# TUBERCULOSIS

Based on the Ministry of Health Communicable Diseases Control Manual 2012[1]

## Associated Documents

Case Report Form:
K:\CFS\ProtectionTeam\FinalDocs\NotifiableConditions\Tuberculosis\FormsStdLettersQuest\TuberculosisCaseReportForm2007.pdf

Fact sheet and information sheets:

- Fact sheet: K:\CFS\Quality\ApprovedDocuments\ProtectionTeam\FactSheets\TuberculosisFactSheet.pdf
- Tuberculosis information for contacts: K:\CFS\Quality\ApprovedDocuments\ProtectionTeam\FactSheets\Tuberculosis-Information-For-Contacts.pdf
- Tuberculosis contact tracing information: K:\CFS\Quality\ApprovedDocuments\ProtectionTeam\FactSheets\TuberculosisContactTracingInformation.pdf

Ministry of Health. 2010. *Guidelines for Tuberculosis Control in New Zealand 2010*. Wellington: http://www.health.govt.nz/publication/guidelines-tuberculosis-control-new-zealand-2010

Ministry of Health 1996. *A Guide to Section 16 of the Tuberculosis Act 1948* http://www.moh.govt.nz/notebook/nbbooks.nsf/0/b3ea8c50fe30e7394c2565d700187d91/$FILE/95307.pdf

## 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. More detailed epidemiological information is available on the Institute of Environmental Science and Research (ESR) surveillance website at www.surv.esr.cri.nz.

### Incubation period

The period from infection to demonstrable primary lesion or significant tuberculin (Mantoux) reaction is between 2 and 10 weeks$^{\alpha}$. 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.

### Mode of transmission

Transmission is by inhalation of airborne droplets produced by people with pulmonary or laryngeal TB, especially during coughing or sneezing. People with extra-pulmonary TB alone cannot transmit the infection to others. 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.

### Period of 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 2010* (Ministry of Health 2010)[2] 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).

$^{\alpha}$ 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]

**Notification Procedure**

**Notification Procedure**
The following cases must be notified on suspicion or confirmation under the Tuberculosis Act:

1. NEW cases
2. REACTIVATED or RELAPSED cases

Note: there is no legal requirement on clinicians to notify when patients are being treated for LATENT TB infection. However, notification of these cases should be encouraged for the purposes of surveillance and control.

**Clinical Description**
A chronic bacterial infection caused by *Mycobacterium* 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).

**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 the Guidelines for Tuberculosis Control in New Zealand 2010 (Ministry of Health 2010).

**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:
– 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.

**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.

**Management of Case**

**Investigation**
- In partnership with primary health care, respiratory and infectious diseases physicians.
- Obtain a history of travel, possible human sources and exposure to cattle or unpasteurised milk.
- 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 investigation should follow the recommendations in Chapter 2 of the *Guidelines for Tuberculosis Control in New Zealand 2010*[2] http://www.health.govt.nz/publication/guidelines-tuberculosis-control-new-zealand-2010
- An outbreak is defined as two or more cases that are linked by epidemiological investigation or DNA fingerprinting and that do not all live in the same household.
- Discuss all notified cases with the MOH.

**Initial investigation**
Even for a suspect case, a source and possible secondary cases should be sought without waiting for positive culture confirmation.

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 (see below).

**Identifying contacts**
Each index case potentially has many contacts. Contacts must be prioritised using the principle of "concentric circles".
1. 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.
2. Other contacts (e.g. social, work or school contacts) are generally classified as "casual contacts" and have lower priority for follow-up.
3. 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.
4. Other circumstances where persons may have been exposed, e.g. international flight of more than 8 hours.

**NEW CASES**

**1. Pulmonary cases:**

- On the day of notification visit the case (who will usually be in hospital). Complete the Case Report Form by interviewing the case and viewing the medical notes (if the case has been discharged, view records by contacting the medical records department) or refer to Health Connect South clinical records.
- Obtain details on:
  a) Sputum status.
  b) Extent of pulmonary disease.
  c) The onset of cough.
  d) Cough frequency.
  e) 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 cases (Chapter 18, Infectivity. *Guidelines for Tuberculosis Control in New Zealand 2010*[2]).

