The ins and outs of TB

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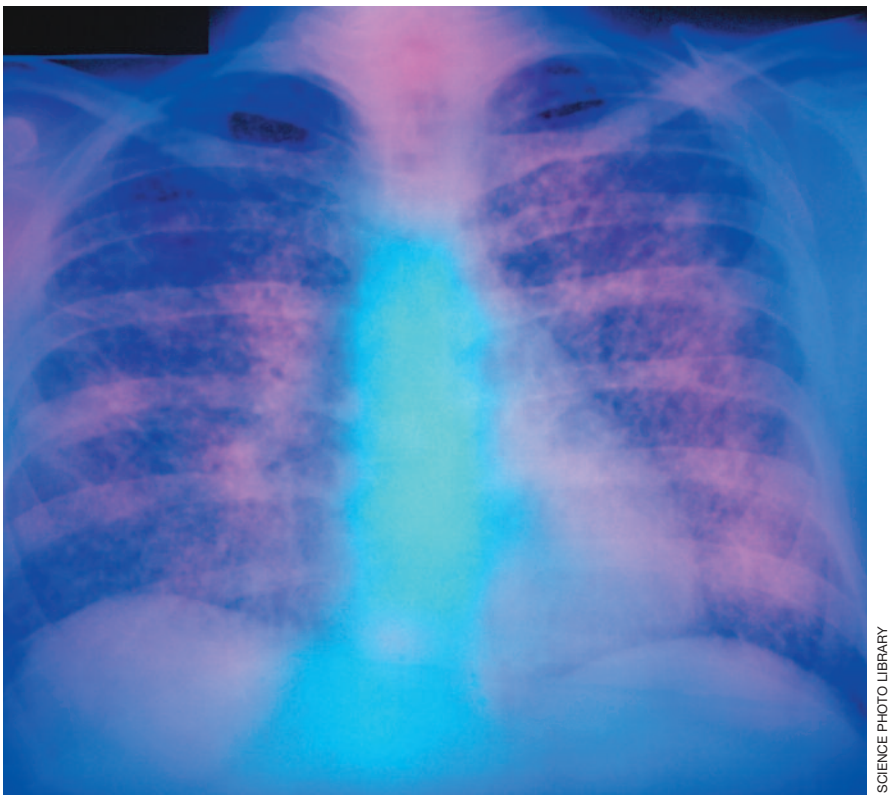
Australian GPs need to be aware of the risk of TB for specific subgroups in the country, and for travellers going out to areas of high risk.



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Tuberculosis (TB) is one the world's most common and serious diseases. The WHO estimates that there are 8 million new cases and 2 million deaths per year.[1] While the disease is not common in Australia, and the majority of cases are imported, Australian general practitioners need to be aware of the risk for specific subgroups in the country, and for travellers going out to areas of high risk.

Tuberculosis is caused by an aerobic acid-fast bacterium, *Mycobacterium tuberculosis*. Approximately 60 to 70% of notified TB in Australia is pulmonary disease.[2] The disease is spread through aerosol droplets, with the risk of either asymptomatic latent infection or frank disease (which may develop many years after the original infection).

The disease can affect any body tissue, but miliary and meningeal disease are the most serious forms, especially in children.

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Of the 1000 or so cases notified each year in Australia, approximately 80% occur in migrants, notably from Asia, south and east Europe and the Pacific Islands, with the remainder occurring in indigenous and immunocompromised Australians. The Victorian Department of Human Services last year released revised draft guidelines for the management, control and prevention of TB,[3] which are in accordance with the National Strategic Plan[1] and with current NHMRC recommendations.[2]

BCG vaccination

The BCG vaccine is derived from a live attenuated form of *M. bovis*. There are a number of well recognised disadvantages to vaccination, including the following:

- doubtful efficacy of the vaccine in low incidence populations
- a possible false sense of protection
- its potential to confound the interpretation of the Mantoux test
- risk of significant side effects, including local and disseminated reactions
- scarring at the vaccination site.

The use of BCG vaccine is contraindicated in people who are immunosuppressed, febrile, pregnant (or with chance of pregnancy) or Mantoux test positive and in those who have generalised skin disease or have had previous TB.

A 1985 study confirmed that mass vaccination programs in low incidence communities did not confer significant long term protection.[4]

Of note for general practitioners is that BCG vaccination is not recommended for routine use in the adult population.[2,3] However, because BCG vaccination may confer some immunity, especially for miliary or meningeal TB,[5] it continues to be recommended to specific individuals or groups who are at high or potentially high risk of the disease. For example, it is recommended for young children living in areas of high risk (prevalence greater than 100 per 100,000), including:

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- young children (< 5 years) travelling to high risk countries for more than a few weeks
- young children living in a house with unscreened visitors from high risk countries
- indigenous Australian neonates living in high incidence areas (e.g. Northern Territory)

Additionally, the vaccine may be considered for the following groups:

- healthcare workers if at high occupational risk as determined by the health care facility
- long term travellers of any age to areas of high risk.

Mantoux testing

BCG vaccination must always be preceded by Mantoux testing, unless the individual is less than 6 months of age and has had no risk of exposure to TB. The test is a measure of tuberculin sensitivity; a positive result occurs after BCG vaccination or with either latent or frank disease. False positive and negative results may occur. Testing needs to be performed to identify any person who might have been exposed to TB.

Mantoux testing can be performed by general practitioners and also by pathology nurses; however, it is best done at an authorised TB vaccination clinic where staff are familiar with the technique and able to perform BCG vaccination on the patient's return appointment if indicated.

In general practice, Mantoux testing is performed to exclude a positive reaction. A positive reaction would necessitate referral to a respiratory physician for further assessment and follow up.

The QuantiFERON–TB assay may replace Mantoux testing in the future. This quantitative test measures cytokine gamma interferon produced by lymphocytes sensitised to mycobacterial proteins. The test avoids problems with injection technique, subjective interpretation and a repeat visit to measure the response.

Advice to intending travellers

Travellers should be advised to avoid close contact with known TB patients. It is generally advised that higher risk groups likely to be exposed to TB (such as healthcare workers, humanitarian aid workers and missionaries) be offered Mantoux testing before and after their trip, rather than BCG vaccination.[6] Annual or biannual testing is offered to healthcare workers and others who are at continued long term risk, such as long term travellers to areas of high TB endemicity.[7]

The risk of contracting TB on commercial aircraft is very low and comparable to travel on other forms of public transport.[8] Travellers with active TB are able to travel on aircraft provided that a number of criteria are met; they are advised to seek expert advice, in conjunction with their treating doctor, from the local State TB program (see also 'Guidelines for GPs: air travel for patients with tuberculosis' at www.dhs.vic.gov.au/phd/topics/diseases.htm#tuberculosis).

Returning travellers from areas of high TB endemicity need to be considered for Mantoux skin testing.[9]

Contact tracing

The risk of infection for someone living in the household of a person with TB is high. Known cases of active TB need to be notified so that appropriate contact tracing can be implemented. Contact tracing is the responsibility of the State TB program (personal communication, Lynne Brown, Program Manager, Mycobacterial Infections Program, Department of Human Services, Victoria). MT

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