Public Health Agency of Canada
Agence de santé publique du Canada

Tuberculosis in Canada

2002

Canada

HOW TO REACH US

For more information, copies of this report or other related reports, please contact:

Tuberculosis Prevention and Control
Community Acquired Infections Division
Centre for Infectious Disease Prevention and Control
Public Health Agency of Canada
Third Floor, Building 6
Tunney's Pasture, Ottawa, Ontario K1A 0K9

Internal Postal Address: 0603B

Telephone: (613) 941-0238
Facsimile: (613) 946-3902

This report can also be accessed on the internet at:

http://www.phac-aspc.gc.ca/

The following figures, tables and explanatory text were prepared by:

Edward Ellis, MD, MPH, FRCPC
Manager
Tuberculosis Prevention and Control

Melissa Phypers, MSc
Senior Epidemiologist
Tuberculosis Prevention and Control

Louis Sauvé
Surveillance Officer
Tuberculosis Prevention and Control

Chris Sheardown, BA
Tuberculosis Database Manager
Tuberculosis Prevention and Control

Merrilyn Allegakone
Tuberculosis Database Manager
Tuberculosis Prevention and Control

ACKNOWLEDGEMENT

The authors would like to acknowledge the provincial/territorial tuberculosis programs and their teams for their contribution to and participation in the Canadian Tuberculosis Reporting System (CTBRS).

The authors would also like to thank the Scientific Publication and Multimedia Services Section, Public Health Agency of Canada, for its assistance in preparing this report.

Cat. H39-1/6-2002E ISBN 0-662-38291-9
Cat. H39-1/6-2002E-PDF ISBN 0-662-38292-7
Cat. H39-1/6-2002E-HTML ISBN 0-662-38293-5

This publication can be made available in alternative formats upon request.

Tuberculosis in Canada

2002

TABLE OF CONTENTS

FIGURES

TABLES

Drug Resistant Tuberculosis Among the Foreign-born in Canada

Background

The emergence of drug resistant strains of tuberculosis (TB) is a global threat to tuberculosis prevention and control efforts. In a study conducted by the World Health Organization (WHO) and the International Union against Tuberculosis and Lung Disease (IUATLD), strains of TB resistant to first line anti-TB drugs were found in 74 of 77 countries surveyed. The WHO estimates that 300,000 individuals are infected with strains of drug resistant TB each year.[1]

Through the Canadian Tuberculosis Reporting System (CTBRS), Tuberculosis Prevention and Control (TBPC), Public Health Agency of Canada collects information on all new and relapsed cases of TB disease diagnosed in Canada. Included in the CTBRS is information on country of birth (origin) and primary and secondary (acquired) resistance to first-line anti-tuberculous drugs. Since the collection of the data variable "origin" began in 1970, (Canadian-born Aboriginal, Canadian-born non-Aboriginal and foreign-born), a steady increase in the proportion of reported TB cases among the foreign-born population has been noted. Currently, over 65% of all TB disease in Canada occurs among the foreign-born and drug resistance is significantly more prevalent among this population group. All previous Canadian studies have noted foreign birth to be a significant factor associated with drug resistance.[2–8]

The purpose of this report is quantify the burden of primary and acquired drug resistant TB among the foreign-born in Canada and to identify trends in primary drug resistance based on country of origin, year of arrival in Canada, year of diagnosis and immigration status.

Methods

TB case data reported to the CTBRS from 1992*–2002 were examined. The reporting system is designed to capture information on every new active or relapsed† case of TB diagnosed in Canada in all provinces and territories. Cases within the CTBRS meet the *Canadian Tuberculosis Standards* case definition.[9] The case report collects information on selected characteristics including country of birth, the year of arrival in Canada and immigration status at the time of diagnosis.

* 1992 represents the year the primary drug resistance was first reliably reported to the CTBRS. Secondary drug resistance reporting began in 1997.

† Relapsed (reactivated) case refers to cases with documented evidence (in Canada) or history of previously active tuberculosis that became inactive.

Annual population estimates by origin, including estimates for specific age and sex groups, were obtained from Statistics Canada.

Primary drug resistance applies to previously untreated patients who are found to have drug-resistant organisms, presumably because they have been infected from an outside source of resistant *Mycobacterium tuberculosis*. Acquired (or secondary) drug resistance applies to patients who initially have drug-susceptible bacteria that become drug-resistant due to inadequate, inappropriate, or irregular treatment or, more importantly, because of non-adherence in drug taking.

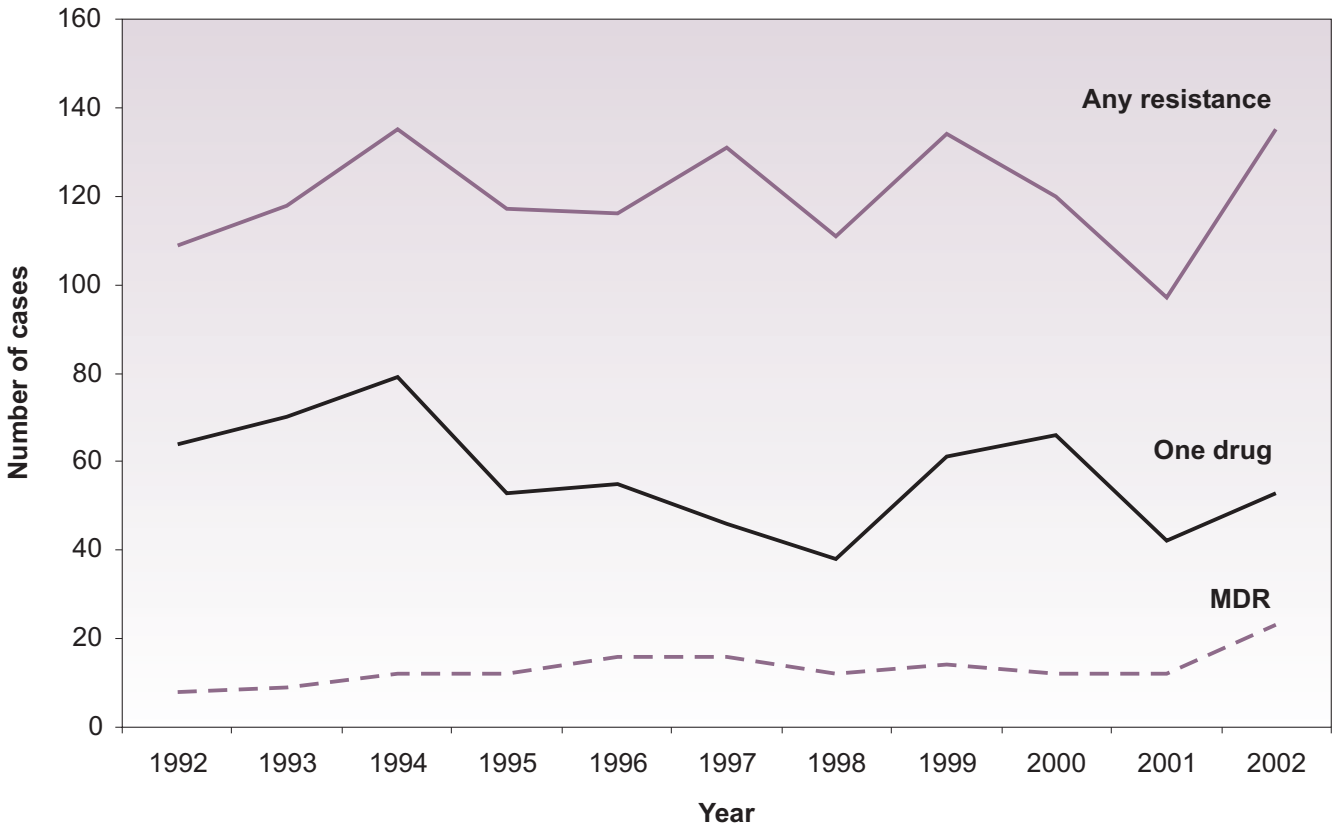
Results

Overall trends in primary drug resistance

From 1992–2002, 11% of all foreign-born cases were resistant to one or more first line anti-tuberculosis drugs and foreign-born cases were three times more likely to be drug resistant than are Canadian born non-aboriginal cases. While multiple drug resistant TB (MDR-TB) cases, which is defined as resistance to at least isoniazid and rifampin, account for only 1% (1.6% in 2002) of all cases in Canada, foreign-born cases were six times more likely to be MDR. Resistance to isoniazid (INH) was by far the most frequently reported and was present in 34% of all drug resistant cases. Patterns of drug resistance over time have shown no significant changes, with the exception of a slight increase in MDR-TB in the last reporting year.

Figure SR-1

Trends in drug resistance reporting among the foreign-born, 1992–2002



Country of origin

Individuals from ten countries accounted for over 75% of all drug resistance reported. The top three countries reporting primary drug resistance included Viet Nam, the Philippines and the People's Republic of China (Table SR-1).

Table SR-1

Distribution of foreign-born primary drug-resistant tuberculosis cases by country of origin, 1992–2002, Canada

Country of origin	Total TB cases	Number of resistant cases	Percent of total	Number of MDR cases	Percent of total
Vietnam	1,354	308	22.7%	25	1.8%
Philippines	1,319	193	14.6%	17	1.3%
Peoples Republic of China	1,419	152	10.7%	22	1.6%
India	1,410	99	7.0%	10	0.7%
Somalia	605	79	13.1%	15	2.5%
Hong Kong	734	56	7.6%	3	0.4%
Haiti	313	54	17.3%	4	1.3%
Former Ethiopia*	295	36	12.2%	2	0.7%
Pakistan	291	30	10.3%	3	1.0%
Republic of Korea	160	27	16.9%	5	3.1%

* Includes Ethiopia and Eritrea for 1992

Time since arrival in Canada

The majority of drug resistant cases were reported among the recently arrived (five years or less in Canada). This corresponds to the reporting trend of the majority of all cases of TB among the foreign-born being diagnosed in those individuals recently arrived to Canada (Figure SR-2).

Age, sex and reporting province/territory

Over 90% of the foreign-born drug resistant TB cases reported to this system originated from four provinces: Alberta, British Columbia, Ontario and Quebec (Figure SR-3).

The distribution by age and sex for drug resistant cases was equal for males and females. 53% of drug resistant cases were male with a median age of 37 years. Female cases accounted for 47% of the drug resistance reported with a median age of 35 years (Figure SR-4).

Treatment outcomes

Treatment outcomes for drug resistant cases with respect to cure and treatment completion were slightly less favourable as compared to non-resistant cases (71%; 80% cure or treatment completed respectively). Death as a result of TB (TB was the underlying cause of death or TB contributed to death) was similar between those with non-resistant strains of the disease as to those with reported drug resistance (7% versus 8%).

Figure SR-2

Proportion of all drug resistance by year of diagnosis and time since arrival in Canada

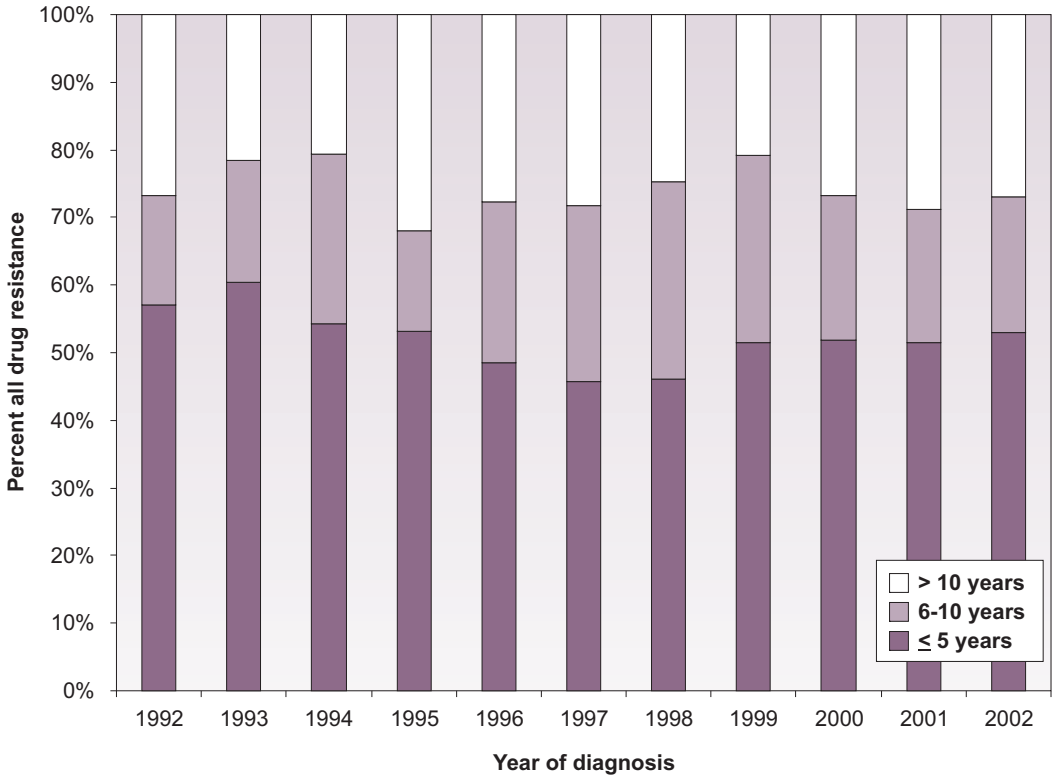
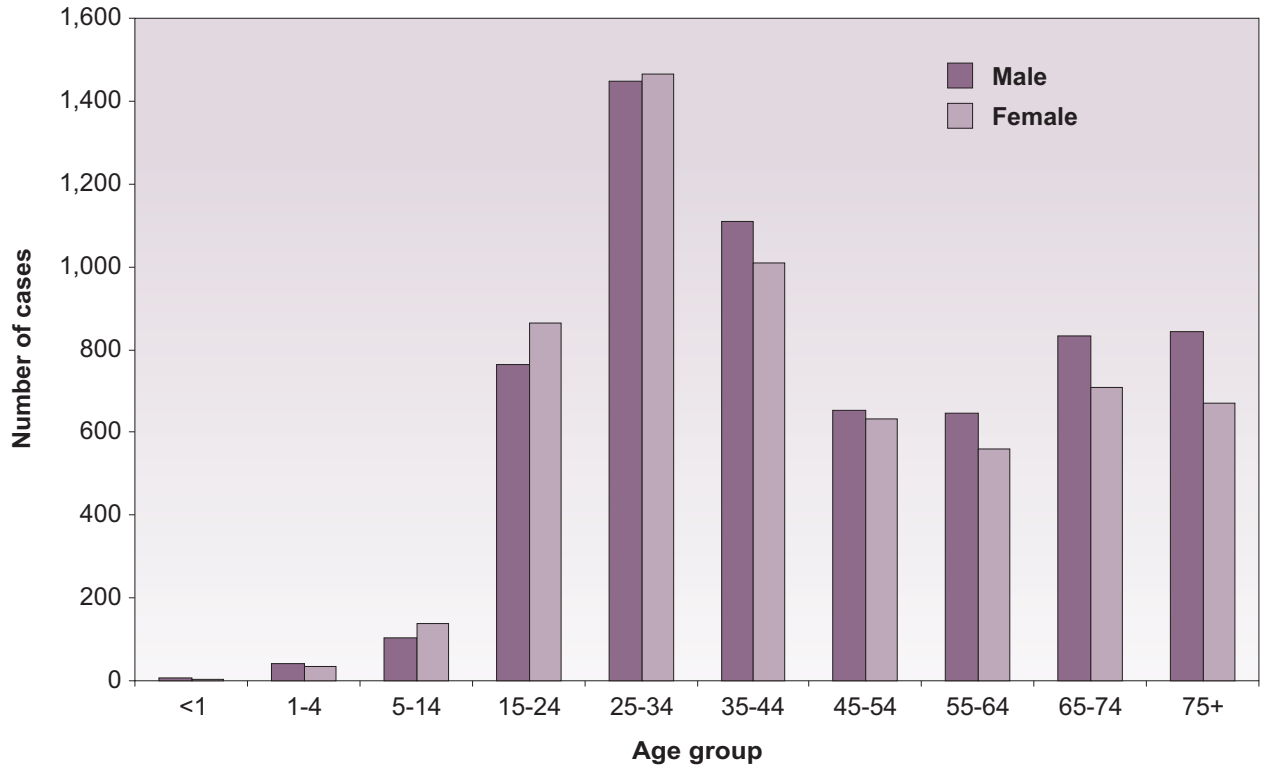


Figure SR-3

Primary drug resistance reporting – Alberta, British Columbia, Ontario and Quebec, 1992–2002

Figure SR-4

Foreign-born TB cases by age and sex, 1992–2002



Primary drug resistance and HIV

Primary drug resistance was reported in only eight HIV-positive TB cases. Only two cases of treatment acquired drug resistance among HIV-positive individuals were reported to this system for the years 1997–2002.

Acquired drug resistance

Resistance acquired during treatment was infrequent. From 1997–2002, 58 cases of secondary drug resistance were reported (less than one percent of all cases). The most common treatment acquired resistance was resistance to INH, accounting for 69% of all secondary resistance. Developing resistance during treatment to more than one drug was exceedingly rare. Only 19 individuals developed resistance to two drugs, eight to three drugs and five individuals developed resistance to four first-line tuberculous drugs.

Discussion

In the latest report of the global TB drug resistance surveillance project jointly conducted by the World Health Organization (WHO) and the IUATLD, the median prevalence of overall TB drug resistance for new cases among the participating countries was 10.2% and the median prevalence of MDR-TB was 1.1%.[1] Within this report countries with high prevalence of both primary and secondary drug resistance are listed with the highest prevalence of primary drug resistance and MDR in drug sensitivity reporting from Kazakhstan.[1] Further international studies indicate a higher incidence of drug resistant TB in males, those previously treated for TB and age greater than 65 years.[10,11]

Determining the incidence of TB-HIV co-infection and its impact on drug resistant TB from the CTBRS is not yet possible. From 1997–2002, HIV status was reported for an average of only 10% of foreign-born cases. The importance of screening and reporting of HIV status for all TB cases cannot be overemphasized. These practices are essential for prevention and control of future TB cases in Canada.

The results observed to date in this surveillance system are for the most part, consistent with previous national data and with international data with respect to drug resistance trends. Additional national data on TB drug resistance are available through the *TB Drug Resistance in Canada* series, which reports drug sensitivity results for individual TB isolates. This series provides timely annual information on emerging drug resistance trends, but contains little epidemiological information. Although not an exact match to case data the results of *TB Drug Resistance in Canada* are consistent with this report in the overall prevalence of primary drug resistance.[12]

Foreign birth was a significant predictor of drug resistance. Although the rate of MDR-TB has increased slightly since 2001, this is not a cause for alarm, as the rate remains under 2%. Close monitoring of this upward trend is important; but several more years of collected data will be necessary to examine the unfolding trend of TB drug resistance in Canada. The presence of any level of drug resistance demonstrates the need for adequate and appropriate treatment of all cases.

