Public Health England

Guidance for PHE Centre Health Protection Teams on responding to TB incidents and outbreaks in prisons and other places of detention

Second edition, July 2014

NHS England

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Published July 2014
PHE publications gateway number: 2014123
NHS England publications gateway number: 01864

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Contents

Title	Guidance for PHE Centre Health Protection Teams on responding to TB incidents and outbreaks in prisons and other places of detention, Second edition, July 2014
Type	Operational guidance
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Date of Issue	July 2014
Current Version	2.0
Audience	PHE Centre Health Protection Teams
Document Status	Approved by the PHE Health & Justice Prison Network
Review Date	24 months

ACKNOWLEDGEMENTS

The authors would like to thank the PHE Centre TB leads for their valuable input.

1 Purpose

The purpose of this guidance is to support Public Health England Centre (PHEC) Health Protection Teams (HPTs) in providing a consistent approach to the leadership and management of tuberculosis (TB) incidents and outbreaks in prisons and other detention settings. The guidance does **not** address routine surveillance, reception screening, diagnosis or clinical case management of TB in the prison and other detention settings.

HPTs have a public health leadership and coordination role in the timely investigation and management of TB incidents or outbreaks in prisons and other detention centres (with support from the local TB services).

Definitions: TB incidents and outbreaks in prisons and other detention settings

TB incident = where potential transmission of tuberculosis from an infectious case to prison/detention centre contacts is identified, that is, any case of smear-positive TB that has been in prison or another place of detention (staff or prisoner/detainee) during the infectious period.

TB outbreak = subset of incidents, where two or more epidemiologically-linked cases of tuberculosis have occurred with evidence of recent transmission in the same prison/detention centre. This may include cases diagnosed in the community with epidemiological links to the prison/detention centre.

This document does not repeat existing clinical guidance on public health management of TB. Outbreak management follows the locally agreed multiagency plan. Key linked documents are:

- management of tuberculosis in prisons: Guidance for prison healthcare teams[1]
- multi-agency contingency plan for the management of outbreaks of communicable diseases or other health protection incidents in prisons and other places of detention in England[2]
- National Institute for Health and Care Excellence. NIHCE clinical guideline 117. Clinical diagnosis and management of tuberculosis, and measures for its prevention and control[3]
- Public Health England Centre Clinical Guideline: Tuberculosis (on HPZone)[4]
- the Department of Health Green Book on immunisation[5]
- Communicable Disease Outbreak Plan: Operational Guidance[6]
- Public Health England Emergency Preparedness, Resilience and Response Concept of Operations[7]

2 Background

The rate of TB infection in the general UK population has been rising steadily. Prison and other detention setting populations are particularly vulnerable to TB infection, and both the National Institute for Health and Care Excellence (NIHCE)[3] and the Chief Medical Officer (CMO)[8] have highlighted the importance of prisons in TB control. The approach to TB incident management in prisons has many similarities to the approach in the community.

However, there are specific challenges within the prison/detention setting:

- **identification of cases:** there may be delays in recognition, risk assessment, alerting and reporting, compared with the community setting
- **diagnosis**: due to delays in access to rapid clinical assessment, it may take time to establish the diagnosis
- **Isolation of confirmed and suspected cases:** there may be difficulties in identifying single rooms, due to prison/detention centre population pressures.
- **notification of cases to HPTs**: under-reporting of cases detected in prisons and detention centres to local HPTs is a recognised problem and may be due to healthcare staff's lack of knowledge about when and how to notify TB
- **management**: there may be difficulties due to limited in-house TB expertise and awareness, particularly in low-prevalence areas. Access to appropriate services in acute trusts in the community may also be hampered by the constraints of the prison regime (for example, outpatient appointments missed because of prison 'lock-down', or prisoners/detainees being moved without notice due to population or security issues)
- **follow-up**: rapid turnaround and transfer/movement of prisoners, including moving back into the community, and poor links into primary care in their home communities, make tracing, contacting and managing cases and contacts more challenging
- **communication**: prisoners/detainees and staff have restricted access to telephone and the internet, so routine approaches to communication are not always possible. Rates of literacy in English may be lower than in the community. Fear and stigma may be particularly acute in the prison setting.

