Guidance Objective

To ensure that patients suspected of or confirmed to have tuberculosis are diagnosed and treated promptly and their contacts followed-up to minimise the risk of cross-infection and identify further cases.

This guidance applies to all staff employed by NHS Greater Glasgow & Clyde and locum staff on fixed term contracts and volunteer staff.

KEY CHANGES FROM THE PREVIOUS VERSION OF THIS GUIDANCE

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Developed by	Infection Prevention and Control Policy Sub-Group
Related Documents	National Infection Control Manual NHSGGC Hand Hygiene Guidance
Distribution/ Availability	NHSGGC Infection Prevention and Control web page: www.nhsggc.scot/hospitals-services/services-a-to-z/infection-prevention-and-control
Lead Manager	Director Infection Prevention and Control
Responsible Director	Executive Director of Nursing

Contents

Pulmonary TB Aide Memoire

Consult Guidance document and isolate in a single room (preferably negative pressure) with:

- ✓ ensuite / own commode
- ✓ door closed
- ✓ IPC yellow sign on door
- ✓ dedicated equipment
- ✓ **Care Checklist** completed daily
- ✓ If (MDR / XDR TB continue isolation until discharge)

Patient Assessed Daily

No

Patient has received 14 days of appropriate antibiotics and shown clinical signs of improvement following review by medical staff

Yes

- ✓Undertake terminal clean of room
- ✓Stop isolation

TB Guidance - Guidelines for patients in isolation:

Hand Hygiene: Liquid Soap and Water or alcohol based hand rub gel on clean hands

PPE:
FFP3 mask and disposable yellow apron for all routine care and Aerosol Generating Procedures (AGPs). Gloves are required when it is anticipated that there is contact with or exposure to blood, bodily fluids, secretions, excretions, non-intact skin or mucous membranes or contaminated surfaces. Eye protection where there is a risk of splashing of blood and body fluids.

Patient Environment: Twice daily with 1000 ppm chlorine clean based detergent

Patient Equipment: Chlorine clean immediately after each use and at least on a twice daily basis

Laundry: Treat as infectious

Waste: Dispose of as Clinical / Healthcare waste

Incubation Period: 2-8 weeks to cause an immune reaction (may be years before disease develops)

Period of communicability: See section Precautions Required Until

Notifiable disease: Yes

Transmission Route: Airborne

1. Responsibilities

Healthcare Workers (HCWs) must:

- Follow this guidance.
- Wear Personal Protective Equipment (PPE) and respiratory protection as advised.
- Inform a member of the Infection Prevention Control Team (IPCT) if this policy cannot be followed.

Managers must:

- Ensure HCWs have access to this guidance.
- Support HCWs and IPCTs in following this guidance.
- Ensure HCWs are aware how to use respiratory protection and have access to effective equipment and are fit tested.

Infection Prevention and Control Teams (IPCTs) must:

- Keep this guidance up-to-date.
- Provide education opportunities on this policy.
- Take the lead role in conjunction with the ward manager, consultant in charge and microbiologist to identify In-patients who have had sufficient exposure to the index case to merit screening.
- If HCW is unable to follow this guidance, IPCT will support staff to carry out a risk assessment

Clinicians must:

- Notify Public Health of any newly diagnosed patient.
- Notify the TB Nurse Specialist of any newly diagnosed patients.
- Assess inpatient contacts of smear positive patients and liaise with GP and TB Nurse Specialist

TB Nurse Specialist:

- Liaise with Clinicians, Infection Prevention and Control (IPC) and CPHM. All suspected or confirmed cases must be discussed with an Infectious Diseases or Respiratory consultant who will ensure TBMDT discussion.
- Identify community contacts promptly and arrange appropriate screening.
- Take a leading role in advising and informing the patient and the patient's contacts in the community for the duration of therapy.
- Liaise with Occupational Health regarding the provision of information and advice to staff exposed to a patient with smear/ sputum positive TB.

Occupational Health:

- Take the lead role in identifying, advising and informing staff exposed to a patient with smear positive pulmonary TB and arrange appropriate screening as required.

