Yeovil District Hospital NHS
NHS Foundation Trust

Tuberculosis Policy

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Owner	Director of Infection Prevention and Control		
Author	Nurse Consultant for Infection Prevention and Control		
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Staff/Groups Consulted	Infection Control Doctor Medical Director Director of Infection Prevention and Control Associate Directors of Nursing Infection Prevention Control team Senior Respiratory Nurse specialist (Lead for TB service YDHFT) Respiratory Consultant Matrons		
Approved by IPCC	22 August 2017		
Next Review Due	June 2020		
Equality Impact Assessment Completed		Yes	

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1. RATIONALE

1.1. To provide a guide to all healthcare workers involved in caring for a patient with Tuberculosis (TB). This is aimed at reducing the risk of transmission of TB.

2. AIM

2.1. To minimise the risks of transmission of TB in the healthcare setting.

2.2. To provide guidelines for health care workers involved with the care of patients with TB in Yeovil District Hospital NHS Foundation Trust.

3. BACKGROUND

3.1. TB is a disease caused by the bacterium *Mycobacterium tuberculosis.* It can affect any part of the body, but it is more commonly a respiratory disease. If an individual becomes infected, the disease develops slowly and it may take months for the symptoms to appear. In some cases the infection remains dormant for many years and may only become active in later life.

3.2. TB can usually only be spread by someone who has sputum smear positive TB. It can be transmitted by the respiratory route while the infected person is speaking, sneezing or coughing but is not highly contagious. Prolonged close contact with a person with infectious respiratory TB is usually necessary for the infection to be passed on and those at risk of catching TB are people who have had prolonged exposure to the infected person, such as household contacts.

3.3. Non respiratory TB in other parts of the body is unlikely to spread from person to person, and is not considered to be infectious. However, isolation in a single room may be required during aerosol generating procedures such as wound irrigation. The Infection Prevention and Control Team (IP&CT) should be contacted for advice.

This policy is based on the National Institute for Clinical Excellence 2011 guidelines *Tuberculosis: clinical diagnosis and management of tuberculosis and measures for its prevention and control* found at: https://www.nice.org.uk/guidance/cg117.

4. DEFINITION OF TERMS

- **Aerosol Generating Procedure (AGPs) -** are procedures which generate an aerosol from the patients secretions.

- **Acid Fast Bacilli (AFBs) -** Bacteria which having been stained with a dye, retain their colour in acid alcohol. Used technique for microscopic detection of *Mycobacterium* species including *Mycobacterium tuberculosis complex*.

- **Active TB –** Infection with *mycobacteria* of the *Mycobacterium tuberculosis complex* where *mycobacteria* are growing and causing symptoms and signs of disease. This is distinct from latent TB, where *mycobacterium* are present and may be dormant, but are not causing disease.

- **Close Contacts –** May include boyfriends or girlfriends & frequent visitors to the house of the index cases, in addition to household contacts.

- **Close Contact Staff –** Staff who have, prior to the instigation of infection control precautions, administered prolonged care of a high dependency patient (equivalent to close household contact), repeated chest physiotherapy.

- **Contact Tracing –** The identification of contacts to find associated cases, to detect people with latent TB infection and to identify those not infected but for whom the screening process or BCG vaccination might be appropriate.

- **High Incidence Country –** Country with incidence equal to or greater than 40 cases per 100,000 populations per year.

- **Household Contact –** people sharing a bedroom, kitchen, bathroom or sitting room with the index case.

- **Multi drug Resistant TB (MDRTB) –** Tuberculosis resistant Isoniazid and Rifampicin, with or without any other resistance.

- **Negative Pressure Room –** Isolation room where the air form the room is extracted into dedicated ducting through a filter and then to the outside air at a distance from all other air intakes. The level of pressure should be 10 Pascals below the ambient pressure. – **Room 6 on ICU**

- **Respiratory TB –** Active TB affecting the lungs, pleural cavity, mediastinal lymph nodes or larynx.

- **Non Respiratory TB –** Active TB affecting any part of the body other than the lungs, pleural cavity, mediastinal lymph nodes or larynx.

- **Sputum Smear Positive -** acid fast bacilli seen on direct microscopy of sputum.

