UK Health Security Agency

Tuberculosis (TB) – a brief introduction

Training for prison settings

Tracey Langham
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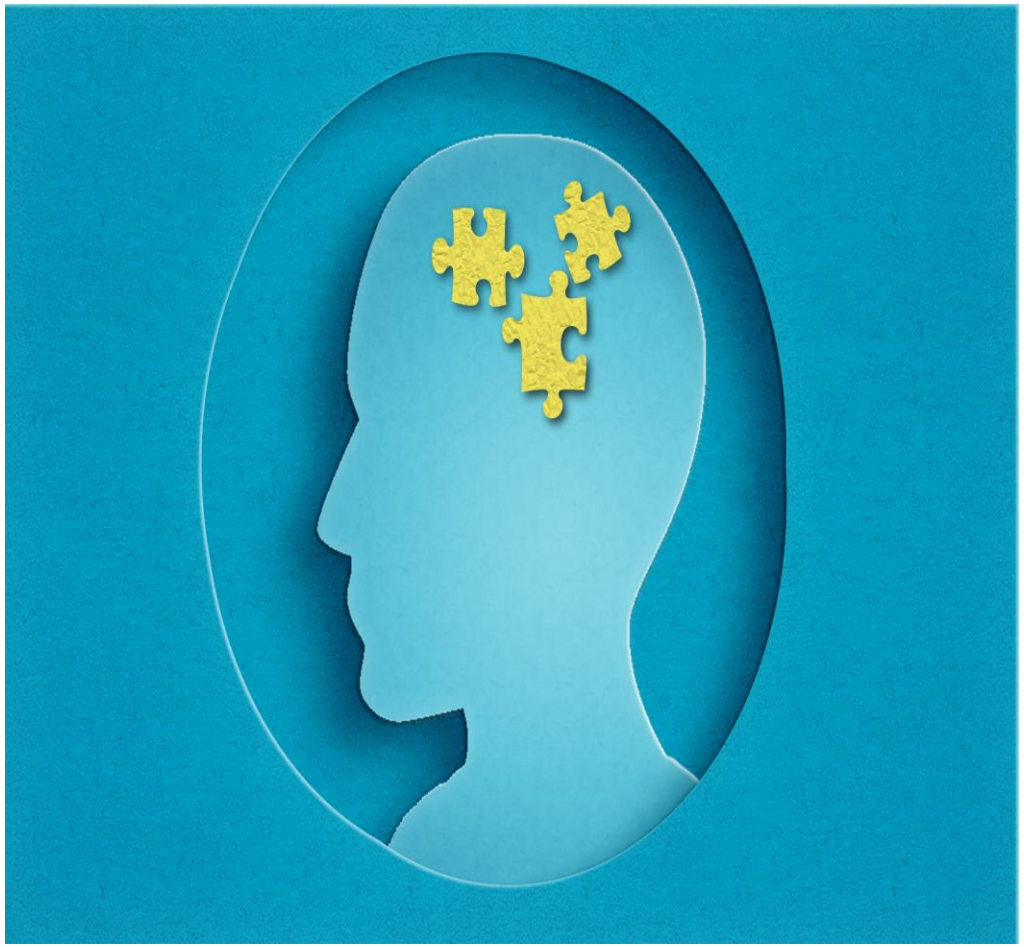
National TB Unit UKHSA

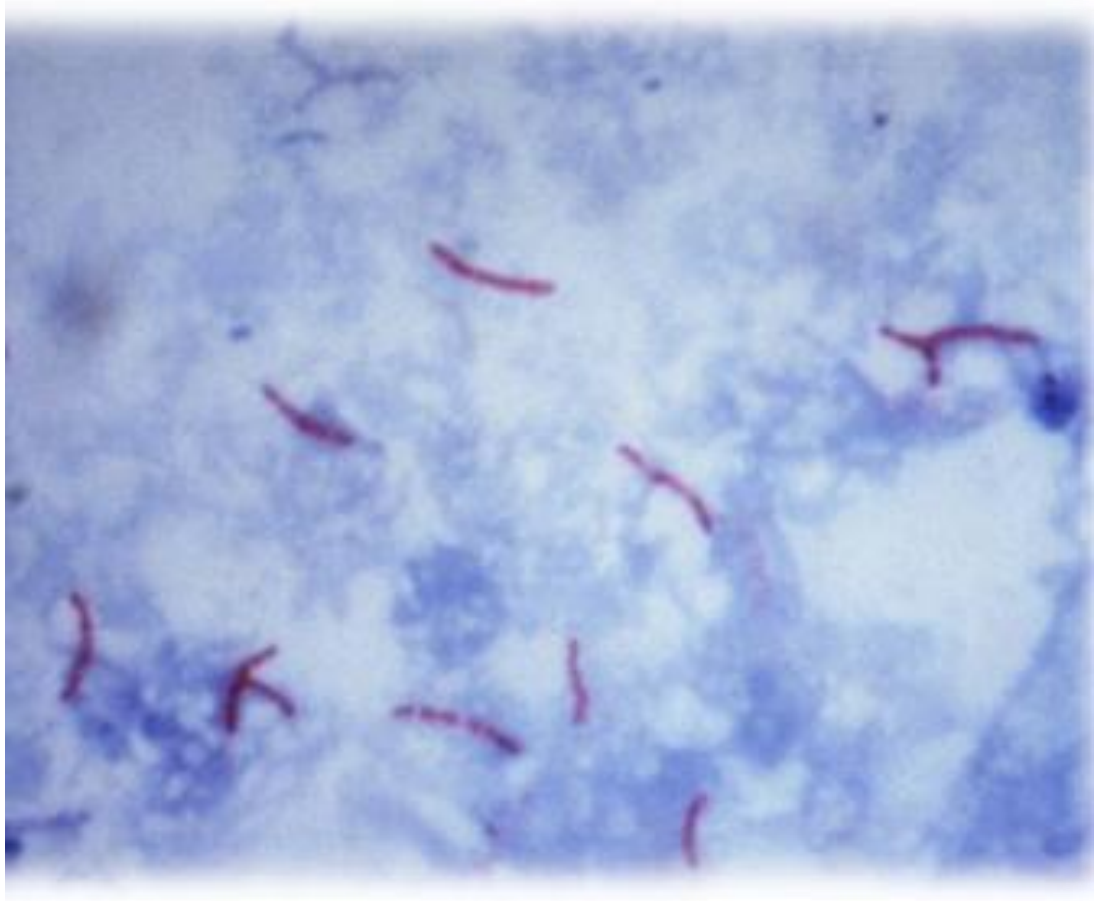
Aims of this presentation

- To understand what TB is
- To recognise the signs and symptoms of TB
- To understand the difference between active and latent TB
- To understand what happens when someone is diagnosed with TB
- To understand how you can protect yourself



What is TB?

