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TUBERCULOSIS MANAGEMENT

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CONTENTS

ABBREVIATIONS

AFB	Acid Fast Bacilli
AIDS	Acquired immune deficiency syndrome
BCG	Bacillus Calmette–Guérin immunisation.
CNS	Clinical Nurse Specialist
ECDC	European Centre for Disease Prevention and Control
FFP3	Filtering Face piece
HCW's	Healthcare Workers
HIV	Human immunodeficiency virus
ICD	Infection Control Doctor
ID	Infectious Diseases
IFN	Interferon - gamma
IPCT	Infection Prevention and Control Team
MDRTB	Multi Drug resistant TB
NTBS	National TB Surveillance System
NICE	National Institute of Clinical Excellence
NOID	Notification of infectious disease
OCCH	Occupational Health
PPE	Personal Protective Equipment
TB	Tuberculosis
UKHSA	UK Health Security Agency
WHO	World Health Organization
XDR	Extensively drug resistant
ZN	Ziehl-Neelsen

1 POLICY STATEMENT

This policy outlines the overarching standard process for the management of Tuberculosis (TB) to prevent and control infection in patients and to prevent the occupational exposure of healthcare workers (HCW's). It covers all Divisions within the Trust and is to ensure compliance with national guidelines. It is essential that a patient known or suspected of TB is managed in accordance with this policy. Patients at Velindre Cancer Centre are at a higher risk of infection as they may be immunocompromised due to disease and its complications and/or immunosuppressed due to their treatment e.g. chemotherapy. The policy and processes acknowledge best practice and reflects the guidance from National Institute of Clinical Excellence (NICE) (ng33), Health departments and World Health Organisation (WHO) and the British Thoracic Society in the protection of patients and HCW's.

This policy has been developed in line with current guidance and advice from Integrated TB services of Cardiff and Vale University Health Board. It is intended for All Trust HCW's.

Tuberculosis (TB) is a curable infectious disease caused by a type of bacterium called Mycobacterium tuberculosis ('M. tuberculosis' or 'M.Tb'), or other bacterium in the M. tuberculosis complex (that is, M. bovis or M. africanum). It is spread by droplets containing the bacteria being coughed out by someone with infectious TB, and then being inhaled by other people (NG33, 2024).

In 2006, The National Institute for Health and Clinical Excellence (NICE) developed guidelines for TB, 'Clinical diagnosis and management of tuberculosis, and measures for its prevention and control'. This guidance (NG33) was updated in 2016, 2019 and again in 2024.

In 2016 the WHO implemented their "End Tuberculosis Strategy". The strategy aims to end the global TB epidemic, with targets to reduce TB deaths by 95% and to cut new cases by 90% between 2015 and 2035, and to ensure that no family is burdened with catastrophic expenses due to TB. There was a major global recovery in the number of people diagnosed with TB and treated in 2022, after 2 years of COVID-related disruptions. This has started to reverse or moderate the damaging impact of the pandemic on the number of people dying from or falling ill with TB. However, TB remained the world's second leading cause of death from a single infectious agent in 2022, after COVID-19, and caused almost twice as many deaths as HIV/AIDS. Global targets for improvements in TB treatment, TB preventive treatment and funding set at the first UN-high-level meeting on TB in 2018 have been missed and global TB targets for reductions in TB disease burden remain off track. Ending the global TB epidemic requires translating the commitments made at the 2023 UN high-level meeting on TB into action.

Globally in 2022, TB caused an estimated 1.30 million deaths (95% UI: 1.18–1.43 million). This was down from best estimates of 1.4 million in both 2020 and 2021 and almost back to the level of 2019.

TB notification rates in the UK in 2023 increased by 12.5% compared with 2022, the largest year-on-year increase in the current reporting period (2000 to 2023).

TB notification rates increased for all UK nations, with the largest increase (41.2%) in Scotland and the lowest increase in England (11.0%).

The increase in 2023 was preceded by a decrease in 2020 (12.6% decrease compared with 2019) occurring at the same time as the coronavirus (COVID-19) pandemic. This decrease during and rebound after the pandemic is observed in many countries, as reported in the WHO Global TB report 2023.

The number of newly diagnosed TB cases in Wales increased from 71 in 2022 to 84 in 2023, representing an increase in annual incidence from 2.3 to 2.7 per 100,000 population. Despite this increase, there is an overall decreasing trend in TB incidence in Wales since a peak of

3.7 per 100,000 population in 2014. Whilst overall Wales remains within the WHO definition of a low incidence country.

In 2023, the highest number of new TB cases reported were resident in the Aneurin Bevan University Health Board and Cardiff and Vale University Health Board areas (26 and 22 cases respectively), representing a rate of 4.4 per 100,000 population for both health boards. The lowest rate was reported in Cwm Taf Morgannwg University Health Board at 0.2 per 100,000 population.

Within health board area there is substantial variation in case rates by local authority of residence, as shown in Figure 3, with Newport and Cardiff reporting the highest rates year on year, with 5-year average rates (2018-2022) of 11.6 and 6.4 per 100,000 population respectively (PHW 2023).

https://www.ecdc.europa.eu/en/publications-data/tuberculosis-surveillance-and-monitoring-europe-2024-2022-data

In 2023, the new Tuberculosis action plan for the WHO European Region 2023–2030 came into force, operationalising the global End TB Strategy through Region specific actions and placing people at the heart of the response, in line with the European Programme of Work, 2020–2025 – "United Action for Better Health in Europe". Ending the TB epidemic requires implementing the commitments made by Member States through actions articulated in the regional action plan (WHO 2023).

