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Communicable Disease Control Manual

Chapter 4: Tuberculosis

Assessment and Follow-up of TB Contacts

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8.0 ASSESSMENT AND FOLLOW-UP OF TB CONTACTS

This section of the TB Manual provides information to support health care providers in the assessment and follow-up of TB contacts. Additional information can be found in:

- Chapter 12 of the Canadian Tuberculosis Standards, 7th Edition (2013).
- Guidelines for the Investigation of Contacts of Persons with Infectious Tuberculosis: Recommendations from the National Tuberculosis Controllers Association and CDC (MMWR 2005;54 [No. RR-15]).

Readers are encouraged to refer to the Canadian Tuberculosis Standards (2013) for additional information on management of contacts associated with exposures involving:

- Homeless and under-housed people and those with drug addictions
- Correctional facilities
- Health care institutions
- Long-term care facilities
- Remote communities
- Air travel and other public transport
- Residence or travel in a country with high TB incidence

8.1 Overview

Appropriate and timely assessment of TB contacts can:

- Identify additional cases of TB disease.
- Protect contacts at risk for rapid progression to active TB disease (i.e. before TST or IGRA can reliably detect whether they are infected with TB bacteria).
- Identify infected contacts that may benefit from LTBI treatment.

On initial assessment, approximately 20 per cent to 30 per cent of all contacts will have LTBI, and 1 per cent will have TB disease (1). Although the same tests are used, there are some important differences in the processes for assessing and following up TB contacts due to their increased risk for having or developing active TB disease. Refer to Section 8.2 for TB contact assessment and follow-up flowcharts.

Contacts requiring TST's as a part of their TB screening will undergo two rounds of assessment: the initial round, soon after they are identified, and a second round at least eight weeks[1] after their last date of contact to the source case while s/he was still infectious.

[1] When there is ongoing exposure and concern that the source case may still be infectious beyond the date initially identified as the end of the infectious period (e.g., source case not effectively self-isolating), it may be appropriate to delay the second assessment to reflect the extended infectious period. Consider consult with TB Services.

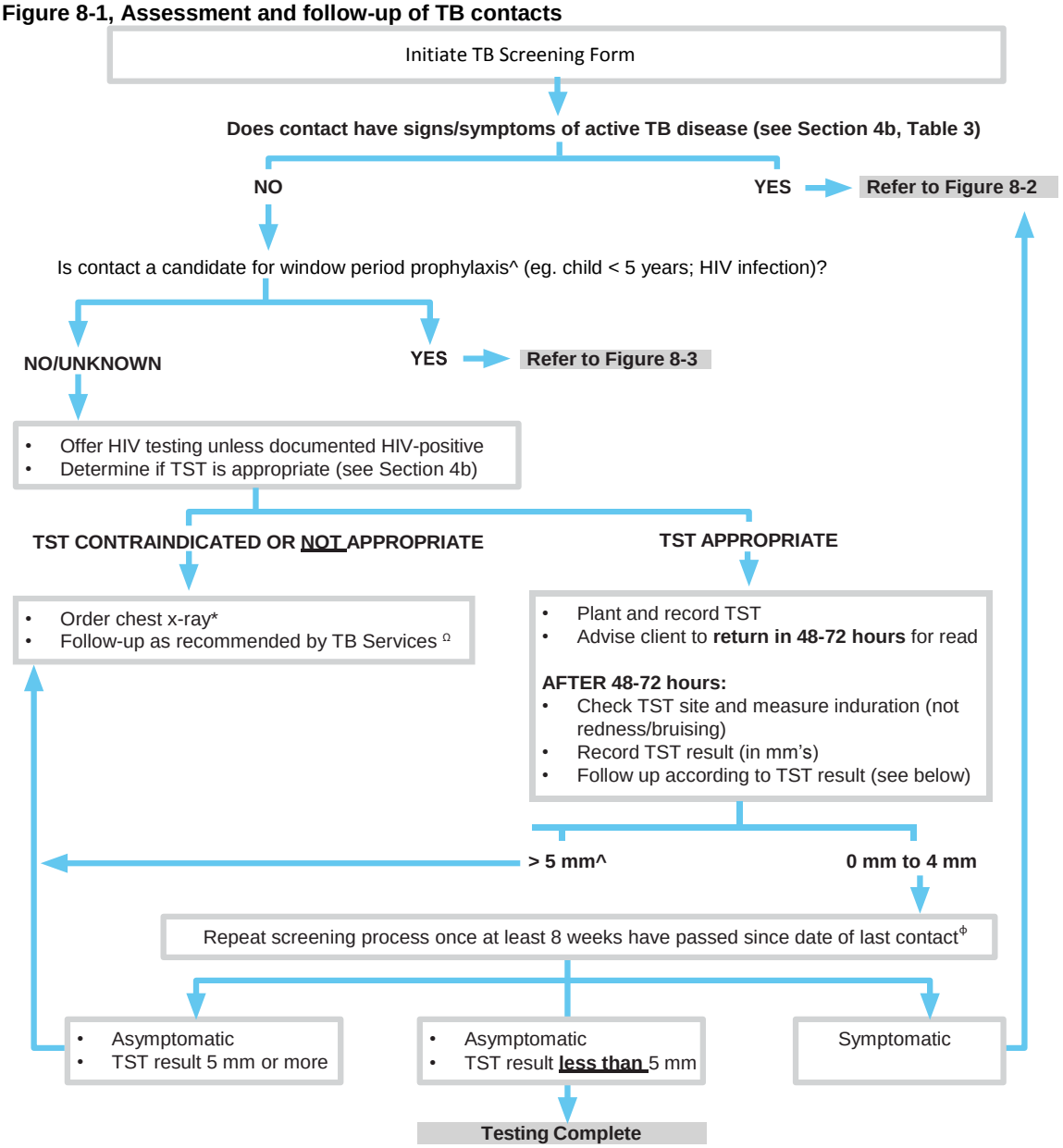
For contacts exposed to more than one infectious case, the timing of the second assessment is based on the date of the most recent exposure. A second assessment is not necessary for contacts with a history of TB disease or LTBI, or those found to have active TB disease or LTBI during the initial assessment.

