

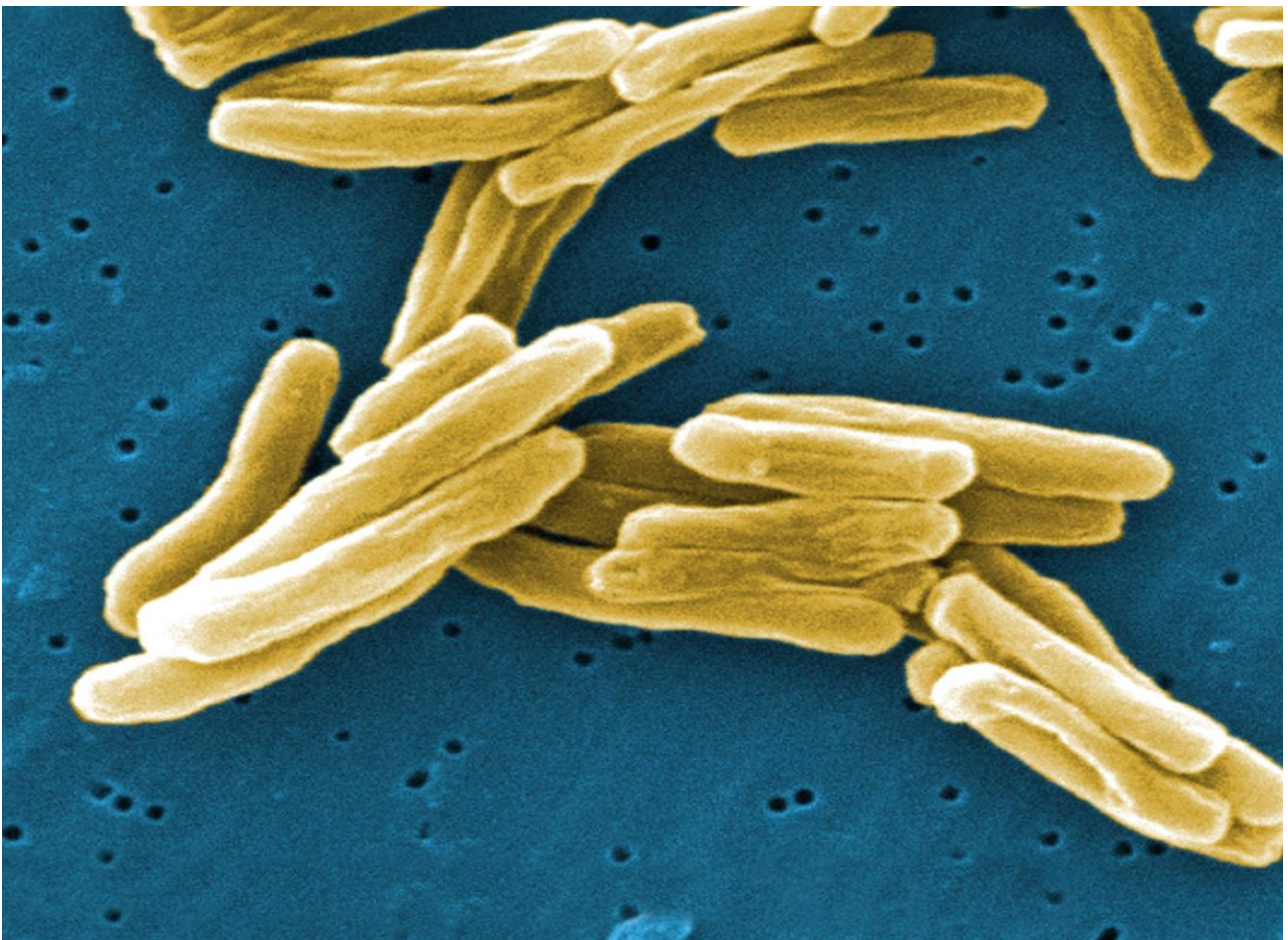


Public Health  
England

Protecting and improving the nation's health

# Collaborative TB Strategy for England, 2015 to 2020

## End of programme report



# Acknowledgements

This End of Programme report for the Collaborative TB Strategy for England, 2015 to 2020 was written by the National TB Strategy team with support from NHS England and NHS Improvement, regional TB Control Boards and in consultation with a broad range of stakeholders.

PHE and NHSE&I would like to thank the commitment and dedication shown by all stakeholders who have contributed to implementing the TB Strategy and its 10 'areas for action' over the past 5 years.

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# Executive summary

In 2015, Public Health England (PHE) and NHS England launched the **Collaborative Tuberculosis Strategy for England, 2015-2020** (1) in response to the high rates of tuberculosis (TB) in England. The Strategy aimed to achieve an annual reduction in TB incidence, a reduction in health inequalities associated with TB and work towards eliminating TB as a public health problem.

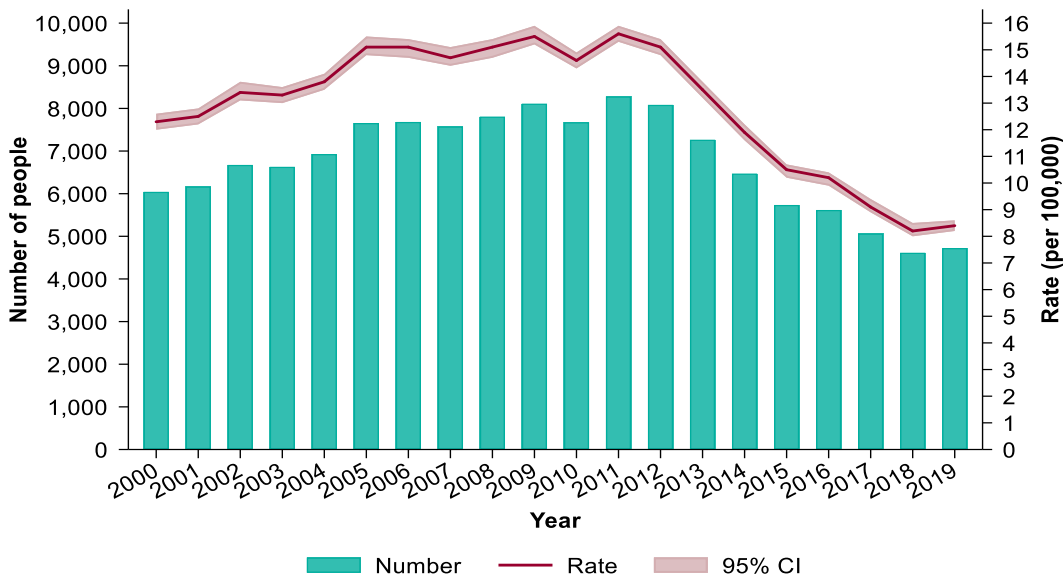
The implementation of the Strategy was led by a small national team and delivered through the local leadership of 7 multi-agency TB Control Boards and the NHS. Governance was provided through the National TB Programme Board and a National TB Delivery Board.

Work focused on 10 ‘areas for action’ which were:

1. Improve access to services and ensure early diagnosis
2. Provide universal access to high quality diagnostics
3. Improve treatment and care services
4. Ensure comprehensive contact tracing
5. Improve BCG vaccination uptake
6. Reduce drug-resistant TB
7. Tackle TB in under-served populations
8. Systematically implement new entrant latent TB screening
9. Strengthen surveillance and monitoring
10. Ensure an appropriate workforce to deliver TB control

During the 5 years of the Strategy, TB incidence in England declined by 29% from 11.9 per 100,000 in 2014 (pre-Strategy) to 8.4 per 100,000 in 2019. However, in 2019, TB cases in England rose for the first time in 9 years, by 2.4% (2).

**Figure 1: Number of TB notifications and rates, England, 2000 to 2019**



This report summarises actions taken to implement the Collaborative TB Strategy for England from January 2015 to March 2020. Some key outputs and outcomes of the last 5 years are summarised below:

- a framework and plan enabling a common purpose for multi-agency TB stakeholder working and, by linking NHS TB clinicians and nurses through clinical and nurse networks to TB Control Boards, the national TB team and TB Delivery Board, enabling responsive and collaborative working including sharing good practice on working with under-served populations
- creation of 7 multi-agency TB Control Boards that have provided a forum enabling TB stakeholders to plan and develop actions to meet local need, for example: developing local pathways for patients with no recourse to public funds, piloting whole genome sequencing (WGS) cluster investigation pathways, and instituting supra TB cohort reviews
- a national TB clinical policy and service specification to support the commissioning, planning and delivery of TB services
- TB nurse workforce development including:
  - enhancing and supporting TB nurse networks developing a TB Nurse Competency Framework and generic job descriptions to promote consistency and support the delivery of TB prevention, care and control
  - annual national TB nurse conferences for showcasing local nurse leadership, sharing best practice, innovation and national networking
- production of TB awareness raising literature and tools with TB Alert (for example, online GP e-learning modules, nurse slide set for educational events, animations and new TB leaflets)
- NHSE&I funded new migrant latent TB infection (LTBI) testing and treatment programme was established in 2015 and has shown year on year increases in test uptake
- the introduction of WGS for all new mycobacterial isolates in central and northern England by the National Mycobacterial Reference Service in 2016, and for the whole of England in early 2018, improving the speed of detection of drug resistance and providing accurate determination of TB transmission
- a comprehensive information resource to support working with TB in under-served populations; launched in 2017 and updated in 2019
- re-development of the British Thoracic Society MDR-TB Clinical Advice Service
- the Strategy has supported innovation, for example:
  - adding TB data to the online tool, PHE Fingertips, in 2015 to provide local authorities and CCGs with local and national TB data
  - sharing the North West Paediatric TB Care Pathway and virtual MDT with all TB Control Boards
  - a housing pathway and fund for people with TB who are homeless and/or with no recourse to public funds in London

This report also makes recommendations for future TB programme work and for inclusion in a TB Action Plan 2021 to 2026. This Action Plan is being developed as part of PHE's **Infectious Diseases Strategy 2019 (3)**, to contribute to the delivery of the WHO target to achieve a 90% reduction in TB incidence in England by 2035 (against 2015 levels). These recommendations are:

- reduce diagnostic delay by increasing awareness of TB in at-risk populations and healthcare workers, particularly those in primary care and A&E
- reduce transmission of TB in England by improving contact tracing, optimising the use of data from WGS and other new technologies and analytic methods
- continue to address the needs of TB in under-served populations to reduce health inequalities and ensure STPs and ICSs include TB in their prevention and health inequalities agenda
- consider an integrated approach to multi-disease prevention for under-served populations and others with TB, BBVs and other conditions
- sustain the sharing of best practice such as paediatric networks and virtual clinics
- ensure areas with a low incidence of TB continue to provide high quality and effective services and consider new models for service delivery as TB rates and numbers continue to fall
- sustain the LTBI programme to increase uptake of latent TB testing and treatment
- maintain the multi-agency TB Control Boards with support from national PHE and NHSE&I TB teams to improve TB control at local and national level
- future proof the TB workforce through capability, expertise and upskilling
- translate new research and innovation into normal service delivery, including work to support virtual working arrangements across a wider footprint



