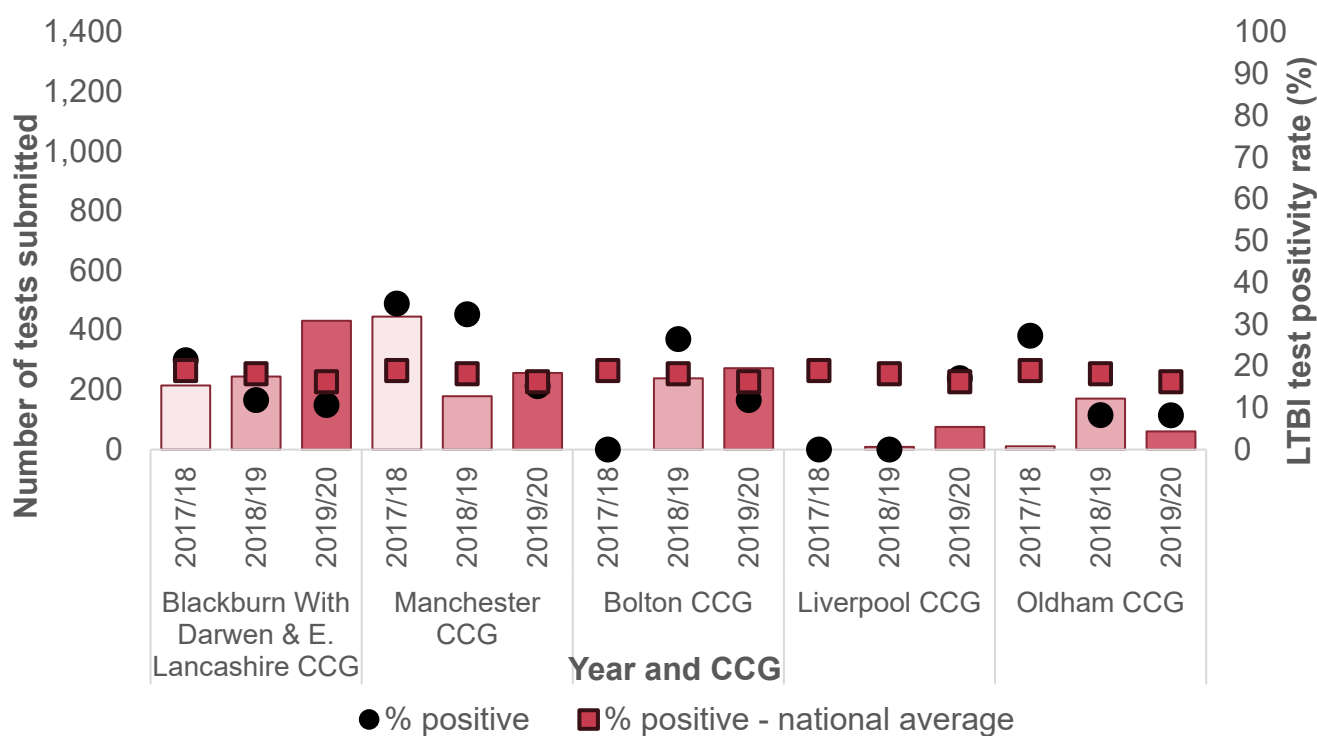


Figure 1.1d: Number of tests and test positivity rate for CCGs in the South of England TBCB, England, 2017 to 2018 to 2019 to 2020