2 SCOPE OF POLICY

2.1 The policy applies to all clinical staff who have the potential for contact with patients or clinical specimens that may carry TB.

2.2 This policy has been developed in line with current guidance and strategy and is intended for use within Velindre Cancer Centre.

3 AIMS AND OBJECTIVES

3.1 This policy aims to provide appropriate advice to staff for the prevention and management of tuberculosis at Velindre University NHS Trust based on current NICE guidance.

3.2 To ensure appropriate management of a patient with suspected/diagnosed Tuberculosis infection and ensure prevention of spread and protection of patients and staff within the hospital, and wider community.

3.3 The policy objectives are to outline:

- To describe the characteristics of the organism and the infection.
- To identify individual responsibilities.
- To describe the management of specimens and actions for positive results.
- To provide advice on appropriate precautions in managing the patient.
- To detail the management of staff and exposed HCW's.

4 RESPONSIBILITIES

4.1 Trust Roles and Responsibilities

The Chief Executive has overall responsibility to ensure this policy is adhered to. Other responsibilities are outlined below.

The Trust has a responsibility to ensure that:

- All Divisional Directors make HCW's aware of the policy and provide appropriate equipment and training in the management of a TB patient.

- The Infection Prevention and Control Team (IPCT) will assist with training as appropriate.
- The IPCT will advise on the management of a TB patient and monitor compliance with this policy.
- It accepts its responsibility under the Health and Safety at Work Act etc. 1974 and the Control of Substances Hazardous to Health Regulations 2002, to take all reasonable precautions to prevent exposure to tuberculosis in patients, staff and other persons working at or using its premises.

4.2 Manager Responsibilities

Managers have responsibility to ensure that:

- All HCW's are notified of this policy and must have access to (via Trust intranet site) and understand the contents and local procedures derived from this policy.
- All procedures are followed according to this policy.
- HCW's are provided with appropriate supplies of personal protective equipment (PPE).
- All relevant HCW's are trained in the use of specific PPE and Fit Tested for use of Filtering Face piece (FFP3) face masks. (Manager to maintain a record of staff fit tested).
- HCW's classified as high-risk contacts of TB patients are identified for referral to the Occupational Health (OCCH) department.
- Failure or inappropriate management is reported accordingly via the incident reporting mechanisms.
- All relevant HCW's have had occupational clearance regarding Bacillus Calmette–Guérin (BCG) immunisation.

4.3 Health Care Worker Responsibilities

Health care workers have responsibility to ensure that:

- They practice safely according to policy.
- They participate in the quality improvement methods relevant to their area e.g. hand hygiene compliance audits, use of care bundles, and audit of cleansing of donor arms.
- They co-operate with the IPCT in providing data, acting on advice given and recording related incidents.
- They attend the relevant level of training.

4.4 Distribution

The policy will be available via the Trust intranet site. Where the staff do not have access to the intranet their line manager must ensure that they have access to a copy of this policy.

5 DEFINITIONS

Every year, 10 million people fall ill with TB (WHO 2023). Despite being a preventable and curable disease, 1.5 million people die from TB each year – making it the world's top infectious killer.

TB is the leading cause of death of people with HIV and a major contributor to antimicrobial resistance (WHO 2024).

Human TB is caused by infection with bacteria of the *Mycobacterium tuberculosis* complex and may affect almost any part of the body. The most common form is pulmonary TB, which accounts for almost 55% of all cases in the UK. Pulmonary TB typically causes a persistent productive cough which may be accompanied by blood-streaked sputum or, more rarely,

frank haemoptysis. Almost all cases of TB in the UK are acquired through the respiratory route, by breathing in infected respiratory droplets from a person with infectious respiratory TB. Transmission is most likely when the index case has sputum that is smear positive for the bacillus on microscopy, and often after prolonged close contact such as living in the same household. The initial infection may be eliminated; may remain latent (the individual has no symptoms, but the TB bacteria remain in the body); or progress to active TB over the following weeks or months.

Latent TB infection may reactivate in later life; particularly if an individual's immune system has become weakened, for example by disease (e.g. HIV), certain medical treatments (e.g. cancer chemotherapy, corticosteroids, anti-TNF (tumour necrosis factor) or in old age.

In addition, there are several occupational groups who are working with persons at higher risk of acquiring TB. These include staff working with prisoners, homeless persons, persons with drug and alcohol misuse and those who work with refugees and asylum seekers. BCG vaccination may also be considered for these groups.

6 IMPLEMENTATION/POLICY COMPLIANCE

6.1 General guidance

6.1.1 Transmission of TB

TB is transmitted almost exclusively through the airborne route. Droplet nuclei of tubercle bacilli of approximately 1 to 5 microns (μ) in diameter, are expelled from the lungs of the infectious person, and inhaled deeply into the lungs of the exposed person.