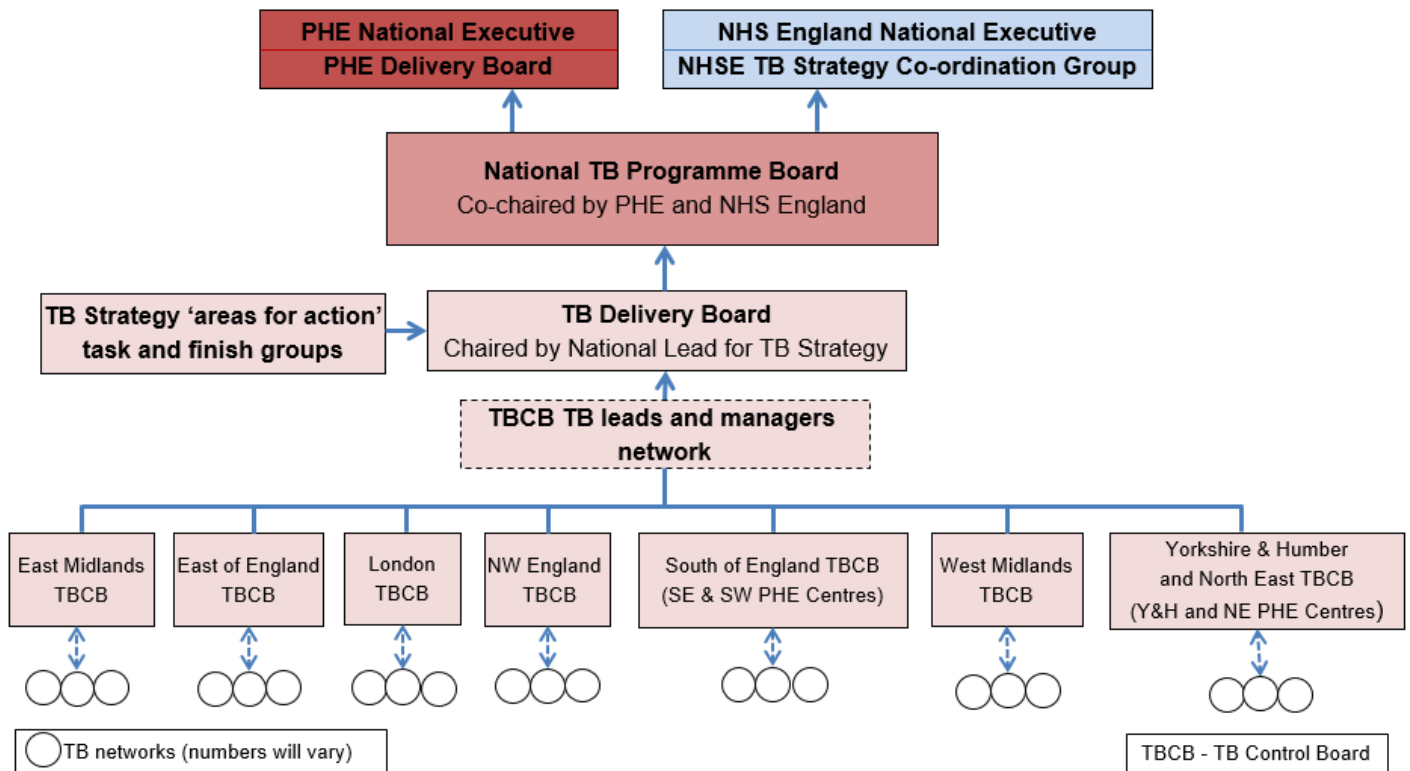
# Background

In 2015, in response to the high rates of tuberculosis (TB) in England, Public Health England (PHE) and NHS England launched the ‘Collaborative Tuberculosis Strategy for England, 2015-2020’. In line with the World Health Organisations (WHO) End TB Strategy (4), the Collaborative TB Strategy aimed to achieve a year on year reduction in TB incidence, a reduction in health inequalities associated with TB and eventually eliminate TB as a public health problem in England.

## Governance structure to support implementation of the Strategy

National coordination was undertaken by a small, national team with local coordination and leadership provided by 7 regional TB Control Boards. The national TB programme governance structure is outlined in figure 2.

**Figure 2: Governance structure of the national TB programme text**



(Figure 2 shows the governance structure of the national TB programme linking multiple TB networks, via 7 TB Control Boards to the national TB Delivery and TB Programme Boards)

NHSE&I manages the NHSE&I National TB Co-ordination Group and supports the TB Control Boards, workshops and meetings and is partnered with PHE for the TB Delivery Board and TB Programme Board.

## Implementation of the Strategy

The Strategy identified 10 ‘areas for action’ to support the aims of the Strategy:

1. Improve access to services and ensure early diagnosis
2. Provide universal access to high quality diagnostics
3. Improve treatment and care services
4. Ensure comprehensive contact tracing
5. Improve BCG vaccination uptake
6. Reduce drug-resistant TB
7. Tackle TB in under-served populations
8. Systematically implement new entrant latent TB screening
9. Strengthen surveillance and monitoring
10. Ensure an appropriate workforce to deliver TB control

### National implementation of the TB Strategy

The national TB Strategy team supported implementation of the TB Strategy and managed a work programme for the Strategy’s 10 ‘areas for action’ by providing leadership, co-ordination and support to the National TB Programme Board, National TB Delivery Board and chaired the National TB Delivery Board. This included oversight and support to the 7 TB Control Boards, championing TB action at the national, regional and local level and encouraging innovation through the dissemination and implementation of best practice. In addition, the team supported 5 task and finish groups convened to address specific ‘areas for action’ (drug resistant TB, under-served populations, LTBI, workforce and BCG).

### Regional implementation of the TB Strategy by TB Control Boards

In 2015, building on existing TB strategic and commissioning groups in high incidence areas, 7 multi-disciplinary and multi-agency TB Control Boards were established, covering the 9 PHE Centre footprints (see map page 16). The national team attended TB Control Board meetings and co-ordinated a TB leads and managers network.

The TB Control Boards focused on driving regional implementation of the Strategy’s ‘areas for action’ taking account of local epidemiology, demographics and service provision. They were chaired by a PHE regional TB lead and managed by a PHE TB Programme Manager. Local stakeholder membership of the Boards included representation from local authorities (that is, Directors of Public Health), clinicians, microbiologists, TB nurses, GPs, CCGs, the third sector, PHE, NHSE&I and others as appropriate.



# What was delivered during the Collaborative TB Strategy for England

## Outputs and outcomes of the Collaborative TB Strategy: at national level

From a national perspective the following outputs and outcomes were delivered:

- a 29% decline in TB incidence in England is observed since the launch of the Strategy in 2015 – during this time England had the lowest number of TB cases and rates on record and is now classified as a low incidence country by WHO; however, in 2019, TB cases in England rose for the first time in 9 years, by 2.4% (2)
- a plan and framework for multi-agency TB stakeholders to work to
- a national profile for TB, with the launch of the joint Strategy by PHE and NHS England to improve management of TB at local, regional and national levels
- creation of 7 regional, multi-agency TB Control Boards to drive regional and local implementation of the Strategy and provide a forum for TB stakeholders to plan and develop local action to meet local need
- establishment of a structure that links NHS TB clinicians and nurses through clinical and nurse networks to TB Control Boards and the national TB team and national TB Delivery Board enabling responsive and collaborative working
- a national TB clinical policy and service specification to support the commissioning, planning and delivery of TB services
- TB nurse workforce development including:
  - enhancing and supporting TB nurse networks
  - developing a TB Nurse Competency Framework and generic job descriptions to promote consistency and support the delivery of TB prevention, care and control
  - annual national TB nurse conferences for showcasing local nurse leadership, sharing best practice, innovation and national networking
- production of TB awareness raising literature and tools with TB Alert (for example, online GP e-learning module, nurse slide set for educational and community events, animations and new TB leaflets)
- a NHSE&I funded new migrant latent TB infection (LTBI) testing and treatment programme was established in 2015 and has shown year on year increases in test uptake
- a comprehensive information resource to support working with TB in under-served populations was launched in 2017 and updated in 2019
- a national ‘MDR-TB needs assessment’ was undertaken by PHE in 2017 and shared with stakeholders to use appropriately
- two one-off initiatives trialled in prisons:
  - a national prison radio TB awareness raising programme

- an LTBI testing pilot in prisons designated for foreign national prisoners. The outcomes of this will provide evidence for further prison LTBI testing and treatment programmes
- re-development of the British Thoracic Society MDR-TB Clinical Advice Service
- innovations such as:
  - TB data was added to the online PHE Fingertips tool, to provide local authorities and CCGs with local and national TB data
  - the development of the North West Paediatric TB Care Pathway and virtual MDT, and the sharing of this with all TB Control Boards
  - a housing pathway and fund for people with TB who are homeless and/or with no recourse to public funds in London

## Contribution and outcomes of other TB work streams in place prior to the launch of the Strategy and ongoing through the Strategy

Whole Genome Sequencing (WGS) for TB was introduced to routine practice in 2016 to 2017, although the National Mycobacterium Reference Service had started work on this pre-Strategy and then rolled it out nationwide in 2017 to 2018.

Detection by pre-entry TB screening of between 250 to 400 TB cases per year has contributed to a decrease in active TB notifications of migrants to the UK.

Paediatric cohort review, building on all-patient cohort review, to improve paediatric outcomes and share best practice was introduced in several areas by local paediatric TB networks.

## Actions taken to support development of a TB Action Plan 2021 to 2026

A National Point Prevalence Study was conducted in 2019 of the social needs of TB patients to inform future developments of the new national TB surveillance system and to support better provision of services for patients with social needs.

A TB Stakeholder Survey was undertaken in 2019 to gather information to feed into the development of the future TB Action Plan for England post 2020. In addition, multiple discussion meetings with a broad range of stakeholders were held, and a clinical brainstorming meeting with the lead clinician and lead TB nurse from each TB Control Board alongside national TB leads with a clinical interest.

# Outputs and outcomes of the Collaborative TB Strategy: by ‘areas for action’

Summarised below are some of the key achievements for each of the 10 ‘areas for action’ delivered during the 5 years implementing the Collaborative TB Strategy.

## Area for Action 1: improve access to services and ensure early diagnosis

TB Alert, supported by the national TB Strategy team and funded by NHSE&I and PHE:

- updated their awareness raising literature including educational videos and animations
- expanded [The Truth About TB website](#) to include sections on:
  - latent TB infection to support the new migrant LTBI programme
  - new resources for professionals that includes health promotion, professional education, patient information and support, guidance and advocacy and professional events
- updated professional education resources for primary care and others including a slide set and speaker notes, on TB for TB nurses and updated [TB e-learning modules for primary care](#) hosted on the [Royal College of General Practitioners website](#)

TB Alert chaired the TB Strategy Communications task and finish group that led the drafting of a 'National TB Communication Strategy and Plan' on behalf of the national TB Delivery Board. This was developed to provide targeted awareness raising for ‘at-risk’ groups and healthcare workers using social and digital media and social marketing alongside a raft of other measures. This led specifically to the funding of a programme of TB awareness raising on national prison radio and the preparation of new TB awareness raising literature by TB Alert.

## Area for Action 2: provide universal access to high quality diagnostics

Whole Genome Sequencing (WGS) for TB was introduced to routine practice in 2016 to 2017, and then rolled out nationwide in 2017 to 2018 to:

- provide speciation more accurately than traditional techniques
- predict drug sensitivities more rapidly for first line drugs
- provide vital diagnostic and public health information to support cluster investigation by PHE and TB Services

People notified with culture confirmed TB, and those linked to them by WGS, are reviewed by cluster investigators and subsequently regional Health Protection Teams (HPTs). Complex clusters may be escalated to a national review panel for further public health action recommendations, including extended contact tracing or awareness raising, to ultimately limit ongoing TB transmission.

In 2019, NMRS produced 8 short educational videos on WGS: what it means, and the procedures and service of the NMRS (these are available on the PHE YouTube channel).

A national laboratory audit was carried out in 2017 to assess TB diagnostic services. Outputs from this audit were used by TB Control Boards and regional stakeholders to improve laboratory provision for TB and ensure universal access to high quality diagnostics increasing the availability of IGRA and PCR tests for TB.

Advice on appropriate diagnostic tests was provided in the national TB clinical policy shared in 2017 to support the commissioning, planning and delivery of TB services.

In 2015 there was a national procurement process to select laboratories that met specific quality standards to provide the LTBI test analysis for the national LTBI testing and treatment programme.

### Area for action 3: improve treatment and care services

A national TB clinical policy and TB service specification, building on work in London, was updated in 2017 and shared by TB Control Boards with TB commissioners and TB service providers. It is used to assess local services and to support local service improvements. Policy changes and innovation are reflected in annual updates.

Clinical teams were encouraged to use the 2016 NICE TB Guidance and 2017 NICE TB Quality Standards. A slide set of NICE TB related guidance was developed by the national team for TB Control Boards to share and use at TB clinical network meetings.

TB Control Boards strengthened and supported local TB networks (nursing and clinical) and cohort review by sharing relevant guidance on best practice and developing for example, documents such as the London cohort review handbook.

National nurse leadership support was provided to TB Control Board lead nurses through regular meetings and the sharing of best practice.

In 2018, the TB Strategy team supported the British Association of Paediatric TB undertake a national survey of paediatric TB care and services. Data from this survey is being used to support improved paediatric TB care.

A paediatric care pathway was developed by the North West paediatric network and local CCGs to deliver a weekly 'virtual' multi-disciplinary TB clinic that networked a specialist paediatric consultant with district general hospital consultants and teams. This was shared nationally in 2018 by the national TB Delivery Board with TB Control Boards.

A resource for HPTs to provide systematic, consistent advice and to support action on the use of Part 2A Orders related to TB was developed and distributed in 2019.

A system to cascade information on TB medicines supply was developed and is now run by NHSE&I.

