

Occupational Health Tuberculosis Employment Policy

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Document Type:	Policy – Clinical
Version:	4
Date of Issue:	April 2018
Renewal by:	April 2021
Lead Director:	Nursing and Quality
Post Responsible for Update:	Lead Nurse Occupational Health
Approval Committee:	Strategic Infection Control Group
Approved by them in the minutes of:	27th March 2018
Distribution to:	All Trust staff via the Trust Intranet

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Risk Rating			
Who will be affected by this procedure?	Trust Employees√ / Patients√		
Is there an existing risk assessment related to this procedure?	Yes√ / No		
If No is one required?	Yes./No	Yes – Date completed	
If Yes does it require updating?	No	Yes – Date completed	
	A Consequence (1-5)	B Likelihood of Occurrence (1-5)	C Risk rating (A x B = C)
Raw Risk Rating (no control measures in place)	5	2	10
Final Risk Rating (control measures in place)	5	1	5
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1 Introduction / Purpose

Tuberculosis (TB) is an infection caused by a bacterium of the mycobacterium tuberculosis complex, which may affect any part of the body but most commonly affects the lungs or lymph nodes. In the UK, 75% of cases involve the respiratory system with spread being by aerosol droplets. Such transmission is only likely when the index case is sputum smear-positive for the bacillus, has a productive cough and after prolonged contact. TB is a notifiable disease and cases should be reported to the Consultant in Communicable Disease Control at the Health Protection Agency by the doctor first diagnosing.

In the past, the incidence of TB in health care workers was no greater than that in the general population, with the exception of mortuary workers. However there is now increasing evidence that healthcare workers may be at greater risk.

It is the policy of the Trust that no-one will be discriminated against on grounds of age, disability, gender, gender re-assignment, marital status, race (including colour, nationality and ethnic or national origins), religion or belief or sexual orientation. The Trust will provide interpretation services or documentation in other mediums as requested and necessary to ensure natural justice and equality of access.

2 Process

2.1. General Principles

- Any healthcare worker in regular contact with patients and laboratory workers handling specimens are at potential risk of contracting TB and should be immunised using BCG vaccine. However, BCG does not confer complete protection and therefore TB can still occur in vaccinated healthcare workers.
- It is incumbent on all employees to follow local personal protective equipment and respiratory protective equipment policy. Employees should use appropriate face masks, (FFP3 respirators) that provide filtration properties and reduce the risk of transmission of aerosol droplets from active TB-patients in general healthcare environments. Mortuary and laboratory workers must follow local policy and procedure for safe handling of contaminated tissues/bodies.
- Employees that refuse vaccination must have the risk explained and the refusal documented in their occupational health notes. The importance of reporting possible symptoms of TB promptly should be emphasised.
- Employees who are immuno-compromised must not care for patients with active TB. An immuno-compromised person is one who is on long-term high dose steroids (equivalent to 40mgs or more of oral-steroid), immunosuppressive drugs or who is HIV positive.
- Prospective employees with active TB will not be able to commence employment until treatment has been completed and they have subsequently been declared smear negative by the Respiratory Physician.

2.2. Pre-employment Screening:

The purpose is:

1. To detect the possibility of current disease
2. Determine the immunisation status in health care workers at risk
3. Protection of patients from potentially infected healthcare workers

Pre-employment Screening for all New NHS Employees:

This policy should be read in conjunction with NICE Tuberculosis clinical pathways available at:

<http://pathways.nice.org.uk/pathways/tuberculosis#path=view%3A/pathways/tuberculosis/treating-latent-tuberculosis.xml&content=view-index>

All new NHS employees who during the course of their employment will have contact with patients or clinical specimens must undergo pre-placement health assessment. Pre-placement health assessment will include:

- Record of any exposure to tuberculosis (TB).
- Determination of any increased risk factors for TB.
- Documentary evidence of tuberculosis skin testing or interferon-gamma testing.
- Previous BCG vaccination, noting presence or absence of BCG scar.
- Mantoux skin test (or interferon-gamma release assay (IGRA)) and chest radiography where indicated.

The above information will be obtained by questionnaire and face-to-face occupational health assessment. Face-to-face occupational health assessment will be essential requirement in the following circumstances:

- When BCG scar check has not been carried out by an occupational health professional, (reliance on the applicants personal assessment is not satisfactory for high risk employment groups)
- Any employee with suspicious symptoms should receive an Occupational Health assessment and will require IGRA and chest X-ray
- Employees of any age who are new to the NHS from countries of high TB prevalence; or who have had contact with hospital in-patients in countries with high TB prevalence.
- Any new employees who have recently returned to the United Kingdom who have spent more than 3-months in a high TB prevalence country

2.3. NICE Guidelines:

Nice guidelines published in March 2011 recommend different screening procedures for individuals recently arrived from countries where tuberculosis incidence rates are greater than 40 per 100,000 per year.

Up to date information on countries with tuberculosis incidence greater than 40 per 100,000 per year can be obtained via Public Health England:

<https://www.gov.uk/government/publications/tuberculosis-tb-by-country-rates-per-100000-people>

New Entrants to the United Kingdom, from areas of high incidence of TB:

- New employees arriving from countries where annual incidence of tuberculosis is greater than 40:100,000 and have not been previously screened on entry to the United Kingdom or by a previous employer in the UK within the previous 12-months will require screening
- All new entrants healthcare workers from countries of high incidence of TB or have had contact with patients in settings with high TB prevalence will require IGRA, irrespective of previous BCG vaccination
- All negative results for IGRA should be offered BCG vaccination where there is no history of BCG or identifiable BCG scar
- A positive IGRA will require chest x-ray and referral for clinical assessment with the Respiratory Physician to exclude active disease and possible presence of active or latent infection
- Any new entrant with active disease will not be eligible to commence employment until treatment is completed and information informing of such is received from the Respiratory Physician
- Any new entrant with latent disease will be able to commence employment whilst awaiting respiratory physician assessment and treatment