**Standard Letters and Forms**

All the templates for the letters and forms and are found on the CFS here: K:\CFS\ProtectionTeam\FinalDocs\NotifiableConditions\Tuberculosis\Cases\Canterbury 2017\StandardLettersContacts and here: ….\StandardLettersReferrals

- If possible, speak with the treating clinician to obtain his/her view on the degree of infectiousness of the case and the period of infectiousness.
- For collecting details of from the case and contacts, a home visit is best practice where practical. Otherwise telephone the case/contacts for details.
- 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.
- Fill out Tuberculosis Screening Record For Contacts Form: K:\CFS\ProtectionTeam\FinalDocs\NotifiableConditions\Tuberculosis\Cases\Canterbury 2017\StandardLettersContacts\160801TBScreeningRecordForContacts.pdf or similar for each contact. Complete the form with as many details as the case can provide.
- Enter the completed Case Report Form on EpiSurv.
- Complete each contact's details on the Tuberculosis Screening Record For Contacts Form
- Enter the relevant contact details:
  (**Chch:** Scan the Tuberculosis Screening Record For Contacts Form to the patient's file in the CFS K:\CFS\ProtectionTeam\FinalDocs\NotifiableConditions\Tuberculosis\Cases\Canterbury *year*\....docx

  Create a case and contact record in the C&PH Patient-Contact Database for TB contacts on the C&PH Intranet http://cph-apps/refugeetb/ and link the scanned Tuberculosis Screening Record For Contacts Form to it.
- **Timaru:** Contact details to be completed on contact tracing list form located in TB computer file or hard copy available in TB folder

  **Greymouth:** Inform the Medical Officer of Health (West Coast) when the notification is received and also a Communicable Disease nurse in the Christchurch office. The Christchurch team will manage the investigation and follow up with assistance as required from West Coast HPOs and/or PHNs/RNSs.

**2. Non-pulmonary cases**

- Non-pulmonary cases should be visited and 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.

**Restriction**

In a health care facility, isolation and airborne precautions are indicated for cases with active pulmonary or laryngeal TB. Cases who do not warrant hospitalisation and who will comply with infection control precautions may be isolated at home. Details of isolation precautions and criteria for removal of precautions are listed in Chapter[12] of the *Guidelines for Tuberculosis Control in New Zealand 2010* (Ministry of Health 2010) http://www.health.govt.nz/publication/guidelines-tuberculosis-control-new-zealand-2010

For information on applying to a District Court judge for an order to isolate an infectious case (as a last resort for non-compliant infectious cases), see *A Guide to Section 16 of the Tuberculosis Act 1948*[4]
http://www.moh.govt.nz/notebook/nbbooks.nsf/0/b3ea8c50fe30e7394c2565d700187d91/$FILE/95307.pdf

**Management Of An Infectious Outward Bound Passenger** (for following up contacts of an **Inbound infectious patient** see **Management Of Contacts** below)

- Refer to C&PH protocol 'Border Health Protocols for a Public Health Response to Public Health Risks at Christchurch International Airport Limited', 2 Part 2: Notes for Response to Communicable Disease: http://cdhbintranet/communitypublichealth/cphpoliciesandprocedures/Documents/Forms/B.aspx

or

- the MoH Environmental Circular K:\CFS\ProtectionTeam\FinalDocs\BorderHealth\IllTravellersMoHEnvironCircularNov2012.docx

**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.[2]
- C&PH 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 MOH.
- **Chch:** DOT is provided by the "Cardio-Respiratory Outreach Team" (ph. 3640167). C&PH staff usually only become involved with patients on treatment in the community if there are issues with non-compliance (discuss such cases with the MOH).

**Restriction**

- Patients with smear positive tuberculosis require respiratory isolation in hospital or at home.
- The period of infectiousness ends when:
  - ◊ three consecutive negative sputum smear 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 MOH and DOT nurse.}
- If patient is, or is likely to be non-compliant with treatment including DOTS, and/or has been prematurely discharged, the MOH should be informed and action taken under the Tuberculosis Act 1948 where deemed appropriate.
- Restriction from work/school is usually unnecessary after 14 days chemotherapy.