3 Planning and preparation for TB incidents

3.1 Organisational arrangements

The management of TB incidents in prisons and detention centres requires close collaboration between HPTs, prisons/detention centres, TB services, and the NHS England Area Teams (ATs) who are responsible for commissioning prison health and justice services. In addition, a number of professionals have to interact effectively during a TB incident in a prison/detention centre – including the prison governor/centre manager/director, CCDC/CHP/ Health Protection Specialist/Practitioner (HPP/S), Director of Public Health (DPH), prison healthcare manager, infection control team, TB service clinicians (chest physician and TB nurse), consultant microbiologist and laboratory staff (including the Mycobacterium Reference Laboratory).

The roles of partner organisations and professionals in responding to prison and detention centre incidents is detailed in the *Multi-agency contingency plan for the management of outbreaks of communicable diseases or other health protection incidents in prisons and other places of detention in England* . The guidance discussed here will refer to these role specifications and should therefore be used alongside the multi-agency plan.

3.2 Communication

HPTs should make certain that there is regular formal contact between the key partner organisations and staff members to ensure the existence of up-to-date networks and local interpretation of plans, which will facilitate the effective investigation and management of TB incidents and outbreaks in prisons and detention centres.

3.3 Notification of prison/detention centre TB cases to HPTs

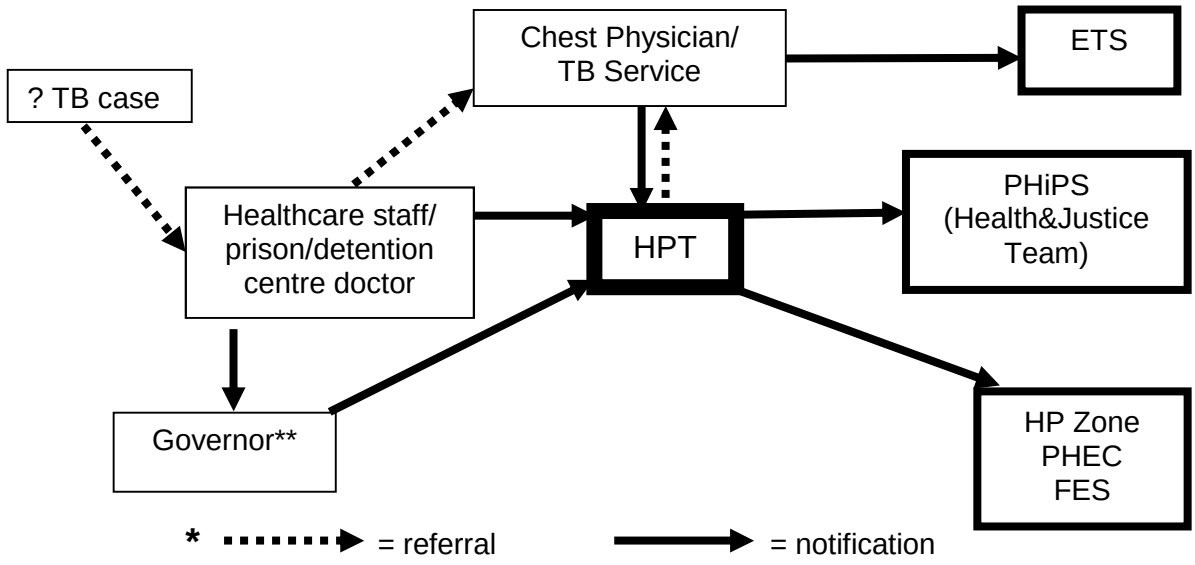
HPTs should maintain robust disease and incident notification and reporting systems, and ensure that clinicians (TB services, prison healthcare), infection control, microbiology laboratories and prison governors/centre managers/directors are able to rapidly report TB cases and incidents.

