Local Government Association

Public Health England

Tackling tuberculosis

Local government's public health role

Guidance

Foreword

The UK has one of the highest incidence rates of tuberculosis (TB) of any Western European country and is working hard to change this.

TB is a preventable and treatable disease that disproportionately affects vulnerable and disadvantaged populations. Certain groups, such as migrants, ethnic minority groups, and those with social risk factors such as homelessness or a history of imprisonment are more affected. Action is required to ensure that best practice in prevention, control and treatment is delivered to all communities across the country.

Local authority staff have essential frontline roles to play in TB control – whether this is identifying symptoms, advising health and social care professionals, appropriate infection control, responding to TB incidents and outbreaks in settings such as schools, and ensuring that they themselves are also protected and screened if needed.

The burden of TB in each local authority (provided in the Annex) and what action they and local government can take to control TB are presented in this document.

Local government has an important responsibility to ensure that the wider social determinants of TB are addressed, and that people affected by the disease are supported to take their treatment. Many of the actions needed to eliminate TB require strengthened and integrated local services as TB does not exist in isolation from other health and social concerns.

We all need to work together not only to create the vision and ambition to eliminate TB, but to deliver the leadership, coordination and effective services required to make a real difference to this significant public health challenge.

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Chairman, LGA Community Wellbeing Board

Introduction

This publication looks to address questions that councillors and officers in local government may have on tuberculosis (TB), its burden in the UK and what action they and local government can take to tackle TB. It has been produced by the Local Government Association and Public Health England (PHE) in consultation with local authority representatives. TB is more commonly found in deprived and vulnerable communities and local councils have a critical role to play in protecting the health of these populations and tackling TB. A recently launched document 'Tackling tuberculosis in under-served populations: a resource for TB Control Boards (TBCBs) and their partners'[1] provides substantial resources to help local government and others improve TB control.

Recommendations on how local authorities can tackle TB are found on page 7 of this document.

What is TB?

Tuberculosis (TB) is an infectious disease caused by a bacterium, Mycobacterium tuberculosis. TB usually affects the lungs, but can affect other parts of the body, such as the lymph nodes (glands), the bones and the brain. Infection with the TB bacteria may not always develop into TB. When TB does develop, the vast majority of cases are curable with a six month course of specific antibiotics.

Tuberculosis used to be very common in England. In the 1930s over 50,000 TB cases were reported each year. Today TB is much less common and in 2016 there were 5,664 cases of TB in England.

TB in England

TB rates in England continue to be unacceptably high compared to other Western European countries, although in recent years the number of cases has decreased by 32 per cent from a peak of 8,280 in 2011 to 5,664 cases in 2016.[2] This reduction is mostly due to a decrease in the number of non-UK born cases. However, the most recent data from 2016 showed a slowing of the decline in case numbers (1 per cent versus 10 per cent year-on-year previously) with only a small decline in UK born cases and no decline in the non-UK born cases (see Figure 1 for TB rates by UK local authority).

TB is very unequally distributed, with certain sub-groups, such as new migrants and those with social risk factors, disproportionally affected. London has the highest burden of infection with 39 per cent of the England case load, followed by the West Midlands with 13 per cent. Almost three quarters of cases are found in people born abroad in countries where TB is more common; the majority of these are from South Asia (51 per cent of the non-UK born TB population) and sub-Saharan Africa (22 per cent).

