Document Control

Title	**Tuberculosis Policy**		
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Directorate	Nursing	**Department**	Infection Prevention & Control

Version	Date Issued	Status	Comment / Changes / Approval
1.0	June 01	Final	Ratified Trust Board
1.1	Sep 07	Revised	Submitted to Infection Control Committee 18/9/07.
1.3	July 08	Revision	Revised into new format and submitted to Infection Prevention and Control Committee 22.7.08
1.4	Aug 08	Revision	Final amends to ensure corporate identity requirements
1.5	Dec 2009	Revision	Review dated extended by 12 months as agreed at Infection Control Team meeting on 17 December 2009. Minor amends to document control report, and hyperlinks added for appendices.
1.6	Apr 2012	Revision	One year review date extension approved by Infection Prevention and Control Committee on 3rd April to allow updating.
1.7	Jan 2014	Revision	To incorporate guidance for community nurses, and changes to use of masks for patients with MDR TB
2.0	May 14	Final	Published on BOB
3.0	Oct 17	Final	New template. Contact details updated. Incorporates new national guidance

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Superseded Documents Tuberculosis Policy v3.0	

Issue Date	Review Date	Review Cycle
October 2017	October 2020	Three years

Consulted with the following stakeholders: (list all)

- Infection Prevention & Control Committee

Approval and Review Process

- Infection Prevention & Control

Local Archive Reference

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CONTENTS

1. Purpose

1.1. This document sets out Northern Devon Healthcare NHS Trust's guidance for the safe management of patients and staff with tuberculosis in accordance with current national guidelines. It provides a robust framework to ensure a consistent approach across the whole organisation.

1.2. The purpose of this document is provision of clear and effective management of patients and staff with tuberculosis to minimise the risk of disease spread within the healthcare setting in accordance with NICE guidance 2006.

1.3. The policy applies to all Trust clinical staff.

1.4. Implementation of this policy will ensure that patients, visitors and staff are kept safe from tuberculosis and that patients with the disease are cared for appropriately

2. Definitions

For the purpose of this document the following terms apply:

2.1 Acid-alcohol-fast bacilli (AAFB)

are bacteria that are not decolourised by an acidic alcohol solution. This staining test gives the rapid diagnosis of mycobacteria; the family of bacteria that includes Mycobacterium tuberculosis and is therefore a preliminary result towards diagnosis of a case of tuberculosis and confirms the need for infection control actions.

2.2 Acquired Immune Deficiency Syndrome (AIDS)

is a fatal disease caused by a virus that is able to destroy the ability of the immune system to fight infection.

2.3 Close contact

is someone who has had prolonged contact with an index case (examples include partners and frequent visitors to the home of the index case).

2.4 Drug Resistant Tuberculosis

is resistant to one or more of the first line anti-tuberculosis drugs without meeting the definition of multi-drug resistant disease.

2.5 Drug Sensitive Tuberculosis

is not resistant to any of the first line anti-tuberculosis drugs.

2.6 Household contact

is someone who shares a bedroom, kitchen, bathroom, or sitting room with an index case.

2.7 Human Immunodeficiency Virus (HIV) –

a virus that steadily weakens the body's defence (immune) system and leads to AIDS when it can no longer fight off infections such as pneumonia and other illnesses.

2.8 Immunocompetent patients

are those who are capable of producing a normal immune response to fight infection.

2.9 Immunocompromised patients

are those who have HIV, organ transplants, or are on immunosuppressive treatment so their ability to fight infection is reduced such as chemotherapy for malignant disease or high dose steroids.

2.10 Multi-drug Resistant Tuberculosis (MDR-TB)

is resistant to Isoniazid and Rifampicin with or without resistance to other drugs. For the purposes of this policy MDR-TB includes recent definitions such as XDR-TB.

2.11 Prevalence

is the number of cases occurring within a population at one particular time.

2.12 Smear negative pulmonary tuberculosis

refers to patients who later prove to have tuberculosis, or in whom a diagnosis is made for other reasons but where the smears are negative for mycobacteria. Smear negative patients are not regarded as infectious.

