

## The burden of tuberculosis in Aboriginal communities of BC

**W**orld Tuberculosis Day, recognized on 24 March of each year, raises public awareness about tuberculosis (TB). The global TB epidemic causes several million deaths per year, mostly in the developing world where HIV rates are also at epidemic levels. Although Canada is considered a low incidence TB country, certain populations remain at increased risk, notably Canadian-born Aboriginals. Recent national data show that the greatest proportion of Canadian-born Aboriginal TB cases were in the Prairie Provinces and the Territories. The clinical presentation of TB in Aboriginal persons differed from other populations in Canada in that cases tended to be younger, were more likely to relapse, and had primary or extensive disease. Fortunately, drug resistance remains rare. The majority of TB cases are treated by directly observed therapy (DOT) with excellent cure rates.

TB rates in registered Aboriginals were in decline until the early 1990s but have since stabilized. Delays in diagnosis and substance abuse conspire to promote transmission. High household occupancy density, poor air quality, and inadequate ventilation also increase the risk of transmission and progression to active TB. Calculating TB incidence in the Aboriginal communities is limited by inexact population figures and rate estimations in populations of very small numbers. However, all available estimates confirm a higher burden of disease in Aboriginal peoples compared with other groups, with rates exceeding four times the provincial rate in 2006 (36 per 100 000 vs 8 per 100 000), among the highest rates seen in Canada over the last 10 years.

In BC, clusters of cases have

occurred on reserves for decades. In 2005, two northern communities had an increased number of active TB cases. DNA fingerprint links were established with cases in the previous year in a nearby community. In 2006, further increases in case numbers were noted in the north. While the

patients seeking medical help, and poly-substance abuse. HIV infection was not a factor in this outbreak. DNA fingerprinting has linked several of the cases, and the intention is to complete testing of all the culture positive cases. Given that several of the cases were very advanced at presentation

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number of cases observed was greater than expected, not all clustered cases represented an outbreak due to recent transmission. For example, one community had a number of epidemiologically and DNA-linked cases but with only a single pediatric case thought to have resulted from recent transmission. All adult cases represented reactivation of long-standing latent infection and did not meet the definition of an outbreak.

In contrast, the 33 cases of TB documented since May 2006 in the Port Alberni area clearly represent an outbreak. Prior to this event, only five cases of active tuberculosis would be expected annually in the central Vancouver Island region. The majority of cases have been diagnosed in Aboriginal persons living off reserve. Contributory factors included delays in diagnosis, delays in symptomatic

and symptomatic for many months, it is expected that further cases will occur periodically over the next several years.

In response to this developing outbreak, field epidemiology support used social network analysis methods to establish routes of transmission between cases, identify social connections, allow prioritization of contact tracing, and identify key locations for potential screening activities.

Unacceptable disease rates and recurring outbreaks highlight the need for new initiatives to address TB in Aboriginal communities. This will only succeed with the acknowledgment of the underlying social and economic determinants of health.

—Victoria J. Cook, MD  
—R. Kevin Elwood, MD  
Division of TB Control