COMMENTARY

Tuberculosis Control in Alberta

A Federal, Provincial and Regional Public Health Partnership

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Tuberculosis control is a public health issue and therefore a government responsibility. Less clear is the optimal distribution of responsibility among levels of government: federal versus provincial/territorial versus regional/municipal. Historically, in Canada, each province and territory has organized and funded its own tuberculosis control program. Decentralization of services, from province to region/municipality, and a reduced prevalence of the disease threaten to destabilize tuberculosis control programs: public health budgets are cut, interest wanes, research stops, expertise grows thin and the disease reemerges.[1]

In Alberta, the only formal direction provided to the relationship between the province and its regions with respect to tuberculosis control is found in the *Public Health Act*,[2] with its *Communicable Disease Regulations*,[3] and the *Regional Health Authorities Act*.[4] Certain sections of this legislation suggest that Regional Medical Officers of Health (MOHs) and their staff are responsible for tuberculosis control. Other sections of the same legislation suggest that both the province and the regions are responsible for tuberculosis control. Ambiguities surrounding the role of the province and the regions vis à vis tuberculosis are inexpedient as they serve neither tuberculosis control nor the need for Regional Health Authorities to delineate their charge within a regionalized health care system.

In regionalized Alberta, the major objectives of tuberculosis control are achieved and the best interests of the public's health and purse are served through a partnership of responsibility, key elements of which are transparency, mutual respect, and working through consensus. In this commentary, the rationale and design of the Tuberculosis Control Program of Alberta is outlined.

RATIONALE FOR THE PARTNERSHIP

Tuberculosis is the quintessential public health disease. It is caused by *Mycobacterium tuberculosis*, a pathogen that co-opts a biologic necessity of its human host – the act of breathing – to effect its own airborne transmission and survival. No act of willing participation, such as is usually required of sexually transmitted diseases, is necessary.

Sir William Osler called it "a social disease with a medical aspect"[5] because its pathogenesis and transmission (the disease and public health) are inseparably linked and because it thrives wherever conditions of poverty, overcrowding and ignorance exist. It tends to involve disproportionately the under-privileged or marginalized members of society. Patience, tolerance, and perseverance, beyond the capacity of mainstream medicine, may be required of its managers. Cases cannot be viewed as "clients" in the medical marketplace. Not surprisingly, given that purely medical paradigms do not adequately account for the social determinants of health, every attempt to divorce the population health and medical aspects of tuberculosis has uniformly met with failure.

Tuberculosis takes months of potentially toxic multidrug therapy to cure and, when treated improperly, exacts a heavy toll – namely drug resistance. It respects no border, demanding only the communion and commutation of breathing humans, an ever-increasing staple given an expanding population and facility of movement. Two thirds of all cases of tuberculosis in Canada now occur in the foreign-born who are at increased risk of disease due to drug-resistant strains.[6] Latterly tuberculosis has formed an alliance with another communicable disease – HIV/AIDS – co-morbidity enhancing the replication of both pathogens.[7] Treatment of tuberculosis in dually infected individuals is more complicated than treatment of tuberculosis in the HIV uninfected and especially so if antiretrovirals are being co-administered.[8]

Over the last half century, tuberculosis in Canada has been retreating into demographically and geographically distinct groups. Increasingly it is an urban disease (in 1998, 60% of all cases were reported from the nine urban centres of 500,000 persons or more) of immigrants.[9] Otherwise it involves Aboriginal groups, particularly those of western Canada and the Territories, groups of inner city poor and homeless, and the elderly wherever they may reside. Depicted graphically, each of these groups represents an "epidemiologic pump" sustaining the incidence of the disease.

Individual and public health needs are best served when tuberculosis control programs achieve two major objectives: 1) the early diagnosis of all infectious cases, the prompt institution of effective treatment and the case holding of patients until treatment has been completed and a cure achieved; and 2) the investigation of contacts and the treatment of latent tuberculosis infection in those recently infected or otherwise at risk of reactivation.

Government policies that determine the distribution of the public health role for tuberculosis must be informed by these public health, case management, and epidemiologic realities and must accord the tuberculosis control program the wherewithal to meet its objectives in a cost-effective manner. Misguided policy, leading to maldistribution of roles, may occur when political or parochial agendas supersede the best interests of the public's health or purse.

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THE PARTNERSHIP

Classical descriptions of the core functions of public health agencies at all levels of government,[10-12] and divisions of the public health role into those aspects that are part of the infrastructure (e.g., the Public Health Laboratory) and those that are operational (e.g., program planning, implementation and evaluation),[13] are useful frameworks within which to think about tuberculosis control activities. However, neither provides a clear and precise apportioning of responsibility. Briefly summarized in Table I and the following text is the sharing of responsibility agreed upon by government partners in Alberta:

- Federal activities inform provincial elimination strategy,[14,15] foreign-born surveillance and resource allocation.
- Provincial activities include the maintenance of a Central Tuberculosis Registry, strategic planning, the setting of provincial standards, and the liaising, among multiple stakeholders, necessary to ensure both the adequacy and equity of tuberculosis services.
- Provincial activities also include the honouring of federal/provincial contractual agreements and the provision of expert opinion.
- Provincial/regional planning makes allowance for regions of disparate size, capability, and numbers of tuberculosis cases and the fact that certain communities report federally/provincially as well as regionally (e.g., on-reserve First Nations communities and correctional facilities). It does so through line item budgeting and a tripartite grouping of its regions (Calgary, Edmonton, and all others). Implicit in its funding formula is an understanding that regional budgets, sufficient to the needs of tuberculosis control, are in bond to that purpose through the *Public Health Act*. Implicit in its regional grouping is the opportunity for excellent, standardized care as well as economies of scale.
- Outside of the populous urban regions, effective tuberculosis control requires both regional (Regional MOH, Regional Public Health Nurse Coordinator, and their staff), First Nations and Inuit Health, and provincial support. The numbers of cases, aside from those in First Nations communities, are few. Local expertise may not be available. On-reserve/off-reserve, region to region and province to province/territory traffic, confound the ability of regions to function in relative isolation.
- Anti-tuberculosis drugs are properly and discriminately used, compliance improved and the treatment regimen monitored against accepted standards, by having the drugs publicly funded and centrally distributed, and by having their prescription overseen by program physicians.
- Regional primary care physicians allow the program to work though them. This unwritten line of authority and juxtapositioning of public health expertise operationalizes the tuberculosis reality – case management is both a medical and a public health action. *Effective* treatment of the infectious case, the first objective of tuberculosis control, not only relieves symptoms and provides a lasting cure but also interrupts transmission and prevents resistance. Each case is seen as possibly connected to other cases or contacts. Each case is seen as representing, in some way, a failure of the program. It is considered neither realistic nor in the best interests of public health to expect treatment to be delivered effectively outside of the program. Nor can the process of contact tracing, the second major objective of the program, be safely delegated to or properly construed to be the responsibility of, primary care nurses or physicians functioning independent of the tuberculosis control program and local public health.

TABLE I

Federal, Provincial and Regional Responsibilities

Federal (Health Canada)
- Surveillance, communication and specialty laboratory functions
- Represents Canada internationally
- Contracts (FNIHB)* with the provinces for tuberculosis control in First Nations communities
- Provides an FNIHB Alberta Region MOH and TB Elimination Program Coordinator
- Liaison among Health Canada, CIC*, and the provinces/territories
- Sponsors the Canadian Tuberculosis Committee†
- Jointly, with the CLA/CTS*, produces the Canadian Tuberculosis Standards
- Collaboratively, with the provinces/territories, formulates elimination strategy

Provincial (Alberta Health and Wellness)
- Liaison between Health Canada and the Regional Health Authorities
- Funds the program through regional CDC* budgets
- Maintains a Central Registry and produces an annual statistical and performance report
- Interprets/advocates for elimination strategy in respect of local epidemiology
- Sets standards of care
- Provides publicly funded anti-tuberculosis drugs for the treatment of active disease and LTBI*
- Supports a communal, in-patient unit, accessible to all regions
- Sponsors the Tuberculosis Committee of Alberta and the Tuberculosis Nurses Working Group
- Supports a university-affiliated Provincial Medical Consultant, Tuberculosis

Regional (17 Regional Health Authorities)
- Physicians consider the diagnosis and submit appropriate specimens
- Delivers the program at a regional level (Office of the MOH)
- Supports the Capital Health (Edmonton) and Calgary Health Tuberculosis Clinics
- Supports a Capital Health and Calgary Health University affiliated Tuberculosis Medical Consultant

* Abbreviations: FNIHB First Nations and Inuit Health Branch, Health Canada; MOH Medical Officer of Health; CIC Citizenship and Immigration Canada; CLA/CTS Canadian Lung Association/Canadian Thoracic Society; CDC communicable disease control; LTBI latent tuberculosis infection

† The Canadian Tuberculosis Committee consists of representatives from Health Canada, including FNIHB, the National Tuberculosis Laboratory, and the Canadian Public Health Laboratory Forum, CIC, the CLA/CTS, and the Provincial and Territorial Tuberculosis Program Directors

At all levels, the tuberculosis control program has dedicated and trained staff knowledgeable in specific aspects of tuberculosis and operating within defined policies and procedures. As well, public health program staff have developed effective working relationships with MOHs, local primary care physicians and social support agencies to ensure prompt and complete reporting, effective case management, and removal of psychosocial barriers to compliance, including the provision of directly observed therapy (DOT) and opportunities for continuing medical education.

SUMMARY

The number of cases of tuberculosis in Alberta or Canada may not be large, but the public health and medical costs of just a few cases can be prohibitive. For example, the costs of managing cases of multidrug-resistant tuberculosis and their con-

tacts, can exceed the entire annual budget of a program. This was evident in New York City in the late 1980s and early 1990s, when $1 billion in public funds were spent reversing a major resurgence of drug-resistant and susceptible tuberculosis.[16,17] In Canada, the Walkerton Inquiry has identified an apparent failure of provincial public policy to adequately address public health needs. This has resulted in decreased public confidence and potential liabilities for the policy-makers.[18]

In the design of the Tuberculosis Control Program of Alberta, the notion of a quasicentralized or quasidecentralized program is rejected. Rather there is an appeal to the notion of a partnership of responsibility that recognizes jurisdictional and non-jurisdictional public health, case management and epidemiologic realities, the integral contribution of each level of government and the need to be accountable to the public's health and purse.

For levels of government not to properly discharge their responsibilities may be perceived as an abrogation of the public trust and a disregard of the Tuberculosis Control Policy Package and operational directives of the World Health Organization.[19,20]

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