HM Prison Service requires governors to report notifiable disease (including TB) and infections with significant public health consequences directly to the HPT.

The diagnosing TB service should ensure that the risk factor history (including present and past incarceration in prison) for cases is reported on the web-based enhanced tuberculosis surveillance (ETS) system.

HPTs, in turn, are required to report prison TB incidents to the PHEC Health Protection Director, the PHiPs Team, and PHEC based Field Epidemiology Service (FES). Details of the incident should also be recorded on HP Zone and allocated the appropriate incident level. The notification process is outlined in Figure 1.

Figure 1: Possible notification routes for prison/detention centre TB*



** It is the responsibility of prison governors/centre managers/directors to ensure that potentially infectious cases of TB in their prisons/detention centres are managed appropriately, including ensuring that the case is notified to the local HPT by the healthcare team.

4 Response to a single case of TB (TB incident) in a detention setting

4.1 HPT responsibilities

- to provide public health leadership of the investigation and management of TB incidents and outbreaks
- to provide expert advice on TB control

4.2 Assessment phase

1. **Verify the diagnosis**, including site, infectivity, multidrug-resistant (MDR) TB risk, and ensure appropriate tests requested urgently. Tests should include a rapid *Mycobacterium tuberculosis* probe and a rifampicin probe, along with molecular typing of isolates.

2. **Agree immediate steps to identify contacts and possible cases**. These should include risk assessing infectivity and potential for transmission (guided by clinical and microbiological assessment), preliminary descriptive epidemiology and deciding whether an incident should be declared.

3. **Ensure appropriate segregation** of potentially infectious case in a single room until declared non- infectious (usually after two weeks of appropriate treatment for drug sensitive cases) or transfer to hospital for treatment if indicated (see section 8.1).

4. **Declaring an incident** - Once microbiological or clinical information is available confirming infectious TB, the CCDC/CHP in conjunction with the prison governor (or representative), takes responsibility for initiating the prison/detention centre incident plan and, if judged appropriate, convening an incident control team (ICT) as soon as is practicable.

5. **Once a case has been confirmed as infectious, the incident should be recorded** on HP Zone and reported to the Health&Justice Team and the PHEC (Fig 2).

6. **An infectious prisoner/detainee should be placed on 'medical hold'** (suspending transfer) until clinical assessment and care planning (including a discharge/transfer plan) is complete, and the case is deemed non-infectious (usually two weeks after starting treatment if drug susceptible). Cases with MDRTB will remain infectious for much longer periods.

7. **Where prisoners/detainees are transferred** for any reason (for example, security) during the infectious period, the prison/detention centre healthcare, TB service and HPT at the transfer destination should be alerted in advance by the prison/detention healthcare staff, in order to plan for adequate infection control and clinical follow-up. Infectious prisoners/detainees should be asked to wear a surgical mask when leaving isolation, including during transfers. Where infection control has been inadequate during transfer of an infectious prisoner/detainee, exposed individuals should be risk- assessed and screened where indicated. An adequate supply of TB treatment should be transferred with the prisoner/detainee if the drugs may not available at the receiving prison/detention centre.

4.3 Control phase

1. **The control phase** begins following declaration of an incident, and formation of an incident control team (ICT), if judged appropriate. The aim of this phase is to identify further TB cases linked to the index case and interrupt onward transmission.