This report was prepared by Ms. Melissa Phypers, Senior Epidemiologist, Tuberculosis Prevention and Control, Public Health Agency of Canada

References

1. World Health Organization. Anti-tuberculosis drug resistance in the world. Report No. 3. The WHO/IUATLD project on anti-tuberculosis drug resistance surveillance. Available at: www.who.int.gtb/publications/drugresistance/2004/drs_report_exec.pdf.
2. Rivest P, Tannenbaum T, Bedard L. Epidemiology of tuberculosis in Montreal. *CMAJ* 1998; 158(5):605–609.
3. Remis R, Jamieson F, Chedore P, et al. Increasing drug resistance of *Mycobacterium tuberculosis* isolates in Ontario, 1987–1997. *Clin Infect Dis* 2000; 31(2):427–432.
4. Long R, Manfreda J, Mendella L, et al. Antituberculosis drug resistance in Manitoba from 1980–1989. *CMAJ* 1993; 148(9):1489–1495.
5. Manns BJ, Fanning EA, Cowie RL. Antituberculosis drug resistance in immigrants to Alberta, Canada, with tuberculosis, 1982–1994. *Int J Tuberc Lung Dis* 1997; 1(3):225–230.
6. Long R, Fanning EA, Cowie RL, et al. Antituberculosis drug resistance in Western Canada (1993 to 1994). *Can Respir J* 1997; 4(2):71–75.
7. Hersi A, Elwood K, Cowie R, Kunimoto D, Long R. Multidrug-resistant tuberculosis in Alberta and British Columbia, 1989 to 1998. *Can Respir J* 1999; 6(2):155–160.
8. Long R, Chui L, Kakulphimp J, Zielinski M, Talbot J, Kunimoto D. Postsanatorium pattern of antituberculous drug resistance in the Canadian-born population of western Canada: effect of outpatient care and immigration. *Am J Epidemiol* 2001; 153(9): 903–911.
9. Long R, ed. *Canadian Tuberculosis Standards*, 5th edition. Ottawa: Canadian Lung Association and Health Canada, 2000.
10. Zwolska Z, Augustynowicz-Kopec E, Klatt M. Primary and acquired drug resistance in Polish tuberculosis patients: results of a study of the national drug resistance surveillance programme. *Int J Tuberc Lung Dis* 2000; 4(9):832–838.
11. Helbling P, Altpeter E, Raeber PA, et al. Surveillance of antituberculosis drug resistance in Switzerland 1995–1997: the central link. *Eur Respir J* 2000; 16(2):200–202.
12. Tuberculosis Drug Resistance in Canada, 2003. Available online at: http://www.phac-aspc.gc.ca/publicat/tbdrc03/index.html.

EXECUTIVE SUMMARY

In 2002, 1,634 cases (5.2 per 100,000) of new active and relapsed TB were reported to the Canadian Tuberculosis Reporting System (CTBRS). The highest rate of 93.4 per 100,000 was reported from Nunavut. TB incidence was lowest in Nova Scotia where the reported rate was less than 1.0 per 100,000. The three most populous provinces (British Columbia, Ontario and Quebec), which collectively make up 75% of Canada's population, accounted for 77% of the total reported cases.

By age group, individuals between the ages of 25 and 34 years made up the largest number of reported cases, accounting for 19% of the total. However, the corresponding case rate of 6.9 per 100,000 for this age group was surpassed by the age-specific rates of 9.3 and 11.8 per 100,000 for those in the older age groups of 65 to 74 years and greater than 74 years, respectively.

Accurate information on country of origin of TB cases in Canada has been available since 1970. In 2002, TB among foreign-born individuals accounted for 67% of all reported cases in Canada. Canadian-born Aboriginal cases represented 15% of the total cases reported; Canadian-born non-Aboriginal individuals accounted for 16%. Birthplace was unknown for 3% of cases.

Respiratory TB was the most frequently reported main diagnostic site, representing 64% of reported cases in 2002, however; diagnostic site varied by birthplace. TB of the peripheral lymph nodes was the second most commonly reported diagnostic site (14%), with 38% of these cases occurring in foreign-born individuals who originated in the World Health Organization (WHO) Western Pacific region. Primary TB accounted for 5% of reported cases and was more common among Canadian-born Aboriginals.

The number of laboratory confirmed cases was 1,594 of the total cases (98%). 1,278 (78%) of the total cases were culture positive. Of these, 1132 (89%) had no resistance to first-line TB drugs. Eight percent were resistant to one drug and the remaining 3% showed patterns of resistance to two or more drugs prescribed. The most common type of mono-resistance was to isoniazid (INH) accounting for 38% of all reported resistance. Multi-drug resistant TB (defined as resistance to at least INH and rifampin) accounted for 1.6% of the drug resistant cultures reported.

Of the 1,702 cases diagnosed in 2001, 809 cases had a treatment outcome report. Where treatment outcome status was known, 643 of all cases (79%) were reported as being culture negative or having completed treatment. An average of 84% of laboratory confirmed pulmonary cases were cured or completed treatment. The vast majority of individuals placed on TB drug therapy in Canada received treatment as per the *Canadian Tuberculosis Standards*[1]. Eighty-nine percent of these cases received three or more anti-tuberculosis drugs.

The total number of reported cases of TB in Canada has shown a continual decrease over the past decade. However, this decrease is mostly a reflection of a decreasing number of cases in the Canadian-born non-Aboriginal population. Cases in the Canadian-born Aboriginal population have shown a minimal decrease, whereas cases in the foreign-born population have remained relatively constant. In order to increase the annual rate of decline of new cases from 2.1% for the past ten years to a national goal of 5%, considerable additional effort will be

[1] Long R. ed. *Canadian Tuberculosis Standards*, 5th edition. Ottawa: Canadian Lung Association and Health Canada, 2000.

required, including the development and implementation of a Canadian Tuberculosis Prevention and Control Strategy.

INTRODUCTION

The *2002 Tuberculosis in Canada* annual report is a publication of Tuberculosis Prevention and Control (TBPC), Centre for Infectious Disease Prevention and Control, Public Health Agency of Canada. Reports of new active and relapsed tuberculosis cases come to TBPC through the Canadian Tuberculosis Reporting System (CTBRS) from the ten provinces and three territories.

TBPC stores and maintains surveillance reports on tuberculosis in Canada from the early 1920s. Health Canada assumed responsibility from Statistics Canada for the CTBRS in 1994. In September 2004, TBPC became part of the new Public Health Agency of Canada and assumed responsibility for the annual reporting.

The report contains information on the overall TB case counts and case rates for selected demographic and clinical characteristics. The report outlines case and treatment outcome data on the following:

- province/territory
- sex
- age
- birthplace
- activity status
- main diagnostic site
- bacillary status
- method of detection
- immigration status
- HIV status
- patterns of drug resistance
- treatment outcomes
- drug regimens

Appendices to the report include technical notes on the methodology of the report including the definition of terms (*Appendix I*), data tables (*Appendix II*), population estimates for 2002 (*Appendix III*) and the World Health Organization (WHO) estimated incidence of TB in the 22 high burden countries, 2002 (*Appendix IV*). Further appendices include the WHO regions and their member countries (*Appendix V*), the WHO reporting form for 2002 cases *(Appendix VI*), Canadian case and treatment outcome reporting forms (*Appendix VII*) and the members of the Canadian Tuberculosis Committee (*Appendix VIII*).

The annual reports on tuberculosis have undergone and will continue to undergo revisions in format and content from year to year. It is our goal to continue to adapt and improve this publication in response to changes in the epidemiology and clinical management of tuberculosis. We welcome any comments on the content or format of this document.

Results

Section I – 2002 Case Reporting

National Trends

After a peak in the epidemic in the early 1940s, the reported incidence of TB has shown continued decline (Figure 1). Over the past decade the reported incidence and number of cases of TB have continued to decrease (Figure 2; Table A). In 2002, 1,634 cases of TB were reported to the CTBRS, representing an incidence rate of 5.2 per 100,000. New active cases made up the vast majority of reported cases (4.6 per 100,000), relapsed cases accounting for the remainder (0.5 per 100,000).

Table A

Incidence of tuberculosis in Canada, three-year moving average: 1991-2002

Year	Number of reported cases	Crude rate per 100,000	Three-year moving average
1991	2,018	7.2	—
1992	2,109	7.4	7.2
1993	2,013	7.0	7.2
1994	2,074	7.1	6.9
1995	1,931	6.5	6.6
1996	1,868	6.3	6.5
1997	1,976	6.6	6.3
1998	1,791	5.9	6.1
1999	1,806	5.9	5.8
2000	1,695	5.5	5.6
2001	1,703	5.5	5.4
2002	1,634	5.2	—

Geographic Distribution

Several reporting jurisdictions reported case rates below the national rate. TB incidence remained lowest in the Yukon and Atlantic provinces (New Brunswick, Newfoundland and Labrador, Nova Scotia and Prince Edward Island) and was highest in Nunavut (Table B, Figure 3).

Figure 1

Tuberculosis incidence and mortality rates – Canada: 1924–2002

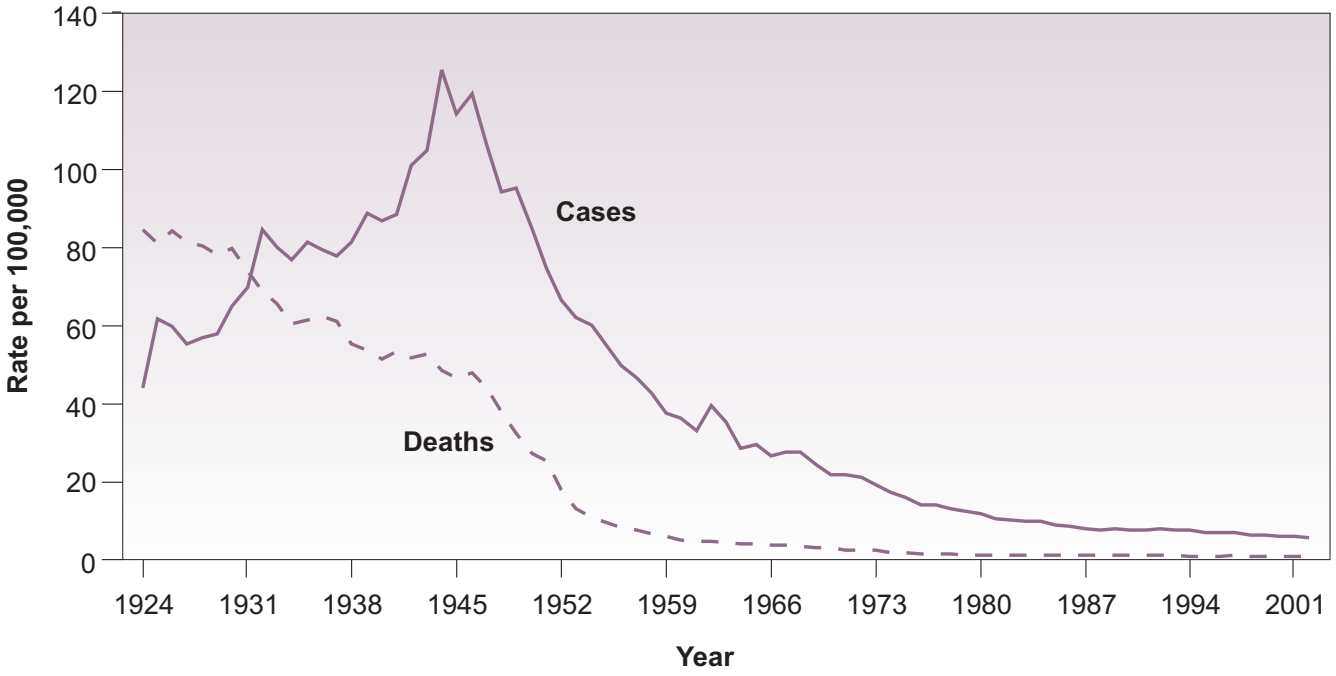


Figure 2

Tuberculosis cases and incidence – Canada: 1982–2002

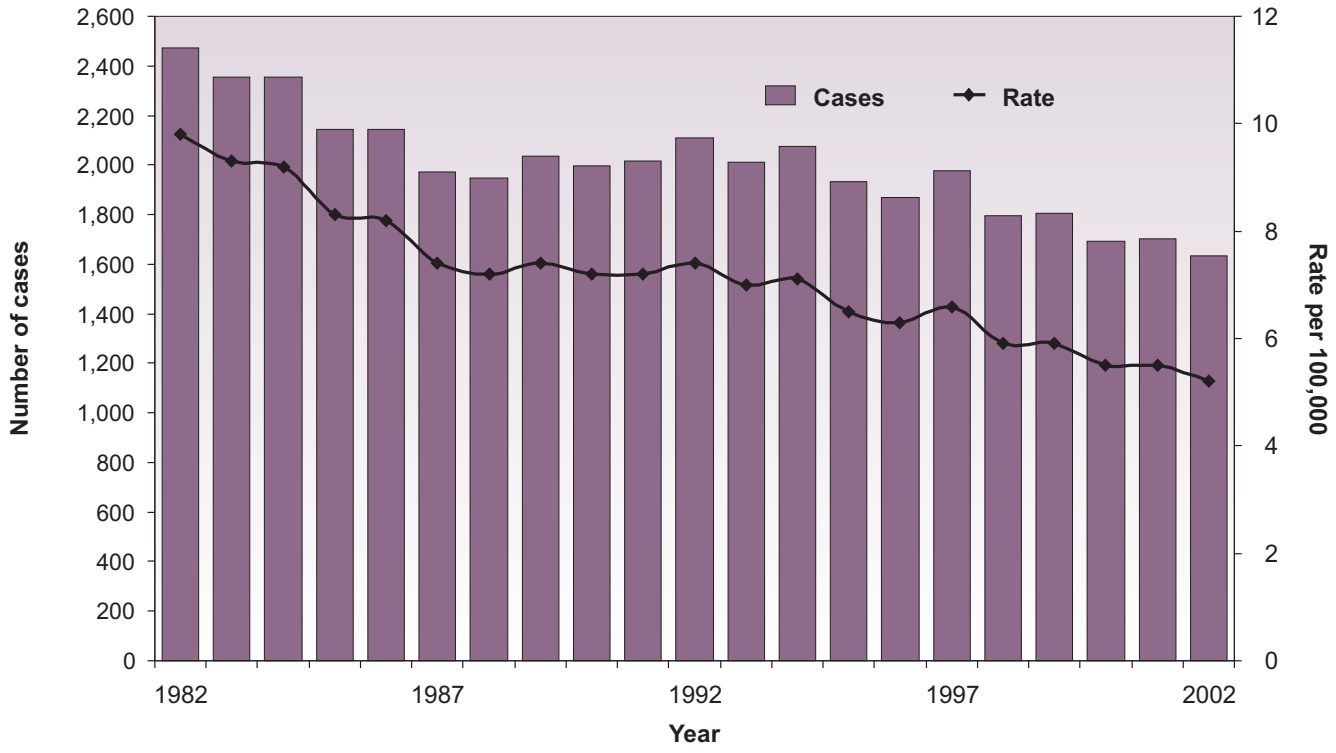


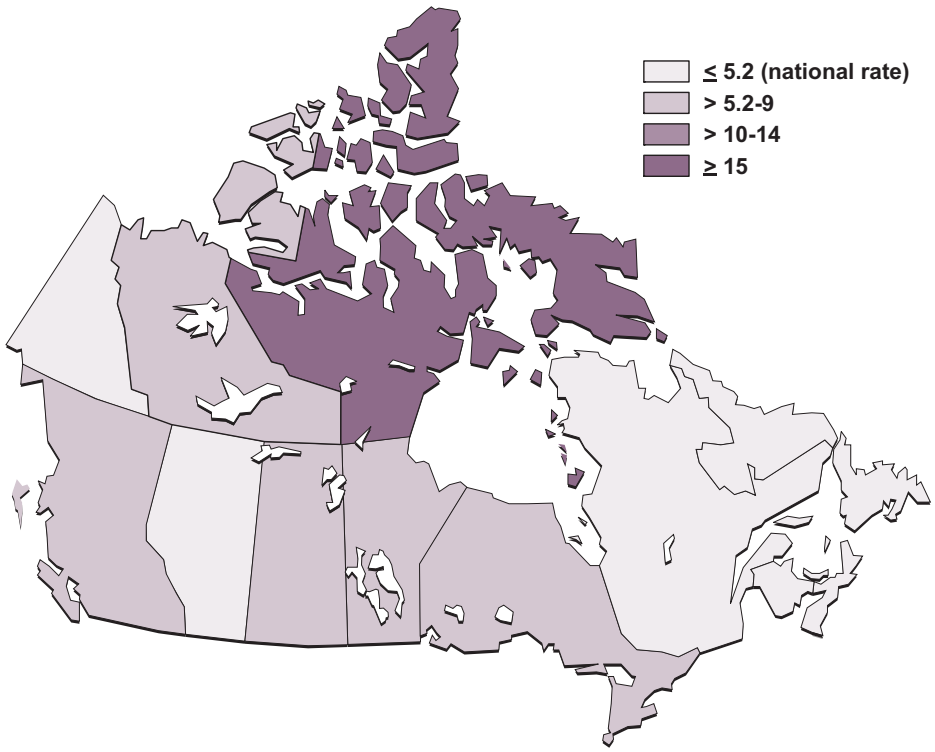
Table B

Ranked tuberculosis incidence in Canada – provinces/territories: 2002

Reporting province or territory	Rate per 100,000
Nunavut	93.4
Northwest Territories	9.8
Saskatchewan	8.8
Manitoba	8.5
British Columbia	7.0
Ontario	5.8
Alberta	4.1
Quebec	3.8
Newfoundland and Labrador	1.5
New Brunswick	1.3
Prince Edward Island	0.7
Nova Scotia	0.6
Yukon	0.0
CANADA	**5.2**

Figure 3

Tuberculosis incidence by province/territory as compared with national rate (5.2 per 100,000): 2002



Sex and Age Group Distribution

Over the past two decades, incidence rates of TB in males and females have followed a similar pattern of decline. While case reporting and incidence have always been higher in males, there has been a noted decrease in the differential between males and females over the past several years (Figure 4; *Appendix II*, Tables 5B and 5C). In 2002, the presentation of tuberculosis by sex continued to reveal a larger number of reported cases among males (852 cases, 5.5 per 100,000) than among females (741 cases, 4.7 per 100,000) (*Appendix II*, Tables 2B and 2C).