1 www.gov.uk/government/uploads/system/uploads/attachment_data/file/592274/Tackling_TB_in_Under-Served_Populations_-_A_Resource_for_TBCBs_and_partners.pdf

2 www.gov.uk/government/uploads/system/uploads/attachment_data/file/686185/TB_Annual_Report_2017_v1.1.pdf

Figure 1: Three-year average TB rates by local authority district, England, 2014-2016 (box shows enlarged map of London area)

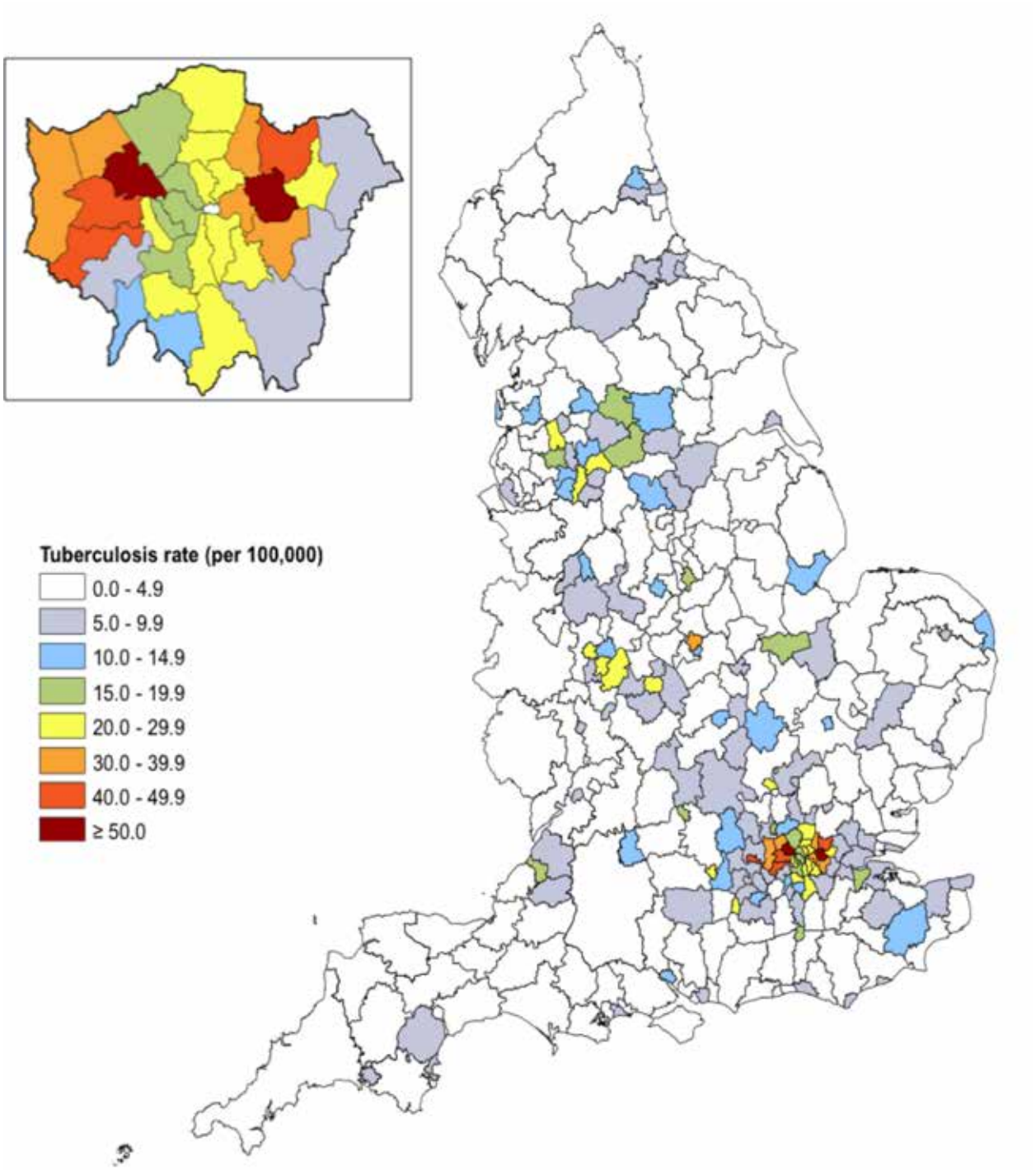

Table 1: Three-year average number of tuberculosis case reports and rates for upper tier local authorities with the 20 highest rates, England, 2014-2016, PHE