Healthcare Workers from the UK or other Low TB Incidence Areas:

- A Mantoux test will only be necessary in new employees who do not have:
 - A definite BCG scar or Documentary evidence of previous BCG or documented evidence of positive tuberculin (Mantoux) test or negative IGRA within the previous 5-years
- If an employee new to the NHS has no or inconclusive evidence of prior BCG vaccination then a Mantoux test should be performed.
- An employee who is Mantoux reading that is less than 6mm should be offered BCG vaccination.
- An employee with a positive Mantoux result 6mm or more will require IGRA and chest X-ray to determine active respiratory TB or latent disease
- If the chest x-ray is indicative of TB referral to the Respiratory Physician will be required. These individuals **will not be** passed 'fit for employment' until treatment is completed and confirmation of non-infectious status is obtained from the Respiratory Physician

- Individuals with normal chest x-ray but positive interferon-gamma tests should be referred to the Respiratory Physician for exclusion of latent TB. These individuals **will be** passed 'fit for employment' whilst receiving treatment

2.4. BCG Vaccination:

- BCG vaccination was introduced in 1953 into the United Kingdom. It takes 6 to 8 weeks for cover to become effective, with a protection level between 70% and 80%
- An individual (from areas of low incidence of TB) with a scar from BCG vaccination on their upper arm should be considered immune for routine employment purposes
- All health care workers should be made aware that BCG offers substantial but not complete protection against TB and that they need to seek medical advice should they develop symptoms compatible with TB
- All Tuberculosis negative individuals in groups or from countries with a high prevalence of HIV infection should be considered for HIV testing before BCG vaccination
- Individuals with uncertain history of BCG vaccination should be tuberculin (Mantoux) tested (low incidence countries) or IGRA (high incidence countries) before BCG vaccination
- The ultimate decision whether to offer BCG vaccination (where there is possible previous BCG vaccination history but no proof) must only be considered following a Mantoux reading less than 6mm or negative IGRA and only be considered following thorough risk assessment of the potential harm of revaccination against the benefits of vaccination.
- Employees should be offered BCG vaccination, whatever their age, if their employment involves contact with patients or clinical specimens and are Mantoux negative less than 6mm and have not been previously vaccinated) or IGRA negative.

2.5. BCG Vaccination and HIV Risk Assessment

- BCG vaccination is contraindicated in symptomatic HIV-positive individuals
- In the UK where the risk of TB remains low, it is recommended that BCG is withheld from all who are known or suspected to be HIV-positive regardless of symptoms
- HIV-positive employees without previous BCG vaccination may be restricted from working in certain areas. Refer to the Occupational Health HIV Employment Procedure
- The following groups are considered to be at higher risk from HIV and will require risk assessment before BCG vaccination:
 - Anyone from or who has had unprotected sexual intercourse with a person from a HIV high prevalence country i.e. Sub-Saharan Africa, parts of Asia or Eastern Europe

- Intravenous drug users (IVDU), especially IVDU from the above geographical areas
 - Any individual who partakes in unprotected, multi-partner sexual intercourse regardless of country of origin
 - Men who have sex with men
 - Blood transfusion in countries of high HIV prevalence
- Employees with any of the above risk factors should be offered HIV testing prior to BCG vaccination
 - It is safe practice to proceed with BCG vaccination without prior HIV testing for employees from low HIV prevalence countries that have none of the aforementioned risk factors
 - Employees from HIV high-prevalence countries who refuse HIV testing prior to necessary BCG vaccination will require risk assessment; the decision regarding BCG vaccination in this case rests with the Consultant in Occupational Medicine.

2.6. Employees that refuse BCG vaccination.

NICE guidelines state that employees who refuse vaccination: 'should not work where there is a risk of exposure to TB'

- Restricted areas would be:
 - Pathology Laboratory
 - Mortuary
 - Respiratory Wards, Intensive Care Units
 - Infectious Diseases Units

However no clinical area is free from the risk of TB.

- Individual risk assessment will need to be carried out between the employee, line manager and Occupational Health. Risk assessment will take into account the risk of acquiring infection, which is generally considered to be low and the protective benefits of BCG in adults is uncertain
- It is considered that the risk of a non-vaccinated employee acquiring TB is likely to be low, and the risk of acquiring active disease and transmission to patients is very low. (North West TB Advisory Group 2008)
- Occupational Health will risk assess each case individually, taking into account area of employment, health and safety obligations, health status and social risks factors of the employee
- In some cases restriction may not be warranted; in which case annual surveillance of these individuals will be necessary alerting them to the signs and symptoms of TB and increasing staff vigilance

2.7. Latent TB:

- Latent TB may reactivate in later life, particularly if an individual's immune system has been weakened by disease, e.g. HIV; or certain medical treatments e.g. chemotherapy for cancer or corticosteroids or in old age
- In these circumstances a positive tuberculin skin test (Mantoux) or IGRA suggests the presence of latent or active TB
- All positive reactions will be referred to the Respiratory Clinic for exclusion of active disease and consideration of treatment for latent TB
- The healthcare worker will be counselled and informed of the implications of the positive test, in particular the risk of developing active disease in the future especially in the presence of Immunosuppression
- An asymptomatic employee with positive Mantoux or interferon-gamma test, who is not being treated for latent infection should be referred to the Respiratory Clinic for assessment and advice. They must be advised of the importance of recognising possible reactivation of disease in the future and the requirement for rapid reporting.
- With consent, the employee's GP should be informed.
- No restriction on working or area of work is required for individuals with latent TB who are asymptomatic with no symptoms of reactivation of active disease

2.8. HIV Positive and Immuno-compromised Healthcare Workers:

- Immuno-compromised individuals with latent TB have an increased risk of reactivation of active disease, the lifetime risk of reactivation of active disease in individuals with latent TB is 10% (North West TB Advisory Group)
- An IGRA should be undertaken on HIV positive healthcare workers who have no visible BCG scar or history indicative of previous or latent TB infection (under instruction from the Consultant in Occupational Medicine)
- HIV positive healthcare workers with positive IGRA should be referred to the Respiratory Clinic for assessment. These individuals will not be deemed fit for work until assurance is received from the chest clinic regarding non-presence of active disease
- HIV positive healthcare workers with asymptomatic latent disease will be fit to work subject to the terms of the HIV Employment Procedure
- Annual health surveillance and information sheets will be sent out to this group of healthcare workers to maintain vigilance

2.9. Health Surveillance:

- Health surveillance (on an annual basis) in the form of a questionnaire is advised for all staff working in high-risk areas.