Large respiratory droplets produced during coughing, talking, and sneezing can cover large distances of up to 6 horizontal feet before settling on the ground or surfaces. The smaller respiratory droplets evaporate quickly leaving even smaller droplet nuclei of TB. These can be spread through small, aerosolised particles which are suspended in the air for long periods.

6.1.2 Diagnosis

Patients can be identified as:

- **Smear positive** pulmonary disease (or **open TB**) - these patients will have sufficient tubercle bacilli in sputum to be seen on direct microscopy and are infectious. Smear positive describes TB in an individual whose sputum is positive for Acid Fast Bacilli (AFB) on Ziehl-Neelsen (ZN) staining. If diagnosed elsewhere, patients whose bronchial lavage specimens alone are ZN stain-positive are not considered to have open TB.
- **Smear-negative** pulmonary disease (or **closed TB**) – these patients have 3 smear-negative sputum samples but are potentially still infectious, but much less so than smear-positive patients. AFB may be seen on samples obtained at bronchoscopy, or sputum may be culture positive.
- **Non-pulmonary disease** (or **closed TB**) - These patients are considered **non-infectious**; although patients whose urine or other secretions contain tubercle bacilli should be subject to the procedures outlined below.

In asymptomatic person's, exposure to, and potential infection with, TB is demonstrated by a positive skin test, or from a positive blood-based immunological Iinterferon-gamma (IFN test). Those with a strongly positive skin test or with a positive IFN gamma test are regarded as having been infected with TB. These individuals are at risk of developing clinical disease. The risk of developing TB reactivation is increased in immunocompromised individuals.

Skin testing is sometimes used diagnostically to demonstrate previous exposure, but false negative tuberculin results can occur in the immunocompromised (e.g. co-infection with HIV, cytotoxic or immunosuppressant treatment).

6.1.3 Pathology Specimens

If TB is suspected, 3 sputum specimens should be sent on different days (ideally on 3 consecutive days, including one early morning sample) for AFB test (or as directed by the Consultant microbiologist or respiratory physician). For TB at non-pulmonary sites, please send appropriate clinical samples (i.e. pleural fluid, urine etc.) and discuss with microbiologist.

6.1.4 Infectivity

The infectiousness of patients with TB depends on whether the disease is pulmonary or non-pulmonary, and whether sputum has tubercle bacilli visible on direct microscopy (classed as smear positive). A patient in whom there is a strong clinical suspicion of pulmonary TB should be treated as infectious until 3 smear-negative sputum specimens have been obtained on 3 separate days. Patients who are smear positive only on bronchial lavage but not by sputum are regarded as non-infectious, however patients whose induced sputum is smear positive should be managed as infectious (Appendix 1).

6.1.5 Notification

All forms of TB are notifiable; clinicians must report all suspected cases to the TB Clinical Nurse Specialist (CNS) in Cardiff and Vale University NHS Board (CAVUHB), Tel 02920335125, who will notify the Consultant in Communicable Disease Control / Consultant in Health Protection Tel 0300 0030032. Failure to notify in some circumstances could lead to action for medical negligence. This ensures appropriate advice is given, close contacts are identified to be screened and epidemiological data is collected.

The TB CNS will then ensure the patient is officially notified on the national TB Surveillance System (NTBS). This is used to monitor tuberculosis control and includes treatment outcome monitoring.

Inform the IPCT of any known or suspected case of TB, whether diagnosed at Velindre or elsewhere. This will ensure that the appropriate infection prevention and control procedures are implemented at ward level and department level.

The TB CNS will be available to give advice and education to both the patient and staff, they will also ensure close household contacts are identified that may need TB screening.

An assessment of staff close contacts will be made by the TB CNS in-conjunction with IPCT, Occupational health (OCCH) and local Public Health Officers.

- Ward/departmental manager to inform the OCCH department of any HCW known or suspected to be infected with TB.

6.1.6 Education

Education of all Trust staff is undertaken either by Infection Prevention and Control Team (IPCT) staff or using materials developed or advised by the IPCT. Blended learning, including classroom teaching, e-learning and opportunistic workplace methods will be utilised. The level of training is determined by the HCW role and is documented in the annual training manual for the Trust and:

- As a minimum, all HCW's are expected to attend IPC induction training as soon after employment as possible.
- Level 1 training focuses on precautions and procedures undertaken by those providing direct patient/service user care or working in a clinical environment.
- Level 2 training is undertaken every 2 years to ensure clinical HCW's are kept up to date with current research, guidelines, policies, and projects.
- Junior and locum doctor induction is provided per intake.

- The Infection Control Doctor (ICD) updates consultant colleagues at consultant meetings while the antimicrobial pharmacist will input into the doctor training programme.
- Additional targeted training will be provided as required for specific groups including porters, domestics, volunteers etc. and as required to respond to a new infection prevention problem or to meet a particular need.

6.2 Infection Prevention, Control and Management of a TB Case

6.2.1 Patients Admitted to a Setting Where Care Is Provided or People Who Are Immunocompromised

TB patients should not knowingly be admitted to a setting where care is provided for people who are immunocompromised.

6.2.2 Smear-positive pulmonary disease (Open TB)

All patients with TB should have a risk assessment for drug resistance and be tested for HIV (Appendix 1). In some patients smear positivity may be due to colonisation or infection with mycobacterium other than M. tuberculosis. If this is thought or known to be the case, then discuss isolation requirements and precautions with the IPCT or the clinician in charge of the patient. Unless there is a clear clinical need, people with TB at any site of disease should not routinely be admitted to Velindre Cancer Centre for diagnostic tests or care.

