



Public Health
England

Protecting and improving the nation's health

Reports of cases of tuberculosis to enhanced tuberculosis surveillance systems: UK, 2000 to 2018

Official Statistics



About Public Health England

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Notes

Tuberculosis definition

All new tuberculosis (TB) cases (including cases diagnosed post-mortem) that meet 1 of the 2 following case definitions should be notified:

1. Culture confirmed case: culture confirmed disease, with speciation confirming *Mycobacterium tuberculosis* complex (*M. tuberculosis*, *M. bovis*, *M. africanum* or *M. microti*)
2. Clinically diagnosed case: in the absence of culture confirmation, a case that meets the following criteria:
 - a clinician's judgement that the patient's clinical and/or radiological signs and/or symptoms are compatible with active TB, and
 - a clinician's decision to treat the patient with a full course of anti-TB therapy for active TB

Enhanced surveillance of tuberculosis

Enhanced Tuberculosis Surveillance (ETS) was introduced in January 1999 in England and Wales and the following year in Northern Ireland. The equivalent scheme in Scotland, Enhanced Surveillance of Mycobacterial Infections (ESMI), was introduced in 2000. Data from the 2 systems is compiled for the purpose of UK reporting.

Clinical teams provide information on TB cases either directly through the web-based ETS system entered at the clinic, or on a case report form entered onto the system at the Health Protection Team level. Data includes notification details, demographic information, clinical and microbiological information.

Data from all TB isolates identified in UK Mycobacteria Reference Laboratories (excluding Scotland) is routinely imported into ETS and matched to case notifications using patient identifiers common to both the laboratory isolate and the case notification. In addition, external to the system, an annual probabilistic matching process based on the patient identifiers is undertaken to identify additional matches. TB isolates in Scotland are identified by the Scottish Mycobacteria Reference Laboratory and this data is not matched using this method.

Data sources

All TB data presented in this report for England, Wales and Northern Ireland is from ETS, other than in London where cases are notified to the London TB Register (LTBR). Data from the LTBR is routinely imported to ETS. Data for Scotland is from ESMI.

Population data used in the calculation of rates is from the Office for National Statistics (ONS), incorporating data from the National Records of Scotland and Northern Ireland Statistics and Research Agency.

Data was extracted from ETS at the beginning of March 2019, then cleaned and validated by the end of June 2019. Data for Scotland in this report may differ slightly from data presented in Scottish reports as cases that have transferred from England to Scotland were deduplicated at UK level.

PHE has produced a detailed public health report with TB data for England to the end of 2018, which is available at:

<https://www.gov.uk/government/collections/tuberculosis-and-other-mycobacterial-diseases-diagnosis-screening-management-and-data>

Reports produced by the Public Health Agency Northern Ireland are available at:

<http://www.publichealth.hscni.net/directorate-public-health/health-protection/tuberculosis>

Reports produced by Public Health Wales are available at:

<http://www.wales.nhs.uk/sitesplus/888/page/43877>

Reports produced by Health Protection Scotland are available at:

<https://www.hps.scot.nhs.uk/a-to-z-of-topics/tuberculosis/>

Data type and methodology

TB case notifications were reported by area of residence and by calendar year.

Overall TB rates per 100,000 population, as well as those by area of reporting, were calculated using the mid-year population estimates provided by the ONS. Average annual rates per 100,000 for the 3-year period were calculated by dividing the numerator (the number of TB notifications in the 3-year period) by the denominator (the sum of the mid-year population estimates for the same 3-year period) and multiplying by 100,000. A 95% confidence interval for incidence was obtained assuming a Poisson distribution.

For the purposes of TB outcome reporting, the drug sensitive cohort is defined as all TB cases, excluding those with multi-drug resistant/rifampicin resistant TB (MDR/RR-TB)

(initial or acquired), and those treated with a second line regimen for MDR/RR-TB. TB outcomes are reported at 12 months for drug sensitive cases with an expected duration of treatment of less than 12 months. This group excludes cases with CNS disease, who have an expected duration of treatment of 12 months. In addition, those with spinal, cryptic disseminated or miliary disease are excluded from this group, as CNS involvement cannot be reliably ruled out for the purposes of reporting. The last recorded outcome is reported for the entire drug sensitive cohort.

Health Protection Scotland (HPS) aligned with the World Health Organization (WHO) treatment outcome definitions in 2015, and outcomes in this report may differ to those in the regional report.

Statistical analysis was carried out using Stata 15.

Glossary

Acquired resistance: resistance identified on repeat culture after 1 month of the first specimen date. Cases with a change from a sensitive to resistant result following treatment start are reclassified as acquired resistance, even if this is within the 1-month period

CNS: central nervous system

CI: confidence interval (95% confidence intervals used)

DR cohort: drug resistant cohort is defined as cases that are culture confirmed with initial and/or acquired multi-drug resistant/rifampicin resistant TB (MDR/RR-TB), as well as those treated with a second line regimen for MDR/RR-TB without phenotypic DST results or WGS resistance predictions

ESMI: Enhanced Surveillance of Mycobacterial Infections

ETS: Enhanced Tuberculosis Surveillance system

Initial resistance: a cultured isolate resistant to a particular drug within 1 month of the first specimen date

Last recorded outcome: last known outcome, irrespective of when it occurred

LTBR: London TB Register

MDR-TB: multi-drug resistant TB is defined as resistance to at least isoniazid and rifampicin, with or without resistance to other drugs

MDR/RR-TB: multi-drug resistant/rifampicin resistant TB is defined as resistance to rifampicin including MDR-TB cases

ONS: Office for National Statistics

XDR-TB: extensively-drug resistant TB is defined as resistance to isoniazid and rifampicin (MDR-TB), at least 1 injectable agent (capreomycin, kanamycin or amikacin) and at least 1 fluoroquinolone (moxifloxacin, ofloxacin or ciprofloxacin)

Table 1: Number of TB case notifications, rates and annual percentage change, UK, 2000 to 2018

