Tuberculosis

For more information, the Ministry of Health Guidelines for Tuberculosis Control in New Zealand 2003 (available from web site www.moh.govt.nz) should be consulted.

Transmission of Tuberculosis

Human tuberculosis is caused by *Mycobacterium tuberculosis* or *Mycobacterium bovis*.

To acquire TB, you must be in contact with someone who has infectious or active tuberculosis. When someone with infectious TB coughs, they release tuberculosis organisms into the air. TB spreads when someone inhales those organisms.

Frequent exposure to an infected individual is usually required to develop tuberculosis. It is estimated that exposure for several hours a day for several months is necessary for an average, healthy adult to acquire the disease. In some special circumstances the disease may be transmitted in less time.

Symptoms

Special tests like a Mantoux skin test can show if someone has been exposed to TB organisms. Different scenarios occur after someone has inhaled the tuberculosis bacteria. Most people do not go on to develop infectious TB. They do not become ill and cannot spread TB to others. Ninety per cent of people who inhale TB-causing organisms remain in this "truce" situation for the rest of their lives.

Only ten per cent of people go on to develop active (infectious) TB. These people may complain of fatigue, weight loss, cough persisting for more than four weeks, a general feeling of being unwell and, in an advanced case coughing up blood. X-rays and special laboratory tests are used to diagnose active TB. Until these people receive treatment they may spread TB to others.

Most people with active TB develop infection in their lungs (pulmonary tuberculosis). In rare cases, TB infects the brain (meningitis), kidneys, skin, bones, joints or lymph nodes. This is more common in areas of higher risk.

High Risk Groups and Incidence in New Zealand

High risk groups include: all individuals who have spent time in parts of the world where TB is prevalent. People who live for long periods in countries where there is a high rate of tuberculosis also have an increased risk of developing the disease. This risk remains, even if they move to a different country.

Tuberculosis in immigrants to New Zealand relates to their level of exposure to the disease prior to arrival.

People working in health care institutions and other social service organizations may have frequent contact with high-risk individuals. Effective safety programs can prevent the development of TB in any exposed worker.
People who are not included in, or in very frequent contact with, the high risk groups listed are unlikely to be exposed to someone with infectious tuberculosis. They are therefore unlikely to become infected with TB.

The current TB notification rate in New Zealand is 10 per 100,000. Incidence has increased slightly in recent years. Higher rates of disease in New Zealand compared with other developed countries may be attributed to socioeconomic deprivation and immigration from high-incidence countries. Over half of all TB cases are in foreign-born individuals.

The highest rates of disease are seen in:
- urban areas, particularly Auckland and South Auckland
- older adults aged ≥ 70 years
- individuals of non-European ethnicity, particularly ‘Other’ and Pacific.

Contact with a known TB case is an important risk factor for the disease and outbreaks of TB do occur.

**Successful Treatment of Tuberculosis**

To control TB, all cases of active tuberculosis must be identified and a full course of appropriate treatment completed. In addition, people who develop a positive Mantoux skin test after exposure to someone with active TB should receive preventive therapy for six months to one year. This will substantially reduce their chances of developing a more serious disease. The disease can progress at different rates. All cases can be cured with specific antibiotic treatment. If cases are not treated half will die from the disease. Some cases progress rapidly while other progress slowly.

Successful treatment of active TB requires months of meticulously taking at least two medications. Completing the full course of treatment is very important as the most common reason drug resistance develops is because a person has not followed the prescribed treatment.

**Drug-Resistant Tuberculosis**

In most cases, the TB organism was resistant to a single drug. However, a few of these reports describe cases of multiple drug-resistant TB (MDR-TB). The most common reason a person develops drug resistance is poor management of TB control followed by patient non-compliance. This is not a great concern in New Zealand at present but is a reminder of the importance of completing the required course of antibiotic treatment.

**Tuberculosis and HIV**

Recent years have seen a global resurgence in TB, which has been accelerated by the HIV epidemic. Both diseases are more likely to affect the poor who live in crowded, unsanitary conditions or who may be forced into prostitution and drug abuse. On a worldwide basis, an estimated 5.6 million of the 14 million infected with HIV are also infected with TB. The combination of TB and HIV is particularly deadly because TB is much more likely to become active in people who have weakened immune systems, as occurs with HIV disease. Also the more cases there are of active, infectious TB, the
more likely the disease will spread to healthy populations. HIV-infected individuals need to be carefully assessed for TB infection and treated promptly and completely to prevent further spread.

**Prevention**

All students and staff who work in medical professions should have a BCG vaccine unless they are Mantoux positive already.

If a case of pulmonary TB is suspected the person must see a Doctor immediately. Tuberculosis is a notifiable disease and medical practitioners are required by law to notify the nearest Medical Officer of Health when a case is suspected. This ensures appropriate treatment is started and contacts are traced. A person who has come into contact with someone who has TB can be offered preventive treatment or be regularly examined to ensure early detection of disease.

The New Zealand tuberculosis control programme evolved from the enactment of the Tuberculosis Act 1948. Under this Act, the Medical Officer of Health in the regional public health service is given wide powers for the investigation and control of all tuberculosis cases and their contacts, including detention for treatment, if necessary.