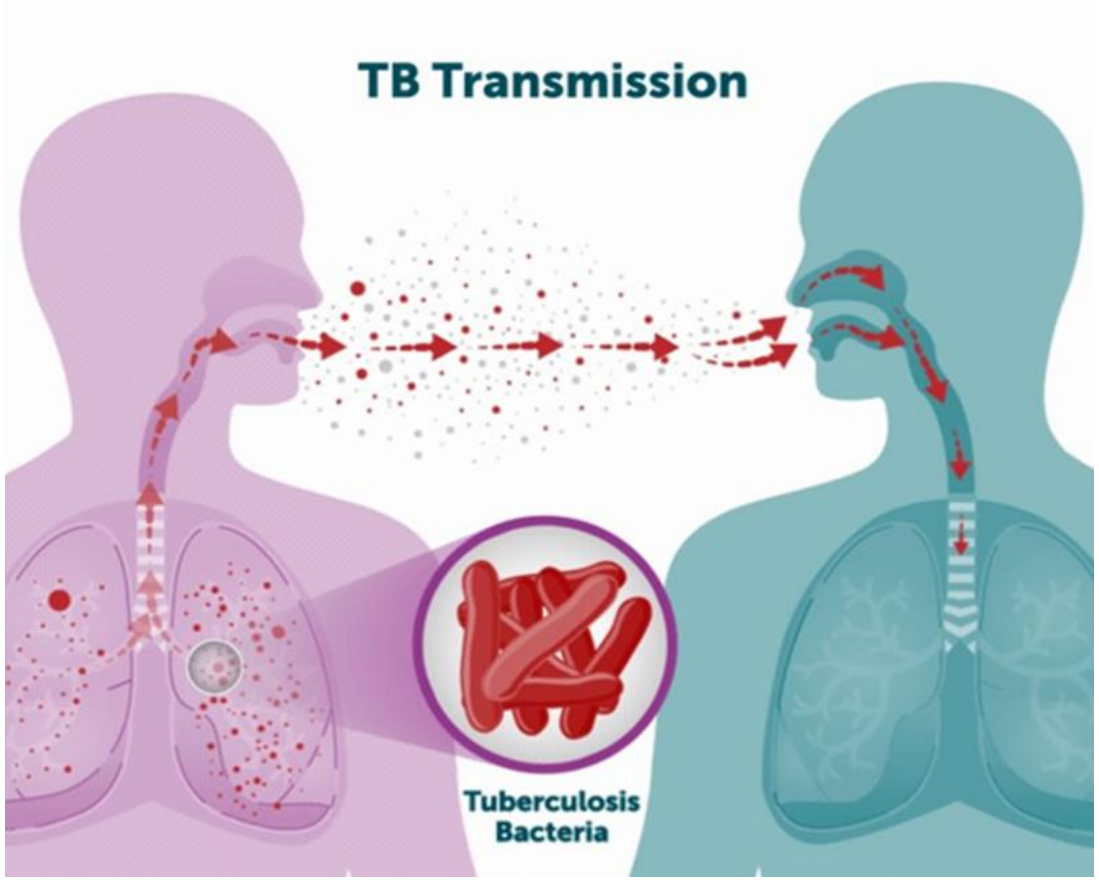
- TB is an infection caused by a bacteria called Mycobacterium Tuberculosis
- It is a serious condition, but **can be cured** with proper treatment
- It usually affects the lungs, but it can affect any part of the body (glands, bones, brain)
- Only TB of the lungs or voice box / throat is infectious



How is TB spread?

- TB is spread to others when a person with infectious TB coughs, talks, sings, laughs or sneezes by releasing small droplets containing the bacteria

- Anyone can get TB by breathing in the bacteria, but the risk of being infected is dependent on:
  - how infectious the person is
  - the environment
  - time spent with the individual
  - the health of the individual exposed



When you are exposed to TB

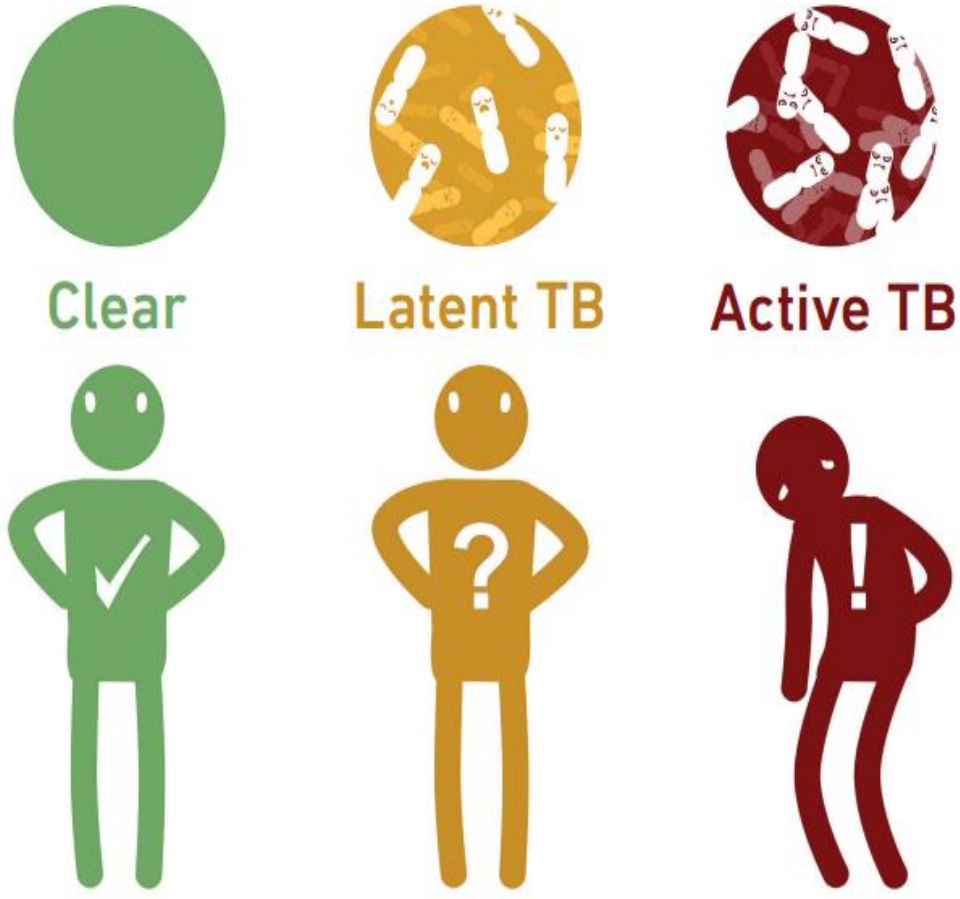
- immune system may destroy the infection

OR

- immune cells form a hard-shell walling off the infection, keeping the bacteria contained and under control – this is called **latent TB**