In 2002, individuals aged 25 to 34 years made up the largest number of reported cases, accounting for 19% of the total. However, the corresponding case rate of 6.9 per 100,000 for this age group was surpassed by the age-specific rates of 9.3 and 11.8 per 100,000 for those in the older age groups of 65 to 74 and greater than 74 years respectively (Figure 5; *Appendix II*, Table 2A). Canadian-born non-Aboriginal cases were relatively older (median 54 years) than foreign-born (median 42 years) and Canadian-born Aboriginal TB cases (median 34 years).

By age group and sex the incidence of TB was similar in males and females for all age groups with the exception of those aged 65 and older, where the incidence in males was approximately twice the incidence of TB in females (Figure 6).

Figure 4

Tuberculosis incidence by sex – Canada: 1982–2002

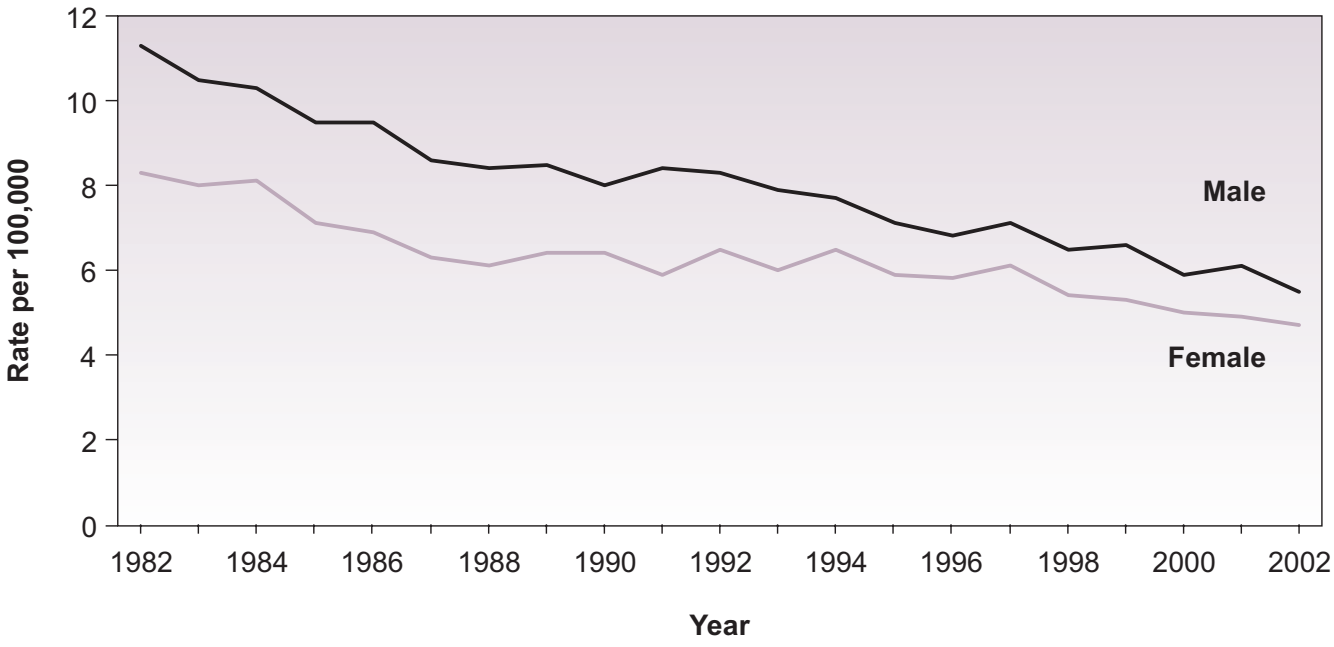


Figure 5

Tuberculosis incidence by age group – Canada: 2002

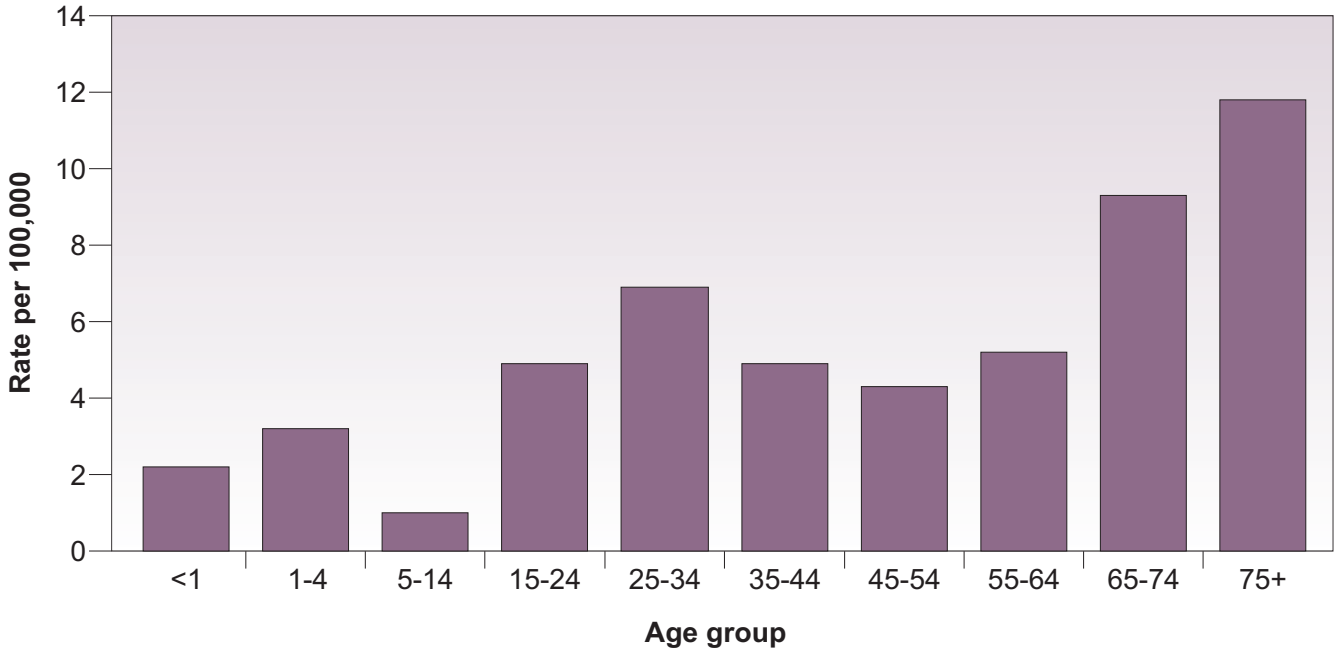
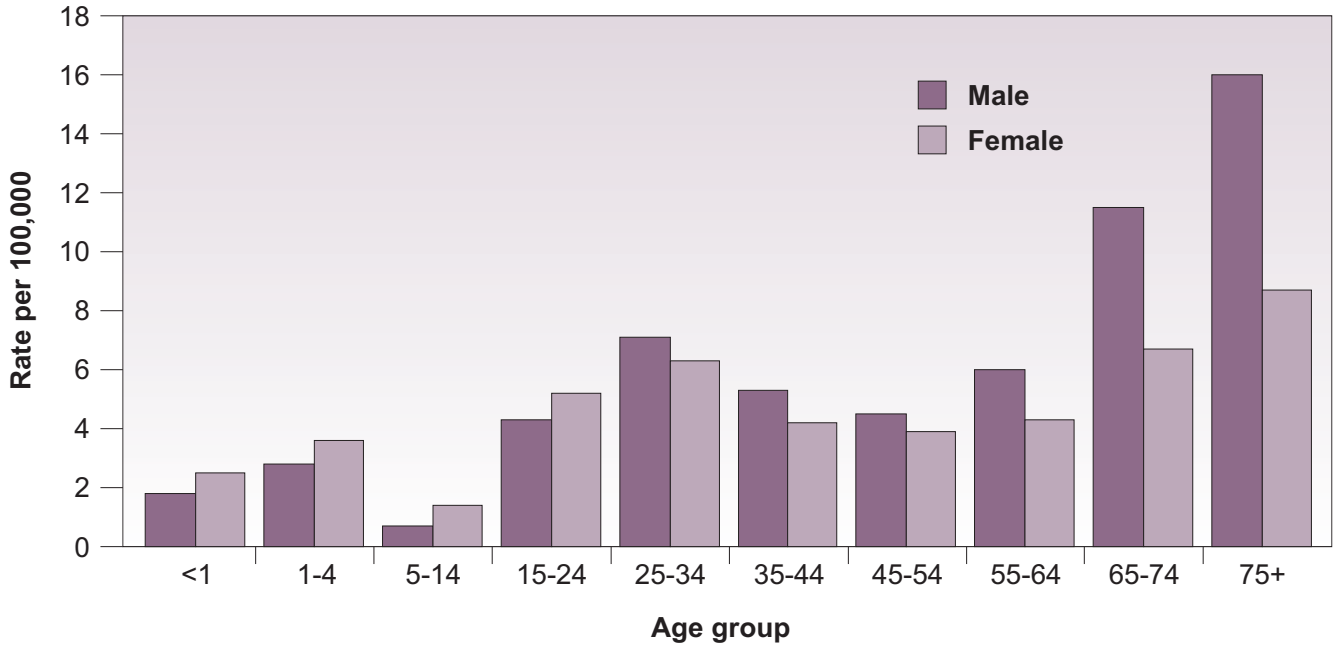


Figure 6

Tuberculosis incidence by age group and sex – Canada: 2002

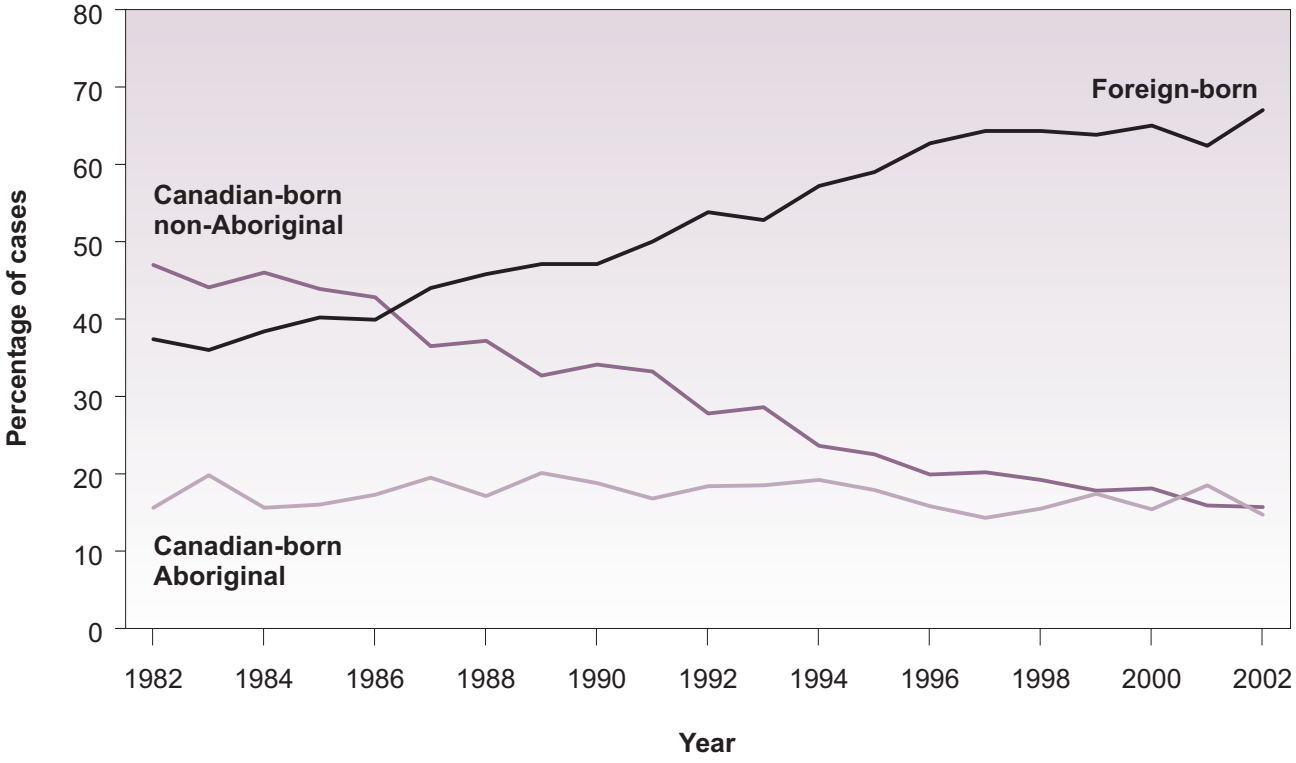


Birthplace Distribution

Since collection of the data variable "origin" began in 1970 (Canadian-born Aboriginal, Canadian-born non-Aboriginal and foreign-born), a steady increase in the proportion of reported TB cases among the foreign-born population has been noted (Figure 7). Conversely, a relative decline in the number of Canadian-born non-Aboriginal cases is noted; whereas, the proportion of reported TB cases in Canadian-born Aboriginals has remained relatively constant. TB incidence continues to be highest among the foreign-born population. In 2002, the foreign-born represented 19% of the Canadian population but accounted for 67% of all reported TB cases in Canada. Canadian-born Aboriginal peoples comprised 4% of the overall population whereas reported cases of TB in this group accounted for 15% of the disease burden. Canadian-born non-Aboriginal cases accounted for 16% of the reported cases. Birthplace was unknown for 3% of cases. Cases in the Canadian-born Aboriginal population have shown a minimal decrease in the past decade, whereas cases in the foreign-born population have remained relatively constant (Figure 8; *Appendix II*, Table 3).

Figure 7

Proportion of tuberculosis cases by origin – Canada: 1982-2002



TB incidence was highest in the Canadian-born Aboriginal population (23.3 per 100,000) followed by an incidence of 19.4 per 100,000 in the foreign-born population. In the Canadian-born non-Aboriginal population, TB incidence was 1.0 per 100,000 (Figure 9; *Appendix II*, Table 6).

In general, TB cases in foreign-born most often occurred in the 25-34 age group; whereas, Canadian-born non-Aboriginal cases were more often reported in the older demographic (75+). Canadian-born Aboriginal cases were in the younger age groups (Figure 10; *Appendix II*, Table 8).

The distribution of TB cases by origin shows the provinces of Ontario and Alberta reporting the highest proportions of foreign-born cases (87% and 73% respectively). In other jurisdictions foreign-born cases accounted for over half of all reported cases (British Columbia, 67%; Quebec, 58%). In Nunavut and Saskatchewan, cases in Canadian-born Aboriginal peoples contributed all or almost all of the reported cases (100% and 92% respectively) (Figure 11; Table C; *Appendix II*, Table 6).