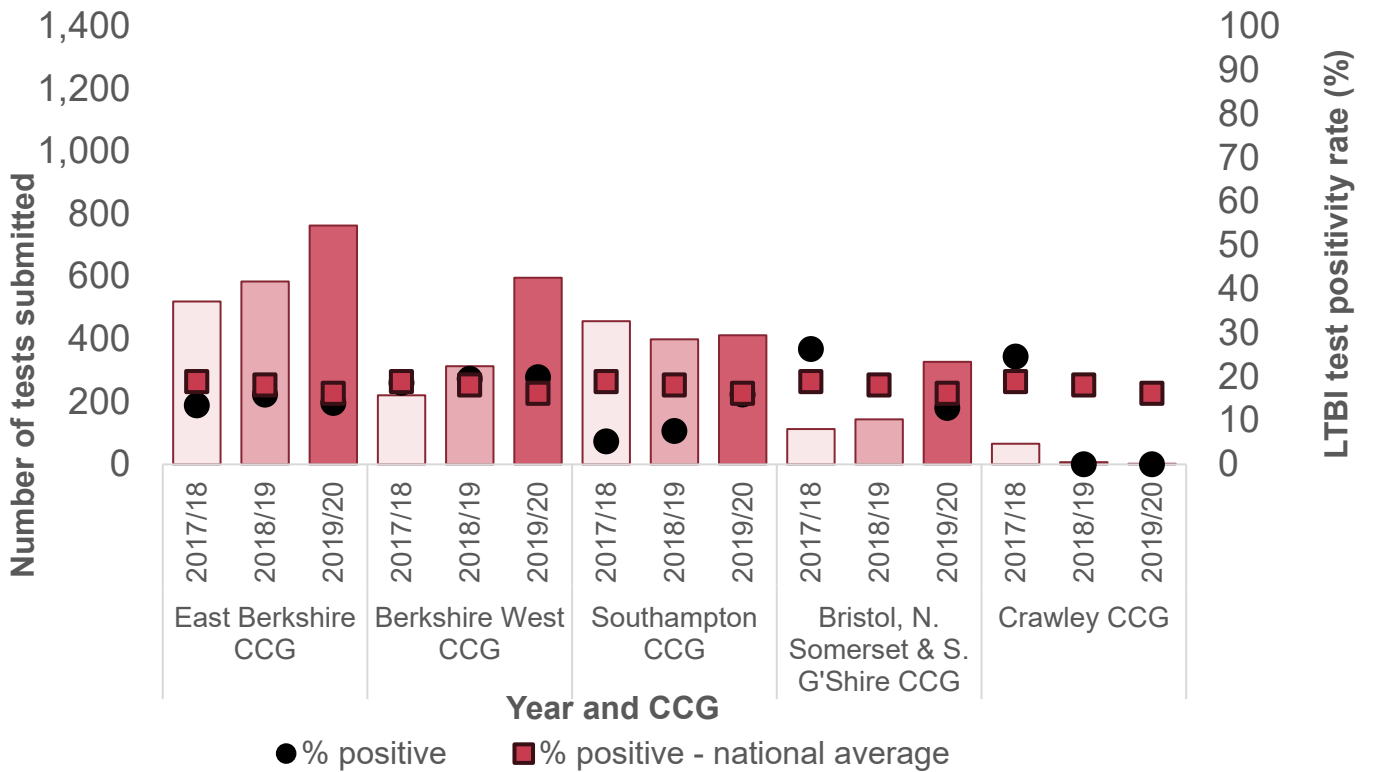


Figure 1.1e: Number of tests and test positivity rate for CCGs in the East of England TBCB, England, 2017 to 2018 to 2019 to 2020

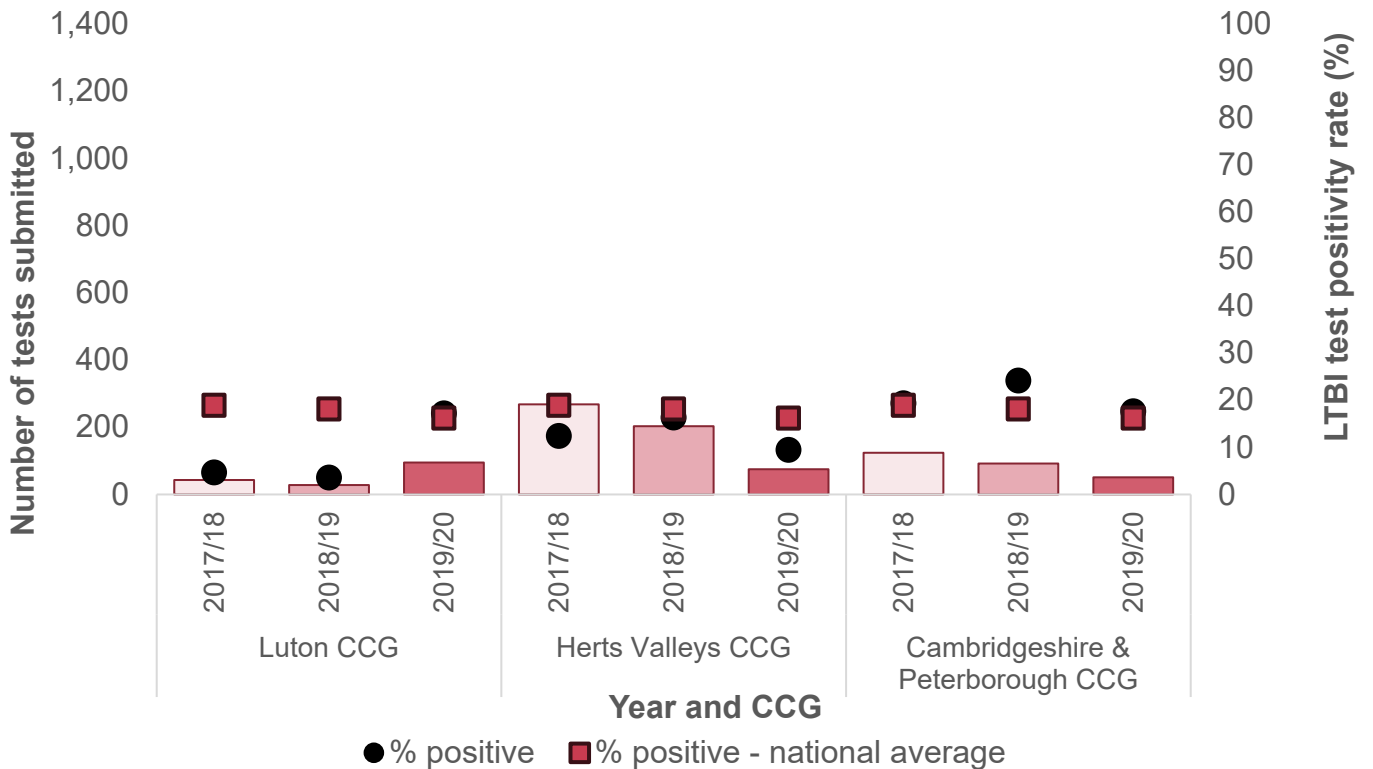


Figure 1.1f: Number of tests and test positivity rate for CCGs in the East Midlands TBCB, England, 2017 to 2018 to 2019 to 2020