**Counselling**

- 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.

When interviewing the patient for history and contacts as stated above, this is also an opportunity to reinforce the importance of taking the treatment etc. A pamphlet on TB (MOH code 7023) is available which could be given to the patient if the hospital staff have not already done so.

- A fact sheet and information sheets are available:
  - Fact sheet: K:\CFS\Quality\ApprovedDocuments\ProtectionTeam\FactSheets\TuberculosisFact Sheet.pdf
  - Tuberculosis information for contacts: K:\CFS\Quality\ApprovedDocuments\ProtectionTeam\FactSheets\Tuberculosis-Information-For-Contacts.pdf
  - Tuberculosis contact tracing information: K:\CFS\Quality\ApprovedDocuments\ProtectionTeam\FactSheets\TuberculosisContact TracingInformation.pdf

**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 notification of all relapsed/reactivated cases with the MOH.

**LATENT CASES**

- Details of latent cases on preventive treatment should be recorded on EpiSurv and the file closed when treatment is finished.
  **Chch**: Print off a Coversheet and store the notes in the filing cabinet until treatment is finished. Then complete the file. Close the file when treatment has finished.
- These cases do not need Case Report Forms filled in.
- No contact tracing for latent cases is required.

**Management of Contacts**

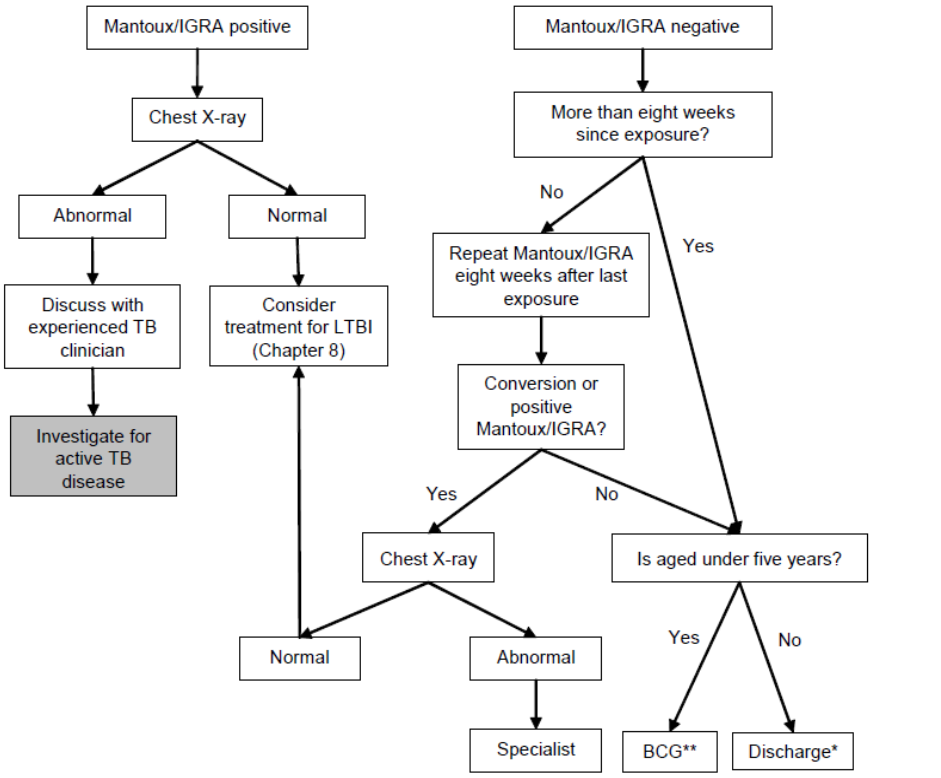
The aim of contact investigation is to minimise morbidity resulting from transmission of tuberculosis. The objectives of contact investigation are to:

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

*See next page for overview of contact investigation*

**An overview of contact investigation**[2]

**Figure 7.2:** Contact investigation flow chart




* Consider chest X-ray as a precaution if contact is aged over 60 years or if there is a possibility the Mantoux/IGRA may be falsely negative (see Chapter 8).