Year	Total		Annual change in case numbers (%)	Annual change in rate (%)
	Number of cases	Rate per 100,000 (95% CI)		
2000	6,686	11.4 (11.1 - 11.6)	-	-
2001	6,760	11.4 (11.2 - 11.7)	1.1%	0.0%
2002	7,291	12.3 (12.0 - 12.6)	7.9%	7.9%
2003	7,219	12.1 (11.8 - 12.4)	-1.0%	-1.6%
2004	7,590	12.7 (12.4 - 12.9)	5.1%	5.0%
2005	8,283	13.7 (13.4 - 14.0)	9.1%	7.9%
2006	8,307	13.7 (13.4 - 14.0)	0.3%	0.0%
2007	8,259	13.5 (13.2 - 13.8)	-0.6%	-1.5%
2008	8,491	13.7 (13.4 - 14.0)	2.8%	1.5%
2009	8,870	14.2 (14.0 - 14.5)	4.5%	3.6%
2010	8,397	13.4 (13.1 - 13.7)	-5.3%	-5.6%
2011	8,919	14.1 (13.8 - 14.4)	6.2%	5.2%
2012	8,712	13.7 (13.4 - 14.0)	-2.3%	-2.8%
2013	7,871	12.3 (12.0 - 12.6)	-9.7%	-10.2%
2014	7,030	10.9 (10.6 - 11.1)	-10.7%	-11.4%
2015	6,229	9.6 (9.3 - 9.8)	-11.4%	-11.9%
2016	6,117	9.3 (9.1 - 9.6)	-1.8%	-3.1%
2017	5,537	8.4 (8.2-8.6)	-9.5%	-9.7%
2018	5,075	7.6 (7.4-7.9)	-8.3%	-9.5%

CI - confidence interval

Between 2000 and 2011, there was an overall increase in the number of cases and rate of TB in the UK. Since 2011, there have been annual declines in the number of cases each year, and between 2012 and 2018 the overall number has declined by 43.1%. Between 2017 and 2018 there was a 8.3% decline in the number of cases, to a rate of 7.6 per 100,000 (95% CI 7.4-7.9) (Table 1). The number and rate of TB cases in 2018 continues to be the lowest since data from enhanced TB surveillance was first available in 2000.

Table 2: Number of TB case notifications and rates by country, UK, 2000 to 2018

Year	England		Scotland		Wales		Northern Ireland		UK	
	Number of cases	Rate per 100,000 (95% CI)	Number of cases	Rate per 100,000 (95% CI)	Number of cases	Rate per 100,000 (95% CI)	Number of cases	Rate per 100,000 (95% CI)	Number of cases	Rate per 100,000 (95% CI)
2000	6,044	12.3 (12.0 - 12.6)	403	8.0 (7.2 - 8.8)	182	6.3 (5.4 - 7.2)	57	3.4 (2.6 - 4.4)	6,686	11.4 (11.1 - 11.6)
2001	6,169	12.5 (12.2 - 12.8)	351	6.9 (6.2 - 7.7)	183	6.3 (5.4 - 7.3)	57	3.4 (2.6 - 4.4)	6,760	11.4 (11.2 - 11.7)
2002	6,675	13.4 (13.1 - 13.8)	394	7.8 (7.0 - 8.6)	155	5.3 (4.5 - 6.2)	67	3.9 (3.1 - 5.0)	7,291	12.3 (12.0 - 12.6)
2003	6,631	13.3 (13.0 - 13.6)	367	7.2 (6.5 - 8.0)	164	5.6 (4.8 - 6.5)	57	3.3 (2.5 - 4.3)	7,219	12.1 (11.8 - 12.4)
2004	6,930	13.8 (13.5 - 14.1)	392	7.7 (7.0 - 8.5)	187	6.3 (5.4 - 7.3)	81	4.7 (3.8 - 5.9)	7,590	12.7 (12.4 - 12.9)
2005	7,658	15.1 (14.8 - 15.5)	365	7.1 (6.4 - 7.9)	185	6.2 (5.4 - 7.2)	75	4.3 (3.4 - 5.4)	8,283	13.7 (13.4 - 14.0)
2006	7,682	15.1 (14.7 - 15.4)	381	7.4 (6.7 - 8.2)	183	6.1 (5.3 - 7.1)	61	3.5 (2.7 - 4.5)	8,307	13.7 (13.4 - 14.0)
2007	7,577	14.7 (14.4 - 15.1)	409	7.9 (7.2 - 8.7)	204	6.8 (5.9 - 7.8)	69	3.9 (3.0 - 5.0)	8,259	13.5 (13.2 - 13.8)
2008	7,809	15.1 (14.7 - 15.4)	447	8.6 (7.8 - 9.4)	169	5.6 (4.8 - 6.5)	66	3.7 (2.9 - 4.7)	8,491	13.7 (13.4 - 14.0)
2009	8,112	15.5 (15.2 - 15.9)	486	9.3 (8.5 - 10.2)	213	7.0 (6.1 - 8.0)	59	3.3 (2.5 - 4.2)	8,870	14.2 (14.0 - 14.5)
2010	7,676	14.6 (14.3 - 14.9)	503	9.6 (8.7 - 10.4)	152	5.0 (4.2 - 5.8)	66	3.7 (2.8 - 4.7)	8,397	13.4 (13.1 - 13.7)
2011	8,280	15.6 (15.3 - 15.9)	447	8.4 (7.7 - 9.3)	131	4.3 (3.6 - 5.1)	61	3.4 (2.6 - 4.3)	8,919	14.1 (13.8 - 14.4)
2012	8,084	15.1 (14.8 - 15.4)	405	7.6 (6.9 - 8.4)	136	4.4 (3.7 - 5.2)	87	4.8 (3.8 - 5.9)	8,712	13.7 (13.4 - 14.0)
2013	7,266	13.5 (13.2 - 13.8)	390	7.3 (6.6 - 8.1)	142	4.6 (3.9 - 5.4)	73	4.0 (3.1 - 5.0)	7,871	12.3 (12.0 - 12.6)
2014	6,473	11.9 (11.6 - 12.2)	348	6.5 (5.8 - 7.2)	114	3.7 (3.0 - 4.4)	95	5.2 (4.2 - 6.3)	7,030	10.9 (10.6 - 11.1)
2015	5,736	10.5 (10.2 - 10.7)	316	5.9 (5.3 - 6.6)	116	3.7 (3.1 - 4.5)	61	3.3 (2.5 - 4.2)	6,229	9.6 (9.3 - 9.8)
2016	5,618	10.2 (9.9 - 10.4)	308	5.7 (5.1 - 6.4)	105	3.4 (2.8 - 4.1)	86	4.6 (3.7 - 5.7)	6,117	9.3 (9.1 - 9.6)
2017	5,070	9.1 (8.9 - 9.4)	293	5.4 (4.8 - 6.1)	104	3.3 (2.7 - 4.0)	70	3.7 (2.9 - 4.7)	5,537	8.4 (8.2 - 8.6)
2018	4,655	8.3 (8.1 - 8.6)	266	4.9 (4.3 - 5.5)	97	3.1 (2.5 - 3.8)	57	3.0 (2.3 - 3.9)	5,075	7.6 (7.4 - 7.9)

