

Tuberculosis Control in the Healthcare Environment



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Tuberculosis (TB) is an infectious disease which can be transmitted within healthcare institutions. Organizing an appropriate strategy for the prevention of healthcare workers (HCWs) developing occupational TB requires:

- The identification of areas of the hospital at greatest risk of transmission of the disease
- The institution of administrative controls to limit possible spread of the disease
- Engineering controls
- The use of appropriate respiratory protective devices
- TB surveillance and contact tracing programs

The first step in limiting the spread of TB is recognizing the risk. Patients in whom the diagnosis of TB is being considered should be isolated, ideally in a negative pressure room, until the diagnosis has been ruled out or the individual has received appropriate treatment. HCWs involved in the care of patients with suspected or proven TB should have appropriate respiratory protection.

TB is a disease which can be transmitted within healthcare institutions.

FAQ

Could my positive reaction be due to having the Bacille Calmette-Guérin (BCG) vaccination in the past?

Although the BCG vaccination can lead to positive tuberculin skin test reactions, most often, individuals who received the vaccine are also at risk for exposure to TB. For this reason it is prudent to ignore the history of BCG when interpreting the TST result.

Screening for TB

Most occupational surveillance programs for TB rely upon the tuberculin skin test (TST) to identify individuals at risk of developing TB. These TB screening programs typically have three components:

- Pre-placement
- Periodic surveillance
- Contact tracing

TST reactions of ≥ 10 mm are considered positive in the pre-placement and surveillance context, but a lower threshold of ≥ 5 mm is considered positive if an individual was in close contact with an infectious case. The γ -interferon blood test, an alternative to the TST, although not currently widely available, will likely have a role in future TB surveillance programs.

Pre-placement testing

The purpose of the pre-placement program is to obtain a baseline TST result for future comparison.

Transmission of TB

TB can be transmitted within healthcare institutions from both patients to HCWs and potentially, subsequently from HCWs to patients. For this reason, efforts have been put in place by occupational health, infection control and public health practitioners to limit the likelihood of the spread of this disease within an institution.

All workers who may be tested in the future should have a baseline two-step test. A baseline two-step test is essential to minimize future false positive results due to the boosting phenomenon. The following individuals should not be tested:

- Those with a documented diagnosis of active or latent TB
- Those who have recently had a major viral illness or received a live viral vaccine within the previous month
- Those with extensive burns or eczema
- Those who have had a severe allergic reaction to a previous TST

FAQ

What is my risk of getting active TB?

The lifetime risk of developing active TB following a skin test conversion is between 5% to 10% with about half that risk in the first two years after the conversion. The risk in immigrants who moved from a low-risk to a high-risk country, after they had been in their new country for three years, was about 1% for the next decade.



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Periodic surveillance

Periodic surveillance programs for HCWs at high-risk for exposure are important to identify TST converters. In our institution, the annual TST conversion rate is 0.67% which is similar to other institutions in Canada who admit a larger number of TB cases.

FAQ

Can you treat me if I later develop TB?

Although it is certainly possible to successfully treat TB, treatment is much more aggressive for active disease requiring multiple drugs. Some individuals are left with the long-term sequelae of the disease even after treatment, particularly those where TB was diagnosed in the skeletal or neurologic systems.

Contact tracing

Follow-up of HCWs who had unprotected exposure to patients infected with TB should be performed to identify TST converters. The follow-up should initially be limited to the workers who had greatest contact. Additional follow-up should be performed only if individuals in this group convert their TST.

Individuals who are found to have a positive TST should have a symptom survey and chest radiograph to assess their risk of having active disease.

Individuals who have converted their TST and have been shown not to have active disease often ask the questions addressed in the FAQs prior to deciding whether to accept treatment for latent TB.

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