** If aged under five years and no previous BCG vaccination.

### A. Ordering Mantoux or Quantiferon-TB Gold Tests

- **Chch and Greymouth:** QuantiFERON-TB Gold blood test is the preferred test (rather than a Mantoux) except where there is a contraindication/precaution. Complete request form and give this to the contact with a copy of the TB pamphlet. **Chch:** 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 (certain times).
- **Timaru:** Testing for TB infection or disease has traditionally been by a Mantoux skin test. However, QuantiFERON-TB Gold blood test can be used in adults and is preferred for refugees and migrants and contacts in educational institutions because only one test is involved. SCL do both tests.

**QuantiFERON-TB Gold** (an Interferon-Gamma Release Assay [IGRA])

The following recommendations for using an IRGA are from the *Guidelines for Tuberculosis Control in New Zealand 2010, p.138*[2]

- Contacts aged seven years and under: use Mantoux test.
- Contacts aged over seven years: in the C&PH DHBs the preferred test is the IGRA. Otherwise use Mantoux test *or* Mantoux test followed by IGRA (if Mantoux positive).

An IGRA is particularly recommended in the following situations:

- in BCG-vaccinated people
- in immuno-compromised people
  - Use IGRAs to screen immunocompromised people where indicated eg, prior to starting anti-TNF alpha therapy or other immuno-suppressive therapies, in people with renal failure, prior to solid organ transplantation, etc. In some situations, a clinician may elect to use both a Mantoux test and an IGRA to screen for LTBI in an immuno-

compromised person.

- when it is considered a high risk that the person will not return for the reading of their Mantoux test
- when it is impractical for the person to make repeat visits for sequential testing.
- Use IGRAs to screen healthcare workers for LTBI.

**Interpreting the results of IRGA testing**[5]

- 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.

**Mantoux – Interpreting results**

(i) **Positive Mantoux**

| **Categories** | **Adults (≥ 15 years)** | **Older children (5 – 14 years)** | **Young children (< 5 years)** |
|---|---|---|---|
| NZ Born<br>No BCG<br>Previous BCG | ≥ 10 mm<br>≥ 15 mm | ≥ 10 mm<br>≥ 10 mm | ≥ 5 mm<br>≥ 10 mm |
| Following residence in a high-incidence country<br>No BCG<br>Previous BCG | ≥ 10 mm<br>≥ 10mm | ≥ 10 mm<br>≥ 10 mm | ≥ 5 mm<br>≥ 10 mm |
| 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 | ≥ 5 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.

**B. Arranging a CXR**

**Chch:** Contact Christchurch Hospital Radiology Department and arrange an appointment at Burwood Hospital for adults or Christchurch Hospital for under-5s.
**Ashburton:** Ashburton hospital radiology will do chest x-rays provided contacts have a requisition.
**Timaru:** HPOs will arrange x-rays in consultation with MOH.
**Greymouth:** Use WCDHB x-ray request form and give to contact to take to the hospital.

**C. Referring to Out-Patients**

Complete a standard letter:

**Chch:**
K:\CFS\ProtectionTeam\FinalDocs\NotifiableConditions\Tuberculosis\Cases\Canterbury 2017\StandardlettersReferrals\CDHB Ltr.doc

**Timaru:** General\ PHS \PHNurses programs\immunisations\TB specialist referral letter

**Greymouth:**
K:\CFS\West Coast\2WorkArea\Shared\Health Protection\Diseases\Tuberculosis\Forms, Stndrd Lttrs & Quest\Referral Letter.doc

- 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
- 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.

**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.

**E. Restriction**

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

**F. Prophylaxis**

BCG vaccination is targeted at babies at high risk (for eligibility criteria, see the *Immunisation Handbook 2011*).

**G. Counselling**

Ministry guidelines suggest contacts should be provided with education about:

- ◊ contact investigation procedures
- ◊ the lifelong risk of developing active disease
- ◊ the symptoms of TB disease
- ◊ transmission of TB
- ◊ the difference between TB and latent TB infection
- ◊ the treatment of TB including latent TB
- ◊ the importance of early medical assessment of TB.
- Contacts should be given a copy of the TB pamphlet and verbal advice as per Ministry guidelines.