Management of TB in low incidence areas is a challenge and in 2019, a task and finish group was set up to assess and report on TB service provision in low incidence areas. The outcomes will contribute to the future TB Action Plan.

In 2019, the national TB Strategy team held a clinical brainstorming session with TB Control Board lead clinicians and lead TB nurses, alongside national TB leads with a clinical interest in TB to develop and contribute clinical priorities for the TB Action Plan.

### Area for action 4: ensure comprehensive contact tracing

To ensure comprehensive contact tracing:

- advice on contact tracing was provided in the national TB clinical policy and service specification and in the 2016 NICE TB guidance
- quarterly cohort reviews assessed the outcomes of contact tracing national roll out of WGS technology supported more focused contact tracing including social networking analysis
- a contact tracing training session was delivered to TB nurses at the 2018 National TB Nurses conference

### Area for Action 5: improve BCG vaccination uptake

International shortages of BCG vaccination 2016 to 2018 were problematic, until a new UK-licensed BCG vaccine became available from AJ Vaccines (formerly SSI).

In August 2018, PHE developed information resources and a slide set to support use of the new vaccine and shared this via [Vaccine Update 283](#) in August 2018.

The monitoring and review of BCG uptake and ensuring low-incidence areas identify and provide BCG to children in high risk groups is led by a national BCG Board.

The TB Surveillance and Strategy team ensured BCG uptake was reported in official COVER (cover of vaccination evaluated rapidly) statistics from 2018.

### Area for Action 6: reduce drug-resistant TB

PHE and NHSE&I supported the British Thoracic Society (BTS) to redevelop and enhance its [MDR-TB Clinical Advice Service](#) to:

- provide advice and support to clinicians caring for TB patients with MDR-TB and complex TB particularly those requiring Bedaquiline and Delamanid
- offer monthly virtual MDTs where MDR-TB cases are discussed by those experienced in the care of patients with MDR-TB

A national ‘MDR-TB needs assessment’ of facilities for MDR-TB patients was undertaken by PHE in 2017 and shared with stakeholders.

## Area for Action 7: tackle TB in under-served populations (USPs)

In 2017, PHE launched a comprehensive [Resource to tackle TB in under-served populations](#) to support TB Control Boards and partners tackle the needs of USPs. It was updated and relaunched in 2019. This resource looks at each USP group, defines them, describes the burden of TB among them, discusses the challenges (both health and social care), makes recommendations on how to meet those challenges and includes hyperlinked leaflets, websites and examples of good practice.

TB Control Boards, with local stakeholders, ran workshops to share best practice using the USP Resource. The national team supported these meetings with standard slide sets of the USP Resource.

In 2016, PHE and the Local Government Association wrote ‘Tackling TB – local government’s public health role’. In 2018, this was updated with information on how local authorities could better support services and people with TB.

Using the USP Resource, some TB Control Boards, working with CCGs and local authorities, have agreed funding mechanisms and pathways to accommodate the homeless with TB for the course of their treatment. An example is the 2017 and 2018 London CCG risk-share which provided accommodation for homeless people with TB and no recourse to public funds.

In 2017 to 2018, London’s CCGs supported a London-wide video observed therapy (VOT) service for patients with complex lifestyles and in 2018 2019, this service, provided by the London based ‘Find and Treat’ team, was made available nationally on a tariff basis.

In 2019, PHE’s National Knowledge Service – [TB \(NKS-TB\)](#) updated its online resources for people with TB, members of the public, healthcare professionals, and others with a duty of care. The collection of guidance can be accessed via the [PHE TB pages](#).

An LTBI pilot was undertaken in 2 foreign national prisons in South East England to inform future national policy on LTBI testing and treatment in prisons.

A national point prevalence study of the social needs of patients affected by TB was completed in 2019. Analysis of the data is underway, and results are being used to inform data fields in the new national TB surveillance system (NTBS) and future policy.



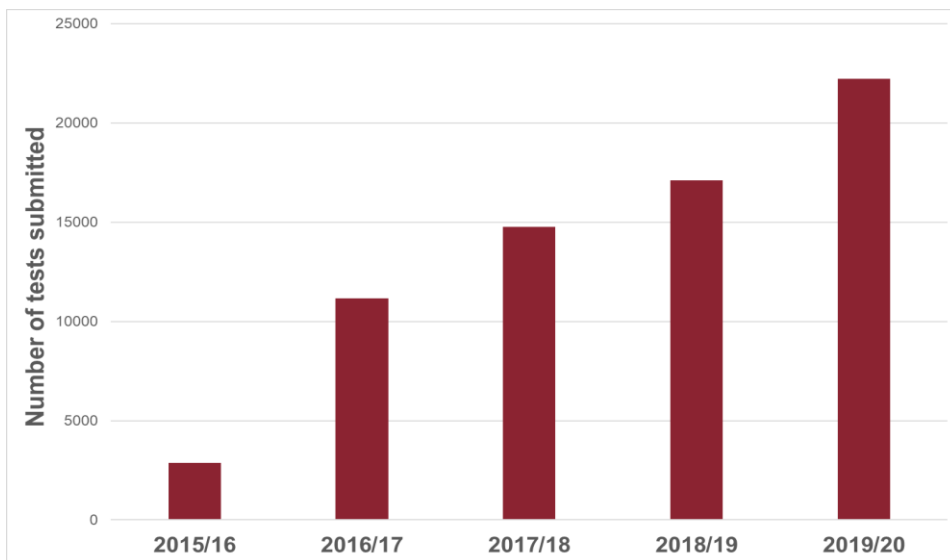
## Area for action 8: systematically implement new entrant latent TB screening

In 2015, a LTBI testing and treatment programme for new migrants from high incidence countries (supported by PHE and funded by NHSE&I) was implemented in 59 CCGs.

In 2016, a LTBI Programme Toolkit was developed by PHE’s National TB Screening Team, TB Alert and NHSE&I to support LTBI testing and treatment programme providers and stakeholders implement the programme.

The LTBI programme has seen increased LTBI test uptake year on year since 2015 (see figure 3) and has seen an LTBI positivity rate of nearly 20% (PHE monitoring data).

**Figure 3: Total LTBI tests submitted to the LTBI programme by financial year**



(Figure 3 shows the year on year increase in LTBI tests from less than 3000 in 2015 to 2016 to more than 22,000 in 2019 to 2020)

A national web portal and database for submitting and analysing LTBI programme data is under development.

Innovations to support the programme have included:

- communications material (including leaflets, animations and social media) for migrants prior to entering the UK and for migrant communities in the UK to increase awareness of the programme and encourage uptake of the LTBI test
- providing Flag 4 data to LTBI programme providers in participating CCGs. This data contains a list of all new migrants registering with GPs and is used by providers to offer testing to eligible migrants

An evaluation of the national LTBI programme, led by the Respiratory HPRU; shows programmatic LTBI testing and treatment of new migrants in England is associated with earlier TB diagnosis and an overall lower risk of progression to active disease.

## Area for Action 9: strengthen surveillance and monitoring

Monthly and quarterly reports on provisional TB data in England are now published. These allow a timelier assessment of TB activity at a national and regional level.

PHE has funded development of a new TB Surveillance system (NTBS), to replace and improve existing systems. Early releases are available to PHE Field services, providing live information from TB notifications in greater detail. The start of full implementation of NTBS is planned for 2021; this will include direct access for TB clinics.

TB Strategy monitoring indicators were developed by PHE and released on World TB Day 2015 (viewable using the [PHE TB Fingertips tool](#)) to enable interactive data viewing at local authority and CCG level. These are updated annually.

'[Healthmatters – reducing the burden of TB](#)' was published in 2016 with new TB infographics, blogs, a slide set and a video.

'Strategy progress measures' were developed to monitor implementation of the 10 'areas for action' at a national and TB Control Board level as those in 'Fingertips' did not directly measure progress of each of the 'areas for action'. Two years into the Strategy by the end of 2016, 9 of 22 progress measures were met, increasing yearly to 18 of 24 in 2019.

Annual TB Infographics were developed, based on annual TB report data. These are provided at a national and regional TB Control Board level alongside the annual TB report (available on [PHE website](#)).

## Area for action 10: ensure an appropriate workforce to deliver TB control

A review of the TB nursing workforce was commissioned by PHE, the Department of Health and Social Care and Health Education England; and published by the Centre for Workforce Intelligence (CfWI), in July 2015.

In 2016, a TB nurse competency framework, aligned with Agenda for Change bandings, the Knowledge and Skills Framework and endorsed by the Royal College of Nursing was developed and outlined the roles and responsibilities of nurses working with people affected by TB and was used to draft generic TB nurse job descriptions for TB service providers.

National TB nurse conferences, organised by PHE and funded by NHSE&I, have been held annually since 2016. Over 200 (50%) of all TB nurses have attended each year.

A survey and report on the wider TB workforce (non-nurse / non-doctor) were prepared by the national TB strategy team in 2017 with its recommendations used to start building a multidisciplinary approach to improving the care of people with TB. This was followed by a national wider-TB workforce conference in 2017.

Two, one-day TB nurse leadership workshops were held in 2019. Nearly 100 nurses attended and both workshops were well received.

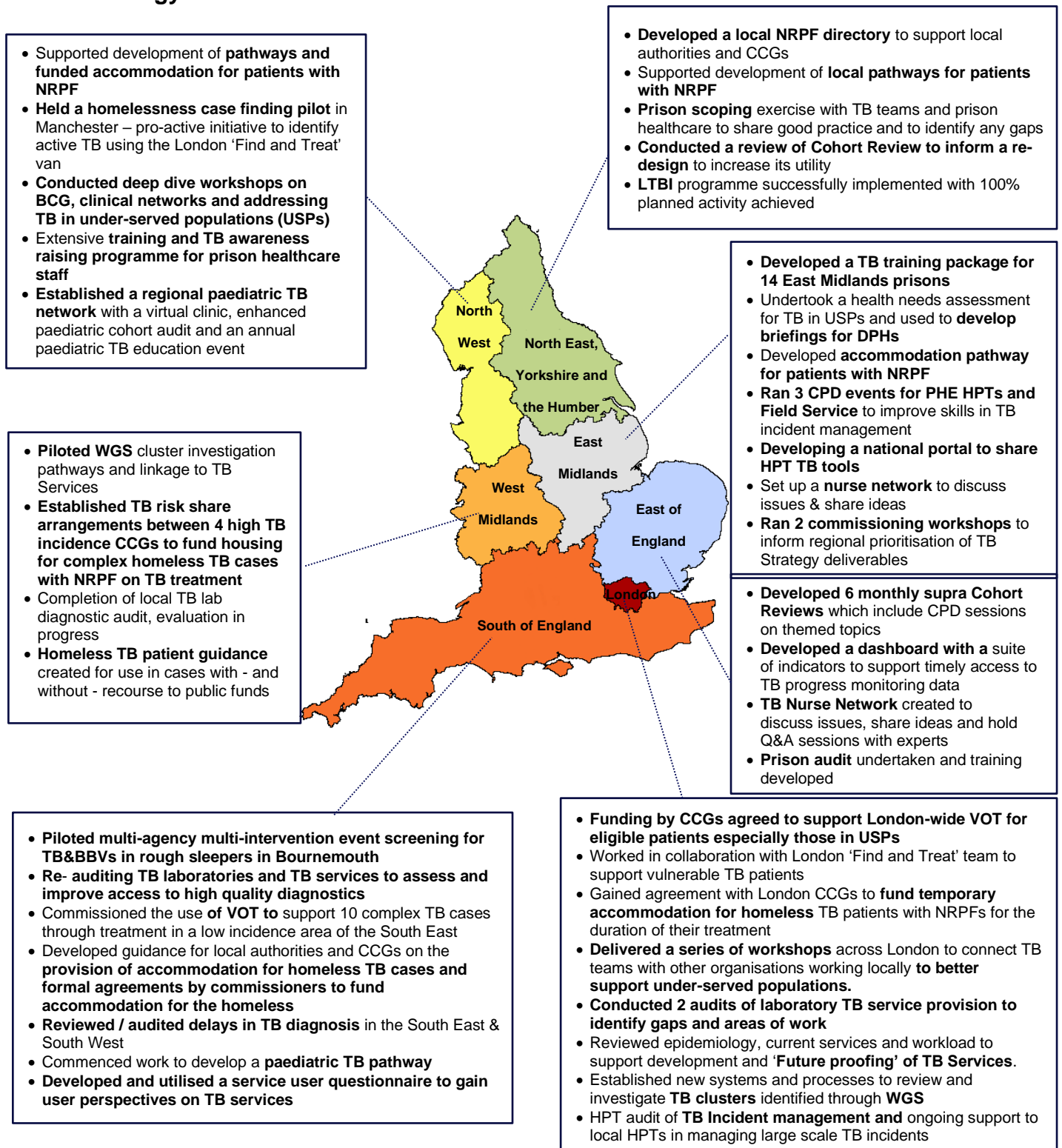
From 2019 new technology for virtual seminars and virtual appointments has been encouraged, used and shared to support improvements in the quality of patient care, the training of nurses and the sharing of best practice.