OR

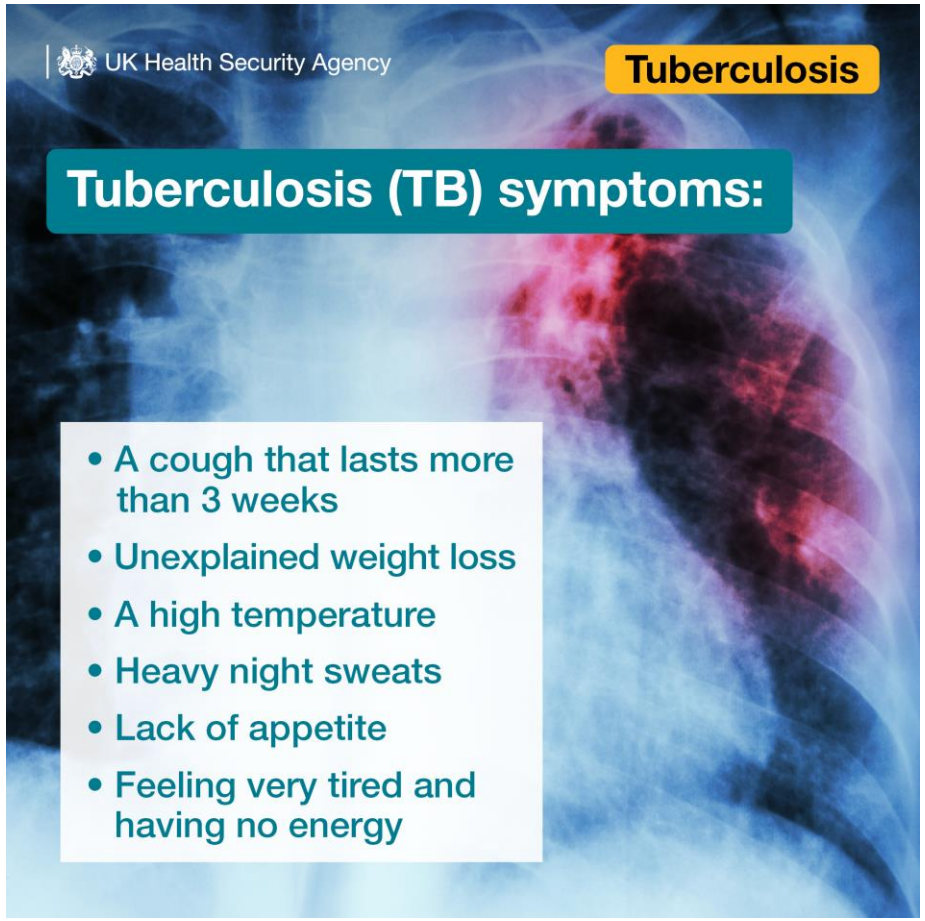
- immune system fails to keep the bacteria under control, and it begins to multiply rapidly causing **active TB**



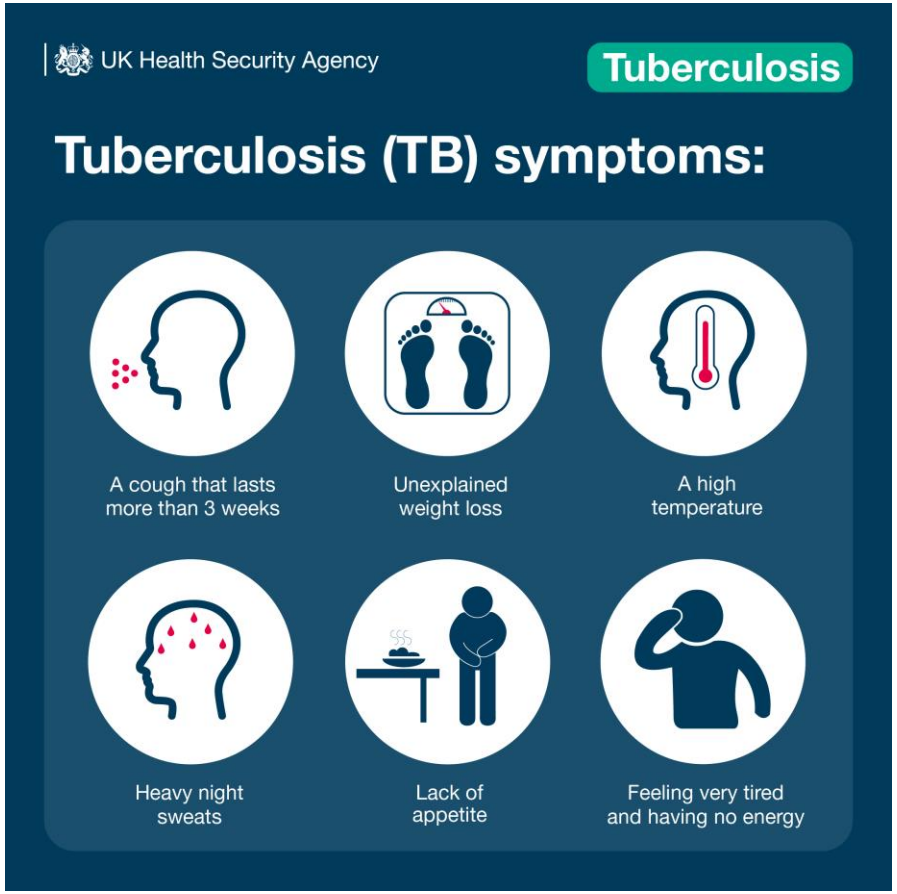
The Truth About TB

What are the symptoms of active TB?

- A person could have some or all of these symptoms



What should I do if someone has these symptoms?



What is Active and Latent TB

Active TB

- Person may feel unwell
- The disease can be spread to others if it is in the lungs
- The individual may have abnormal chest x-ray or positive sputum sample
- The individual needs to have treatment for TB disease

Latent TB

- Person is well & has no symptoms
- The disease cannot be spread to others
- The individual has a normal chest x-ray
- The individual usually has a positive skin or blood test indicating previous exposure or infection
- The individual can be offered preventive treatment, but they do not have to take it

TB Treatment

Active TB treatment

- 4 antibiotics for 2 months followed by 2 antibiotics for 4 months
- Daily
- Usually non-infectious after a few weeks of treatment
- Completing the full course of treatment is the only way to cure TB.
- Failing to not take treatment as instructed can lead to resistance, re-infection and ongoing transmission to others

Latent TB treatment

- 2 antibiotics for 3 months

OR

- 1 antibiotic for 6 months
- Daily
- Completing the full course of treatment will help prevent TB from become active
- Treatment is encouraged but optional

What happens when a resident has TB?

