

## 9. 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

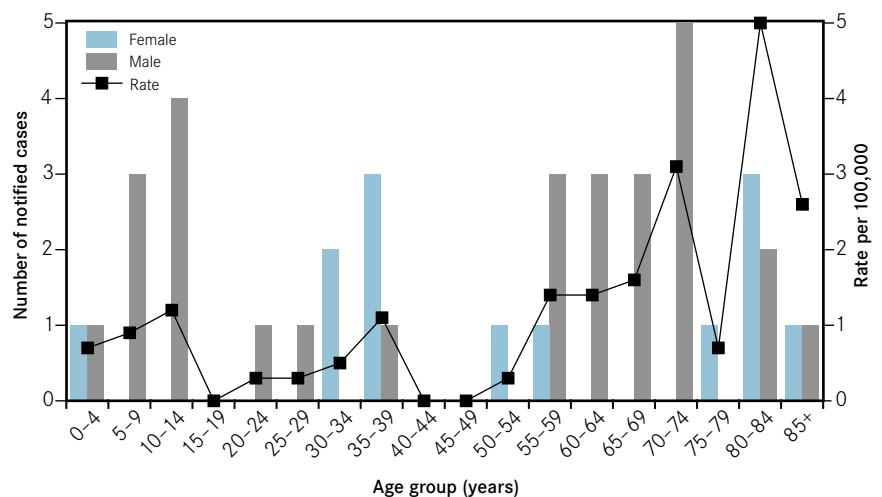
#### Summary of notifications

Forty-one cases of ulcerans were notified in 2005, a 58 per cent increase on the 26 cases notified in 2004. Twenty-eight cases (68 per cent) were males and the remainder were females. Ages ranged from one to 86 years; 19 cases (46 per cent) were aged 60 years and older (figure 31).

#### Risk factors

The most significant risk factor for developing *Mycobacterium ulcerans* infection appears to be living in an identified endemic area and experiencing some form of skin abrasion or puncture wound. In 2005 there were 21 cases (51 per cent) associated with Point Lonsdale, of which 14 were local residents and seven were visitors to the area when they acquired their infection. Most other infections were reported in people who lived on, or close to, east Gippsland and the Mornington and Bellarine Peninsulas.

**Figure 31: Notified cases and notification rates of ulcerans by age group and sex, Victoria, 2005**



### Comment

*Mycobacterium ulcerans* was first diagnosed in the Bairnsdale area of East Gippsland where an outbreak of 120 cases occurred in the 1940s 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 1992–1994. The focus shifted further westward in 2001 with an outbreak in St Leonards on the Bellarine Peninsula and the most recent outbreak in the small township of Point Lonsdale continued throughout 2005.

Little is known about the mode of transmission of ulcerans infection, risk factors or incubation period and the department is currently sponsoring their research through the Public Health research grants. Evidence is emerging that biting insects may play a role; however, the route of transmission remains unclear. The most important public health measures in the prevention and management of ulcerans infections are to avoid insect bites by the use of repellents and protective clothing, to wash and cover skin abrasions – particularly after gardening – and to seek early medical advice for any ulcer or lesion that is slow to heal.

