



Tuberculosis: 1. Introduction

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Tuberculosis (TB) has infected about one-third of the world's 5 billion people. In 1995, from this pool of infected people, about 3.3 million new active smear-positive cases were reported, along with an estimated 4 million other cases, which led to about 2–3 million deaths.¹ Although TB rates in Canada are as low as almost anywhere in the world, many people from countries where rates are high — in whom previous TB and the attendant 5% to 10% risk of reactivation is likely — arrive in Canada each year: 250 000 as landed immigrants and another 2 million as visitors. TB is back on the agenda in Canada because, although diagnosis is simple and curative drugs have been available for 50 years, the disease has been all but forgotten. The capacity to establish and maintain a global system to control TB has been thwarted by poverty and homelessness and diminished by the spread of HIV infection. It is time to re-examine the issue of TB control in a Canadian context.

Annual rates of TB in Canada reached a plateau in about 1989 at levels slightly higher than those of The Netherlands and Scandinavia — 7 per 100 000 population per year.² Such low rates suggest stability but in fact hide the continuing high rates in the aboriginal population (about 70 per 100 000 population), which contributes 15% of cases, 7 times the expected rate for that group. (The term aboriginal refers to Canadian First Nations people, living on or off reserves, with or without treaty status.) The decline continues in the Canadian-born nonaboriginal population, where rates are about 1 per 100 000, nearing 1 per million — the rate at which TB is considered eliminated. However, 60% of all cases of TB in Canada now occur in people born elsewhere, in countries where the TB epidemic continues unabated.

Because TB is fairly rare in Canada, with about 2000 cases annually, the average practitioner will see only one case in 10 years. Each of these represents a failure of the control system. TB is 99% curable and 90% preventable. The ability to control TB with modern chemotherapeutic drugs has been demonstrated in Canada's northern Inuit population; in 1950 the rate of new disease in this population was 25%, but by 1970 it was so low as to be almost unmeasurable. This situation illustrates what can be accomplished with an effective medical regimen, a concerted public health commitment and a willing community.³

Because there is little active case-finding for this disease, we depend on alert physicians who are aware of the high rates of TB in aboriginal, elderly and foreign-born people, and in people with suppressed immune systems. When TB is suspected, sputum microscopy and culture should be conducted immediately. There is a need for prompt communication among the practitioner, the laboratory and the public health system so that patients are appropriately treated and people who have come into contact with the infected person are assessed and offered prophylactic treatment.

DOTS (directly observed therapy, short course) is more than simply direct observation of treatment: it is a strategy for controlling TB that requires government commitment, an uninterrupted supply of free drugs and a network of laboratories for microscopy diagnosis, training and a good surveillance system for outcome evaluation. The use of DOTS to control TB has been championed by the World Health Organization (WHO)⁴ because it overcomes the

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Éducation

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‡ See pages 789, 799 and 821 for other articles on tuberculosis



problem of compliance with treatment. Even in Canada there are difficulties ensuring that patients comply with therapy. In fact, Canada is not able to report outcome of treatment to WHO and therefore is not considered a DOTS country.

In the past, Canada has helped developing countries to strengthen TB control programs.⁵ This country has also been a leader in some of the earliest and most effective BCG (Bacille Calmette–Guérin vaccine) trials. The focus on TB control and its management varies among the Canadian provinces and territories, therefore contact information to obtain guidance in diagnosing and managing TB is listed below for each province and territory.

As public sector commitment to health care and education declines around the world, the need for private-sector nongovernmental organizations to get involved in TB control has become urgent. In the past, TB associations have rallied public support for TB control and have encouraged governments to adopt TB control programs to

assure the public's health. Such vigour will be needed on a global scale to reverse the rising rates of tuberculosis.

The authors of this series of papers are among the leaders in TB control in Canada and worldwide. A discussion of the epidemiology of the disease in Canada will make practitioners aware of the patient populations that are most at risk. A review of the multisystem nature of the disease will focus on the most common pulmonary and extrapulmonary forms, as well as the presentation of TB in children and its atypical appearance in people with HIV infection. Although new tools for diagnosis are available, culture diagnosis, the gold standard, depends on a network of laboratories and reference centres; in Canada the existence of such networks is increasing, as will be seen in the discussion of the laboratory aspects of TB. Articles on TB in aboriginal and immigrant populations will outline the need for vigorous control mixed with cultural sensitivity. Contact follow-up, prevention and screening in community and hospital populations will also be dis-

Provincial tuberculosis control representatives

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Health Promotion and Disease
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Public Health Management Services
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Programmes de contrôle
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Maladies infectieuses
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Health Canada
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cussed. The cases that appear in many of the papers in this series do not represent real patients; each is a composite designed to illustrate a particular situation.

The drafting of this series of articles coincided with the sudden death of Dr. Stefan Grzybowski, one of Canada's greatest contributors to our understanding of TB and its historical and global import. Stefan was born in Poland in 1922. His medical studies in Warsaw were interrupted by the declaration of war, and he subsequently completed his medical degree in Edinburgh and postgraduate pulmonary medicine training in England. He first wrote about TB as a disease of children and adolescents, and that paper led to his recruitment in 1954 to a position in TB control with the government of Ontario. Throughout his life he continued to contribute as a clinician, a teacher and a scientist, writing more about TB epidemiology than anyone else in Canada. He consulted all over the world with endless enthusiasm and good humour. He worked at a prodigious pace until just weeks before his death on the next article in this series, which relates the history of TB

in Canada. Stefan will be sadly missed by his colleagues around the world but especially in Canada. It is to his memory that this series is dedicated.

Competing interests: None declared.

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