Upper tier local authority	Average annual number of cases	Average annual rate (per 100,000 population)
Newham	230	69.0
Brent	187	57.8
Hounslow	128	47.5
Ealing	162	47.3
Slough	61	41.8
Redbridge	123	41.5
Harrow	95	38.6
Leicester	132	38.5
Hillingdon	102	34.4
Waltham Forest	90	33.0
Greenwich	83	30.2
Tower Hamlets	89	30.1
Luton	62	29.0
Barking and Dagenham	58	28.7
Sandwell	87	27.3
Reading	43	26.4
Haringey	71	26.1
Coventry	89	25.8
Hackney	68	25.4
Southwark	78	25.3

Detailed data and information on TB are available at local authority and Clinical Commissioning Group (CCG) level in the TB Fingertips tool.[3] This can be used to assess local TB burden to support joint strategic needs assessment (JSNA) development and TB commissioning and monitoring to ensure health and social services are appropriately provided.

TB globally

Throughout the 19th and early 20th centuries, TB was widespread in the cities of Europe and North America – London and New York were two of the worst affected cities. Cases of TB decreased as housing conditions and nutrition improved and antibiotics and the BCG vaccination were introduced. Though reported cases in the UK and other industrialised nations declined rapidly during the 20th century, TB never went away. TB is still common in many low income countries, where, alongside higher levels of poverty, there may be poor access to health care, internal and cross-border migration and high rates of HIV. In 2016, 10.4 million people worldwide were diagnosed with TB and 1.7 million died from the disease.

3 http://fingertips.phe.org.uk/profile/tb-monitoring/

How is TB spread?

TB is usually spread through the air when a person with TB of their lungs or voice box coughs or sneezes. Approximately 50 per cent of TB cases are infectious[4]. Patients with 'sputum smear positive' (or 'open' TB of the lungs) are more likely to be infectious, but even then, close and prolonged contact is needed with TB to be transmitted to another person.

Anyone can get TB, but it is difficult to catch. People are most at risk if they live in the same household or spend a lot of time in the same room as someone with infectious TB. The following people have a higher risk of being infected:

- those in very close contact with an infectious case
- those born or having lived in a country with a high incidence of TB
- those whose immune systems are weak eg those on cancer treatments or with HIV infection
- those with a social risk factor for TB.

Social risk factors for TB

In 2016, 11.1 per cent of TB cases in the UK had at least one social risk factor.[5] These cases are twice as likely to have infectious TB and twice as likely to die of TB.

Social risk factors for TB include:

- homelessness
- contact with the criminal justice system
- drug or alcohol misuse.

To support patients with social risk factors and some migrant groups (eg asylum seekers and refugees) a new resource has been developed, 'Tackling tuberculosis in under-served populations: a resource for TBCBs and their partners'.[6] This resource brings together in one place information related to under-served populations (USPs) and TB. It supports regional TBCB and their partners to build collaborative programmes of work to reduce the burden of TB among vulnerable and marginalised people with multiple complex needs. Chapters written by subject area specialists take each USP group in turn and define them; describe the burden of TB among this population; discuss the challenges (both health and social care) and make recommendations on how to meet those challenges. Each chapter includes hyperlinked resources such as leaflets and websites and exemplars of innovation and good practice to stimulate local action. The resource also provides information on the roles and responsibilities with respect to local government, TBCBs, CCGs and the third sector and includes a chapter on TB 'models of care'.

Prevention

The most important factors for TB prevention are early diagnosis (especially of infectious cases) and treatment completion, as this reduces onward transmission of the disease. Completing a full course of appropriate treatment is vital to prevent the patient relapsing, the development of drug-resistant TB, and reduces the risk of transmission and preventable death.

