Tuberculosis

Te Mana Ora Protocol

This protocol is based on the Ministry of Health's Communicable Disease Control Manual, Immunisation Handbook 2020, and Guidelines for Tuberculosis Control in New Zealand 2019.

Te Mana Ora-specific content is in green.

Recently updated content is in blue.

- Protocol users should **document** their response to **action points,** marked throughout with this arrow.

Contents

1. Associated documents

CDHB Māori health policy

CDHB tikanga policy

CDHB interpreter procedure

CPH privacy/nohotapu policy

Te Mana Ora forms, letters, questionnaires:

K:\CFS\ProtectionTeam\FinalDocs\NotifiableConditions\Tuberculosis\FormsStdLettersQuest

Fact sheet or Ministry online information:

Tuberculosis disease | Ministry of Health NZ

2. The Illness

Epidemiology in New Zealand

Tuberculosis (TB) remains an important communicable disease in New Zealand. Incidence rates in recent years have been higher than those in Australia, the United States, and Canada, and slightly lower than the rate in the United Kingdom.

In New Zealand, TB incidence is highest in those born in high prevalence countries.

More detailed epidemiological information is available on the Institute of Environmental Science and Research (ESR) surveillance website (last updated in 2018), and in the Immunisation Handbook 2020 and Guidelines for Tuberculosis Control in New Zealand 2019.

Te Mana Ora cases: last five years

Table 1: Te Mana Ora cases by district, last 5 years

Districts	2017	2018	2019	2020	2021
Waitaha/Canterbury	33	27	27	22	41
South Canterbury		3	3	2	4
Te Tai o Poutini /West Coast			2	1	2
TOTAL	33	30	32	25	47

Table 2: Te Mana Ora cases by ethnicity, last 5 years

	2017	2018	2019	2020	2021
European	4	2	4	3	2
Māori	1	1	5	1	3
Pacific		1	2	1	2
Asian	28	25	20	19	35
Other		1	1	1	5
Unknown					
TOTAL	33	30	32	25	47

Clinical description

A chronic bacterial infection caused by Mycobacterium tuberculosis complex, including *M. tuberculosis* or *M. bovis*, characterised histopathologically by the formation of granulomas. **Most infections are asymptomatic or non-progressive**. The most common site of infection is the **lung** (pulmonary TB), where TB infection classically causes an asymmetrical pulmonary infiltrate, which undergoes caseation, cavity formation and fibrosis if it progresses. Young children with active TB disease may present with symptoms of fever, lassitude and cough. Older children and adults with active TB disease may present with symptoms of anorexia, fatigue, weight loss, chills, night sweats, cough, haemoptysis and chest pain.

Any organ can be affected by **extrapulmonary TB**, causing meningitis, pleurisy, pericarditis, bone or joint infection, renal infection, gastrointestinal tract infection, peritonitis or lymphadenitis, or disseminating via the bloodstream and affecting multiple organs (disseminated TB). **Disseminated** and **meningeal TB** are more common **in very young children**. **Immunocompromise**, like **HIV**, is associated with higher rates of disseminated TB and less specific clinical features.

Types of tuberculosis

- **Tuberculosis disease: new case**: Active TB in a person who has never been treated for TB before, or has active disease from a new genotype.
- **Tuberculosis disease: relapse or reactivation**: Active TB in a person whose tuberculosis has been non-infectious or quiescent following full, partial or no treatment.
- **Tuberculosis: latent infection (LTBI)**: A person with both of the following:
  - positive Mantoux test, Mantoux conversion or positive interferon-gamma release assay (IGRA) test
  - no evidence of active disease.
- **Tuberculosis: old disease on preventive treatment**: no active disease or latent infection.

For more information, see Guidelines for Tuberculosis Control in New Zealand 2019.

Incubation

The period from infection to demonstrable primary lesion or significant tuberculin (Mantoux) reaction is **between 2 and 10 weeks**[1]. The **lifetime risk of developing active TB disease after infection is about 5–10 percent in adults** overall. However, the risk is inversely proportional to age at the time of infection (that is, **young children have a greater risk** of developing active disease). The risk is also greater in people with **predisposing medical conditions** and **immunosuppression** (and of these, HIV is the strongest risk factor). While the risk of developing active TB disease is greatest within the first year or two after infection, the risk can persist for a lifetime.

