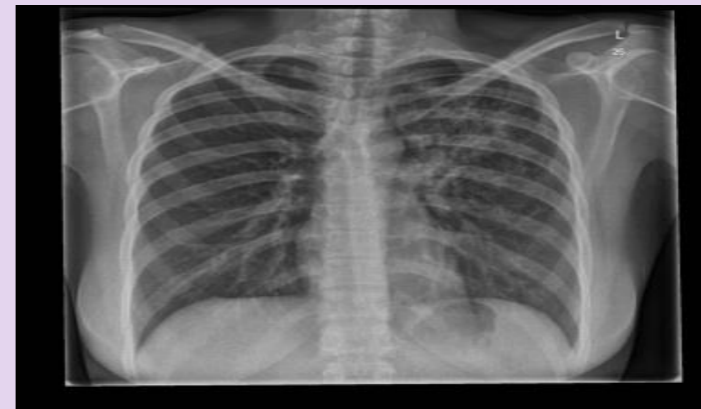
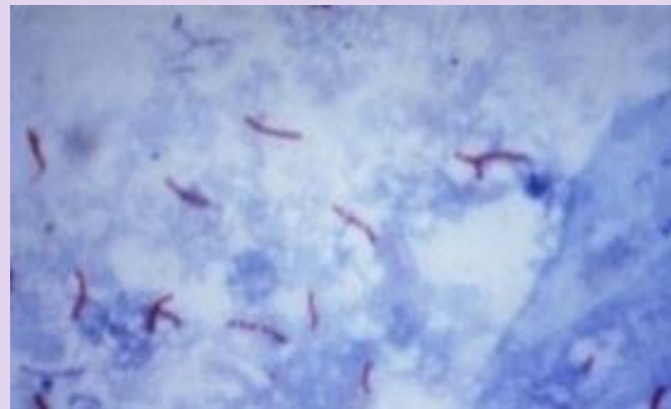


# Managing Tuberculosis Today

**NICE**  
National Institute for  
Health and Care Excellence



**Hanna Kaur - TB Lead Nurse Specialist**  
**BIRMINGHAM & SOLIHULL TB SERVICE**

**Tel: 0121 424 1935**

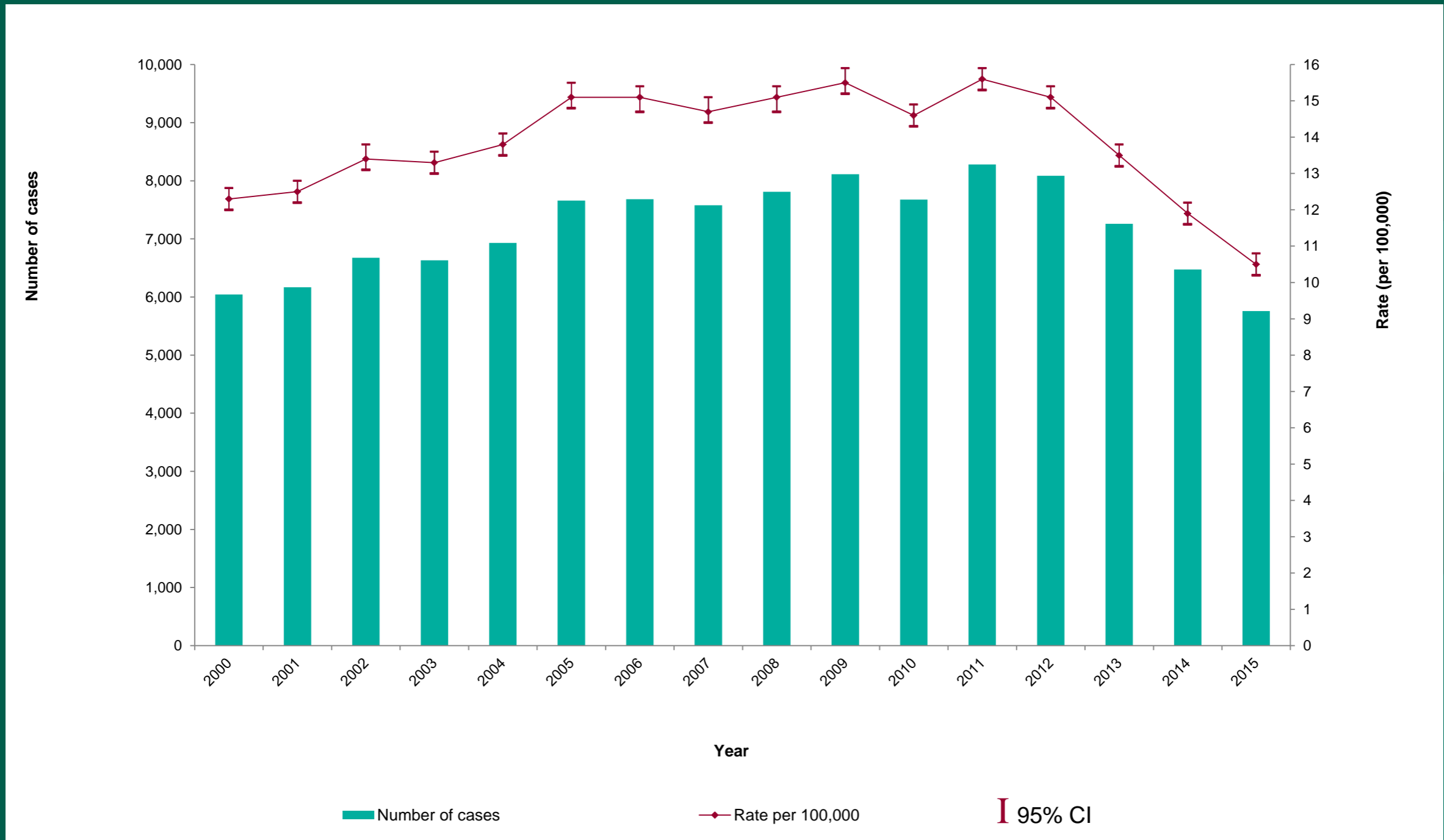
**E-mail: [hanna.kaur@nhs.net](mailto:hanna.kaur@nhs.net)**

## **OUTLINE:**

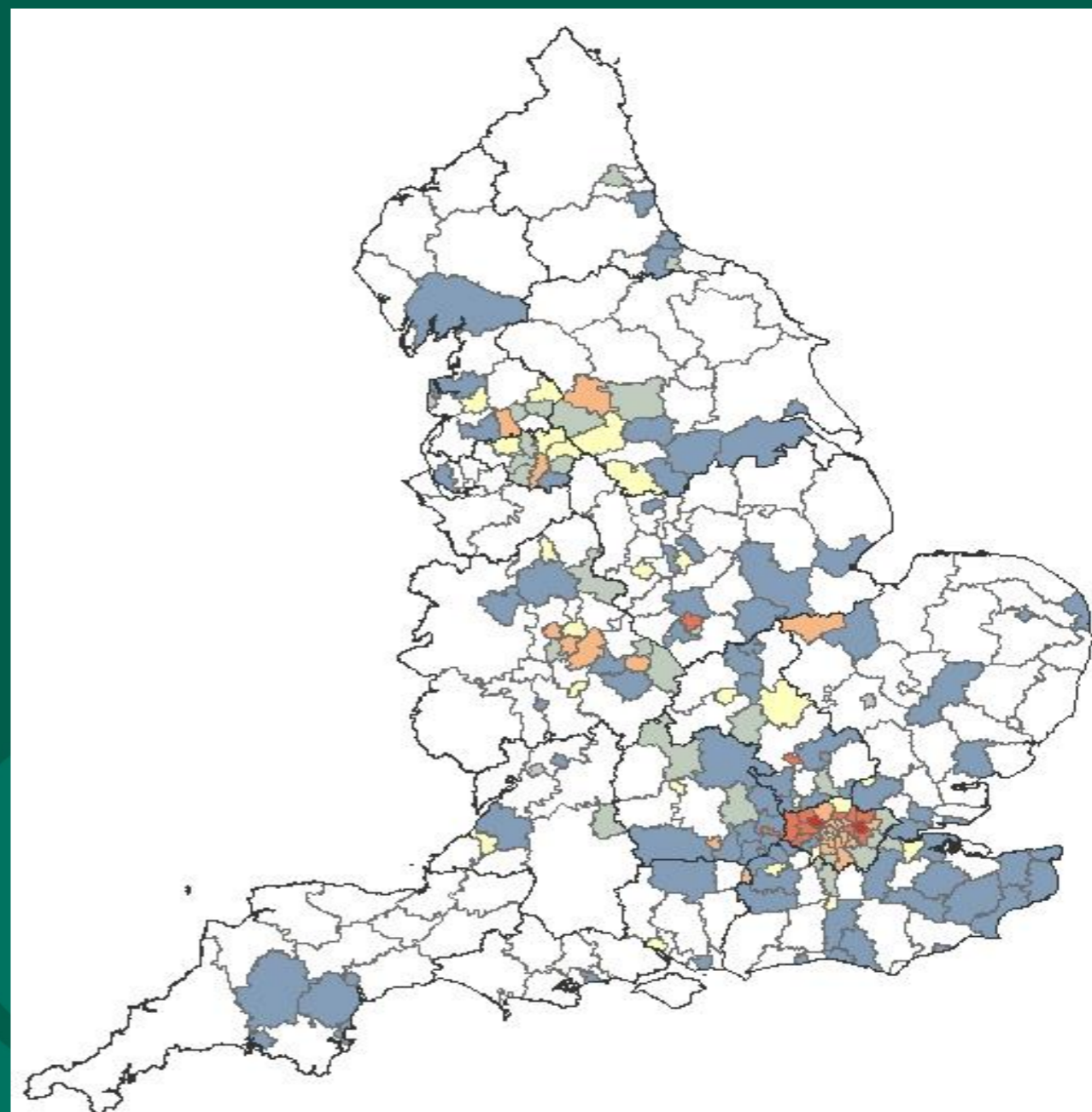
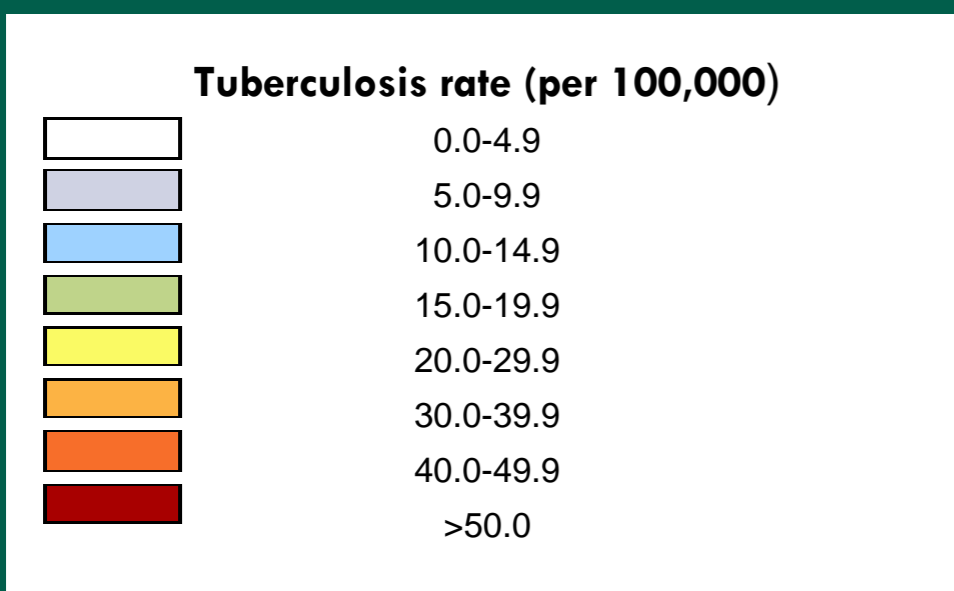
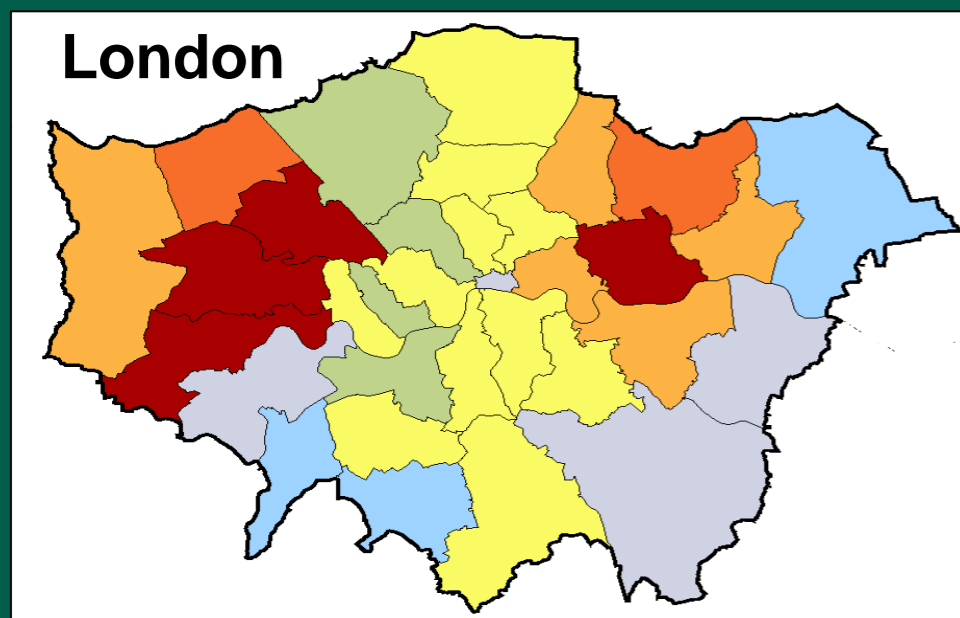
- **Epidemiology – in Brief (PHE Slides)**
- **TB and Diagnosis (Active and Latent)**
- **TB Pathway – Case Scenarios**
- **Contact Tracing – Screening (NICE 2016)**
- **BCG Programme**
- **Incident Management**
- **TB Service**
- **Update on The Collaborative TB Strategy: - Public Health England and NHS England 2015**