The TB CNS will be available to provide advice and education to both the patient and staff, they will also ensure close household contacts are identified that may need TB screening.

6.2.3 Control Measures

- The method of isolation/precautions used for patients with tuberculosis depends on the type of disease diagnosed (Appendix 2). This includes a risk assessment for Multi Drug resistant TB (MDRTB).
- Patients must be admitted to a single room (negative pressure ventilation is not available in Velindre Cancer Centre) ideally vented to the outside air as soon as they are found or suspected to have pulmonary (open) TB. On no account should they be admitted to a ward with immunosuppressed patients (e.g. neutropenic) or to an open ward or bay.
- Single room isolation should continue until a full 2-week course of continuous appropriate anti tuberculosis therapy has been completed and following liaison between the supervising physician and the IPCT.
- Standard Precautions will be sufficient in most circumstances e.g. hand hygiene, risk-based use of gloves and aprons.
- A contact/respiratory precaution sign should be placed on the door.
- Health care workers caring for patients with suspected open pulmonary disease should use fluid repellent surgical masks as part of their PPE as per respiratory precautions until the diagnosis of TB is confirmed.
- HCW's caring for people with confirmed Pulmonary TB where no other indication for respiratory isolation is present, are not required to wear masks, gowns, or barrier nursing techniques unless:
    - Multi drug resistant/extensively drug resistant (MDR/XDR) TB is suspected OR Aerosol-generating procedures are being performed (e.g. cough inducing procedures including chest physiotherapy, tracheal suctioning prolonged face to face exposure to respiratory and oral secretions e.g. during RT and planning of head/neck patients, tracheostomy care, intubation).
    - Staff entering the room of a confirmed or suspected should wear an FFP3 mask or respirator and eye protection, for which they have been appropriately fit tested.

- The door of the room should be kept closed at all times unless the clinical need of the patient dictates otherwise, for which this should be clearly documented in the patient notes and risk assessed. Appropriate signage should be placed on the door to the room indicating that transmission-based precautions are required, including appropriate personal protective equipment (PPE).

- Patients undergoing anaesthesia or mechanical ventilation must have a disposable closed system for tracheal suctioning with the anaesthetic circuit protected by a single use bacterial filter. On intubation a disposable endotracheal tube or laryngeal mask and must be used. The laryngoscope blade and handle must be single use and disposed of in the clinical waste stream. Any positive end expiratory pressure must be switched off temporarily before disconnecting the patient from the machine to avoid expulsion of the organism into the air.
- Patients should receive education on respiratory hygiene measures/etiquette to ensure that they cover both the nose and mouth with a disposable tissue whenever they cough and sneeze and that they dispose of their tissues into an orange clinical waste bag.
- Limit visiting to next-of-kin or those in close-contact prior to diagnosis. They must not visit other hospital patients especially immunocompromised patients. Children are discouraged from visiting.
- Provide en-suite room, if possible, otherwise dispose of faeces/urine using usual clinical waste disposal procedures e.g. macerator.
- No special precautions for cutlery/crockery – machine-wash in central kitchen or ward dishwasher if available. Collect from infected room last.
- No special precautions for **Linen** unless contaminated with sputum or from fluid from lesions known to contain tubercle bacilli.
- Dispose of **Clinical Waste** using an orange bag.
- Daily **room cleaning** with combined detergent and chlorine releasing agent (chlorclean).
- Housekeepers cleaning the room are not at particular risk but are required to wear appropriate PPE as per transmission-based precautions, on entering the room, and should have had their BCG status established. Normal housekeeping procedures should be carried out, including enhanced terminal cleaning and curtain change (if required) on discharge of the patient, as well as ultraviolet radiation (UV-C) disinfection for rooms of patients with MDR/XDR TB.
- The person in charge of the ward will advise the housekeepers, caterers, and porters of necessary precautions.
- The TB CNS caring for the patient should be notified when a patient is **discharged** home or **transferred** between hospitals.

6.2.4 Suspected Smear-positive pulmonary disease (Open TB)

Patients with suspected pulmonary TB must be managed as smear-positive (6.1.2). Therefore, they must be admitted to a single room (with en-suite facilities), which is ideally vented to the outside air (i.e. Negative pressure/Isolation room), until their sputum status is known, and risk assessments have been carried out for infectivity and likelihood of MDRTB or XDR-TB (Appendix 2).

- Patients whose bronchial washings are smear-positive should be managed as if infectious under the following conditions:
  - The clinician regards the patient as being potentially infectious.
  - The sputum is also ‘smear-positive’ or becomes so after bronchoscopy.
  - The patient is on a ward with immuno-compromised patients, for example patients on high-dose steroids/chemotherapy.
  - The patient is known or suspected of having MDRTB.

If the patient's bronchial washings are smear-positive, but the above conditions do not apply, the patient should be managed as if **non-infectious.**

Consideration should be given to treating the TB before chemotherapy commences in patients who are to undergo chemotherapy and are diagnosed with TB.