CI - confidence interval

The majority of TB cases in the UK occurred in England, with the rate of TB being considerably higher than in the devolved administrations. In 2018, there were 4,655 cases in England, a decline of 43.8% since the peak of 8,280 notifications in 2011, with a rate of TB of 8.3 per 100,000 (Table 2). Similarly, in Scotland an annual decline in numbers has been observed since a peak of 503 notifications in 2010, to 266 cases and a rate of TB of 4.9 per 100,000 in 2018. In Wales, although the number of cases and rate of TB has fluctuated annually there has been an overall decrease, with the rate of TB halving between 2000 and 2018 (6.3 per 100,000 vs 3.1 per 100,000) and the number of cases falling below 100 for the first time. Northern Ireland has both a small number of cases and low rate of TB, with annual fluctuations. In 2018, there were 57 cases, the lowest number since 2003, and a rate of 3.0 per 100,000 – the lowest recorded rate.

Table 3: Number of TB case notifications and rates by PHE Centre^a, England, 2018

PHE Centre	Number of cases	Rate per 100,000 (95%CI)
London	1,691	19.0 (18.1 - 19.9)
West Midlands	613	10.4 (9.6 - 11.2)
South East	508	5.7 (5.2 - 6.3)
North West	479	6.6 (6.0 - 7.2)
East of England	361	5.2 (4.7 - 5.8)
Yorkshire and the Humber	352	6.4 (5.8 - 7.1)
East Midlands	338	7.0 (6.3 - 7.8)
South West	195	2.4 (2.1 - 2.8)
North East	118	4.4 (3.7 - 5.3)

^a Ordered by decreasing total number of cases in 2018

CI - confidence interval

As in previous years, London PHE Centre (PHEC) accounted for the highest number of TB cases in England during 2018, followed by the West Midlands PHEC. The rate of TB per 100,000 population in the London PHEC was almost 8-times higher than that reported for the South West PHEC, which had the lowest rate.

Table 4: Three-year average number of TB case notifications and rates by upper tier local authority and local authority district, England, 2016 to 2018

PHE Centre ^a	Upper tier local authority and local authority district ^b	Average annual number of people ^c	Average annual rate per 100,000 (95% CI)
London		1,932	21.9 (21.3-22.4)
	Barking and Dagenham	58	27.4 (23.5-31.8)
	Barnet	64	16.6 (14.3-19.1)
	Bexley	29	11.8 (9.4-14.5)
	Brent	150	45.6 (41.5-50.0)
	Bromley	21	6.4 (4.9-8.2)
	Camden	39	15.4 (12.8-18.5)
	City of London	2	21.2 (6.9-49.4)
	Croydon	74	19.2 (16.8-22.0)
	Ealing	125	36.4 (32.8-40.3)
	Enfield	60	18.1 (15.6-21.0)
	Greenwich	66	23.3 (20.2-26.8)
	Hackney	62	22.3 (19.2-25.8)
	Hammersmith and Fulham	29	16.0 (12.8-19.7)
	Haringey	59	21.7 (18.7-25.2)
	Harrow	79	31.6 (27.7-35.9)
	Havering	27	10.4 (8.3-13.0)
	Hillingdon	76	25.0 (21.9-28.5)
	Hounslow	93	34.5 (30.6-38.8)
	Islington	38	16.0 (13.2-19.2)
	Kensington and Chelsea	24	15.1 (11.8-19.1)
	Kingston upon Thames	11	6.5 (4.5-9.1)
	Lambeth	52	16.1 (13.7-18.9)
	Lewisham	55	18.1 (15.5-21.1)
	Merton	36	17.3 (14.2-20.9)
	Newham	172	49.3 (45.1-53.8)
	Redbridge	107	35.4 (31.6-39.5)
	Richmond upon Thames	12	6.0 (4.1-8.3)
	Southwark	64	20.5 (17.7-23.6)
	Sutton	21	10.5 (8.1-13.4)
	Tower Hamlets	72	23.4 (20.4-26.8)
	Waltham Forest	71	25.7 (22.3-29.3)
	Wandsworth	49	15.0 (12.7-17.7)
	Westminster	37	14.8 (12.2-17.9)

PHE Centre ^a	Upper tier local authority and local authority district ^b	Average annual number of people ^c	Average annual rate per 100,000 (95% CI)
West Midlands		664	11.3 (10.8-11.8)
	Birmingham	248	21.9 (20.3-23.5)
	Coventry	80	22.3 (19.6-25.3)
	Dudley	23	7.3 (5.7-9.2)
	Herefordshire, County of	5	2.8 (1.6-4.5)
	Sandwell	73	22.5 (19.6-25.6)
	Shropshire	5	1.7 (1.0-2.7)
	Solihull	10	4.7 (3.2-6.7)
	Staffordshire	31	3.6 (2.9-4.4)
	Cannock Chase	4	3.7 (1.8-6.6)
	East Staffordshire	6	5.4 (3.2-8.4)
	Lichfield	1	1.0 (0.2-2.8)
	Newcastle-under-Lyme	8	6.2 (4.0-9.2)
	South Staffordshire	3	2.7 (1.2-5.1)
	Stafford	5	4.0 (2.3-6.4)
	Staffordshire Moorlands	1	1.4 (0.4-3.5)
	Tamworth	2	3.0 (1.2-6.3)
	Stoke-on-Trent	27	10.6 (8.4-13.2)
	Telford and Wrekin	7	4.0 (2.5-6.1)
	Walsall	46	16.4 (13.7-19.3)
	Warwickshire	31	5.5 (4.4-6.7)
	North Warwickshire	2	3.6 (1.5-7.5)
	Nuneaton and Bedworth	10	7.8 (5.3-11.1)
	Rugby	6	5.6 (3.3-8.9)
	Stratford-on-Avon	4	2.9 (1.5-5.2)
	Warwick	9	6.4 (4.2-9.3)
	Wolverhampton	56	21.5 (18.4-25.1)
	Worcestershire	20	3.4 (2.6-4.4)
	Bromsgrove	4	4.4 (2.4-7.6)
	Malvern Hills	2	2.2 (0.7-5.0)
	Redditch	4	5.1 (2.7-8.7)
	Worcester	4	3.9 (2.0-6.8)
	Wychavon	5	3.7 (2.0-6.2)
	Wyre Forest	1	1.0 (0.2-2.9)