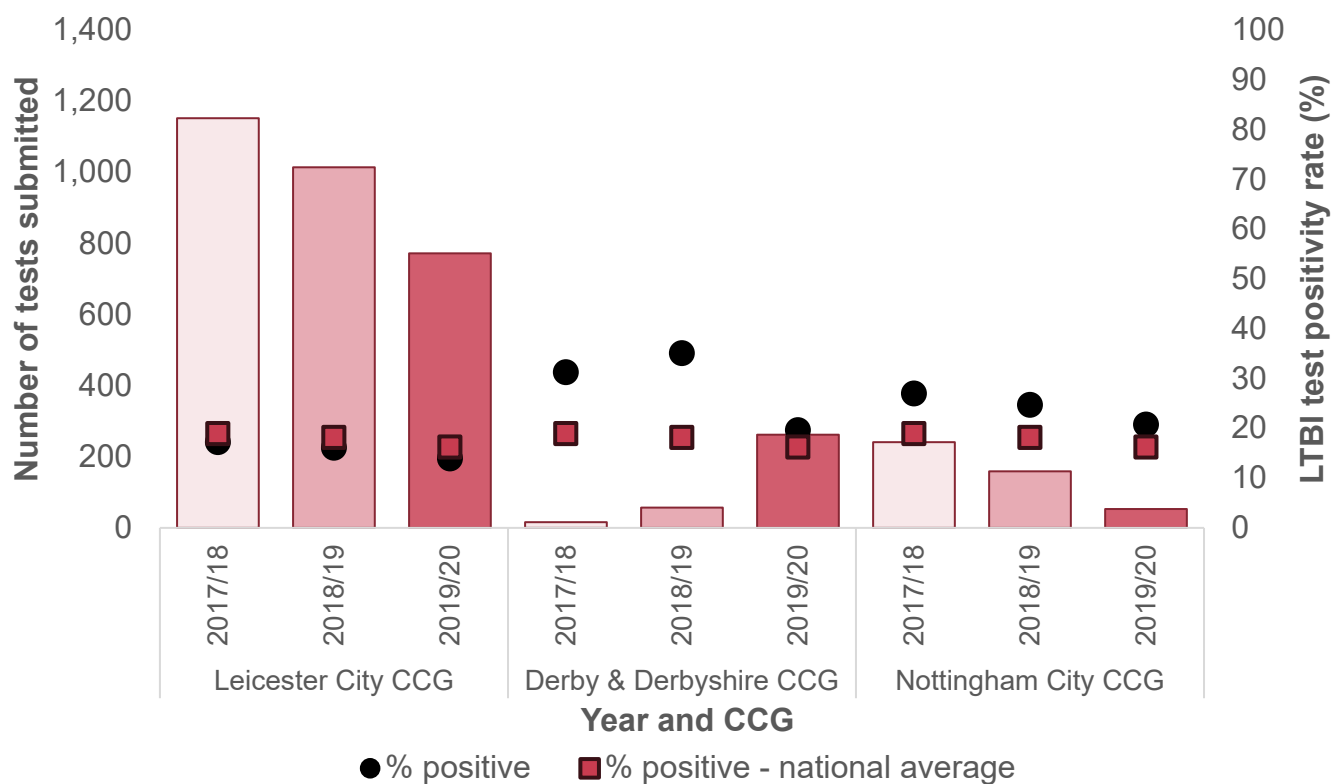
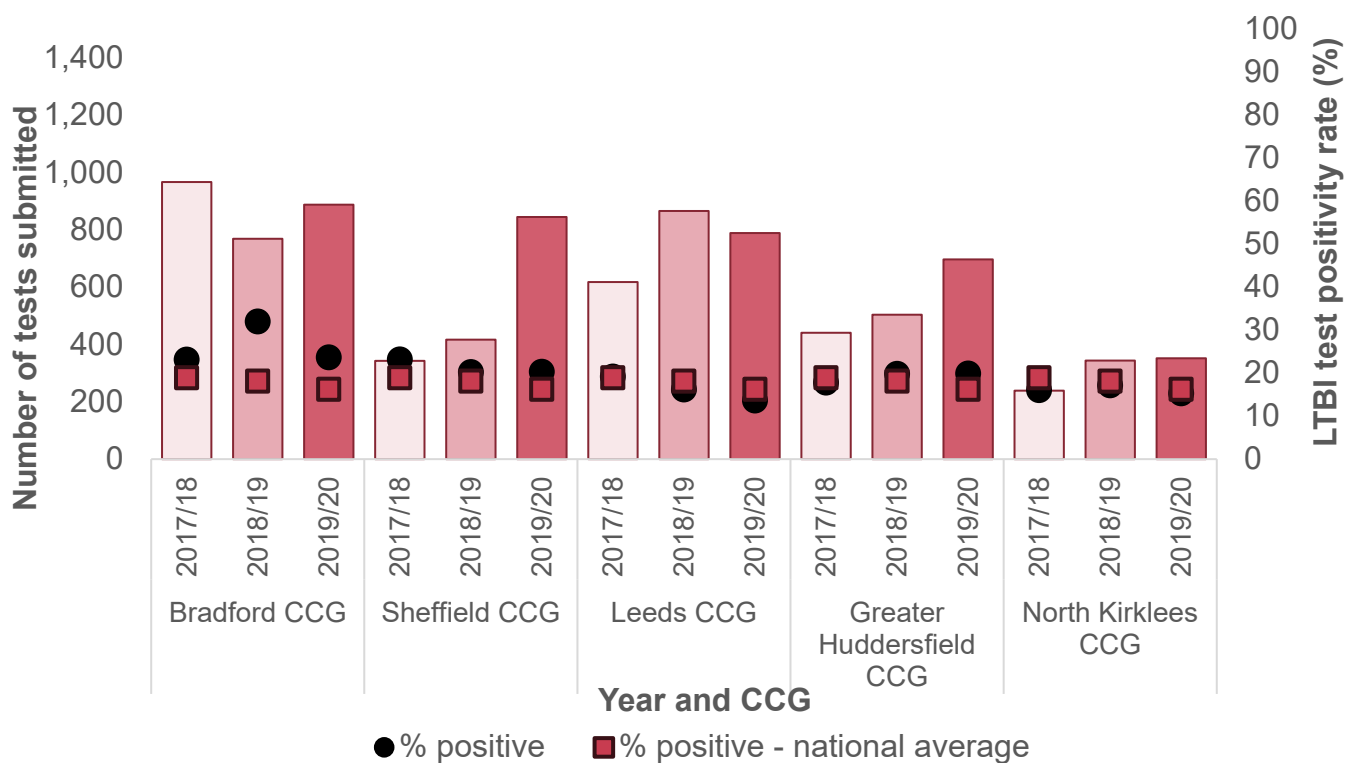