The [RCN Nursing TB case management guidance](#) was updated in 2019 and is available on the RCN website.

# Outputs, outcomes and innovations delivered by regional TB Control Boards

Outlined below are examples of work delivered by the 7 regional TB Control Boards to implement the TB Strategy. A detailed summary of each Boards work can be found in Annexe 1.

**Figure 4: examples of work delivered by the 7 regional TB Control Boards to implement the TB Strategy**



# TB Strategy Progress Measures

TB Strategy Progress Measures were developed to measure implementation of the Strategy's 10 'areas for action' at a national and TB Control Board level using evidence-based data sources. Each year, 24 progress measures have been measured to show the progress across the life course of the Strategy, from 2014 (pre-strategy) to 2019 (year 5 of the Strategy).

**Figure 5: TB Control Board Progress measures 2019 and 2014 pre-strategy**

This figure shows that in 2019, 18 of 24 progress measures were met or showed improvement compared to 9 of 22 in 2016 (5.1 and 5.2 not measured for BCG in 2016).

Area for action	Progress measure definition	East Midlands		EoE		London		North West		SoE		West Midlands		Y&H/NEE		Overall TBCBs	
		2014	2019	2014	2019	2014	2019	2014	2019	2014	2019	2014	2019	2014	2019	2014 (pre-Strategy)	2019
A1 - Improve access to services and ensure early diagnosis	1.1 Health Care Workers raising awareness programme - yes/no	R	G	A													↑
	1.2 Local population raising awareness programme - yes/no																↑
	1.3 90% seen by TB service <2 weeks after referral - yes/no																↑
	1.4 Patient satisfaction surveys carried out - yes/no																↑
A2 - Provide universal access to high quality diagnostics	2.1 Culture confirmation of pulmonary TB cases is ≥80% green, 60 - 79.9% amber, ≤59.9% red																↔
	2.2 TB services have direct access to specialist microbiology advice - yes/no																↔
	2.3 TB services have access to WGS or PCR (i.e. genXpert) for testing of TB specimens - yes/no																↑
A3 - Improve treatment and care services	3.1 Cohort review in place and held quarterly with all patients reviewed - yes/no																↑
	3.2 Service gap analysis conducted annually (with reference to the national TB service specification) - yes/no																↑
	3.3 KPI developed by the TB control board in collaboration with the local lead CCG - yes/no																↑
A4 - Ensure comprehensive contact tracing	4.1 Pulmonary cases with a median of ≥5 close contacts identified - green, ≥3 - amber, <3 - red																↑
	4.2 Proportion of identified contacts of pulmonary TB cases assessed, ≥90% - green, 80 - 89.9% - amber, ≤79.9% - red																↔
A5 - Improve BCG vaccination uptake	5.1 Local pathways for delivery of BCG vaccination in place, with clear line of accountability for commissioning, delivery and																↑
	5.2 All eligible babies in low incidence areas are systematically identified and offered BCG as per eligibility criteria - yes or no																↔
	5.3 Report on BCG coverage of target populations																↔
A6 - Reduce drug resistant TB	6.1 All culture confirmed cases have drug susceptibility testing for all first line drugs, ≥98% green, 97 - 97.9% amber, ≤96.9% red																↓
	6.2 MDR-TB cases reported to the BTS Clinical Advice Service ≥95% green, 80 - 94.9% amber, ≤79.9% red																↑
A7 - Tackle TB in underserved populations	7.1 Proportion of all drug sensitive TB cases with Social risk factors completing treatment within 12/12.																↔
A8 - Systematically implement new entrant latent TB (LTBI) screening	8.1 Priority CCGs LTBI programmes implemented yes/no																↑
	8.2 PHE able to provide activity reports on LTBI programmes yes/no																↑
A9 - Strengthen surveillance and monitoring	9.1 Local epidemiology report published annually yes/no																↔
	9.2 TB control board reports published on 'Areas for Action' progress measures yes/no																↑
A10 - Ensure an appropriate workforce to deliver TB control	10.1 Workforce review undertaken (nursing and non nursing) - yes/no																↑
	10.2 TB control board local TB workforce strategy - yes/no																↑

Notes: Red (R), amber (A) and green (G) performance ratings represent pre-defined targets for each progress measure

# Programme reflections: TB stakeholder survey report; a SWOT analysis and APPG evaluation

Feedback from stakeholders on the implementation of the TB Strategy was considered using a TB Strategy stakeholder survey and a SWOT analysis with the national TB Delivery Board. In addition, a summary of the findings of an evaluation of the Collaborative TB Strategy conducted by the All-Party Parliamentary Group (APPG) on TB is included.

## Collaborative TB Strategy: TB Stakeholder Survey Report 2019

A TB Stakeholder Survey was conducted mid-2019 and a report prepared and shared with stakeholders in November 2019. The survey was used to gather stakeholder views and provide input to help shape the future 5-year TB Action Plan for England.

The survey sought to address and consider the following issues:

- to document the strengths and weaknesses of the current TB Strategy
- to note areas for further improvement and inclusion in the future TB Action Plan
- to identify issues and actions that the wider TB stakeholders suggested prioritising in the future TB Action Plan

Invitations to participate in the survey were disseminated via TB Control Boards to their TB networks and local TB stakeholders. Over 250 responses were received covering all TB Control Boards areas and a report prepared. Respondents to the survey included 35% TB nurses, 18% respiratory or infectious disease consultants, 8% local authority professionals, 1% primary care, 8% commissioners, 10% health protection and PHE employees, 5% service users and 16% allied professionals working on TB. Overall, there was overwhelming support for the development of a future TB Action Plan with most respondents advocating for continuation of the 10 'areas for actions' of the TB Strategy, with others supporting the idea of a more limited focus on specific priorities and the implementation of these priorities for impact and efficiency.

### Strengths of the TB Strategy (as expressed by respondents)

**Strategic and programme planning tool:** The Strategy has created real impetus for improving TB control by providing a focus for local TB network meetings and work planning for TB Services. The Strategy was acknowledged to be well written and well received by local clinical and non-clinical partners and considered to reflect a genuinely collaborative effort between NHSE&I and PHE.



**LTBI and new entrant screening:** the LTBI new entrant testing and treatment programme has had the additional benefit of identifying active TB as a result of more referrals from new migrant screening, more people are on treatment for LTBI and there has been an improvement in primary and secondary care models of referral. The additional support of the NHSE&I LTBI Project Managers has proved invaluable.

**TB Control Boards:** A number of respondents believed the TB Control Boards have given recognition to this important disease area in a strategic way, gave a focused approach to tackling TB and provided an opportunity for wider audiences and stakeholder bases with a diversity of skills to link into the wider healthcare system.

**Workforce:** The Strategy has supported the role of the TB nurse specialist with the development of the TB nurse competency framework. TB Control Boards have brought TB teams together in the local area, strengthening networking and support for staff.

**Improved local stakeholder engagement:** The arrangements supporting the Strategy have helped the dissemination and sharing of learning on challenging issues. It has helped with the development of pathways across agencies and function for those with no recourse to public funds, cohort review and MDR-TB.

**Patient/Service User benefits:** It was acknowledged that the Strategy has promoted better adherence/compliance to treatment, improvements in service delivery and development, a consistent approach to patient care and improved treatment pathways.

**Clinical networks and virtual networks:** It was acknowledged that the Strategy had provided a platform for the development of virtual networks for example, the development of North West Paediatric TB Network which has enabled Paediatric TB expertise to be made more widely available, standardised management of children with TB, and funding for a paediatric virtual clinic.

**WGS and contact tracing:** Implementation of cluster identification using WGS has improved significantly and whole genome sequencing has provided more timely data to plan MDR-TB regimens, allowed more rapid identification of sensitivity data and robust cluster identification.

**Under-served populations and LTBI:** The new entrant LTBI testing and treatment programme has been helpful at targeting USPs and helped to reduce health inequalities.

**MDR-TB:** The TB Strategy's support to the BTS MDR-TB Clinical Advice Service has enabled this to become much more robust with appointed multi-sectoral advisors, virtual MDTs and MDT outcomes a strength.

## Weaknesses and challenges of the current Strategy and areas for improvements suggested for inclusion in a future TB Action Plan (as expressed by survey respondents)

**Service integration:** Lack of linkage between some of the strategy's 10 'areas for action'. Some respondents felt that the implementation of the Strategy did not adequately take the interaction and integration between the 10 'areas for action' into full consideration and therefore a 'silo' approach appeared to be encouraged.

**Lack of focus on TB in low incidence settings:** This has meant that some low incidence areas struggled to implement the Strategy with no resources, or very limited resources, and this has led to issues for workforce development, DOT and cohort review. The Strategy has not yet met the challenge of commissioning effective and robust TB care for very small case numbers at CCG level, nor whether TB care should be a specialist service or part of a generalist service (as implied by CCG commissioning which drives provision in every acute Trust rather than fewer specialist centres).

**Lab diagnostics and WGS:** Comments received related to the whole diagnostic pathway seeking shorter turn-around times generally. Staff noted that it would be helpful if all smear positive cases could be immediately sent for TB DNA/PCR.

**Under-served populations:** Local authority spending cuts have meant local arrangements for housing the homeless with TB rather than a national approach.

**VOT:** Lack of funding for VOT implementation, even though research has shown it to be cost effective and that it leads to better outcomes than conventional DOT.

## Suggested areas for improvements: organisationally and operationally (as expressed by survey respondents)

### Organisationally:

- ensure more support for difficult and complex cases
- support the development of paediatric TB networks and 'virtual clinics'
- consider mandating CCGs work collaboratively through NHSE&I performance management processes, to facilitate LTBI testing and treatment strategies
- include specific recommendations for low incidence areas
- increase funding for the WGS database to enable development and software support
- stronger lobbying of NHSE&I for proper funding of TB Services
- PHE national team could provide more guidance on the use of VOT and new entrant LTBI testing and treatment implementation for 'hotspots' in lower incidence areas

## Operationally:

- support virtual working arrangements across a wider footprint
- help Trusts and TB services understand local TB/respiratory Trust block contracts
- improve new entrant referrals to the LTBI Programme
- work to secure funding to support those patients with no recourse to public funds, as well as patients with recourse to public funds but no money or place to live
- have an outward facing WGS relatedness database so TB nurses can see how their cases cluster without having to rely on the HPT dissemination of information
- ensure there are adequate arrangements to manage complex TB incidents
- ensure funding support for TB testing and treatment in low prevalence areas

## SWOT analysis of Collaborative TB Strategy

In 2019, the national TB Delivery Board, carried out a SWOT analysis of the Collaborative TB Strategy (2015 to 2020) to understand programming gaps in the Strategy this is shown in Table 1.