2.13 Smear positive pulmonary tuberculosis

refers to patients who have smear tests containing sufficient mycobacteria in their sputum to be seen under the microscope. These patients are infectious. Also referred to as Open pulmonary tuberculosis. Culture of sputum for pulmonary tuberculosis may not become positive for up to 6 weeks. An initial indication of the likelihood of pulmonary tuberculosis is obtained by staining a 'smear' of sputum, staining it and examining it under the microscope for AAFB

3. Responsibilities

3.1 Role of the Director of Nursing

The Director or Nursing is responsible for:

Acting as a second point of contact to support

Ensuring that a replacement main contact is identified should the original author be re-deployed or leave the organisation

3.2 The Infection Prevention and Control Committee

Monitoring compliance with the policy

Ensuring that the policy is approved after review and prior to publishing

3.3 Role of Divisional Nurses

Are accountable for Infection Prevention and Control in wards, departments and community teams, are key role models for good infection prevention practice and have responsibility for maintaining standards of Infection Prevention and Control practice. Also for the implementation and communication of Infection Prevention and Control initiatives and surveillance results; ensuring the clinical environment is safe and maintained to a high standard of cleanliness.

3.4 Ward/ Departmental Managers

Responsibility for implementation of this policy lies with the Senior Nurse (usually Ward Sister) or Departmental Manager in Charge of the areas to which these statements apply unless specifically stated otherwise in the text.

3.5 Infection Prevention and Control Team

The Infection Control Team will support managers in the implementation of this policy by providing guidance and education in the management of tuberculosis cases. This will include liaison with the Lead Clinician for TB, the Respiratory Nurse Specialist, Consultant in Communicable Disease (CCDC) and Public Health England on receipt of notification of a TB case.

3.6 Clinical Staff

It is the responsibility of all Trust Clinical Staff to follow the guidance contained in this Policy and report any problems with compliance to their line manager.

3.7 Role of the Lead Clinician for TB

It is the responsibility of the Lead Clinician for TB:

- to take overall responsibility for the diagnosis and possible treatment of TB
- to be a point of contact for service commissioners
- to liaise with the Consultant Microbiologist
- to assist in the identification of other individuals who will take the lead for TB in their respective specialist fields (most particularly microbiology, radiology and pharmacy)
- for organising any necessary intra- and inter-hospital activities in relation to TB case management.

3.8 Named key worker (or 'case manager')

All patients taking anti-TB treatment (including chemoprophylaxis) are recommended to have a named key worker. This will usually be a specialist TB nurse, or in low-incidence areas, a nurse with responsibilities which include TB (e.g. Respiratory Nurse Specialist)

The named key worker would take responsibility for:

- undertaking a risk assessment for all suspected cases of TB on first presentation, or as soon as practically possible, to identify those with complex needs. This would be done in discussion with the lead clinician.
- risk assessment prior to commencement of a planned course of anti-TB treatment to identify those cases requiring Directly Observed Therapy (DOT) to promote treatment adherence
- providing patient education
- arranging screening and contact investigation in cooperation with the lead clinician and CCDC
- deciding and agreeing (in conjunction with the Lead TB Physician) on a care plan and coordinating care with allied providers where appropriate, with the aim of ensuring completion of the prescribed treatment regimen
- ensuring treatment delivery including supervision of DOT and attendance for clinical assessment and follow-up care
- reporting on surveillance systems and reporting of treatment completion.

4. Contacting the Infection Prevention and Control Team

The Infection Prevention and Control Team can be contacted in hours on 01271 322680 (ext 2680 internal at North Devon District Hospital), via bleep 011 or out of hours by contacting the on-call Medical Microbiologist via North Devon District Hospital switchboard.

5. Causes and spread of Tuberculosis (TB)

TB is caused by bacteria from the *Mycobacterium tuberculosis* complex, which are *Mycobacterium tuberculosis* (human form) and *Mycobacterium bovis* (cattle form). TB infection occurs as respiratory TB and non respiratory TB. In respiratory TB infection is spread when bacteria, coughed up in droplets by an individual with TB affecting their lungs, are released into the air and inhaled by others. However, for transmission to occur prolonged close contact with an infectious case is usually required. The disease can be cured with a combination of specific antibiotics. (See appendix C)

Non respiratory TB can occur in meninges, lymph nodes, joints, pericardium or may be widely disseminated throughout the body.