A fact sheet and information sheets are available:

- Fact sheet: K:\CFS\Quality\ApprovedDocuments\ProtectionTeam\FactSheets\TuberculosisFactSheet.pdf
- Tuberculosis information for contacts: K:\CFS\Quality\ApprovedDocuments\ProtectionTeam\FactSheets\Tuberculosis-Information-For-Contacts.pdf
- Tuberculosis contact tracing information: K:\CFS\Quality\ApprovedDocuments\ProtectionTeam\FactSheets\TuberculosisContactTracingInformation.pdf

**H. Hospital Contacts**

**Chch:** When an Inpatient is diagnosed with AFB+ve/ZN+ve TB, the hospital infection control nurse evaluates the risk to other patients (i.e. whether the duration of exposure was significant considering the conditions of the environment, contact and case) and refers those who were at risk of infection to C&PH for follow up.

**I. Non-Referred Patients**

- Send letter to GP with details of the negative results.

**J. All Contacts**

- Inform all contacts of their test results and either of their further referral or clearance.
- Keep file until case is closed.
  - ◊ **Timaru**: Written report of findings is forwarded to MOH on completion of contact tracing.

**K. Contacts of an infectious international Inbound passenger, with ≥ 8 hours exposure**

- ARPHS (and CDC) 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.[7-9]

*{'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.[6])*

**Management of Outbreaks**

**Definition**

- 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.

**Other Control Measures**

**Identification of source**

Refer to Chapter 7, Contact investigation. *Guidelines for Tuberculosis Control in New Zealand 2010*[2] http://www.health.govt.nz/system/files/documents/publications/guidelines-tuberculosis-control-new-zealand_0.pdf

- The priority in the public health management of TB is to identify contacts that require treatment of TB disease or latent TB infection. In turn, establishing priorities for contact follow-up should follow the principle of "concentric circles". (Figure 7.1 p.115.)
- However, if possible, it is also important to identify the source case.
- For pulmonary cases, identifying the source should not extend beyond the principle of identifying contacts adopting the "concentric circles" approach.
- For non-pulmonary cases, a source case is unlikely to be found. However, close contacts should be questioned about TB symptoms and anyone with symptoms should have an IGRA or Mantoux and a chest x-ray.
- **A source case must be looked for in all paediatric TB cases** because the child is likely to have been infected recently by an adult. All those in the child's immediate social circle should be screened. It is efficient to focus screening for the adult source on adults with a history of TB or symptoms of TB – discuss such cases with the MOH. (Chapter 7, Contact investigation, p.120 and Chapter 5, p.87 Tuberculosis in children. *Guidelines for Tuberculosis Control in New Zealand 2010*[2])
- Persons on preventive treatment for inactive TB may have had pulmonary disease in the past. Ask close contacts about symptoms of TB. Anyone with symptoms should have either an IGRA or Mantoux test and chest x-ray.

**Disinfection**

Clean and disinfect surfaces and articles soiled with sputum or other contaminated bodily fluids. For further details, refer to the Communicable Disease Control manual MoH 2012,

Appendix 1: Disinfection. http://www.health.govt.nz/system/files/documents/publications/cd-manual-appendices-may2012.pdf

Recommendations for cleaning, disinfecting and sterilising equipment are contained in the following standards:

1. SNZ HB 8149:2001 *Microbiological Surveillance of Flexible Hollow Endoscopes*
2. AS/NZS 4815:2006 *Office-based Health Care Facilities. Reprocessing of reusable medical and surgical instruments and maintenance of the associated environment*
3. AS/NZS 4187:2003 *Cleaning, Disinfecting and Sterilising Reusable Medical and Surgical Instruments and Equipment, and Maintenance of Associated Environments in Health Care Facilities*.

**Health education**

Medical Officers of Health are responsible for health education in the event of a cluster of cases. For details on communication with the community and other health professionals, see Chapter 7, Contact investigation. *Guidelines for Tuberculosis Control in New Zealand 2010.*[2]

**Reporting**

- Enter complete 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
- File.

**References and further information**

1. New Zealand Communicable Diseases Control Manual 2012, Tuberculosis, http://www.health.govt.nz/system/files/documents/publications/cd-manual-leprosy-may2012.pdf
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