**Table 1: A summary of Strengths, Weaknesses, Opportunities and Threats (SWOT) of the Collaborative TB Strategy for England (2015 to 2020)**

Strengths	Opportunities
<ul style="list-style-type: none"> <li>• The TB Strategy has provided a common purpose and a single platform to facilitate consensus and coordinate approaches to tackle gaps and challenges i.e. TB in USPs</li> <li>• A communication infrastructure, leading to timely and consistent dissemination of information</li> <li>• Developed a comprehensive information Resource to tackle TB in USPs</li> <li>• Enabled local ownership and leadership of the Strategy through TB Control Boards</li> <li>• Developed a 'toolkit' to increase the uptake of LTBI testing and treatment</li> </ul>	<ul style="list-style-type: none"> <li>• Development of a future TB Action Plan post-2020</li> <li>• Use of new technologies such as video-observed therapy to improve treatment compliance and so reduce onward transmission</li> <li>• Development of new models of delivery, larger footprints, improved local leadership and inclusion of a wider skill mix in clinical teams such as outreach and case workers for DOT and USPs</li> <li>• Development of a new national TB surveillance system</li> </ul>
Weaknesses	Threats
<ul style="list-style-type: none"> <li>• Workforce capacity, capability and knowledge, especially in low incidence areas</li> </ul>	<ul style="list-style-type: none"> <li>• Loss of resources to sustain the national and local infrastructure to deliver local TB control e.g. TB Control Board TB leads, programme managers and admin, as the</li> </ul>

<ul style="list-style-type: none"> <li>• Lack of integration of TB with BBVs and other infectious diseases into a broad and overarching infectious diseases control programme</li> <li>• Little progress on reducing TB incidence and closing the gap on health inequalities for under-served populations – commissioning and funding arrangements for interventions / remain unsecured</li> </ul>	<p>lead and manager roles have been crucial to the success of improved local TB control</p> <ul style="list-style-type: none"> <li>• As TB is not a NHSE&amp;I Long-Term Plan priority, although TB likely to be a focus for some STPs as part of their prevention and health inequalities agenda</li> <li>• Lack of funding for innovations such as VOT</li> </ul>
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## Inquiry into the Collaborative TB Strategy by the All-Party Parliamentary Group for TB

The All-Party Parliamentary Group (APPG) for TB initiated an Inquiry into the TB Strategy in 2017 to 2018 asking for written and oral submissions into all aspects of the Strategy and its implementation. The Inquiry focussed on:

- the overall effectiveness of the Strategy
- the Strategy’s 10 ‘areas for action’ and the resources allocated to these
- accountability mechanisms introduced by the Strategy to monitor and evaluate progress

The APPG Inquiry report “**Ending TB in England – accelerating progress of the national TB response**” (5) was launched in March 2019. It found that “the Collaborative TB Strategy has had a positive effect on both TB care and TB rates in England”. It noted that “while it is likely to be too early to measure the full epidemiological impact of the Strategy itself, preliminary analysis validates the Strategy’s approach while also pointing to key opportunities for ‘bending the arc’ of the national TB epidemic further”.

Key findings were that “the Strategy has contributed to major innovations in TB control, with cohort review mechanisms, innovative commissioning structures, the routine use of whole-genome sequencing, and technologies such as video-observed therapy, which promise not only to drive case-finding and treatment success in England but also have potential for global application”. Similarly, “multi-disciplinary and multi-sectoral governance structures instituted at the national and regional level have all contributed successfully to gains achieved by the current strategy”.

The Inquiry made several recommendations where additional action could further improve TB control. These included: tackling diagnostic delay, increasing the uptake of latent TB testing and treatment as part of the national LTBI testing and treatment programme, tackling TB in under-served populations, making the findings from workforce reviews publicly available and improving

data reporting to ensure current workforce levels are appropriate and shape investment cases in areas where staffing levels remain insufficient.

In conclusion, the APPG Inquiry noted the importance of all that has been achieved by the Collaborative TB Strategy and recommended that a post-2020 Strategy be developed to “protect the progress made since 2011, to demonstrate the effectiveness of evidence-based and collaborative public health interventions in England, and to participate in global efforts to reach the goals spelled out in the UN High-Level Meeting’s Political Declaration”. Alongside these recommendations, the report also suggested that it was “imperative that TB remains a priority for both PHE and NHS England”.

## Challenges and future recommendations

Despite the decline in TB incidence, England still has a high rate of TB compared to most Western European countries. Support is required to continue to reduce incidence and to address ongoing challenges. As TB is not an NHSE&I Long Term Plan priority, it will be important to keep it as a priority on PHE's and NHSE&I's agenda. Reaching the WHO's End TB Strategy target of a 90% reduction in new notifications by 2035 was always going to be challenging but the COVID-19 pandemic adds additional complexities. Some of these challenges include:

- improving our understanding of the epidemiology of TB in England in people and places and developing flexible approaches adapted to local needs
- shortening the delay between symptom onset and treatment start – 31% of people still experience a delay of more than 4 months
- addressing inequalities and the high proportion of people with social risk factors, including alcohol misuse, drug misuse, homelessness and/or imprisonment
- ensuring cases of multi drug resistant (MDR) TB are effectively managed in line with the British Thoracic Society MDR-TB Clinical Advice Service
- improving latent TB infection (LTBI) testing and treatment to prevent reactivation of TB and transmission, a service that has been greatly affected by COVID-19
- replacing existing out of date data systems with the new National TB Surveillance System (NTBS) that will introduce additional functionality to streamline the collection and quality of surveillance data
- focusing on reducing transmission of TB by effective contact tracing informed by better data and WGS insights into transmission pathways and networks

Addressing these challenges will need innovation and a coordinated national response. The new 5-year TB Action Plan, 2021 to 2026, will provide a blueprint to move England towards TB elimination and should include:

- reduce diagnostic delay by increasing awareness of TB in at-risk populations and healthcare workers, particularly those in primary care and A&E
- reduce transmission of TB in England by improving contact tracing, optimising the use of data from WGS and other new technologies and analytic methods
- continue to address the needs of TB in under-served populations to reduce health inequalities and ensure STPs and ICSs include TB in their prevention and health inequalities agenda
- consider an integrated approach to multi-disease prevention for under-served populations and others with TB, BBVs and other conditions
- sustain the sharing of best practice such as paediatric networks and virtual clinics
- ensure areas with a low incidence of TB continue to provide high quality and effective services and consider new models for service delivery as TB rates and numbers continue to fall
- sustain the LTBI programme to increase uptake of latent TB testing and treatment



- maintain the multi-agency TB Control Boards with support from national PHE and NHSE&I TB teams to improve TB control at local and national level
- future proof the TB workforce through capability, expertise and upskilling
- translate new research and innovation into normal service delivery, including work to support virtual working arrangements across a wider footprint

## Conclusions

Since the launch of the Strategy, significant steps have been taken to implement its 10 ‘areas for action’ and improve TB prevention and control. Over the last 5 years these have helped contribute to a 29% decline in TB incidence as have the programme structures created to support Strategy implementation.

This End of Programme Report summarises some of the key outputs and outcomes delivered through implementation of the Collaborative TB Strategy for England, 2015 to 2020.

However, this work needs to be sustained and a national TB Action Plan, 2021 to 2026 is in preparation. This will build on the outcomes of the Collaborative TB Strategy and deliver on the recommendations identified in this report. This includes a greater focus on tackling TB in under-served populations; on reducing diagnostic delay and in-UK transmission; on understanding and responding to the variation in TB incidence and patient demographic profiles; on workforce agility and sustainability, and on innovation, research and technology. It should aim to embed TB as business as usual and ensure greater NHS, STP and Integrated Care System leadership and engagement, to sustain the downward trend in TB incidence, reduce health inequalities and move England towards TB elimination by 2035.

COVID-19 has dramatically changed how the NHS delivers its services. The future TB Action Plan will need to reflect on these changes and embed those beneficial to patient-centred care to ensure improved TB prevention and control continues to be delivered and the impact of COVID-19 on TB reduced.

The TB Strategy has improved national efforts towards eradication of TB, but there is more work still to do and we must now turn our focus to the next 5 years, the development of the TB Action Plan 2021 to 2026 and work collaboratively toward TB elimination.

This report acknowledges the dedicated and enthusiastic TB workforce without whom implementation of the Strategy and the declines in TB incidence would not have been possible.

# Annexe 1: Outputs, outcomes and innovations delivered by TB Control Boards

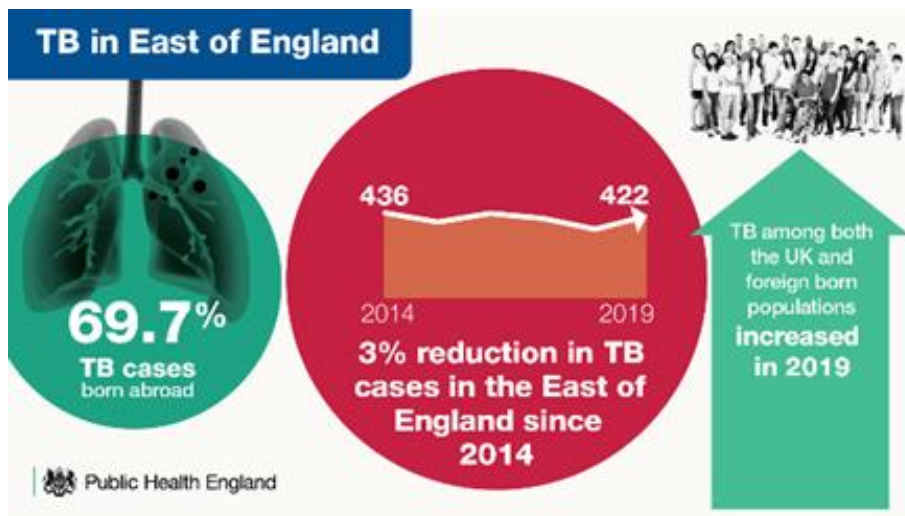
The 7 TB Control Boards (TBCBs) and their stakeholders meet at least 3 times a year and focus on ‘areas for action’ relevant to local needs as well as national priorities, utilising nationally and locally developed resources to improve local TB control.

## East of England TB Control Board

The East of England TB Control Board, through its 4 local TB networks (integrated with cohort reviews) and the East of England TB nurse network, has brought together multi-agency stakeholders.

The East of England is a low incidence area. In 2019, 422 people were notified with TB in the East of England.

**Figure 6: Numbers and percentages of TB cases in the East of England**



The East of England TB Control Board supports quality improvement with a focus on reducing health inequalities and meeting the needs of USPs and has run and embedded a 6-monthly supra-cohort reviews with a focus on MDR-TB and complex cases. The TB Control Board works with systems partners to improve TB programme indicators.

**Summarised below are some of the outputs, outcomes and innovations delivered over the last 5 years by the East of England TB Control Board.**

### Programme Monitoring and Dashboard

The East of England TBCB used the national progress measures to develop a dashboard to monitor progress and evaluate the effectiveness of locally agreed interventions.

### Supra cohort review

In addition to the 4 cohort review networks across the East of England, the TBCB has 6-monthly supra cohort reviews to provide a broader educational experience with themed topics and CPD. This improved attendance and shared learning and expertise from across the region which has brought together TB services (nurses and consultants) with experts.

### Strong engagement with nurses and local TB networks to meet the needs of USPs

The East of England TBCB and key system partners have:

- established local working groups focusing on USPs and developed in a higher incidence area a funded housing pathway for homeless TB patients which is now being rolled out across other areas in the East of England
- undertaken a prisons audit and developed a training package subsequently
- taken a collaborative approach to deliver better active case finding to improve early detection and diagnosis of TB

### Implementation of a latent TB infection testing and treatment programme

Since 2015 to 2016, the LTBI testing and treatment programme has been implemented across all 3 eligible priority CCGs, but uptake has been poor and variable.

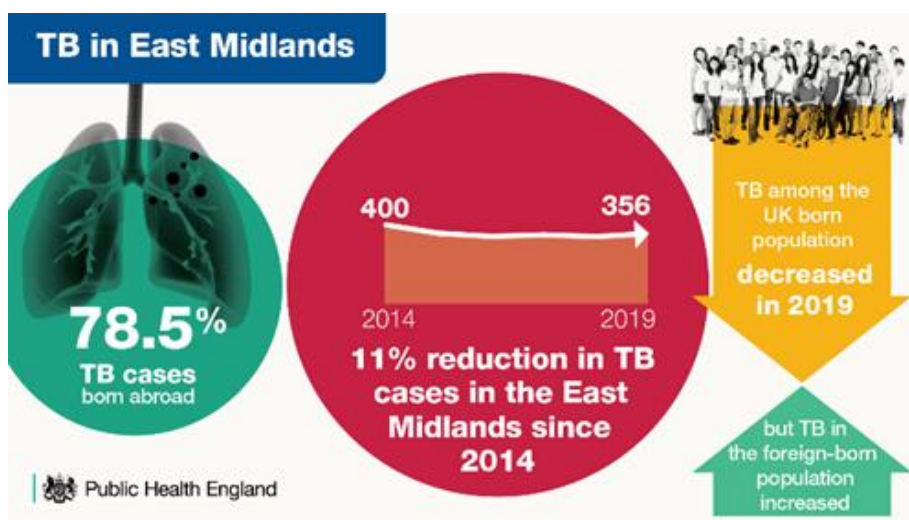
### TB awareness raising and education

A well-established regional TB awareness raising and educational campaign amongst those working with people at risk and health care workers, for example, drugs and alcohol service, prisons service has been delivered over the course of the Strategy.

## East Midlands TB Control Board

The East Midlands is a low incidence area. In 2019, 356 people were notified with TB in the East Midlands.

**Figure 7: Numbers and percentages of TB cases in the East Midlands**



To deliver its work the TB Control Board links with 7 local TB networks (local 'TB Boards') and a Health Protection TB leads group which contributes to TB cluster reviews, discussion of complex cases and incidents, and the implementation of national TB priorities.