# TB Case Notifications and Rates, England, 2000-2015

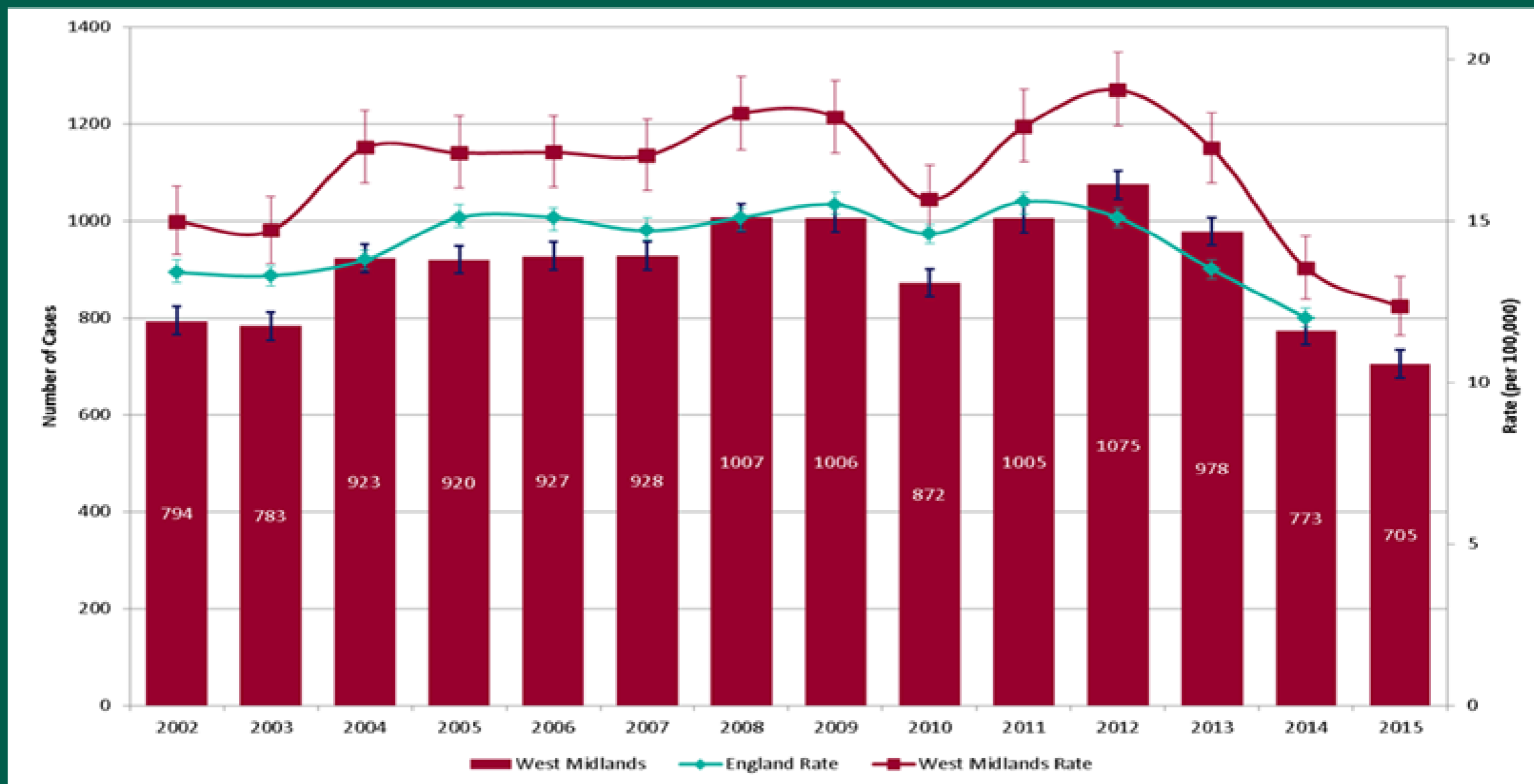
## Tuberculosis in England: 2016 Report



# Three-year average TB rates by local authority district, England, 2013-2015



# Tuberculosis Cases and Rates in the West Midlands England, 2002 to 2015



\*Data for 2015 for England is not yet available and data for the West Midlands is provisional.

Note: 2013 mid-year population estimates from the Office of National Statistics (ONS) were used to calculate rates.

Data sources: Enhanced Tuberculosis Surveillance (ETS) downloaded on 12 March 2016.

Prepared by: [chanice.taylor@phe.gov.uk](mailto:chanice.taylor@phe.gov.uk) Field Epidemiology Service (Birmingham), Public Health England



Building **healthier** lives

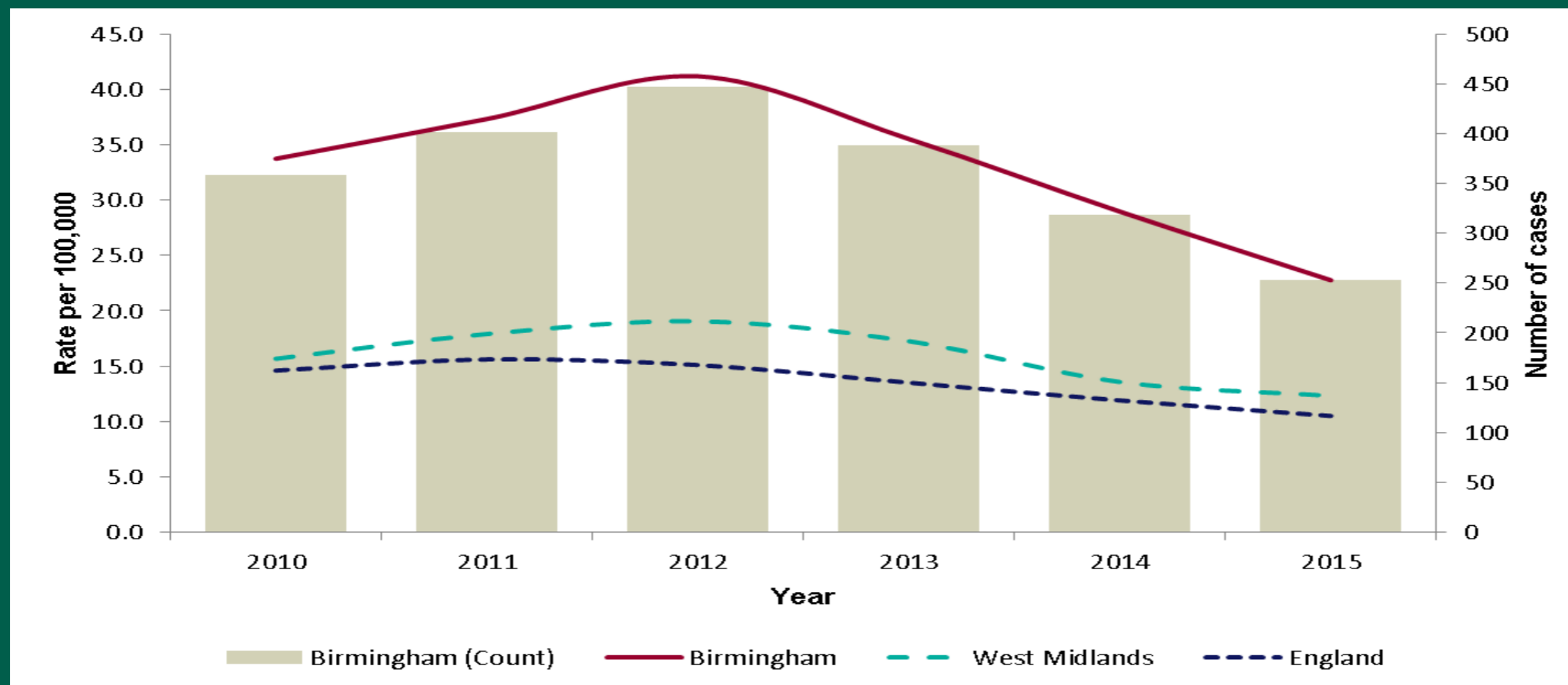
Heart of England

NHS Foundation Trust



# Tuberculosis in Birmingham Average 350 Notifications Annually

Numbers and rates of TB in Birmingham, the West Midlands and England, 2010-2015



- In recent years, Birmingham has accounted for the majority of cases in the West Midlands; in 2015 35% of cases were Birmingham residents.
- The rate in Birmingham has consistently been higher than both the West Midlands and England, however there has been a year on year decrease since 2012. The rate in 2015 was 22.8 per 100,000.
  - 68% of cases were born outside of the UK.
- 13% of cases in Birmingham had at least one social risk factor (homelessness, imprisonment, drug use or alcohol abuse).