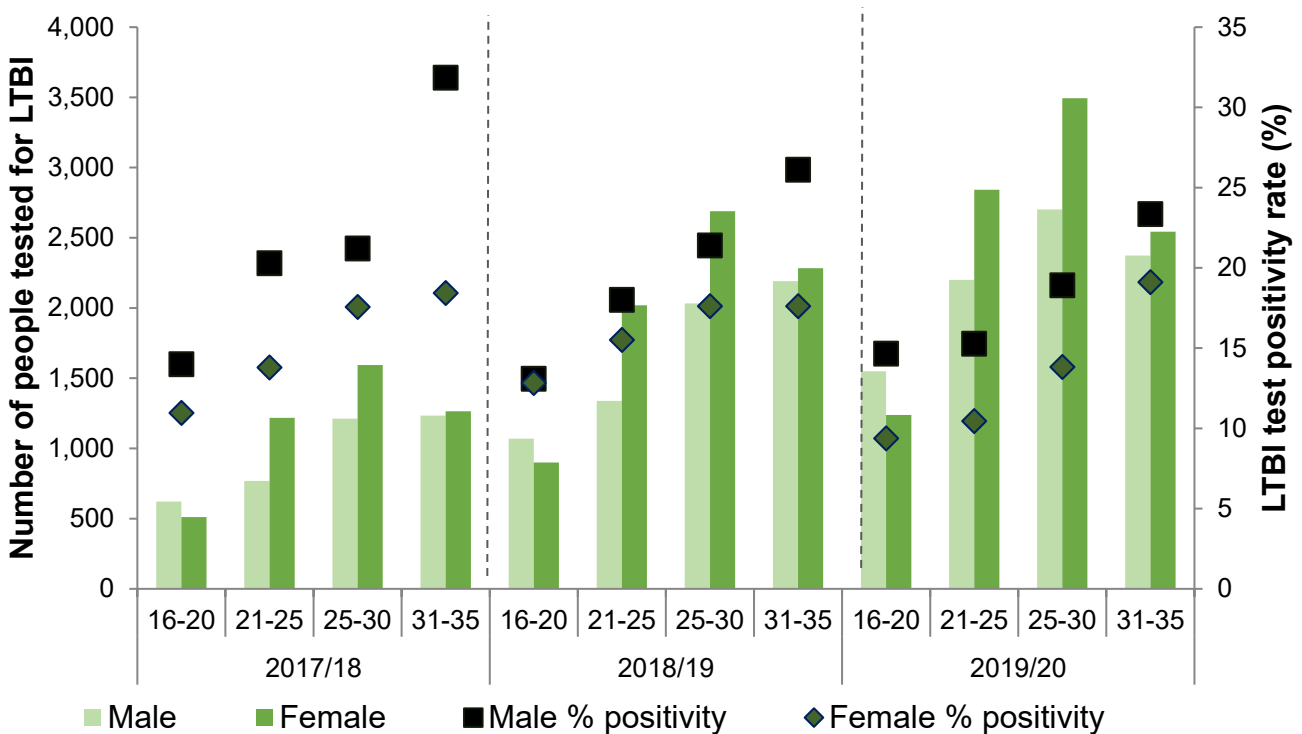
Figure 1.1g: Number of tests and test positivity rate for CCGs in the East Midlands TBCB, England, 2017 to 2018 to 2019 to 2020



Age and sex

More women than men are tested in the LTBI programme each year in all age groups except those aged 16 to 20 (Figure 1.2). Women represent 55% of people tested in the programme overall. On average, the population eligible for the programme have an approximate 50:50 gender split, which suggests that the LTBI programme is reaching fewer of the eligible male population (2). For all years and age groups, men had a higher positivity rate than women.