- **Particulate Filter Respirators (Also known as FFP3 masks) –** Close fitting face mask which will, if worn correctly, protect the wearer from the inhalation of infectious airborne particles.

5. ROLES AND RESPONSIBILITIES

5.1. These guidelines are relevant for all YDH staff involved in the care of patients with suspected/diagnosed TB. These guidelines fall under the Infection Prevention & Control Policy and the roles and responsibilities detailed in that policy are overarching these guidelines for all leads and staff groups identified.

5.2. The following responsibilities are identified as specific to these guidelines:

Please note that staff or patients who are immunocompromised and staff who are pregnant should not be caring for patients with TB until the patient has had 2 weeks of full treatment.

5.3. **Assessing Clinician**

The assessing clinician is responsible for:

- Risk assessing patients presenting with symptoms of active TB or MDRTB.
- Arranging appropriate investigations.
- Referral to respiratory specialist for advice and treatment.
- Notification of all suspected TB cases to Consultant in Communicable Disease Control for Devon, Cornwall and Somerset Public Health England (PHE) 0300 303 8162

5.4. **Treating Clinician**

The treating clinician is responsible for:

- Arrangement of any further diagnostic testing required.
- On-going treatment and follow up for active TB
- Notification of all suspected cases to Consultant in Communicable Disease Control for Devon, Cornwall and Somerset PHE if not already completed by the assessing clinician.

5.5. **Respiratory Specialist Nurse**

The Respiratory Specialist Nurse is responsible for:

- Carrying out any necessary contact tracing of family (in liaison with Public Health England) or exposed patients and arranging appropriate follow up.
- Supervision of treatment in the community once discharged from hospital.

5.6. **Infection Prevention and Control Team (IPCT)**

The Infection Prevention and Control Team are responsible for:

- Education and training in the infection prevention and control management of hospitalised TB patients.
- Monitoring of isolation practices of patients with suspected or confirmed infectious TB.

5.7. **Ward Manager or Deputy:**

The Ward Manager or Deputy is responsible for

- Adhering to the infection control precautions detailed in these guidelines.
- Identifying the names of any staff close contacts prior to the instigation of infection control precautions and forwarding to the Occupational Health Department.
- Ensuring FFP3 masks (Particulate Filter Respirator) are available to all clinical staff in their area.
- Monitoring the alarm systems for negative pressure rooms (ICU only) and reporting any faults immediately to the Estates & Facilities Department.

5.8. **Ward/Clinical staff**

The Ward/Clinical staff are responsible for:

- Adhering to the infection control precautions detailed in these guidelines.
- Ensuring communication of suspected or confirmed TB status of patient if transferred to another NHS body or healthcare facility.
- **Identifying themselves to their ward manager if they are immunocompromised or pregnant as they should not be caring for patients with TB until the patient has had 2 weeks of full treatment.**

5.9. **Estates & Facilities Department**

The Estates & Facilities department is responsible for:

- Maintaining the negative pressure facilities and air handling units to the required standard, including annual validation and verification.

5.10. **Occupational Health Department**

The Occupational Health Department is responsible for:

- Carrying out any necessary contact tracing of exposed staff and arranging appropriate follow ups under the direction of the IPCT/Public Health England and Respiratory Team.

6. Diagnosis

6.1. Diagnosis and Testing

Symptoms of active respiratory TB include persistent cough, haemoptysis, breathlessness, fatigue, weight loss, poor appetite and night sweats.

If TB is suspected, 3 consecutive sputum specimens (including one early morning sample) should be sent to the laboratory for “AFBs and routine culture”. Clinical details on the request form must state that this is a possible case of TB.

Microscopy for AFBs (mycobacterium) is normally done within 24hrs, except Sundays. If urgent microscopy is required the laboratory should be telephoned to arrange this.

If AFBs are seen in a stained smear of sputum, the patient is said to be sputum smear positive and treated as potential infectious TB. If AFBs are not seen on any of the 3 specimens then the patient is deemed non-infectious.

Confirmation of the diagnosis of TB requires a positive culture of the organism which commonly takes about 2 weeks, but occasionally may take up to six weeks.