Transmission

Transmission is by **inhalation of airborne droplets** produced by people with pulmonary or laryngeal TB, especially during coughing or sneezing. People with extrapulmonary TB alone cannot transmit the infection to others.[2] People with latent TB infection are not infectious. Bovine TB (M. bovis) may also be transmitted from infected cattle to humans by ingestion of contaminated unpasteurised milk or milk products or by airborne droplet spread to people who work closely with cattle.

Communicability

Untreated adults and adolescents with pulmonary TB may be **intermittently infectious for years**. Children **under the age of 12 years** are **rarely infectious**. For the purposes of contact tracing, the Guidelines for Tuberculosis Control in New Zealand 2019 recommend that the onset of communicability be taken as the **onset of cough** for the index case, **or** as **3 months before diagnosis** if the onset of cough is not known or there is no history of cough. This period may need to be extended if the source case is strongly sputum smear-positive or if a large proportion of contacts are found to have been infected.

Once a person with pulmonary TB has been commenced on effective treatment, the risk of transmission declines over 2–4 weeks to negligible levels in most cases. Therefore most people with pulmonary TB who have been on at least **2 weeks of effective anti-tuberculous treatment can be considered non-infectious** to others. However, this may not apply in cases who are initially sputum smear-positive or have extensive lung involvement at diagnosis. In these cases, sputum may remain culture-positive for 2–3 months or longer. The duration of infectivity on treatment is correlated with the pre-treatment smear grade (acid-fast bacilli per high-powered field).

For further details regarding the period of infectiousness, see the Guidelines for Tuberculosis Control in New Zealand 2019.

3. Notification

Attending medical practitioners or laboratories must immediately notify the local medical officer of health of suspected or confirmed new or reactivated cases.

There is no legal obligation to notify latent TB infection or old disease on preventive treatment, but such notification is useful for surveillance purposes. All cases of latent TB infection under treatment should be reported to the medical officer of health, with patient consent, and details should be entered into EpiSurv.

4. Case classification

For active TB:

Under investigation: A suspected case that has been notified, but information is not yet available to classify it as probable, confirmed or not a case.

Probable: Presumptive (without laboratory confirmation). There is no laboratory confirmation but:

[1] Mantoux conversion occurs within 8 weeks of infection. Therefore, when testing contacts of infectious TB cases for conversion, the first Mantoux test should be done as soon as possible and the second Mantoux test should be done 8 weeks after the date of the last contact with the source case

[2] There are rare exceptions – for example, sexual transmission via tubercle bacilli in semen.

- there are symptoms or signs compatible with active tuberculosis, such as compatible radiology or clinical evidence of current disease, and
- full anti-tuberculous treatment has been started by a clinician.

Confirmed: A clinically compatible illness that is laboratory confirmed.

Not a case: A case that has been investigated and subsequently found not to meet the case definition.

5. Laboratory testing

Laboratory confirmation requires at least one of the following:

- positive **culture** for M. tuberculosis complex
- positive microscopic examination for **acid-fast bacilli** when a culture has not been or cannot be obtained
- demonstration of M. tuberculosis complex **nucleic acid** directly from specimens
- **histology** strongly suggestive of tuberculosis when there is a strong clinical probability.

Note: Positive nucleic acid tests do not show whether the organisms are viable or not and may be positive after successful treatment. They should not be used to diagnose treatment failure.

6. Cultural and social context

Cultural, social, work and home environments affect any person's risk of contracting a communicable disease, the likely impact of that disease on them, and their likelihood of passing the infection on others. Keep these factors in mind at every point of your investigation and follow-up.