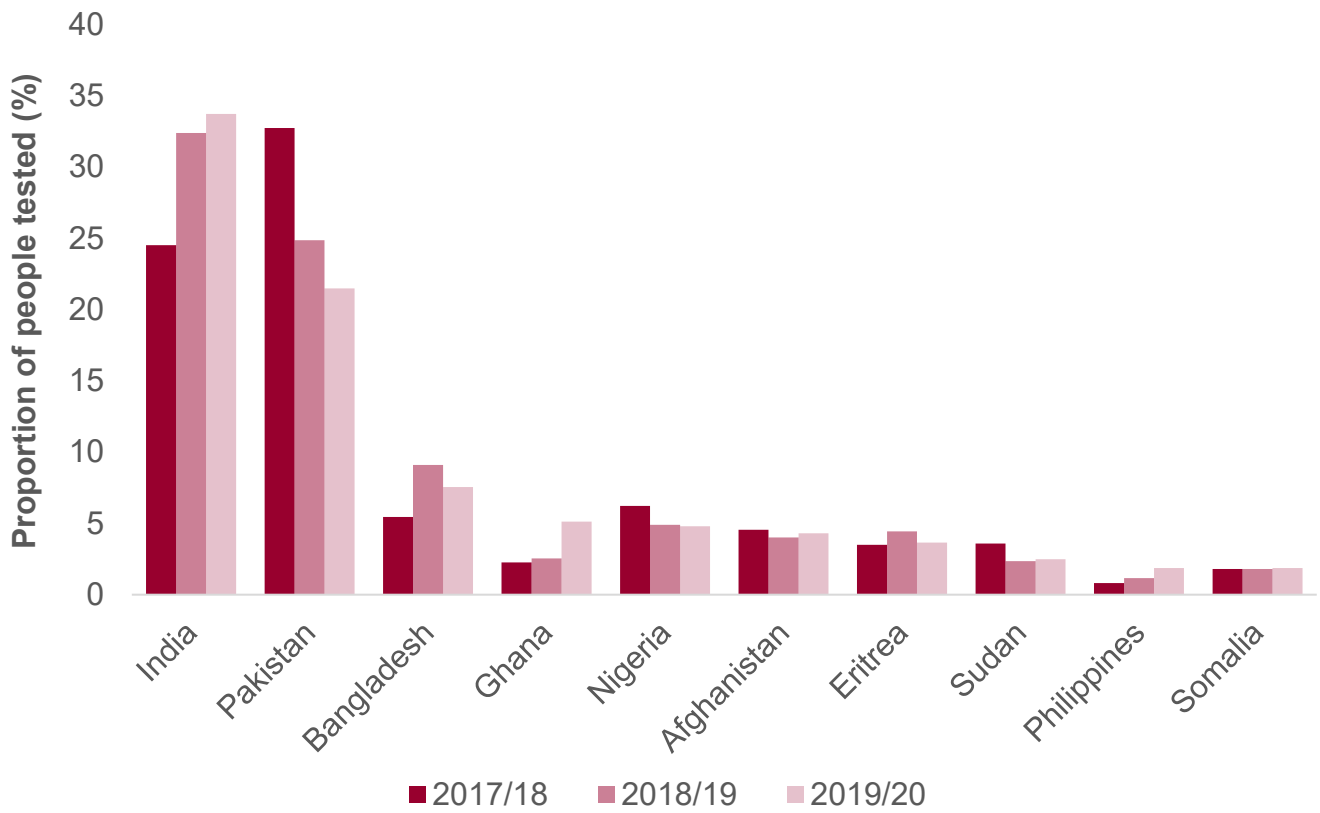
Figure 1.2: Number and proportion of LTBI tests, and test positivity rate, by age group and sex, England, 2017 to 2018 to 2019 to 2020



Country of birth

Information on the country of birth was available for 51% of people tested (35,053/68,123) in the programme between 2015 to 2016 and 2019 to 2020. The availability of country of birth data is improving each year, and was available for 66% of tests in 2019 to 2020 (14,693/22,221), compared to 15% of tests (432/2,858) in 2015 to 2016. This information is vital in determining the eligibility of a test for the programme, however, tests are not excluded if they have an unknown country of birth. For those tested with a known country of birth, people born in India and Pakistan consistently represented the largest proportion of people tested in the programme each year, accounting for 56% of all people tested (with a known country of birth) between 2015 to 2016 and 2019 to 2020 (Figure 1.3. See also data tables associated with this report).

Figure 1.3: The 10 most common countries of birth for people tested in the programme as a percentage of total people tested*, England, 2017 to 2018 to 2019 to 2020



* Data includes only those with a known country of birth

Treatment outcomes

Main messages

Submission of treatment referral data is incomplete across England.

Across CCGs that do submit treatment data, 45% (921/2035) of people with a positive LTBI test were known to have accessed treatment in 2019 to 2020 compared to 38% (749/1971) in 2018 to 2019.

Where treatment data was available, during 2019 to 2020, 75% (480/637) of people were known to have completed treatment, a decrease from 82% (568/693) in 2018 to 2019.