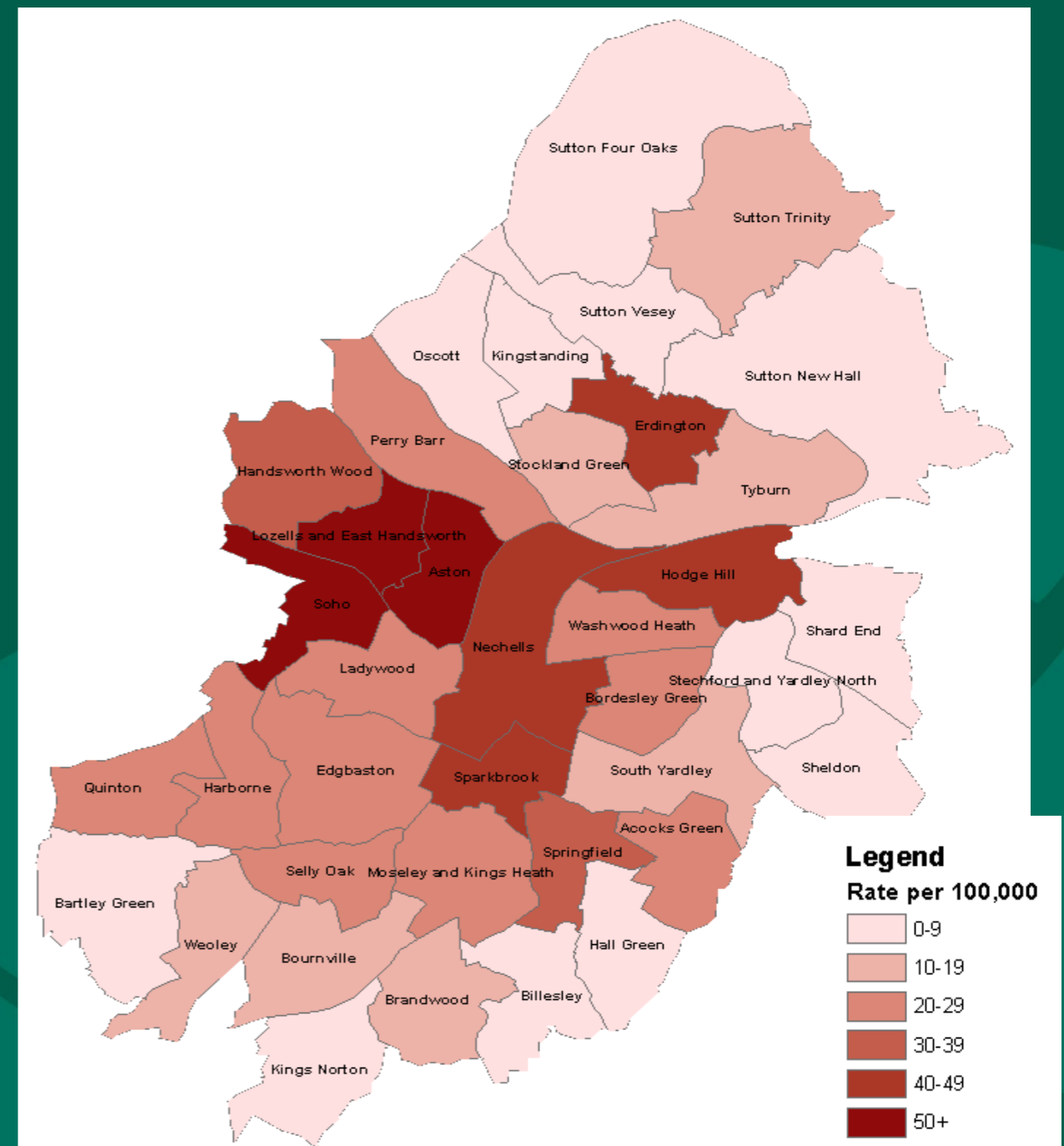


# Tuberculosis in Birmingham:

## Average Contacts Screened Per Year: 2500

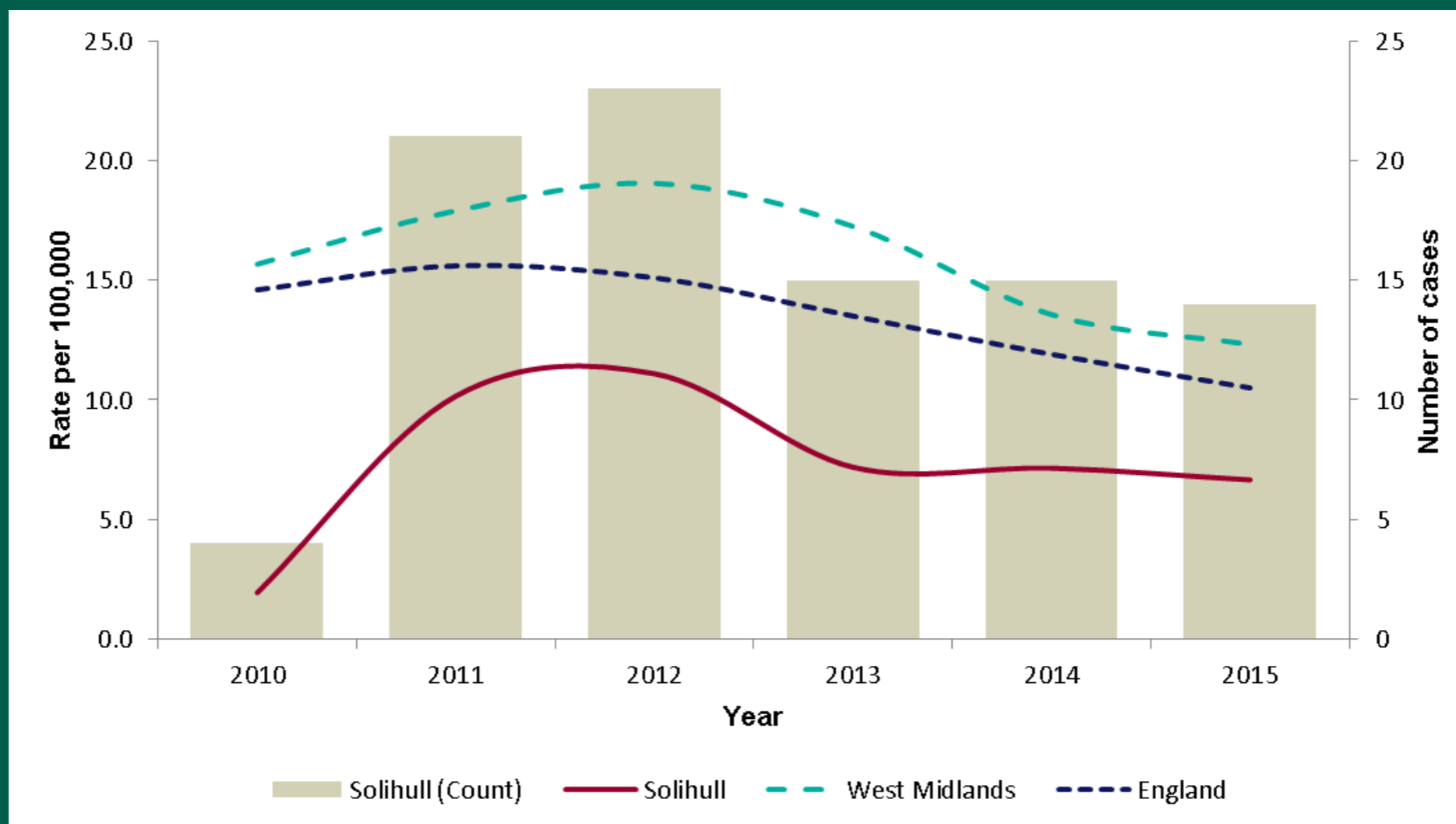
### Rate of TB in Birmingham by Ward, 2015

- The rates in Birmingham varied by electoral ward, with areas showing some of the largest and smallest rates in England.
- The highest rates were seen Lozells and East Handsworth, Soho and Aston (65.3, 59.7 and 54.3 per 100,000 respectively).
- 76% of cases in these three high incidence areas were born outside of the UK.
- The lowest rates were seen in Bartley Green, Sutton Four Oaks and Sheldon (3.9, 4.1 and 4.5 per 100,000 respectively).



# Tuberculosis in Solihull

## Numbers and rates of TB in Solihull, West Midlands and England, 2010-2015



- In 2015, as in recent years, the incidence rate in Solihull has been lower than both the West Midlands and national average.
- In the past three years the rate in Solihull has remained relatively stable (range: 6.7-7.2 per 100,000).
  - 62% of cases were born outside of the UK and there with no cases with social risk factors.
- Six of the 14 wards in Solihull had no cases of TB. The highest rates were seen in Shirley West (25.0 per 100,000), Shirley South (16.0) and Knowle (9.2).



**BIRMINGHAM & SOLIHULL TB SERVICE:**

**LATENT CASES - 2010 - 2016 (to date)** Data: Dendrite/Birmingham & Solihull



# Proportion of TB Cases with at least One Social Risk Factor\*, England, 2010-2015



# Tuberculosis (Active):

Tuberculosis, or TB, is an Infectious Bacterial Disease caused by *Mycobacterium Tuberculosis* (MTB), which most commonly affects the Lungs, but can affect Any Part of the Body.

It is Transmitted from Person to Person via Droplets from the Throat and Lungs of People with the Active Pulmonary Disease.