PHE Centre ^a	Upper tier local authority and local authority district ^b	Average annual number of people ^c	Average annual rate per 100,000 (95% CI)
South East		534	6.1 (5.8-6.4)
	Bracknell Forest	5	4.1 (2.3-6.8)
	Brighton and Hove	18	6.1 (4.6-8.0)
	Buckinghamshire	48	9.0 (7.6-10.6)
	Aylesbury Vale	15	7.5 (5.4-10.0)
	Chiltern	7	7.0 (4.3-10.8)
	South Bucks	4	5.2 (2.6-9.4)
	Wycombe	23	13.3 (10.4-16.9)
	East Sussex	15	2.8 (2.0-3.7)
	Eastbourne	4	3.9 (2.0-6.8)
	Hastings	4	3.9 (2.0-7.1)
	Lewes	2	2.3 (0.9-4.7)
	Rother	1	1.4 (0.4-3.6)
	Wealden	4	2.5 (1.3-4.4)
	Hampshire	61	4.4 (3.8-5.1)
	Basingstoke and Deane	10	5.5 (3.7-7.9)
	East Hampshire	4	3.3 (1.7-5.8)
	Eastleigh	4	3.3 (1.8-5.7)
	Fareham	2	2.0 (0.8-4.1)
	Gosport	1	1.6 (0.4-4.0)
	Hart	2	2.1 (0.8-4.6)
	Havant	3	2.4 (1.1-4.6)
	New Forest	3	1.7 (0.8-3.2)
	Rushmoor	21	22.3 (17.2-28.5)
	Test Valley	6	4.8 (2.9-7.6)
	Winchester	4	3.0 (1.5-5.3)
	Isle of Wight	2	1.4 (0.5-3.1)
	Kent	95	6.1 (5.4-6.9)
	Ashford	10	8.1 (5.5-11.5)
	Canterbury	8	5.1 (3.3-7.5)
	Dartford	10	9.6 (6.5-13.7)
	Dover	6	5.2 (3.1-8.2)
	Folkestone and Hythe	7	6.0 (3.6-9.2)
	Gravesham	17	15.7 (11.6-20.7)
	Maidstone	16	9.5 (7.0-12.6)
	Sevenoaks	4	3.3 (1.7-5.8)
	Shepway	6	3.9 (2.3-6.2)
	Swale	6	4.2 (2.5-6.7)
	Thanet	2	1.6 (0.6-3.4)
	Tonbridge and Malling	3	2.5 (1.2-4.8)
	Tunbridge Wells	14	5.0 (3.6-6.8)
	Medway	534	6.1 (5.8-6.4)

PHE Centre ^a	Upper tier local authority and local authority district ^b	Average annual number of people ^c	Average annual rate per 100,000 (95% CI)
South East (continued)	Oxfordshire	40	5.9 (4.9-7.0)
	Cherwell	10	6.8 (4.6-9.7)
	Oxford	22	14.4 (11.2-18.3)
	South Oxfordshire	3	1.9 (0.8-3.8)
	Vale of White Horse	3	2.0 (0.9-4.0)
	West Oxfordshire	2	2.1 (0.9-4.4)
	Portsmouth	12	5.6 (3.9-7.7)
	Reading	29	17.8 (14.3-21.9)
	Slough	44	29.8 (25.0-35.4)
	Southampton	32	12.7 (10.3-15.5)
	Surrey	56	4.7 (4.0-5.5)
	Elmbridge	4	2.9 (1.5-5.1)
	Epsom and Ewell	6	7.1 (4.2-11.4)
	Guildford	4	2.9 (1.6-5.0)
	Mole Valley	3	3.1 (1.3-6.0)
	Reigate and Banstead	7	4.8 (3.0-7.3)
	Runnymede	4	4.6 (2.4-8.0)
	Spelthorne	6	6.1 (3.6-9.6)
	Surrey Heath	4	4.1 (2.1-7.4)
	Tandridge	3	3.4 (1.6-6.5)
	Waverley	5	4.0 (2.2-6.6)
	Woking	10	10.2 (6.9-14.5)
	West Berkshire	7	4.2 (2.6-6.5)
	West Sussex	35	4.1 (3.3-4.9)
	Adur	2	3.7 (1.5-7.5)
	Arun	4	2.5 (1.3-4.4)
	Chichester	2	1.7 (0.6-3.6)
	Crawley	16	14.0 (10.3-18.6)
	Horsham	3	2.1 (1.0-4.1)
	Mid Sussex	3	2.2 (1.1-4.1)
	Worthing	4	4.0 (2.1-6.8)
	Windsor and Maidenhead	12	8.0 (5.6-11.1)
	Wokingham	10	6.0 (4.1-8.6)