- Request an **interpreter** if needed
- **Consider** the potential impact of cultural, social, work or home factors on a person or family's ability or willingness to provide information and/or follow public health advice
- **Tailor your advice** to the situation
- **Seek advice yourself** if unsure. Talk to:
    - Te Mana Ora's Māori Relationships Manager or Pacific Relationships or Communicable Diseases Manager for advice on community and primary care support people or agencies
    - Ngā Ratonga Hauora Māori for Māori patients at Christchurch Hospital or Christchurch Women's hospital
- If appropriate, and with the case and/or contact's permission, seek the **assistance** of family or other community members, community leaders, and/or support agencies if required.

7. Management of case

Investigation

- **Action within office hours**. For after-hours notifications, check that case is in respiratory isolation in hospital or isolating at home, and leave for Te Mana Ora nurses to action during office hours.

Investigation is in partnership with primary health care, respiratory and infection diseases physicians. Ensure **laboratory confirmation** by culture of clinical specimens, especially sputum, has been attempted. Investigation of the case and contacts should **begin without waiting for full culture results** if history, sputum smears or chest radiographs are suggestive of TB.

The priority in interviewing the case is to:

1. Determine whether the case is **infectious to others**. Any person generating aerosolised particles containing tubercle bacilli is potentially infectious. However, even smear-negative, culture-positive cases can spread disease.
2. Determine the **period of infectiousness**. Contact investigation should extend back to the date of onset of cough in the index case, or for three months if the date of onset of cough is not known or if there is no history of cough.

3. Identify **potential contacts** of the index case. Each index case potentially has many contacts. Contacts must be prioritised using the principle of "concentric circles".
    - Members of the immediate household and others who have shared accommodation with the case are classified as "**close contacts**" and have high priority for follow-up.
    - Other contacts (e.g. social, work or school contacts) are generally classified as "**casual contacts**" and have lower priority for follow-up.
    - However, **work, leisure or school contacts may be close contacts** if they have been exposed to the case in a **closed environment** where there is poor ventilation or poor filtration of air for an extended period of time.
    - **Other circumstances** where persons may have been exposed, e.g. international flight of more than 8 hours.

New cases

Pulmonary cases:

- On the day of notification **interview** the case and contacts in person or by telephone, and view the m**edical notes** or Health Connect South clinical records. Obtain details on:
    - Sputum status.
    - Extent of pulmonary disease.
    - The onset of cough.
    - Cough frequency.
    - The HIV status of the case (if known) – there is no evidence that HIV-positive cases are more infectious to their contacts than HIV-negative
- If possible, **speak with the treating clinician** to obtain their view on the degree of infectiousness of the case and the period of infectiousness.
- Ask the index case for a **list of close and casual contacts** during the period of infectivity.
- Obtain a **family, social and work history**. Record the addresses of work places and venues where the case frequently socialises or otherwise visits.
- Complete the **case report form**.
- **Complete each contact's details** on the *tuberculosis contacts screening form* in **K:\CFS\ProtectionTeam\FinalDocs\NotifiableConditions\Tuberculosis\FormsStdLettersQuest**
- Enter the completed case report form on **EpiSurv**.
- Save the relevant contact details:
    - Scan the *tuberculosis contacts screening forms* to the patient's file in the **CFS** K:\CFS\ProtectionTeam\FinalDocs\NotifiableConditions\Tuberculosis\Cases
    - Create a case and contact record in the Te Mana Ora Patient-Contact **Database** for TB contacts on the Te Mana Ora intranet and link the scanned *tuberculosis contacts screening forms* to it.

Non-pulmonary cases

- Non-pulmonary cases should be **interviewed** as above and the **case report form** must be completed.
- **Close contacts** should be identified so that they can be questioned about TB symptoms and investigations done if indicated (see "identifying the source" below). Details should be recorded on TB spreadsheet or C&PH Contact Database.

Management of an infectious outward-bound passenger

Refer to Te Mana Ora Border Health Protocol section 2.14 *Sharing Information about Ill Travellers with Airlines*.

Relapsed or reactivated cases

Re-exposure to infectious TB necessitates **re-evaluation of contacts** (e.g. if the case relapses during or after treatment).

- **Discuss** all relapsed/reactivated cases with the medical officer of health.