4 www.gov.uk/government/uploads/system/uploads/attachment_data/file/686185/TB_Annual_Report_2017_v1.1.pdf
5 www.gov.uk/government/uploads/system/uploads/attachment_data/file/686185/TB_Annual_Report_2017_v1.1.pdf
6 www.gov.uk/government/uploads/system/uploads/attachment_data/file/592274/Tackling_TB_in_Under-Served_Populations_-_A_Resource_for_TBCBs_and_partners.pdf

Identifying patients who have recently been infected with TB via the screening of contacts and offering preventive treatment to those with latent TB infection also contributes to TB control. In hospitals and institutional settings, infection control measures to identify and isolate infectious cases are important.

In some high-risk groups, and especially among infants and young children at risk of exposure to TB, BCG vaccination can offer some protection against TB, particularly forms of TB which spread widely throughout the body (causing disseminated disease).

Pre-entry screening for active pulmonary TB

Since 2014, the UK has screened for active pulmonary TB in all long-term visa applicants from high incidence countries prior to arrival in the UK (pre-entry TB screening). The screening includes a chest x-ray and symptom assessment. Individuals who are found to have active pulmonary TB must complete treatment before their visa is granted.

Signs and symptoms of active TB

TB develops slowly in the body; it usually takes several months for symptoms to appear. Because TB can affect almost any part of the body, the symptoms are extremely varied, however the most common symptoms include:

- persistent cough for more than three weeks, sometimes with blood
- loss of appetite
- weight loss
- fever
- night sweats
- shortness of breath
- extreme fatigue and tiredness.

TB treatment and drug resistance

TB diagnosis and NHS treatment is free to all people living in the UK, regardless of their immigration status.

A standard course of TB treatment lasts for six months. Modern anti-TB drugs are effective and in nearly all cases TB patients are no longer infectious and feel much better after the first two weeks of treatment. Anti-TB drugs are prescribed in combination to reduce the risk of the TB bacteria becoming resistant to one or more drugs. For this reason, patients are usually started on at least four different drugs.

It is vital that TB medication is taken as prescribed. Taking anti-TB medication in the wrong dose, intermittently or for too short a time can result in the development of drug resistance making the disease much harder to treat and significantly increasing the patient's risk of long term complications or death. Treatment for drug resistant TB can last up to two years.

TB patients, and children in particular, will require support to help them take their medication as prescribed and to deal with the physical and social consequences of the disease.

Directly observed therapy (DOT) is a form of intensive support by an outreach worker or nurse and is helpful for patients who find it difficult to take regular treatment. TB is still stigmatised and patients can feel isolated and can find it difficult to communicate their problems.

Drug resistant TB is an increasing problem, with 7 per cent of cases in England having resistance to at least one first line antibiotic and 2 per cent having multi-drug/rifampicin resistant TB. The cost of treating drug resistant TB is up to 10 times that of drug-sensitive TB.

Latent TB infection (LTBI) testing and treatment of new entrants

When a person is infected with TB, their immune system usually brings the disease under control and the person develops a state of latent TB infection (LTBI). People with LTBI are well, have no signs or symptoms and are not infectious to others. Around one in 10 people who have latent TB go on to develop active TB.

LTBI can be diagnosed by a blood test, and can be treated with antibiotics, helping to prevent active TB disease in the future. LTBI testing and treatment is available in 59 higher incident CCGs for 16 to 35 year olds who recently arrived in England from a high incidence country. New NHS England funding has been made available as part of the Collaborative TB Strategy[7] to pay for this. People who have been screened for active TB pre-entry should still be tested for latent TB once in the UK, as latent TB is not tested for abroad.

What is now needed to reduce the burden of TB?

TB is one of Public Health England's (PHE) key priorities and one supported across local government. In 2015, the Collaborative TB Strategy for England 2015-2020[8] was launched by PHE and NHS England. The Strategy brings together best practice in clinical care, social support and public health to strengthen TB control, and provides support to local clinical, preventive and social care services in the NHS, local government and the wider health and social care system.