6.2. Risk Assessment for Multi Drug resistant TB (MDRTB)

If respiratory TB is suspected, a risk assessment should be carried out for MDRTB, based on the factors below listed in order of relative risk: -

- History of prior TB drug treatment; prior TB treatment failure.
- Birth in a foreign country, particularly high incidence countries as defined by the PHE on its website - https://www.gov.uk/government/organisations/public-health-england and search for WHO country data TB;
- HIV infection
- Contact with a known case of drug-resistant TB;
- Residence in London;
- Age profile, with highest rates between ages 24 – 44yrs;
- Male Gender

If the risk of MDRTB is thought to be significant urgent testing for Rifampicin resistance by PCR should be arranged.

The NICE 2011 guidelines recommend that MDRTB patients are cared for by physicians with substantial experience in drug resistant TB. Transfer to a hospital with a special Infectious Diseases Unit or shared care should be considered.

7. IP&C PRECAUTIONS FOR SUSPECTED OR CONFIRMED INFECTIOUS RESPIRATORY TB (MDRTB NOT SUSPECTED).

7.1. In addition to standard IP&C precautions, the following isolation precautions must be put in place.

7.2. **Isolation –** Adult patients with suspected or confirmed infectious TB must be admitted to a single room, preferably a negative pressure (Side room 6 ICU). If a negative pressure room cannot be made available then the patient should be admitted to a side room with own bathroom facilities vented to the outside air. The door must be kept closed at all times.

Patients with suspected respiratory or confirmed infectious TB should not be admitted to wards immune-compromised patients.

7.3. **Isolation Sign –** An appropriate sign should be displayed on the door

7.4. **Patient Education –** The patient should receive education to ensure they cover their nose and mouth with a disposable tissue whenever they cough and sneeze. Tissues should be disposed of in an orange clinical waste bag.

7.5. **Personal Protective Equipment (PPE)**

- **Aprons and Gloves –** are to be worn when entering the side room.
- **Masks** are **not** required for routine care. However, if the patient is requiring exceptionally prolonged care from an individual member of staff during the first two weeks of TB treatment (e.g. specialist or complex daily wound dressing) the possible need to wear a mask should be discussed with the IP&C Team.
- **Particulate Filter FFP3** respirator masks are only required by staff if performing aerosol generating procedures (AGPs). The following procedures are considered AGPs: -
    - Intubation, extubation and related procedures e.g. manual ventilation and open suctioning.
    - Cardiopulmonary resuscitation
    - Bronchoscopy
    - Surgery and post mortem procedures in which high-speed devices are used
    - Non-invasive Ventilation (NIV) e.g. Bi-level positive Airway Pressure Ventilation (BiPAP) and Continuous Positive Airway Pressure Ventilation (CPAP)

- High Frequency Oscillatory Ventilation (HFOV)
- Induction of sputum
- The following procedures may generate an aerosol from material other than the patients secretions but are **NOT** considered to represent a significant infectious risk:
    - Administration of pressurised humidified O^2
    - Administration of medication via nebulisation

7.6 **Hand Hygiene –** must be performed before and after direct contact with the patient as per Trust policy.

7.7 **Equipment –** only essential equipment should be taken into the isolation room. Where possible disposable equipment or equipment dedicated for the use of the isolated patient should be used. If the use of common equipment is unavoidable it must be cleaned before being used on another patient. Either disinfectant wipes (e.g. Clinell) or TECCARE control solution can be used. Crockery and cutlery does **not** need to be dedicated for the use of isolated patients, but must go through the dishwater before being used for another patient.

7.8 **Cleaning –** The isolation room should be cleaned daily; Cleaning should not be undertaken when the patient is undergoing an AGP unless the patient is on BiPAP, CPAP or HFOV. In this situation Particulate Filter FFP3 masks must be worn by cleaning staff.

7.9 **Transfer to other departments –** if the patient is being transferred to another department in the hospital (e.g. to visit the X-Ray department) the patient should wear a surgical mask.

7.10 **Linen –** used linen should be sealed in a pink alginate laundry bag and then in a clear plastic laundry bag.

7.11 **Specimens –** Sputum specimens sent to the laboratory must be in a sealed container, bagged and correctly labelled

7.12 **Visitors –** Should be limited to those who have already been in close contact with the patient before the diagnosis (e.g. household members). Masks are not required.