Non respiratory TB infection is spread by contact with infected fluid collections or inhalation of aerosols from infected fluid collections. As non respiratory TB is usually contained within the body / in abscesses patients do not usually require side room isolation to prevent transmission and standard infection precautions should be used. Contact Infection Prevention and Control Team for advice especially if aerosol generating wound irrigation or other procedures are required.

5.1 Management of Respiratory Tuberculosis Cases

Other relevant policies in the Infection Control Manual (available on Bob) must be adhered to (unless specific advice in this policy contradicts them), in particular:

- Standard Precautions Policy
- Waste Policy
- Isolation Policy
- Care of the Deceased Policy.

5.2 Recognition

Diagnosis of pulmonary tuberculosis should be considered when patients have a history of unexplained cough for more than 3 weeks with or without:

- fever
- weight loss
- anorexia
- night sweats
- haemoptysis.

Sputum specimens must be sent to microbiology at the earliest opportunity to confirm infectivity. If TB is suspected this must be indicated on the clinical details of the request form to ensure appropriate handling and testing in the laboratory.

If MDR TB is suspected discuss with Consultant Medical Microbiologist the possibility of rapid diagnostic testing.

The Infection Prevention and Control Team must be informed at the earliest opportunity where the clinical suspicion of open pulmonary tuberculosis is high.

The Infection Control Team must notify the Occupational Health and Safety Department when a case has been diagnosed.

If a diagnosis of tuberculosis is confirmed the Chest Physician must be informed by the medical staff caring for the patient.

For staff in the community with patients suspected or diagnosed with TB, liaise with patient's G.P., Infection Prevention & Control and other organisations involved in the patient's care.

Unless there is a clear clinical or public health need, such as homelessness, people with suspected infectious or confirmed pulmonary TB should not be admitted to hospital for diagnostic tests or for care.

5.3 Control – Patients

(See Appendix A for further advice) A risk assessment for drug resistance must be made for each patient with TB, based on the risk factors listed below:

- History of prior TB drug treatment
- Prior TB treatment failure
- Contact with a known case of drug-resistant TB or MDR-TB
- Birth in a foreign country, particularly high-incidence countries (e.g. sub-Saharan Africa, the Asian subcontinent, south-east Asia, former countries of the Soviet Union)
- HIV infection
- Residence in London
- Age profile, with highest rates between ages 25 and 44
- Male gender.

The isolation guidance below should then be followed, based on the findings of the risk assessment undertaken, and according to whether the TB is confirmed infectious, suspected, or not infectious.

Northern Devon Healthcare Trust does not have a negative pressure isolation facility, therefore patients with suspected or known drug resistant or multi-drug resistant TB should be moved to a suitable facility in another Trust, such as the Royal Devon and Exeter (RD&E).

This would only occur following agreement of the responsible clinicians as a formal agreement does not exist. The infection control teams of both Trusts must be involved.

Standard single room accommodation with door shut should be used on wards without immunocompromised patients until this can be arranged.

Follow the lines horizontally in the table below for the known or suspected TB type, and decide whether there are immunocompromised patients in the same clinical area.

Known or suspected drug resistance	Condition of other Patients on ward	Confirmed infectious TB (open pulmonary TB - Smear positive)	Suspected pulmonary TB	Non - infectious / smear negative TB

DRUG SENSITIVE TB	Immunocompetent	Single room	Single room	Open ward
	Immunocompromised	Negative pressure isolation room on same ward	Single room on another ward	Single room on another ward
DRUG RESISTANT AND MDR-TB	Immunocompetent	Negative pressure isolation room	Negative pressure isolation room	Open ward*
	Immunocompromised	Negative pressure isolation room	Negative pressure isolation room	Single room
*only following consultation between the Chest Physician and the Infection Control Team				

Patients with respiratory TB should be separated from immunocompromised patients, either by admission to a single room on a separate ward, or in a negative pressure room on the same ward.

It is the responsibility of the clinician dealing with the case to liaise with other healthcare workers to identify any patients in the area who may be classed as 'immunocompromised' in this instance.

The patient should stay in the relevant isolation room until they have received a minimum of 2 weeks of effective anti-tuberculosis therapy or are discharged, unless they have MDR-TB.