Latent cases

Latent cases do not need Case Report Forms filled in. No contact tracing is required for latent cases.

- Create a **named folder** in the current year's LatentTB folder in the Cases folder in **CFS** for the latent case's test results, correspondence etc.
- Record details of latent cases on preventive treatment on **EpiSurv** and close the file when treatment is finished.

Restriction

Patients with smear positive tuberculosis require **respiratory isolation** in hospital or at home.

The period of infectiousness may be agreed in consultation with the treating physician, but generally ends when:

- **three consecutive negative sputum smears** have been obtained (for sputum smear-positive cases).
- the case has received **two weeks of appropriate chemotherapy**. (This is the usual practice.)

If a patient is discharged before he/she is considered to be non-infectious (possibly because of the pressure on beds, and on the balance of risks) the discharged patient on TB treatment should know how to prevent infecting others and should be taking the necessary precautions. Discuss any concerns with the medical officer of health and DOT nurse.

- If patient is, or is likely to be **non-compliant** with treatment including DOTS, and/or has been prematurely discharged, the medical officer of health should be informed and action taken under the Health Act 1956 where deemed appropriate.

Restriction from work/school is usually unnecessary after 14 days chemotherapy.

Treatment

Treatment is initiated by hospital physicians. Ideally the case would be under the care of a specialist respiratory or infectious diseases physician. Combination therapy is used for at least 6 months but may extend to 9–12 months or longer in some cases. First-line therapy usually includes: isoniazid, rifampicin, pyrazinamide and sometimes ethambutol.

Te Mana Ora staff are not required to supervise patients with their treatment. All patient queries should be directed to their physician.

The decision to use **directly observed therapy** (DOT) is made by the treating physician. However, if public health staff have concerns that DOT should be used, this should be raised with the treating physician and can be discussed with the medical officer of health. In Christchurch, DOT is provided by the "Cardio-Respiratory Outreach Team" (ph. 3640167). Te Mana Ora staff usually only become involved with patients on treatment in the community if there are issues with non-compliance (discuss such cases with the medical officer of health).

Counselling

- Advise the case and their caregivers of the nature of the infection and its mode of transmission. Emphasise the need to complete the full course of medication and for contact investigation and follow-up of both case and contacts
- The case should be advised of the risk of spread of tuberculosis, about the necessity to complete the full course of medication and about the contact investigation and follow-up process.

8. Management of contacts

The objectives of contact investigation are to:

- identify **infected contacts** who may require treatment of TB disease or latent TB infection
- identify **uninfected contacts under the age of five years** who may benefit from BCG vaccination
- identify the **source case** if not known
- identify **environmental factors** that may be contributing to the transmission of TB
- **educate** contacts about TB.

Chapter 6 of the Guidelines for Tuberculosis Control in New Zealand 2019 contains detailed advice for contact investigation. Its summary recommendations are:

- Case contact investigations should be overseen by the medical officer of health of the **region in which the index case is notified**.
- Contacts should be **prioritised** for assessment according to their **exposure** to Mycobacterium tuberculosis and their **risk of progressing to active TB** if infected.
- In the first instance, **all first-circle (close) contacts** should be traced, as should **second-circle contacts with risks for progression to TB**.
- **High-priority contacts aged under five years** should have a **chest X-ray** (CXR), **tuberculin skin test** (TST) or interferon gamma release assay (IGRA) and specialist clinical evaluation by a **paediatrician**.
- Contacts aged **over five years, with symptoms of pulmonary TB or a positive TST or IGRA** require a **CXR**. A CXR may also be considered following a negative TST or IGRA in a person aged **over 60 years** or with **another risk factor** for a false-negative TST or IGRA.
- Contacts of infectious TB cases who are **TST or IGRA positive** and with a **normal CXR** must be considered for **latent tuberculosis infection (LTBI) treatment**.
- Contacts of **multidrug-resistant tuberculosis** (MDR-TB) cases should be managed by, or in consultation with, practitioners experienced in this rapidly changing area.
- Bacille Calmette-Guérin (**BCG**) vaccination should be offered to **unvaccinated TST negative contacts under five years** of age.
- For TB cases on aircraft, only contacts seated **within two rows** of an infectious case on flights lasting **longer than eight hours** need to be traced.
- The medical officer of health in the DHB area in which a case is notified must coordinate and finalise the contact investigation.
- Medical officers of health must **ensure general practitioners (GPs) in their districts are aware** of TB policy and procedures and advise them of the investigation and public health management of their patients.
- Contact tracing activity should be **audited** periodically to ensure quality and consistency with guidelines and to inform future work.