<http://www.who.int/topics/tuberculosis/en/>



## **Sites of Disease:**

- **Central Nervous System: usually occurs as Meningitis, but can occur in Brain or Spine**
- **Miliary: occurs when Bacilli spread to all parts of the body; rare, but fatal if untreated**
- **Lymph Nodes (Neck and Axilla)**

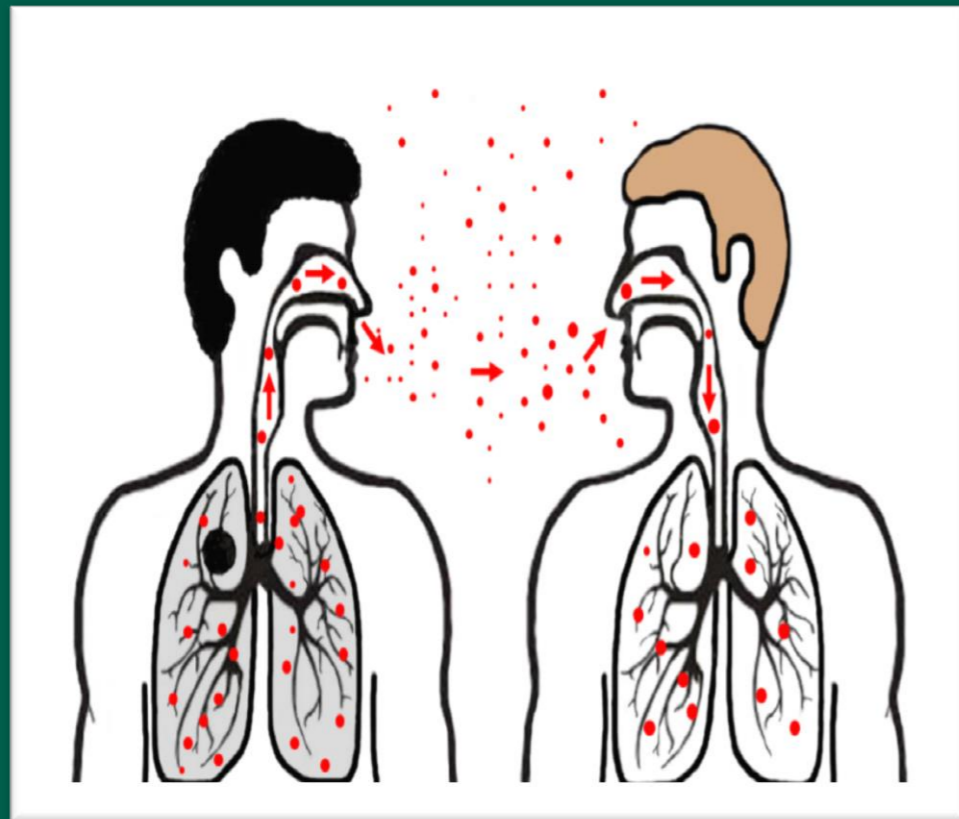


# Pathogenesis



A small number of tubercle bacilli enter the bloodstream and spread throughout the body. The tubercle bacilli may reach any part of the body, including areas where TB disease is more likely to develop (such as the brain, larynx, lymph node, lung, spine, bone, or kidney).

# Probability TB Will Be Transmitted:



- **Susceptibility of the exposed person**
- **Infectiousness of person with TB (i.e., number of bacilli TB patient expels into the air)**
- **Environmental factors that affect the concentration of *MTB* organisms**
- **Proximity, frequency, and duration of exposure (e.g., close contacts)**
- **Can be transmitted from Children, though less likely**



# **TB Signs and Symptoms:**

## **Pulmonary:**

- **Cough – more than 3 weeks**
- **Loss of Appetite / Weight Loss**
- **Fever – more than 3 weeks**
- **Night sweats**

## **Extra-Pulmonary:**

**?SiteLymph Nodes: Swelling**

**Brain / CNS: Headache / Confusion**

**Spine: Pain / deformity / disability**

# Diagnosis of Tuberculosis: Active

- Microbiology of pathological samples - discharged pus or biopsy material / FNA

## Sputum Culture

- Histopathological pattern of Inflammation
- Radiographic Image
- Tuberculin Skin Testing (TST) / Interferon-gamma release assay (IGRA)
- Clinical Diagnosis



## **Latent TB:**

**Latent tuberculosis infection (LTBI), defined as a state of persistent immune response to prior-acquired Mycobacterium tuberculosis antigens without evidence of clinically manifested active TB.**

**It affects about one-third of the world's population. Approximately 10% of people with LTBI will develop active TB disease in their lifetime.**

**The majority develop the disease within the first five years after initial infection.**

**Currently available treatments have an efficacy ranging from 60% to 90%.**

**Guidelines on the Management of Latent Tuberculosis Infection , World Health Organisation, 2015.**

# **Why Screen for Latent TB?**

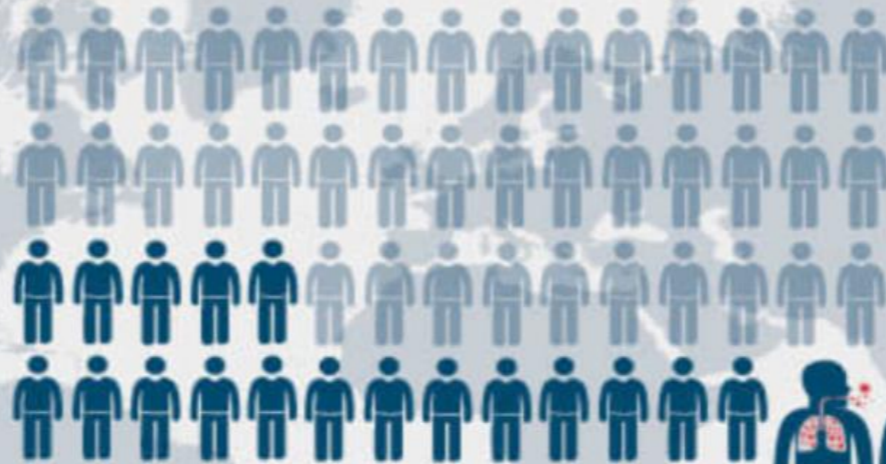
**Systematic testing and treatment of LTBI in at-risk populations is a critical component of WHO's eight-point framework adapted from the End TB Strategy to target pre-elimination and, ultimately, elimination in low incidence countries.**

**Guidelines on the Management of Latent Tuberculosis Infection , World Health Organisation, 2015**



# Risk of infection with tuberculosis

  
**1/3rd**  
of global population are  
infected with tuberculosis



  
**10%**  
will go on to develop  
active tuberculosis



Have silicosis



Malnourished



Using tobacco



Immigrant from  
high TB area



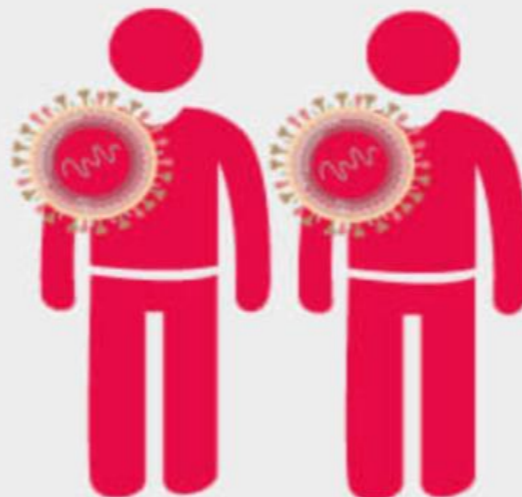
Recent contact  
with an infectious  
patient



Receiving organ  
or hematologic  
transplant



People at  
greater risk



People at  
greater risk



Homeless



Receiving  
dialysis



Illicit drug user



Diabetic



HIV positive



In prison

Source: World Health Organisation  
Credit: Rebeccah Robinson

# **Persons with weak immunity at increased risk of progressing to TB disease:**

- **Untreated HIV infection highest risk factor: risk of developing TB disease is 7%–10% *each year*;**
- **Children <5 years of age are at increased risk**
- **Aim of LTBI Screening / Treatment is to prevent progression to TB Disease**



## LTBI vs. TB Disease

### Person with LTBI (Infected, but not Infectious)

- Has a small amount of TB bacteria in his/her body that are alive, but inactive
- Cannot spread TB bacteria to others
- Does not feel sick, but may become sick if the bacteria become active in his/her body
- Usually has a TB skin test or TB blood test reaction indicating TB infection
- Chest X-ray is Normal
- Sputum smears and cultures are negative
- Will be offered Treatment for LTBI to prevent TB disease
- Does not require respiratory isolation
- Not a TB case – Latent Cases Not Notified – but Recorded Locally

### Person with TB Disease (Infectious – if in the Lungs)

- **Has a large amount of active TB bacteria in his/her body**
- **May spread TB bacteria to others**
- **May feel sick and may have symptoms such as a cough, fever, and/or weight loss**
- **Usually has a TB skin test or TB blood test reaction indicating TB infection**
- **Chest X-ray may be Abnormal, or other Scan**
- **Sputum smears and cultures may be positive**
- **Needs treatment for Active TB disease**
- **May require respiratory isolation**
- **A TB case – for Notification**

# Patient Pathway:

Referral to TB Consultant (various routes: GP, screening, Rapid Access, Direct)



Investigations (CXR, Sputum, Bronch, Biopsy)



TB Clinic (Dr) / Initial Appointment: Diagnosis / Start ATT, FBC/ U&E's / LFT's / HIV / Vitamin D



TB Specialist Nurse: Assessment: Diagnosis, ATT: Dosage / Side-effects, Visual Acuity, Risk Assessment for Compliance / DOT, Contact Details / Leaflets, Contact Screening, Occupation (Risk Assessment), Report Case to PHE

.....cont... Patient Pathway:

Notification: TB Register / ETS (3 working days)



2 Week Follow-up by Dr & TB Nurse: Assess Clinically, Check Tolerance / Compliance / Interactions / Side-effects



Nurse follow-up (Assessment) – 4 Weekly Home Visits / Enhanced Case Management / DOT



Follow-up at 2mths: Dr & Nurse: Repeat CXR, Check Sensitivities, Assess Compliance, Tolerance, Up-date ETS

# .....cont... Patient Pathway:

**Nurse follow-up (Assessment) – 4 Weekly Home Visits /  
Enhanced Case Management / DOT**



**Incident Follow-up / Results / Report**



**6mth Clinic Follow-up (?9mth-1yr ATT) Treatment  
Completed / CXR / Advise on Relapse / Update Database**



**Present Case at COHORT REVIEW**

# Treatment – Active TB:

- 6 months oral antibiotic treatment:
- First 2 months, 4 antibiotic drugs are used
- Isoniazid, Rifampicin, Pyrazinamide (Rifater) & Ethambutol
- Then 2 antibiotics for 4 months - Isoniazid, Rifampicin
- Treatment ?9 to 12 months if TB is CNS or Bone



# Drugs Side-effects:

## Common side effects:

Nausea / Vomiting / Pruritus / Rash / Tiredness / Joint Pains

## Less Common

Peripheral Neuropathy / Gout / Drug induced hepatitis / Acne / Menstruation

## Rare

Vision Problems / Hearing Loss / Psychosis



## **MDR-TB / XDR-TB:**

- **TWO Years if it is Drug Resistant TB**
- **Treated with 6 drugs one of which should be injectable for 6 months**
- **Amikacin / Capreomycin/ Streptomycin**
- **Prothionamide, Cycloserine, PAS, Moxifloxacin, Clarithromycin,**

# BTS MDR-TB Service

British Thoracic Society

<http://forums.britthoracic.org.uk/>



**BTS**  
**MDRTB**  
Clinical Advice  
Service

New Drugs:  
**Bedaquiline and  
Delamanid**

# Treatment for Latent TB:

- All Children younger than 2 years of age – close contact with PTB – Referred to Specialist Pediatrician for Prophylaxis, following screening- risk of developing Active TB
- Asymptomatic, Positive TST (5mm or larger is +ve – regardless of BCG history) and or IGRA
- HIV Testing (New Guidelines)

## Treatment as per Local / Nice Guidelines:

- 3 months of Rifinah (Rifampicin and Isoniazid) or 6 months of Isoniazid with Pyridoxine

# What is Case Management?

Case management is described as ‘the process of planning, co-ordinating and reviewing the care of an individual’.

It is ‘a collaborative process of assessment, planning, facilitation, care coordination, evaluation, and advocacy for options and services to meet an individual’s and family’s comprehensive health needs through communication and available resources to promote quality cost-effective outcomes’.