- The aim is to increase awareness regarding the signs and symptoms of TB and the need for prompt reporting of any suspicious symptoms
- Anyone with symptoms should be seen by an Occupational Health Practitioner and if necessary referred to a Respiratory Physician for further assessment and chest x-ray
- Health Surveillance Questionnaires should be sent to:
 - Healthcare workers that are in regular contact with TB patients or clinical samples
 - Any healthcare workers who have latent TB
 - Any Immuno-compromised employees working in 'high risk' TB settings

A reminder of the signs and symptoms of TB is included in the yearly health surveillance

2.10. Incident Management:

As soon as there is suspicion that a TB exposure incident has occurred an early discussion is necessary between the Chest Physician, Infection Prevention and Control Service, Consultant Microbiologist, Consultant in Communicable Disease Control and the Occupational Health Service.

A TB exposure incident is classified as either:

- A healthcare worker diagnosed with pulmonary TB and working whilst symptomatic
- Delayed or missed patient diagnosis of pulmonary TB resulting in potential exposure of healthcare workers to disease

Contact tracing should only be necessary if the index case has smear-positive pulmonary TB and a productive cough. The diagnosis of mycobacterium tuberculosis must be confirmed before proceeding with large-scale contact tracing.

Precise occupational detail is required, bearing in mind that the healthcare worker may have more than one job.

Once a diagnosis is confirmed, the Consultant Microbiologist or the Consultant in Communicable Disease Control will be responsible for the decision regarding convening an incident team.

An incident team is not always necessary, dependent on the incident in question and maybe managed by the Consultant in Communicable Disease Control, Respiratory Physician, TB Nurse or Occupational Health (Clinical Lead or Consultant in Occupational Medicine), in consultation with the Consultant Microbiologist.

A risk assessment will be required for all incidents.

Incidents involving healthcare workers where there is a possibility of occupational acquisition must be reported to the Health and Safety Executive, under RIDDOR. A local incident form should be completed and forwarded to the Trust's Health and Safety Lead.

Confirmation of Diagnosis:

Diagnosis of active pulmonary TB will be confirmed by microscopic examination of sputum samples initially for acid fast bacilli (AFB). If AFB is confirmed the laboratory will notify the incident team and culture results will be reported when available.

Before instruction is received to undertake large-scale contact tracing, molecular probe for species confirmation must be undertaken to determine transmissible disease.

Only if mycobacterium tuberculosis complex (*M. tuberculosis*, *bovis*, *africanum*) is identified will contact tracing be necessary.

Risk Assessment:

An assessment of the risk of transmission should be undertaken regardless of whether an incident team has been convened.

NICE Guidelines (2011) for contact investigation of inpatients with TB should be used as a 'best practice' template, regardless of whether the index case is an inpatient or a healthcare worker.

Risk Assessment (healthcare worker to patient/healthcare worker or patient to healthcare workers) should include:

- **Degree of infectivity of the case.** High infectivity is usually considered to be transmission to more than 10% of close contacts.
- **Length of time the healthcare worker has been working whilst infectious or the total length of in-patient's stay if a patient.** The case should be considered infectious from the onset of respiratory symptoms. If this is uncertain then the period 3-months prior to 1st positive smear culture should be used.
- **Intimacy of contact.** Exact duties of healthcare worker and PPE/RPE worn. Exposure is more likely if the healthcare worker has been providing personal/intimate care to patients without appropriate facemasks (FFP3).
- **Duration of contact.** Information regarding shifts worked and duration of shifts, Cumulative exposure needs to be established; the '8-hour cumulative exposure rule' is usually used to identify and limit the number of contact tracings. E.g. a doctor who spends 20-minutes with a patient daily will only achieve the 8-hour rule if the patient was in hospital for excess of 20-days.
- **Contacts with increased susceptibility.** Some groups are more at risk of developing latent infection than others and once infected are at increased chance of developing active disease.

Examples are:

- Immuno-compromised
- Diabetes
- Surgical history, solid organ transplant, gastrectomy
- Chronic renal failure or receiving haemodialysis
- Silicosis

Actions for Contacts:

Very few healthcare workers will have cumulative exposure greater than 8-hours on a frequent and prolonged basis within a one-metre distance. Those that do should be treated as intimate contacts and will require health assessment, chest X-ray, Mantoux and interferon-gamma dependent on findings from risk assessment.

Contacts with increased susceptibility should receive a medical assessment by the Consultant in Occupational Medicine if they have 8-hours cumulative exposure within the same breathing space as an infective TB case.

Normally fit and healthy individuals with 8-hours cumulative exposure, i.e. same ward/department should have their exposure documented; these contacts do not normally require screening; however this may be necessary if high infectivity is established. The individual's GP should be informed of the potential exposure.

Individuals with less than 8-hours cumulative exposure will not require assessment or treatment, unless they are known to be susceptible (Immunocompromised). They should be reminded of the symptoms of TB and the importance of prompt reporting.