Definition

Each index case potentially has many contacts. Contacts must be prioritised using the principle of "concentric circles":[3]

- Members of the immediate household and others who have shared accommodation with the case are classified as "**close contacts**" and have high priority for follow-up.
- Other contacts (e.g. social, work or school contacts) are generally classified as "**casual contacts**" and have lower priority for follow-up.
- However, **work, leisure or school contacts may be close contacts** if they have been exposed to the case in a **closed environment** where there is poor ventilation or poor filtration of air for an extended period of time.
- **Other circumstances** where persons may have been exposed, e.g. international flight of more than 8 hours.

Investigation

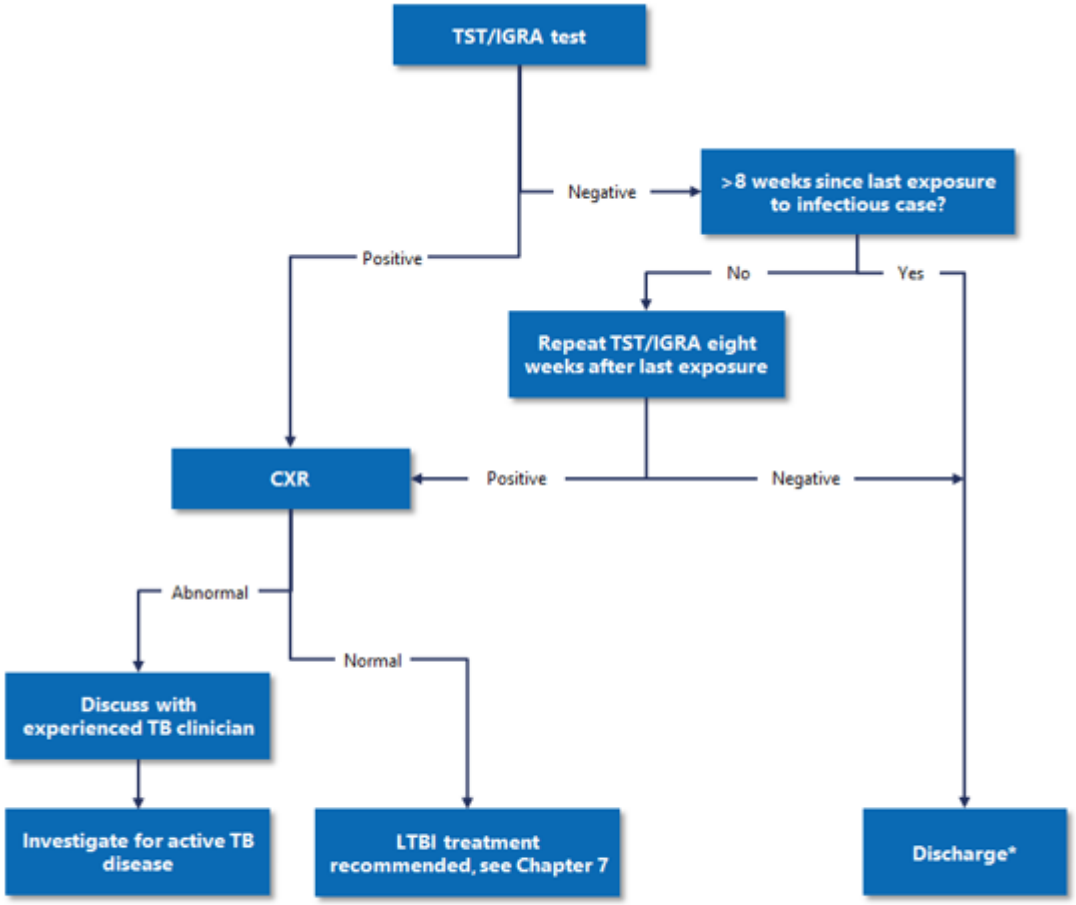
The principal steps[4] in contact investigation are:

1. **assessing the risk**, which includes considering:
   - the index case's **relative infectiousness**
   - the index case's **infectious period**
   - **locations** of possible transmission
   - **susceptibility** of contacts
2. **identifying and prioritising** contacts for investigation
3. developing a **screening plan**
4. **contact investigation**.

[3] For more detail, see Chapter 6 of the Guidelines for Tuberculosis Control in New Zealand 2019.
[4] Each of these steps is described in detail in Chapter 6 of the Guidelines for Tuberculosis Control in New Zealand 2019.

Contact investigation is summarised in Figure 1.

Figure 1: Algorithm for investigating high-priority contacts aged ≥5 years without symptoms of TB disease



CXR: Chest X-ray; IGRA: Interferon gamma release assay; LTBI: Latent tuberculosis infection; TB: Tuberculosis, TST: Tuberculin skin test.

* Consider CXR as a precaution if contact is aged over 60 years or if there is a possibility the TST/IGRA may be falsely negative (see Chapter 7: Diagnosis and treatment of latent tuberculosis infection).

Arranging investigations and referral

A. Mantoux or Quantiferon-TB Gold Tests

There is no gold standard test for the diagnosis of LTBI. The commonly used tests are interferon gamma release assay (IGRA, Quantiferon Gold) and tuberculosis skin test (TST, Mantoux). Chapter 7 of the Guidelines for Tuberculosis Control in New Zealand 2019 includes detailed consideration of available tests. In summary:

- **All high-priority contacts should be tested**, even if they have had LTBI or TB disease previously.
- People with a **known previous positive IGRA or Mantoux** should be tested with IGRA.
- Contacts aged **five years and under**: use Mantoux, especially if under two years of age.
- Contacts aged **over five years**: use Mantoux or IGRA.
- An **IGRA** is particularly recommended:
  - in **BCG-vaccinated** people
  - in **immunocompromised** people
  - when it is considered a high **risk that the person will not return** for the reading of their TST
  - when it is impractical for the person to make **repeat visits** for sequential testing
  - when the contact **has had LTBI or TB disease previously** and has been tested with the TST.

➢ Complete **request form** and give this to the contact with a copy of the **TB pamphlet**.

Christchurch: testing is preferably done at CHL but SCL (some sites and at certain times) will also do them.

Greymouth: Both tests are available at Greymouth Hospital (Mon-Thurs before midday).

Timaru: Southern Community Laboratories do both tests.

Interpreting the results of IGRA testing

A positive result indicates infection with Mycobacterium tuberculosis (or pathogenic M. bovis). It cannot distinguish between latent and active infection. Positive tests results can also be caused by infection with certain non-tuberculous mycobacteria (M. kansasii, M. szulgai, and M. marinum). Previous immunisation with BCG does not cause positive test results. (The M. bovis strain used in the manufacture of BCG does not secrete the protein identified by the QFT-G test.)

A negative Quantiferon test suggests that the patient is not infected with M. tuberculosis; however it cannot exclude infection.

An indeterminate result means the patient's T cells have failed to respond to the mitogen control and therefore no further interpretation of the test can be made. This may be due to inappropriate specimen handling or to underlying immunosuppression.