The TB Strategy recommends 10 areas for action:

- improve access to services and ensure early diagnosis
- provide universal access to high-quality diagnostics
- improve treatment and care services
- ensure comprehensive contact tracing
- improve BCG vaccination uptake
- reduce drug-resistant TB
- tackle TB in under-served populations
- systematically implement new entrant LTBI screening
- strengthen surveillance and monitoring
- ensure an appropriate workforce to deliver TB control.

7 Collaborative Tuberculosis Strategy for England: 2015 to 2020 www.gov.uk/government/uploads/system/uploads/attachment_data/file/403231/Collaborative_TB_Strategy_for_England_2015_2020_.pdf

8 Collaborative Tuberculosis Strategy for England: 2015 to 2020 www.gov.uk/government/uploads/system/uploads/attachment_data/file/403231/Collaborative_TB_Strategy_for_England_2015_2020_.pdf

Many of the actions needed to eliminate the burden of TB require strengthened and more integrated local services which ensure consistent, evidence-based prevention, treatment and support to patients, their families and other contacts, especially as TB does not exist in isolation from other health and social concerns. PHE is determined to see a sustained reduction in TB, and will work tirelessly to support local partners in those areas where the burden is greatest.

To implement the Collaborative TB Strategy a national TB programme was created which works at a local level with oversight and support through seven regional TBCBs. Each TB Control Board covers a defined geographic area, has strong leadership, programme management support and access to clinical advice. The TBCBs have brought together key local stakeholders including local government, CCGs, NHS England, the NHS, PHE and the voluntary and third sector. Together these stakeholders are leading local work to implement the national TB Strategy using the levers available through existing health and accountability structures to ensure the appropriate commissioning and delivery of services.

What can local authorities do to tackle TB?

- **Ensure a joined-up, multi-agency approach to TB patient care and support** by fully involving council departments, such as social care, housing and benefits and other statutory agencies such as the NHS to ensure care and support includes social needs ie housing, subsistence and social care.
- **Encourage local health and social service commissioners to prioritise the delivery of appropriate clinical and public health services for TB**, (especially in areas where TB rates are highest) and drive improvements in early diagnosis and completion of treatment, both key to reducing TB rates in England. Consider using pooled budgets to help patients complete treatment.
- **Promote local leadership of TB at all levels** – such as local leadership through elected members, strategic leadership through the director of public health and health and wellbeing boards and health protection boards and health leadership via CCGs, wider NHS partners and public health teams.
- **Encourage NHS commissioners, local authorities, housing departments and hostel accommodation providers to agree a process** for providing accommodation for TB patients who are vulnerable or homeless or otherwise ineligible for funded accommodation.
- **Support where possible an individual's social needs** through use of local authority assistance tools eg crisis grants and hardship loans (where they exist), to provide flexible solutions for TB patients on a case by case basis. This support, and that of a social worker, can improve treatment completion rates.
- **Invite a local TB nurse to raise awareness of TB among local authority staff.**
- **Ensure information about TB is cascaded into key local authority teams** eg children's services, adult services, housing and benefits and Citizen's Advice; as the support to TB patients benefits from the use of the 'whole family' approach. For example if an adult has TB then the impact on any children is considered or if a child has TB the impact on education taken into account.
- **Facilitate appropriate access to information and advice on TB**, its symptoms, diagnosis and treatment for under-served populations such as the homeless, drug/alcohol users or new migrants.
- **Promote registration with GPs for new migrants, vulnerable or marginalised people** to aid early diagnosis of medical problems.