Minimise the number and duration of visits a person with known or suspected TB makes to other departments while they are thought to be infectious.

Inpatients with suspected or confirmed smear-positive respiratory TB should be asked, with explanation, to wear a surgical mask whenever they leave their room until they have had two weeks of drug treatment.

Consider de-escalating isolation after 2 weeks of treatment, taking into account the risks and benefits it:

- The person is showing tolerance to the prescribed treatment
- There is agreement to adhere to treatment
- There is resolution of cough
- There is definite clinical improvement on treatment; for example, remaining afebrile for a week
- There are not immunocompromised people, such as transplant recipients, people with HIV and those on anti-tumour necrosis factor alpha or other biologics, in the same accommodation
- The person's initial smear grade was not high; for example 2 or less

- There is not extensive pulmonary involvement, including cavitation
- There is no laryngeal TB

If the patient has MDR-TB then they should remain in isolation and consultation should take place between the Chest Physician and the Infection Control Team.

The decision to discharge a patient with known or suspected MDR-TB should be discussed with the Infection Control Team, local Consultant Microbiologist, local TB Service and the Consultant in Communicable Disease Control.

For MDR-TB cases it will be necessary to determine appropriateness of continuing isolation. Normally 3 consecutive negative smears at weekly intervals, negative culture plus improvement in condition will be required to cease isolation.

Visitors of patients with any of the variations of infectious or suspected pulmonary TB should be limited to those who have had recent contact with the infectious patient prior to their diagnosis (i.e. household contacts). This should continue until the patient has had 2 weeks of effective therapy (unless they have MDR-TB - in this case consultation with the Physician/ Infection Control Team should take place).

Household contacts visiting patients with infectious tuberculosis should not visit other patients until it has been demonstrated they are free from open pulmonary tuberculosis themselves.

Any visitors to a child with TB in hospital should be screened as part of contact tracing and kept separate from other patients until they have been excluded as the source of infection.

Patients who have been in prolonged contact with a case of smear positive pulmonary tuberculosis (this includes patients nursed in the same bay, sharing day rooms etc.), should have their exposure documented, their consultant and GP informed and the designated Chest Physician advised if the index case:

- has an uncontrolled productive cough or
- the exposed patient has been in close contact with the index case for more than 8 hours.

Contact tracing of patients exposed to tuberculosis, if necessary, will be the responsibility of the Respiratory Team.

5.4 Control - Use of Personal Protective Equipment

FFP3 (Filtering Face Piece Level 3) protection masks must be worn on the following occasions by:

All healthcare workers providing prolonged care (>8 hours continuous care) to highly dependent patients with suspected or confirmed tuberculosis (this refers to all drug sensitive, resistant and MDR tuberculosis)

All persons present while sputum induction or aerosol generating procedures are performed on patients with suspected or confirmed infectious tuberculosis e.g. bronchoscopy, intubation, open respiratory suctioning methods, sputum induction.

Procedures such as bronchoscopy, sputum induction or nebuliser treatment must be carried out in an appropriately engineered and ventilated area.

All persons (staff and visitors) entering the room of a patient thought to be infectious with MDR-TB

Staff using FFP3 masks must have undergone fit testing procedures to ensure they can use the masks correctly.

Masks must not be re-used.

Used masks must be disposed of as infectious waste.

The use of PPE (Personal Protective Equipment e.g. gloves and aprons) other than masks in relation to standard precautions is no different to normal (i.e. for use when handling blood and body fluids)

5.5 Control – Staff

(See Appendix B). All new employees must be questioned and records made regarding tuberculosis history, presence of respiratory symptoms and vaccination status (i.e. presence of BCG scar). Tuberculosis immune response must be checked by the Occupational Health Department for new staff suspected to be tuberculosis positive prior to employment.

Immunocompromised staff must not care for patients with TB.

Only close staff contacts of patients with open pulmonary tuberculosis will be screened. This includes those who have given:

- prolonged care (> 8 hours of continuous care) of high dependency open pulmonary tuberculosis patients
- mouth to mouth resuscitation
- repeated chest physiotherapy.

Staff with the following symptoms should have a medical examination and chest x-ray with appropriate follow up:

- unexplained cough for more than 3 weeks with or without
- fever
- weight loss
- anorexia
- night sweats
- haemoptysis.