Screening:

Screening of recognised contacts should be carried out in line with NICE guidelines. The gold standard for testing in under-35 years old is IGRA. (A decision between the Consultant in Occupational Medicine and the Respiratory Physician will determine whether IGRA or Mantoux and chest x-ray is the preferred methodology for over-35 years old on a case-by-case basis)

If IGRA is logistically difficult then Mantoux testing should be undertaken and chest x-ray performed. All will require risk assessment completed by an Occupational Health professional. Following contact with a TB smear positive index case individuals who have not had BCG vaccination and who have a negative or a zero Mantoux test reaction should be re-tested six weeks after the last contact to allow time for tuberculin conversion.

Screening of staff TB contacts should be conducted in a controlled and centralised way co-ordinated by the Occupational Health Service. This ensures consistency and effective collation of information.

Identifying High Numbers of Contacts:

The risk assessment needs to be repeated if there are high numbers of yields from close contacts. Those with most exposure should be tested first and testing should only widen if there is enough TB discovered to raise clinical suspicion of further infection.

2.11 Mantoux Testing and BCG Vaccination.

This process should be read in conjunction with:

- Department of Health 'Green Book': Immunisation against Infectious Disease 2006.
- The East Cheshire NHS Trust Guidelines for the Prevention and Control of TB.
- Mid Cheshire Hospital Foundation Trust Policies, Procedures and Guidelines for the Prevention and Control of TB
- Department of Health Guidance on Pre-employment Screening re TB 2006.

➤ NICE clinical pathway Tuberculosis:
<http://pathways.nice.org.uk/pathways/tuberculosis#path=view%3A/pathways/tuberculosis/treating-latent-tuberculosis.xml&content=view-index>

- All health care workers who attend for pre-employment screening and have contact with patients or infectious specimens should be checked for a BCG scar. The site of the scar should be documented in the client's notes
- Any NHS worker presenting at pre-employment with a history of successfully treated tuberculosis must have a clear chest x-ray
- Those without a scar who **do not** have documented evidence of a BCG , tuberculin skin test or IGRA within the past 5-years should be retested
- Contraindications to Mantoux testing are listed in the drug information leaflet
- Mantoux testing is contraindicated in those who have previously experienced a severe skin reaction to Tuberculin products.

Mantoux Testing:

- Mantoux testing must not be undertaken on individuals with symptoms indicative of active TB or latent TB
- Tuberculin purified protein derivative (Tuberculin PPD) is currently only available as an unlicensed medicine in the UK. Therefore it cannot be administered using a Patient Group Directive (PGD) but must be administered by a Patient Specific Directive (PSD). (i.e. written instruction from a doctor to the administering nurse instructing administration of the medicine to one or more named patients)
- The employee and Occupational Health Practitioner will go through the Mantoux checklist. After checking their understanding of the information offered, the client will be asked to sign the consent form
- Following the Mantoux test the client will be asked to remain in the department for 15 minutes. Advice will be given regarding bathing and care of the site
- The requirement for the recipient of the Mantoux test to return to the department within 72-hours must be stressed

Reading the Mantoux test:

The employee will be required to attend the Occupational Health department 48-72 hours later for reading of the Mantoux test. The Mantoux test reading should be graded according to the guidelines in Department of Health 'Green book', Immunisation against Infectious Disease 2006.

Status	Mantoux Reading*	Actions* ¹
No previous BCG	Less than 6mm	Advise BCG vaccination
	Greater or equal to 6mm	Medical assessment Chest X-ray & IGRA
Previous BCG	Less than 6mm	No action
	6 mm to 14 mm	Indicative of previous BCG vaccination
	Greater or equal to 15mm	Indicative of TB Refer to chest clinic Chest X-ray & IGRA

* The results of the Mantoux test should be recorded as a number and not merely as a positive or negative.

*¹ following contact with a TB smear-positive index case, individuals who have not had BCG vaccination and who have a negative or a zero Mantoux test reaction should be re-tested six weeks after the last contact to allow time for tuberculin conversion.

BCG Vaccination:

- For those individuals with no previous history of BCG and have a Mantoux reading of between 0 and 5 mm: BCG vaccination is advised
- For those individuals who have had a previous BCG, but have no scar and have a negative Mantoux reading between 0 and 5mm; BCG is advised
- For those individuals who have had more than ONE previous BCG further advice should be sought from the Consultant in Occupational Medicine

- Only nurses who have received additional instruction in BCG vaccination should administer BCG vaccine

HIV Risk Assessment:

Prior to administration of BCG individual risk assessment for potential HIV infection should be undertaken. This should include both clinical and social indicators. Healthcare workers with either clinical or social indicators of increased risk for HIV infection will require HIV testing prior to BCG vaccination.

HIV positive healthcare workers must not receive BCG vaccination, and will require review by the Consultant in Occupational Medicine regarding employment concerns/restrictions.

BCG Consent:

The employee will be given a copy of the BCG consent form, which also includes information about the vaccine and contraindications.

The understanding of the contraindications and complications of the vaccine should be checked with the employee. The employee should be asked to sign the consent form indicating that they understand fully the procedure.

The vaccine must be given as stipulated in the Occupational Health Service Patient Group Directive; intradermal, and preferably in the left upper arm.

The employee should be informed to seek medical advice from the Occupational Health Service or their GP should any unexpected symptoms develop after immunisation.

The employee should be advised regarding after care of their arm and should be advised to attend Occupational Health if any problems occur.

The employee MUST be advised that no further immunisation should be given in the same arm that has been used for BCG vaccination for at-least three months

A copy of the information sheet / consent form must be given to the employee.

2.12 Interferon Gamma Release Assay:

NICE CLINICAL GUIDELINE 117, (March 2011): IGRA is recommended in:

- Those with positive Mantoux tests (greater than 6mm in non-BCG vaccinated and greater than 15 in previously BCG vaccinated)
- Those to whom Mantoux testing could be less reliable e.g. HIV therapy, cytotoxic therapy, systemic corticosteroids
- Employees of any age who are new to the NHS and are from countries of high TB incidence; or have had respiratory contact with patients in a setting with high TB prevalence.