2. **Convening an ICT,** if judged appropriate.
    - this could occur once microbiological and initial contact information is available, to expedite decision-making. Identification of contacts and potential contacts is often the most difficult stage of the operation and may require additional resources to be mobilised, following the first meeting of the ICT
    - for information regarding membership, see section 3.1 of the generic prison outbreak plan [5]. TB service representatives should be present, in addition to the generic list. The plan contains action cards regarding roles and responsibilities

3. **Appropriate investigation and management of the incident**, in line with the generic prison outbreak plan section 3.2. In addition to the generic ICT objectives outlined in the plan, the ICT will need to agree:
    - a strategy for identifying potential at-risk contacts within and outside the prison/detention centre (see section 6). The CCDC/CHP, TB service, prison/detention centre healthcare and governor (or representative) should identify potential contacts before the first ICT meeting, if practicable, in order to expedite the formulation of a screening strategy
    - definition of “close contact” following risk assessment (see section 6)
    - strategy for contact screening (see section 7)
    - use of molecular-typing investigations to confirm links between any cases identified through contact tracing
    - a strategy for data collection, management and evaluation of the incident
    - communications strategy (including roles of communications departments of organisations involved)
    - follow-up plans, including repeat screening, where indicated

4. The ICT (or CCDC/CHP, where an ICT was not judged necessary) should seek assurance **that appropriate control measures have been implemented** for infectious cases (see section 8), and that all suspected cases and immunocompromised contacts have been urgently referred to a chest physician.

5. **The CCDC/CHP is usually responsible for officially standing down the incident,** in agreement with other members of the ICT. Stand-down criteria depend upon the individual situation, but may include: confirmation of alternative diagnosis, no evidence of transmission detected, all exposed persons investigated, and no further screening necessary. All relevant stakeholders should be informed.

4.4 Evaluation phase

The evaluation phase begins after stand-down of the incident, although the ICT should plan for evaluation and data collection from the outset of the incident. The HPT should normally lead the evaluation. The main components of this phase are:

- definition of process and outcome measures to be evaluated
- evaluation of process and outcome measures (this is likely to include consultation with key stakeholders)
- report writing, including recommendations for change (suggested format included in the prison outbreak plan). This may provide an opportunity for additional epidemiological studies to be undertaken, to inform future practice and improve the evidence base
- dissemination of the report to stakeholders, including agreement of recommendations. Wider dissemination within HPTs across PHECs, ETS and LTBR logs, and the Health & Justice Team incident log
- joint action planning and implementation of changes

5 Response to an outbreak of TB in detention settings

5.1 HPT responsibilities

- to provide public health leadership of the investigation and management of TB incidents and outbreaks
- to provide expert advice on TB control

5.1 Assessment phase

1. **Definition of a TB outbreak =** subset of incidents, where two or more epidemiologically-linked cases of active tuberculosis have occurred with evidence of recent transmission in the same prison/detention centre. This may include cases diagnosed in the community with epidemiological links to the prison/detention centre.

2. **Whenever two or more cases of TB are detected** with links to the same prison/detention centre, the initial investigation should focus on whether cases are epidemiologically linked and whether there is recent, and potentially on-going, transmission:

- verify the diagnosis and rule out false positive laboratory results ("pseudo-outbreak")
- ensure that molecular typing is requested for all isolates, to exclude linkage where typing differs. Where cases are of the same genotype, note that this may be an incidental finding of a high-prevalence strain. Seek expert advice, where necessary
- gather descriptive epidemiological information about cases, in particular about the infectious period, time spent in prison, drug sensitivities, compliance with treatment and epidemiological links with other cases (housing, education, recreation, and so on). Note that transmission may have occurred outside the prison/detention centre, even when the cases are all prisoners/detainees, as community networks may be shared

5.3 Control phase

1. Where epidemiological and transmission links between clustered cases are confirmed, **an outbreak should be declared** and an outbreak control team (OCT) convened.

2. **The general principles of outbreak control apply**, and the response should follow the stages outlined in sections 4, 6 and 7 of this document, to identify and screen contacts, with additional considerations as follow:
   - the OCT should agree a case definition for confirmed, probable and possible cases
   - the OCT should plot epidemiological links and aim to identify the index case. Molecular typing (and whole genome sequencing where available) should be used during this process. Consideration should be given to links between cases in the prison/detention centre and community cases. VNTR and genomic sequencing are increasingly identifying near prison as well as within prison transmission
   - where the index case is not known, the OCT should search for an unsuspected infectious source, for example, poorly-treated MDR TB, smear-negative pulmonary TB, infectious staff members and breakdown of infection control procedures
   - descriptive epidemiology and hypothesis generation
   - Where relevant, analytic epidemiology to test hypotheses

- infection control measures (see section 8)
- communication (including prisoners, staff, all organisations involved community, other prisons, health services and the media)
- report writing (see section 4.4)

3. **Due to the complex and extraordinary nature of prison TB outbreaks**, the CCDC/CHP should consider the need to consult national experts in the field.