Kings Fund 2011

# Working with Families:

- **Information about the Disease (Leaflets)**
- **Infectiousness**
- **Assurance**
- **Screening – Importance**
- **Public Health Issues (patient's work place / school / college etc.)**
- **Support available**
- **Monitoring Compliance & Supporting Adherence**

# **Direct Observed Therapy (DOT):**

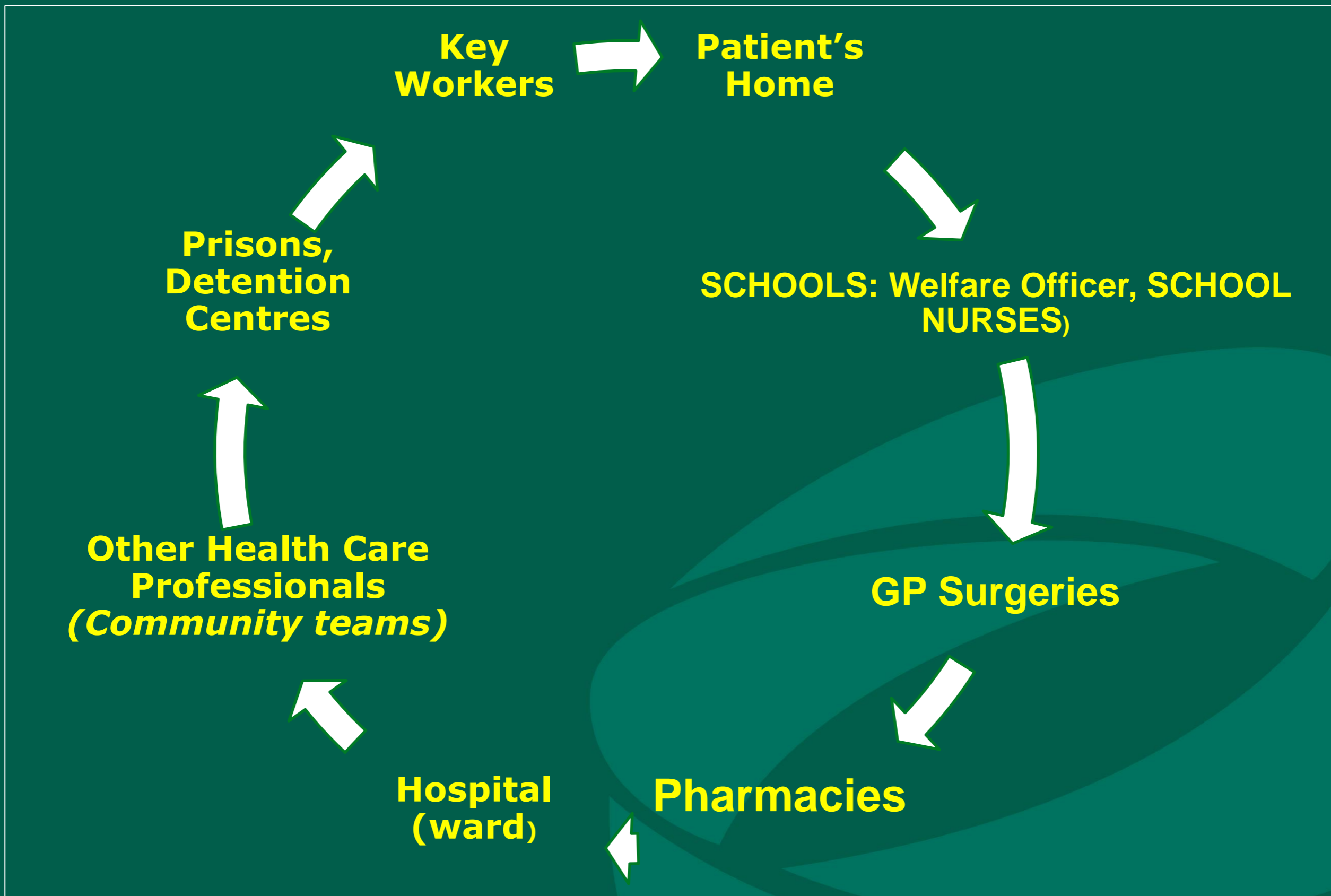
**Witnessing of The Correct Dosage of TB Medicines Taken By The Patient.**

## **Risk Assessment for Adherence / Compliance.**

- **Social Risk Factors (homelessness, substance and alcohol misuse)**
- **MDR, History of Previous TB**
- **Safeguarding Concerns**
- **Other Siblings in the Household on Treatment**
- **Parents – History of Non-Compliance**
- **Previous History of LTBI**
- **Housing Issues**

**Virtual Observed Therapy (Adults only): Research TB Reach (University College of London)**





# Case Scenario: A Little Hx.

- Patient Mr PS, 26y old male
- Came to UK in 2012 - Student Visa - from India
- Developed addiction to crack cocaine
- Admitted to a hospital within the region in June 2013, Symptomatic 3 Months

# A Little Hx.

- Diagnosed with Fully Sensitive Pulmonary TB
- Reported of No Fixed Abode During Hospital Stay
- Was Discharged from Hospital with F/U Clinic Appointment and ??2/52 Medication
- No F/U for Substance mis-use

# A Little Hx.

- No Recourse to Public Funds
- Patient was Homeless
- Attempted to Feed Drug Habit: Burglary etc.
- Was found Collapsed and brought in A&E by Ambulance



# A Little Hx.

- Admitted to different Hospital FIVE Weeks after Discharge in July 2013
- ATT Re-started
- Started on Methadone Programme
- Claimed and Granted Stay in UK whilst on TB Treatment



# A Little Hx. Contd.

- Fit for D/C August 2013
- Remained Hospitalised – Due to Homelessness and No Recourse to Public Funds
- Safe discharge not possible
- Referred to the Homeless Project – October 2013



# A Little Hx Contd.

- November 2013 – Assessed by GP and Hospital Navigator
- Discharge Plan: Medical and Social Assessment
- Accommodation – Temporary
- TB Follow-up
- Methadone & DOT at Local Pharmacy arranged by TB Nurse
- December 2013 - Transferred to Nottingham (DOT on site, Methadone – Local Pharmacy).



# Issues

- Occupying acute bed
- MFFD since August / September 2013
- Ongoing TB Tx and compliance issues
- Long term follow up
- Resistance?.....
- No reduction of Methadone dose



# Social Issues

- **Non existent social support network**
- **Estranged from family**
- **Landlord barred PS's return**
- **Not entitled to statutory assistance**
- **Lack of knowledge to make informed choice**



# HPP in action

- ❑ Home Office consultation
- ❑ Refugee Council consultation
- ❑ NASS provide emergency accommodation, food and money
- ❑ Support to access accommodation
- ❑ Clothes and travel fare provided
- ❑ Registered with Drug Team - ongoing support provided
- ❑ Registered with GP
- ❑ Ongoing support with OP appointments
- ❑ Registered with Assisted Voluntary Return Agency



# Outcome

- Discharged November 2013
- 1 month after MFFD
- 2 days after Homeless Patient Pathway Team Assessed Patient
- TB Nurse Regular Contact – Completed Treatment

## Case Scenario – in brief:

- 44 year old gentleman diagnosed with AFB+ve TB
- **Very severe Cavitory – Isoniazid Resistant Disease**
- NRPF / No Income
- Non-compliance to treatment / DOT
- Very poor Housing Conditions
- Housing – Too late!





# **TB SCREENING:**

- **Contact Tracing – Contacts**
- **Incidents / Outbreaks –Response**
- **Opportunistic Case Finding –New Entrants From High Incidence Countries / ESOL**
- **Health Assessments –Vulnerable persons: LAC /UAASC**
- **Pre-employment–Healthcare Workers**
- **BCG Vaccination –Risk Assessment for 6 and under years of age (Green Book, 2006)**
- **Differential Diagnosis, Anti-TNF / Biological Agents**

Nice Institute for Health and Care Excellence, (NICE) 2016, and WHO Guidelines for LTBI,2015

## Contact Tracing: NICE Guidelines 2016:

- Offer TB Screening to Close Contacts of - People with Pulmonary or Laryngeal TB
- Induration of **≥5mm** of Tuberculin Skin Test (TST) is Considered Positive Regardless of BCG History
- Increase In Upper Age Limit For Testing And Treatment For Latent TB from **35** years to **65** years

## Contact Tracing:

### ? Non-Pulmonary TB Contacts:

- Between 2013 - 2015 in Birmingham & Solihull We Screened 1359 Contacts of Extra-pulmonary TB Patients
- SIX Were Found to Have Active TB
- 62 Were Treated for Latent TB

Data / Source: Birmingham & Solihull TB Service, Dendrite Database May 2016

## Why Contact Screen?:

Infectious Person (coughing)



Infects 10 People with TB Bacilli



10 People have LTBI



1 Person develops Active TB – That 1 Person becomes Infectious

Birmingham & Solihull: FIVE CONTACTS EVERY PTB CASE

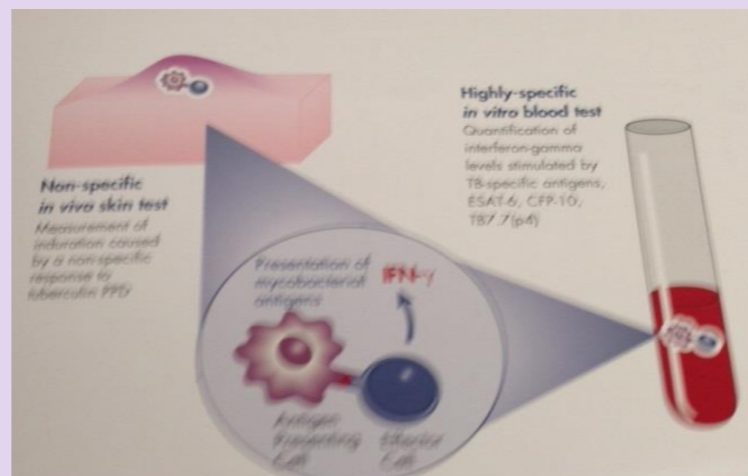
# Screening for Latent TB /Contact Tracing

## Involve:

- **Symptom Check – Exclude Active TB (Questionnaire)**
- **Tuberculin Skin Test (TST) - Mantoux**
- **Interferon Gamma Release Assays (IGRA)**
- **2 to 8 weeks after infection, LTBI can be detected via TST or interferon-gamma release assay (IGRA)**
- **CXR (over 65)**