- If TB is suspected the resident should be isolated in a single cell or may require hospitalisation

- Once a diagnosis of infectious TB is confirmed the prison healthcare team and the governors will work with the local health protection team to perform a risk assessment and decide who may have been exposed

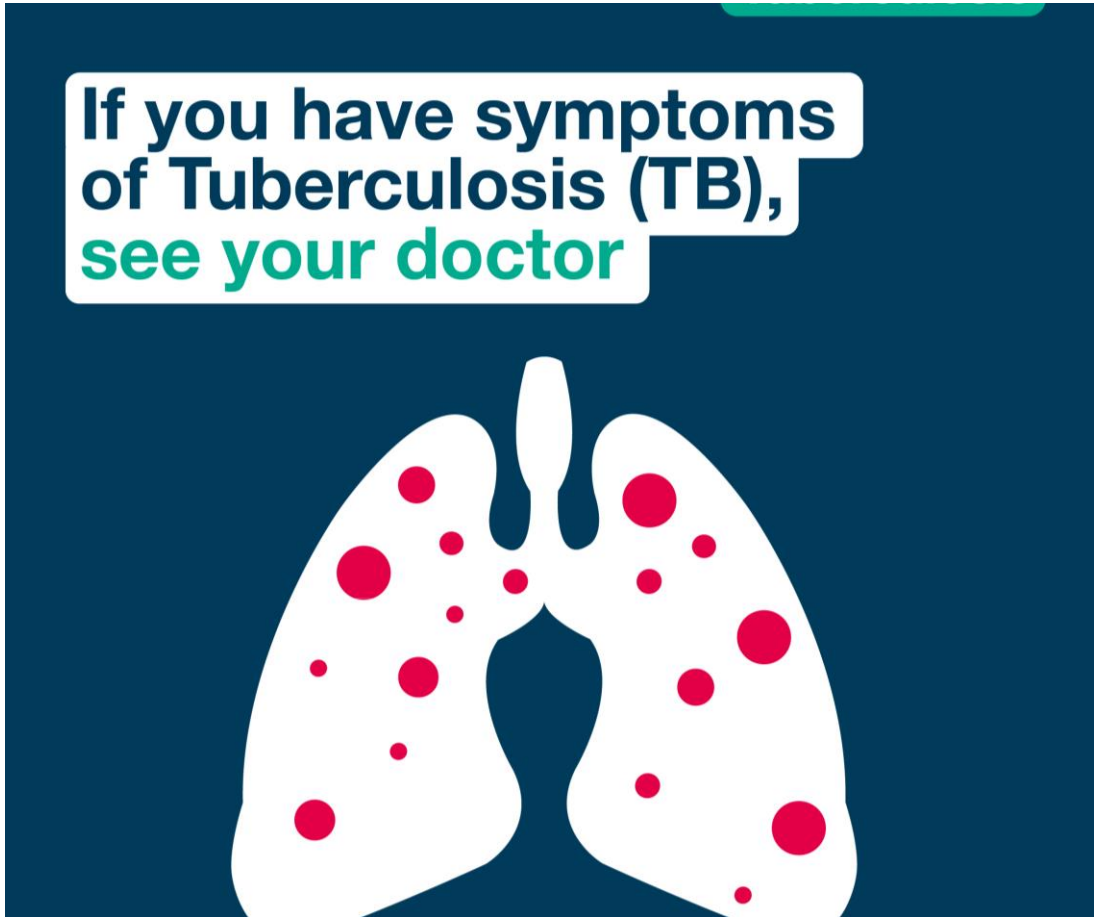
- If it is required, then there will be a screening exercise (known as contact tracing) for the exposed staff and residents.

How can I protect myself?

Know the symptoms of TB and see a healthcare professional if you have them for more than 3 weeks

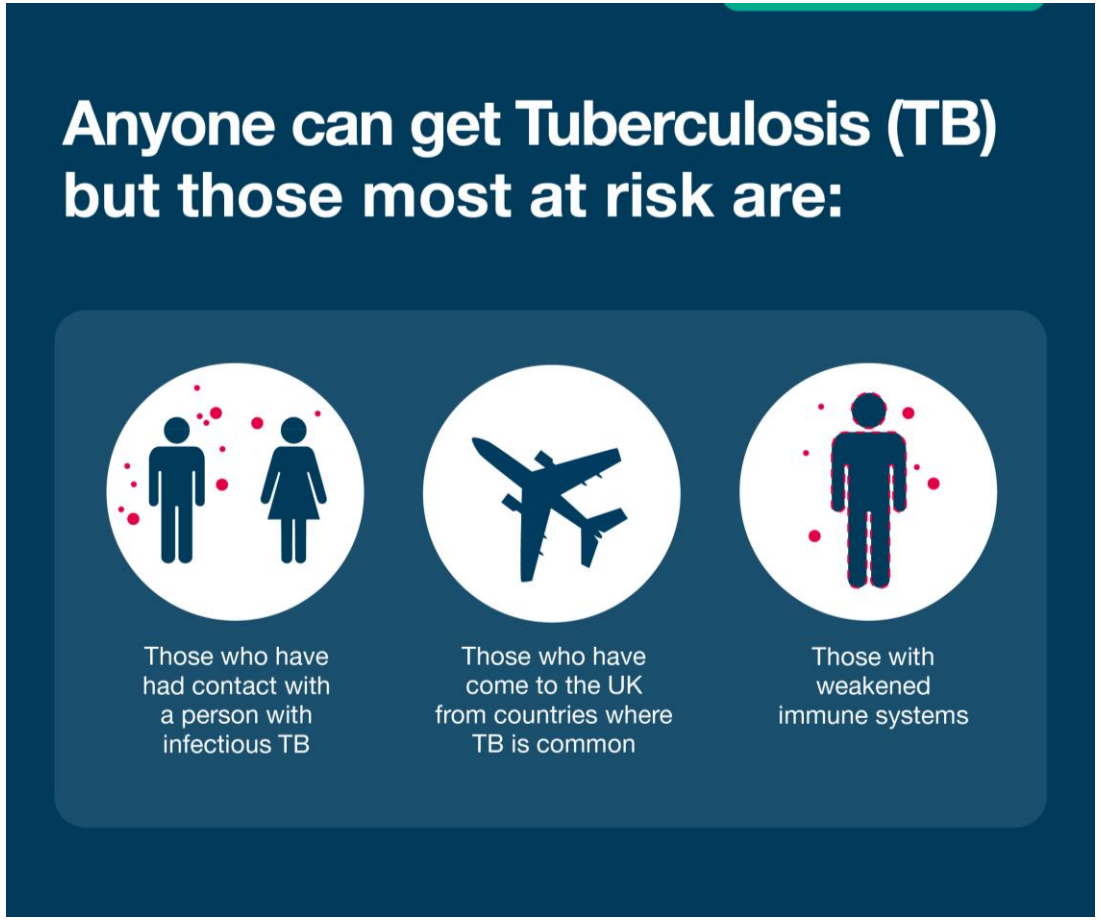
Wear the appropriate personal protective equipment (PPE) if you are looking after a resident with TB as advised by Healthcare and the local Health Protection Team

Attend screening appointments if they are offered / advised to you by Occupational Health or your Duty Governor



Risk Factors for TB

- Born in a country with a high incidence of TB
- Recent exposure to a case of active TB
- Prison or history of imprisonment
- Homelessness or history of homelessness
- Drug and alcohol addiction
- Individuals who may have a weakened immune system



TB facts

- TB can be caught by sharing crockery / utensils as an infected person – **False**
- People can die from TB – **True**
- TB can be caught by shaking someone's hand – **False**
- TB is treated with antibiotics – **True** (but specific antibiotics for TB)
- All TB is infectious – **False**
- TB can be caught by touching bed linen or toilet seats - **False**
- Only people born abroad have TB – **False**