The preferred interferon-gamma test in the North West is Quantiferon-Gold; this is due to reduced incidence of false positives, works well in the Immunocompromised and performs better when contacts are being tested rather than symptomatic individuals. Quantiferon is practicable to run in the laboratory, capable of rapid throughput and comparatively cheap.

Samples have to be co-ordinated via the Pathology lab for transfer to the regional laboratory at Central Manchester Hospitals NHS Foundation Trust. The Pathology Service will arrange for transfer of samples; samples are only transported at certain times therefore co-ordination between the Occupational Health Service and the Pathology Service is essential.

A positive IGRA indicates an on-going immunological response to mycobacterium infection. This may be due to either active Mycobacterium Tuberculosis infection or latent Mycobacterium Tuberculosis infection.

IGRA cannot identify between latent and active infection. (It can also identify Mycobacterium kansasii, Mycobacterium szulgai and Mycobacterium mainu, infection)- further chest X-ray will be required to determine the presence of active disease.

2.13 Fitness for work

Employee Status	Outcome
Low incidence [TB] country of origin. Documented evidence of previous BCG vaccination/evidence of BCG scar	No restriction-‘fit for work’
Immunocompetent patient-Low incidence [TB] country of origin. No evidence of BCG scar or documented evidence of BCG and <u>negative</u> Mantoux	BCG vaccinate No restriction-‘fit for work’
Immunocompromised patient-low incidence TB country of origin. No evidence of BCG scar or documented evidence IGRA <u>negative</u>	Do not BCG vaccinate Fit according to individual risk assessment
Immunocompromised patient-low incidence TB country of origin. No evidence of BCG scar or documented evidence IGRA <u>positive</u> Chest X-ray <u>negative</u>	Fit according to individual risk assessment Refer to respiratory physician/treating physician for assessment for treatment of latent TB
Immunocompromised patient-low incidence TB country of origin. No evidence of BCG scar or documented evidence IGRA <u>positive</u> Chest X-ray <u>positive</u>	Fitness for work deferred until treatment for TB completed (smear negative). Refer to respiratory physician/treating physician for assessment for treatment of TB

High incidence [TB] country of origin. Evidence of BCG (scar or documentation) IGRA <u>negative</u>	No restriction-‘fit for work’
Immunocompetent patient. High incidence [TB] country of origin. No evidence of BCG scar or documentation and IGRA <u>negative</u>	BCG vaccinate No restriction-‘fit for work’
Immunocompromised patient. High incidence [TB] country of origin; no evidence of BCG scar or documentation and IGRA <u>negative</u>	Do not BCG vaccinate Fit according to individual risk assessment
High incidence [TB] county of origin IGRA <u>positive</u> chest X-ray <u>negative</u>	Refer for potential treatment of latent TB Fit according to individual risk assessment
High incidence [TB] county of origin IGRA <u>positive</u> chest X-ray <u>positive</u>	Fitness for work deferred until treatment for TB completed (smear negative) Refer to respiratory physician for assessment for treatment of TB

3 Definitions

- **Tuberculosis:** abbreviation for tubercle bacillus is a common and often fatal infectious disease caused by mycobacterium, usually mycobacterium tuberculosis in humans
- **Active TB:** Infective respiratory tuberculosis
- **Latent TB:** latent tuberculosis is where a patient is infected with Mycobacterium Tuberculosis, but does not have active tuberculosis disease. Patients with latent tuberculosis are not infectious, and it is not possible to get TB from someone with latent tuberculosis
- **Mantoux test:** diagnostic test for tuberculosis
- **Interferon gamma release assay (IGRA):** test for the presence of the specific cytokine that is critical for innate and adaptive immunity against viral and intracellular bacterial infections
- **BCG:** Bacillus Calmette-Guérin is the vaccine against tuberculosis
- **RIDDOR:** Reporting of Incidents and Dangerous Occurrences Regulations 2013
- **HPE:** Health Protection England

- **Health Surveillance:** refers to the systematic collection, analysis, and interpretation of health data about a clinical issue that has a significant impact on public health, where sufficient control measures cannot be implemented to prevent risk
- **MCHFT:** Mid Cheshire Hospitals Foundation Trust, the host Trust for Cheshire Occupational Health Service. Responsible and accountable for all governance arrangement for the collaborative Occupational Health Service
- **ECT:** East Cheshire Trust, collaborative partner in the Occupational Health Service

3.1 Policy

'A policy is a statement of Trust intent for a given issue and gives a clear position statement for the Trust's customers and employees on its values and beliefs' (Parsley & Corrigan 1999).

A policy is a "must do"; there should be no deviation from the actions as defined in the policy. Any deviation must be discussed and approved by the Strategic Integrated Governance Committee.

3.2 Guideline

A guideline is an overview of processes either clinical or non-clinical, to be undertaken in certain conditions. A guideline gives practical guidance as to how to deliver best practice but allows for professional initiative and informed decision making. Any deviation from a Trust guidance document, along with the reasons why, must be documented in the Health Records.

3.3 Clinical Pathway / Standard Operating Procedure (SOP)

A Clinical Pathway / SOP is a working document detailing the current agreed working practice that takes account of all the areas that are applicable to the management of a process in an individual setting

4 Associated Documents

- Cheshire Occupational Health Operational Policy and Procedure
- MCHFT, ECT, Infection Prevention and Control Protocols, Policies and Procedures
- MCHFT Occupational Vaccination Policy
- MCHFT, ECT Bullying and Harassment Policy
- MCHFT, ECT Redeployment Policy
- MCHFT HIV Employment Procedure

Related Guidance:

1. Department of Health 2007 Health Clearance for TB, Hep B, Hep C and HIV for new health care workers. London: HMSO available at: http://www.inicc.org/quias/DH_074981.pdf
2. National Institute for Health and Clinical Excellence 2011 Clinical Diagnosis and Management of Tuberculosis and Measures for its Prevention and Control. London: HMSO available at: <https://www.nice.org.uk/guidance/cg117>

3. North West Advisory Group on Tuberculosis 2008. –Pre-employment Health Surveillance
4. North West Advisory Group on Tuberculosis 2008. –Contact Tracing Following Exposure Incidents
5. NICE clinical pathways available at:
<http://pathways.nice.org.uk/pathways/tuberculosis#path=view%3A/pathways/tuberculosis/treating-latent-tuberculosis.xml&content=view-index>
6. Department of Health Green Book Chapter 32 Tuberculosis available at:
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/148511/Green-Book-Chapter-32-dh_128356.pdf

5 Duties

All employers have legal responsibility under the Health and Safety at Work etc. Act 1974 and Management of Health and Safety at Work Regulations 1999 to ensure the health, safety and welfare at work of their employees.