4. **In outbreaks involving more than one prison**, the HPTs concerned will agree lead responsibility in accordance with the PHE EPRR plan. Multi-site, multi-PHEC OCTs may be necessary.

6 Contact identification

There is insufficient evidence to support any particular definition of an “at risk” TB contact, either in the community or in the prison/detention centre. Therefore, contacts should be defined according to basic public health principles, with some special considerations for the prison/detention centre environment.

1. **Determine the infectious period of case**: from the onset date of cough until two weeks of appropriate treatment is complete with clinical improvement. If date of cough onset unknown, define as up to and including three months before diagnosis.

2. **Map infectious case’s movements** through prison/detention centre system and beyond. If movements during the infectious period include locations outside the prison/detention centre, ensure that the individuals responsible for public health in these areas are notified.

3. **Define contacts.** This may require the assistance of the prison/detention centre management team, which can access prison information systems, for example, NOMIS (National Offender Management Information System). Include housing, social groups, religious groups, education, work, exercise, escorts, visitors and bed-watch. Index cases should be asked to identify individuals they spend significant amounts of time with, to identify close contacts who do not show up on any “formal” lists.

4. **Prioritise contacts according to risk.** The conventional operational benchmark of eight hours’ cumulative exposure is not an absolute threshold and may result in a large cohort of contacts. It is important to base contact selection on a local risk assessment, first screening a smaller cohort of higher-risk and more exposed individuals, and extending screening only if significant transmission is detected (usually >10%) (“stone in the pond” approach). The following factors should be considered when assessing the risk status of contacts:
    - time (duration of exposure);
    - place (physical proximity to case and nature of environment);
    - person (for example, immunocompromised individuals should be considered high-risk, defined by NIHCE as individuals with HIV, injecting drug use, solid organ transplantation, haematological malignancy, jejunoileal bypass, chronic renal failure, haemodialysis, gastrectomy, anti-tumour necrosis factor (TNF)-alpha treatment, silicosis);
    - shared activities (for example, shared cigarettes, drug use, education, work, exercise, cellmates);
    - the degree of case infectivity taking in to account factors such as duration of cough, CXR findings and the immune status of the case. The advice of the TB physician/Consultant in respiratory diseases is essential

5. **Contact identification should include** consideration of prison/detention centre staff, other prisons/detention centres, and community contacts (former prisoners/detainees who are now in the community), and this may necessitate involvement of colleagues in other HPTs and PHECs, prisons/detention centres and NHS services as well as the national Health & Justice Team within PHE. It is likely that some contacts will have been discharged or transferred from the prison. Where possible, the location of these individuals should be identified; the PHiPs Team may be able to assist. For contacts transferred to other

prisons/detention centres, the relevant prison/detention centre healthcare team, HPT, and governor should be informed about the need to arrange risk assessment, with or without screening. Where contacts have been discharged into the community, the contact, their GP and the local TB service and the HPT should be informed.

7 Follow-up of contacts

7.1 Symptom screening

- symptom screening should be conducted as soon as is practicable, to identify active disease and prevent onward transmission.
- pulmonary TB should be suspected in any patient who has a history of a cough lasting for more than three weeks associated with one or more of the following:
  - Weight loss;
  - Anorexia;
  - Fever;
  - Night sweats;
  - Haemoptysis;
  - Chest X-ray or CT abnormalities consistent with possible TB.