Figure 8

Number of tuberculosis cases by origin – Canada: 1992–2002

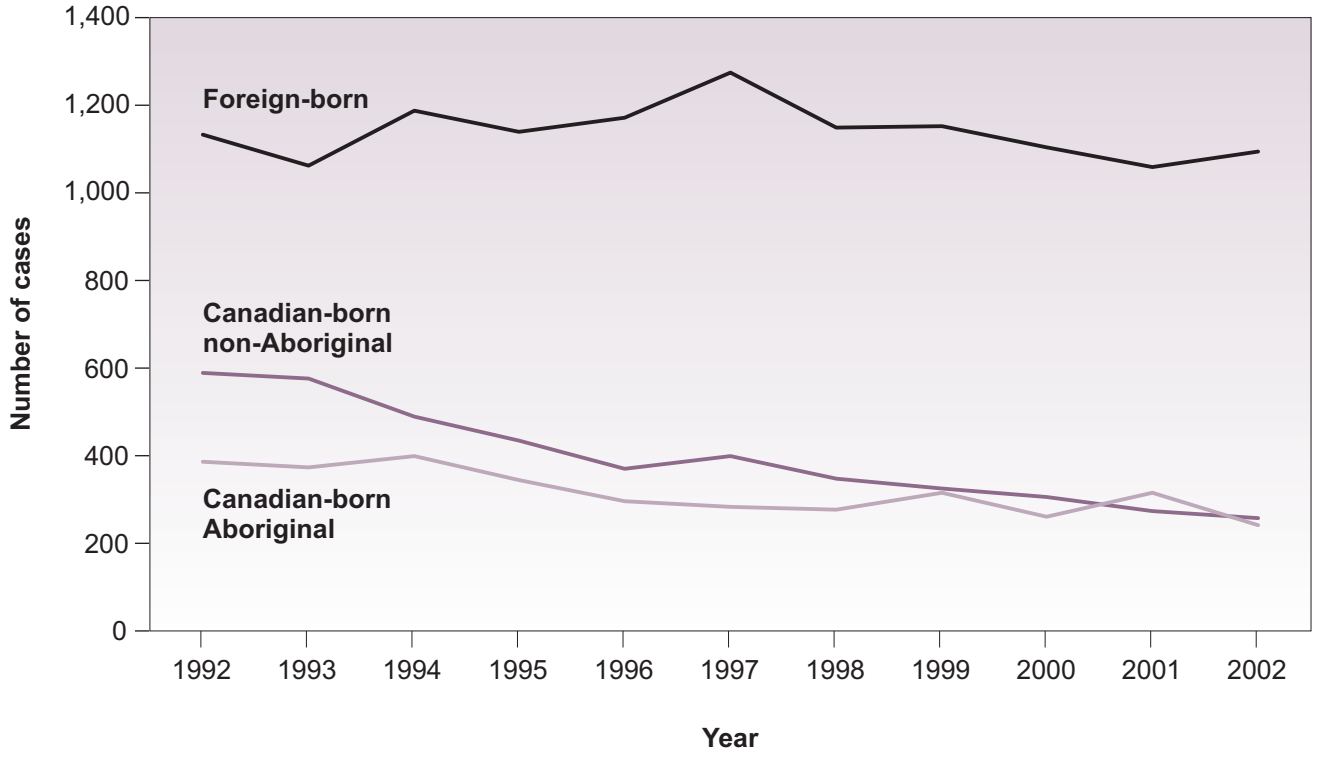


Figure 9

Tuberculosis incidence by origin – Canada: 1992–2002

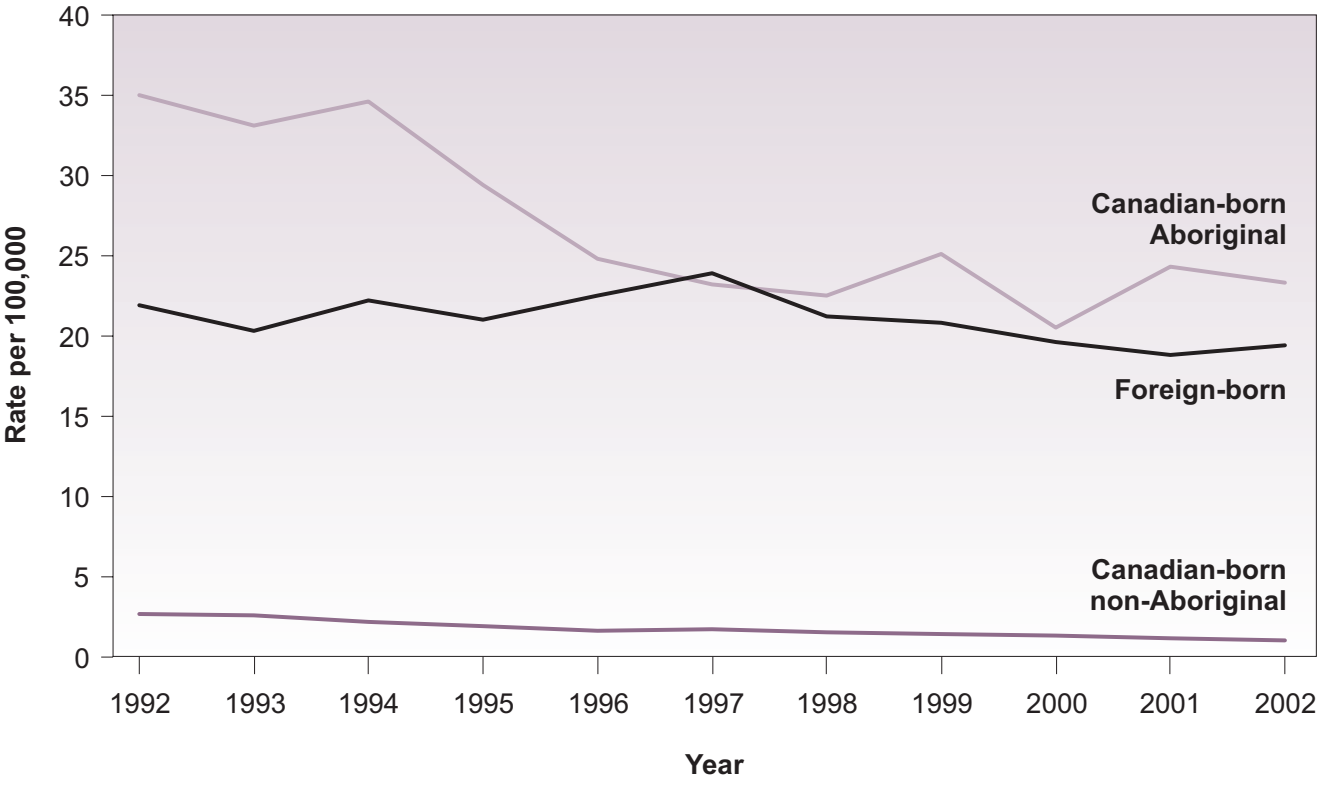


Figure 10

Tuberculosis cases by age group and origin – Canada: 2002

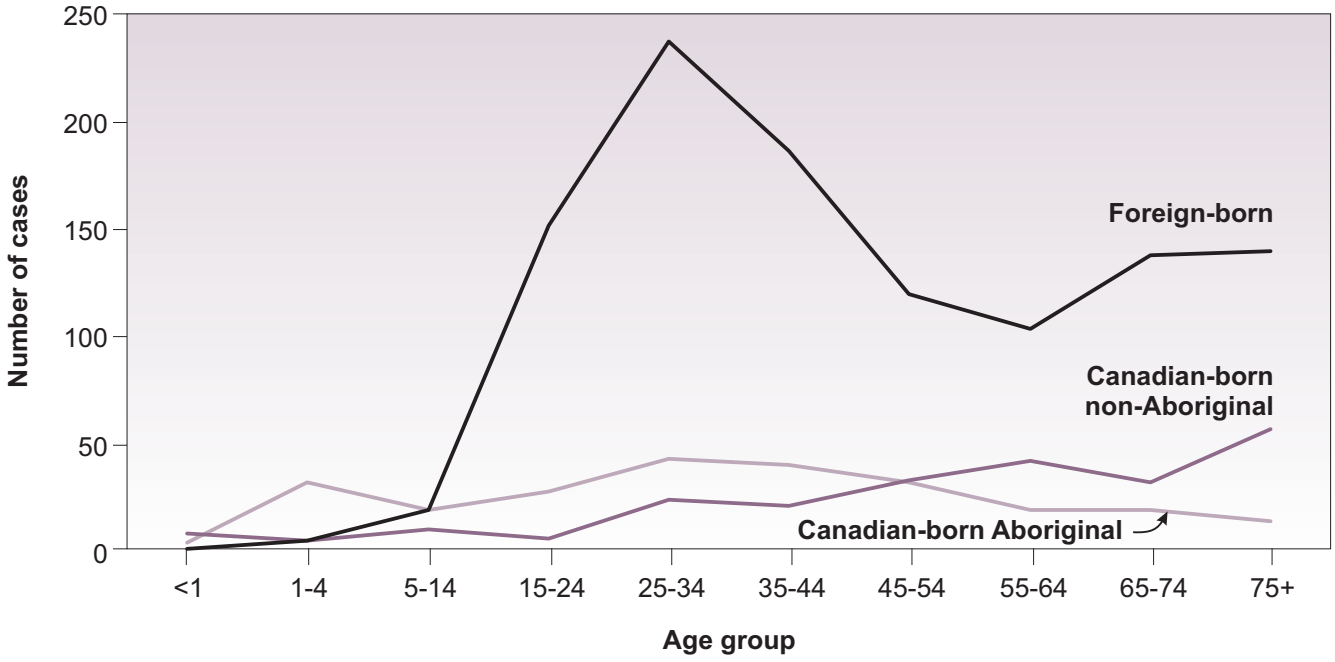
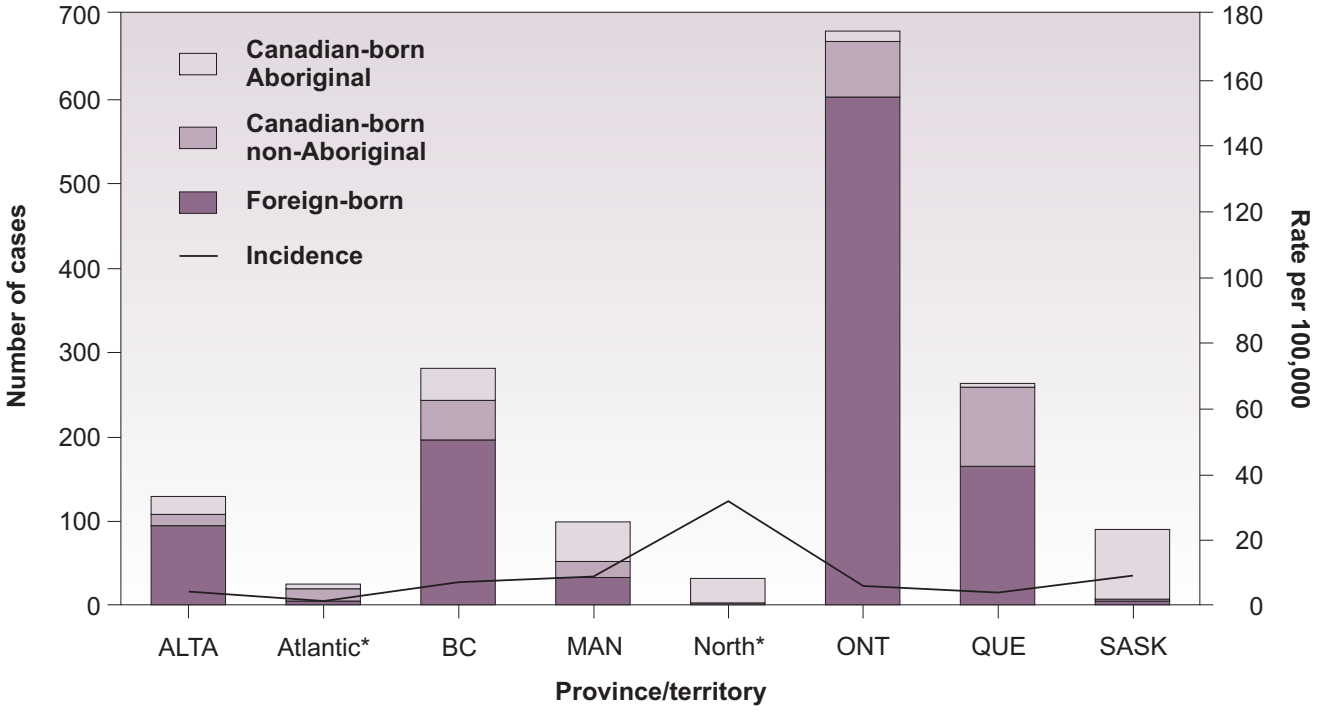


Figure 11

Distribution of tuberculosis cases by origin and incidence – provinces/territories: 2002



* "Atlantic" includes New Brunswick, Newfoundland and Labrador, Nova Scotia, Prince Edward Island.
"North" includes Northwest Territories, Nunavut, Yukon.

Table C

Proportion (%) of tuberculosis cases in Canada by origin – provinces/territories: 2002

Reporting province or territory	Canadian-born Aboriginal	Canadian-born non-Aboriginal	Foreign-born	Unknown birthplace
Alberta	16.4	10.9	72.7	–
British Columbia	12.2	17.0	67.4	3.5
Manitoba	48.0	19.4	32.7	–
New Brunswick	10.0	50.0	30.0	10.0
Newfoundland and Labrador	50.0	50.0	–	–
Northwest Territories	50.0	–	50.0	–
Nova Scotia	16.7	66.7	16.7	–
Nunavut	100.0	–	–	–
Ontario	1.8	9.4	86.7	2.0
Prince Edward Island	–	100.0	–	–
Quebec	1.8	33.0	58.2	7.1
Saskatchewan	92.1	3.4	4.5	–
Yukon	–	–	–	–
CANADA	**14.7**	**15.7**	**67.0**	**2.7**

Note: Totals may not always equal 100 due to rounding.

By World Health Organization (WHO) region, foreign-born case reporting was highest in individuals originating in the Western Pacific region (457 cases; 35.6 per 100,000). However, the highest case rate (53.5 per 100,000) was among individuals from the Africa region. Figure 12 shows the proportion of foreign-born TB cases by WHO region, reported in Canada from 1992–2002. Reported foreign-born TB incidence in Canada by WHO region of birth is compared to WHO estimated TB incidence in the respective region in Table D (Figure 13; *Appendix II*, Tables 6 and 8).

Table D

Comparison of reported foreign-born tuberculosis incidence in Canada by WHO region of birth (per 100,000) with WHO estimated tuberculosis incidence in the respective region

WHO region	Reported rate in Canada, 2002	WHO estimated TB incidence rate in region, 2002[a]
Africa	53.5	350
Americas	7.4	43
East Mediterranean	26.9	124
Europe	4.2	54
South East Asia	46.5	182
Western Pacific	35.6	122

[a] *Global Tuberculosis Control: WHO Report 2004*. WHO/CDS/TB/2004.331 Geneva.

Figure 12

Proportion of foreign-born tuberculosis cases by WHO region – Canada: 1992-2002

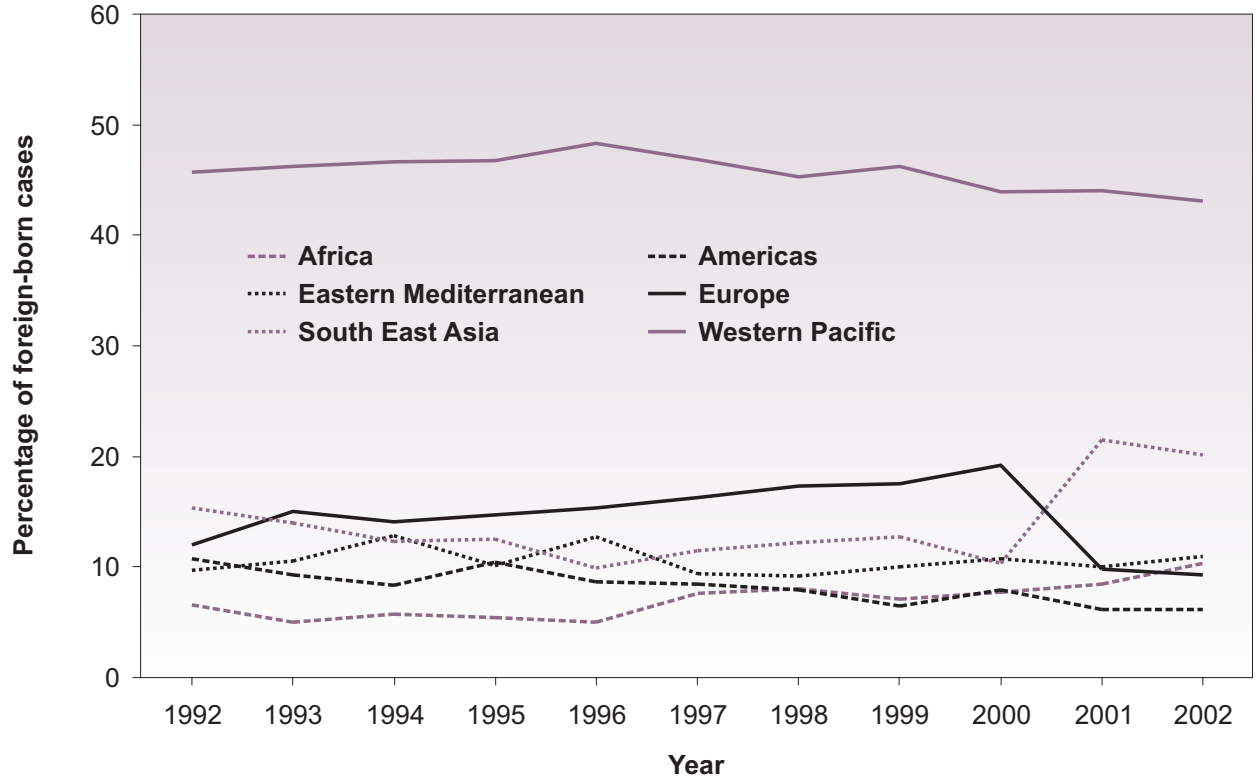
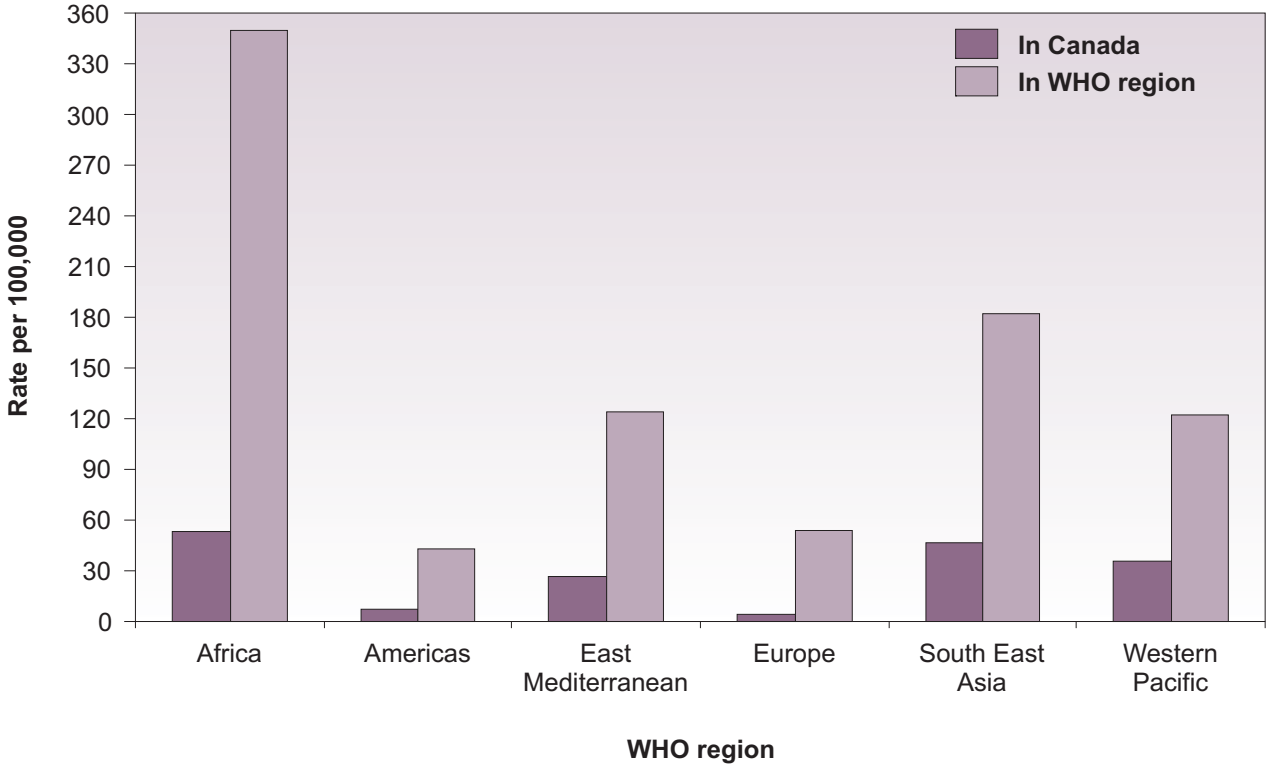


Figure 13

Reported foreign-born tuberculosis incidence in Canada by WHO region of birth and WHO estimated tuberculosis incidence in the respective region