Interpreting Mantoux results

(i) **Positive Mantoux**

Categories	**Adults (≥ 15 years)**	**Older children (5 – 14 years)**	**Young children (< 5 years)**
NZ Born			
No BCG	≥ 10 mm	≥ 10 mm	≥ 5 mm
Previous BCG	≥ 15 mm	≥ 10 mm	≥ 10 mm
	≥ 10 mm	≥ 10 mm	≥ 5 mm
Following residence in a high-incidence country	≥ 10mm	≥ 10 mm	≥ 10 mm
No BCG			
Previous BCG			
Immunosuppressive illness or on immunosuppressive drugs (BCG or not)	5 -10mm	≥ 5 mm	≥ 5 mm
HIV/AIDS (BCG or not)	≥ 5 mm	≥ 5 mm	≥ 5 mm
Close contacts of smear positive cases (any origin) (BCG or not)	≥ 10 mm	≥ 10 mm	≥ 5 mm

(ii) Mantoux conversion

Defined as a change within a two-year period of Mantoux reactivity with an increased reaction of 10 mm or more.

- People who have a Mantoux conversion should be investigated for TB disease.
- Mantoux conversion occurs within eight weeks of infection. Therefore, when testing contacts of infectious TB cases for conversion, the first Mantoux test should be done as soon as possible and the second Mantoux test should be done eight weeks after the date of the last contact with the source case. Contacts whose last exposure to the case was more than eight weeks prior to a negative Mantoux test do not require further follow-up.

- If a person has had a documented Mantoux test result within the past 12 months and is exposed to infectious TB, the documented pre-exposure result may be used as the baseline in testing for conversion. Therefore only one Mantoux test is necessary to detect conversion. This test should be done eight weeks after the date of last exposure. Positive reactions older than 12 months may wane, so cannot be relied on as a valid baseline.
- If the contact develops symptoms of TB during this interval, the second Mantoux should be administered without delay and an urgent chest x-ray arranged. Discuss such situations with the MOH. (For further explanation, see Guidelines for Tuberculosis Control in New Zealand 2010, chapter 2).

➢ All contacts who return a positive QuantiFERON-TB Gold test or Mantoux or demonstrate conversion, require an urgent chest x-ray and referral to a respiratory or infectious disease physician or paediatrician.
➢ IMPORTANT NOTE: if a person who is positive on either QuantiFERON-TB Gold or Mantoux testing is found **in a house containing an infant** (up to one year old):
  - Discuss management of the QuantiFERON-TB Gold Mantoux-positive person with the MOH (they may need further investigation and referral)
  - Question all household contacts about symptoms of TB in case there is a source case that may infect the infant.

B. Chest x-ray

Christchurch or Ashburton: Contact Christchurch Hospital Radiology Department and arrange an appointment at Christchurch or Burwood or Ashburton Hospital. Scan and email request form to xrayappointments@cdhb.health.nz.

Timaru: telephone Timaru Hospital and email request form .

Greymouth: telephone Greymouth Hospital and email request form .

C. Referring to Out-Patients

➢ Complete and email a standard letter from the FormsStdLettersQuest folder:

Christchurch: email to marie.campbell@cdhb.health.nz and leanne.mcneill@cdhb.health.nz for respiratory outpatients, or arista.vanrooyan@cdhb.health.nz for paediatrics.

Timaru and Greymouth: phone for an appointment and obtain an email address to send referral letter.

➢ Send a copy of the results with the referral letter to the deptarment where the person is to be seen
➢ For referred contacts send a letter to the GP with the QuantiFERON-TB Gold test or Mantoux and CXR results and details of their referral
➢ Contacts who do not keep appointments for follow-up, or who do not have tests that have been arranged for them should be discussed with the MOH

D. Children under five years of age

Young children are at high risk of developing TB after infection (in infancy the risk is as high as 40%) and disease can develop within weeks of infection. The Mantoux reaction takes up to 8 weeks to convert after exposure.

➢ All children under five years of age who are close contacts of pulmonary cases should have a Mantoux test and a chest x-ray organised AND be referred to a paediatrician as soon as possible.
➢ The management of close child contacts of all non-pulmonary cases should be discussed with the MOH.
➢ The management of children with casual exposure (i.e. they are not household contacts) to any TB case should be discussed with the MOH.

Air travel

Only follow up flight contacts (seated in the same row, two rows forward and two rows behind) of TB cases who were:

- smear positive and had cavitation,

OR

- had MDR-TB

The rationale is that the risk of transmission to contacts on a flight is very very low, even for smear positive index cases, so it is only warranted for the most infectious cases (i.e. those with cavitation) or for MDR-TB cases.