7.13 **Discontinuation of Isolation Precautions**

Isolation precautions can usually be discontinued when:

- A diagnosis of infectious TB has been excluded by 3 consecutive smear negative sputum samples;

OR

- When a patient with confirmed infectious TB (sputum smear positive) has completed two weeks of compliant multi-drug therapy, providing there has been definite clinical improvement in response to treatment. This should be discussed with the Consultant Respiratory Physician and the Infection Control Team.

Patients may be discharged on treatment into the community prior to the completion of 2 weeks therapy, under the supervision of the Respiratory nurse Specialist.

Contact should be restricted to those who have been exposed to the patient from immediately prior to the diagnosis of TB until 2 weeks of therapy have been completed.

Once isolation precautions have been discontinued or the patient discharged for the hospital the room should be deep cleaned and curtains changed.

7.14 **Multi Drug Resistant TB (MDRTB)**

Until disproved, MDRTB should be suspected if any of the following apply:

Erratic or incomplete previous drug treatment for TB. NB: Patients treated in the UK prior to 1960 are unlikely to be MDR.

- Previous contact with a case of MDRTB.
- A patient born in an area with a high prevalence of drug resistance, or a patient who has recently travelled to or who has been resident in such areas (refer to World Health Organisation website - http://www.who.int/topics/tuberculosis/en/.
- The patient is HIV +ve.
- Residence in London
- Age profile, with highest rates between 25 and 44.
- Failure to respond to a standard treatment regime e.g. lack of clinical improvement after 2 weeks of treatment.
- Persistently sputum smear +ve after 2 months of treatment or culture +ve after 3 months of treatment.
- Male gender

8. ISOLATION OF CONFIRMED OR SUSPECTED MDRTB INPATIENTS

In addition to standard infection control precautions, the following additional isolation precautions must be put in place: -

8.1. **Isolation –** Patients with known or suspected MDRTB (based on risk assessment) must be admitted to a negative pressure room. The negative pressure alarm outside the room will sound if the correct pressure is not being maintained and must be reported to the estates department for urgent investigation. The doors must be kept closed and the patient must not visit communal areas of the ward. If suitable negative pressure is not available locally the patient should be transferred to a hospital that has these facilities. An appropriate isolation sign should be displayed on the door.

8.2. **Protective Clothing and Masks –** Particulate Filter FFP3 respirator masks **must** be worn during contact with suspected or known MDRTB patients. Aprons and gloves should be worn as per Isolation policy.

8.3. **Transfer to Other Departments –** Wherever possible any transfer within the hospital should be avoided. If transfer to another department in the hospital is unavoidable the patient must wear a surgical mask and the receiving department informed. If transferred to another NHS body or healthcare facility the receiving department must be informed of the patient's current TB status.

8.4. **Visitors –** must be limited to those who have already been in contact with the patient before the diagnosis (e.g. household members). Particulate Filter FFP3 masks must be worn for patient contact.

8.5. **Staff –** caring for the patient must be kept to a reasonable minimum without compromising patient care.

8.6. **Cleaning –** The isolation room should be cleaned daily. Particulate \Filter FFP3 respirator masks must be worn for patient contact.

8.7. **Discontinuation of Isolation Precautions –** Patients with MDRTB are likely to have a prolonged period of infectivity even after staring treatment. Precautions must only be discontinued after consultation with the Consultant Respiratory Physician, Infection Control Doctor and Infection Control team.

The decision to discharge a patient with suspected or known MDRTB should be discussed with the Respiratory Nurse Specialist, Microbiologist, local TB service and Consultant in Communicable Disease Control (CCDC). Before the decision is made to discharge a patient secure arrangement for the supervision and administration of all anti-drug TB therapy should have been agreed with patient and carers.

Once the patient has been discharged from the hospital the room should be terminally cleaned and curtains changed. Masks are not required for a terminal clean.

9. TEMPORARY LEAVE FROM ISOLATION

9.1. All inpatients with confirmed or suspected infectious pulmonary TB must remain in isolation at all times unless they are visiting another department for an investigation. Temporary leave from respiratory isolation (e.g. to visit home) may be granted under exceptional circumstances.