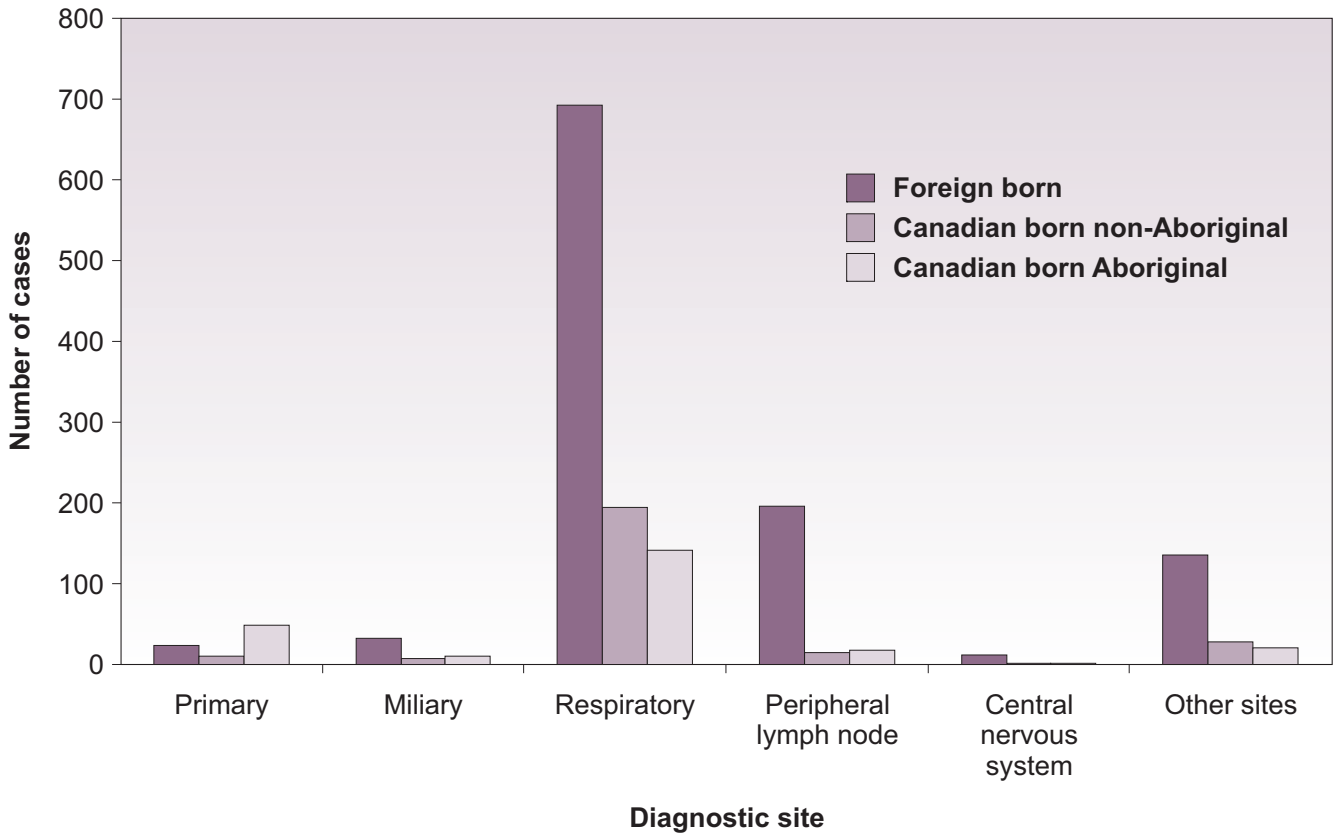


Diagnostic Details

Overall, respiratory TB including pulmonary, pleurisy and other respiratory sites (please see *Appendix I:* Technical Notes for definition) was the most frequently reported diagnostic site, representing 64% of reported cases in 2002 (*Appendix II*, Table 4). The proportion of TB by diagnostic site and origin varied considerably. Whereas respiratory TB accounted for 76% of Canadian-born non-Aboriginal cases, this proportion was considerably lower for Canadian-born Aboriginal cases (59%) and those of foreign-born origin (63%). TB of the peripheral lymph nodes was the second most commonly reported diagnostic site (14%), with 38% of these cases occurring in foreign-born individuals who originated in the WHO Western Pacific region. Primary TB accounted for 5% of the reported cases with 58% of these cases occurring in Canadian-born Aboriginal Peoples (Figure 14; *Appendix II*, Table 10). TB of the central nervous system (CNS) was rare, accounting for only 17 of the 1,634 (1%) reported cases. Similarly, miliary/disseminated TB was infrequently diagnosed, representing 50 (3%) of the reported cases (*Appendix II*, Table 4).

Figure 14

Tuberculosis cases by main diagnostic site and origin – Canada: 2002

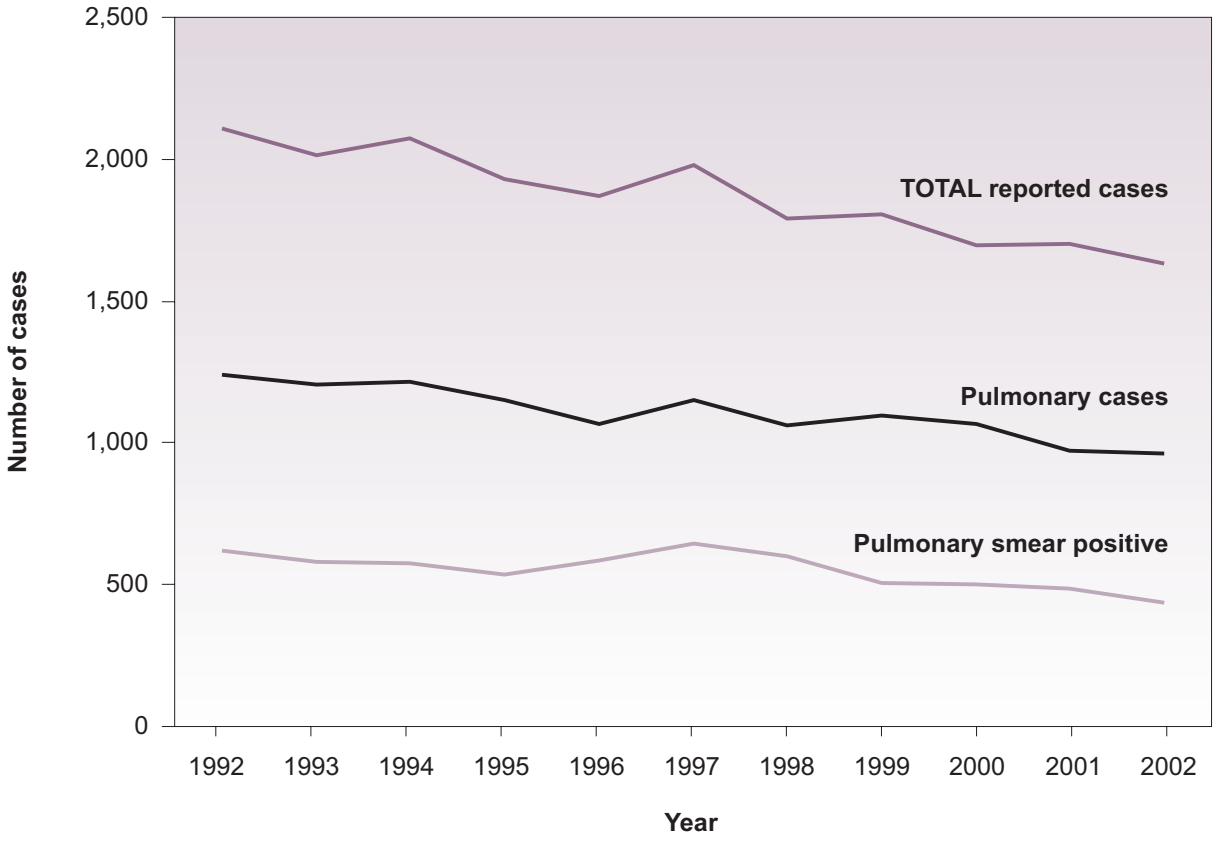


Of the 1,634 reported cases, 1,594 (97.5%) were laboratory confirmed. A total of 1,278 cases were culture positive and 792 were microscopy positive.

Of the 960 cases of pulmonary TB reported, 45% (436 cases) were smear positive denoting probable infectious pulmonary TB. Over the past decade, the proportion of TB cases reported as pulmonary, smear positive has averaged approximately 30% of the total reported cases and 50% of the reported pulmonary cases (Figure 15).

Figure 15

Pulmonary sputum smear positive tuberculosis cases – Canada: 1992-2002



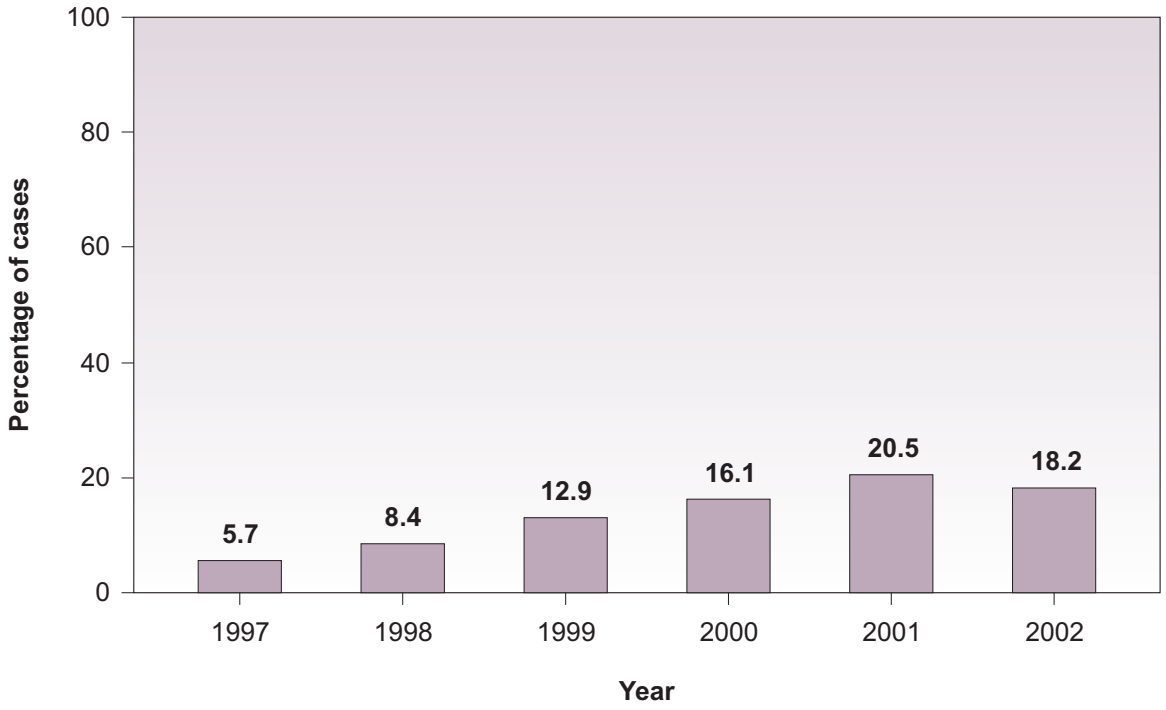
Detection of the majority of reported cases is through presentation of symptoms to a medical professional (74%) (*Appendix II*, Table 17).

Of the 1,634 cases diagnosed in 2002, 115 reportedly died in the same year. TB was the underlying cause of death for 27 cases (24%). TB contributed to death, but was not the underlying cause for 41 cases (36%) (*Appendix II*, Table 21).

HIV status was reported for 18% of TB cases (Figure 16; *Appendix II*, Table 23). Of the 298 cases for which HIV status was reported, 66 (22%) were positive.

Figure 16

Proportion of tuberculosis cases for which HIV status is known – Canada: 1997-2002



Resistance Patterns

Of the 1,634 cases reported in 2002, 1,278 cases were culture positive. Of these, 1132 (89%) had no resistance to first-line TB drugs. Eight percent were resistant to one drug and the remaining 3% showed patterns of resistance to two or more drugs prescribed. The most common type of mono-resistance was to isoniazid (INH) accounting for 38% of all reported resistance. Multi-drug resistant TB (MDR-TB) - defined as resistance to at least INH and rifampin - accounted for 1.6% of all cultures reported. Foreign-born cases accounted for the majority of resistance to one or more drugs (84%) and all MDR-TB cases (*Appendix II*, Table 15).

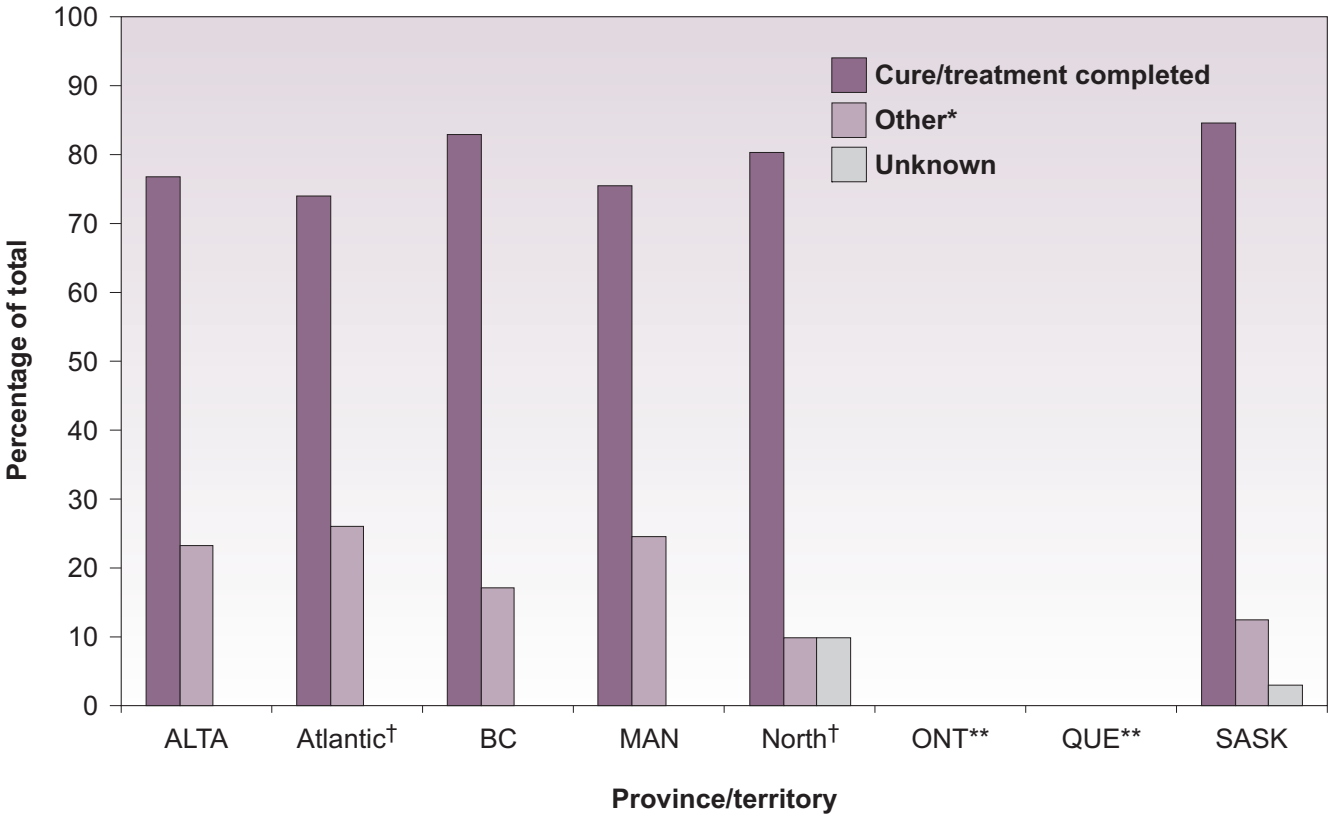
Section II – 2001 Treatment Outcomes

National Trends

Reporting of treatment outcome data for reported new active and relapsed cases to TBPC is by a separate reporting form for the previous calendar year (*Appendix VII* – Reporting forms). Of the 1,704 cases diagnosed in 2001, 809 cases had a treatment outcome report. Where treatment outcome status was known, the majority of cases were reported as cured or treatment completed (643 cases, 79.5%). Of the remaining cases for which treatment outcome was known, 99 (12%) died prior to completing treatment (Figure 17; *Appendix II*, Table 26).

Figure 17

Treatment outcome status of tuberculosis cases by provinces/territories – Canada: 2002



* Other – died, absconded, transferred, treatment ongoing

** No data for ONT and QUE

† "Atlantic" includes New Brunswick, Newfoundland and Labrador, Nova Scotia, Prince Edward Island. "North" includes Northwest Territories, Nunavut, Yukon.

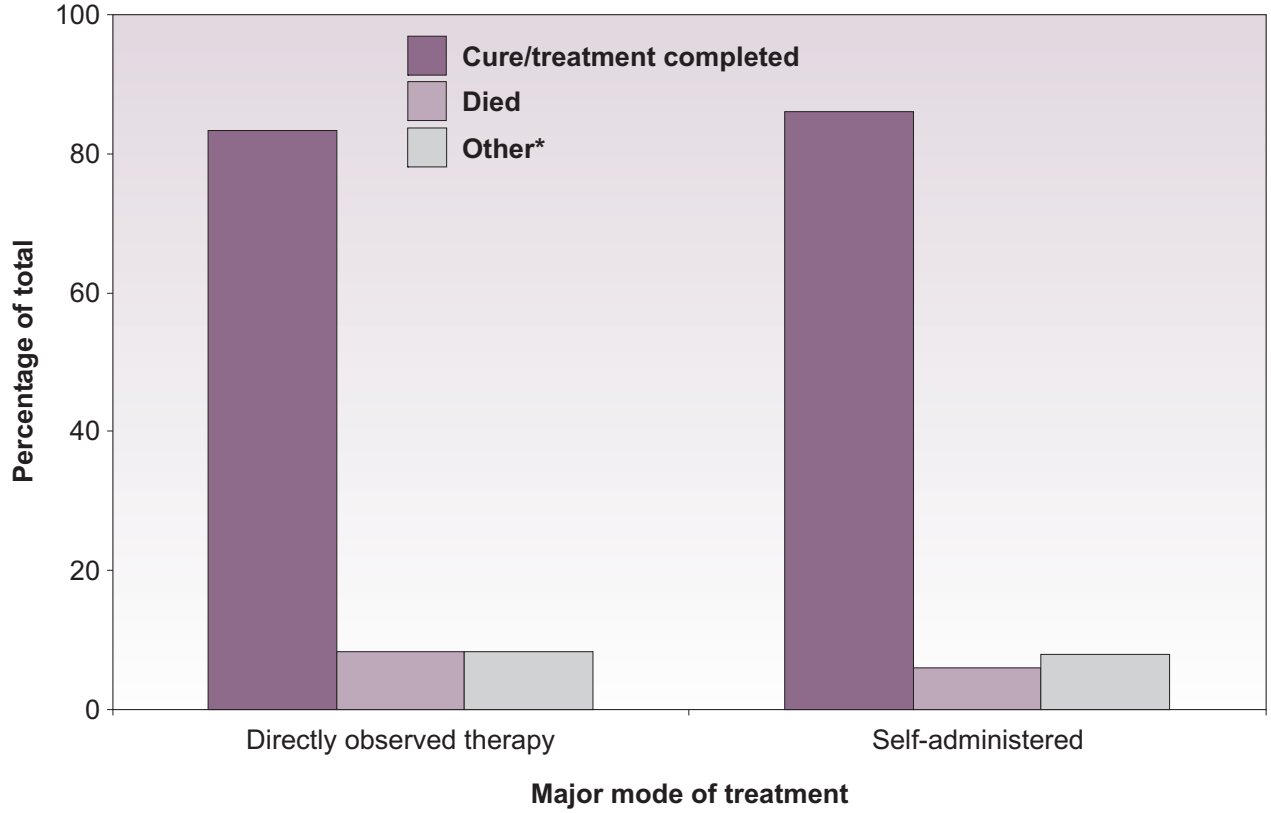
The majority of individuals were reported to have received treatment as per the *Canadian Tuberculosis Standards*, 5th edition.[2] Drug regimen reporting was complete for 670 cases. 89% of these cases received three or more anti-tuberculosis drugs.