- **Work, via the DPH, with CCGs and NHS England to ensure that screening, immunisation and treatment services reach out to diverse populations** and are accessible to the deprived or marginalised.
- **Consider how third sector organisations can help improve access to TB services and patient support,** and encourage and empower the voice of people affected by TB. These groups are important sources of support for patients as well as important to consult when designing new health programmes.
- **Include TB in the local authority's Joint Strategic Needs Assessment** (JSNA) and the joint health and wellbeing strategies (JHWS); ensure TB is on the agenda of the health and wellbeing board (HWB) and the sustainability and transformation partnerships (STPs).
- **Encourage multi-agency working on TB via the HWB and health protection board** (where they exist). These boards have a role in partnership working, including with NHS commissioners, to ensure that effective local TB control is achieved. This could include identifying if indicators such as treatment completion rates or key performance indicators (KPIs) determined by the local TB Control Board, are being met.
- **Consider undertaking a scrutiny committee review of TB** in areas of high incidence.

Key messages

- Involvement of local authorities in the TB agenda is crucial if we are to collectively improve TB control and meet the needs of marginalised and vulnerable people in whom TB is more common. Local authorities are well placed to ensure a joined up, multi-agency approach to holistic TB patient care and support by fully involving all statutory agencies and council departments, such as social care, housing, education and benefits in the issue of TB.
- Local leadership is needed to champion TB and councillors and officers in local government are well placed to take action.
- Importantly, TB is treatable and NHS treatment is free. Early diagnosis is key and so GP registration should be encouraged for all new migrants and vulnerable people. Access to information and advice on TB for those in local government working with vulnerable people is also important.
- It is therefore crucial for councillors and officers in local government to understand TB in their local area, engage with local decision makers on the issue of TB and support the actions as outlined in this document.

Annex 1

Three year average TB numbers and rates by upper tier local authority, England, 2014-16, PHE

Upper tier local authority	Average annual number of cases	Average annual rate per 100,000 (95% CI)
Barking and Dagenham	58	28.7 (24.6-33.3)
Barnet	74	19.5 (17.0-22.2)
Barnsley	10	4.0 (2.7-5.8)
Bath and North East Somerset	12	6.5 (4.5-9.0)
Bedford	20	12.0 (9.2-15.5)
Bexley	22	9.1 (7.0-11.6)
Birmingham	279	25.1 (23.4-26.9)
Blackburn with Darwen	36	24.3 (19.9-29.3)
Blackpool	14	10.3 (7.4-13.8)
Bolton	50	17.6 (14.9-20.7)
Bournemouth	12	6.0 (4.2-8.3)
Bracknell Forest	8	6.7 (4.3-10.0)
Bradford	96	18.1 (16.0-20.3)
Brent	187	57.8 (53.1-62.7)
Brighton and Hove	22	7.6 (5.9-9.7)
Bristol, City of	81	18.1 (15.9-20.6)
Bromley	21	6.6 (5.1-8.4)
Buckinghamshire	44	8.4 (7.0-9.9)
Bury	18	9.4 (7.0-12.3)
Calderdale	16	7.8 (5.8-10.4)
Cambridgeshire	36	5.6 (4.6-6.8)
Camden	43	18.0 (15.0-21.4)
Central Bedfordshire	7	2.4 (1.5-3.8)
Cheshire East	16	4.2 (3.1-5.5)
Cheshire West and Chester	10	3.0 (2.0-4.3)
City of London	0	3.8 (0.1-21.2)
Cornwall	13	2.3 (1.6-3.2)
County Durham	9	1.8 (1.2-2.6)
Coventry	89	25.8 (22.8-29.1)
Croydon	84	22.1 (19.4-25.0)
Cumbria	10	2.1 (1.4-2.9)
Darlington	6	5.7 (3.4-9.0)
Derby	33	13.1 (10.7-15.9)
Derbyshire	18	2.3 (1.8-3.0)
Devon	27	3.5 (2.8-4.3)
Doncaster	20	6.6 (5.0-8.4)