PHE Centre ^a	Upper tier local authority and local authority district ^b	Average annual number of people ^c	Average annual rate per 100,000 (95% CI)
North West		532	7.3 (7.0-7.7)
	Blackburn with Darwen	29	19.7 (15.8-24.3)
	Blackpool	10	7.4 (5.0-10.5)
	Bolton	43	15.0 (12.5-17.8)
	Bury	15	7.7 (5.6-10.4)
	Cheshire East	10	2.6 (1.8-3.8)
	Cheshire West and Chester	7	2.1 (1.3-3.2)
	Cumbria	9	1.7 (1.1-2.5)
	Allerdale	3	3.4 (1.6-6.3)
	Barrow-in-Furness	1	1.5 (0.3-4.3)
	Carlisle	1	1.2 (0.3-3.2)
	Copeland	1	1.5 (0.3-4.2)
	Eden	0	0.0 (0.0-0.0)
	South Lakeland	2	1.9 (0.7-4.2)
	Halton	1	1.0 (0.3-2.7)
	Knowsley	1	0.7 (0.1-2.0)
	Lancashire	73	6.1 (5.3-7.0)
	Burnley	9	10.2 (6.7-14.9)
	Chorley	3	2.6 (1.2-4.9)
	Fylde	1	1.3 (0.3-3.7)
	Hyndburn	7	8.3 (5.1-12.8)
	Lancaster	9	6.1 (4.0-8.9)
	Pendle	13	13.9 (9.9-19.1)
	Preston	21	14.6 (11.2-18.7)
	Ribble Valley	2	2.8 (0.9-6.5)
	Rossendale	2	3.3 (1.3-6.8)
	South Ribble	2	2.1 (0.9-4.4)
	West Lancashire	2	1.5 (0.5-3.4)
	Wyre	4	3.3 (1.7-5.9)
	Liverpool	34	7.0 (5.7-8.5)
	Manchester	115	21.2 (19.0-23.5)
	Oldham	37	15.7 (12.9-18.9)
	Rochdale	29	13.4 (10.8-16.6)
	Salford	23	9.2 (7.1-11.6)
	Sefton	6	2.3 (1.4-3.6)
	St. Helens	2	1.1 (0.4-2.4)
	Stockport	16	5.5 (4.1-7.3)
	Tameside	25	11.0 (8.6-13.8)
	Trafford	21	8.9 (6.9-11.4)
	Warrington	7	3.3 (2.1-5.1)
	Wigan	9	2.9 (1.9-4.2)
	Wirral	9	2.8 (1.8-4.1)

PHE Centre ^a	Upper tier local authority and local authority district ^b	Average annual number of people ^c	Average annual rate per 100,000 (95% CI)
East of England		400	6.2 (5.9-6.6)
	Bedford	15	8.6 (6.3-11.6)
	Cambridgeshire	40	6.2 (5.2-7.4)
	Cambridge	17	13.9 (10.3-18.2)
	East Cambridgeshire	3	3.4 (1.5-6.4)
	Fenland	4	4.3 (2.3-7.4)
	Huntingdonshire	7	4.0 (2.5-6.1)
	South Cambridgeshire	9	5.5 (3.6-8.1)
	Central Bedfordshire	6	2.0 (1.2-3.2)
	Essex	59	4.0 (3.4-4.6)
	Basildon	11	6.1 (4.2-8.6)
	Braintree	2	1.3 (0.5-2.9)
	Brentwood	3	3.9 (1.8-7.4)
	Castle Point	2	2.2 (0.8-4.8)
	Chelmsford	5	2.7 (1.5-4.5)
	Colchester	7	3.5 (2.1-5.4)
	Epping Forest	4	3.1 (1.6-5.4)
	Harlow	13	15.1 (10.7-20.6)
	Maldon	2	3.1 (1.1-6.8)
	Rochford	2	2.3 (0.9-5.0)
	Tendring	4	2.5 (1.3-4.5)
	Uttlesford	4	4.9 (2.6-8.4)
	Hertfordshire	81	6.8 (6.0-7.8)
	Broxbourne	7	7.6 (4.7-11.5)
	Dacorum	7	4.8 (3.0-7.2)
	East Hertfordshire	6	3.9 (2.2-6.2)
	Hertsmere	12	11.2 (7.8-15.6)
	North Hertfordshire	6	4.8 (2.9-7.4)
	St Albans	7	4.5 (2.8-7.0)
	Stevenage	8	8.8 (5.5-13.1)
	Three Rivers	6	6.8 (4.1-10.7)
	Watford	13	13.4 (9.6-18.4)
	Welwyn Hatfield	9	7.1 (4.6-10.4)
	Luton	54	25.0 (21.3-29.1)
	Milton Keynes	28	10.3 (8.2-12.8)

PHE Centre ^a	Upper tier local authority and local authority district ^b	Average annual number of people ^c	Average annual rate per 100,000 (95% CI)
East of England (continued)	Norfolk	34	3.8 (3.1-4.6)
	Breckland	4	2.9 (1.5-5.1)
	Broadland	0	0.3 (0.0-1.4)
	Great Yarmouth	13	12.8 (9.0-17.5)
	King's Lynn and West Norfolk	7	4.4 (2.7-6.8)
	North Norfolk	1	1.0 (0.2-2.8)
	Norwich	8	5.9 (3.8-8.8)
	South Norfolk	1	0.7 (0.2-2.2)
	Peterborough	40	19.9 (16.5-23.9)
	Southend-on-Sea	10	5.7 (3.9-8.1)
	Suffolk	23	3.1 (2.4-3.9)
	Babergh	2	1.8 (0.6-4.3)
	East Suffolk	6	2.6 (1.5-4.0)
	Ipswich	7	5.3 (3.3-8.0)
	Mid Suffolk	1	1.3 (0.4-3.4)
	West Suffolk	7	3.7 (2.3-5.8)
	Thurrock	11	6.6 (4.6-9.3)
	Yorkshire and the Humber	373	6.8 (6.4-7.2)
	Barnsley	5	2.2 (1.3-3.6)
	Bradford	85	15.9 (14.0-18.0)
Calderdale	13	6.2 (4.4-8.5)	
Doncaster	14	4.4 (3.2-6.0)	
East Riding of Yorkshire	8	2.3 (1.4-3.4)	
Kingston upon Hull, City of	16	6.0 (4.4-8.0)	
Kirklees	58	13.3 (11.4-15.4)	
Leeds	68	8.7 (7.5-9.9)	
North East Lincolnshire	4	2.7 (1.4-4.6)	
North Lincolnshire	6	3.5 (2.1-5.5)	
North Yorkshire	12	2.0 (1.4-2.8)	
Craven	1	1.8 (0.4-5.2)	
Hambleton	2	2.2 (0.8-4.8)	
Harrogate	2	1.2 (0.5-2.7)	
Richmondshire	3	6.2 (3.0-11.4)	
Ryedale	0	0.0 (0.0-0.0)	
Scarborough	3	2.5 (1.1-4.8)	
Selby	1	1.5 (0.4-3.9)	
Rotherham	13	4.9 (3.5-6.7)	
Sheffield	52	8.9 (7.6-10.5)	
Wakefield	16	4.6 (3.4-6.1)	
York	3	1.6 (0.8-2.9)	