**Summarised below are some of the outputs, outcomes and innovations delivered over the last 5 years by the East Midlands TB Control Board.**

### Communication

An East Midlands communications strategy was developed by the TB Control Board to ensure all stakeholders were kept informed of TBCB activities. Two-way communication between the Board and its Networks has been an important part of TB Control Board meetings. To support local nurses a nurse network was set up to discuss issues and share best practise; and a national portal to share HPT TB incident management resources and tools is being developed.

### Working with commissioners

The East Midlands TB Control Board organised 2 well -attended commissioning events which were preceded by a review of local TB Service specifications. These events were used to inform regional prioritisation of TB Strategy deliverables.

### Strategic and partnership working

In 2016, developed a regional TB Action Plan using the Strategy's ten areas for action on the back of a gap analysis that mapped all TB Services across the East Midlands against the National TB Strategy and the National TB Service Specification.

### Latent TB testing and treatment for new migrants in the East Midlands

Four CCGs were eligible for funding and 3 successfully started testing in 2016 to 2017. Implementation was supported by the East Midlands TB Control Board with monthly teleconferences and an LTBI Screening workshop in 2017. In 2018, the TB Control Board worked with a multi-stakeholder group and BBC East Midlands to develop a TB / LTBI comms piece that aired on East Midlands Today in September 2018.

### Meeting the needs of USPs

In 2017, audited against NICE standards prison TB services across 13 East Midlands prisons and 1 immigration removal centre. This was used to inform service improvements and in 2018 led to the development of a comprehensive TB training package that was delivered in 14 training sessions attended by nearly 300 people working in the criminal justice system in the East Midlands.

In 2018, a health needs assessment of under-served populations was undertaken on behalf of the TB Control Board; recommendations were presented to East Midlands DPHs and briefings on the HNA were developed for local stakeholders. In addition, an accommodation pathway for TB patients with NRPF was developed.

### TB training and education

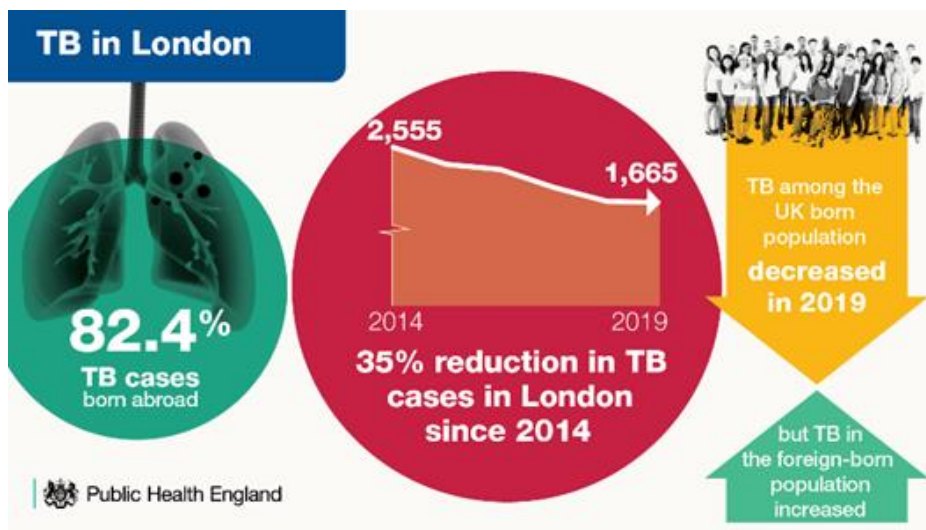
The East Midlands TB Control Board organised 3 annual educational and networking events for TB clinicians & other stakeholders supporting services with interpretation of guidance and

implementation of ongoing service improvement. Presentations were given by national speakers, regional experts and local teams and over 275 delegates attended. The chair of the Board also organised three national CPD events for PHE Health Protection Teams & Field Service to improve skills in TB incident management.

## London TB Control Board

The London TB Control Board works with the London Clinical Leadership Group and brings together the 4 London TB networks.

**Figure 8: Numbers and percentages of TB cases in London**



In 2019, London remained the area of highest TB incidence in England, accounting for 35% of all people with TB and over double the national incidence rate. However, case numbers have declined year on year for the last 5 years. In 2019, 1,665 people were notified with TB; a rate of 18.6 per 100,000 population. This represents a 35% reduction in TB cases against the pre-strategy level of 2014.

The London TBCB has worked to improve the quality of TB services and standards with a particular focus on reducing health inequalities and meeting the needs of under-served populations, strategic and partnership working and implementation of latent TB testing and treatment for new migrants.

**Summarised below are some of the outputs, outcomes and innovations delivered over the last 5 years by the London TB Control Boards and its stakeholders.**

### Reducing health inequalities and meeting the needs of under-served populations

The London TBCB has worked to meet the needs of under-served populations by:

- agreement with London CCGs to support temporary accommodation for homeless TB patients with no recourse to public funds for the duration of their treatment



- agreement by CCGs to support London-wide Video Observed Therapy over several years for eligible patients especially those in USP groups and patients with MDR-TB
- workshops, at TB network level were held in London to connect TB teams with local organisations working with USPs to improve support to USP groups
- collaboration with PHE's London Alcohol, Drugs and Tobacco team led to the development and use of "Single Point of Contact – SPOC and MECCLink with information on local D&A services" for use by TB Services in London
- collaboration with London's Find and Treat team to support vulnerable TB patients
- collaboration with the London Joint Working Group (LJWG) in the development of route maps for TB and hepatitis C co-infections

### Strategic and partnership working

The London TBCB has increased its strategic and partnership working by:

- multiagency partnership working between clinical, public health, commissioning and third sector organisations, via TBCB and Clinical Leadership Group platforms
- development of 'future proofing' plans for TB nursing services for London
- held quarterly local TB cohort reviews in all 4 sectors, a regional MDR-TB cohort review is held 6-monthly and in 2019 updated London TB cohort review guidance was published
- regularly contributed to national and regional TB forums – London TBCB team have contributed to the following national task and finish groups: drug resistant TB, TB in USPs, BCG, the steering group for the national TB communications strategy and monthly national TB WGS relatedness review meetings
- active use of WGS by HPTs for TB cluster investigation
- developed a London wide SOP on the management of TB cases for Health Protection Teams
- run two audits of laboratory provision to TB services to identify gaps and areas for development and improvement
- Ensured marked improvement in access to IGRA tests and rapid molecular testing for TB services
- developed guidance for HPTs and TB Services to support management of hospital exposure incidents

### Latent TB testing and treatment for new migrants in London

26 eligible London CCGs are participating in the national LTBI testing and treatment programme with improvements in the numbers tested year on year.

In conclusion, TB control should remain a priority for London as it continues to have nearly double the national rate of TB and further reductions will require focused work with those communities at high risk of TB.

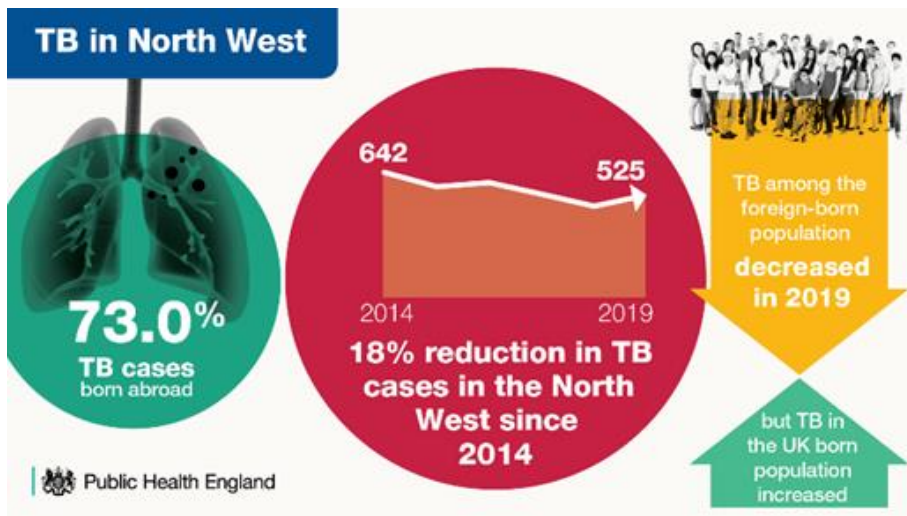


## North West TB Control Board

The North West TB Control Board, with system leaders, has worked collaboratively to address the complex issues and challenges across the North West. The Board ensures the quality of TB services in the North West through advocating for reducing variability of TB care provision and the delivery of high-quality services and standards.

In 2019, 525 people were notified with TB in the North West (18% reduction in cases since 2014).

**Figure 9: Numbers and percentages of TB cases in North West England**



As North West case numbers have fallen, the percentage of TB patients with complex social risk factors has remained unchanged. Tackling this inequality in health is a key focus for the Board.

In 2018, following a Board development day, regular ‘deep dive’ workshops were introduced as part of TBCB meetings. These provided members and invited stakeholders with an opportunity to focus on specific priorities in more depth, such as BCG, clinical networks and USPs.

**Summarised below are some of the outputs, outcomes and innovations delivered over the last 5 years by the North West TB Control Board.**

### Development of Clinical Alliances and Networks

The North West TBCB has considered the development of ‘clinical alliances’ across the 3 North West Localities to address the challenge of fewer but more complex TB cases whilst maintaining an expert and resilient workforce. To support this:

- a deep dive session showcased different network models from across England and led to recommendations for future action by North West Localities
- comprehensive workforce strategy reports were produced in 2018 to help inform workforce planning and work continues on the development of new ‘future proofed’ workforce models, including resilient TB nursing hubs

- ‘Cohort Audit’ has now taken place for 8 years across the North West, reviewing every case of TB. These have full engagement from North West TB services, helping quality improvement agendas and influencing best practice
- the TBCB Deep Dive workshop on BCG led to the development of exemplar models for the delivery and regular assurance of the section 7a programme to the Board. It has also strengthened links with the screening and immunisation leads and providers

### Established a Regional Paediatric TB network and a virtual paediatric TB clinic

The Regional Paediatric TB network consists of the following components – a virtual TB clinic, enhanced paediatric cohort review leading to an annual, national paediatric TB education event.

In 2017, a virtual paediatric TB clinic pilot was set up which linked remote paediatricians to a specialist paediatric centre in Manchester – this has improved the care and treatment outcomes of children in and around Manchester. In 2020, this acute service redesign was ‘highly commended’ in the Health Service Journal awards. Access to this service is now being expanded across the North West and it has been shared as a best practice exemplar with other TBCBs via the National TB Delivery Board.

### Reducing health inequalities and supporting the needs of USPs

In 2017, the North West TBCB held a conference to kickstart USP work in the North West. A subsequent deep dive workshop led to a North West USP resource with recommendations for each of the key under-served population groups. Examples of outcomes include:

- the development of agreed pathways and funded accommodation for those patients with no recourse to public funds
- the Board funded a homelessness case finding pilot in Manchester. This pro-active initiative to identify active TB cases using the London based ‘Find and Treat’ van demonstrated that it is possible to reach large numbers of homeless people, increase their TB awareness and that of the workforce that routinely works with them
- an extensive training and TB awareness raising programme for prison healthcare workers has been developed and implemented across every North West Prison. This has resulted in improvements in the identification and treatment of prisoners with TB reducing mortality, morbidity and potential onward transmission of TB

### Effective knowledge intelligence and communication

Development of a North West communications strategy and plan with the creation of an online platform open to all North West TB professionals on Knowledge Hub (KHub) and members of the TBCB has led to improved accessibility to key regional reports and information from cohort review and Board meetings for stakeholders. It has also improved links between professionals. In addition, the TBCB has developed locality-based TB profiles, infographics and signposting documents for local health systems to inform local priorities.

### Latent TB infection programmes

Systematic testing for latent TB infection was successfully implemented in 6 high incidence CCGs.