9.2. Temporary leave will only be granted when the Medical Team, RNS and the Ward Manager and/or IPCT have assessed and discussed both the safety and the necessity of the patient's request.

9.3. Following a team discussion (as stipulated above), all requests for temporary leave from isolation must be approved by the Respiratory Consultant, or in his/her absence, by the Specialist Registrar (SpR).

9.4. Before leaving, the patient must have their observations recorded, including oxygen saturations.

9.5. If MDRTB is suspected the patient must wear a FFP3 mask whilst within the hospital and the mask must be worn on return to the hospital until back into the negative pressure single room.

9.6. Close contact with any members of the public should be avoided (e.g. no use of public transport, no visits to restaurants).

9.7. Patients must agree to comply to these guidelines before temporary leave is granted.

10. CONFIRMATION OF DIAGNOSIS AND INFECTIVITY OF ANALYSIS OF SPUTUM

10.1. It is essential to confirm diagnosis and infectivity by sputum smear analysis as soon as possible to both prevent the transmission of bacteria and minimise any unnecessary isolation of patients. Sputum samples must be submitted in correctly labelled sputum pots along with a correctly completed Microbiology form to the Microbiology Department. The examination required for TB is AFB (Acid Fast Bacilli).

10.2. Urgent analysis of samples can be arranged by contacting the Microbiology Department. Out of hours, transport of samples must be arranged with the on-call Consultant Microbiologist.

10.3. The RNS will co-ordinate the taking of sputum samples. The first sputum sample should be sent as soon as possible after admission. Further samples should be collected and sent on days 2 and 3. If possible, specimens should be collected early morning to facilitate the production of a good quality specimen.

10.4. Bronchial washings may be submitted for examination. If AFB smear +ve on bronchial washings, continue isolation post bronchoscopy until 1 further sputum sample has been collected 24 hours later. If this confirms that the patient is AFB sputum –ve the patient may then be removed from isolation. This is to rule out the potential to induce an AFB sputum smear +ve status through the bronchoscopy procedure itself.

10.5. Bronchoscopy of suspected PTB cases should always be performed at the end of the session.

11. CHILDREN AND TB

If admission to hospital is clinically necessary, the child must be admitted to a single room within the children's unit. Infection Control Precautions should be followed as in section 7.

If MDRTB is suspected the child **must** be admitted to the negative pressure room (side ward 6) on ICU until a suitable transfer can be made to an appropriate unit. Doors and windows must be kept closed. Infection Control precautions, as detailed in Section 8 should be followed.

Children with TB may well have a close family contact with active disease who is infectious. Visitors must be kept to a minimum. All close family members must be referred for screening as soon as possible. Until deemed to be non-infectious visitors must be kept separate from other patients, must come and go directly to the room when visiting and must not use communal areas.

Isolation precautions can be discontinued once it has been confirmed that both the child and visiting family members are non-infective.

12. NEW CASES DISCOVERED IN OPEN WARDS

12.1. Occasionally a diagnosis of PTB will be confirmed in a patient on an open ward. If AFB sputum smear +ve, the patient must be moved into isolation based on the isolation criteria.

12.2. **Please note that staff or patients who are immunocompromised and staff who are pregnant should not be caring for patients with TB until the patient has had 2 weeks of full treatment.**

12.3. There is a very low risk of TB transmission to other patients. Staff must contact the RNS and IPCT who will assist the Ward Manager in conducting a risk assessment to establish if any patients require contact screening. The patient must be informed of any potential exposure risk and a letter documenting the potential exposure must be placed into the patient's medical notes with a copy sent to the General Practitioner (GP).

12.4. Staff who have been identified as close contacts (more than 8 cumulative hours of close contact) with a patient who is AFB sputum smear +ve, must report their exposure to their Occupational Health Department. Due to on-going occupational exposure and the low risks of transmission, formal TB screening is generally not warranted. However, the exposure must be documented in the staff's medical record. Staff have a duty at all times to report any symptoms indicative of TB to the Occupational Health Team.

13. CONTACT TRACING

13.1. **Patients** – If a patient on an open ward is diagnosed as having smear positive tuberculosis the risk of other patients being infected is likely to be small. Patients in a bay who have had over 8 hours contact with an infectious pulmonary TB case prior to the instigation of isolation precautions will be contact traced and followed up by the RNS.