# TB SCREENING:

- Tuberculin Skin Test (TST) – Mantoux
- Blood Tests (IGRA)
- CXR





# Tuberculin Skin Test

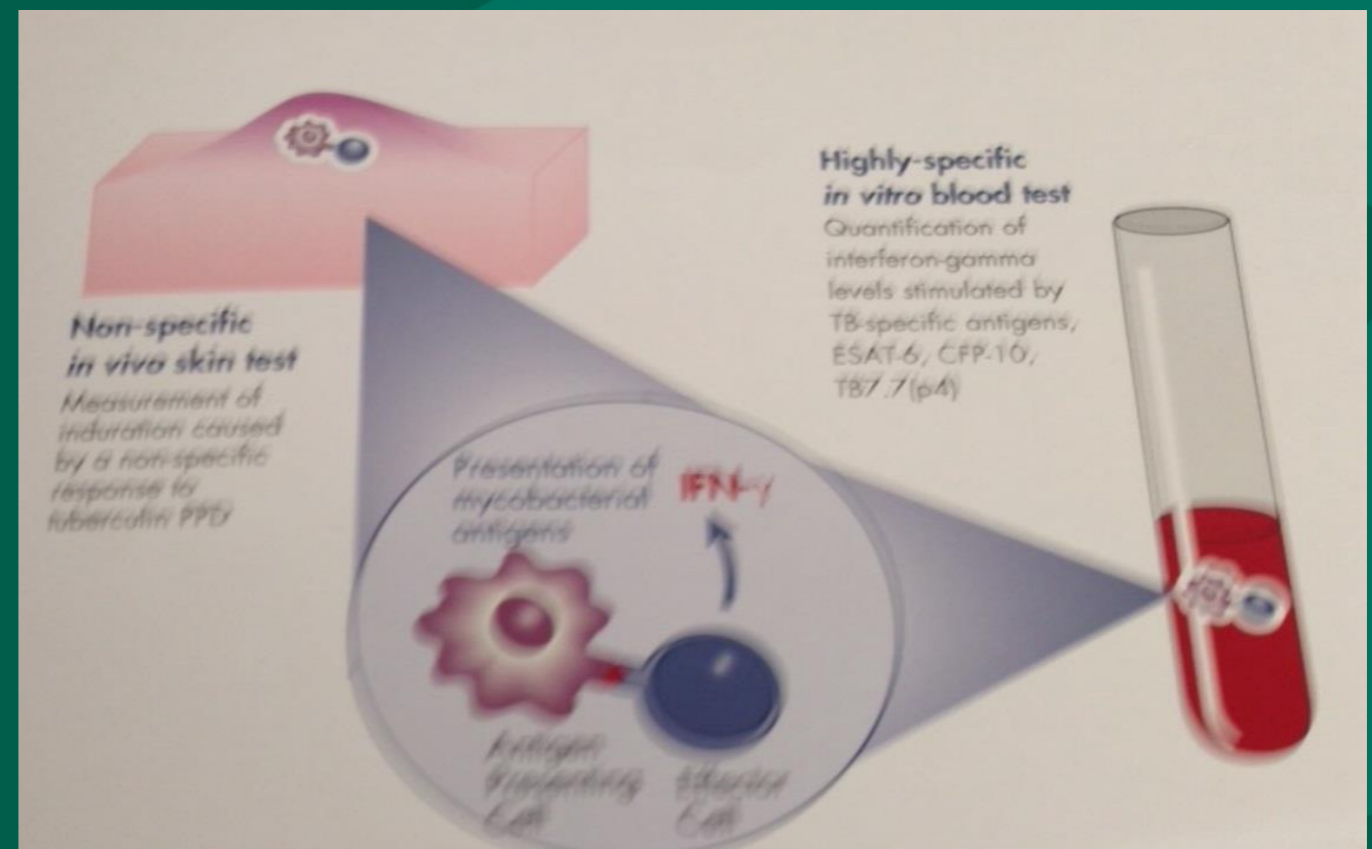
Reading: after 48-72 hours  
Of Injection

≥5mm is now Considered +ve,  
regardless of BCG  
Vaccination History



# Interferon-gamma release assay (IGRA)

Measures an immune response that reflects contact to MTB



# Interferon-gamma release assay (IGRA)

**QuantiFERON (QFT)** – measures interferon gamma produced by sensitised T Cells stimulated by TB antigens

**T. SPOT** – counts the number of anti-mycobacterial effector T Cells, White Blood Cells, that produce interferon-gamma, in a sample of blood

# CONTACT SCREENING ALGORITHM ADULTS: 16 – 65 YEARS

Symptom Check



TST, IGRA and HIV - Either test +ve IGRA / TST - CXR and Clinic



Both tests - Negative – Discharge



If TST is Negative and IGRA Indeterminate repeat IGRA after 4 weeks, if still Indeterminate - Refer to Clinic

Note: where screening carried out within 6 weeks of identifying PTB contacts - repeat screening in 6 weeks after initial screening.

# CONTACT SCREENING ALGORITHM 0 – 16 YEARS OLD

If Symptomatic or High Risk (e.g. Immunocompromised), <2 Years and Contact to PTB: TST, IGRA, HIV, CXR and Refer Urgently to Clinic (Consider Gastric Washings / Sputum)

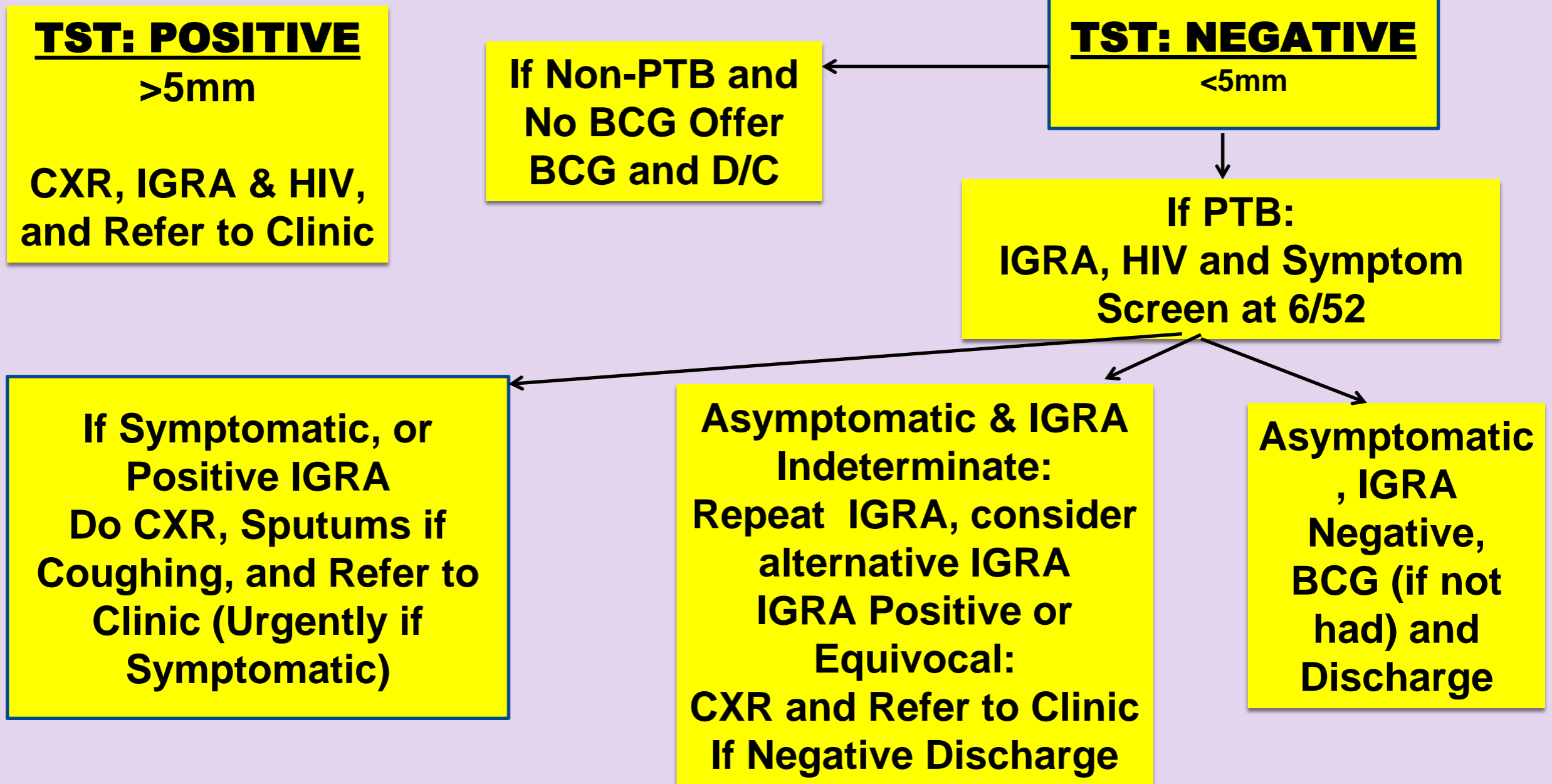


If History of Previous TB (Active or Latent): IGRA, HIV and CXR - Refer to Clinic



If >2 Years, Asymptomatic, Not High Risk and No History of Previous TB OR <2 Years and asymptomatic Contact To Extra-Pulmonary TB - Refer to Algorithm Below / Next Slide:

# TB SCREENING





**Note: – In Situations Where It Is Not Possible To Do a TST e.g. Large Number of Contacts (>10) Do IGRA:**



- **Incidents and Outbreaks**
- **Underserved Population**
- **Where Two Visits may cause Default**
- **Pre anti TNF therapy then an IGRA alone**
- **Consider Home Screening / Alternative Community Setting**

**Note: Where Index Case Has Contacts Out of Area, And No Screening Offered to Non-PTB Contacts, Invite Locally to Birmingham and Solihull TB Service**

## Incidents and Outbreaks:

**A TB Incident** is a Situation that requires or warrants Public Health Investigation & Management, due to an Infectious TB Case (or potentially) has had significant contact with Individuals other than household members / relatives / friends. Establishments may include: Educational, Healthcare, Prisons, Workplaces etc...

**A TB Outbreak** is an situation where there are two or more epidemiologically linked cases with the same strain of TB. An epidemiological Link is established when known contact has occurred between cases, or where contact is *possible* or *likely* because they belong to a defined cohort of individuals. Even if microbiological confirmation is absent or results pending –an outbreak might be suspected–if there are strong epidemiological links between the cases.

