

8. Mycobacterial infections

Surveillance objectives

Although belonging to the same bacterial genus, infections of *Mycobacterium ulcerans* and *Mycobacterium tuberculosis* have distinct clinical manifestations and modes of transmission. Their surveillance objectives are therefore also different and described separately.

The objectives of *Mycobacterium ulcerans* infection surveillance are to:

- Ensure appropriate management of cases;
- Monitor the epidemiology of *Mycobacterium ulcerans* infection in terms of time, person, place;
- Detect and investigate outbreaks to identify settings where others may have been exposed with appropriate interventions, communication and education to minimise the risk of further transmission;
- Assist in the understanding of risk factors for infection.

The objectives of tuberculosis surveillance are to:

- Ensure appropriate management of cases;
- Ensure prompt identification of all relevant contacts and the institution of appropriate public health responses;
- Ensure the prompt identification of outbreaks of tuberculosis and the rapid institution of control measures;
- Monitor the epidemiology of tuberculosis in terms of time, person, place;
- Monitor the effectiveness of current control measures and to provide an evidence base for further review of guidelines.

Mycobacterium ulcerans infection

Summary of notifications

There were 61 notified cases of *M. ulcerans* infection in 2006, a 33 per cent increase on the cases notified in 2005. Twenty-five cases were female and 36 were male with ages ranging from one to 86 years; 27 cases were aged 60 years and older, with a median age of 64 years in this group (figure 26).

Risk factors

The most significant risk factor for developing *M. ulcerans* infection is thought to be living in an identified endemic area and experiencing some form of skin abrasion or puncture wound. Little is known about the mode of transmission of infection, risk factors or incubation period. There is increasing evidence that biting insects may play a role, however the route of transmission remains unclear.

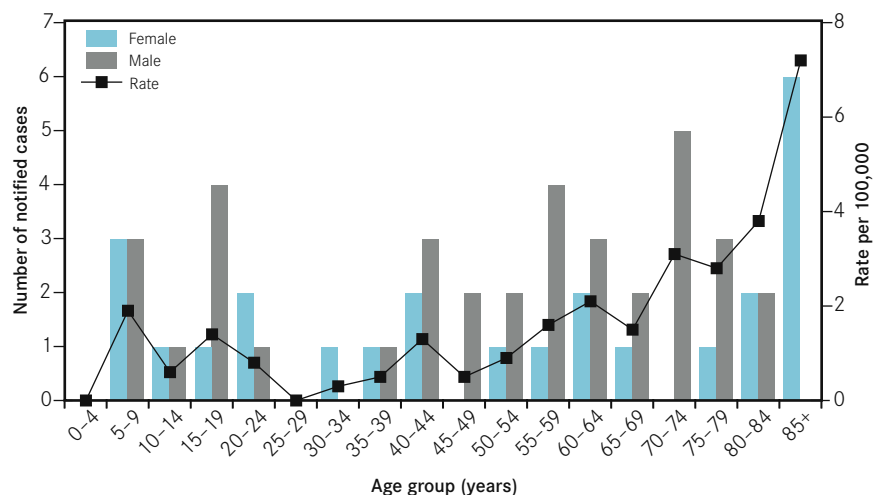
Outbreak investigations

The large outbreak in Point Lonsdale that started in 2002 continued during 2006; 30 of the 61 notified cases in 2006 were associated with the Point Lonsdale outbreak, of which 17 were local residents and 13 were visitors to – or had holiday homes in – the area when they acquired their infection. A new focus appears to be emerging in the Ocean Grove/Barwon Heads area.

Comment

Mycobacterium ulcerans was first diagnosed in the Bairnsdale area of East Gippsland where an outbreak of 120 cases occurred in the 1940's and became known as "Bairnsdale Ulcer". Since then sporadic cases continued to occur in East Gippsland, however new endemic foci have been identified in Westernport, Mornington Peninsula and Hastings, with a large outbreak occurring on Phillip Island from 1992–94. More recently the focus has shifted further westward with an outbreak in St Leonards on the Bellarine Peninsula in 2001 and shifting to Point Lonsdale in 2002.