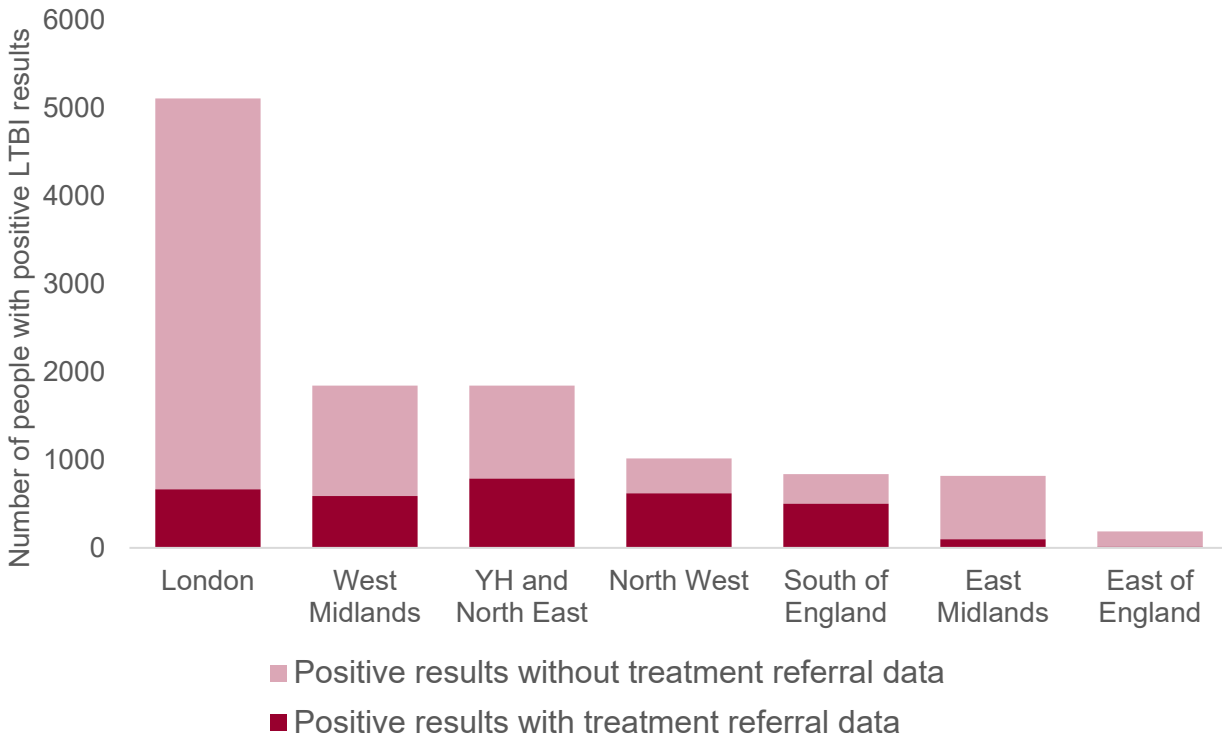
Treatment data availability

Treatment data was available for 28% of all positive LTBI test results received between 2015 to 2016 and 2019 to 2020⁴. Availability of treatment data is defined as having a treatment start or completion date, treatment decline or stop data or a known treatment regimen. The high proportion of missing treatment data is predominantly due to many CCGs submitting treatment data at a late stage in their programmes rather than all CCGs only submitting partial data.

Figure 2.1 shows the variation by TBCB of the percentage of people with a positive test and missing treatment data. London accounts for a large proportion of positive tests with missing treatment data. The North West and South of England TBCBs submit the highest percentage of treatment data.

⁴ Includes positive results from CCGs that PHE has never received any treatment data from or treatment data submission was established at a late stage.

Figure 2.1: The number of positive LTBI test results and the percentage with accompanying treatment data, England, 2015 to 2016 to 2019 to 2020*, **



* Includes positive results from CCGs that PHE has never received any treatment data from or treatment data submission was established at a late stage.

** There is high variation between CCGs in each TBCB, for example, not all South of England CCGs submit treatment data and several London CCGs have high submission levels of treatment data.