7.2 Contact screening

- **contact screening investigations in asymptomatic individuals** should be carried out in accordance with NIHCE guidance and usually at least six weeks following the last contact with an infectious case. This allows time for any infection to become detectable. If screening is carried out before then, consider repeating the process
- **the NIHCE guideline** for the management of TB outlines standard contact tracing procedure, using Mantoux testing, followed by Interferon Gamma Release Assay (IGRA) for contacts aged 35 or under, and chest X-rays for those over 35. However, due to the specific challenges presented by the prison/detention centre setting, including frequent movement of prisoners/detainees, security issues and disruption to prison/detention centre activities, alternative approaches may be more appropriate. Alternative options include screening using Mantoux, IGRA, or chest X-ray. Where large numbers of contacts have to be screened NIHCE recommends using a single IGRA test (without prior Mantoux testing). Where on-site digital X- ray facilities are not available, mobile X-ray units can be commissioned for use if large numbers of prisoners/detainees need to be screened on a single day. CsCDC/CsHP should consider consulting national experts who can advise on the choice of screening method
- **the decision to implement a particular screening approach** is likely to be influenced by the number of contacts to be screened, baseline population prevalence of TB, local skills, availability of staff and resources, and the logistics of arranging screening sessions
- **the closest and most exposed contacts and those deemed at high risk clinically should be screened first**. The definition of “closest” will vary, depending upon the specific situation (see section 6). If significant transmission has been detected (usually >10%) in the closest contacts, additional contacts should be screened in a stepwise fashion, employing a ‘stone in the pond’ approach

7.3 Onward referral and follow-up

- all contacts with symptoms, or investigation results suggesting active or latent TB, should be referred for clinical follow-up by the TB service, in accordance with NIHCE recommendations. To prevent onward transmission of disease symptomatic contacts who

may have infectious TB should be isolated until fully assessed. Contacts likely to be immunosuppressed should also be referred (see page 13)
- all cases should have mycobacterial isolates sent for molecular typing, and results should be scrutinised to rule in/out linkage

7.4 “Inform and advise”

- all contacts who have been screened should receive written and verbal information about screening and any treatment. Translated materials may be required. Standard leaflets are available in a number of languages
- all contacts should be provided with “inform and advise” information. Lower-risk individuals who have been in contact with the case, but who were not screened as contacts, should also receive information. Contacts should be provided with a contact point for queries, as prisoners are unable to access NHS helplines or use the internet
- where possible, GPs and other healthcare workers responsible for contacts should be informed that their patient has been in contact with TB

8 Infection control

The principles of infection control for TB in prison/detention centre share many similarities with infection control in the hospital setting. No special cleaning or hygiene measures are required. Items contaminated with sputum should be dealt with as clinical waste. Cases should cover mouth and nose when coughing. Additional considerations are outlined below:

8.1 Isolation/exclusion of cases

- prisoners/detainees with pulmonary disease in whom TB is suspected need to be isolated in a single room until three separate sputum microscopy tests are negative, or until confirmed pulmonary disease is deemed non-infectious - usually two weeks after appropriate drug sensitive treatment commences
- rooms should ideally be ventilated to the outside and have a toilet and wash-basin to minimise the need to leave isolation
- reorganising accommodation so that highly susceptible prisoners/detainees (for example, those with HIV) are not housed in neighbouring cells should be considered
- infectious prisoners should be placed on ‘medical hold’ (suspending transfer) until case is deemed non-infectious (usually two weeks after starting treatment)
- clinical assessment and care planning (including a discharge/transfer plan) should be started early and be ready for when case is released or transferred out of medical hold
- staff with suspected infectious TB should be excluded from work, either until a TB physician has ruled out TB, or until they have completed two weeks of TB treatment. Staff may not be fit for work even if non-infectious and, ideally, both occupational health and the chest physician should be involved in the decision
- **infection control measures for MDR/XDR TB cases are more strict**, including the use of FFP3 masks by staff and visitors, and negative pressure isolation facilities which are not available in prisons/detention centres. These cases should be managed in accordance with national guidance and their care discussed with clinicians who specialise in this (BTS advisory service[9]).
- **in most instances infectious MDR/XDR cases will require a period of hospital treatment in a negative pressure facility**
- if a prisoner with MDR/XDR TB is to be readmitted to prison from hospital, the prison, TB services and CCDC should be involved in the decision-making