Contacts with substantial immune suppression and children < 5 years old are at increased risk for developing active TB disease and are more vulnerable to severe and often fatal forms of TB disease such as disseminated TB or TB meningitis. Window period prophylaxis (WPP) is usually recommended until the TST (or in some situations, IGRA) can reliably indicate whether a full course of treatment for LTBI is necessary. A full course of treatment for LTBI may be recommended once active TB disease has been ruled out for contacts with substantial immune suppression, even when TST or IGRA results are negative or inconclusive (see Section 8.3.2)

Findings from contact assessments are monitored closely for evidence of transmission (see Section 7.7.5). When evidence of transmission is found, the scope of the contact investigation may be broadened (see Section 7.8).

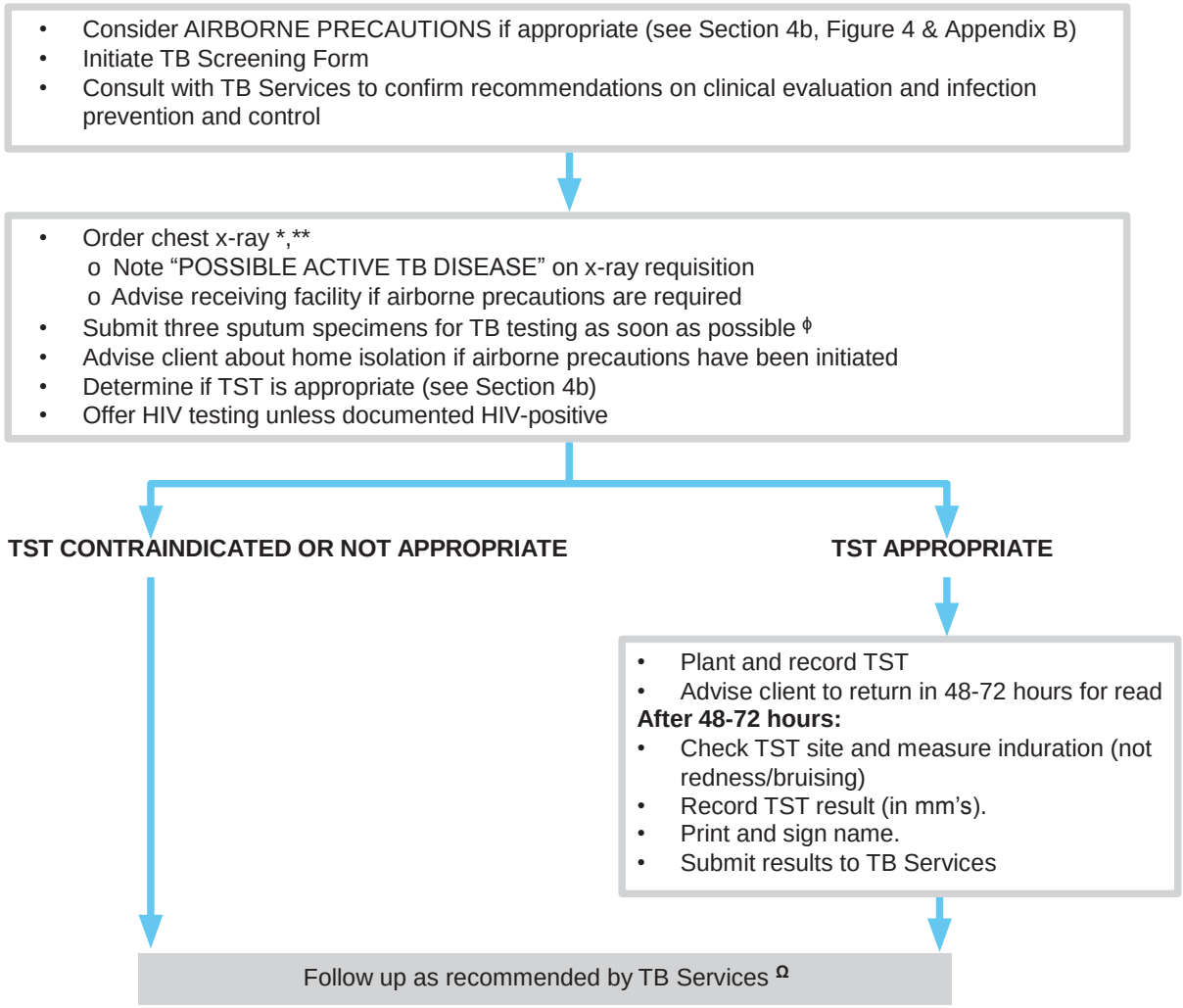
8.2 Flowcharts for Assessment and Follow-Up of TB Contacts

Figure 8-1, Assessment and follow-up of TB contacts



^ Candidates for window period prophylaxis are children < 5 years old; people with HIV infection; transplant recipients on immune suppressing treatment; other conditions in consultation with TB Services [eg. Chronic kidney disease on dialysis and/or end-stage; taking (or about to begin) treatment with immune suppressing therapies such as TNF-alpha inhibitors, chemotherapy, systemic corticosteroids (equivalent to ≥ 15 mg/day of prednisone for 2 weeks or longer)].
* See Section 4b for use of pre-existing chest x-rays and chest x-rays during pregnancy.
Ω If IGRA recommended, do once at least 8 weeks have passed since the date of last contact (see Section 8.3.1).
ϕ Do 2nd TST or IGRA (no initial, only one IGRA) at least 8 weeks since the date of last contact. If there is ongoing exposure and concern that the source case may still be infectious beyond the date initially identified as the end of the infectious period (e.g. source case not effectively self-isolating), it may be appropriate to delay the second assessment. Consult with TB Services.