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Thank you for listening

For more information see- Home - The Truth About TBThe Truth About TB

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An outbreak of Tuberculosis in a UK Prison

Dr Martin Dedicoat PhD
Tuberculosis Unit, UKHSA

23rd June 2025

TB Outbreak in a Prison

- 24 year old man admitted to hospital with 5 month history of cough, fever, sweats and an x-ray suggestive of cavitatory tuberculosis
- Patient was an inmate at a prison
- 600 inmates

Index case

- Patient had been ill for 5 months with fever, cough, weight loss and sweats
- Had been assessed as having anxiety
- Was on 24 hour bed watch
- Initial sputum sample smear positive and culture positive in under 10 days

Background

- Prison had 600 inmates
- Sentences ranged from 4 years to life
- Split across 9 wings
- Each wing had a specialism
- There was some mixing between the wings for sporting and religious activities

- The index case was on a wing where many inmates had drug misuse issues and personality disorders

Issues

- How to manage patient in hospital
- How to manage patient in prison

Screening

- Staff
- Inmates

Investigation

- Collecting data around inmates

Index Case

- Patient returned to prison on treatment
  - But was not supervised
  - May have mixed with others

- Initial contact tracing – 13 contacts identified
  - Cell mate – IGRA positive
  - 11 other possible contacts identified amongst inmates – all IGRA negative
  - 1 officer identified as did bed watch – IGRA positive

Job done?

Tuberculosis Cases

- 10 further cases of active TB diagnosed in prisoners over the next 4 years

Contact Tracing Extended – Wing A

- 159 inmates identified as exposed
  - 82 had been released or moved at time of screening
- 101 staff identified as exposed

- 77 inmates offered screening
  - 27 (35%) inmates IGRA positive – all completed treatment
  - 5 refused
- 101 staff offered screening
  - 10 (10%) staff IGRA positive – all completed treatment
  - 6 refused

Inmates who had moved on

- Only 51/82 (62%) of this group were located and screened

- 19/51 (37.5%) were IGRA positive
- 16 people started treatment
- Completion could not be confirmed in any

- 3 cases were amongst the 31 dispersed contacts who were not located and screened

Screening on Wing B

- Screening was extended to wing B as cases were detected here in inmates transferred from wing A

- 4/96 (5%) inmates were IGRA positive
- 4/50 (8%) staff were IGRA positive

Summary of Cases

- 10 active cases of tuberculosis diagnosed over next 4 years
- 64 cases of latent tuberculosis

Meta-Analysis > PLoS One. 2018 Nov 15;13(11):e0207400. doi: 10.1371/journal.pone.0207400. eCollection 2018.

Tuberculosis among correctional facility workers: A systematic review and meta-analysis

Micheli Luize Grenzel [1], Antonio José Grande [2], Anamaria Mello Miranda Paniago [3], Mauricio Antonio Pompilio [3], Sandra Maria do Valle Leone de Oliveira [3], Anete Trajman [4 5]

Prevalence of latent TB amongst correctional services workers - 26% (44% in high incidence countries)

Issues with Outbreak Management

- Poor intelligence on inmate mixing
- Very high turn over of inmates
- Poor record keeping as to where people are

Treatment of TB in Prison

- Issues
  - Arranging to see patients in clinic
  - Supervision of treatment
  - Drug interactions
  - Ensuring completion
  - Prison transfers
  - Release from prison

Lessons Learned

- Suspect tuberculosis in people with a prolonged cough!
- Inmates are at increased risk of having tuberculosis even if they do not have other risk factors
- Tuberculosis spreads quickly in congregate settings

Lessons Learned

- Act quickly if there is a case of infectious TB in a prison
- Visit the prison to gain intelligence about routes of transmission
- Consider doing clinics in the prison
- Supervise patients in prison on TB treatment
- Use observed chemoprophylaxis

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TB Case review

Patient A
HMP X

Thanks to Amy Chambers for her slides on screening

Background- Patient A

- Initially Incarcerated in March 2018.
- Resident at two other prisons prior to being moved to HMP X in January 2021
- In HMP X has always resided in a single cell, not having shared a cell since admission.
- Has an occupational role within the prison and attends a psychology talking group weekly.
- Did not attend any educational or religious groups and stayed on wing during socialisation times.
- Admitted to recreational drug use to ‘smoking spice’ to ‘overcome his stress’.

History of illness

- Patient A was assessed by a Prison Health nurse on admission in Jan 2021- All TB questions were negative therefore was **not screened for TB on reception**.
- In November 2023 GP appt was made due to ‘weight loss and excessive sweating’ ? Attended as **no documentation other than recorded as “arrived”.** Had previously DNA’d
- Patient arranged an appointment in August 2024 regarding weight loss but did not attend the appointment
- The appointment was therefore rebooked to September 2024 however he did not attend this appointment either.
- Concerns were raised regarding weight loss on 06/10/24
- An ambulance was called on the 07/10/24 and the case was taken to Accident and Emergency

Hospital admission

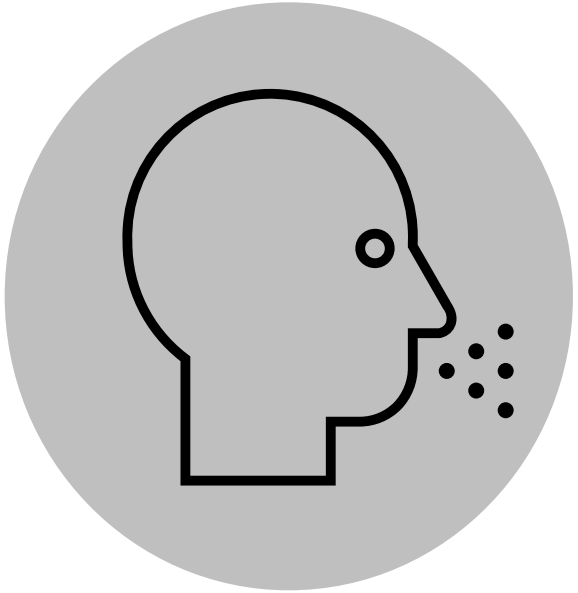
- On admission the patient A was found to be tachycardic, tachypnoeic and hypotensive
- They deteriorated rapidly in hospital and were admitted intensive care on 07/10/2024

TB diagnosis

- Presented with 3 month history of weight loss- approx. 30kg and drenching night sweats over 4-6 weeks.
- Chest X-ray and CT scan showed severe bilateral cavitary TB
- 3 x sputum samples all AAFB positive.
- This was also PCR positive for TB
- **Patient A sadly died in November 2024**

Potential Exposures

- UKHSA notified of patient A's illness on 11/10/2024
- Patient was resident in HMP X when a previous TB cluster with two infectious Pulmonary TB cases was detected in 2021.
- As a result of this cluster, contact tracing and whole prison screening took place in January 2022
- Of 880 people offered screening only 550 people accepted.
- 54 prison residents and 3 staff tested positive for latent TB and were offered treatment.
- **Despite being offered, Patient A did not take up the offer of screening at this time- the reason for this was undocumented**



TB Cluster

Genomic and epidemiological data link Patient A to the other known cases at HMP X in 2021

sequenced cases since 2016.