NB. If MDRTB is suspected the patient's management MUST be discussed with the IPCT or Consultant Microbiologist as transfer to a facility with negative pressure cubicle will be required.

6.2.5 Smear-negative pulmonary disease

The patient may be nursed on the open ward unless there are immunocompromised patients on the same ward in which case the patient should be placed in a single room. If aerosol-generating procedures are to be performed (e.g. bronchoscopy) the patient should be isolated during the procedure.

6.2.6 Non-pulmonary disease

These patients are considered **non-infectious**, although patients whose urine or other secretions contain tubercle bacilli should be isolated if performing aerosol-producing procedures e.g. wound irrigation. There would be no restrictions on visiting.

6.3 Transfer of Patients

As with other infection control matters, the Nurse-in-charge of the ward/department has the responsibility to ensure that the necessary information regarding an infectious patient is passed on to a senior member of the receiving ward/department, prior to transfer.

6.3.1 Within the hospital

Patients with sputum that is AFB smear negative pulmonary and non-pulmonary tuberculosis do not present a problem for the receiving ward. When transfers of this type take place, the receiving ward must be informed of the patient's status prior to transfer.

6.3.2 Visits to Other Departments

Visits of smear-negative pulmonary and non-pulmonary tuberculosis cases to other departments should be kept to a minimum. When there is a need, arrangements must be made with the senior staff of the department concerned prior to transfer. Patients should be seen at the end of the working session and minimum time should be spent in the department.

Patients with smear-positive pulmonary tuberculosis **must not** visit other departments unless there is an overriding clinical need. While they are infectious, patients should wear a fluid resistant surgical mask (cover tracheostomy if appropriate) when they are being **transported through public or patient areas.**

There should be no delay e.g. where a wait in corridors might occur. Ideally the patient should be last on the list or at the end of a session to allow for cleaning afterwards.

6.3.3 Transfers to Other Hospitals

Smear positive pulmonary TB patients should be transferred, whenever possible, to the Infectious Diseases Unit (Huelwen ward UHW) and should only be discharged from this unit when the consultant-in-charge of the patient is satisfied that they are no longer infectious. Prior arrangements will have to be made with the receiving ward and the ambulance service for transfer of an infectious patient. No transfer should take place unless all parties, especially in the case of MDRTB, have agreed these arrangements. The receiving ward must be informed of the status of the patient. For smear-negative or non-pulmonary tuberculosis transfer can take place much more readily; but the receiving ward must be notified of the patient's status prior to transfer.

6.3.4 Ambulance Transportation

The ambulance service must be notified prior to transfer of any patient with suspected or confirmed open pulmonary tuberculosis, especially MDRTB. Further information for the ambulance service can be obtained from the Consultant in Communicable Disease Control (CCDC 03000030032).

6.4 Discontinuation of Precautions

After 2 weeks of appropriate treatment, most patients are non-infectious and can be removed from isolation (providing this is the only reason for isolation). This should be discussed with the clinician in charge of the patient. It is preferable if patients moving out of isolation are not placed on a ward with immunosuppressed patients e.g. neutropenic. Isolated patients can only be moved out of the single room and into a ward which cares for immunocompromised patients if:

- The patient has had at least two weeks of appropriate multiple drug therapy *and*
- The patient has had three negative sputum smears *and*
- The patient is adhering to and tolerating the anti-tuberculosis medication *and*
- The patient's cough has completely resolved or there is definite improvement on treatment.

6.5 Death of a patient with known or suspected TB patient

In the event of the death of the patient, the body should be managed as 'high risk' of infection and placed in a disposable body bag. The portering, mortuary and undertaker staff must be informed that the body is high risk. Standard precautions must be advised for the portering staff e.g. gloves, apron, and hand hygiene only as they should not be opening the body bag. Mortuary and undertaker staff will follow national guidelines for the protection of mortuary workers.

6.6 Health Care Personnel

6.6.1 Pre-employment

- Employees new to the NHS who will be working with patients or clinical specimens should not start work until they have completed a TB screen or health check, or documentary evidence is provided of such screening in the last 12 months.
- Employees new to the NHS who will have contact with patients should not start work if they have signs & symptoms of TB.
- Health checks for employees new to the NHS who will have contact with patients or clinical materials should include:
  - assessment of personal or family history of TB
  - symptoms and signs enquiry/questionnaire
  - documentary evidence of TB testing and/or BCG scar check by an Occupational Health professional, not relying on the applicant's personal assessment
  - Mantoux result within the last 5 years if available.

6.6.2 TB Screening and BCG Vaccination

New employees from the UK or countries with low TB incidence:

Offer a Mantoux test to new NHS employees who will be in contact with patients or clinical materials if the employees:

- Patients or clinical materials if the employees:
- Are not new entrants from high-incidence countries **and**
- Have not had a Bacillus Calmette-Guérin (BCG) vaccination (for example they are without scar, other documentation or reliable history).

6.6.2.1 If Mantoux test is negative, refer to the Green Book for BCG immunisation guidance. An individual risk assessment for HIV infection needs to be made before BCG vaccination is given.

6.6.2.2 If the Mantoux test is positive, offer an Interferon-gamma test and inform the TB Service. If interferon gamma positive, the person should be referred to the TB service for clinical assessment for diagnosis and possible treatment of latent infection or active disease. Clinical assessment by TB service should be completed before starting work.