Treatment access and completion

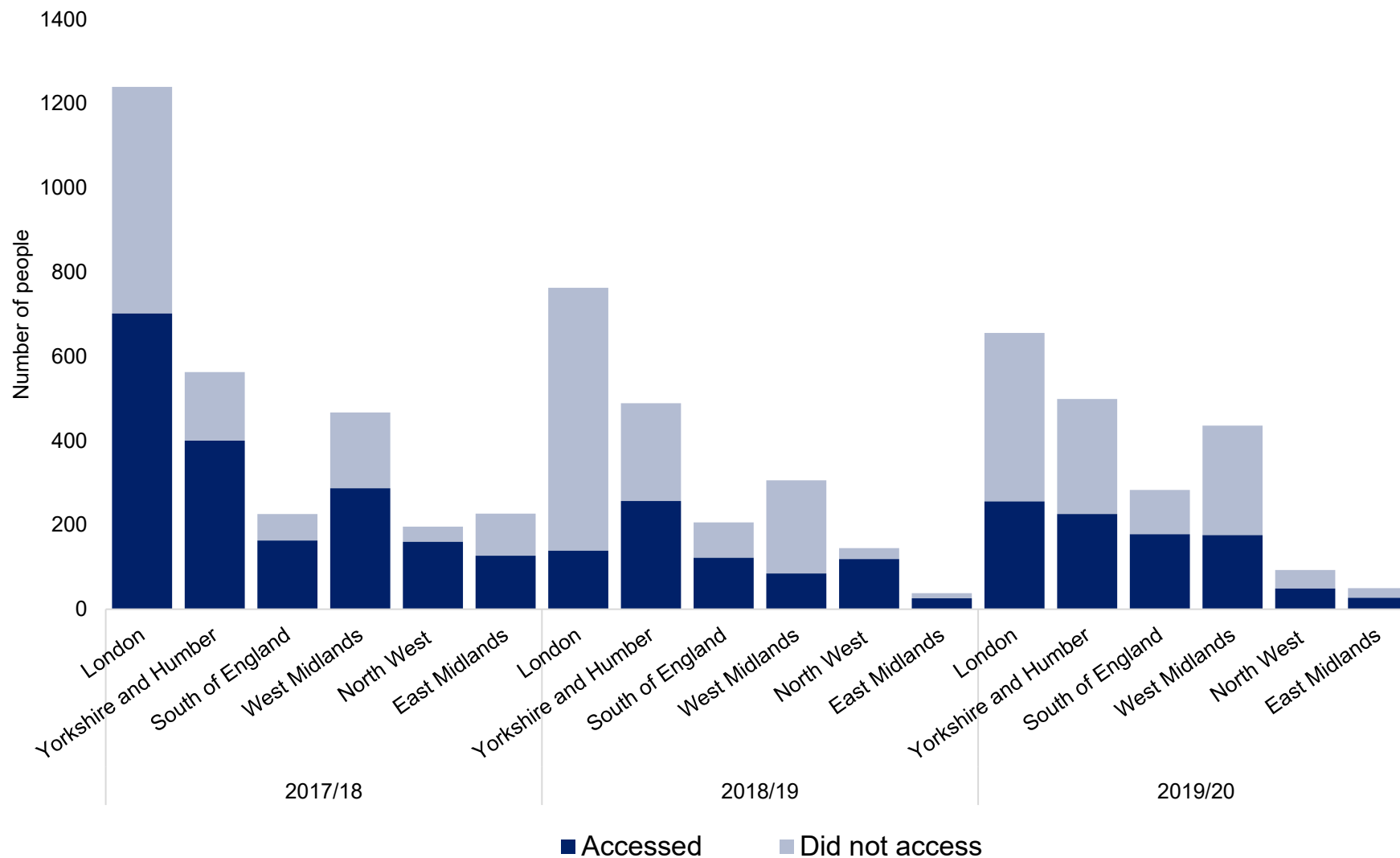
Of the CCGs that do submit treatment data, the percentage of people with a positive LTBI test result who are known to have accessed and completed treatment is summarised in [Table 2.1](#) between the financial years 2017 to 2018 to 2019 to 2020. This table shows that the percentage of people who accessed treatment out of those who should have accessed treatment has fluctuated around 42% for the past 3 years. The percentage of people who completed treatment of those that should have completed treatment is higher but fluctuates around 78% completion. For more information on the methods used to calculate the treatment cohorts, see [Appendix: Methods](#).

Table 2.1: Number and proportion of people that accessed and completed treatment compared with those that should have accessed or completed treatment, in CCGs that submit treatment data, England 2017 to 2018 to 2019 to 2020

	Should have accessed treatment	Accessed treatment (% of should have accessed)	Should have completed treatment	Completed treatment (% of should have completed)
2017 to 2018	1,863	760 (41)	702	543 (77%)
2018 to 2019	1,970	765 (39)	693	568 (82%)
2019 to 2020	2,049	925 (45)	638	480 (75%)
Total	5,882	2,450 (42)	2,033	1,591 (78%)

As shown in [Figure 2.2](#), there is high variation in treatment access rates across each year and CCG. Further work is needed to understand both the decline and the variation in the data submitted by CCGs on the numbers of people accessing treatment with positive LTBI tests. It is expected that treatment access rates in TBCBs are generally much higher than reported but PHE does not receive this data. TBCBs and CCGs should ensure that treatment referral pathways are operating successfully and that data is sent to PHE to record these outcomes.