This cluster includes cases from transmission at different sites across the secure estate to both residents and staff- including cases in a London Prison and HMP X in 2021.

The average age of those affected is 31 years and 90% of cases are male, 50% were not UK born.

Cases (and affected institutions) are geographically distributed and almost half of cases are associated with prisons

Risk Assessment

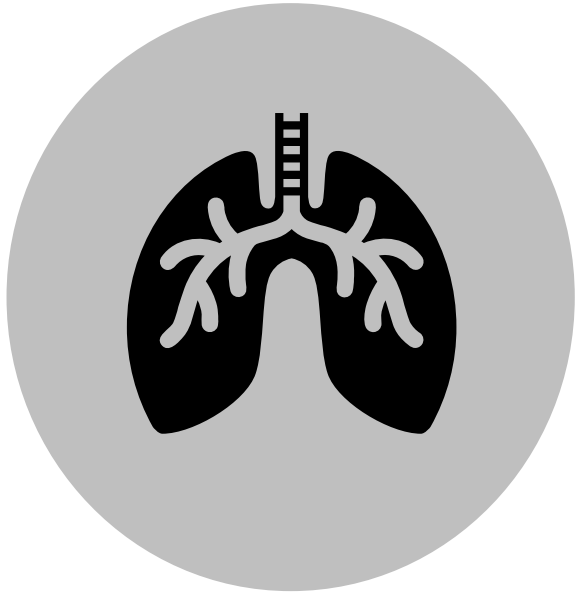
- Patient identified with highly infectious pulmonary TB
- Previous cases with the same genomic sequencing
- Patient had moved from numerous locations around the prison
- Unable to identify possible contacts to one isolated area

Contact Tracing

- Decided a whole prison testing approach would be the most appropriate.
- Agreed that all prisoners who were in the prison between June 2024 and 8 October 2024 (approx. 860 people) would be screened.
- All prison staff who were identified as close contacts were also offered screening.

Screening:

- Two days of allocated screening- Prison shutdown
- External company commissioned to take bloods
- All patients seen at cell door and symptom checked:
  - Cough for longer than 3 weeks
  - Lethargy
  - Unexplained weight loss
  - Night sweats
- All asymptomatic patients offered IGRA blood test



Good practice:

- To encourage uptake, all screening was conducted on the wing, including the taking of blood.
- Patients consenting to have the IGRA test were immediately offered the blood test rather than having to walk to healthcare.
- Peer support; seeing peers consent to testing encouraged others to be tested.
- Patients consenting to screening were added to a prison raffle to receive a pair of trainers and a £2 phone credit

Good practice:

- Screening was a whole healthcare approach; Staff from all pathways screened each patient in their cell and directed them to have their blood sample taken.
- Patients presenting as symptomatic received a thorough review by a nurse.
- The Prison Health care team worked closely with the hospital TB team who provided advice and guidance on the clinical management of patients who were symptomatic or received positive IGRA results.

Good practice:

- Multi-disciplinary meetings with UKHSA, Hospital TB service, NHSE and the prison ensured collaborative oversight of the screening roll out.
- The prison provided dedicated officers and a custodial manager to support healthcare.
- Concentrated scrutiny over documentation of screening and results to ensure accurate record keeping.

Screening outcome:

- 833 Residents
- 822 Symptom checked (11 unable to locate)
- 7 Reported symptoms (Isolated and sputum collected)
- 526 Accepted IGRA testing
- 122 Accepted Xray but declined bloods
- 31 Positive IGRA results

Screening cost

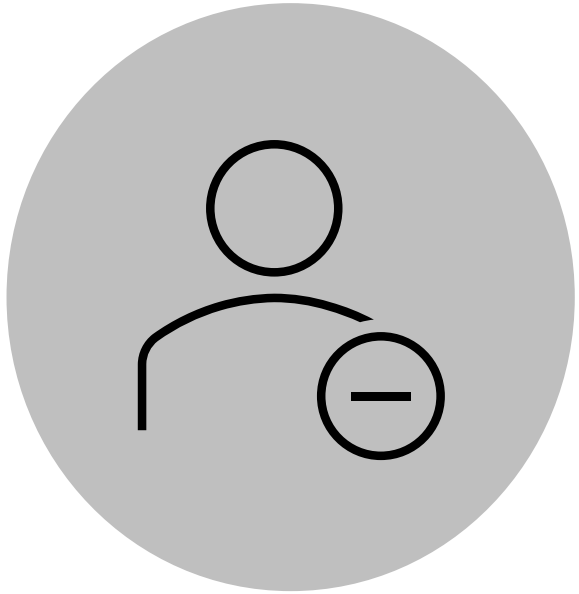
- The costs for the screening was £50,033 plus VAT
- With the x rays for £8000 + VAT
- Total approx. £60k plus VAT

Missed opportunities

- Missed Healthcare Appointments
- Refusal of screening
- Limited documentation
- Not recognising and acting on the initial signs and symptoms of TB

Missed Healthcare appointments

- Regularly did not attend healthcare appointments
- Attendance at these appointments may have led to earlier diagnosis
- Earlier diagnosis could have reduced need for widespread screening
- May have ultimately saved patient A’s life



Refusal of screening

- Distrust of healthcare
- Phobia of needles
- Resentment in being offered screening and blood test but not getting what they wanted when they came to other healthcare appointments.
- Lack of regard for own health
- Stigma of TB diagnosis

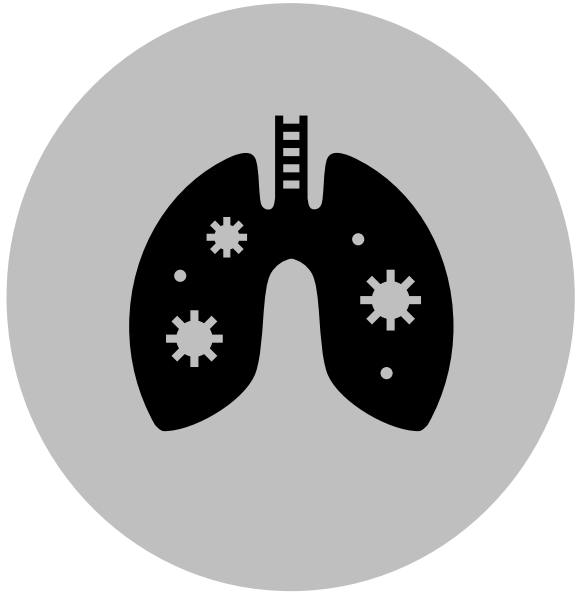
Limited documentation

- Why did Patient A decline screening in 2021
- Why did Patient A miss healthcare appointments?