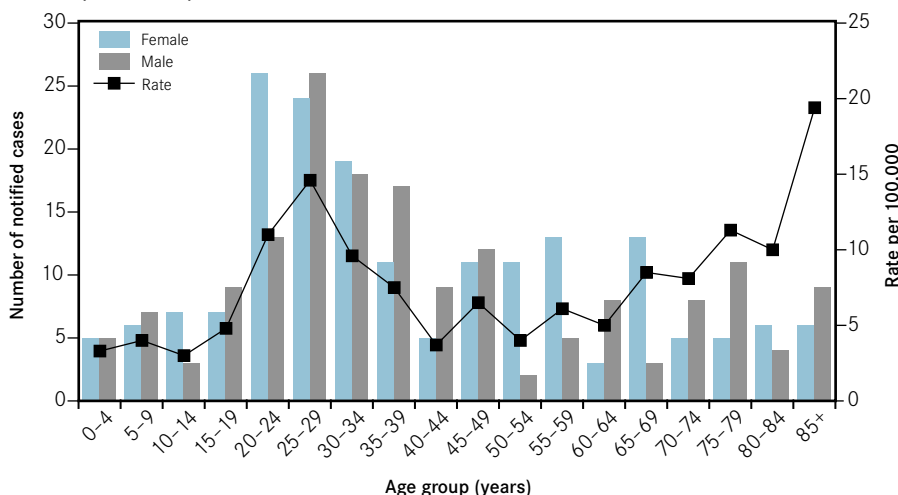
## Tuberculosis

### Summary of notifications

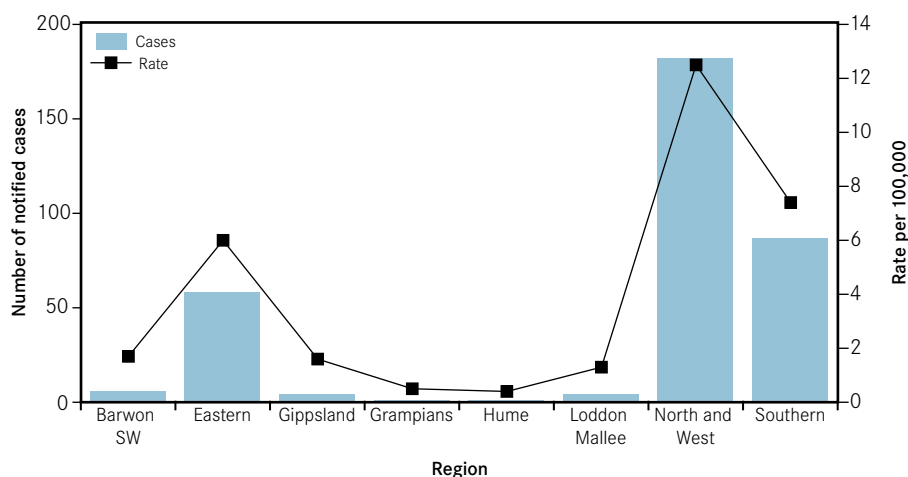
There were 352 cases of tuberculosis notified to the department in 2005, a seven per cent increase on the 2004 total. Of the cases, 183 were female (52 per cent) and 169 (48 per cent) were male. The highest numbers of cases were reported for the 20–30 years age group, although notification rates were highest among those aged eighty-five years or older (figure 32). Nearly half

the cases aged 85 years or older were Australian born. Thirty-three notified cases were children aged less than 15 years, of which 13 were identified by contact tracing of tuberculosis cases. Eleven of the children were Australian born siblings or children from families that had migrated from high prevalence countries and two were recent humanitarian program arrivals. Sixteen children were overseas born and the remainder were Australian-born, including one Indigenous Australian.

**Figure 32: Notified cases and notification rates of tuberculosis by age group and sex, Victoria, 2005**



**Figure 33: Notified cases and notification rates of tuberculosis by region, Victoria, 2005**



Six of the Australian-born children were diagnosed on clinical presentation and two were identified with congenital (perinatal) tuberculosis.

Most notified cases (93 per cent) were residents of metropolitan Melbourne, with the highest number of cases (54 per cent) and notification rates in the North and West Metropolitan region (figure 33). Sixteen notifications were received from rural and regional Victoria.

There were 163 cases with pulmonary disease, accounting for less than half of all cases (table 33). Forty-one of the pulmonary notifications noted sites additional to the lungs. Lymph nodes were the most common additional site; however, five patients had miliary tuberculosis and twelve had pleural

**Table 33: Notified cases of tuberculosis by disease site, Victoria, 2005**

Site	Cases (per cent)
<b>Pulmonary</b>	
Pulmonary only	120 (34)
Lymph nodes	18 (5)
Pleural	12 (3)
Miliary	5 (1)
Other	2 (1)
Genitourinary	2 (1)
Meningeal	2 (1)
<b>Extra-pulmonary only</b>	
Lymph nodes	107 (30)
Pleural	25 (7)
Bone/joint	20 (6)
Other	17 (5)
Peritoneal	10 (3)
Genitourinary	6 (2)
Meningeal	4 (1)
Miliary	2 (1)
<b>Total</b>	<b>352 (100)</b>

involvement. Extra pulmonary disease only was reported for 54 per cent of cases. Of these, the most common sites were lymph nodes (56 per cent), pleura (13 per cent) and bone/joint (ten per cent). Of the 125 cases where lymph node disease was reported, twenty-one were either mediastinal or hilar nodes. There were five patients notified with pericardial tuberculosis and for one patient tuberculosis was isolated from an eye swab.

### Risk factors

As in all developed countries in the world, the most significant risk factor for tuberculosis in Victoria is having migrated from a high prevalence country (defined as having a rate of tuberculosis greater than 100 per 100,000). This was reflected in the Victorian data with a notification rate of 27 cases per 100,000 population in overseas-born people compared to a notification rate of just over one case per 100,000 for Australian-born cases. There were 314 overseas-born cases, of which the highest proportions (21 and 16 per cent) were born in India and Vietnam respectively. A further 27 per cent of cases were born in the Philippines, Pakistan and countries in the West or Horn of Africa. There were 32 diagnoses of tuberculosis in newly arrived humanitarian program migrants.

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 312 overseas born cases (99 per cent). Of these, eight per cent were notified with tuberculosis following arrival in Australia during 2005, and 21

per cent were diagnosed within one year of arrival. Sixty-three percent were diagnosed within ten years of arriving in Australia. Four cases had an HIV co-infection although HIV testing data was only known for 20 per cent of cases, a six percent improvement on 2004 completeness for this field.

### Comment

As the geographic focus of Australia's humanitarian programs has changed in recent years, an increase in number of notified tuberculosis cases has been observed. Cultural perceptions and stigmatisation of tuberculosis can create significant barriers to identifying those at risk of infection and disease. Health care providers should be aware of the increased risk of tuberculosis in newly arrived refugees and migrants, and of the cultural issues that influence their health seeking behaviours. They should also 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 investigation of contacts is imperative to minimise the risk of progression to primary disease, particularly in young children. Furthermore, the two cases of congenital tuberculosis in 2005 highlight the need to remain vigilant in managing pregnant women from high prevalence countries.

The department's *Management, control and prevention of tuberculosis: guidelines for health care providers (2002–2005)* is currently under review for republication and is available from the Communicable Disease Control Unit or online at: <http://www.health.vic.gov.au/ideas>