6. Monitoring Compliance with and the Effectiveness of the Policy

Standards/ Key Performance Indicators

Key performance indicators comprise:

- Absence of hospital acquired TB in patients or staff
- Provision of correct FFP3 masks and a fit testing programme for relevant staff.

Process for Implementation and Monitoring Compliance and Effectiveness

- After final approval, the author will arrange for a copy of the policy to be placed on the Trust's intranet. The policy will be referenced on the home page as a latest news release.
- Information will also be included in the Chief Executive's Bulletin which is circulated electronically to all staff.
- Line managers are responsible for ensuring this policy is implemented across their area of work.
- Monitoring compliance with this policy will be the responsibility of the Infection Prevention and Control Team. This will be undertaken by annual auditing of policy implementation into practice. Where non-compliance is identified, support and advice will be provided to improve practice.

7. Equality Impact Assessment

Table 1: Equality impact Assessment

Group	Positive Impact	Negative Impact	No Impact	Comment
Age			X	
Disability			X	
Gender			X	
Gender Reassignment			X	
Human Rights (rights to privacy, dignity, liberty and non-degrading treatment), marriage and civil partnership			X	
Pregnancy			X	
Maternity and Breastfeeding			X	
Race (ethnic origin)				
Religion (or belief)			X	
Sexual Orientation			X	

8. References

Department of Health (1998) The Prevention and Control of Tuberculosis in the United Kingdom - UK Guidance on the Prevention and Control of Transmission of HIV-related Tuberculosis and Drug Resistant, including Multiple Drug Resistant, Tuberculosis Department of Health. London.

Department of Health (2007) Tuberculosis Prevention and Treatment: a Toolkit for Planning, Commissioning and Delivering High-quality Services in England Department of Health. London.

Department of Health (2008) The Health Act 2006 (revised January 2008) Code of Practice for the Prevention and Control of Healthcare Associated Infections Department of Health. London.

Health and Safety Executive (2002) Control of Substances Hazardous to Health Regulations 2002. HMSO. London.

Immunisation Against Infectious Disease. (2006) Salisbury D., Ramsay M., Noakes K. (Editors); The Stationery Office. London.

Joint Tuberculosis Committee of the British Thoracic Society (2000) Control and Prevention of Tuberculosis in the United Kingdom: Code of Practice. British Thoracic Society. London

National Institute for Health and Clinical Excellence (NICE) (2006) Tuberculosis – Clinical Diagnosis and Management of Tuberculosis and Measures for its Prevention and Control. NICE. London.

National Institute for Health and Clinical Excellence (NICE) (2011) Tuberculosis – Clinical Diagnosis and Management of Tuberculosis and Measures for its Prevention and Control. NICE. London. (CG 117)