5.1 Duties within the Organisation

Chief Executive:

- Ultimate responsibility for health and safety and implementation of this policy rests with the Chief Executive.

Consultant Microbiologist:

- Will provide expert advice to the Occupational Health team regarding management of TB
- Will be an active participant in incident management in TB exposure scenarios

Line Managers:

- Must clearly identify on pre-placement risk assessment healthcare workers who are new to the NHS, returning healthcare workers and individuals moving into posts that involve patient contact for the first time.
- Will ensure that the correct personal protective equipment (PPE) and respiratory protective equipment (RPE) are available and employees are trained in its use.
- Will ensure that any necessary RPE is appropriately fit tested
- Will inform the Occupational Health service of any TB exposure incidents involving staff.

Human Resources:

- Will ensure that no prospective healthcare worker is offered employment without clearance from the Occupational Health Service

- Will ensure that 'host' Trusts for medical and dental staff in training follow Department of Health Guidance on pre-employment testing for TB
- Will assist with any potential redeployment issues relating to existing employees who have contracted TB during their term of employment; from either an occupational or social source and for reason of capability due to health cannot return to their substantive post.

Occupational Health Service:

- Will ensure that all employees are screened satisfactorily for TB dependent on risk assessment of the degree of patient contact involved during their employment.
- Will follow-up all contact cases with known TB sources, liaising and assisting with the Health Protection Agency Northwest (HPA), the Consultant Microbiologist and the Infection Prevention and Control Service and departmental managers of the affected area.
- TB is a notifiable disease; the Occupational Health Service has responsibility for reporting of staff TB infection to the relevant authorities.

Health and Safety Lead:

- Will ensure compliance with reporting under directives for, Reporting of Incidences and Dangerous Occurrences Regulations 2013 (RIDDOR) and Control of Substances Hazardous to Health 2002 (COSHH). Assist with any risk assessment involving potential exposure to TB from either employee or patient.
- Will ensure that employees are aware of the importance of personal protective equipment and respiratory protective equipment in the prevention and control of TB.

Employees:

- Will ensure compliance with all aspects of this procedure with particular reference to pre-employment assessment and following any potential exposure to TB either occupationally or socially
- Negligent failure to comply with this procedure could result in disciplinary sanctions. Professionally regulated staff groups are reminded of their respective professional body's guidelines on TB infection and exposure

Executive Infection Prevention and Control Group (MCHFT):

- Is the responsible committee for ratification and management of this policy

6 Consultation and Communication with Stakeholders

The Clinical Lead for Occupational Health developed the Tuberculosis Employment Policy. It is based on the East Cheshire NHS Trust, Tuberculosis Employment Policy, approved and ratified by that organisation in August 2008; this procedure was first ratified by the JCNC in

March 2010. It was updated in July 2011 to reflect changes in NICE guidance CG117. The Procedure follows Department of Health and North West TB Group and National Institute for Clinical Excellence best practice guidance. It was further updated in 2015 to reflect NICE TB clinical guidelines and 'fitness to work' recommendations

It was communicated for comments to:

- Cheshire Occupational Health Service
- Executive Infection Prevention and Control Group membership MCHFT
- Infection Prevention and Control Group East Cheshire NHS Trust

Governance.policies@mcht.nhs.uk must be included in the consultation process for all policies

7 Implementation

Implementation of this procedure is a mandatory requirement of all Cheshire Occupational Health Service clinical staff.

Directors, managers and employees of the Trust and partner organisations must co-operate with the Occupational Health Service in the implementation of this policy, in-order to maintain a safe working environment for employees, patients and visitors. Implementation of this policy is required to ensure that the Occupational Health Service and the Trust meet their collective obligations under Health and Safety legislation, NICE guidance and applicable domestic and European law therefore reducing risk from disease and the chances of prosecution.

Implementation of this procedure and associated Occupational Health policies and procedures should ensure essential functions of the Occupational Health Service are achieved; therefore successfully meeting NICE and Health and Safety Executive guidance.

This policy and procedure will be available on each Trust's Intranet and senior staff and managers will be alerted by the Trust's communication processes when new policies are issued or existing policies are update and reissued.

Due to the advisory and supportive function of the Cheshire Occupational Health Service the implementation of its policies, procedures and protocols is and ongoing and consistent process.

8 Education and Training

It is incumbent on all Occupational Health clinical staff to adhere to this procedure and carry out their responsibilities under it in order to achieve the objectives outlined in section 5 of this document. All staff will undertake mandatory and specialised training for ongoing personal development. Training needs will be identified through Knowledge Skills Framework assessment.

The Clinical Lead for Cheshire Occupational Health Service will communicate changes in practice to all Occupational Health clinical staff through monthly clinical meetings or more frequently if urgency dictates.

Training for Trust staff in the application of this policy will be delivered in the following ways:

- **Ad-hoc Clinical Updates:** covering strategic and clinical aspects of Occupational Health, including national initiatives, National Institute for Clinical Excellence standards, Care Quality Commission requirements.
- **Induction:** all new starters to the Trust are made aware of generic Occupational Health and Infection Prevention and Control training includes the principles of control of the spread of TB.
- **On Request:** specific topics can be covered for both specialist and general areas. E.g. following outbreaks, patient contacts etc.