2. General Information on Tuberculosis

Communicable Disease/ Alert Organism	Tuberculosis is a disease caused by infection with the *Mycobacterium tuberculosis* complex of organisms *(M. tuberculosis, M. Bovis, M. Africanum and M. Micoti*) which may cause pulmonary and/or extrapulmonary (non-pulmonary) tuberculosis.
Clinical Condition(s)	Pulmonary and laryngeal TB both require the respiratory precautions. From this point both these forms of TB will be referred to as pulmonary TB **For extrapulmonary TB with no evidence of lung involvement standard infection control precautions are recommended.**
Definitions	TB Infection: defined as the bacteria having caused an immune reaction with no evidence of disease. TB Disease: the patient has symptoms or clinical evidence of disease. Sputum smear positive = infectious Sputum smear negative = low infectivity risk
Mode of Spread	Airborne: The infectious particles are very small droplets (1-5µ) containing tubercle bacilli expelled during talking, singing but especially coughing, and inhaled by susceptible individuals.
Incubation period	2-10 weeks to cause an immune reaction. May be many years before disease develops.
Notifiable disease	Yes. It is the clinician's responsibility to notify the Public Health Protection Unit (PHPU). PHPU@ggc.scot.nhs.uk Notification may also be by the Pathologist. **NB Any cases where suspicion remains high despite lack of microbiological or pathological confirmation must be notified to PHPU e.g. anyone started on anti-tuberculous medication.** Telephone PHPU - 0141 201 4917 (64917)
Persons most at Risk	• Individuals whose cumulative exposure time is more than 8 hours to a sputum smear positive patient. • Those who have immunodeficiency for any reason. • Staff who are significantly immunosuppressed should discuss this with their line manager and/or occupational health.

3. Transmission Based Precautions

Accommodation	• **Suspected TB:** single-room is required for all patients thought to have pulmonary tuberculosis until the patient has 3 smear negative sputum/bronchial alveolar lavage specimens or in the case of a child, negative gastric washings or Consultant confirms an alternative diagnosis. Three separately taken microscopy samples (ideally sputum) to be sent for mycobacterial testing. Clinical suspicion of TB should be recorded in the requesting details. If sputum samples are unobtainable gastric washings can be sent. Samples can be taken at any time of the day as long as they taken on consecutive days. • **Sputum smear positive TB:** place patient in a negative pressure single room (where available) until 14 days of appropriate tolerated drug treatment and there is definite clinical improvement on treatment; for example, absence of cough and consistently afebrile. The patient may be discharged before the 14 days. • **Confirmed Multi-Drug Resistant TB:** place patient in a negative pressure single room with an en suite is mandatory for those patients with or suspected of having pulmonary multi-drug resistant (MDR-TB, XDR- TB) until discharge from hospital. **If the patient is clinically unsuitable to be placed in a single room or door cannot remain closed, a risk assessment must be undertaken by the clinical team. The risk assessment should be documented and reviewed daily.** • If XDR TB/MDR TB, isolations must continue until discharge. ** Patients who have had sputum smear positive TB and have had 14 days adequate therapy and are improved must **not,** on stepdown, be placed next to patients who are immunocompromised, such as transplant recipients, people with HIV and those on anti-tumor necrosis factor alpha or other biologics unless they can be cared for in a negative pressure room.
Care Checklist available	Yes.
Clinical / Healthcare Waste	Waste should be designated as clinical/ healthcare waste and placed in an orange bag. Please refer to the NHSGCC Waste Management Policy.