New employees from countries of high TB Incidence or have had contact with patients in settings with a high TB prevalence

- Offer a Mantoux test to new NHS employees who are from a high-incidence country.
- If the Mantoux test is positive (5 mm or larger, regardless of BCG history), assess for active TB; if this assessment is negative, offer them treatment for latent TB infection.
- If Mantoux testing is unavailable, offer an interferon-gamma release assay.
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- Offer an interferon-gamma release assay to new NHS employees who have had contact with patients in settings where TB is highly prevalent:
- • If the interferon-gamma release assay is positive, assess for active TB and
- • if this assessment is negative, offer them treatment for latent TB infection
- If negative, offer BCG vaccination as 6.7.2.1 & 6.7.2.2
- If positive the person should be referred to the TB service for clinical assessment for diagnosis and possible treatment of latent infection or active disease. Clinical assessment by TB service should be completed before starting work.

If a prospective or current HCW who is Mantoux negative (less than 6mm), declines BCG vaccination, the risks should be explained, and the oral explanation supplemented by written advice. If the person still declines BCG vaccination, he or she should **not** work where there is a risk of exposure to TB.

Healthcare workers who are immunocompromised
HCW's who are immunocompromised should be screened in the same way as other people who are immunocompromised.

Clinical students, agency, and locum staff
Those that have contact with patients or clinical materials should be screened for TB to the same standard as new employees in healthcare environments as recommended before.
Documentary evidence of screening to this standard should be sought from locum agencies and contractors who carry out their own screening.

Staff Close Contact Screening
Reminders of symptoms of TB, and the need for prompt reporting of such symptoms, should be included with annual reminders about occupational health for staff who:
- Are in regular contact with TB patients or clinical materials, *or*
- Have worked in a high-risk clinical setting for four weeks or longer.

Assessment of staff contacts of smear positive pulmonary tuberculosis patients (open TB)
An assessment of staff close contacts will be made by the TB CNS in conjunction with IPCD, the OCCH Department and local Health Protection Officers.

The ward manager/nurse-in-charge will be given a letter and ward staff close-contact list to complete. (CAVUHB form Appendix 3a and 3b), which is then sent on to the OCCH department.

Close contacts are defined as members of staff who carry out:

- Exposure prone procedures e.g. mouth-to-mouth resuscitation, intubation, invasive dental procedure
- prolonged care of a high dependency patient
- repeated chest physio

One-off reminders should be given to these identified staff after a TB Incident on their ward.

Casual contacts (not identified on list) should only be assessed if they are unusually susceptible (immunosuppressed) or have no history of BCG vaccination.

Assessment of staff contacts of smear negative pulmonary or non-pulmonary TB patients (open TB)
In these cases, no action is necessary.

6.7 Contact Tracing

Contact tracing of infected patients and HCW's will be undertaken by Public Health Wales in conjunction with the TB nursing/medical team at the Health Board local to the patient/member of staff or to the hospital the patient is being cared at. In both cases in-house patient and HCW's contact tracing may require the support of OCCH and the IPCT.

If an individual on an open ward is diagnosed as being infectious, in general, patients in the same bay (rather than the ward) should be regarded as at risk, but mainly only if the index case was coughing, has smear-positive pulmonary TB and was present in the bay for more than 8 hours before isolation or the patient exposed is immunosuppressed. In this case, after discussion with the appropriate Public Health Wales professional it may be appropriate to convene an outbreak control group to enable a full risk assessment of other potentially affected patients to be made.

6.8 Audit and monitoring

Audit of compliance with the procedural document will be carried out by the Infection Prevention and Control Department as part of their procedure audit programme.

6.9 Implementation

The document will be available on the VCC intranet site and the Infection Prevention and Control clinical portal site. This policy will be maintained by the IPCT.

Please refer to the responsibilities section for further information in relation to the responsibilities in connection with this policy.

7 REFERENCES

British HIV Association guidelines for the management of tuberculosis in adults living with HIV 2018 (2023 interim update) https://www.bhiva.org/file/5c485f3dc7c17/BHIVA-TB-guidelines.pdf

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8 GETTING HELP

8.1 Further information and support

The IPCT have access to patient information leaflets in many languages, relating to the specific organism. In addition, there is access to Language Line in VCC which will assist is interpretation is required or further questions and queries in the patients first language.

Please see appendix 5.

8.2 Key guidance

Guidance on the management of Tuberculosis was last updated by NICE 16th February 2024. https://www.nice.org.uk/guidance/ng33 . This guidance has been used in the preparation of this procedure which also considers local circumstances.

9 RELATED POLICIES

This policy should be read in conjunction with:

- National Infection Prevention and Control Manual IPC 05.
- Transport of Specimens IPC 11.
- Control and Management of Multi Drug Resistant Bacteria IPC 15.
- Waste Management Policy PP 08.

10 INFORMATION, INSTRUCTION AND TRAINING

10.1 Training

Whilst there are no formal training programmes in place to ensure implementation of this policy, each Executive Director, Divisional Director, Clinical Director, Divisional General Manager, Divisional Nurse, Departmental Manager, Head of Nursing and Head of Departments must ensure that managers and all staff, clinical and non-clinical, are made aware of the policy provisions and that they are always adhered to.
Further departmental based training is available by contacting the TB CNS's.