Not recognising the signs and symptoms of TB

- Lethargy
- Unexplained weight loss
- Night sweat
- Cough for longer than 3 weeks (depending on the site of the disease)

Think TB!



HM Prison & Probation Service

TB and HMPPS Settings

Abi Hamoodi

HMPPS Head of Public Health

HMPPS Public Health Team

- Small team
- Sits within wider Rehabilitation Directorate
- Officially based in HQ but geographically dispersed
- Work across all areas of public health
- Work closely with UKHSA and other internal and external partners
- 123 prisons plus probation services and settings
- Cover public sector and privately contracted prisons across England and Wales
- Lead on PH policy frameworks
- Advice and support to governors and senior leaders

Over 87,000 individuals across England and Wales

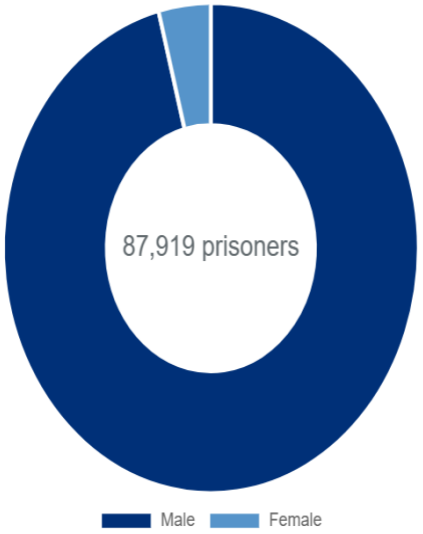
A large number of people with social vulnerabilities, such as homelessness, poverty, and substance use

A number from countries with high TB incidence

HMPPS works closely with UKHSA / PHW and NHS England/ Wales

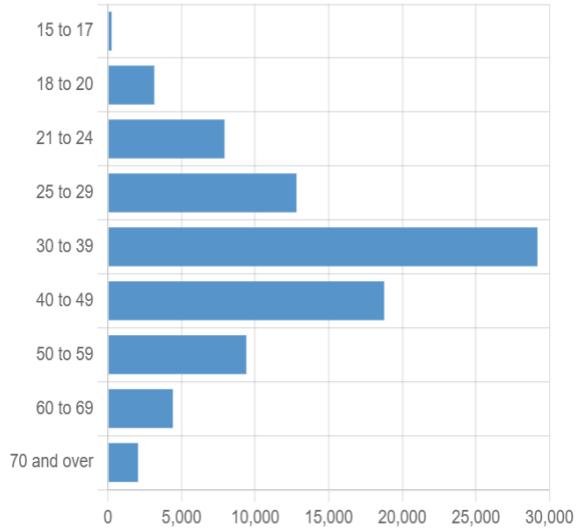
Prison population

Prison population by sex



At 31 Mar 2025 (source).

Prison population by age

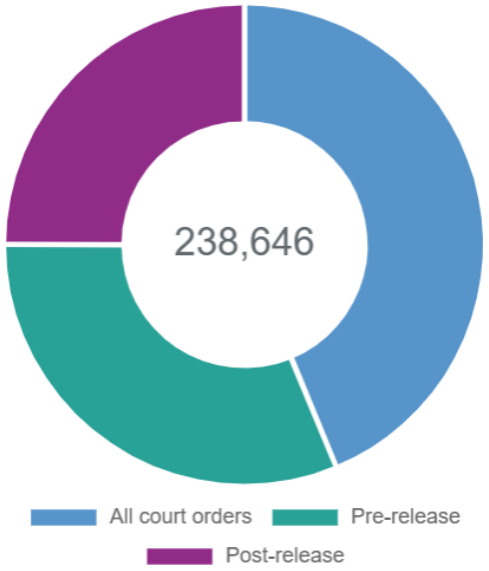


At 31 Mar 2025 (source).

Taken from: https://data.justice.gov.uk/prisons

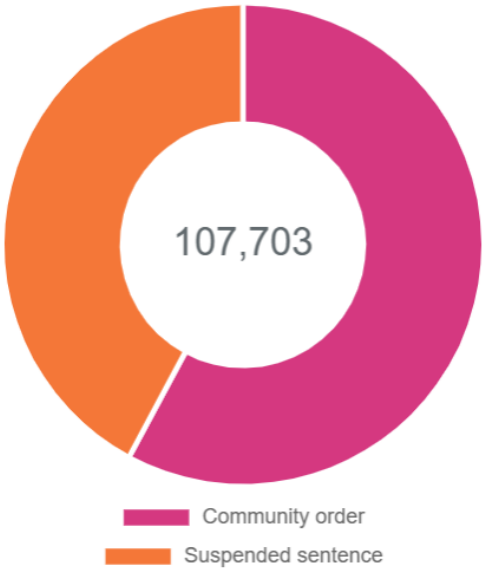
Probation caseload overview

Supervision type



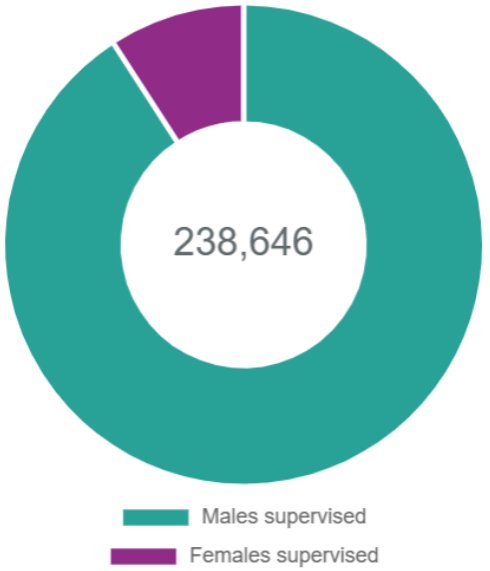
A small number (less than 20) of deferred sentences not shown. At 30 Jun 2024.

Order type



A small number (less than 10) of pre-CJA orders not shown. At 30 Jun 2024.

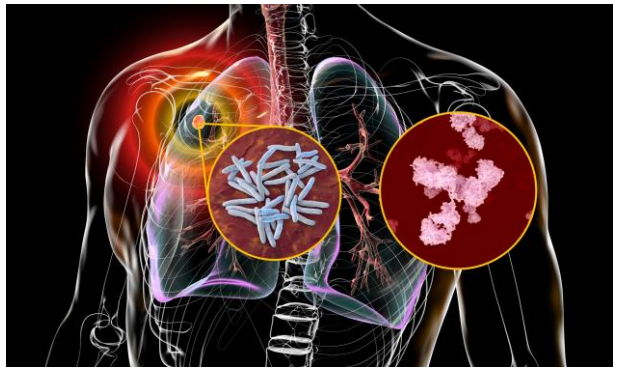
Sex

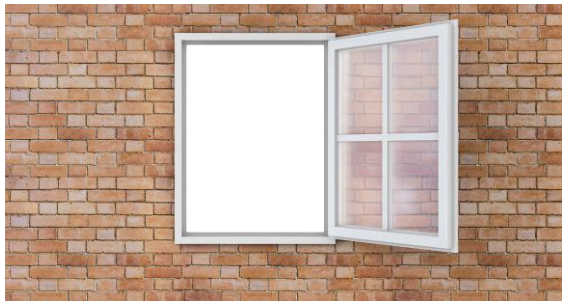


All probation service supervision. At 30 Jun 2024.