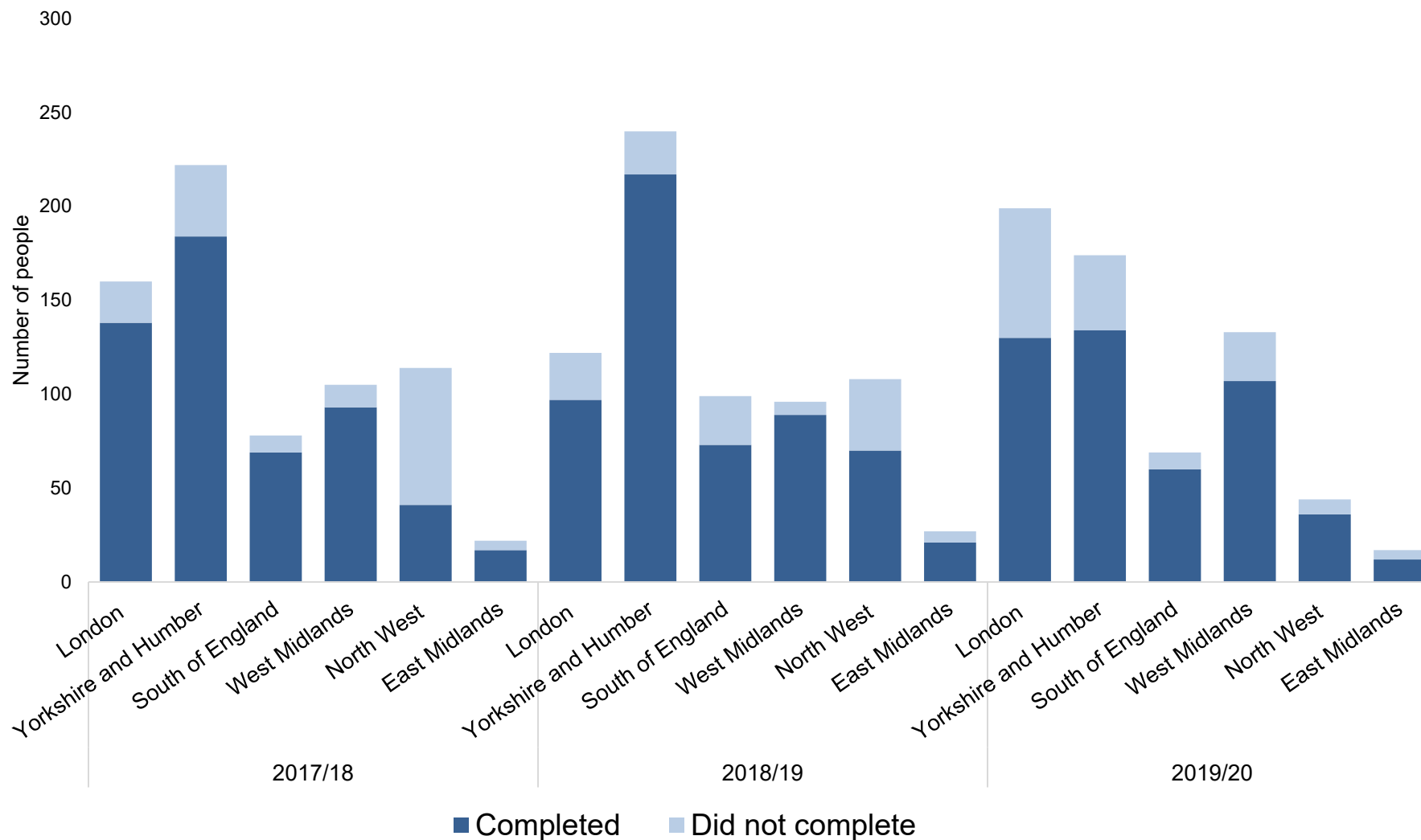
Figure 2.2: Number and percentage of people known to have been referred to treatment services, compared to those who should have been referred and were not, by TBCB, England, 2017 to 2018 to 2019 to 2020*



* This data only includes CCGs that submit treatment data. The 'should have been referred to treatment' cohort includes those who have had sufficient time to be referred to treatment after a positive test.

LTBI treatment completion rates were generally high for all TBCBs between 2017 to 2018 and 2019 to 2020, although there are large variations each year across TBCBs (Figure 2.3). TBCBs that are seeing a decline in treatment completion rates should assess whether there are local difficulties in enabling people to complete treatment courses and/or inefficiencies in recording treatment completion dates. A CCG breakdown of people who were referred to and completed treatment is available in the data tables associated with this report.

Figure 2.3: Number and proportion of people who completed treatment, compared with those who should have completed treatment and did not, by TBCB, England, 2017 to 2018 to 2019 to 2020*



* This data only includes CCGs that submitted treatment data. The 'should have completed treatment' cohort includes those who have had sufficient time to have finished the treatment course.

Treatment regimen and adverse events

The number of adverse events reported from LTBI treatment in the programme remains low each year. Of those where treatment regimen is known, 94% (2,631/2,785) were prescribed a 3-month course of Rifinah (rifampicin and isoniazid) between 2015 to 2016 and 2019 to 2020 and 3% (73/2,785) were prescribed a 6-month isoniazid course.

Overall, adverse events were reported in 4% (108/2,886) of the total people that started treatment since 2015 to 2016. Among the adverse events reported in 2019 to 2020, hepatotoxicity was the most common, with rash and skin symptoms, dizziness and fatigue, headache also reported.

References

1. Public Health England (2019) [Latent TB infection \(LTBI\): testing and treatment](#)
2. [Ethnicity facts and figures \(2018\), male and female populations](#)

Appendix: Methods

Enhancement of the LTBI datasets

To improve the completeness of patient identifiable information and the accuracy of the dataset, the LTBI dataset was matched to SPINE and Flag4 data received from NHS Digital on new migrants. Where no NHS number was available, the forename, surname and date of birth were used to complete this field.

Number of people tested for LTBI

Where an individual has more than once positive or negative test result, the first result is included. Test results for individuals with more than one inconclusive result are retained in the total number of tests. LTBI test results that were reported as 'unprocessed' or 'rejected' were excluded from the dataset.

Due to incomplete primary care testing data returns, PHE uses lab data to estimate the number of tests in CCGs operating a primary care based model. Lab data does not contain eligibility criteria such as country of birth, or time spent in a high incidence country and may therefore represent an overestimation of eligible testing.

LTBI cohort of people known to have accessed treatment

To calculate treatment outcomes for CCGs that submit treatment data, the minimum (first) and maximum (last) treatment start date reported for each CCG were extracted from the treatment data. Three months (90 days) were subtracted from the minimum date to create a cohort start date. All positive tests between the cohort start date and maximum date were included in the cohort of positives that should be referred for treatment. Of this cohort, the number of people that are known to have accessed treatment are those that had a treatment start date, a chemo prescription, refused treatment or had a treatment completion date.

LTBI cohort of people known to have completed treatment

The maximum (last) IGRA date reported for each CCG was extracted. Four months were subtracted from the maximum IGRA date to create a 4-month window to enable receipt of treatment completion data. Only patients that started treatment prior to this 4-month window were included. People who had their treatment discontinued for reasons such as pregnancy were excluded from this cohort. Of this cohort, the number of people who are known to have completed treatment are those who reported a date of treatment completion.

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