8.2 Isolation/exclusion of at-risk individuals

- where bed-watch duties are required for infectious cases, staff should not conduct duties from the bedside in an infectious prisoner’s room. Officers should be advised to conduct duties through an observation port from outside the room
- any visitors during the infectious period should be kept to a minimum and comply with best practice for infection control. Infectious prisoners/detainees should be asked (with appropriate explanation) to wear a surgical mask when leaving isolation during the infectious period (usually until two weeks’ treatment is complete), including during visits

8.3 Face masks, gowns and barrier nursing

There is limited consensus in the literature regarding the effectiveness of face mask usage in preventing TB transmission. In accordance with guidance for prison healthcare teams on the management of TB and NIHCE guidelines for infection control in hospital settings the following is applicable:

- staff and other prisoners/detainees should not be in prolonged contact with infectious cases and masks should never be used in place of standard respiratory isolation. In addition, there is no indication for staff to wear gowns, or use other barrier nursing techniques
- prisoners/detainees with infectious TB should be asked to wear a surgical mask when leaving isolation during the infectious period (usually until two weeks' treatment is complete). The majority of symptomatic cases produce larger droplets (>5 microns diameter) during coughing or sneezing. The transmission of these droplets can be reduced by the surgical mask
- **there are two exceptions** where consideration should be given to the use of FFP3 masks and additional measures:
  - Where infectious MDR/XDR TB is suspected/confirmed, prisons/detention centres are generally not equipped to manage cases of this complexity unless specialist health care and appropriate isolation facilities are available(please note- no prisons in England have negative pressure rooms). **Transfer to NHS hospital care is the preferred option**
  - During aerosol generating procedures. However, it is highly unlikely that such procedures would be conducted in prisons/detention centres