Figure 8-2, Assessment and follow-up of symptomatic contact



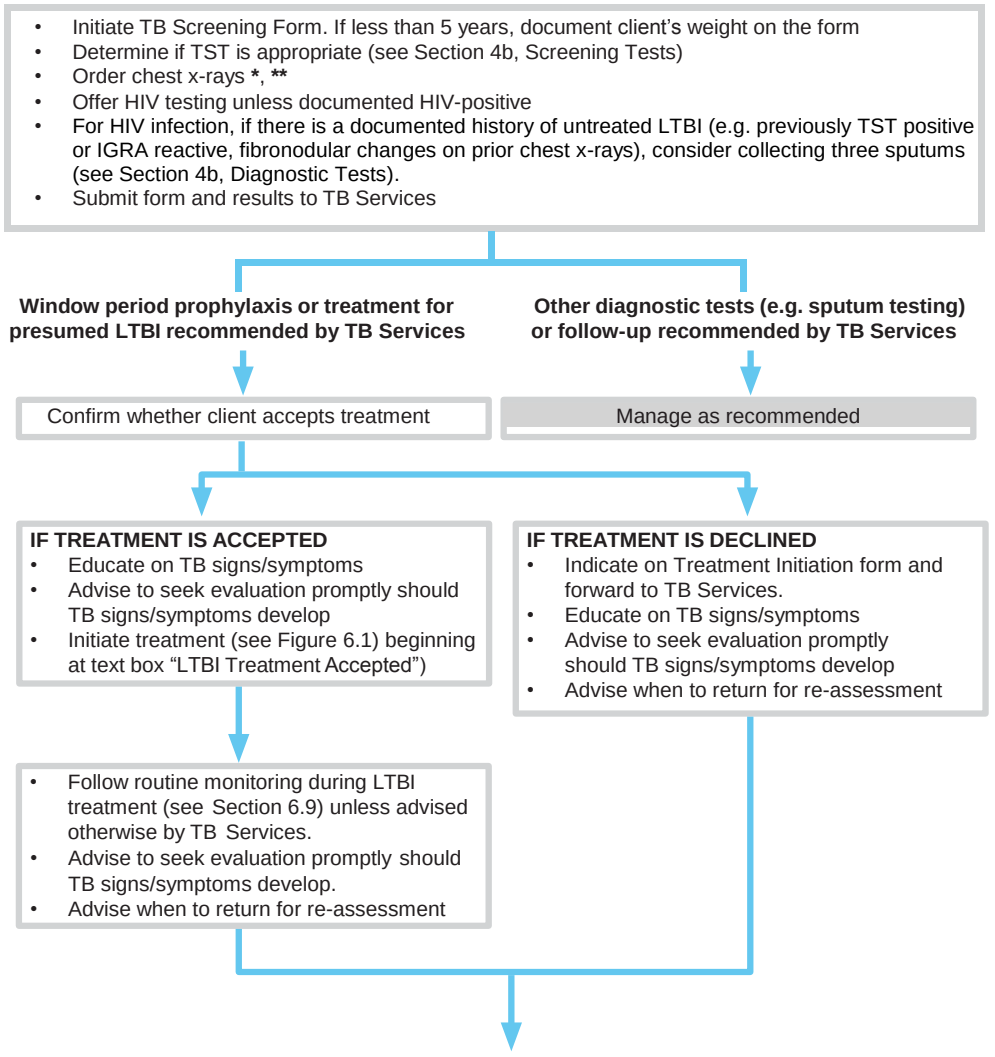
* Refer to Section 4b for recommendations on use of chest x-ray during pregnancy.

** Children under 5 and clients with HIV infection – order posterior-anterior (PA) and lateral views.

ϕ Collect specimens at least 1 hour apart, with one specimen collected in the morning, prior to eating or drinking. Specimens may also be collected 8 hours apart, or daily for 3 days (see Appendix C). Consult TB Services for the management of contacts unable to spontaneously produce sputum.

Ω If IGRA recommended, do **once at least 8 weeks** have passed since the date of last contact (see Section 8.3.1).

Figure 8-3, Flowchart for management of candidates for window period prophylaxis (see Section 8.3.2)



*See Section 4b, Diagnostic Tests for use of pre-existing chest x-rays and chest x-rays during pregnancy.

**Request both Lateral and PA views if less than 5 years or HIV infection

^Consult TB Services on timing in contacts under 6 months, and contacts with HIV infection undergoing immune reconstitution with antiretroviral therapy (ART).

ΦDo 2nd TST or IGRA (no initial, only **one** IGRA) at least **8 weeks** since the date of last contact. If there is ongoing exposure and concern that the source case may still be infectious beyond the date initially identified as the end of the infectious period (eg. source case not effectively self-isolating), it may be appropriate to delay the second assessment. Consult with TB Services.

8.3 Initial Post-Exposure Assessment

Begin every contact assessment by evaluating TB signs/symptoms and risk factors for development of active TB disease (see Section 4(b), TB Assessment)

- Manage symptomatic contacts as described in Figure 8-2.
- Manage asymptomatic contacts who are candidates for window period prophylaxis as described in Figure 8-3.
- Manage all other contacts as described in Figure 8-1.

Because co-infection with HIV significantly increases the risk for active TB disease, HIV testing should be routinely offered to all contacts unless documented HIV-positive.