PHE Centre ^a	Upper tier local authority and local authority district ^b	Average annual number of people ^c	Average annual rate per 100,000 (95% CI)
East Midlands		343	7.2 (6.8-7.6)
	Derby	29	11.4 (9.2-14.1)
	Derbyshire	9	1.1 (0.7-1.6)
	Amber Valley	1	0.5 (0.1-1.9)
	Bolsover	0	0.4 (0.0-2.4)
	Chesterfield	2	2.2 (0.9-4.6)
	Derbyshire Dales	1	1.4 (0.3-4.1)
	Erewash	2	1.7 (0.6-3.8)
	High Peak	1	1.1 (0.2-3.2)
	North East Derbyshire	1	1.0 (0.2-2.9)
	South Derbyshire	0	0.3 (0.0-1.8)
	Leicester	136	38.6 (35.0-42.6)
	Leicestershire	26	3.8 (3.0-4.8)
	Blaby	3	3.4 (1.6-6.2)
	Charnwood	12	6.5 (4.5-9.0)
	Harborough	3	2.9 (1.3-5.7)
	Hinckley and Bosworth	2	2.1 (0.8-4.3)
	Melton	1	1.3 (0.2-4.7)
	North West Leicestershire	1	1.3 (0.4-3.4)
	Oadby and Wigston	4	7.6 (4.1-13.1)
	Lincolnshire	28	3.7 (3.0-4.6)
	Boston	10	14.6 (9.8-20.8)
	East Lindsey	3	2.4 (1.1-4.4)
	Lincoln	5	4.7 (2.6-8.0)
	North Kesteven	2	1.7 (0.6-3.8)
	South Holland	3	3.6 (1.7-6.6)
	South Kesteven	4	2.6 (1.3-4.6)
	West Lindsey	1	1.1 (0.2-3.1)
	Northamptonshire	48	6.5 (5.5-7.6)
	Corby	4	6.2 (3.3-10.7)
	Daventry	2	2.8 (1.1-5.8)
	East Northamptonshire	3	3.2 (1.5-6.1)
	Kettering	6	6.3 (3.8-9.9)
	Northampton	23	10.4 (8.1-13.1)
	South Northamptonshire	3	3.3 (1.5-6.2)
	Wellingborough	6	7.2 (4.2-11.5)

PHE Centre ^a	Upper tier local authority and local authority district ^b	Average annual number of people ^c	Average annual rate per 100,000 (95% CI)
East Midlands (continued)	Nottingham	41	12.5 (10.4-14.9)
	Nottinghamshire	24	3.0 (2.3-3.7)
	Ashfield	5	4.2 (2.4-6.9)
	Bassetlaw	1	0.9 (0.2-2.5)
	Broxtowe	3	2.4 (1.0-4.7)
	Gedling	4	3.7 (2.0-6.3)
	Mansfield	2	1.8 (0.7-4.0)
	Newark and Sherwood	4	3.3 (1.7-5.8)
	Rushcliffe	5	4.3 (2.4-7.1)
	Rutland	1	1.7 (0.2-6.1)
South West		220	4.0 (3.7-4.3)
	Bath and North East Somerset	4	2.3 (1.2-3.9)
	Bournemouth, Christchurch and Poole	17	4.4 (3.3-5.8)
	Bristol, City of	59	12.8 (10.9-14.8)
	Cornwall	13	2.4 (1.7-3.2)
	Devon	21	2.7 (2.1-3.5)
	East Devon	2	1.6 (0.7-3.4)
	Exeter	6	4.9 (3.0-7.7)
	Mid Devon	3	3.3 (1.4-6.5)
	North Devon	1	1.4 (0.4-3.6)
	South Hams	1	1.6 (0.4-4.0)
	Teignbridge	5	4.1 (2.3-6.6)
	Torridge	1	1.0 (0.1-3.6)
	West Devon	1	2.4 (0.7-6.2)
	Dorset	8	2.1 (1.4-3.2)
	Gloucestershire	19	3.0 (2.2-3.9)
	Cheltenham	3	2.8 (1.4-5.2)
	Cotswold	1	1.5 (0.4-3.9)
	Forest of Dean	2	1.9 (0.6-4.5)
	Gloucester	6	4.4 (2.6-7.0)
	Stroud	2	2.0 (0.8-4.1)
	Tewkesbury	4	4.8 (2.6-8.2)
	Isles of Scilly	0	0.0 (0.0-0.0)
	North Somerset	6	3.0 (1.8-4.6)
	Plymouth	16	6.2 (4.6-8.2)
	Somerset	7	1.3 (0.8-1.9)
	Mendip	2	1.8 (0.6-3.8)
	Sedgemoor	1	0.8 (0.2-2.4)
	Somerset West and Taunton	2	1.5 (0.6-3.2)
	South Somerset	2	1.0 (0.3-2.3)
	South Gloucestershire	13	4.5 (3.2-6.2)
	Swindon	23	10.4 (8.1-13.2)
	Torbay	5	3.5 (1.9-5.8)
	Wiltshire	9	1.7 (1.1-2.6)

PHE Centrea	Upper tier local authority and local authority district ^b	Average annual number of people ^c	Average annual rate per 100,000 (95% CI)
North East		116	4.4 (3.9-4.9)
	County Durham	10	2.0 (1.3-2.8)
	Darlington	5	4.4 (2.4-7.4)
	Gateshead	9	4.4 (2.9-6.5)
	Hartlepool	4	3.9 (2.0-7.1)
	Middlesbrough	15	10.9 (8.0-14.6)
	Newcastle upon Tyne	34	11.6 (9.4-14.0)
	North Tyneside	6	3.1 (1.9-4.8)
	Northumberland	5	1.7 (1.0-2.7)
	Redcar and Cleveland	3	2.4 (1.2-4.5)
	South Tyneside	3	2.2 (1.1-4.1)
	Stockton-on-Tees	10	5.1 (3.4-7.3)
	Sunderland	11	3.8 (2.6-5.4)

^a Ordered by decreasing total number of cases in 2018

^b Those highlighted in bold are upper-tier local authority districts only, those indented are local authority district only, and those neither highlighted nor indented are both an upper-tier local authority and a local authority district

^c Average number of cases in a local authority district may not be the same as the sum of the average number of cases in the corresponding upper tier local authority due to rounding