Specific training to assist the Occupational Health staff in the execution of this policy is delivered in the following ways:

- **Accredited Courses:** All Cheshire Occupational Health Service medical and nursing staff requires current registration with their respective governing bodies (NMC/GMC). The consultant and senior nursing staff also hold additional specialist qualifications in the speciality.
- **Practical Updates:** covering the practical application of policies and procedures and good Occupational Health delivery. Including immunisation training/update, resuscitation and anaphylaxis management, Mantoux training and delivery, TB study days and attendance at the Infection Control Link Nurses Course, which covers control and management of TB. Training will be both structured at recognised time intervals and ad-hoc when required.
- All Occupational Health nursing staff are trained in the delivery and reading of Mantoux tests and BCG vaccination. Both vaccinations are delivered by intradermal injection and an experienced practitioner in the delivery of intradermal injection has deemed each member of Occupational Health nursing staff competent.
- All OH nursing staff attends annual vaccination training update, biennial resuscitation training and anaphylaxis management training.
- **Yearly Training Needs Analysis:** A yearly training plan is completed according to training needs identified via appraisal for the entire OH Service staff.
- **Continuing Professional Development:** Occupational Health nursing staff will keep their training/development up-to-date as appropriate to satisfy the Nursing and Midwifery Council's requirements for Revalidation in order to:
 - Support clients and colleagues
 - Enhance care
 - Develop clinical practice
 - Reduce risk
 - Develop personally through education.

9 Monitoring and Review

The effectiveness of this policy will be monitored during any of the following scenarios:

Standard/process/issue required to be monitored	Monitoring and Audit			
	Process for monitoring e.g. audit	Responsible individual /group	Frequency of monitoring	Responsible Group

Employee contact tracing exercises following TB exposure incidents where the patient is infectious (i.e. Employees being exposed to a patient with active respiratory TB in the without use of correct PPE) .	Audit/RCA	Occupational Health	Ad-hoc following incident	Workforce Governance
Patient contact tracing exercises following TB exposure incidents where the employee is infectious (i.e. patients being exposed to a healthcare worker with active respiratory TB)	Audit/RCA	Occupational Health	Ad-hoc following incident	Workforce Governance
All RIDDOR reportable TB incidents involving employees; where it is believed that the employee has contracted TB due to exposure through their employment.	Audit/RCA	Occupational Health	Ad-hoc following incident	Workforce Governance
Following all incidents of inappropriate prescription and/or administration of tuberculin for Mantoux or BCG vaccination	Audit/RCA	Occupational Health	Ad-hoc following incident	Workforce Governance

9.1 Action Plan

The MCHFT Trust Gap Analysis/Action Plan must be used to demonstrate effective monitoring of all documents. This can be found on the intranet in frequently used forms.

9.2 Audit Proforma

The MCHFT Audit proforma must be used to demonstrate effective monitoring and implementation of planned actions. This can be found on the intranet in frequently used forms.

10 References / Bibliography

1. Department of Health 2006 Immunisation against Infectious Disease Chapter 32 Tuberculosis
2. Department of Health 2004 Stopping Tuberculosis in England An Action Plan from the Chief Medical Officer
3. Meredith S, Watson J, Citron K, Cockcroft A, Darbyshire J. Are Healthcare Workers in England and Wales at Increased Risk of Tuberculosis? BMJ 1996; 313522-5
4. Joint Tuberculosis Committee of the British Thoracic Society. Control and Prevention of Tuberculosis in the United Kingdom: Code of Practice 2000.
5. Department of Health 2007 Health Clearance for TB, Hep B, Hep C and HIV for new health care workers.
6. North West Advisory Group on TB. –Pre-employment Health Surveillance 2008
7. North West Advisory Group on TB. –Contact Tracing Following Exposure Incidents. 2008
8. National Institute for Clinical Excellence, Tuberculosis, Clinical Diagnosis and Management and Measures for its Prevention and Control March 2011

11 Appendices

All Appendices must be in numerical order 1, 2, 3 etc and positioned before the mandatory appendices below.

1 Tuberculosis Health Surveillance Questionnaire

- A Version Control Document**
- B Communication / Training plan**
- C Equality Impact and Assessment Tool**

Appendix 1

Cheshire Occupational Health Service Health Surveillance for Staff at Risk of Tuberculosis

Name: _____ Date of Birth: / /

Department: _____ Job Title: _____

Length of employment in present post: _____

Over the past year:

1. Please give details of the type of potential exposure to TB you have had during work, e.g. post mortem work, laboratory work, type of contact with case:

2. Have you been in close family contact with anyone suffering from TB?

Yes No

If yes please give details: _____

3. Have you visited Asia, Africa, South or Central America including Caribbean?

Yes No

If yes, please give details: _____

4. With regard to your health, do you suffer with:

- | | |
|---|--|
| a) Persistent cough | Yes <input type="checkbox"/> No <input type="checkbox"/> |
| b) Abnormally coloured or bloody sputum | Yes <input type="checkbox"/> No <input type="checkbox"/> |
| c) Raised temperature or night sweats | Yes <input type="checkbox"/> No <input type="checkbox"/> |
| d) Unexplained weight loss | Yes <input type="checkbox"/> No <input type="checkbox"/> |
| e) Generally feeling unwell | Yes <input type="checkbox"/> No <input type="checkbox"/> |

If at any time please inform Occupational Health if you develop any of these symptoms.

Signature:

Date: _____

For Occupational Health Use Only

Signature of Occupational Health Practitioner:

For Action Yes No

TUBERCULOSIS INFORMATION SHEET FOR HEALTHCARE WORKERS

Tuberculosis is a **highly contagious** disease that is transmitted during coughing and sneezing. Many people are exposed to tuberculosis, yet not everyone develops tuberculosis *disease*.