11 MAIN RELEVANT LEGISLATION

Legislation considered in the development of this policy includes:

Health and Safety at Work etc. Act 1974 The Stationery Office
https://www.legislation.gov.uk/ukpga/1974/37

Management of Health and Safety at Work Regulations 1999
The Stationery Office https://www.legislation.gov.uk/uksi/1999/3242/contents/made

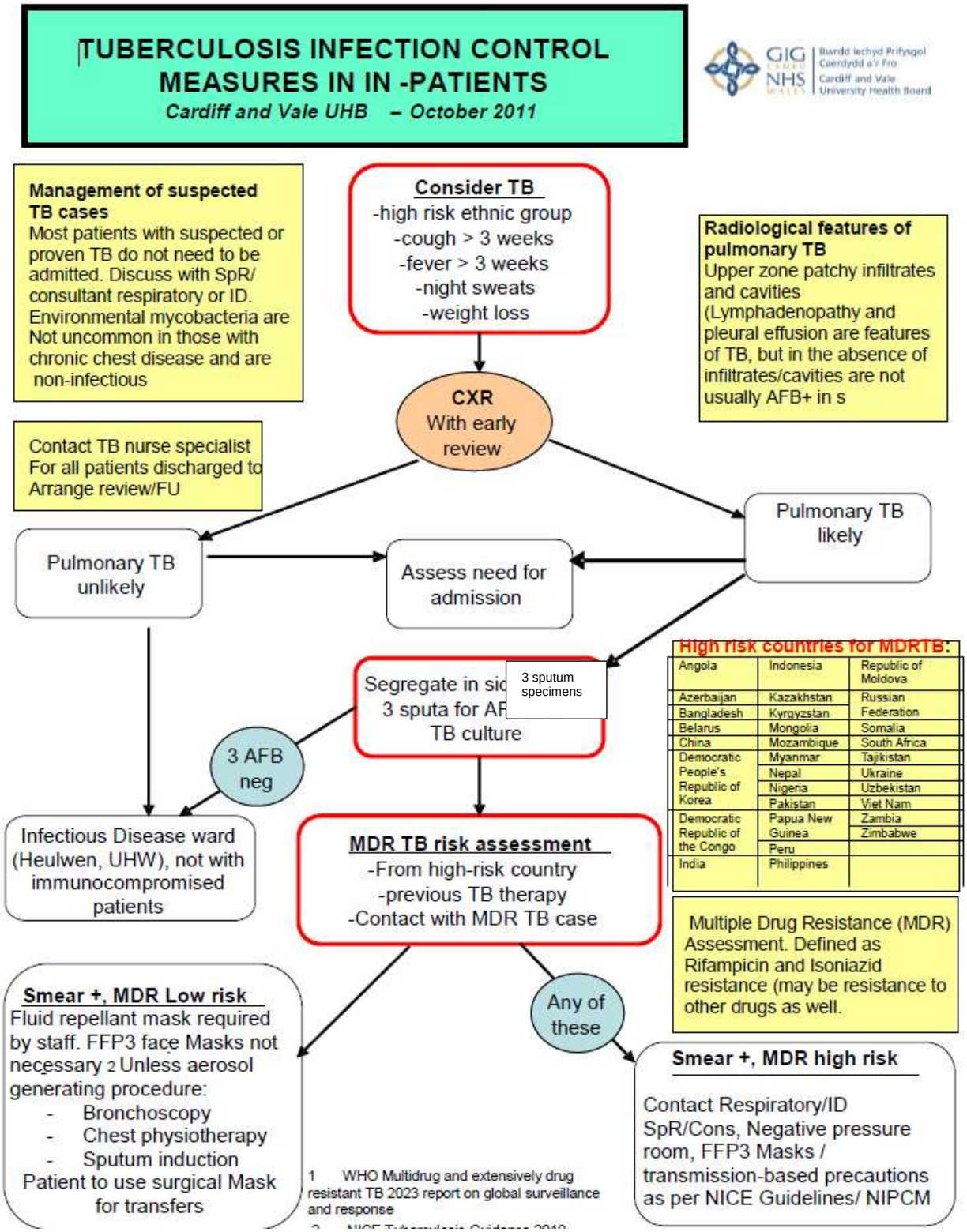
Control of Substances Hazardous to Health Regulations 2002
The Stationery Office https://www.legislation.gov.uk/uksi/2002/2677/contents/made

Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013
The Stationery Office https://www.legislation.gov.uk/uksi/2013/1471/made

Health Protection Legislation (Wales) Guidance 2010
https://gov.wales/sites/default/files/publications/2019-04/health-protection-guidance-2010.pdf

Public Health (Control of Disease) Act 1984 (amended 2020)
https://www.legislation.gov.uk/ukpga/1984/22/2020-03-25

APPENDIX 1 - Algorithm Recommended for Use by Cardiff & Vale Integrated TB Team



NB. Negative pressure rooms are not available in Velindre Hospital patients requiring these facilities must be transferred to a specialist centre.