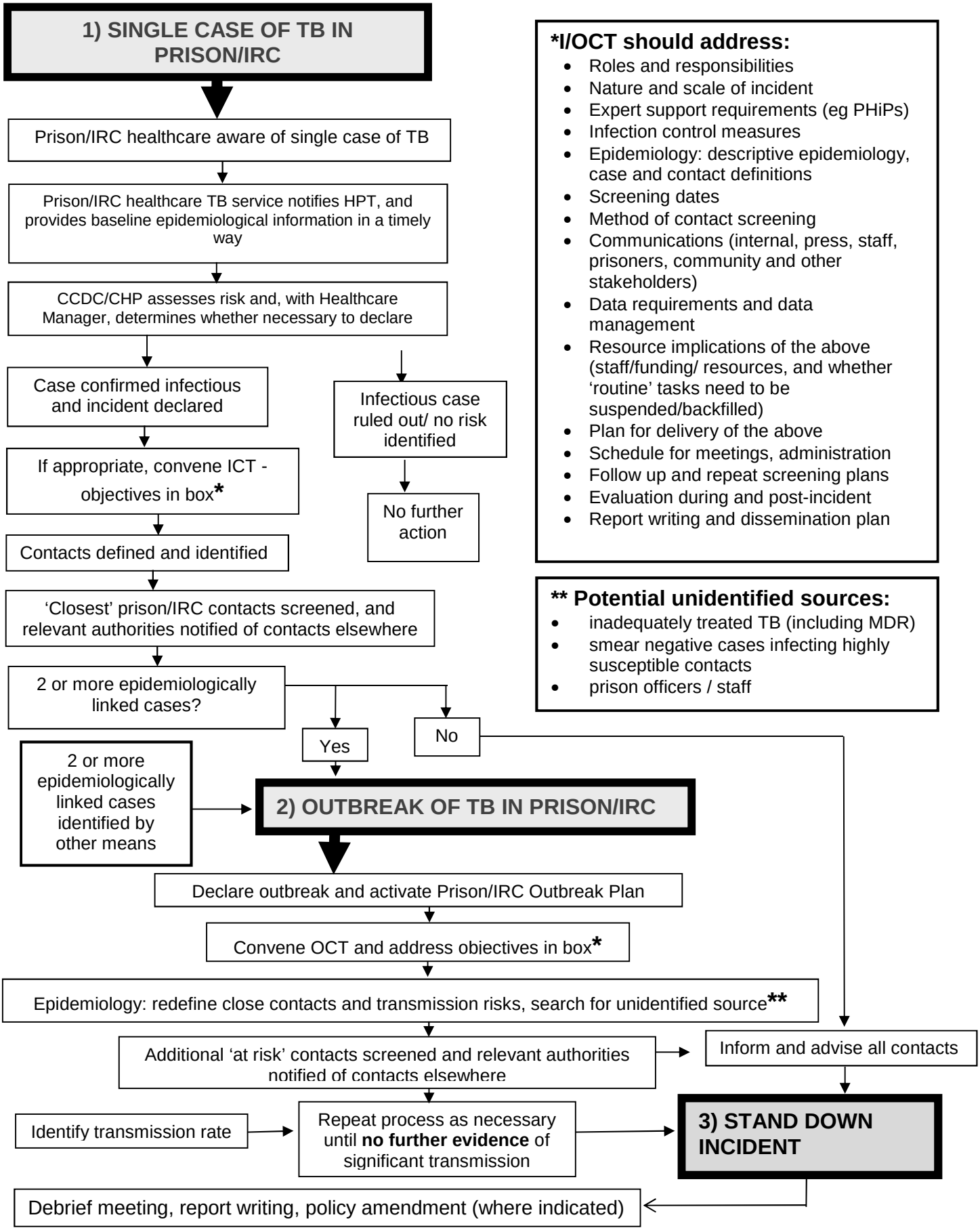
8.4 Treatment refusal

The priority for managing this in a prison/detention setting is to work through the ICT to decide how to manage the infectious or potentially infectious prisoner who refuses to comply with treatment and/or investigation. Continuous engagement, mental capacity review (if indicated) and support should be provided to the prisoner/ detainee by prison health care staff and the TB team.

The HPT should have close liaison with the prison and NHS England (as the commissioner of health care for prisoners) and advise in relation to risk to staff or other prisoners/ detainees. The HPT should seek advice from the Health & Justice Team.

General advice concerning the legal framework currently available to deal with refusal of treatment by prisoners, is being looked at and will be added to this guidance as an appendix at a later date.

9 Algorithm outlining suggested HPT response to prison TB case(s)



10 Glossary

BCG	Bacillus Calmette-Guérin
CCDC	Consultant in Communicable Disease Control
CHP	Consultant in Health Protection
CMO	Chief Medical Officer
CT	Computerised Tomography
CXR	Chest X-ray
DPH	Director of Public Health
ETS	Enhanced Tuberculosis Surveillance
FES	Field epidemiology service
GP	General Practitioner
HIV	Human Immunodeficiency Virus
HPT	Health Protection Team
HP Zone	Health Protection Zone case and incident management software
ICT	Incident Control Team
IERP	Incident Emergency Response Plan
IGRA	Interferon Gamma Release Assay
IRC	Immigration Removal Centre
LIDS	Local Inmate Database System
MDR	Multidrug-Resistant
NHS	National Health Service
NIHCE	National Institute for Health and Clinical Excellence
NOMS	National Offender Management Service
NOMIS	NOMS information system.
OCT	Outbreak Control Team
PHEC	Public Health England Centre
PHE H&JT	PHE Health & Justice Team
PHiPs	Public Health in Prisons Team
TB	Tuberculosis
UKBF	UK Border Force

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Other useful documents

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