Figure 26: Notified cases and notification rates of *M. ulcerans* infection by age group and sex, Victoria, 2006



The department is currently sponsoring research into the risk factors and transmission of ulcerans through the Public Health research grants. Initial results of one study have reinforced the public health prevention messages of avoiding insect bites by the use of repellents and protective clothing, and to wash and cover skin abrasions after gardening. Medical advice should be sought for any ulcer or lesion that is slow to heal.

Tuberculosis

Summary of notifications

There were 354 cases of tuberculosis (TB) notified to the department in 2006, two more than in 2005; the incidence rate of TB in Victoria remained stable at 6.9 cases per 100,000 population. Of the 354 cases, 168 (47 per cent) were female and 186 (53 per cent) were male. There was a characteristic bimodal peak in the age distribution of TB cases in young adults and those aged

75 years or over (figure 27). Notification rates were slightly lower for patients aged 20–29 years in 2006 (11.6 cases per 100,000 population) compared with 2005 (12.6 cases per 100,000 population); the notification rate of cases aged 75 years or older was 17.0 cases per 100,000 population.

In 2006 there were 28 cases aged less than 15 years and the notification rate in children aged less than five years increased from 3.2 cases per 100,000 population in 2005 to 3.5 cases per 100,000 population in 2006. More than half of the cases aged less than 15 years were identified by contact tracing or screening and found to have early signs of disease on initial assessment. Of the 13 children that were not identified by TB control activities, nine children were overseas born and four were Australian-born diagnosed on clinical presentation. Of the Australian-born cases, two children had recent exposure to notified cases of TB but were not identified at the time of contact investigation and two had travelled to Vietnam with their families. One of the children was an eight-month-old that had travelled with an aunt who was also diagnosed with TB on return to Australia and highlights the susceptibility of children less than 12 months old to developing active disease soon after exposure and infection.

In 2006 96 per cent of TB notifications were residents of metropolitan regions (figure 28). Fifty-seven per cent of patients were managed by four metropolitan tertiary hospitals, three of which run specialised TB clinics.

Figure 27: Notified cases and notification rates of tuberculosis by age group and sex, Victoria, 2006

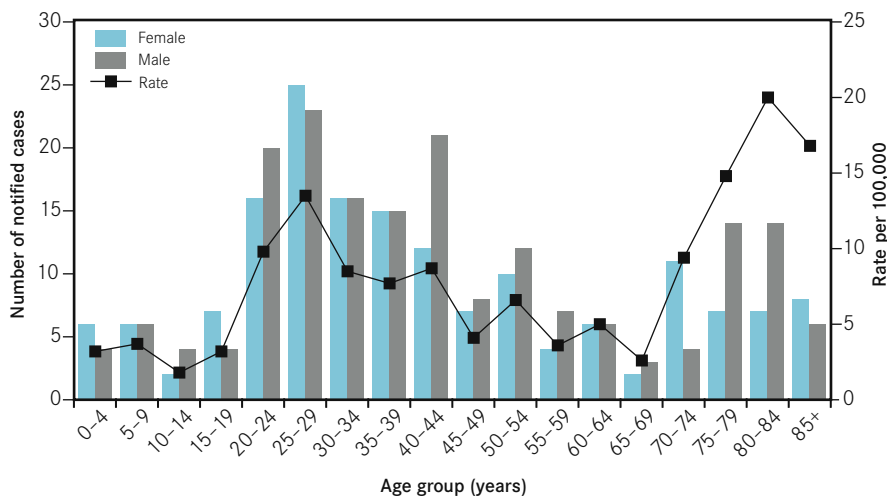
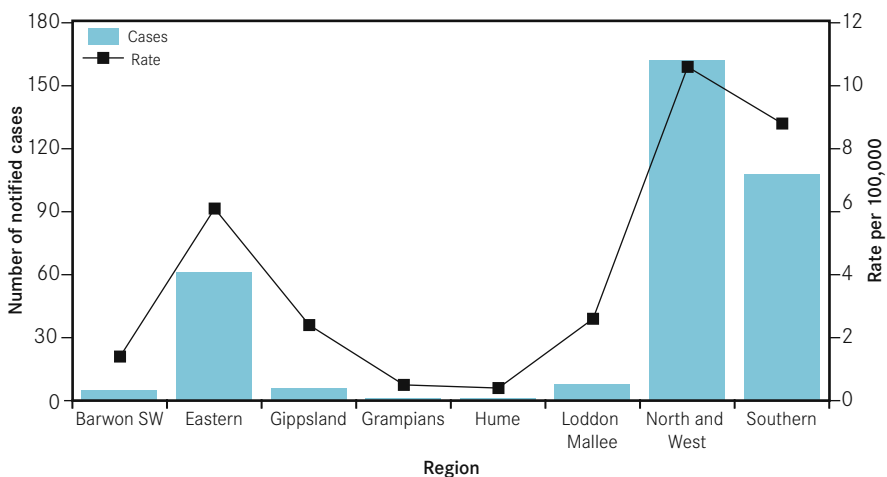