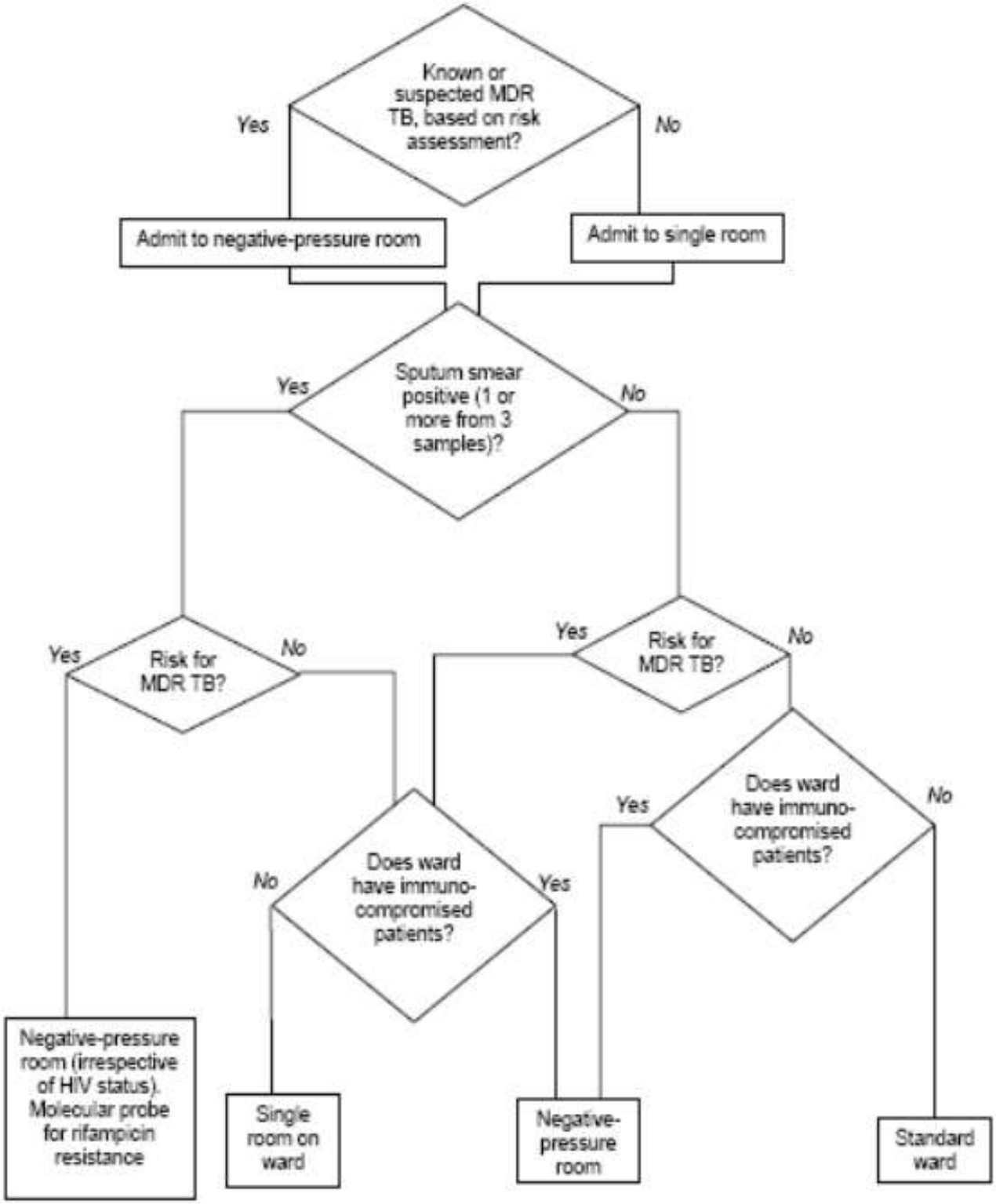
National Institute for Health and Clinical Excellence (NICE) (2016) Tuberculosis NG33