# **RISK ASSESSMENT**

<b><u>INFECTIOUSNESS</u></b>	<b><u>EXPOSURE</u></b>	<b><u>SUSCEPTIBILITY / VULNERABLE</u></b>
<p><b>Sputum smear +ve</b></p> <p><b>Sputum vs. BAL</b></p> <p><b>Cough</b></p> <p><b>Cavitation</b></p> <p><b>Adult &gt;&gt; Child</b></p>	<p><b>Duration</b></p> <p><b>Ventilated environment</b></p> <p><b>Closed vs. spacious setting</b></p>	<p><b>Age (small child)</b></p> <p><b>Immunocompromised</b></p> <p><b>BCG</b></p> <p><b>Severe/ Chronic illness</b></p>

## **Incident Management -Key Members/ Organisations:**

- **TB Case Manager / Specialist Nurse**
- **Public Health England (PHE), Consultant in Communicable Disease Control (CCDC)**
- **TB Physician / Paediatrician**
- **?Microbiologist**
- **Place of Incident –Manager, Head Teacher, Infection Control & Prevention Team / Director etc.**
- **Communication: Press / Media Team**

## **Case Study / Scenario:**

- **A 22 year old female, diagnosed with (AFB+ve) Fully Sensitive Cavitary Pulmonary TB: 2013.**
- **Presented via A&E due to SOB. Was admitted to a (side-room).**
- **Symptomatic for 6 months (cough, fever, weight loss and malaise).**
- **Born in the Philippine's, came to UK 2005. History of BCG Vaccination.**
- **Completed 2 Courses of ABx from GP – no effect.**
- **Home Situation: shared house with friend's family (husband & 2 young children at the age of 1 and 6yrs).**
- **She was a Nursing Student – recently completed a 6 week Placement in ICU.**
- **She recently attended Lectures at University.**

## **cont...Case Study (Case & Incident Management):**

- **She tolerated ATT well, although initially suffered rash and nausea –both relieved by anti-histamine and anti-metic.**
- **Assess for Compliance & Adherence.**
- **Notify Patient (3 working days)**
- **Report TB Incident to PHE (ICU & University).**
- **Screen household contacts as Local and NICE Guidelines (refer 1yr old to Paediatrician for Chemo).**
- **Support Patient –as per Local Pathway –throughout Treatment.**



## cont...Case Study (Case & Incident Management):

- **Repeat Sputums –Returning to School / Work / Placement.**
- **In addition to the 1 year old, one adult had +ve TST, Completed LTBI Rx.**
- **Work in Partnership with PHE , Hospital, University –(Risk Assessment).**
- **Incident Meeting (One arranged at Hospital).**

## **cont...Case Study (Case & Incident Management):**

- **University :62 identifies as contacts (1 lady pregnant, no individuals immunosuppressed). (all under 35).**
- **45 screened (17 DNA's –re-appointed, repeat DNA's, D/C), 2 Positives: offered LTBI Rx.**
- **Hospital / ICU –all patients and staff whom the TB Case had contact with were screened: 5 Patients and 6 Staff. (ICU –patients are Vulnerable). All NAD.**

## cont...Case Study (Case & Incident Management):

- **Case Manage those receiving treatment for LTBI or chemoprophylaxis.**
- **Close Incident once, all screening, follow-up etc.. completed, report to PHE of outcome.**
- **Continue supporting patient / source till ATT completed.**
- **Up-date databases.**
- **CLOSE Incident, Patient Completed Rx, Present at COHORT REVIEW.**

# **TB SCREENING:**

## ➤ **Opportunistic Case Finding – New Entrants From High Incidence Countries - New Entrant LTBI Screening / Primary Care**

- **One of key priorities set out by The Collaborative TB Strategy for England 2015 to 2020 - A Joint PHE / NHS England Document.**

**ESOL**

# **TB SCREENING:**

- **Health Assessments –Vulnerable persons**
  - *Underserved Population*
  - *Unaccompanied Asylum Seeking Children (B&S'II Project)*
- **Differential Diagnosis, Anti-TNF / Biological Agents**

## **TB SCREENING:**

### ➤ **Pre-employment–Healthcare Workers**

*- High Incidence Country (Test + CXR)*

### ➤ **BCG Vaccination**

*- Neonatal vaccination (high risk groups)*

*- Risk Assessment for 6 and under years of age  
(Green Book, 2006)*



# COHORT REVIEW:

<u>Indicator</u>	<u>Target</u>	<u>Achieved</u>
Seen by TB service within two weeks of being referred from healthcare	95%	90% (44/49)
Offered HIV test	100%	96% (47/49)
Risk assessed for DOT	95%	100% (49/49)
DOT offered if required	90%	100% (9/9)
Treated by a named TB physician	100%	98% (48/49)
Contacts clinically assessed	90%	88% (219/248)
Contacts with LTBI who start treatment successfully complete treatment	85%	100% (6/6)
Lost to follow up at time of cohort review	<1%	0% (0/0)
Expected to complete treatment within 12 months of date of notification	85%	90% (43/48)
<u>Pulmonary Cases:</u>		<u>n=27</u>
First presentation to healthcare < 3 weeks after onset of coughing (+/- non-coughing TB symptoms)	80%	48% (13/27)
Referred to TB Service <3 weeks after onset of coughing (+/- other TB symptoms)	70%	15% (4/27)
Five or more contacts identified	80%	48% (13/27)
Laboratory culture confirmed	65%	85% (23/27)

## **COHORT REVIEW:**

### **Prompt Referral by GP's**

- **Examples: school child started Rx on same day – whole school screened**
- **CXR's identified via: Rapid Access**
- **Written to GP's – Prompt Referral (Thanks)**

# TB Strategy

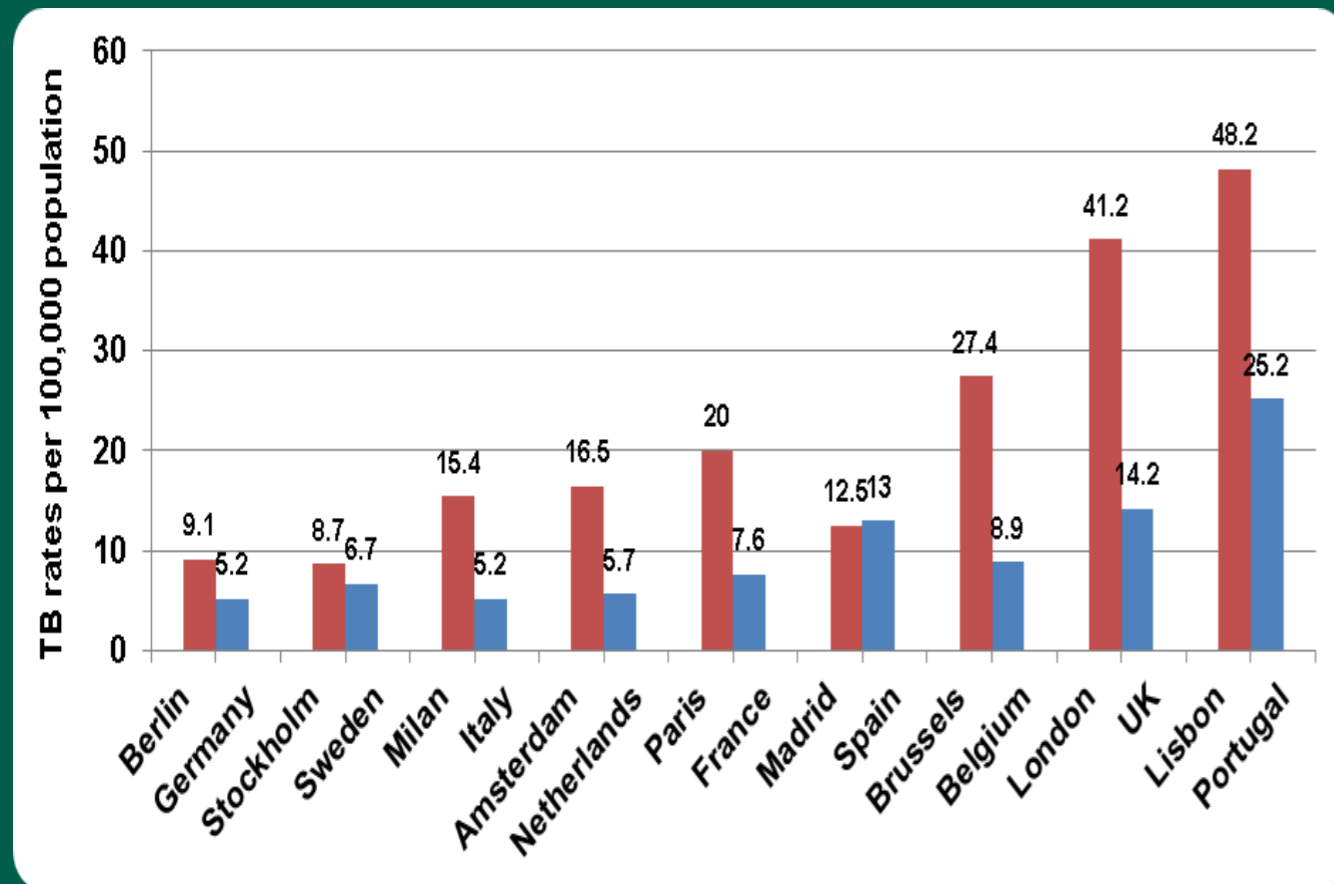
- The Collaborative TB Strategy for England 2015 to 2020 - A Joint PHE / NHS England (NHSE) Document
- NHSE have invested 10 million pounds for screening (Latent TB: 16 – 35years).
- PHE have put Regional Control Boards together (Nationally: 9)
- Aim is to achieve a year-on-year Decrease in TB Incidence



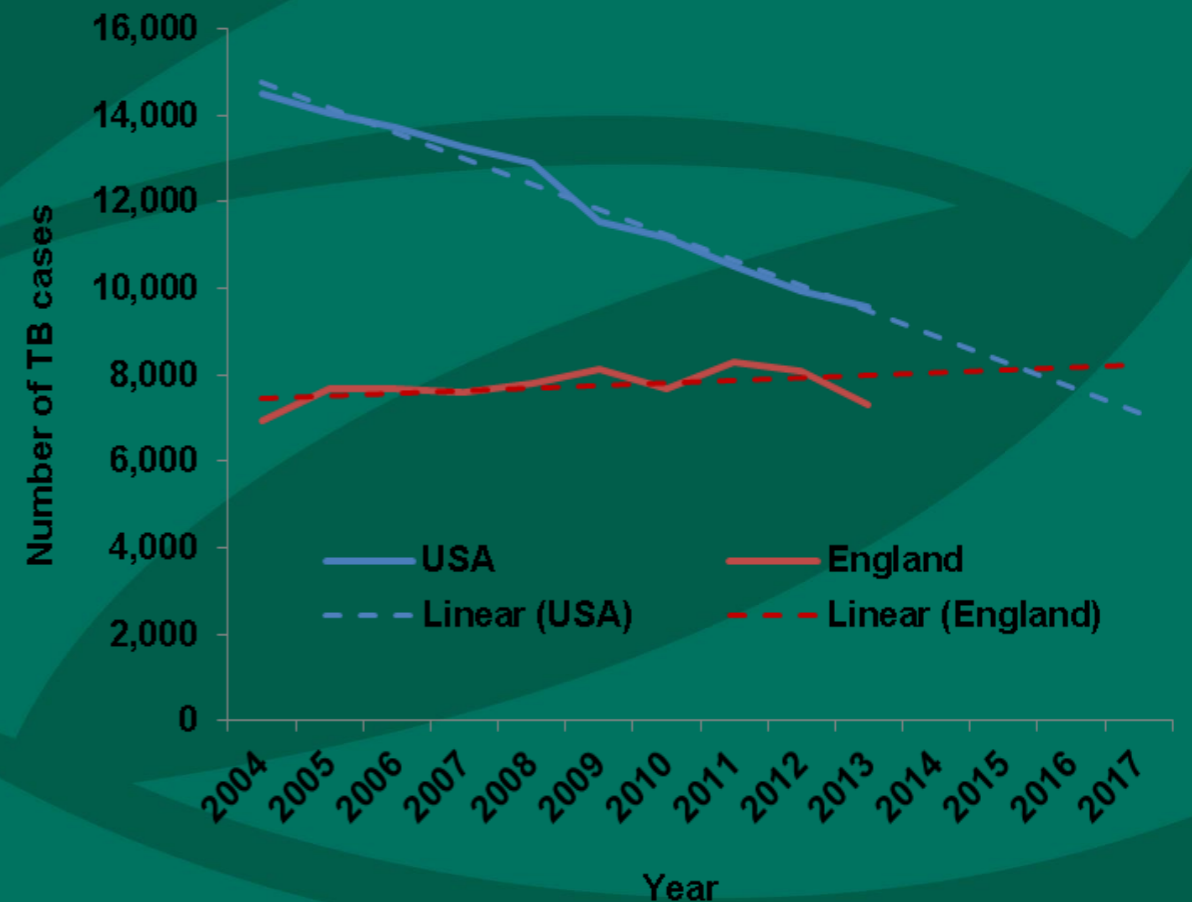
# Background to Strategy:

- England - one of the highest TB rates in Western Europe
- Rates of TB in England >4x higher than USA

Comparison of TB rates per 100,000 pop. in W. European countries and cities (2012)



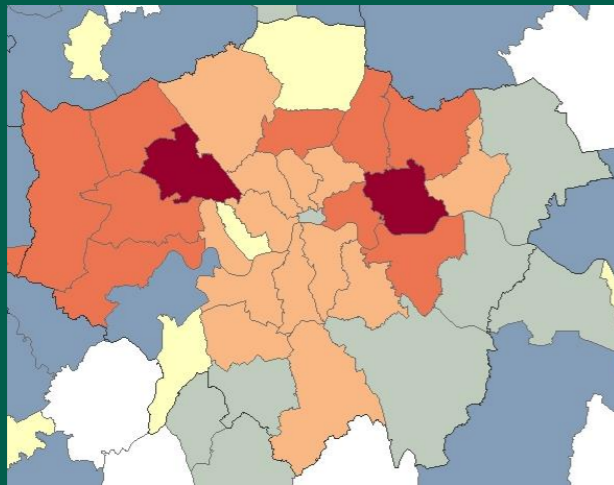
No. of TB cases in England versus the US



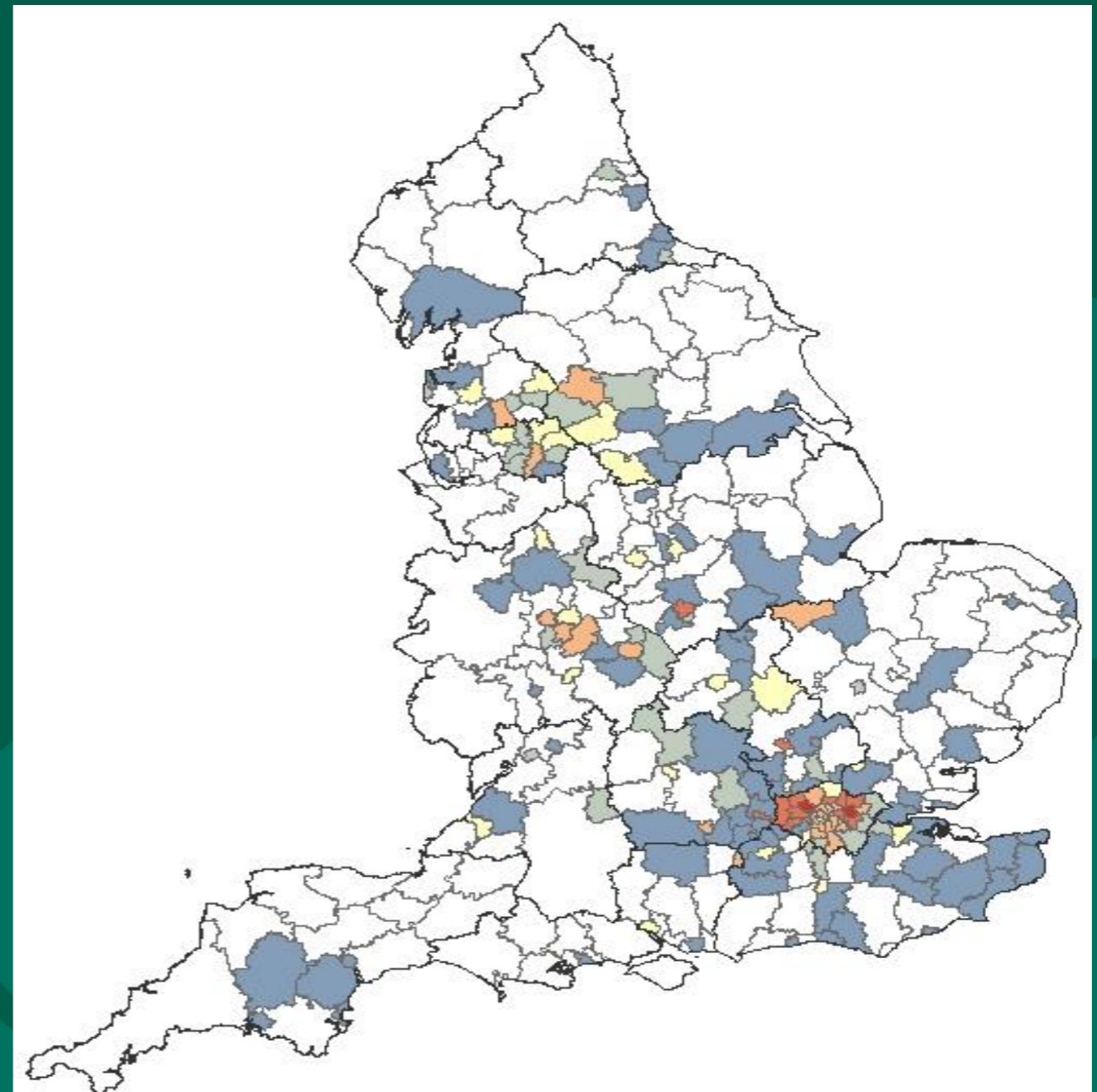
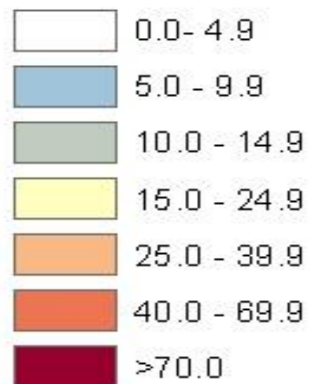


# Three-year average TB case rates by local area, 2012-2015

London



## Tuberculosis rate (per 100,000)



Source: Enhance Tuberculosis Surveillance (ETS), Enhanced Surveillance of Mycobacterial Infections (ESMI), Office for National Statistics (ONS)  
Data as at: May 2014. Prepared by: TB Section, Centre for Infectious Disease Surveillance and Control, Public Health England

# Key Priorities – TB Strategy:

- 1) Improve access and early diagnosis
- 2) Provide universal high quality diagnosis
- 3) Improve treatment and care services
- 4) Ensure comprehensive contact tracing
- 5) Improve BCG vaccination uptake
- 6) Reduce Drug Resistant TB (INH / MDR / XDR)
- 7) Tackle Underserved Populations – TASK & FINISH GROUP
- 8) Implement New Entrant LTBI Screening / Primary Care – LTBI Group
- 9) Strengthen Surveillance and Monitoring
- 10) Ensure an Appropriate Workforce - TASK & FINISH GROUP



# Bacillus Calmette–Guérin (BCG) Vaccine Immunisation Programme

- Shortage since 2015 – No Cath-up
- PHE – InterVax
- Restricted to Neonates Only! – Maternity / Neonatal Services
- The most effective use of BCG vaccine is to give it as soon as possible after birth to prevent infants at increased risk of exposure to TB from becoming infected  
<http://www.bmj.com/content/349/bmj.g4643>
- These infants are at greatest risk of developing severe disease, such as military TB and TB meningitis

# 'Tackling Tuberculosis in Under-Served Populations: A Resource for TB Control Boards and their Partners'

<https://www.gov.uk/government/publications/tackling-tuberculosis-in-under-served-populations>







# Tuberculosis case management and cohort Review Guidance for health professionals

RCN, BTS, NHS: National Treatment Agency for  
Substance Mis-use

Currently being Reviewed: Nurse / Patient Ratio



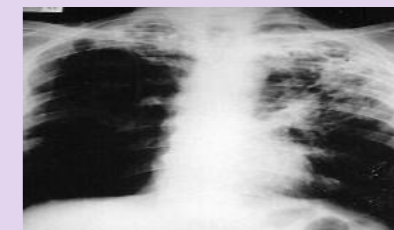
## **Tuberculosis (TB)** **Quality Checklist**

- Test for TB in 16-35 year olds registering with a GP, if they have moved from a high-incidence TB country within 5 years.**
- Test for TB in under-65s diagnosed with HIV.**
- Use the rapid diagnostic test, known as NAAT where possible.**
- Assess people with a chest X-ray that suggests TB by the next working day.**
- Offer people from disadvantaged groups the chance to meet with a health professional each time they take their TB medicine.**
- Provide accommodation to homeless people whilst they are receiving TB treatment.**

## **TB Nursing Team:**

- **Based at BCC - B&Sol: cover Community & Hospitals – on-call 9-5: 0121 424 1935**
- **TB Consultants (Adults & Paediatric)**
- **NINE TB Specialist Nurses (Geographical Cover)**
- **TWO TB Out-reach Nurses**
- **TWO TB Support Worker**
- **Supported by Admin Team including MDT Co-ordinator**
- **Team Members / Key Partnerships**

# Referrals



- All Suspected TB Cases e.g.; symptomatic, characteristic CXR appearances or +ve Microbiology (Rapid Access)
- GP's / HCP's / OHD: Tel: 0121 4241935, Fax: 0121 4241979
- Urgent referrals / Out of Hours – on-call Hospital Registrar / Consultant: 0121 424 2000
- Nurse on call: Designated TB Specialist Nurse for General & Urgent Enquires: **0900 – 17.00hrs: 0121 424 1935**
- Referrals, Drug Interactions, side-effects, repeat px's, screening etc.



# Acknowledgements:

- **Zeitun Afzal: MDT Co-ordinator: Birmingham & Solihull TB Service - (Local Data: Screening and Latent TB)**
- **Muninder Lotay – General Practitioner / Homeless Pathway and Christine Grover – Hospital Navigator / Homeless Pathway**
- **Public Health England / Chanice Taylor: Information Officer, Public Health England, West Midlands – Birmingham & Solihull TB Data**

# References / Websites:

<https://www.rcn.org.uk/clinical-topics/public-health/specialist-areas/tuberculosis>

<https://www.gov.uk/government/publications/tackling-tuberculosis-in-under-served-populations>

<http://www.hpa.org.uk/Topics/InfectiousDiseases/InfectionsAZ/Tuberculosis/NationalKnowledgeServiceTB/ResourcesDevelopedByNKSTB/>

<https://www.gov.uk/government/publications/collaborative-tuberculosis-strategy-for-england>

<http://www.bmj.com/content/349/bmj.g4643>

<http://www.who.int/topics/tuberculosis/en/>

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

<http://www.kingsfund.org.uk>

[www.tbalert.org](http://www.tbalert.org)

# **References:**

**Guideline Development Group (2016) Tuberculosis – Diagnosis, Management, Prevention, and Control: summary of Updated NICE Guidance, BMJ**

**Guidelines on the Management of Latent Tuberculosis Infection , World Health Organisation, 2015**

**National Institute for Health and Care Excellence Tuberculosis Guideline 2016**

**Stewart K (2016) New Guidance on Prevention and Management of Tuberculosis, Prescriber**

**WHO Guidelines for LTBI 2015**

***Thanks!***

**Questions ?**

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