CI (confidence intervals)

Table 5: Number and proportion of culture confirmed TB cases and pulmonary TB cases by country, UK, 2009-2018

Year	England				Scotland				Wales				Northern Ireland				UK			
	Culture confirmed TB cases		Culture confirmed pulmonary TB cases		Culture confirmed TB cases		Culture confirmed pulmonary TB cases		Culture confirmed TB cases		Culture confirmed pulmonary TB cases		Culture confirmed TB cases		Culture confirmed pulmonary TB cases		Culture confirmed TB cases		Culture confirmed pulmonary TB cases	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
2009	4,670	57.6	3,023	68.1	325	66.9	215	74.4	118	55.4	79	62.7	49	83.1	38	86.4	5,162	58.2	3,355	68.5
2010	4,621	60.2	2,902	70.7	325	64.6	228	70.2	107	70.4	72	76.6	54	81.8	35	94.6	5,107	60.8	3,237	71.0
2011	5,049	61.0	3,139	72.0	295	66.0	195	68.9	94	71.8	57	79.2	47	77.0	38	80.9	5,485	61.5	3,429	72.0
2012	4,900	60.6	3,012	70.6	276	68.1	165	75.0	105	77.2	63	79.7	53	60.9	36	76.6	5,334	61.2	3,276	71.0
2013	4,396	60.5	2,770	73.3	241	61.8	156	71.9	87	61.3	65	74.7	45	61.6	29	69.0	4,769	60.6	3,020	73.2
2014	3,933	60.8	2,521	73.2	236	67.8	162	70.7	81	71.1	55	85.9	64	67.4	47	70.1	4,314	61.4	2,785	73.2
2015	3,507	61.1	2,296	74.4	209	66.1	130	78.3	80	69.0	61	91.0	39	63.9	33	82.5	3,835	61.6	2,520	75.0
2016	3,588	63.9	2,374	77.0	211	68.5	131	72.4	81	77.1	66	86.8	56	65.1	39	78.0	3,936	64.3	2,610	77.0
2017	3,171	62.5	2,129	75.6	198	67.6	134	77.0	75	72.1	52	85.2	47	67.1	34	70.8	3,491	63.0	2,349	75.8
2018	2,850	61.2	1,972	74.0	178	66.9	126	76.4	78	80.4	67	88.2	32	56.1	24	55.8	3,138	61.8	2,189	74.3

Over the last 10 years, the proportion of TB cases that were culture confirmed in the UK has remained relatively stable at around 60%, with some annual fluctuations. Wales generally had the greatest proportion of culture confirmed TB cases, which increased from 55.4% to 80.4% between 2009 and 2018, respectively. In Northern Ireland, the proportion decreased from 67.1% in 2017 to 56.1% in 2018, after remaining relatively high in previous years. The proportion for Scotland (2018: 66.9%) and England (2018: 61.2%) has remained relatively consistent throughout the 10-year period. Overall, culture confirmation was higher in pulmonary TB cases, with almost three-quarters of these being culture confirmed in the UK during 2018.

Table 6: Number and proportion of TB cases^a with drug resistance by country, UK, 2000-2018

Year	England				Scotland				Wales				Northern Ireland				UK							
	INH-R TB cases ^b		MDR/RR-TB cases		INH-R TB cases ^b		MDR/RR-TB cases		INH-R TB cases ^b		MDR/RR-TB cases		INH-R TB cases ^b		MDR/RR-TB cases		INH-R TB cases ^b		MDR/RR-TB cases		XDR-TB cases ^c		DR cohort ^d	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	N	
2000	150	5.4	41	1.5	11	3.8	0	0.0	2	1.9	0	0.0	0	0.0	0	0.0	163	5.1	41	1.3	1	0.03	41	
2001	187	5.9	33	1.0	7	2.8	2	0.8	2	2.6	3	3.8	0	0.0	1	2.7	196	5.6	39	1.1	0	0.00	44	
2002	238	6.2	45	1.2	9	3.5	1	0.4	6	7.5	1	1.3	2	5.6	0	0.0	255	6.1	47	1.1	0	0.00	50	
2003	232	6.1	68	1.8	8	3.0	1	0.4	6	5.5	3	2.8	1	3.2	0	0.0	247	5.8	72	1.7	1	0.02	74	
2004	249	6.2	61	1.5	14	4.6	1	0.3	5	5.0	2	2.0	1	1.6	1	1.6	269	6.0	65	1.4	0	0.00	75	
2005	281	6.2	56	1.2	11	4.1	0	0.0	1	0.8	2	1.7	0	0.0	1	2.2	293	5.9	59	1.2	0	0.00	62	
2006	284	6.1	74	1.6	12	4.2	2	0.7	5	3.9	1	0.8	1	2.2	2	4.4	302	5.9	79	1.6	0	0.00	86	
2007	254	5.8	63	1.4	8	2.8	5	1.7	10	7.9	4	3.2	2	3.5	3	5.3	274	5.6	75	1.5	0	0.00	83	
2008	217	4.8	68	1.5	12	3.8	3	1.0	3	3.0	3	3.0	2	3.9	1	2.0	234	4.7	75	1.5	2	0.04	85	
2009	268	5.8	70	1.5	18	5.6	2	0.6	6	5.1	1	0.8	0	0.0	0	0.0	292	5.7	73	1.4	2	0.04	80	
2010	228	5.0	75	1.7	15	4.6	1	0.3	6	5.6	0	0.0	2	3.9	1	2.0	251	5.0	77	1.5	3	0.06	81	
2011	295	5.9	89	1.8	18	6.1	2	0.7	1	1.1	2	2.1	1	2.3	2	4.5	315	5.8	95	1.8	6	0.11	101	
2012	255	5.3	86	1.8	13	4.7	2	0.7	9	8.7	1	1.0	3	5.7	0	0.0	280	5.3	89	1.7	2	0.04	97	
2013	232	5.4	78	1.8	11	4.7	5	2.1	6	6.9	2	2.3	6	13.3	0	0.0	255	5.5	85	1.8	3	0.06	93	
2014	214	5.5	57	1.5	17	7.2	2	0.9	7	8.6	3	3.7	3	4.7	1	1.6	241	5.6	63	1.5	3	0.07	79	
2015	192	5.5	54	1.5	9	4.3	2	1.0	6	7.5	1	1.3	3	7.7	0	0.0	210	5.5	57	1.5	10	0.26	70	
2016	191	5.4	61	1.7	7	3.3	1	0.5	2	2.5	3	3.7	2	3.6	3	5.4	202	5.2	68	1.7	7	0.18	78	
2017	180	5.7	54	1.7	12	6.1	3	1.5	7	9.6	3	4.1	1	2.1	0	0.0	200	5.8	60	1.7	4	0.12	69	
2018	185	6.6	44	1.6	13	7.5	2	1.1	3	4.2	2	2.8	3	9.4	0	0.0	204	6.6	48	1.5	4	0.13	51	