Upper tier local authority	Average annual number of cases	Average annual rate per 100,000 (95% CI)
Dorset	9	2.2 (1.5-3.2)
Dudley	25	7.9 (6.2-9.9)
Ealing	162	47.3 (43.2-51.7)
East Riding of Yorkshire	6	1.9 (1.1-2.9)
East Sussex	23	4.2 (3.3-5.4)
Enfield	69	20.9 (18.2-24.0)
Essex	60	4.2 (3.6-4.8)
Gateshead	15	7.5 (5.4-10.0)
Gloucestershire	24	3.8 (3.0-4.8)
Greenwich	83	30.2 (26.6-34.2)
Hackney	68	25.4 (22.1-29.2)
Halton	2	1.8 (0.7-3.8)
Hammersmith and Fulham	37	20.5 (16.8-24.7)
Hampshire	54	4.0 (3.4-4.6)
Haringey	71	26.1 (22.7-29.9)
Harrow	95	38.6 (34.2-43.3)
Hartlepool	3	3.6 (1.7-6.6)
Havering	24	9.8 (7.7-12.3)
Herefordshire, County of	3	1.6 (0.7-3.0)
Hertfordshire	87	7.4 (6.6-8.4)
Hillingdon	102	34.4 (30.6-38.5)
Hounslow	128	47.5 (42.9-52.6)
Isle of Wight	2	1.7 (0.7-3.4)
Isles of Scilly	0	0.0 (0.0-0.0)
Islington	49	21.6 (18.2-25.3)
Kensington and Chelsea	26	16.4 (12.9-20.4)
Kent	95	6.2 (5.5-7.0)
Kingston upon Hull, City of	16	6.2 (4.6-8.2)
Kingston upon Thames	19	11.2 (8.5-14.4)
Kirklees	72	16.6 (14.4-19.0)
Knowsley	2	1.6 (0.6-3.3)
Lambeth	65	20.1 (17.4-23.1)
Lancashire	65	5.5 (4.7-6.3)
Leeds	89	11.5 (10.2-13.0)
Leicester	132	38.5 (34.8-42.5)
Leicestershire	22	3.3 (2.6-4.2)
Lewisham	65	21.9 (18.9-25.2)
Lincolnshire	34	4.6 (3.7-5.5)
Liverpool	37	7.7 (6.4-9.3)

Upper tier local authority	Average annual number of cases	Average annual rate per 100,000 (95% CI)
Luton	62	29.0 (24.9-33.4)
Manchester	131	24.7 (22.3-27.3)
Medway	14	5.1 (3.7-6.8)
Merton	48	23.5 (19.8-27.7)
Middlesbrough	14	9.8 (7.0-13.3)
Milton Keynes	24	9.0 (7.1-11.4)
Newcastle upon Tyne	41	14.1 (11.7-16.8)
Newham	230	69.0 (64.0-74.4)
Norfolk	37	4.1 (3.4-5.0)
North East Lincolnshire	7	4.2 (2.6-6.5)
North Lincolnshire	7	4.3 (2.7-6.5)
North Somerset	8	3.8 (2.4-5.7)
North Tyneside	7	3.5 (2.1-5.3)
North Yorkshire	14	2.4 (1.7-3.2)
Northamptonshire	48	6.7 (5.6-7.9)
Northumberland	8	2.4 (1.5-3.6)
Nottingham	50	15.8 (13.3-18.5)
Nottinghamshire	26	3.3 (2.6-4.1)
Oldham	50	21.5 (18.2-25.3)
Oxfordshire	54	8.0 (6.8-9.3)
Peterborough	38	19.8 (16.3-23.7)
Plymouth	16	6.0 (4.4-7.9)
Poole	5	3.5 (2.0-5.7)
Portsmouth	13	6.1 (4.4-8.4)
Reading	43	26.4 (22.0-31.4)
Redbridge	123	41.5 (37.4-46.0)
Redcar and Cleveland	4	3.0 (1.5-5.2)
Richmond upon Thames	11	5.5 (3.7-7.7)
Rochdale	32	14.9 (12.1-18.2)
Rotherham	13	5.1 (3.7-7.0)
Rutland	1	3.5 (1.0-8.9)
Salford	29	12.0 (9.6-14.7)
Sandwell	87	27.3 (24.1-30.8)
Sefton	8	2.8 (1.8-4.2)
Sheffield	73	12.8 (11.1-14.6)
Shropshire	9	2.8 (1.8-4.1)
Slough	61	41.8 (36.0-48.3)
Solihull	14	6.5 (4.7-8.8)
Somerset	10	1.9 (1.3-2.7)