Figure 28: Notified cases and notification rates of tuberculosis by region, Victoria, 2006



Approximately nine per cent of TB patients in Victoria were diagnosed and treated by private physicians, which has remained consistent over the past decade.

Pulmonary disease accounted for more than half of all notifications (n=196) in 2006 (table 18). Thirty-nine of these notifications noted additional sites: lymph nodes were the most common additional site, however three patients had miliary TB and eleven had pleural TB. Extra pulmonary disease was reported for 158 of notified cases (45 per cent) in 2006. Of these, the most common sites were lymph nodes (55 per cent), pleural (17 per cent) and bone/joint (nine per cent). There were three patients notified with disseminated TB and two patients had tuberculomas in the brain. Other unusual sites included the scalp and skull, nasal cartilage and the eye. Four patients were diagnosed with TB of the liver and/or spleen.

Table 18: Notified cases of tuberculosis by site of disease, Victoria, 2006

Site of disease	Cases (per cent)
Pulmonary	196 (55)
Lymph nodes	87 (25)
Pleural	26 (7)
Bone/Joint	14 (4)
Peritoneal	5 (1)
Genitourinary	6 (2)
Meningeal	3 (<1)
Miliary	1 (<1)
Other	16 (5)
Total	354 (100)

In 2006, 56 (18 per cent) of the 312 cases born overseas had previously been placed on a tuberculosis undertaking (TBU). Twenty-three (41 per cent) of the TBU notifications were diagnosed on the basis of the health assessment required as a condition of the TBU.

There were seven cases with multi-drug resistant TB in 2006, of which six were pulmonary TB. Five of the seven patients were born in a high prevalence country (defined as having a rate of tuberculosis greater than 100 per 100,000 population) and one patient was a United Kingdom-born health care worker who had worked in South Africa and diagnosed as a result of a health undertaking assessment.

Risk factors

As in all developed countries, the most significant risk factor for tuberculosis in Victoria is having migrated from a high prevalence country. In 2006, 43 notified cases (12 per cent) were Australian-born with a notification rate just over 1.0 per 100,000; there were two notifications in Indigenous Australians. However, the incidence rate in overseas born people was 27 per 100,000. The countries of origin accounting for the highest number of notifications were the same as previous years although Sudan rose to the third ranked country of birth (n=22) after India and Vietnam (57 and 43 cases respectively); China and the Philippines accounted for an additional 11 per cent of notifications.

An associated risk factor for the development of tuberculosis is the time since migration, with most cases being diagnosed within a few years after arrival. Information about date of arrival was known for all cases in 2006 that were born overseas. Of these, ten per cent were notified with TB following arrival in Australia during 2006 and 22 per cent were diagnosed within one year of arrival.

Four cases were known to have HIV co-infection although testing HIV testing data were known for 47 per cent of cases, increasing from 27 per cent for cases notified in 2005.

Outbreak investigations

No outbreaks were identified.

Comment

These surveillance data reflect the importance of continuing the migrant screening program as a method of TB control in Australia. Health care providers should be aware of the increased risk of tuberculosis in newly arrived refugees and migrants, and consider the possibility of tuberculosis in any patient from a high-risk group who presents with symptoms and/or signs compatible with the disease. Early diagnosis and collection of specimens for drug sensitivity testing is imperative to reduce the risk of transmission of TB within the community, particularly with increasing rates of multi-drug resistance throughout the world.