Contact tracing	The TB Nurse Specialist will assess all community contacts of the patient. The IPCT, microbiologist and senior ward staff will assess if any other patients have had sufficient exposure during the patient stay (>8hours close contact with a sputum smear positive patient). In paediatrics resident parents/ guardians must be assessed. For hospital patient contacts, the clinician in charge of the patient must ensure follow up with the patients either via their GP or with the assistance of the HPN/TB Nurse Specialist. Any hospital patient contacts will also be informed of any relevant subsequent action. The TB Nurse Specialist will assess all community contacts of the patient.
Discharge Planning	A treatment plan and follow up must be arranged prior to discharge and discussed with TB Nurse Specialist and any relevant carers. It is important to communicate the infectious status of the patient to clinical teams and precautions required when arranging follow up clinic or community visits. If the patient self-discharges or absconds from the ward and is still considered to be an infection risk contact the CPHM via 0141 201 4917 (64917). The TB Nurse Specialist should also be informed.
Drug Resistance	All patients with, or suspected of having TB must be assessed for risk of drug resistance by a respiratory /ID consultant. Discuss with microbiology about rapid molecular testing and fast track of samples to the TB reference lab and during therapy monitoring for: • Failure of clinical response, e.g. temperature remains elevated after 4 months. If the patient is suspected of having MDRTB then until confirmed otherwise the procedures for multi-drug resistance will be followed. **MDR TB -** TB that is resistant to at least isoniazid and rifampicin **XDR TB** - TB caused by M. tuberculosis strains that fulfil the definition of MDR/Rifampicin Resistant-TB and which are also resistant to any fluoroquinolone and at least one additional group A drug. Group A drugs are the most potent group of drugs in the ranking of second-line medicines for the treatment of drug-resistant forms of TB, using longer treatment regimens and comprise levofloxacin, moxifloxacin, bedaquiline and linezolid.

Equipment	No special requirements provided equipment is decontaminated as per NHSGGC Decontamination Guidance.
Exposures	The primary measure to reduce exposure in healthcare settings are; early diagnosis, early isolation, appropriate application of TBPs and early commencement of appropriate therapy. All HCWs who have been involved in the care of a sputum smear positive patient with pulmonary Tuberculosis prior to appropriate infection control precautions being instigated who have had 8 or more hours close contact with the index case, or who are immunocompromised will be referred to the Occupational Health Service (OHS).
Hand Hygiene	See NHSGGC Hand Hygiene Guidance
Last Offices	Special precautions are required for Last Offices. See National Guidance for Last Offices.
Moving between wards, hospitals and departments (including theatres)	If possible avoid unnecessary movement of patient until therapy has been established. If movement is necessary, for smear positive adult patients within the first 14 days of therapy, ask the patient to wear a fluid repellent surgical mask. Notify the receiving department. If attending another department for investigations the patient's waiting time should be kept to a minimum and they should not be seated next to other patients. **Please see Accommodation section****
Notice for Door	Yes, if patient is isolated a yellow IPC sign should be placed on door. **NB If safe to do so,** keep the door closed until restrictions are lifted.
Outbreak	Unlikely in hospital settings provided infection control precautions are followed.
Patient Clothing	No special requirements. Advise relatives that there is no risk from washing the patient's clothes at home. See National Washing Clothes at Home Leaflet

Personal Protective Equipment (PPE)	HCWs caring for patients with suspected or confirmed (smear positive) pulmonary tuberculosis, should wear a yellow disposable apron and a face fit tested FPP3 mask must be worn for both routine care and when undertaking aerosol generating procedures (AGP's). Gloves are required when it is anticipated that there is contact with or exposure to blood, bodily fluids, secretions, excretions, non-intact skin or mucous membranes or contaminated surfaces. Where there is an identified risk of splashing of blood and or body fluids into the mucous membranes of the eyes **and during all AGPs**, suitable eye protection must also be worn. FFP3 should be removed outside the room. All PPE should be worn for the agreed fallow time for the room. When there is a risk of extensive splashing of blood and/or other body fluids a gown may be required. Once the patient has had 14 days of treatment and shown signs of clinical improvement and following review by medical staff and a risk assessment carried out, PPE can be discontinued. If possible avoid unnecessary movement of patient until therapy has been established. If movement is necessary, for smear positive adult patients within the first 14 days of therapy, ask the patient to wear a fluid repellent surgical mask. For full list of AGPs see Appendix 16 Appendix 16 AGPs and Fallow Time **For PPE information:** 2025-08-25-appendix-15-ppe-final-v71.pdf National Infection Prevention and Control Manual: Aerosol Generating Procedures (AGPs)

Precautions Required Until	**Sputum Smear positive not MDR TB / XDR TB**: • had a minimum of 14 days appropriate therapy, which has been tolerated e.g. no diarrhoea or vomiting and patient has been fully compliant • Definite clinical improvement as a response to therapy, e.g. cessation of cough Seek the advice of a member of the IPCT / ID Consultant before removing a patient from isolation. On removal and while still an in-patient, if there is any clinical deterioration that could indicate progression of pulmonary tuberculosis, patient should return to isolation until clinical review by an ID or Respiratory consultant. **Pulmonary MDR TB:** For duration of stay **Pulmonary XDR TB:** For duration of stay **Smear negative / Suspected TB:** Three separately taken microscopy sputum smears /gastric washings. (samples can be taken at any time of day providing they are taken on consecutive days). Samples should be sent for both smear and culture. If unable to obtain samples the patient should be reviewed by an ID / Respiratory consultant. **Extra-pulmonary TB**: Pulmonary disease must be excluded before transmission based precautions are stopped.