**TB awareness raising**

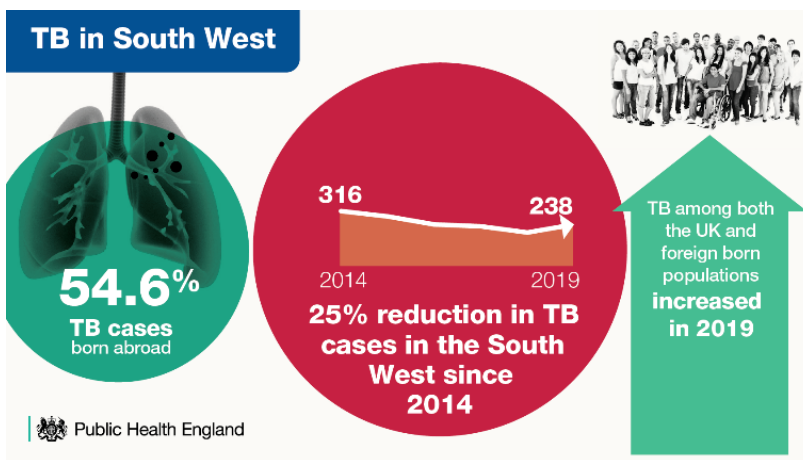
The North West TBCB introduced a ‘TB Pledge’ for World TB Day 2019. This initiative aimed to raise awareness of TB through the making of a pledge, photographing this pledge and circulating it on social media as well posting it up in TB clinics. The extensive work across the North West to raise awareness was adapted for use by the national TB Delivery Board and shared with all TBCBs.

**South of England TB Control Board**

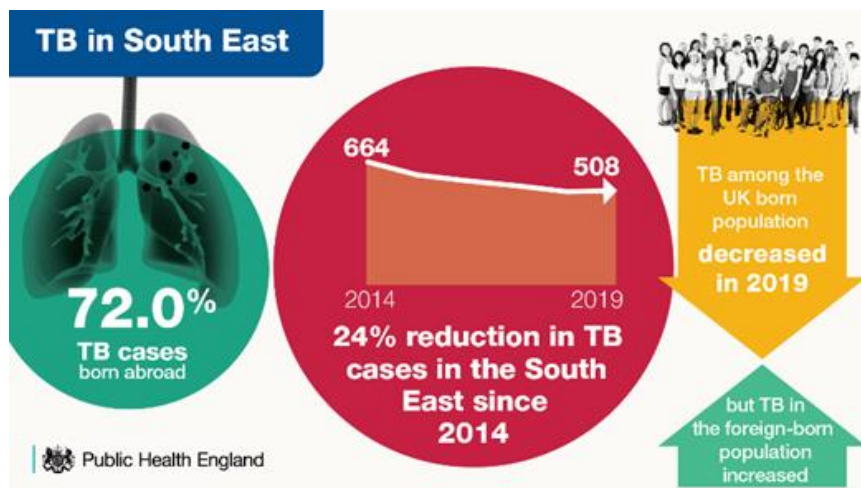
The South of England TB Control Board works across the South West and South East of England. Both areas are low incidence areas for TB. In the South of England, the TB Strategy is delivered through 7 TB networks (four in the South East and 3 in the South West). The work by TB networks with the support of TB Services, the TB Control Board and South East and South West PHE Centres is detailed below.

In 2019, 508 people were notified with TB in the South East (a 23% reduction in cases since 2014) and in the South West, 238 people were notified with TB (a 25% reduction since 2014). See the South of England infographics below for details.

**Figure 10: Numbers and percentages of TB cases in South West England**



**Figure 11: Numbers and percentages of TB cases in South East England**



**Summarised below are some of the outputs, outcomes and innovations delivered over the last 5 years by the South of England TB Control Board**

**Strategic and Partnership working**

The TBCB supported 7 comprehensive TB needs assessments across the South of England along with the development of local TB Action Plans. Findings were published and shared with local Directors of Public Health, with most embedded in local Joint Strategic Needs Assessment and Health and Wellbeing boards.

In 2019 PHE South West, in collaboration with Dorset CCG and local authorities, coordinated a multi-intervention day with the London based Find and Treat Service, local healthcare providers, charities and services to provide TB screening as well as other interventions, such as mental health and housing advice, for the rough sleeping and homeless community in Bournemouth. Over 100 people were screened for TB, 3 times more than anticipated, and many received and were linked to services. This has been shared nationally as an exemplar of good practice.

In 2017 and 2018, South East and South West PHE Centres separately conducted deep dives to assess excessive delays in TB treatment initiation, disseminating their findings and recommendations to decrease diagnostic delay.

The South East HPTs developed an SOP, along with a handbook, to standardise public health processes to responding and coordinating TB related incidents.

An on-line Service User Questionnaire, to gain the patient's perspective on their care, was developed and shared across the South and shared nationally via the TB Delivery Board. This has been used to improve local TB services in response to the replies received.

**Reducing health inequalities and supporting the needs of the under-served**

In 2017, an audit of TB and TB services in prisons and immigration removal centres was completed. This audit reviewed the prison and immigration removal centre organisational structures for TB, training, screening and follow up of prisoners with TB against national standards in NICE guidance. Findings were used to develop recommendations for key stakeholders including the NHS, prisons and community TB stakeholders.

Local clinicians, with the support of the TBCB, developed and shared widely an SOP for Video Observed Therapy (VOT) for the effective treatment of patients with active TB who would otherwise have been on DOT.

The TBCB developed guidance for providing accommodation to homeless TB patients. The document was designed to help stakeholders in the NHS, local government and CCGs understand the legislation around the provision of housing for homeless people including those with no recourse to public funds. This has led to better informed and consistent housing decisions for TB patients.

### Implementation of a latent TB infection testing and treatment programme

Systematic testing for latent TB was successfully implemented in 4 high incidence CCGs. In 2018, a formal evaluation of the new migrant LTBI programmes in the South East was conducted and the recommendations used to support further development of the programme.

In 2019, two LTBI screening pilots in prison facilities were conducted; the outcomes, once published, will be used to consider future provision of LTBI testing and treatment in prisons.

### TB training and educational events

With the support of the TBCB the South East PHE Centre ran 25 TB stakeholder events between 2017 and 2019. In October 2018, the South of England TBCB held its first TB education and networking symposium in Bristol: The TB paradigm shift: from control to elimination.

### TB awareness raising and communication

The South of England TBCB conducted a series of TB awareness raising campaigns which included:

- World TB Day events to raise awareness of TB and to acknowledge the work of frontline health and social care staff
- between 2016 and 2019 World TB Day was celebrated in different ways with key buildings in the South of England lit up in red and 'TB Pledges' made and shared on social media and around hospitals as posters
- a 'Think TB' campaign was launched across the South of England with letters sent to primary care providers to promote early detection of TB in primary care

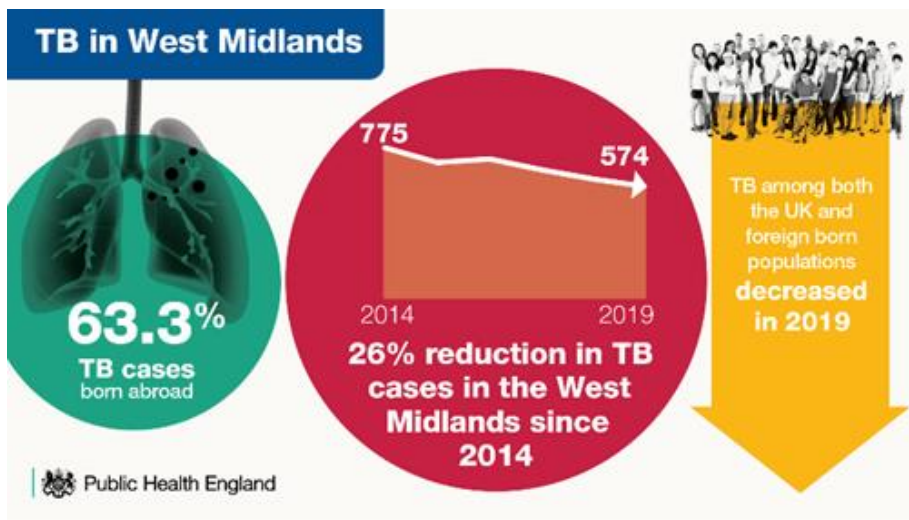
### West Midlands TB Control Board

The West Midlands TB Control Board built on its pre-Strategy Board with added stakeholders and system leaders to address the complex issues and challenges of TB in the West Midlands.

In 2019, 574 people were notified with TB in the West Midlands (a 26% reduction in cases since 2014).



**Figure 12: Numbers and percentages of TB cases in West Midlands**



The TBCB has worked to reduce the variability in TB care provision in the West Midlands by improving the quality of TB services and a programmatic focus supporting strategic and partnership working, the new entrant latent TB testing and treatment programme, TB educational events, programme quality/audits and reduction of health inequalities.

**Summarised below are some of the outputs, outcomes and innovations delivered over the last 5 years by the West Midlands TB Control Board.**

**Meeting the needs of USPs**

The West Midlands TBCB established a risk share arrangement between 4 high incidence CCGs to fund housing (for the duration of treatment) for complex homeless TB patients with no recourse to public funds. It developed a West Midlands framework for TB cases experiencing homelessness and the TBCB undertook a prison audit and from this developed a prison improvement plan, developing a network of West Midlands TB Link Nurses to support TB control activities in prisons and rapid referral pathways for early diagnosis.

**Strategic and Partnership Working**

Local TB activity was mapped against the National TB clinical policy to identify gaps in local delivery and networks. This led to the development of West Midlands TBCB priorities and an associated work plan which is reviewed annually. The West Midlands TBCB developed strong collaborative working arrangements to deliver its work plan objectives and strengthen relationships.

The TBCB supported the review and sharing of learning between HPTs and TB Services plus the establishment of TB networking arrangements. Examples include rapid review of incidents, direct support to network meetings and coordination of educational events.

A baseline workforce review was undertaken to understand capacity, demand and case complexity issues across the West Midlands. This led to a wider workforce report which has

supported local networks work with commissioners and managers with the aim to future proof services.

The TBCB also developed a West Midlands guidance document to support partners in securing accommodation for homeless TB cases.

### Implemented a latent TB infection testing and treatment programme

The TBCB has supported the implementation of LTBI programmes for the 6 eligible, high burden CCGs and developed with the regional West Midlands NHSE&I LTBI programme an assurance process.

### Clinical Services and Programme Audit

To support clinical service and programme audit the TBCB:

- established and supported cohort review across all TB Services and shared a set of indicators to support quality improvement
- supported the establishment of regional specialist cohort review including an annual West Midlands paediatric TB cohort review and clinical network meeting
- supported development of commissioned TB Services in specific areas
- completed a diagnostic audit to improve access to diagnostic services
- is working to improve investigation, response and management of TB incidents and outbreaks using WGS

### TB awareness raising and educational events

The TBCB has supported the delivery of multiple learning / educational events for TB stakeholders in the West Midlands including a TB Summit on USPs in February 2017, a TB Commissioners Workshop in June 2017 and LTBI workshops in April 2018 and November 2019.

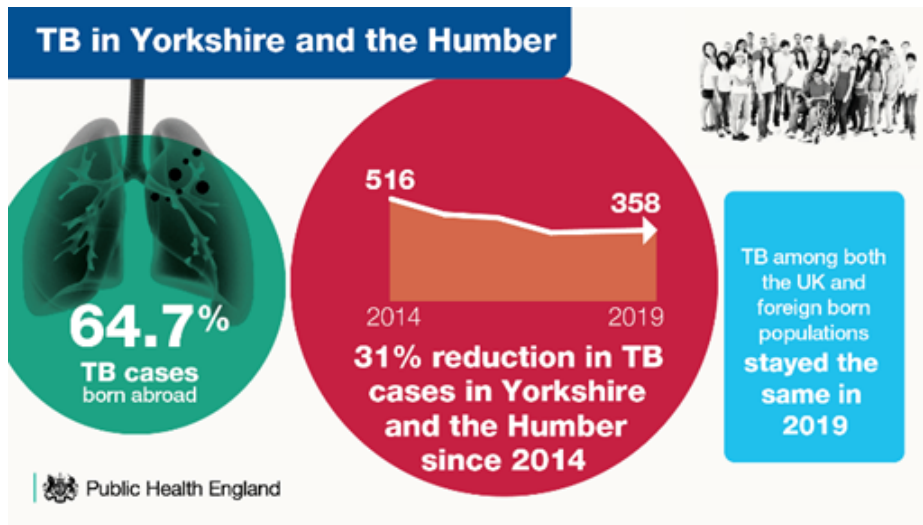
## Yorkshire, Humber and North-East TB Control Board

The Yorkshire, Humber and North East TBCB is focussed on delivering strategic and partnership working, latent TB infection testing and treatment, TB awareness raising and educational events, programme quality audits and local action to reduce health inequalities for USPs.