8.3.1 Use of Interferon Gamma Release Assay (IGRA) for TB Contacts

IGRA is not recommended as a standard first line test for contact assessment. When IGRA testing for contacts is recommended by TB Services, it should be done once at least eight weeks have passed since the last exposure to the case while s/he was infectious. Do not include IGRA testing in the initial post-exposure assessment unless the assessment occurs at least eight weeks after the last exposure.

8.3.2 Window Period Treatment in Contacts at High Risk for Progression to Active TB Disease

Window period prophylaxis (WPP) or 'primary prophylaxis' treatment to prevent development of active TB disease is generally recommended for contacts under five and those with substantial immune suppression.[2] This includes contacts with HIV infection, transplant recipients on immune suppressing treatment; and other conditions in consultation with TB Services: chronic kidney disease on dialysis or end-stage; taking (or about to begin) treatment with immune suppressing therapies such as TNF-alpha inhibitors, chemotherapy, systemic corticosteroids (equivalent to ≥ 15 mg/day of prednisone for 2 weeks or longer).

WPP typically continues until TST or IGRA testing can reliably confirm whether the contact was infected with TB bacteria. For children less than 5 years and for those with substantial immune suppression, this will be once **eight weeks** have passed since their last contact with the infectious case. For contacts under six months at the time of exposure, WPP continues until they reach 6 months of age **and** at least eight weeks have passed since the last exposure.

TST and IGRA results can be falsely negative in contacts with substantial immune suppression. For this reason, a full course of LTBI treatment (e.g. nine months of isoniazid and vitamin B6) may be recommended for household and close, non-household contacts with HIV infection once active TB disease has been ruled out.

Decisions on which TB drug(s) to use for WPP are guided by the drug-susceptibility profile, known or presumed, of the source case, as well as contact-specific considerations such as:

[2] WPP may also be recommended for contacts with less severe immune compromise once active TB disease has been ruled out. Considerations can include: risk for having acquired TB infection, clinical indications specific to that contact, or whether there is evidence of transmission to contacts with similar (or lesser) degree of exposure to the same case.

- Prior treatment
- Drug allergies
- Potential for interactions with concurrent medications.

Manage and monitor contacts taking WPP in accordance with the treatment regimen they are prescribed (see Section 6) or as recommended by TB Services.

When WPP is indicated but not taken (e.g., declined, accepted but not tolerated), follow the contact as directed by TB Services.

8.4 8-week Post-Exposure Assessment

Contacts found to have active TB disease or LTBI (or a history of either) during the initial round of testing should be managed accordingly. Other contacts are generally reassessed once at least eight weeks have passed since their last exposure to the case while s/he was still infectious. Consult TB Services for guidance on timing/testing for clients at risk for unreliable TST/IGRA results (e.g., contacts under six months, contacts with HIV infection undergoing immune reconstitution with ART).

Begin with an assessment for TB signs/symptoms and risk factors for development of active TB disease (see Section 4(b), TB Assessment):

- Manage symptomatic contacts as described in Figure 8-2.
- Manage all other contacts as described in Figure 8-1.

Offer HIV testing to contacts that declined it during the initial assessment or if there have been new risks identified for HIV exposure since the initial assessment.

If TST was included in the initial assessment and the result was less than 5 mm of induration, repeat the TST. If IGRA testing was recommended by TB Services perform it now. When there is ongoing exposure and concern that the source case may still be infectious beyond the date initially identified as the end of the infectious period (e.g. source case not effectively self-isolating), it may be appropriate to delay the second assessment to reflect the extended infectious period. Consider consult with TB Services.

Immune-competent contacts five years and older whose 8-week post-exposure assessment does not reveal active TB disease or LTBI can generally be discharged (considered ‘closed’). As there are a number of factors that can influence the reliability of negative TST and non-reactive IGRA results, remind contacts (or their parents/guardians) about TB signs/symptoms, and the need to promptly follow-up with a health care provider.

8.5 Contacts with LTBI

Treatment for LTBI is generally recommended for contacts with TST results of 5 mm or more, or reactive IGRA results, once active TB disease has been ruled out.

Manage and monitor contacts taking LTBI treatment in accordance with the treatment regimen they are prescribed (see Section 6) or as recommended by TB Services.

Consult TB Services prior to dispensing the last month of medications to the client, to review the total number of doses taken, adherence, need for any further follow-up (e.g., chest x-ray) and to confirm when treatment can be stopped. An exit chest x-ray is generally required if the initial chest x-ray is abnormal, or may be required upon recommendation by a TB Services physician, as indicated in a prior narrative. Health care providers are responsible for completing the Treatment Completion Form and faxing it to TB Services.