Procedure Restrictions	• Sputum and cough inducing procedures should be undertaken by HCWs wearing full PPE as above in a single / negatively-pressurised room with the door closed. HCW should continue to wear this PPE for the designated time determined by the air changes within the room. Each area will differ depending on air exchanges. • Patients should be advised to cover both the nose and mouth with a tissue whenever they cough or sneeze; • In-patients should not leave their room unless for essential medical investigations or transfer to another ward. A fluid repellent surgical mask should be worn by the patient when they leave the room, until they have had 14 days of appropriate tolerated drug treatment and shown clinical improvement. • Bronchoscopy's in those suspected of Pulmonary TB should be undertaken last with adequate ventilation as above. Bronchoscopy suites managers should be aware of the number of air exchanges and the duration of time required before staff and other patients can re-enter the area.
Referral	All patients suspected of having TB should be referred to a Respiratory Physician or Infectious Diseases Microbiologist to inform the clinician by telephone of positive smear results.
Risk assessment	• For patients with extra-pulmonary disease the transmission based precautions in this guidance must be followed until pulmonary involvement can be ruled out. • Young children are broadly considered unlikely to be of high infectivity risk. TBPs in paediatric inpatients will require a case by case risk assessment.
Screening on Admission	Clinicians who have a raised suspicion of Pulmonary TB as a possible diagnosis should seek advice from Microbiology / Infectious Diseases / Respiratory Team where necessary. Common presentations include • Fever / night sweats • Weight loss • Productive cough / unexplained cough • Hemoptysis • Lymphadenopathy • Abdominal swelling/pain/ascites Patients should usually have three separate sputum samples sent to the

	laboratory and a chest X-Ray. These specimens should be marked 'URGENT' and AAFB requested in addition to culture. Patients whose history is indicative of pulmonary tuberculosis on admission should be isolated as stated in the *Accommodation* section.
Terminal Cleaning of Room	Follow NHSGGC SOP Terminal Clean of Ward/Isolation Room
Visitors	During the infectious period visitors should be minimized to those who have already had significant exposure to the patient e.g. household contacts. Children and immunocompromised persons should not be allowed to visit unless exceptional circumstances. Visitors who do not fit the criteria of household contacts should not visit unless under exceptional circumstances when consideration of fit testing should be undertaken. **Paediatric patients:** It is important to make sure that parents/carers are not themselves infectious with Tb before allowing them to visit/stay in hospital with the child. In the case of suspected or proven pulmonary MDR or XDR TB a plan for visiting should be discussed with the local IPCT in the first instance. If visitors are unwell or have symptoms of TB, they should not visit until assessed by the TB Nurse Specialist. Those who are immunocompromised should not visit. Visitors should only visit the patient with TB and not other patients.

4. Evidence Base

Immunisation against infectious disease 'Green Book' Department of Health. https://www.gov.uk/government/collections/immunisation-against-infectious- disease-the-green-book

HPS (2020) Transmission Based Precautions Literature Review: Respiratory Protective Equipment (RPE) https://hpspubsrepo.blob.core.windows.net/hps-website/nss/1722/documents/1_tbp-lr-rpe-v4.0.pdf

NICE Guidance (NG 33) 2016 Updated February 2024

WHO 2021 Updated definition of XDR-TB https://www.who.int/news/item/27-01-2021-who-announces-updated-definitions-of-extensively-drug-resistant-tuberculosis

National Infection Prevention and Control Manual National Infection Prevention and Control Manual: Home

5. List of AGPs

Appendix 16 Appendix 16 - Aerosol Generating Procedures (AGPs) and post AGP Fallow time (PAGPFT)