Cases reported having been placed on the standard drug regimen of isoniazid (INH)/ ethambutol (EMB)/ rifampin (RMP)/ pyrazinamide (PZA) were more likely to have been reported as cured or treatment completed (86%) than all other drug combinations combined (77%) (*Appendix II*, Table 25).

Fifty percent of individuals in this cohort were on Directly Observed Therapy (DOT). An additional 44% self-administered their medications (*Appendix II*, Table 26). Of those cases on DOT, 83% were successfully treated versus 86% who self-administered their therapy (Figure 18).

Figure 18

Treatment outcome status of tuberculosis cases by major mode of treatment – Canada: 2002



* Other – absconded, transferred, treatment ongoing, unknown

[2] Long, R. ed. *Canadian Tuberculosis Standards*, 5th edition. Ottawa: Canadian Lung Association and Health Canada, 2000.

Section III – Measuring progress towards national targets

In 1997, the National Consensus Conference on Tuberculosis recommended that the national goal of TB prevention and control in the general population should be to reduce the annual number of new TB cases by 5% per year.[3] The overall average rate of decline from 1992 to 2002 was 2.1%, (Table E).

Table E

Average rate of decline of new tuberculosis cases in Canada: 1992–2002

Reporting year	Number of new TB cases	Annual percent change*	Three-year average rate of decline	Overall average rate of decline
1992	1,866			
1993	1,773	5.0%		
1994	1,837	-3.6%	2.5%	
1995	1,726	6.0%	1.9%	
1996	1,671	3.2%	1.1%	
1997	1,770	-5.9%	2.0%	
1998	1,617	8.6%	0.6%	
1999	1,631	-0.9%	4.8%	
2000	1,522	6.7%	2.0%	
2001	1,519	0.2%	3.8%	
2002	1,449	4.6%		
				2.1%

*Negative number indicates a percent increase in the annual number of cases from the previous reporting year.

The *Canadian Tuberculosis Standards*, 5th ed. has set program performance standards for the ideal anti-tuberculous drug regimen and its delivery. These standards require that at a minimum:

- Convert sputum cultures to negative within 5-6 months of treatment being started;
- Achieve relapse rate of less than 3% within 2 years of cessation of treatment; (previous diagnosis in Canada only)
- Result in drug resistance rates of no more than 2-3%;
- Be cost-effective since directly observed therapy is the optimal mode of drug delivery;
- Be tolerated by the patient.

[3] Proceedings of the National Consensus Conference on Tuberculosis, December 3-5, 1997. CCDR: 1998; Volume 24S2.

The CTBRS contains data that can approximate measuring progress towards achieving some of these standards for the entire cohort of TB cases reported in Canada. The result of the last sputum culture is documented for 97% (2,450 of 2,526) of pulmonary cases reported to the CTBRS over the past five years (1997–2001). Of these, 10% remained culture positive at the time of the treatment outcome report (i.e., one year following diagnosis). A large proportion was reported as culture negative (51%). For the remaining cases, a final culture was not done or was unknown (28% and 11% respectively).

The rate of relapse within two years of cessation of treatment, for cases previously diagnosed in Canada was extremely low, averaging less than 1% for the last five years of reporting (1998–2002). The rate of secondary or acquired drug resistance was also very low, averaging 2% from 1997–2001.

Section IV – International reporting

The Public Health Agency of Canada provides data to the World Health Organization (WHO) on an annual basis. This reporting focuses on pulmonary smear positive cases and the treatment outcome of these cases by major mode of treatment (e.g., DOTS or non-DOTS). The WHO global targets for TB include 70% detection of all pulmonary smear positive cases and of these cases an 85% cure or treatment completion rate. In 2003, the WHO adjusted its reporting to include laboratory confirmed pulmonary cases, for those countries which routinely use cultures or other laboratory methods, as opposed to smear microscopy in the diagnosis of pulmonary TB (*Appendix VI*). Based on these revisions, Table F provides treatment outcome data for all laboratory confirmed pulmonary cases in Canada from 1997-2001.

Table F

Treatment outcome of laboratory confirmed pulmonary cases – Canada: 1997-2001*

	1997		1998		1999		2000		2001	
	DOTS	***Non-DOTS***	**DOTS**	***Non-DOTS***	**DOTS**	***Non-DOTS***	**DOTS**	***Non-DOTS***	**DOTS**	***Non-DOTS***
Total cohort registered for treatment	238	*270*	201	*243*	235	*178*	253	*157*	283	*213*
Cured	91	*79*	72	*77*	79	*89*	115	*80*	82	*63*
Completed	126	*152*	102	*108*	139	*58*	93	*57*	152	*116*
Cured or completed treatment (% of total)	**217 (91%)**	***231 (86%)***	**174 (87%)**	***185 (76%)***	**218 (93%)**	***147 (83%)***	**208 (82%)**	***137 (87%)***	**234 (83%)**	***179 (84%)***
Died	10	*13*	8	*12*	6	*13*	23	*6*	24	*17*
Failed	0	*0*	0	*0*	2	*8*	2	*0*	0	*0*
Defaulted	5	*1*	1	*3*	4	*3*	7	*3*	10	*6*
Transferred out	2	*13*	2	*21*	2	*8*	1	*8*	3	*10*

* Numbers may differ from *Global Tuberculosis Control, WHO Report 2004* (which reports 2002 case data and 2001 treatment outcome data) due to late reporting of cases to the Public Health of Canada. Treatment outcome data for cases from Ontario and Quebec are not currently available.

Conclusion

The total number of reported cases of TB in Canada has shown a continual decrease over the past decade. However, this decrease is mostly a reflection of a decreasing number of cases in the Canadian-born non-Aboriginal population. Cases in the Canadian-born Aboriginal population have shown a minimal decrease, whereas cases in the foreign-born population have remained relatively constant. In order to increase the annual rate of decline of new cases from 2.1% for the past 10 years to a national goal of 5%, considerable additional effort will be required, including the development and implementation of a Canadian Tuberculosis Prevention and Control Strategy.

Respiratory TB continues to make up the majority of the cases reported by diagnostic site (64%). Of these, 45% of the pulmonary cases were smear positive, denoting the most infectious form of TB.

Determining the Canadian incidence of TB-HIV co-infection from this surveillance system is not yet possible. HIV status was reported for only 18% of cases, of which 22% were HIV sero-positive. In the unlikely event that these were the only co-infected cases, the overall co-infection rate was 4%. Corbett et al[4] have estimated that 10-19% of adult TB cases in Canada are attributable to HIV. There are a number of important personal and public health reasons for screening for HIV in patients with TB and their contacts, as well as screening for and prevention of TB in patients with HIV.[5] Screening for HIV in TB cases and reporting of the results are essential for prevention and control of future TB cases in Canada.

Drug resistance has not yet emerged as a significant problem. Cases of MDR-TB represent less than 2% of the reported cases of drug resistance to this reporting system.

Treatment outcome data indicate that the majority of TB cases are cured or complete treatment. New analysis on the treatment outcome status of laboratory confirmed pulmonary cases indicates that the WHO international target of 85% cure or treatment completion is generally being met.

As the epidemiology of TB in Canada and the world evolves, the CTBRS and the annual report, *Tuberculosis in Canada*, will continue to undergo improvements in the quality and nature of the data reported.

---

[4] Corbett EL, Watt CJ, Walker N, Maher D, Williams BG, Raviglione MC, Dye C. The Growing Burden of Tuberculosis: Global Trends and Interactions With the HIV Epidemic. *Arch Intern Med.* 2003;163:1009-1021.

[5] Long R, Houston S, Hershfield E, for the Canadian Tuberculosis Committee of Health Canada. Recommendations for screening and prevention of tuberculosis in patients with HIV and for screening for HIV in patients with tuberculosis and their contacts. *CMAJ* 2003;169(8):789-791.

Appendix I
Technical Notes

METHODOLOGY AND DATA QUALITY

Data collection

The Canadian Tuberculosis Reporting System (CTBRS) maintained by Tuberculosis Prevention and Control (TBPC), Centre for Infectious Disease Prevention and Control, Public Health Agency of Canada, is derived from records of provincial/territorial tuberculosis registries. The reporting system captures information on every new active or relapsed case of tuberculosis (including treatment outcomes) diagnosed in Canada. All provinces and territories have legislation requiring physicians, laboratories and other health officials to report cases of tuberculosis to an office of tuberculosis control. Standard case notification and treatment outcome forms are used to collect information (please see *Appendix VII*) and report to TBPC in hard copy or electronic format. The Canadian Tuberculosis Committee (CTC) is responsible for determining the content of the database.

Data processing

Case notifications received at TBPC are checked for completeness and logged. Data are captured in a standard format, with validity and discrepancy follow-up being an integral part of the data entry process. Lists of cases together with any queries arising from edit failures are returned to provincial/territorial programs for review, correction of errors and to ascertain the completeness of case lists for the year. All provinces and territories have agreed to report their cases for the previous calendar year by June 30th of the current calendar year.

Data quality

Several aspects of data quality affect the usefulness of the data: completeness of reporting (or coverage), completeness of item response, accuracy or validity of responses and timeliness.

Formal evaluation of this reporting system is forthcoming. Coverage can vary according to the vigilance of the provincial/territorial offices of tuberculosis control in their case-finding efforts. One form of coverage error may occur if cases that do not meet the criteria for inclusion (i.e. case definition) are included in the CTBRS. In addition, tabulations in annual reports may be slightly incomplete because case notifications received after a cut-off date are not included.

Of the cases reported to TBPC, reporting of most core data items is virtually complete. Reporting is less complete for some of the data items introduced in 1997 (i.e. HIV status).

Users of this report should consider certain limitations. Definitions used for "origin", specifically Status Indian, Non-status Indian or Metis, Inuit, and Other may not strictly correspond to the definitions used by Census Canada or by Indian and Northern Affairs Canada. The terms "new active" and "relapsed" may be interpreted differently in different provinces/territories; the definition of these terms were revised effective January 1, 1997 (see *Definitions of Terms*). Data in this report are tabulated according to year of diagnosis; however, since 1990, Ontario data

have been tabulated according to episode date (which is the closest approximation of date of onset of illness). Since 1997, Quebec data have been tabulated according to report date. Finally, tables presenting drug resistance patterns are based on case reporting data, differing from the methodology used in the *TB Drug Resistance in Canada*[1] reports.

Calculation of rates

All rates expressed in this report are per 100,000 individuals. The rates used have been calculated using population figures provided by Statistics Canada and Indian and Northern Affairs Canada (see *Appendix III*). Population estimates are adjusted for net census under-coverage and to include non-permanent residents. For more information, see "Population Figures" in the *Definitions of Terms* section. Adjustments to the population estimates and updates to the reported number of cases in some provinces may result in case counts and rates in this report that differ slightly from those in previous reports emanating from TBPC.

Population figures

In this report, the 2002 overall population estimates for Canada and provinces/territories by sex and age group are based on 2001 census data. Population data of Canadian-born Aboriginal people are from the *2001 Census Aboriginal Population Profile* available from the Statistics Canada website. Population estimates of foreign-born people by birthplace are based on intercensal population projections (Statistics Canada).

The 2002 population estimates of total Canadian-born people are calculated by subtracting the foreign-born figures from the total 2002 population estimates (Statistic Canada). The 2002 population estimates of Canadian-born non-Aboriginal people are calculated by subtracting the total Aboriginal estimates from total Canadian-born estimates.

Other sources of information

In addition to these annual data on new active and relapsed cases of tuberculosis in Canada, the numbers of tuberculosis cases are presented monthly, based on date of diagnosis, by province, age group and sex as part of the "Notifiable Disease Summary" appearing in the *Canada Communicable Disease Report*.

While the latter series provides useful current information, the consolidated annual data on new and relapsed cases appearing in this report is the more authoritative source of information on tuberculosis reporting for Canada.

DEFINITION OF TERMS

Tuberculosis registry

The central organization within a province/territory that is in receipt of, records and accumulates information on TB cases, follows up all reported cases and maintains a register of persons with tuberculosis.

Notification

The receipt of a report concerning a new active or relapsed case of tuberculosis meeting the Canadian tuberculosis case definition.

Tuberculosis case definition

Effective January 1, 1997:

I TB case definition in the Canadian Tuberculosis Reporting System (CTBRS)

a. Cases with *Mycobacterium tuberculosis* complex (i.e. *M. tuberculosis*, *M. bovis* [excluding BCG strain] or *M. africanum)* demonstrated on culture

OR

b. In the absence of bacteriological proof, cases clinically compatible with active tuberculosis that have, for example:

i chest x-ray changes compatible with active tuberculosis including idiopathic pleurisy with effusion

ii active extrapulmonary tuberculosis (meningeal, bone, kidney, peripheral lymph nodes etc.)

iii pathologic or post-mortem evidence of active tuberculosis

Note: Molecular biological techniques are research tools and are not included in the definition.

II Cases of tuberculosis diagnosed in Canada include all cases: Canadian born, immigrants, refugees, refugee claimants, students, visitors, migrant workers and illegal aliens.

Visitors = those non-Canadians travelling with or without a visa, stopping in Canada en route.

III New and relapsed (reactivated) cases of tuberculosis

New case: no documented evidence or history of previously active tuberculosis.

Relapsed (reactivated) case: documented evidence or history of previously active tuberculosis which became inactive.

Inactive tuberculosis:

a. Cultures for *M. tuberculosis* negative for at least 6 months

OR

b. In the absence of cultures, chest (or other) x-rays, stable for a minimum of 6 months.

Treatment outcomes

1. **Cure** – negative culture at completion of treatment
2. **Treatment completed** – patient who has completed treatment without culture at the end of treatment
3. **Died** – death during treatment and TB was the cause of death, TB contributed to death but was not the underlying cause or TB did not contribute to death
4. **Transfer** – patient transferred to new jurisdiction and the outcome of treatment is unknown
5. **Failure** – culture positive at 5 months or more
6. **Absconded** – patient was lost to follow-up before completion of 80% of doses, 8 months after treatment started
7. **Treatment ongoing**
8. **Other**
9. **Unknown**

Directly observed treatment (DOT)

A trained and supervised person observes the patient swallowing the medication.

Diagnostic classification

The classification used is from the *International Classification of Diseases, 9th Edition*. Up to five diagnoses per case are captured and used to determine the main diagnostic site using the following hierarchy: primary, miliary/disseminated, respiratory (includes pulmonary, pleurisy and other respiratory), meninges and central nervous system, peripheral lymph node and other sites.

ICD-9 CODES FOR TUBERCULOSIS

010 Primary Tuberculosis

010.0	Primary tuberculous complex
010.1	Tuberculous pleurisy in primary progressive tuberculosis
010.8	Other primary progressive tuberculosis (excl. tuberculous erythema nodosum {017.1})
010.9	Unspecified

011 Pulmonary Tuberculosis (with associated silicosis use code 502)

011.0	Tuberculosis of lung, infiltrative
011.1	Tuberculosis of lung, nodular
011.2	Tuberculosis of lung with cavitation
011.3	Tuberculosis of bronchus (excl. isolated bronchial TB {012.2})
011.4	Tuberculous fibrosis of lung
011.5	Tuberculous bronchiectasis
011.6	Tuberculous pneumonia (any form)
011.7	Tuberculous pneumothorax
011.8	Other pulmonary tuberculosis

011.9 Unspecified (respiratory tuberculosis not otherwise specified, tuberculosis of lung not otherwise specified)

012 Other Respiratory Tuberculosis (excl. respiratory tuberculosis, unspecified {011.9})

012.0 Tuberculous pleurisy
012.1 Tuberculosis of intrathoracic lymph nodes
012.2 Isolated tracheal or bronchial tuberculosis
012.3 Tuberculous laryngitis
012.8 Other (incl. tuberculosis of: mediastinum, nasopharynx, nose (septum), sinus (any nasal)

013 Tuberculosis of Meninges and Central Nervous System

013.0 Tuberculous meningitis (320.4) (excl. tuberculoma of meninges {013.1})
013.1 Tuberculoma of meninges (349.2)
013.8 Other (tuberculoma/tuberculosis of brain {348.8}, tuberculous abscess of brain {324.0}, tuberculous myelitis {323.4})
013.9 Unspecified (tuberculosis of central nervous system not otherwise specified)

014 Tuberculosis of Intestines, Peritoneum and Mesenteric Glands

Tuberculosis of: anus, intestine (large, small), rectum, retroperitoneal (lymph nodes)
Tuberculous: ascites, enteritis, peritonitis (567.0)

015 Tuberculosis of Bones and Joints

Incl. tuberculous: arthritis (711.4), necrosis of bone (730.0), oeseitis (730.0), osteomyelitis (730.0), synovitis (727.0), tenosynositis (727.0).

015.0 Vertebral column
Pott's: curvature (737.4), disease (730.4)
Tuberculous: kyphosis (737.4), spondylitis (720.8)
015.1 Hip
015.2 Knee
015.7 Other bone (tuberculous dactylitis, mastoiditis {383.1})
015.8 Other joint
015.9 Unspecified

016 Tuberculosis of Genitourinary System

016.0 Kidney (tuberculous pyelitis {590.8}, tuberculous pyelonephritis {590.8})
016.1 Other urinary orgrans (tuberculosis of bladder {595.4}, tuberculosis of ureter {593.8})
016.2 Epididymis (604.9)
016.3 Other male genital organs (tuberculosis of: prostate {601.4}, seminal vesicle {608.8}, testis {608.8})
016.4 Female genital organs (tuberculous: oophoritis {614.2}, salpingitis {614.2})
016.9 Unspecified

017 Tuberculosis of Other Organs

017.0 Skin and subcutaneous cellular tissue
Lupus: not otherwise specified, exedens, vulgaris, Scrofuloderma (excl. lupus erythrematosus {695.4}, disseminated {710.0})
Tuberculosis: colliquativa, cutis, lichenoides, papulonecrotica, verrucosa cutis
017.1 Erythema nodosum with hypersensitivity reaction in tuberculosis
Bazin's disease, Tuberculosis indurativa

Erythema: induratum, nodosum (tuberculous)
Excl. erythema nodosum not otherwise specified (695.2)

017.2 Peripheral lymph nodes (scrofula, scrofulous abscess, tuberculous adenitis)

017.3 Eye
Tuberculous: chorioretinitis, disseminated (363.1), episcleritis (379.0), interstitial
keratitis (370.5), iridocyclitis (chronic) (364.1), keratoconjunctivitis (phlyctenular) (370.3)

017.4 Ear
Tuberculosis of ear (382.3), otitis media (382.3) (excl. Tuberculous mastoiditis {015.7})

017.5 Thyroid gland

017.6 Adrenal glands (255.4), Addison's disease (tuberculous)

017.7 Spleen

017.8 Other
Tuberculosis of: endocardium [any valve] (424.–), oesophagus (530.1), myocardium (422.0), pericardium (420.0)

018 Miliary Tuberculosis

Incl.: tuberculosis: disseminated, generalized, miliary (whether of a single specified site, multiple sites or unspecified site), polyserositis

018.0 Acute

018.8 Other

018.9 Unspecified

137 Late Effects of Tuberculosis

137.0 Late effects of respiratory or unspecified tuberculosis

137.1 Late effects of central nervous system tuberculosis

137.2 Late effects of genitourinary tuberculosis

137.3 Late effects of tuberculosis of bones and joints

137.4 Late effects of tuberculosis of other specified organs

502 Pneumoconiosis due to other silica or silicates (see Pulmonary Tuberculosis {011})

Pneumoconiosis due to talc
Silicotic fibrosis (massive) of lung
Silicosis (simple) (complicated)

Deaths

This report contains statistics on deaths from the Canadian Tuberculosis Reporting System, which introduced new questions in 1990 concerning deaths of persons registered as cases of active tuberculosis. These statistics are shown in *Appendix II*, Tables 21 and 22 and are based on the patient's status at time of reporting.