Some people may carry tuberculosis infection for many, many years before developing tuberculosis disease. Others may have a tuberculosis infection, yet never develop tuberculosis disease. Those persons, who do develop tuberculosis disease, will experience signs and symptoms of tuberculosis.

In most people who become infected, the body's immune system is able to fight the TB bacteria and stop them from multiplying. The bacteria are not killed, but they become inactive and are stored harmlessly in the body. This is TB infection. People with TB infection have no symptoms and cannot spread the infection to others.

However, the bacteria remain alive in the body and can become active again later. If an infected person's immune system cannot stop the bacteria from multiplying, the bacteria eventually cause symptoms of active TB, or TB disease. To spread TB to others, a person must have TB disease.

It is believed that the strength of the immune system determines whether a tuberculosis infection develops into tuberculosis disease. People with weakened immune systems, such as those with HIV/AIDS, are more susceptible to developing tuberculosis disease.

Unlike tuberculosis infection, tuberculosis disease is contagious. This is because the mycobacterium that causes the disease is active. People infected with tuberculosis disease may experience any of the following signs and symptoms:

- ❖ Nausea / weakness /fatigue
- ❖ Rapid unexplained weight loss
- ❖ Fever
- ❖ Night sweats
- ❖ Persistent Cough
- ❖ Abnormal coloured sputum
- ❖ Dull chest pain, no associated cardiac issues
- ❖ Blood Stained sputum

If you are experiencing any of the above signs and symptoms of tuberculosis, contact the occupational health department immediately.

APPENIDX A - Control Sheet

This must be completed and form part of the document appendices each time the document is updated and approved.

VERSION CONTROL SHEET			
Date dd/mm/yy	Version	Author	Reason for changes
25.01.10	1	Clinical Lead for Occupational Health	New Document.
07.06.11	2	Clinical Lead for Occupational Health	Incorporate NICE clinical guidelines 117
24.04.2015	3	Clinical Lead Nurse for Occupational Health	New document format Incorporation of NICE TB clinical pathways Update regarding Public Health England Hyperlinks for PHE and Department of Health TB documents New section 2.13 summary of principles of fitness for work
07.02.18	4	Clinical Lead Nurse for Occupational Health	Policy review date Minor formatting changes

APPENDIX B - Training needs analysis

Communication/Training Plan (for all new / reviewed documents)	
Goal/purpose of the communication/training plan	Policy is embedded in Trust practice
Target groups for the communication/training plan	All clinically based staff, line managers, recruitment and Occupational Health
Target numbers	Trust wide
Methodology – how will the communication or training be carried out?	Intranet, lunch time session for Occupational Health staff responsible for implementation
Communication/training delivery	Verbal
Funding	N/A
Measurement of success. Learning outcomes and/or objectives	Compliance with procedure,
Review effectiveness – learning outputs	audit of procedure, no breaches of policy
Issue date of Document	TBC
Start and completion date of communication/training plan	2-months following ratification
Support from Learning & Development Services	N/A

For assistance in completing the Communication / Training Plan please contact the MCHT Learning and Development Services

Appendix C

Equality Impact Assessment

Please read the Guide to Equality Impact Assessment before completing this form. The completed assessment is to form part of the policy/proposal/business case appendices when submitted to governance-policies@mcht.nhs.uk for consideration and approval.

POLICY/DOCUMENT/SERVICE: Tuberculosis Employment Policy

SECTION A

A	Does the document, proposal or service affect one group less or more favourably than another on the basis of:	Yes/No	Justification & data sources. Include nature of impact. Also record provisions already in place to mitigate impact.
1	Race, ethnic origins (including gypsies and travellers) or nationality	YES	New entrants to the UK from high incidence countries will be required to undergo more detailed testing than perspective employees from the UK or foreign nationals previously tested in the UK within the past 5-years.
2	Sex	NO	The procedure is applied equally irrespective of gender
3	Transgender	NO	No indication that this procedure treats transgender individuals differently
4	Pregnancy or maternity	YES	BCG Vaccination and Tuberculin skin testing would not be undertaken on pregnant women Treatment for latent TB would be considered on an individual basis by the respiratory physician
5	Marriage or civil partnership	NO	
6	Sexual orientation including lesbian, gay and bisexual people	YES	Individuals who have had multiple unprotected sexual encounters will be subject to HIV risk assessment and potential testing prior to BCG vaccination. HIV positive individuals could have restrictions placed on their employment with regard to high risk TB areas due to increased risk of contracting the disease. HIV positive individuals cannot be vaccinated with BCG
7	Religion or belief	NO	The procedure is applied equally irrespective of religion or belief
8	Age	NO	Effectiveness of BCG vaccination diminishes significantly in the over

			35 years of age
9	Disability - learning disabilities, physical disability, sensory impairment and mental health problems	NO	This procedure is applied equally irrespective of disability. Incidence of TB infection is higher in psychiatric or custodial institutions than the general populous therefore individuals with history of long term psychiatric inpatient status maybe affected by this policy.
10	Economic/social background	NO	This procedure is applied equally irrespective of socioeconomic status
B	Human Rights – are there any issues which may affect human rights		
1	Right to Life	NO	
2	Freedom from Degrading Treatment	NO	
3	Right to Privacy or Family Life	NO	
4	Other Human Rights (see guidance note)	NO	

Date: 06.03.18

Keith Williamson

Clinical Lead Nurse Occupational Health

Date 06.03.18

Leigh Haslam

Senior OH Nurse

Where an impact has been identified in Section A, please outline the actions that have been agreed to reduce or eliminate risks in Section B.

If there are no impacts identified in Section A, completion of Section B is not necessary.

SECTION B

Please expand tables below as necessary

SECTION B NUMBER A1-10, B1-4	NATURE OF IMPACT	EVIDENCE	STAKEHOLDER INVOLVEMENT	ACTION	COST	LEAD	TIMESCALE	RISK SCORE