APPENDIX 2 - MDR/XDR TB risk assessment

For people with clinically suspected TB, a TB specialist should request rapid diagnostic nucleic acid amplification tests for rifampicin resistance on primary specimens if a risk assessment for multidrug resistance identifies any of the following risk factors:

• history of previous TB drug treatment, particularly if there was known to be poor adherence to that treatment

• contact with a known case of multidrug-resistant TB

• birth or residence in a country in which the World Health Organization reports that a high proportion (5% or more) of new TB cases are multidrug-resistant.

(See “WHO high MDR burden list” below)

In cases of suspected/confirmed pulmonary TB, where a risk factor for MDR-TB is identified;

Start infection control measures as per 6.2

WHO high MDR burden list 2012 - 2025

This list represents countries which currently have the largest burden in terms of case rates per capita and account 85% of the global burden of MDR TB.

Angola
Azerbaijan
Bangladesh
Belarus
China
DR Congo
DPR Korea

India
Indonesia
Kazakhstan
Kyrgyzstan
Mongolia
Mozambique
Myanmar
Nepal
Nigeria
Pakistan
Papua New Guinea
Peru
Philippines
Republic of Moldova
Russian Federation
Somalia
South Africa
Tajikistan
Ukraine
Uzbekistan
Vietnam
Zambia
Zimbabwe

APPENDIX 3A Ward staff close-contact list

TB CONTROL SERVICE & OCCUPATIONAL HEALTH SERVICE
CARDIFF AND VALE NHS TRUST

List of Staff Contacts (all disciplines) of:

NAME OF PATIENT: _____

WARD, HOSPITAL: _____

DATES OF ADMISSION: _____

To be completed and returned to Occupational Health Department within seven days. If no contacts are identified, Ward Manager to sign below.

SURNAME	FORENAME	DOB	STAFF GRADE	STAFF ADDRESS	For Occupational Health Use			
					BCG Date	Mx/IGF Date & Result	CXR Date & Result	Inform & advice

NO CLOSE CONTACTS IDENTIFIED. Signed _____ Ward Manager

APPENDIX 3B Ward staff close-contact list to complete

TB Nurse Specialists
TB Control Services
Primary Care Service Centre - 1st Floor
Cardiff Royal Infirmary
Glossop Road
Cardiff
CF24 0SZ
Telephone 02920 335121

University Hospital of Wales and University Hospital of Llandough

Ymddiriedolaeth CIG Ysbyty Athrofael Cymru ac Ysbyty Llandochau

Llandough Hospital
Ysbyty Llandochau
Penlan Road,
Penarth,
Vale of Glamorgan
CF64 2XX
Tel 029 20711711

Heol Penlan, Penarth,
Bro Morgannwg
CF64 2XX
Ffon 029 20711711

Confidential

Date:

Dear Sister/Charge Nurse – Ward:

Re:

Ward: **From:** **To:**

The person named above has been diagnosed as suffering from smear positive (open) pulmonary TB. In order to assist with the screening and monitoring of staff that have cared for this patient, would you please complete a list of the names of all staff working on the ward/unit that were in close regular contact on the attached form.

A CLOSE REGULAR CONTACT IS DEFINED AS ANY STAFF MEMBER INVOLVED IN:-

1. PROVIDING PERSINAL CARE FOR A HIGH DEPENDENCY PATIENT
2. ADMINISTERING ACTIVE AND RECURRENT CHEST PHYSIOTHERAPY
3. MOUTH-TO-MOUTH RESUSCITATION

The completed form should be returned to the Occupation Health Department of you trust.
Most staff will only require a reminder of TB signs and symptoms from the Occupational health department.

All other staff in contact with this patient may be reassured that they are not at risk. Staff who are unsure if they are protected against TB should contact the Occupational Health Department for further advice.
If you require any further detail regarding this matter, please contact me on the above telephone number.

Yours sincerely

Yvonne Hester, Karen Baker & Martha Williams
Clinical Nurse Specialists in Tuberculosis

APPENDIX 4: Contact List

CCDC/HPT, IPCT Velindre University NHS Trust, Integrated TB Service Cardiff & Vale UHB, Occupational Health

CCDC/Health Protection Team	0300 000 30032
Email (Email notifications are only reviewed Monday to Friday 9 am- 5 pm).	AWARE@wales.nhs.uk

Velindre Infection Prevention & Control Office	02920 196129

Infection Control Doctor Velindre Trust	
Dr Rishi Dhillon On call microbiologist	02920 745896 9am – 5pm via UHW switchboard 02920 747747

Integrated Service for People with TB		
Lead TB Clinician	Dr Simon Barry	Tel: 02920 715024

Infectious Diseases (ID) TB Clinicians	
Dr Matthijs Backx	02920 742184
Dr Bazga Ali	
Dr Owen Seddon	
Jonathan Underwood	

Infectious Diseases Unit (IDU) UHW	
Huelwen ward , University Hospital of Wales, Heath Park, Cardiff, CF14 4XW	02920 742184 or 029 2074 6516 weekly Infectious Diseases Outpatient Clinic is held every Tuesday morning. Two ward-based clinics each week in which we see urgent referrals.

TB Clinical Nurse Specialists	
Yvonne Hester (Lead)	Office: 02920 335124
Karen Baker	02920 335125
Martha Williams	02929 335121

TB Office - Referrals & appointments	Office & Answerphone**:** 02920 335121

Occupational Health Department	029 2074 3264 (43264 from an internal phone)