Non-permanent residents

The following five groups of persons residing in Canada, referred to globally as "non-permanent residents", were added to the census population universe in 1991: persons claiming refugee status, persons holding a student authorization, persons holding an employment authorization, persons holding a minister's permit and all non-Canadian-born dependants of the aforementioned individuals.

Net census under-coverage

This is the difference between census under-coverage and census over-coverage. The former refers to persons not enumerated in the census who were part of the census universe, while the latter refers to persons either enumerated more than once or enumerated but not part of the census universe. Under-coverage exceeds over-coverage with few exceptions at all levels of demographic and geographic disaggregation.

More information

More information on the definitions and coding instructions used is available upon request from Tuberculosis Prevention and Control, Public Health Agency of Canada. Medical terminology regarding bacteriological aspects, diagnosis, dissemination, treatment, prevention, screening and control of tuberculosis is well documented in the *Canadian Tuberculosis Standards, Fifth Edition, 2000*, available from the Canadian Lung Association and on the Internet at http://www.phac-aspc.gc.ca/publicat/cts-ncla00/pdf/cts00.pdf[2].

References

1. *Tuberculosis Drug Resistance in Canada, 2003.* Ottawa: Minister of Public Works and Government Services Canada, 2004.
2. Long R. ed. *Canadian Tuberculosis Standards*, 5th edition. Ottawa: Canadian Lung Association and Health Canada, 2000.

Appendix II
Data Tables: 2002

Table 1A

Reported new active and relapsed tuberculosis cases and incidence rate per 100,000 – Canada and provinces/territories: 1992–2002

Year of diagnosis		CANADA	Province/territory							
			Atlantic	Que.	Ont.	Man.	Sask.	Alta.	B.C.	North
1992	Cases	**2,109**	69	424	822	86	133	222	323	30
	Rate	**7.4**	2.9	5.9	7.7	7.7	13.2	8.4	9.3	32.3
1993	Cases	**2,013**	99	352	770	108	153	156	337	38
	Rate	**7.0**	4.1	4.9	7.1	9.6	15.1	5.8	9.4	40.4
1994	Cases	**2,074**	42	361	831	116	147	178	324	75
	Rate	**7.1**	1.7	5.0	7.6	10.3	14.5	6.6	8.8	79.4
1995	Cases	**1,931**	34	380	766	108	155	126	308	54
	Rate	**6.5**	1.4	5.2	6.9	9.5	15.3	4.6	8.2	56.2
1996	Cases	**1,868**	57	332	771	97	113	140	316	42
	Rate	**6.3**	2.4	4.6	6.9	8.6	11.1	5.0	8.1	42.2
1997	Cases	**1,976**	34	360	761	96	121	166	405	33
	Rate	**6.6**	1.4	4.9	6.8	8.4	11.8	5.8	10.2	33.0
1998	Cases	**1,791**	37	289	724	116	98	158	329	40
	Rate	**5.9**	1.6	3.9	6.3	10.1	9.5	5.4	8.2	39.9
1999	Cases	**1,806**	44	314	684	132	116	149	328	39
	Rate	**5.9**	1.9	4.3	5.9	11.5	11.3	5.0	8.1	39.2
2000	Cases	**1,695**	25	318	670	98	104	133	286	61
	Rate	**5.5**	1.0	4.3	5.7	8.5	10.1	4.4	7.0	61.1
2001	Cases	**1,703**	40	259	632	115	114	116	379	48
	Rate	**5.5**	1.7	3.5	5.3	10.0	11.2	3.8	9.3	48.5
2002	Cases	**1,634**	25	282	692	98	89	128	289	31
	Rate	**5.2**	1.1	3.8	5.8	8.5	8.8	4.1	7.0	31.4

Table 1B

Reported new active tuberculosis cases and incidence rate per 100,000 – Canada and provinces/territories: 1992–2002

Year of diagnosis		CANADA	Province/territory							
			Atlantic	Que.	Ont.	Man.	Sask.	Alta.	B.C.	North
1992	Cases	**1,866**	59	399	692	81	121	201	291	22
	Rate	**6.5**	2.5	5.6	6.5	7.2	12.0	7.6	8.4	23.7
1993	Cases	**1,773**	91	311	653	95	145	143	304	31
	Rate	**6.1**	3.8	4.3	6.0	8.5	14.3	5.3	8.5	32.9
1994	Cases	**1,838**	39	306	723	107	141	160	294	68
	Rate	**6.3**	1.6	4.2	6.6	9.5	13.9	5.9	8.0	72.0
1995	Cases	**1,726**	28	348	657	96	143	116	290	48
	Rate	**5.8**	1.2	4.7	5.9	8.4	14.1	4.2	7.7	49.9
1996	Cases	**1,671**	44	294	689	84	109	129	287	35
	Rate	**5.6**	1.8	4.0	6.2	7.4	10.7	4.6	7.4	35.2
1997	Cases	**1,770**	28	323	687	86	110	150	360	26
	Rate	**5.9**	1.2	4.4	6.1	7.6	10.8	5.3	9.1	26.0
1998	Cases	**1,617**	32	262	642	104	91	146	306	34
	Rate	**5.3**	1.3	3.6	5.6	9.1	8.8	5.0	7.6	33.9
1999	Cases	**1,631**	38	278	604	123	110	141	304	33
	Rate	**5.3**	1.6	3.8	5.2	10.8	10.7	4.7	7.5	33.2
2000	Cases	**1,523**	23	297	582	88	100	120	263	50
	Rate	**4.9**	1.0	4.0	5.0	7.6	9.7	4.0	6.4	50.1
2001	Cases	**1,515**	34	233	554	108	104	105	335	42
	Rate	**4.9**	1.4	3.1	4.7	9.4	10.2	3.4	8.2	42.5
2002	Cases	**1,449**	19	252	609	92	83	121	247	26
	Rate	**4.6**	0.8	3.4	5.1	8.0	8.2	3.9	6.0	26.3

NB: Cases for which activity status is unknown are included in the total (Table 1A).

Table 1C

Reported relapsed tuberculosis cases and incidence rate per 100,000 – Canada and provinces/territories: 1992-2002

Year of diagnosis		CANADA	Province/territory							
			Atlantic	Que.	Ont.	Man.	Sask.	Alta.	B.C.	North
1992	Cases	**241**	10	25	128	5	12	21	32	8
	Rate	**0.8**	0.4	0.3	1.2	0.4	1.2	0.8	0.9	8.6
1993	Cases	**238**	8	41	115	13	8	13	33	7
	Rate	**0.8**	0.3	0.6	1.1	1.2	0.8	0.5	0.9	7.4
1994	Cases	**228**	3	55	100	9	6	18	30	7
	Rate	**0.8**	0.1	0.8	0.9	0.8	0.6	0.7	0.8	7.4
1995	Cases	**195**	6	28	103	12	12	10	18	6
	Rate	**0.7**	0.2	0.4	0.9	1.1	1.2	0.4	0.5	6.2
1996	Cases	**178**	11	36	72	9	4	11	29	6
	Rate	**0.6**	0.5	0.5	0.6	0.8	0.4	0.4	0.7	6.0
1997	Cases	**197**	6	34	70	10	11	16	43	7
	Rate	**0.7**	0.3	0.5	0.6	0.9	1.1	0.6	1.1	7.0
1998	Cases	**156**	5	22	69	12	7	12	23	6
	Rate	**0.5**	0.2	0.3	0.6	1.0	0.7	0.4	0.6	6.0
1999	Cases	**158**	4	33	69	9	6	8	23	6
	Rate	**0.5**	0.2	0.4	0.6	0.8	0.6	0.3	0.6	6.0
2000	Cases	**145**	1	18	67	10	4	13	22	10
	Rate	**0.5**	0.0	0.2	0.6	0.9	0.4	0.4	0.5	10.0
2001	Cases	**140**	6	16	46	5	10	11	40	6
	Rate	**0.4**	0.3	0.2	0.4	0.4	1.0	0.4	1.0	6.0
2002	Cases	**141**	6	19	58	6	6	7	34	5
	Rate	**0.5**	0.3	0.3	0.5	0.5	0.6	0.2	0.8	5.1

NB: Cases for which activity status is unknown are included in the total (Table 1A).

Table 2A

Reported new active and relapsed tuberculosis cases and incidence rate per 100,000 by age group – Canada: 1992-2002

Year of diagnosis		TOTAL	Age group										
			< 1	1 – 4	5 – 14	15 – 24	25 – 34	35 – 44	45 – 54	55 – 64	65 – 74	75 +	Age unk.
1992	Cases	**2,109**	25	83	85	242	405	286	192	224	276	290	1
	Rate	**7.4**	6.2	5.3	2.2	6.0	7.9	6.2	6.0	9.2	14.0	21.8	-
1993	Cases	**2,013**	26	69	108	234	386	270	210	215	257	237	1
	Rate	**7.0**	6.6	4.3	2.7	5.8	7.6	5.7	6.2	8.7	12.7	17.3	-
1994	Cases	**2,074**	20	72	98	274	411	261	224	212	271	231	-
	Rate	**7.1**	5.2	4.5	2.5	6.8	8.2	5.4	6.4	8.5	13.2	16.4	-
1995	Cases	**1,931**	27	64	85	229	325	314	201	209	251	225	1
	Rate	**6.5**	7.1	4.0	2.1	5.7	6.6	6.4	5.5	8.3	12.0	15.3	-
1996	Cases	**1,868**	11	68	63	214	356	304	191	193	250	218	-
	Rate	**6.3**	2.9	4.3	1.6	5.3	7.5	6.1	5.0	7.6	12.0	14.6	-
1997	Cases	**1,976**	9	50	58	214	385	292	216	227	246	279	-
	Rate	**6.6**	2.5	3.2	1.4	5.3	8.2	5.7	5.5	8.8	11.7	18.0	-
1998	Cases	**1,791**	19	61	71	186	307	302	180	171	235	259	-
	Rate	**5.9**	3.6	4.0	1.7	4.5	6.7	5.8	4.4	6.4	11.0	16.1	-
1999	Cases	**1,806**	27	59	63	200	329	260	187	181	236	264	-
	Rate	**5.9**	7.9	4.0	1.5	4.8	7.4	4.9	4.4	6.6	11.1	15.9	-
2000	Cases	**1,695**	10	56	42	206	308	277	204	150	199	243	-
	Rate	**5.5**	3.0	3.5	1.0	5.0	7.0	5.2	4.7	5.3	9.3	14.2	-
2001	Cases	**1,703**	7	34	70	163	315	272	203	175	215	249	-
	Rate	**5.5**	2.1	2.4	1.7	3.9	7.2	5.1	4.5	6.0	10.0	14.1	-
2002	Cases	**1,634**	7	44	42	203	305	261	197	160	201	214	-
	Rate	**5.2**	2.2	3.2	1.0	4.9	6.9	4.9	4.3	5.2	9.3	11.8	-

Table 2B

Reported new active and relapsed tuberculosis cases and incidence rate per 100,000 by age group – males – Canada: 1992–2002

Year of diagnosis		TOTAL	Age group										
			< 1	1 – 4	5 – 14	15 – 24	25 – 34	35 – 44	45 – 54	55 – 64	65 – 74	75 +	Age unk.
1992	Cases	**1,179**	16	39	35	129	222	178	117	133	157	153	-
	Rate	**8.3**	7.7	4.8	1.8	6.3	8.6	7.7	7.3	11.0	17.7	30.6	-
1993	Cases	**1,135**	13	35	62	124	207	154	130	132	144	133	1
	Rate	**7.9**	6.5	4.2	3.1	6.0	8.1	6.5	7.7	10.9	15.8	25.9	-
1994	Cases	**1,121**	9	36	52	140	203	151	133	117	150	130	-
	Rate	**7.7**	4.6	4.3	2.6	6.8	8.0	6.3	7.5	9.5	16.0	24.6	-
1995	Cases	**1,044**	9	30	40	112	166	191	118	122	145	111	-
	Rate	**7.1**	4.6	3.7	2.0	5.5	6.7	7.7	6.4	9.8	15.2	20.2	-
1996	Cases	**1,005**	7	32	35	106	180	158	106	104	144	133	-
	Rate	**6.8**	3.6	3.9	1.7	5.1	7.5	6.3	5.6	8.3	15.0	23.9	-
1997	Cases	**1,051**	6	27	25	93	193	158	118	129	139	163	-
	Rate	**7.1**	3.3	3.4	1.2	4.5	8.2	6.2	6.0	10.1	14.3	28.2	-
1998	Cases	**963**	14	32	37	78	162	161	99	104	128	148	-
	Rate	**6.3**	3.8	4.1	1.8	3.7	7.0	6.2	4.9	8.0	13.0	24.7	-
1999	Cases	**992**	17	30	26	95	173	143	114	102	140	152	-
	Rate	**6.6**	9.8	3.9	1.2	4.5	7.7	5.4	5.4	7.6	14.1	24.4	-
2000	Cases	**915**	8	29	22	99	164	152	112	86	99	144	-
	Rate	**5.9**	4.7	3.2	1.0	4.6	7.4	5.7	5.2	6.2	9.9	22.3	-
2001	Cases	**938**	4	15	44	85	147	156	118	106	123	140	-
	Rate	**6.1**	2.4	2.1	2.1	4.0	6.6	5.8	5.3	7.4	12.2	21.0	-
2002	Cases	**852**	3	20	14	92	159	142	104	91	117	110	-
	Rate	**5.5**	1.8	2.8	0.7	4.3	7.1	5.3	4.5	6.0	11.5	16.0	-

Table 2C

Reported new active and relapsed tuberculosis cases and incidence rate per 100,000 by age group – females – Canada: 1992–2002

Year of diagnosis		TOTAL	Age group										
			< 1	1 – 4	5 – 14	15 – 24	25 – 34	35 – 44	45 – 54	55 – 64	65 – 74	75 +	Age unk.
1992	Cases	**930**	9	44	50	113	183	108	75	91	119	137	1
	Rate	**6.5**	4.6	5.7	2.6	5.7	7.3	4.7	4.7	7.4	11.0	16.4	-
1993	Cases	**878**	13	34	46	110	179	116	80	83	113	104	-
	Rate	**6.0**	6.8	4.3	2.4	5.6	7.2	5.0	4.8	6.7	10.2	12.1	-
1994	Cases	**953**	11	36	46	134	208	110	91	95	121	101	-
	Rate	**6.5**	5.9	4.6	2.4	6.8	8.5	4.6	5.2	7.6	10.8	11.4	-
1995	Cases	**887**	18	34	45	117	159	123	83	87	106	114	1
	Rate	**5.9**	9.7	4.4	2.3	5.9	6.5	5.0	4.5	6.9	9.3	12.4	-
1996	Cases	**863**	4	36	28	108	176	146	85	89	106	85	-
	Rate	**5.8**	2.1	4.7	1.4	5.5	7.5	5.8	4.5	6.9	9.4	9.1	-
1997	Cases	**925**	3	23	33	121	192	134	98	98	107	116	-
	Rate	**6.1**	1.7	3.0	1.7	6.1	8.3	5.2	5.0	7.5	9.4	11.9	-
1998	Cases	**828**	5	29	34	108	145	141	81	67	107	111	-
	Rate	**5.4**	3.0	3.9	1.7	5.4	6.4	5.4	4.0	5.0	9.4	11.0	-
1999	Cases	**814**	10	29	37	105	156	117	73	79	96	112	-
	Rate	**5.3**	6.0	4.0	1.9	5.2	7.1	4.4	3.4	5.7	8.4	10.8	-
2000	Cases	**780**	2	27	20	107	144	125	92	64	100	99	-
	Rate	**5.0**	1.2	3.8	1.0	5.3	6.6	4.7	4.2	4.5	8.8	9.2	-
2001	Cases	**767**	3	19	26	79	169	117	85	69	91	109	-
	Rate	**4.9**	1.9	2.8	1.3	3.9	7.8	4.4	3.8	4.7	8.0	9.9	-
2002	Cases	**741**	4	24	27	106	139	110	90	67	76	98	-
	Rate	**4.7**	2.5	3.6	1.4	5.2	6.3	4.2	3.9	4.3	6.7	8.7	-

Table 3

Reported new active and relapsed tuberculosis cases and incidence rate per 100,000 by birthplace – Canada: 1992-2002

Birthplace			Year of diagnosis										
			1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Canadian-born	Aboriginal												
	Status Indian	Cases	322	260	268	265	219	212	190	248	168	199	165
		Rate	72.2	56.3	56.2	53.9	43.2	40.6	35.4	45.0	29.7	34.4	29.6
	Non-Status Indian/Métis	Cases	39	55	95	56	51	52	53	39	36	63	43
		Rate	6.4	9.0	15.3	9.0	8.1	8.2	8.3	6.1	5.6	9.6	10.1
	Inuit	Cases	26	58	35	24	26	18	35	28	57	53	32
		Rate	50.6	109.6	64.5	43.1	45.5	30.9	58.7	45.9	91.5	83.7	71.0
	Total	**Cases**	**387**	**373**	**398**	**345**	**296**	**282**	**278**	**315**	**261**	**314**	**240**
		Rate	**35.0**	**33.1**	**34.6**	**29.4**	**24.8**	**23.2**	**22.5**	**25.1**	**20.5**	**24.2**	**23.3**
	Non-Aboriginal	Cases	588	577	490	435	371	400	348	324	307	273	256
		Rate	2.6	2.6	2.2	1.9	1.6	1.7	1.5	1.4	1.3	1.1	1.0
	Total	**Cases**	**975**	**950**	**888**	**780**	**667**	**682**	**626**	**639**	**568**	**587**	**496**
		Rate	**4.2**	**4.0**	**3.7**	**3.2**	**2.7**	**2.8**	**2.5**	**2.6**	**2.2**	**2.3**	**1.9**
Foreign-born (WHO region)	Africa	Cases	73	53	68	60	57	92	90	78	82	83	110
		Rate	–	–	–	–	34.8	55.1	53.0	45.0	46.4	40.4	53.5
	Americas	Cases	120	98	99	116	99	103	89	71	85	62	65
		Rate	–	–	–	–	11.5	11.8	10.0	7.8	9.2	7.0	7.4
	East Mediterranean	Cases	108	112	152	113	146	114	102	111	115	102	116
		Rate	–	–	–	–	44.5	34.1	30.0	32.0	32.5	23.7	26.9
	Europe	Cases	170	148	145	139	114	139	136	141	110	101	99
		Rate	–	–	–	–	4.7	38.5	5.4	5.5	4.2	4.2	4.2
	South East Asia	Cases	133	159	167	164	176	198	193	193	205	217	214
		Rate	–	–	–	–	49.7	8.0	52.5	51.4	53.5	47.1	46.5
	Western Pacific	Cases	508	491	551	519	553	570	505	511	469	443	457
		Rate	–	–	–	–	50.7	51.2	44.6	44.2	39.8	34.5	35.6