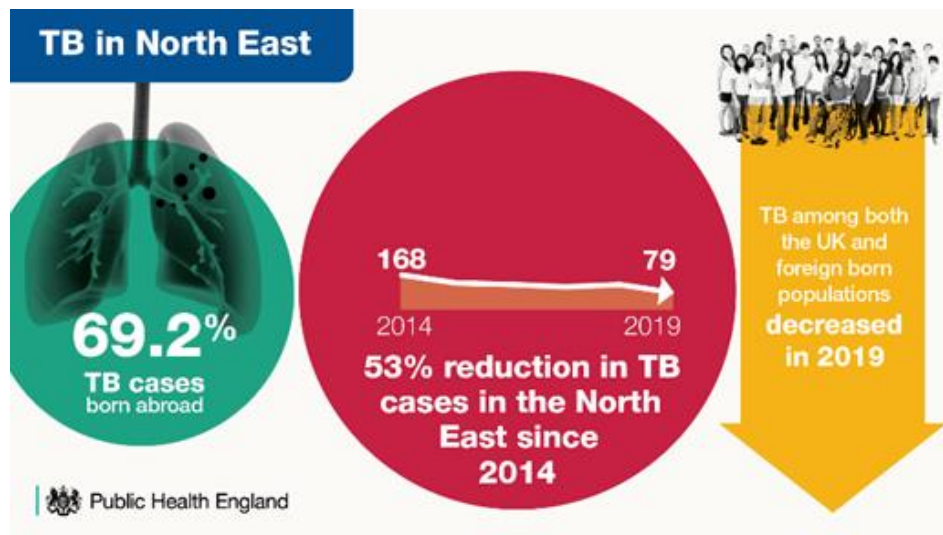
In 2019, 358 people were notified with TB in Yorkshire and Humber (a 31% reduction in cases since 2014) and in the North East, 79 people were notified (a 53% reduction since 2014). See the infographics below for details.



**Figure 13: Numbers and percentages of TB cases in Yorkshire and Humber**



**Figure 14: Numbers and percentages of TB cases in North East England**



Summarised below are some of the outputs, outcomes and innovations delivered over the last 5 years by the Yorkshire, Humber and North East TB Control Board.

*Strategic and Partnership Working*

**TB commissioning:** A gap analysis was undertaken at CCG level against the national TB clinical policy to assess the status of TB commissioning in the region. A report was presented to the TBCB outlining issues which were followed up with CCGs.

**Clinical guidance:** Following concerns raised about the NICE TB Guidance NG33, regional guidance was produced by the TBCB clinical advisory subgroup to support TB services.

**North East TB Network:** In 2017, the North East set up a TB network to link clinicians, TB nurses, commissioners, local authorities and other partners. The network meets twice a year for a business and management meeting which includes a CPD component.

**TB Nurse Forums:** 2 forums were established, one in the North East one in Yorkshire and Humber. These are well attended and have an educational session after each meeting.

**TB multi agency networks:** TB networks chaired by the local authority public health lead are in place in all high incidence areas and some low incidence areas. These groups include TB nurses, hospital consultants, CCGs, PHE, microbiology and others as appropriate.

**Paediatric TB Network:** This was established in 2018 and has facilitated events with CPD and networking opportunities.

**TB Clinical Networks:** Three TB clinical networks in Yorkshire and the Humber were established in 2019 in response to feedback from stakeholders. All clinical staff involved in the diagnosis, management, and control of TB in the network area are members. The role of these networks is to share information on best practice, new and emerging technologies, clinical guidelines and discussion of challenging cases, agree a rolling programme of cohort review, support clinicians to establish and maintain formal MDT structures, strengthen local pathways to improve patient care and facilitate regular CPD sessions.

### Delivery of the latent TB infection testing and treatment programme

The Y&H LTBI testing and treatment programme began in April 2016 and has achieved and often exceeded its targets, increasing testing activity each year. In 2017, an evaluation was carried out to review initial implementation of the LTBI programme. This contributed to the appointment of a dedicated project manager in 2018 funded by NHSE&I. The post holder has further developed a strong local LTBI programme across the region.

### Reducing health inequalities and supporting the needs of under-served populations

**Prison scoping:** A scoping exercise was undertaken in 2019 with TB services and prison healthcare to share good practice as well as to identify issues of concern. The report made recommendations which have informed the regional TBCB action plan.

**A directory for patients with no recourse to public funds (NRPF):** In 2019, a directory was produced to support local authorities and CCGs develop local pathways to support patients with NRPF and several local authorities have developed their own local pathways.

### Programme Quality Audit and Assessment

**Diagnostics audit:** Following the national audit in 2016, Y&H worked with laboratories in 2018 to update their information to improve coverage completeness. The TBCB then wrote to all Trust CEOs to request assurance regarding any laboratory concerns.

**Workforce audits:** Carried out in 2016 and 2018. The 2018 audit included a scoping of service models, service provision, business continuity arrangements, succession planning and professional development opportunities.

**Y&H MDR-TB needs assessment 2015:** Outlined local specialist provision and demand and pathways for dealing with demand and relevant local incidents. The outcome resulted in a new negative-pressure facility being commissioned in East Yorkshire.

**TB awareness raising, communication and educational events**

**Stakeholder bulletins** have been produced twice a year since December 2015, and shared with TB teams, commissioners, local authorities and stakeholders.

**Regional educational events** have been held annually with good attendance and have covered under-served populations, an LTBI stakeholder event, an MDR-TB CPD, a clinical guidance event to mark the release of the regional guidance in 2017 and paediatric network events.

## Annexe 2: Glossary

### **Cohort review**

The systematic review of all TB cases notified by a TB Service in a 3 to 4-month period, to review outcomes for those patients including treatment completion and number of contacts screened.

### **Contact tracing**

Contact tracing is undertaken after notification of an active case of TB to find associated active TB cases, to detect people infected but without evidence of disease (latent infection) and to identify those not infected and for whom BCG vaccination may be appropriate.

### **Directly observed therapy (DOT)**

A trained health professional or designated responsible person supported by a trained health professional, provides the prescribed medication and observes the patient swallowing every dose.

### **Elimination of TB**

Less than one case per million people per year.

### **Enhanced case management (ECM)**

The package of care provided when a patient has clinically or socially complex needs. Enhanced case management commences as soon as TB is suspected. It may include DOT in conjunction with a package of supportive care tailored to the patient's needs.

### **Extensive drug resistance (XDR) TB**

XDR-TB is defined as resistance to at least isoniazid and rifampicin (MDR-TB), one injectable agent (capreomycin, kanamycin or amikacin) and one fluoroquinolone.

### **Extra-pulmonary TB**

TB of organs other than the lungs (for example, pleura, lymph nodes, abdomen, genitourinary tract, skin, joints and bones, meninges).

### **Latent TB infection (LTBI)**

Latent TB is when a person has the TB bacteria in their body, but they do not show any disease or symptoms, that is, the bacteria are inactive. There is a chance that the bacteria may reactivate and cause TB disease in the future.

### **Multi-drug resistance (MDR-TB) TB**

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

## **Pulmonary**

A pulmonary case is defined as a case with TB involving the lungs and/or tracheo-bronchial tree.

### **TB clinical networks**

Local TB clinical networks can provide the following functions:

- a forum to share and discuss local TB services, TB management, good practice and innovation
- facilitate local treatment centre MDTs
- set up and co-ordinate network/regional MDTs to allow all complex or MDR-TB cases to be discussed with participation of all local treatment centres and a designated MDR-TB centre - this will include agreement on prescriptions of centrally funded MDR-TB drugs by a regional MDT
- facilitate cohort review meetings
- ensure that all local services reach a minimum standard of care, through audit, cohort review, regular sharing of good practice and local expertise and benchmarking against national standards
- provide a coordinated structure to inform NHSE&I, PHE and other national organisations of local demographics and pressures on individual services, for example, changes in migration patterns, prison services, college overseas recruitment
- report to the TB Control Board and advise on successes and/or local issues in service provision or facility

### **Under-served populations**

This term is used to denote individuals previously referred to by NICE and others as ‘hard-to-reach’, and refers to individuals whose social circumstances, language, culture or lifestyle (or those of their parents or carers) make it difficult to recognise the clinical onset of TB, access diagnostic and treatment services; self-administer treatment (or, in the case of children and young people, have treatment administered by a parent or carer); or attend regular appointments for clinical follow up. The term under-served emphasises the responsibility of commissioners and service providers to understand and meet the needs of this population.

### **Whole genome sequencing**

The determination of the sequence of most of the DNA content comprising the entire genome of the TB mycobacteria. It can help understand the molecular relationships between different mycobacteria isolates and potential transmission events and enable earlier detection.

## Annexe 3: List of Abbreviations

The following abbreviations are used throughout this document.

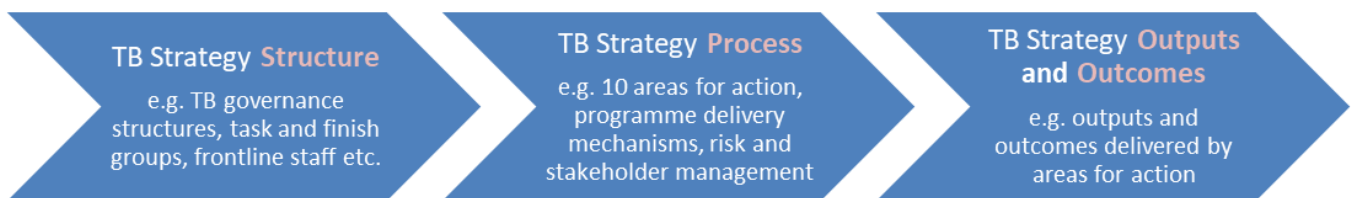
BCG	Bacille Calmette Guérin vaccine
CCG	Clinical Commissioning Group
DOT	Directly observed therapy
ETS	Enhanced tuberculosis surveillance
ICS	Integrated Care System
LTBI	Latent Tuberculosis infection
LTBR	London Tuberculosis Register
MDR-TB	Multi-drug resistant TB
MDT	Multi-disciplinary team
NICE	National Institute for Health and Care Excellence
NHSE&I	NHS England and NHS Improvement
NIS	National Infection Service
NTBS	National TB Surveillance System
PHE	Public Health England
SNP	Single nucleotide polymorphisms
SRF	Social Risk Factor
STPs	Sustainability and transformation partnerships
TB	Tuberculosis
TBCB	TB Control Board
VOT	Video Observed Therapy
WGS	Whole Genome Sequencing
XDR-TB	Extensively drug resistant tuberculosis

## Annexe 4: Analytic framework used to prepare this End of Programme Report

In writing this End of Programme Report, we adopted and adapted, the Donabedian conceptual model that provides a framework of (structure, process, output and outcomes) to report and summarise how the Collaborative TB Strategy was setup, implemented and what outputs and outcomes had resulted from its implementation from January 2015 to March 2020.

The Donabedian framework (6) is most often represented by a chain of boxes containing structure, process and outcome. See Figure 15 for an adapted Donabedian framework used to summarise how the Collaborative TB Strategy was implemented and delivered.

**Figure 15: Adapted Donabedian framework**



The above framework represents 3 types of information that may be collected in order to draw inferences about the quality of a programme in a given system. We adopted the above framework to report on the Collaborative TB Strategy as described below:

**Structure:** describes the context in which the Strategy was delivered, including establishment of a new national governance structure, regional TB Control Board structures, financing, and the human resources used to guide and support implementation of the Collaborative TB Strategy, including TB Control Board stakeholders and frontline staff that drove operational delivery of the Strategy (see page 5).

**Process:** describes all the activity undertaken to deliver the Strategy’s 10 ‘areas for action’. In addition to describing the ‘areas for action’, we also describe programme challenges and mechanisms for receiving programme feedback to improve programme delivery (see Ch 3).

**Output and outcomes:** describe programme outputs and outcomes achieved during the process of implementing the Collaborative TB Strategy.



## Annexe 5: References

1. Public Health England and NHS England. Collaborative TB Strategy for England, 2015 to 2020
2. Public Health England. (2020) Tuberculosis in England: 2019
3. PHE Infectious Diseases Strategy 2020 to 2025
4. World Health Organisations (WHO) End TB Strategy
5. All-Party Parliamentary Group on Global Tuberculosis. March 2019. Ending Tuberculosis in England Accelerating progress of the national TB response
6. A model for measuring quality care - NHS Improvement

# About Public Health England

Public Health England exists to protect and improve the nation's health and wellbeing, and reduce health inequalities. We do this through world-leading science, research, knowledge and intelligence, advocacy, partnerships and the delivery of specialist public health services. We are an executive agency of the Department of Health and Social Care, and a distinct delivery organisation with operational autonomy. We provide government, local government, the NHS, Parliament, industry and the public with evidence-based professional, scientific and delivery expertise and support.

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