https://www.nice.org.uk/guidance/ng33

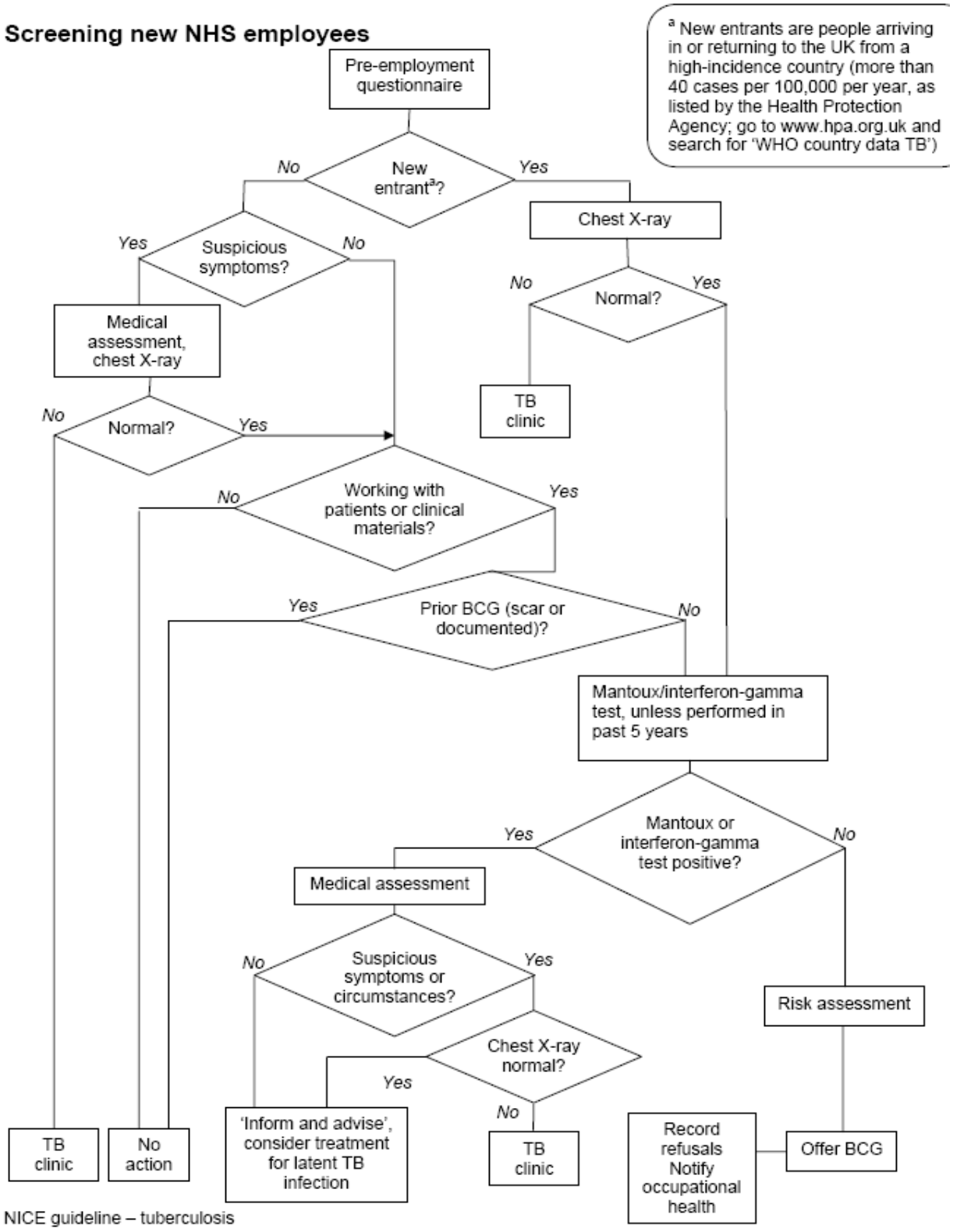
9 Associated Documentation

- Department of Health (2005) Promoting Equality and Human Rights in the NHS - A Guide for Non-Executive Directors of NHS Boards
- Disability Discrimination Act 1995 amended 2005. London: The Stationery Office
- Incident Reporting Policy
- Standard Precautions Policy
- Waste Policy
- Isolation Policy

Appendix A – Isolation Decisions for Patients with Suspected Respiratory TB (all varieties)



Appendix B – Screening New NHS Employees



Appendix C - Causes and Spread of Tuberculosis

TB is caused by bacteria from the *Mycobacterium tuberculosis* complex, which are *Mycobacterium tuberculosis* (human form) and *Mycobacterium bovis* (cattle form). Infection is spread when bacteria, coughed up in droplets by an individual with TB affecting their lungs, are released into the air and inhaled by others. However, for transmission to occur prolonged close contact with an infectious case is usually required. The disease can be cured with a combination of specific antibiotics.

In the past, infection could be acquired by drinking unpasteurised milk from cows infected with bovine tuberculososis, but this is rare in the UK today.

Other mycobacteria are capable of causing pulmonary disease and are normally grouped under the heading of atypical mycobacteria. These almost exclusively cause infection in those with previously damaged lungs e.g. AIDS, emphysema. Human to human transmission has not been described with these atypical mycobacteria.

While the initial site of TB infection is almost always in the lungs (pulmonary), bacteria can spread through the bloodstream and lymphatic system to affect any part of the body (extra-pulmonary). Apart from the lungs, the most common sites for TB infection are:

- lymph glands in the neck and elsewhere
- bones (especially the spine)
- abdomen
- kidneys
- brain (known as TB meningitis).

The prognosis includes chronic weakening of the lungs, damage to other organs and death.

Latent TB infection may reactivate in later life, particularly if an individual's immune system has been weakened. This may be due to a number of causes such as disease (e.g. HIV), some medical treatment (e.g. chemotherapy) and old age.