Taken from:
https://data.justice.gov.uk/probation

TB in prisons





Symptom awareness

Population Pressures

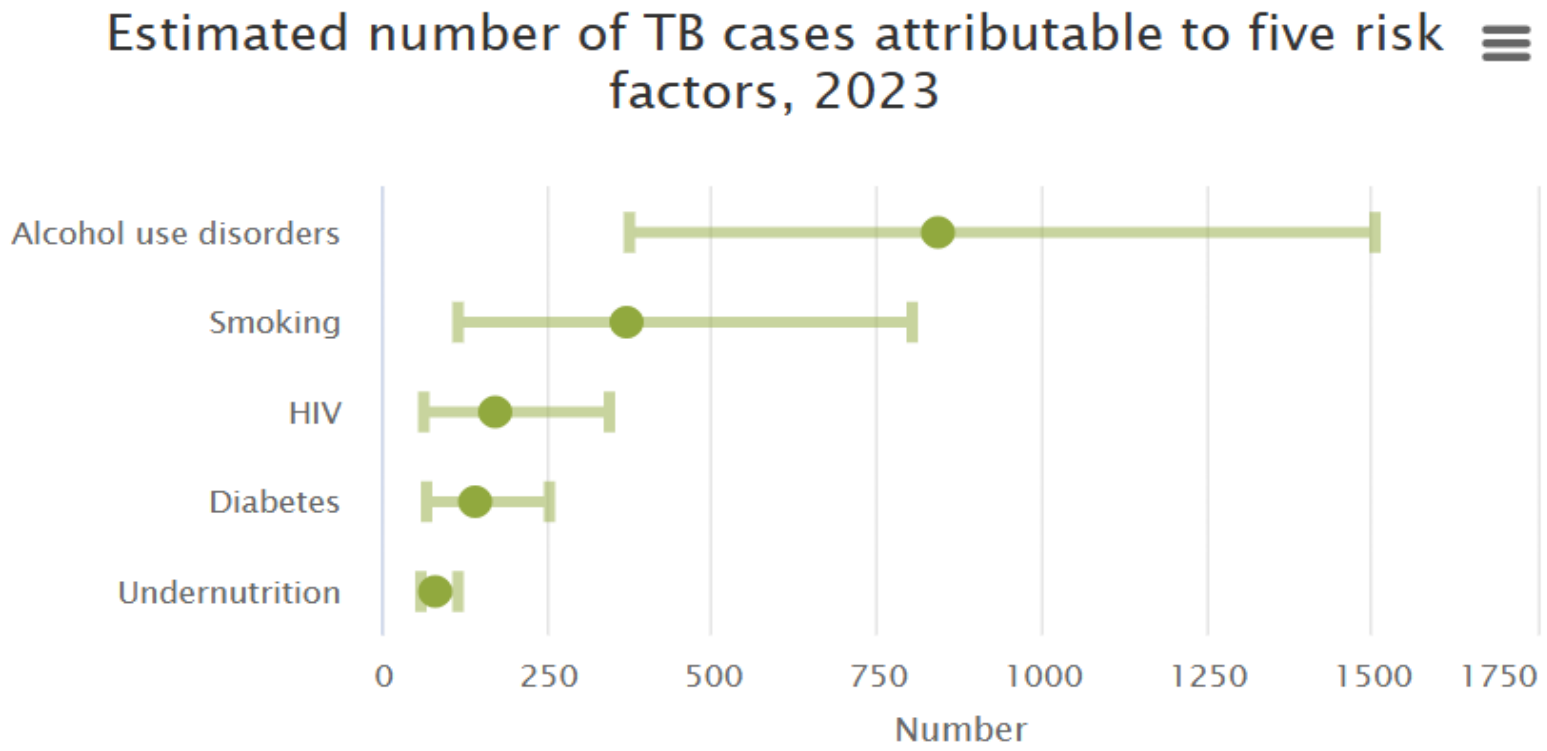
Challenging Ventilation

Co-morbidities

Staff and Prisoners

Potential for rapid spread

Attributable risk factors - from the UK:



Taken from
WHO Global tuberculosis report 2024

- As with the general population, there is limited TB awareness among staff and prisoners – particularly around signs and symptoms.
- Concerning for HMPPS as the potential to spread among prisoners and staff and across the estate
- We are reviewing our data systems, but at the moment we rely on UKHSA / PH networks to inform us of new and emerging issues relating to TB in prisons and the community
- Need close partnership working to address the risks of TB in HMPPS settings

Clear guidance

- Updated TB Guidance
- Updated Communicable Disease PF
- PPE Guidance
- IPC Guidance

Need for robust data

- Review data systems
- How HMPPS keeps updated with situations
- How we learn and share
- Surveillance

Resources

- Health Liaison Lead in each establishment
- PPE resource
- Building analyst capacity

Close Partnership Working

- Close working with external partners e.g. UKHSA, Public Health Wales and NHS England and Wales
- Internal partnerships with H&S, Occupational Health and the operational line

Clear Communication

- Raising awareness
- Understanding roles and responsibilities
- Two-way communication to help manage incidents and outbreaks

Engaging the population

- Symptom awareness
- Appropriate and targeted engagement and communications – including staff!

Requirements for Respiratory Protection

- The requirement for respiratory protection will be based on a risk assessment which should be undertaken and communicated by healthcare staff.
- Where staff can be physically separated from the Prisoner without compromising the safety and security of the prison staff, the prisoner, clinical staff or members of the public then this is the option which will best reduce the infectious risk and need for respiratory protection. However, this is subject to local Risk Assessment and Security Controls.
- In circumstances, where respiratory protection may be required to provide protection to staff due to escort/bedwatch for example, Battery powered respiratory protection equipment (BP-RPE) will need be requested via the local Health and Safety Team.
- BP-RPE provide the user with the same respiratory protection as an FFP3 mask without the need to face fit test and is a practical alternative to single use FFP3 respirator masks
- Training in the use of BP-RPE will also need to be provided to identified staff . This will be delivered by the local HSF Team
- It is important that an assessment of the patient health by Healthcare and likelihood BP-RPE may be required is undertaken to ensure BP-RPE sets are obtained in readiness and training delivered to identified staff.

In summary

- Vulnerable population in a setting that can amplify disease
- Close partnership working between HMPPS and the health/ public health system
  - Clear communications and guidance
  - Accessible and timely PPE
  - Rapid Contact tracing

- HMPPS Settings:
  - Awareness of signs and symptoms
  - Suspect or confirmed case of TB – link with UKHSA
  - Know how to access PPE and when to use
  - Rapid contact tracing to contain spread