Upper tier local authority	Average annual number of cases	Average annual rate per 100,000 (95% CI)
South Gloucestershire	18	6.7 (5.0-8.7)
South Tyneside	9	5.8 (3.8-8.5)
Southampton	29	11.5 (9.2-14.2)
Southend-on-Sea	11	6.0 (4.1-8.4)
Southwark	78	25.3 (22.2-28.8)
St. Helens	3	1.7 (0.8-3.2)
Staffordshire	35	4.1 (3.3-4.9)
Stockport	15	5.3 (3.9-7.1)
Stockton-on-Tees	11	5.5 (3.7-7.7)
Stoke-on-Trent	30	11.8 (9.5-14.5)
Suffolk	30	4.0 (3.3-5.0)
Sunderland	13	4.8 (3.4-6.5)
Surrey	69	5.9 (5.1-6.7)
Sutton	24	11.8 (9.2-14.9)
Swindon	23	10.8 (8.4-13.6)
Tameside	19	8.7 (6.6-11.3)
Telford and Wrekin	6	3.7 (2.2-5.8)
Thurrock	9	5.4 (3.6-7.9)
Torbay	7	5.0 (3.1-7.7)
Tower Hamlets	89	30.1 (26.6-33.9)
Trafford	24	10.4 (8.2-13.1)
Wakefield	17	5.1 (3.8-6.7)
Walsall	38	13.9 (11.5-16.7)
Waltham Forest	90	33.0 (29.2-37.2)
Wandsworth	54	17.1 (14.5-19.9)
Warrington	9	4.2 (2.7-6.1)
Warwickshire	36	6.4 (5.3-7.8)
West Berkshire	6	3.8 (2.3-6.1)
West Sussex	41	4.9 (4.1-5.9)
Westminster	44	18.1 (15.1-21.5)
Wigan	13	4.1 (3.0-5.6)
Wiltshire	15	3.0 (2.2-4.1)
Windsor and Maidenhead	13	8.6 (6.1-11.7)
Wirral	10	3.0 (2.0-4.3)
Wokingham	17	10.8 (8.1-14.2)
Wolverhampton	60	23.6 (20.2-27.3)
Worcestershire	21	3.6 (2.8-4.6)
York	3	1.3 (0.6-2.5)

Additional resources

Public Health England (2017), Tuberculosis in England
www.gov.uk/government/publications/tuberculosis-in-england-annual-report

Public Health England (2017), Tackling TB in under-served populations: a resource for TBCBs and their partners
www.gov.uk/government/publications/tackling-tuberculosis-in-under-served-populations

Public Health England and NHS England (2015), Collaborative Tuberculosis Strategy for England: 2015 to 2020
www.gov.uk/government/publications/collaborative-tuberculosis-strategy-for-england

The national knowledge service – tuberculosis (NKS-TB)
www.gov.uk/government/collections/tuberculosis-and-other-mycobacterial-diseases-diagnosis-screening-management-and-data#nks-tb-treatment-and-management-advice-

The Truth About TB awareness campaign
www.thetruthabouttb.org

NICE (2016), Tuberculosis guidance
www.nice.org.uk/guidance/ng33

Nice (2013), Tuberculosis in vulnerable groups local government briefing
www.nice.org.uk/advice/lgb11/chapter/Introduction

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