13.2. **Staff** – Those staff involved in the care of a patient with smear positive TB prior to the instigation of infection control precautions will be followed up in accordance with the current Occupational Health and Safety Department procedure. The Ward Manager should inform the Occupational Health Department of any staff contacts prior to the instigation of infection control precautions. Information should include whether the staff member had close contact with the patient (defined as staff that have administered prolonged care of a high dependency patient equivalent to close household contact, or repeated chest physiotherapy) or casual contact.

13.3. **Family Close Contacts** – Family and close contacts will be followed up by the RNS in liaison with Public Health England.

13.4. **Notification** – All forms of TB are notifiable to the Consultant for Communicable Disease Control under the Public Health Control of Disease Act 1988. The clinician making or suspecting the diagnosis is responsible for notification. A decision to commence treatment indicates a level of suspicion which should trigger notification for all forms of TB. The notification should indicate the sputum smear status of the patient.

Notification and should be telephoned to Public health England South West on 0300 303 8162. This should be followed by completion of the ETS form (which can be obtained from the RNS0 this will then need to be posted or entered directly onto the ETS site.

14. DECEASED PATIENTS

14.1. **Post Mortem** –. TB is classed as a hazard Group 3 Pathogen and therefore some extra precautions are required, particularly in the mortuary. Post mortems are not performed on patients with suspected or confirmed TB at YDH

14.2. **Last Offices –** Patients with known or suspected TB may still be washed in the usual way however, a body bag should be used. The mortuary Admissions Form must be completed so Mortuary staff are aware extra precautions may be required. Please refer to Care of the Deceased Policy for further details.

15. FFP3 MASK FIT TESTING

15.1. All staff who may need to wear FFP3 particulate mask respirator masks should have received fit testing training. Fit trainers are available on all high risk areas and it is the

responsibility of the Fit trainer and their manager to ensure this training and subsequent updates have been carried out.

16. APPLICABILITY

16.1. These guidelines apply to all staff of Yeovil District Hospital NHS Foundation Trust. All queries regarding current TB Diagnosis, Management, Monitoring, Prevention and Control should be referred to the NICE guidelines below or the Royal College of Physicians Guidelines ISBN-186016 227 0.

17. IMPLEMENTATION, MONITORING AND EVALUATION

17.1. These guidelines will be implemented, monitored and evaluated through the Infection Prevention & Control Committee.

18. REFERENCES

National Collaborating Centre for Chronic Conditions (2001) Tuberculosis: clinical diagnosis and management of tuberculosis and measures for its prevention and control. Royal college of Physicians: London. https://www.nice.org.uk/guidance/cg117

NICE clinical guideline 117 - Tuberculosis – Clinical diagnosis and management of tuberculosis, and measures for its prevention and control, March 2001

Musgrove Park Hospital, Trust Policy, Infection Prevention and Control - Infection Control Management of Tuberculosis in Hospital

Equality Impact Assessment Tool

To be completed and attached to any procedural document when submitted to the appropriate committee for consideration and approval.

Name of Document:

		Yes/No	Comments
1.	Does the policy/guidance affect one group less or more favourably than another on the basis of:		
	Race	No	
	Ethnic origins (including gypsies and travellers)	No	
	Nationality	No	
	Gender	No	
	Culture	No	
	Religion or belief	No	
	Sexual orientation including lesbian, gay and bisexual people	No	
	Age	No	
	Disability	No	
2.	Is there any evidence that some groups are affected differently?	No	
3.	If you have identified potential discrimination, are any exceptions valid, legal and/or justifiable?	N/A	
4.	Is the impact of the policy/guidance likely to be negative?	No	
5.	If so can the impact be avoided?	N/A	
6.	What alternatives are there to achieving the policy/guidance without the impact?	N/A	
7.	Can we reduce the impact by taking different action?	N/A	

For advice or if you have identified a potential discriminatory impact of this procedural document, please refer it to The Equality & Diversity Lead, Yeovil Academy, together with any suggestions as to the action required to avoid/reduce this impact.

Signed **Lisa Eastmead-Hoare, IPC/TV Nurse Consultant** Date: June 2017