^a Culture-confirmed TB cases with results for at least isoniazid and rifampicin. For all countries results are from phenotypic DSTs, with some cases in England having WGS resistance predictions

^b Cases who are resistant to isoniazid without MDR-TB

^c One of the XDR-TB cases was notified in Northern Ireland in 2010, all others were notified in England

^d The drug resistant (DR) cohort includes cases with confirmed initial or acquired MDR/RR-TB, as well as those treated with a second line regimen for MDR/RR-TB (without phenotypic DST results or WGS resistance predictions)

Overall, the proportion of culture confirmed TB cases with isoniazid resistance without MDR-TB has slightly increased whilst the proportion for those with MDR/RR-TB has remained relatively stable in the UK since 2000. The majority of MDR/RR-TB cases in the UK were from England. Four confirmed cases of XDR-TB were notified in the UK in 2018, all of which were notified in England.

Table 7: TB outcome at 12 months for drug sensitive TB cases with expected treatment duration of <12 months^a by country, UK, 2017

Country	Completed		Died		Lost to follow-up		Still on treatment		Stopped		Not evaluated ^b		Total n
	n	%	n	%	n	%	n	%	n	%	n	%	
England	3,796	84.7	204	4.6	183	4.1	209	4.7	55	1.2	35	0.8	4,482
Scotland	216	79.1	19	7.0	2	0.7	3	1.1	1	0.4	32	11.7	273
Wales	67	70.5	11	11.6	7	7.4	8	8.4	0	0.0	2	2.1	95
Northern Ireland	49	77.8	3	4.8	4	6.3	1	1.6	0	0.0	6	9.5	63
UK	4,128	84.0	237	4.8	196	4.0	221	4.5	56	1.1	75	1.5	4,913

^a Excludes initial and acquired resistance to rifampicin and MDR-TB cases and those treated with an MDR-TB regimen. Also excludes those with CNS, spinal, miliary or cryptic disseminated TB

^b Not evaluated includes unknown and transferred out

For drug sensitive TB cases notified in 2017, with an expected treatment duration of less than 12 months, treatment completion at 12 months varied by country; the highest proportion being in England whereas Scotland, Wales and Northern Ireland each had low case numbers. It should be noted that a high proportion of cases in Scotland and Northern Ireland who did not have a reported outcome ('not evaluated' in Table 7) likely accounts for the low proportion of cases reported as having completed treatment. Overall, 4.8% of TB cases died in the UK, and 4% were lost to follow up. The highest number of deaths was in England (204) although the greatest proportion of deaths was recorded in Wales (11.6%).

Table 8: Treatment completion at 12 months for drug sensitive TB cases with expected treatment duration of <12 months^a by country, UK, 2008 to 2017

Country	2008		2009		2010		2011		2012		2013		2014		2015		2016		2017	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
England	5,602	80.3	5,918	81.9	5,650	82.9	6,024	82.1	6,016	83.8	5,504	85.7	4,848	84.9	4,199	83.9	4,223	85.0	3,796	84.7
Scotland	284	67.9	318	69.9	362	77.0	322	75.9	303	79.3	287	81.5	258	80.4	225	80.6	213	75.0	216	79.1
Wales	118	78.1	148	77.5	107	77.5	90	76.3	90	75.0	101	83.5	76	82.6	86	85.1	77	82.8	67	70.5
Northern Ireland	36	61.0	41	75.9	39	67.2	42	79.2	55	70.5	43	74.1	74	85.1	42	87.5	59	77.6	49	77.8
UK	6,040	79.4	6,425	81.1	6,158	82.3	6,478	81.7	6,464	83.3	5,935	85.3	5,256	84.7	4,552	83.8	4,572	84.4	4,128	84.0

^a Excludes initial and acquired resistance to rifampicin and MDR-TB cases and those treated with an MDR-TB regimen. Also excludes those with CNS, spinal, miliary or cryptic disseminated TB

In the UK, the proportion of drug sensitive TB cases with an expected treatment duration of less than 12 months who completed treatment by 12 months improved between 2008 and 2013, with some annual fluctuations. Since the peak in 2013 (85.3%), there has been a slight decline in this proportion. Due to small numbers of cases in Northern Ireland, Scotland and Wales, there are larger annual fluctuations in the proportion of cases completing treatment. It should be noted that in 2017 the low proportions of cases completing treatment may be due to missing outcomes (see explanation in text below Table 7).

Table 9: Last recorded TB outcome for the entire drug sensitive TB cohort^a by country, UK, 2017

Country	Completed		Died		Lost to follow-up		Still on treatment		Stopped		Not evaluated ^b		Total n
	n	%	n	%	n	%	n	%	n	%	n	%	
England	4,323	86.3	264	5.3	211	4.2	102	2.0	61	1.2	47	0.9	5,008
Scotland	227	78.3	19	6.6	2	0.7	6	2.1	1	0.3	35	12.1	290
Wales	77	76.2	14	13.9	7	6.9	1	1.0	0	0.0	2	2.0	101
Northern Ireland	53	76.8	3	4.3	4	5.8	0	0.0	0	0.0	9	13.0	69
UK	4,680	85.6	300	5.5	224	4.1	109	2.0	62	1.1	93	1.7	5,468

^a Excludes initial and acquired resistance to rifampicin and MDR-TB cases and those treated with an MDR-TB regimen

^b Not evaluated includes unknown and transferred out

Eighty-six percent of drug sensitive TB cases notified in the UK in 2017 completed treatment at their last recorded outcome, with 2% reported to still be on treatment. Overall, 300 (5.5%) cases had died, and 224 (4.1%) cases were lost to follow-up.