Routine follow-up after completion of LTBI treatment is not required except for contacts to source cases with multi-drug resistant TB disease (see Section 8.8). Remind contacts (or their parents/guardians) about TB signs/symptoms, and the need to follow-up with a health care provider to rule out active TB disease should any occur.

Follow contacts that decline or cannot take LTBI treatment, or discontinue treatment prior to completion as described in Section 6.14.

8.5.1 Pregnant Contacts with LTBI

LTBI treatment is usually deferred for pregnant contacts until three months post-partum unless they are at very high risk for development of active TB disease. When treatment is not deferred, enhanced monitoring for drug-induced hepatotoxicity is required (see Section 6.15).

See Section 6.2 when the client is ready to initiate LTBI treatment. Manage clients found to have TB signs/symptoms or chest x-ray results suggestive of or consistent with active TB disease at reassessment as described in Section 4(b), Symptomatic TB Screening.

8.6 Contacts with Documented Prior Positive TST or Reactive IGRA Results

Begin with an assessment for TB signs/symptoms and risk factors for development of active TB disease (see Section 4(b), TB Assessment):

- Manage symptomatic contacts as described in Figure 8-2.

- Manage asymptomatic contacts with a chest x-ray and referral to TB services. HIV testing should be offered if not documented HIV-positive.
    - CXR considerations - request both lateral and PA views if contact is less than 5 years old or HIV positive. See Section 4(b), Diagnostic Tests for timeframes for use of pre-existing chest x-rays and when to order new CXR's.
    - Sputum collection considerations – consider sputum collection at the time of referral for HIV-positive contacts.

Once active TB disease has been ruled out, LTBI treatment may be recommended for contacts that have prior LTBI but did not complete LTBI treatment. For contacts with prior positive TST history who have not completed LTBI treatment, an IGRA may be recommended by TB Services.

If the client is offered LTBI treatment again and declines, follow-up recommendations made by TB Services may include assessments for TB signs/symptoms and chest x-rays every six months for two years (see Section 6.14).

8.7 Contacts Previously Treated for Active TB Disease or LTBI

Begin with an assessment for TB signs/symptoms and risk factors for development of active TB disease (see Section 4(b), TB Assessment):

- Manage symptomatic contacts as described in Figure 8-2.

- Manage asymptomatic contacts with a chest x-ray and referral to TB services. HIV testing should be offered if not documented HIV-positive.
    - CXR considerations - request both lateral and PA views if contact is less than 5 years old or HIV positive. See Section 4(b), Diagnostic Tests for timeframes for use of pre-existing chest x-rays and when to order new CXR's.
    - Sputum collection considerations - consider sputum collection at the time of referral for HIV-positive contacts.

LTBI treatment may be recommended for contacts whose treatment histories are considered inadequate once active TB disease has been ruled out. Retreatment of LTBI (or a period of chest x-ray surveillance) may also be recommended for contacts that are under 5 years old or have substantial immunosuppressive conditions or therapies.

Routine chest x-ray surveillance is generally not required for asymptomatic contacts who have no new findings on their chest x-rays whose treatment histories are considered adequate.

8.8 Contacts to Drug-Resistant Source Cases

Assess contacts to source cases with drug-resistant TB disease in the same manner used for source cases with drug-susceptible TB disease.

LTBI treatment regimens for contacts to drug-resistant TB will reflect the confirmed or presumed drug susceptibility pattern of the source case. LTBI treatment for immune-competent contacts five years and older may be deferred until source case drug susceptibilities are confirmed.

Close contacts to infectious multi-drug resistant source cases (i.e., strain resistant to at least rifampin and isoniazid) with LTBI are followed with a TB signs/symptoms assessment and chest x-ray for two years, regardless of whether treatment for LTBI was completed. An updated TB Screening form can be used as a chest x-ray requisition on subsequent visits to ensure that TB Services receives a copy of the report. Please note on the form that the client is on radiological surveillance.

REFERENCES

1. Jereb J, Etkind SC, Joglar OT, Moore M, Taylor Z. Tuberculosis contact investigations: outcomes in selected areas of the United States, 1999. Int J Tuberc Lung Dis 2003;7:S384–90.