Restriction
Nil if well. If symptomatic of pulmonary TB, restrict social interaction until urgent chest radiographs can be taken.

Immunisation
BCG vaccination is targeted at babies at high risk. For eligibility criteria, see the Immunisation Handbook 2020.

9. Other control measures

Management of outbreaks
An outbreak of TB is defined as two or more cases known to be linked by epidemiological investigation or DNA fingerprinting. However, a cluster of cases all living in the same household is not considered an outbreak.

- Discuss all suspected outbreaks with the MOH.
- ESR has a role in co-ordinating outbreak investigations. Notification of an outbreak must be made on EpiSurv.

Disinfection
Clean and disinfect surfaces and articles soiled with sputum or other contaminated bodily fluids.

10. Reporting

- Enter case details on **EpiSurv.**
- If a **cluster** of epidemiologically linked cases occurs, complete the Outbreak Report Form in EpiSurv.
- All new cases of **multi-drug resistance (MDR) or extreme drug resistance (XDR)**, and cases where an **overseas source of infection is suspected,** should be discussed with the Communicable Diseases Team at the Ministry of Health.
- If an **outbreak**, write report for Tuberculosis Outbreak File K:\CFS\ProtectionTeam\FinalDocs\NotifiableConditions\Tuberculosis\Outbreaks
- **Document** your response to each **action point** (marked with this arrow) in this protocol

11. Document Control

Protocol review task	Responsibility	Date completed + version no.
Advise team, quality, doc control & web coordinators of review (and planned timeframes).	Public Health Specialist (PHS)	
Open the protocol in EDMS Owner's view, ensure it is based on the current template, remove any blue font formatting (indicating new content for the previous version), and turn on "track changes".	PHS	17/08/2022
Review Ministry of Health (MoH) advice, literature, other protocols, and write draft update, marking new content in blue font.	PHS	
Update Fact Sheet as necessary (or source the URL link from MoH website).	PHS	
Start an EDMS review workflow of draft version to pre-set document members – MOsH, CD, Team Leader, and HPO for feedback. (Check members are correct before starting workflow.)	PHS	17/08/2022
Incorporate feedback and update draft(s) further as required.	PHS	V5, 21/09/2022
Start an EDMS approval/ publishing workflow of final version to Clinical Director (Authoriser).	Com Dis Medical Officer of Health (MOH)	V5, 21/09/2022
Clinical Director approval recorded in EDMS.	Clinical Director (CD)	V2, 13/09/2022
Document Controller receives EDMS notification of CD approval – Complete **electronic** document control tasks, incl.: header; footer; EMDS document properties/metadata. Check Te Mana Ora policies and procedures site page links are valid, and add new links as required. Create .pdfs (for external links), and save to CFS folders: • Protocols – Y:\CFS\Quality\Archive\Protection\IntranetPROTOCOLS • Fact Sheets –Y:\CFS\Quality\Archive\Protection\FactSheets • Once a new or reviewed document has been approved, upload pdf version to: • Protocols – Surveillance (PHU server) website and Microsoft Teams on-call documentation group. • Fact Sheets – CPH website or links are checked to MoH website	Quality Coordinator (QC)	V6, 16/02/2023
Update **paper** copies as required (on-call folder/ vehicle).	Health Protection Officer (HPO)	V6, 16/02/2023
Advise operational/ regional staff of update, summarising any substantial changes (text highlighted in blue font in document).	QC, HPO, or Team Leader	V6, 16/02/2023
Once process finalised, **move** any original draft documents saved in CFS locations to: Y:\CFS\Quality\Archive\Protection\ComDisProtocolsArchive	QC	V6, 16/02/2023
Minor update notes: V5 updated minor format – republish – workflow issues after minor formatting tweaks (adding/removing spaces 13/09/22).	QC	V5, 21/09/2022
Minor update notes: V6 added Pacific Relationships Manager into Cultural and Context section	QC	V6, 16/02/2023
Minor update notes:		