...cont'd

Table 3 *Cont'd*

Reported new active and relapsed tuberculosis cases and incidence rate per 100,000 by birthplace – Canada: 1992-2002

Birthplace			Year of diagnosis										
			1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Foreign-born (WHO region) *(cont'd)*	Unknown region	Cases	22	2	4	29	25	57	35	46	37	52	33
		Rate	–	–	–	–	–	–	–	–	–	–	–
	Total	**Cases**	**1,134**	**1,063**	**1,186**	**1,140**	**1,170**	**1,273**	**1,150**	**1,151**	**1,103**	**1,060**	**1,094**
		Rate	**21.9**	**20.3**	**22.2**	**21.0**	**22.5**	**23.9**	**21.2**	**20.8**	**19.6**	**18.8**	**19.4**
Unknown birthplace		Cases	–	–	–	11	31	21	15	16	24	55	44
		Rate	–	–	–	–	–	–	–	–	–	–	–
TOTAL		**Cases**	**2,109**	**2,013**	**2,074**	**1,931**	**1,868**	**1,976**	**1,791**	**1,806**	**1,695**	**1,702**	**1,634**
		Rate	**7.4**	**7.0**	**7.1**	**6.5**	**6.3**	**6.6**	**5.9**	**5.9**	**5.5**	**5.5**	**5.2**

Table 4

Reported new active and relapsed tuberculosis cases and incidence rate per 100,000 by main diagnostic site – Canada: 1992–2002

Main diagnostic site		Year of diagnosis										
		1992	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**
Primary	Cases	193	189	152	163	120	131	130	155	101	114	85
	Rate	0.7	0.7	0.5	0.6	0.4	0.4	0.4	0.5	0.3	0.4	0.3
Meninges and CNS	Cases	17	19	18	22	19	25	24	15	15	14	17
	Rate	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1
Respiratory (pulm/other resp)*	Cases	1,352	1,260	1,325	1,244	1,155	1,230	1,150	1,171	1,139	1,125	1,052
	Rate	4.7	4.4	4.5	4.2	3.9	4.1	3.8	3.8	3.7	3.6	3.4
Peripheral lymph node	Cases	259	281	301	249	242	266	271	239	254	222	231
	Rate	0.9	1.0	1.0	0.8	0.8	0.9	0.9	0.8	0.8	0.7	0.7
Miliary/disseminated	Cases	60	58	65	48	57	73	41	38	40	41	50
	Rate	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2
Other sites*	Cases	228	206	213	205	275	251	175	188	146	187	199
	Rate	0.8	0.7	0.7	0.7	0.9	0.8	0.6	0.6	0.5	0.6	0.6
TOTAL	**Cases**	**2,109**	**2,013**	**2,074**	**1,931**	**1,868**	**1,976**	**1,791**	**1,806**	**1,695**	**1,702**	**1,634**
	Rate	**7.4**	**7.0**	**7.1**	**6.5**	**6.3**	**6.6**	**5.9**	**5.9**	**5.5**	**5.5**	**5.2**

* Please refer to Technical Notes for definition.

Table 5A

Reported new active and relapsed tuberculosis cases and incidence rate per 100,000 by age group – Canada and provinces/territories: 2002

Age group		CANADA	Province/territory							
			Atlantic*	Que.	Ont.	Man.	Sask.	Alta.	B.C.	North*
< 1	Cases	**7**	–	–	4	–	2	–	–	1
	Rate	**2.2**	–	–	3.1	–	16.3	–	–	59.3
1 – 4	Cases	**44**	–	2	8	5	24	1	–	4
	Rate	**3.2**	–	0.7	1.5	8.8	47.8	0.6	–	64.1
5 – 14	Cases	**42**	2	5	13	3	5	3	7	4
	Rate	**1.0**	0.7	0.5	0.8	1.8	3.4	0.7	1.4	21.0
15 – 24	Cases	**203**	2	46	85	21	8	16	22	3
	Rate	**4.9**	0.6	4.8	5.4	13.1	5.4	3.5	4.1	19.0
25 – 34	Cases	**305**	3	49	154	14	17	17	43	8
	Rate	**6.9**	0.9	4.9	8.9	8.9	13.2	3.6	7.4	50.4
35 – 44	Cases	**261**	2	41	125	13	11	15	51	3
	Rate	**4.9**	0.5	3.2	6.0	7.3	7.3	2.8	7.3	18.1
45 – 54	Cases	**197**	4	36	70	12	9	15	45	6
	Rate	**4.3**	1.1	3.1	4.1	7.5	6.6	3.4	7.1	47.9
55 – 64	Cases	**160**	2	27	67	11	5	18	29	1
	Rate	**5.2**	0.8	3.4	5.8	10.3	5.6	6.9	7.0	14.7
65 – 74	Cases	**201**	5	33	80	10	5	23	44	1
	Rate	**9.3**	3.0	6.1	9.7	13.0	7.0	13.0	15.2	35.4
75 +	Cases	**214**	5	43	86	9	3	20	48	-
	Rate	**11.8**	3.5	10.0	12.5	11.5	4.0	14.2	18.3	-
TOTAL	**Cases**	**1,634**	**25**	**282**	**692**	**98**	**89**	**128**	**289**	**31**
	Rate	**5.2**	**1.1**	**3.8**	**5.8**	**8.5**	**8.8**	**4.1**	**7.0**	**31.4**

* "Atlantic" includes New Brunswick, Newfoundland and Labrador, Nova Scotia, Prince Edward Island.
"North" includes Northwest Territories, Nunavut, Yukon.

Table 5B

Reported new active and relapsed tuberculosis cases and incidence rate per 100,000 by age group – males – Canada and provinces/territories: 2002

Age group		CANADA	Province/territory							
			Atlantic*	Que.	Ont.	Man.	Sask.	Alta.	B.C.	North*
< 1	Cases	**3**	–	–	1	–	1	–	–	1
	Rate	**1.8**	–	–	1.5	–	16.2	–	–	115.1
1 – 4	Cases	**20**	–	–	3	3	12	–	–	2
	Rate	**2.8**	–	–	1.1	10.2	47.8	–	–	62.5
5 – 14	Cases	**14**	–	1	5	–	4	2	1	1
	Rate	**0.7**	–	0.2	0.6	–	5.3	0.9	0.4	10.4
15 – 24	Cases	**92**	–	21	40	9	3	7	10	2
	Rate	**4.3**	–	4.3	5.0	11.0	3.9	2.9	3.7	24.6
25 – 34	Cases	**159**	3	29	78	6	4	10	24	5
	Rate	**7.1**	1.9	5.7	9.0	7.5	6.2	4.1	8.3	63.5
35 – 44	Cases	**142**	–	29	61	3	7	10	30	2
	Rate	**5.3**	–	4.5	5.9	3.3	9.3	3.7	8.6	23.4
45 – 54	Cases	**104**	1	26	31	8	4	9	21	4
	Rate	**4.5**	0.5	4.5	3.7	10.1	5.8	4.0	6.7	60.5
55 – 64	Cases	**91**	1	16	37	7	4	9	17	-
	Rate	**6.0**	0.8	4.1	6.6	13.2	9.1	6.9	8.3	-
65 – 74	Cases	**117**	3	24	36	9	3	12	29	1
	Rate	**11.5**	3.9	9.6	9.2	24.7	8.8	13.8	20.6	68.6
75 +	Cases	**110**	4	20	42	5	1	9	29	-
	Rate	**16.0**	7.5	13.0	16.0	17.1	3.4	16.3	27.7	-
TOTAL	**Cases**	**852**	**12**	**166**	**334**	**50**	**43**	**68**	**161**	**18**
	Rate	**5.5**	**1.0**	**4.5**	**5.6**	**8.8**	**8.6**	**4.3**	**7.9**	**35.4**

* "Atlantic" includes New Brunswick, Newfoundland and Labrador, Nova Scotia, Prince Edward Island.
"North" includes Northwest Territories, Nunavut, Yukon.

Table 5C

Reported new active and relapsed tuberculosis cases and incidence rate per 100,000 by age group – females – Canada and provinces/territories: 2002

Age group		CANADA	Province/territory							
			Atlantic*	Que.	Ont.	Man.	Sask.	Alta.	B.C.	North*
< 1	Cases	**4**	-	-	3	-	1	-	-	-
	Rate	**2.5**	-	-	4.7	-	16.3	-	-	-
1 – 4	Cases	**24**	-	2	5	2	12	1	-	2
	Rate	**3.6**	-	1.4	1.9	7.2	47.8	1.3	-	65.8
5 – 14	Cases	**28**	2	4	8	3	1	1	6	3
	Rate	**1.4**	1.4	0.9	1.0	3.7	1.4	0.5	2.4	32.0
15 – 24	Cases	**111**	2	25	45	12	5	9	12	1
	Rate	**5.5**	1.3	5.3	5.9	15.3	7.0	4.0	4.6	13.0
25 – 34	Cases	**146**	-	20	76	8	13	7	19	3
	Rate	**6.7**	-	4.1	8.7	10.4	20.2	3.0	6.5	37.5
35 – 44	Cases	**119**	2	12	64	10	4	5	21	1
	Rate	**4.5**	1.0	1.9	6.2	11.4	5.4	1.9	6.0	12.4
45 – 54	Cases	**93**	3	10	39	4	5	6	24	2
	Rate	**4.0**	1.6	1.7	4.5	5.0	7.5	2.8	7.6	33.8
55 – 64	Cases	**69**	1	11	30	4	1	9	12	1
	Rate	**4.4**	0.8	2.7	5.1	7.4	2.2	6.9	5.8	33.0
65 – 74	Cases	**84**	2	9	44	1	2	11	15	-
	Rate	**7.4**	2.3	3.0	10.1	2.5	5.3	12.1	10.1	-
75 +	Cases	**104**	1	23	44	4	2	11	19	-
	Rate	**9.2**	1.1	8.3	10.4	8.2	4.4	12.8	12.1	-
TOTAL	**Cases**	**782**	**13**	**116**	**358**	**48**	**46**	**60**	**128**	**13**
	Rate	**4.9**	**1.1**	**3.1**	**5.9**	**8.3**	**9.0**	**3.9**	**6.2**	**27.1**

* "Atlantic" includes New Brunswick, Newfoundland and Labrador, Nova Scotia, Prince Edward Island.
"North" includes Northwest Territories, Nunavut, Yukon.

Table 6

Reported new active and relapsed tuberculosis cases and incidence rate per 100,000 by birthplace – Canada and provinces/territories: 2002

Birthplace			CANADA	Province/territory							
				Atlantic*	Que.	Ont.	Man.	Sask.	Alta.	B.C.	North*
Canadian-born	Aboriginal										
	Status Indian	Cases	**165**	2	–	13	44	53	18	34	1
		Rate	**29.6**	7.7	–	12.1	48.5	63.0	22.3	32.8	6.0
	Non-Status Indian/Métis	Cases	**43**	1	3	–	3	29	3	3	1
		Rate	**10.1**	3.8	11.1	–	4.6	57.2	3.6	3.9	15.7
	Inuit	Cases	**32**	3	2	–	–	–	–	–	27
		Rate	**71.0**	58.9	21.0	–	–	–	–	–	101.4
	Total	**Cases**	**240**	**6**	**5**	**13**	**47**	**82**	**21**	**37**	**29**
		Rate	**23.3**	**10.4**	**5.8**	**6.5**	**30.0**	**60.8**	**12.8**	**20.5**	**58.3**
	Non-Aboriginal	Cases	**256**	15	93	65	19	3	14	47	–
		Rate	**1.0**	0.7	1.4	0.7	2.2	0.4	0.6	1.6	–
	Total	**Cases**	**496**	**21**	**98**	**78**	**66**	**85**	**35**	**84**	**29**
		Rate	**1.9**	**0.9**	**1.5**	**0.9**	**6.5**	**8.9**	**1.3**	**2.7**	**31.2**
Foreign-born (WHO region)	Africa	Cases	**110**	1	30	56	9	1	6	7	–
		Rate	**53.5**	44.6	62.6	56.0	212.8	42.2	29.2	24.9	–
	Americas	Cases	**65**	–	29	32	–	–	2	2	–
		Rate	**7.4**	–	18.4	6.3	–	–	3.2	2.1	–
	East Mediterranean	Cases	**116**	–	18	76	–	–	14	8	–
		Rate	**26.9**	–	16.9	30.4	–	–	55.7	21.5	–
	Europe	Cases	**99**	–	14	60	1	2	8	14	–
		Rate	**4.2**	–	4.5	4.3	1.5	7.9	4.2	3.9	–
	South East Asia	Cases	**214**	3	15	130	3	–	14	49	–
		Rate	**46.5**	111.9	44.1	46.3	46.0	–	46.7	46.8	–

* "Atlantic" includes New Brunswick, Newfoundland and Labrador, Nova Scotia, Prince Edward Island.
"North" includes Northwest Territories, Nunavut, Yukon.

…cont'd

Table 6 *Cont'd*

Reported new active and relapsed tuberculosis cases and incidence rate per 100,000 by birthplace – Canada and provinces/territories: 2002

Birthplace			CANADA	Province/territory							
				Atlantic*	Que.	Ont.	Man.	Sask.	Alta.	B.C.	North*
Foreign-born (WHO region) *(cont'd)*	Western Pacific	Cases	**457**	–	43	228	19	1	49	115	2
		Rate	**35.6**	–	47.5	38.1	56.3	10.2	39.2	27.5	158.7
	Unknown region	Cases	**33**	–	15	18	–	–	–	–	–
		Rate	–	–	–	–	–	–	–	–	–
	Total	**Cases**	**1,094**	**4**	**164**	**600**	**32**	**4**	**93**	**195**	**2**
		Rate	**19.4**	**4.9**	**22.0**	**19.2**	**23.2**	**7.9**	**20.4**	**18.6**	**33.4**
Unknown birthplace		Cases	**44**	–	20	14	–	–	–	10	–
		Rate	–	–	–	–	–	–	–	–	–
TOTAL		**Cases**	**1,634**	**25**	**282**	**692**	**98**	**89**	**128**	**289**	**31**
		Rate	**5.2**	**1.1**	**3.8**	**5.8**	**8.5**	**8.8**	**4.1**	**7.0**	**31.4**

* "Atlantic" includes New Brunswick, Newfoundland and Labrador, Nova Scotia, Prince Edward Island.
"North" includes Northwest Territories, Nunavut, Yukon.

Table 7

Reported new active and relapsed tuberculosis cases and incidence rate per 100,000 by main diagnostic site – Canada and provinces/territories: 2002

Main diagnostic site		CANADA	Province/territory							
			Atlantic*	Que.	Ont.	Man.	Sask.	Alta.	B.C.	North*
Primary	Cases	**85**	1	-	29	8	30	5	4	8
	Rate	**0.3**	-	-	0.2	0.7	3.0	0.2	0.1	8.1
Meninges and CNS	Cases	**17**	2	1	9	-	1	2	2	-
	Rate	**0.1**	0.1	-	0.1	-	0.1	0.1	0.0	-
Respiratory (pulm/other resp)**	Cases	**1,052**	13	214	409	64	44	82	204	22
	Rate	**3.4**	0.5	2.9	3.4	5.6	4.4	2.6	5.0	22.3
Peripheral lymph node	Cases	**231**	2	30	119	13	7	19	41	-
	Rate	**0.7**	0.1	0.4	1.0	1.1	0.7	0.6	1.0	-
Miliary/ disseminated	Cases	**50**	1	6	20	4	2	3	14	-
	Rate	**0.2**	0.0	0.1	0.2	0.3	0.2	0.1	0.3	-
Other sites**	Cases	**199**	6	31	106	9	5	17	24	1
	Rate	**0.6**	0.3	0.4	0.9	0.8	0.5	0.5	0.6	1.0
TOTAL	**Cases**	**1,634**	**25**	**282**	**692**	**98**	**89**	**128**	**289**	**31**
	Rate	**5.2**	**1.1**	**3.8**	**5.8**	**8.5**	**8.8**	**4.1**	**7.0**	**31.4**

* "Atlantic" includes New Brunswick, Newfoundland and Labrador, Nova Scotia, Prince Edward Island.
"North" includes Northwest Territories, Nunavut, Yukon.

** Please refer to Technical Notes for definition.

Table 8

Reported new active and relapsed tuberculosis cases by birthplace, sex and age group – Canada: 2002

Birthplace			TOTAL	Age group									
				< 1	1–4	5–14	15–24	25–34	35–44	45–54	55–64	65–74	75 +
Canadian-born	Aboriginal												
	Status Indian	Male	**81**	–	12	3	11	11	16	10	7	6	5
		Female	**84**	1	11	5	12	14	12	11	5	5	8
		Total	**165**	1	23	8	23	25	28	21	12	11	13
	Non-Status Indian/Métis	Male	**25**	1	2	3	1	3	4	5	3	3	–
		Female	**18**	–	2	1	2	5	2	1	2	3	–
		Total	**43**	1	4	4	3	8	6	6	5	6	–
	Inuit	Male	**17**	1	2	1	1	6	3	2	–	1	–
		Female	**15**	–	2	5	–	3	2	2	1	–	–
		Total	**32**	1	4	6	1	9	5	4	1	1	–
	Total	**Male**	**123**	**2**	**16**	**7**	**13**	**20**	**23**	**17**	**10**	**10**	**5**
		Female	**117**	**1**	**15**	**11**	**14**	**22**	**16**	**14**	**8**	**8**	**8**
		Total	**240**	**3**	**31**	**18**	**27**	**42**	**39**	**31**	**18**	**18**	**13**
	Non-Aboriginal	Male	**156**	1	2	1	11	13	25	26	19	28	30
		Female	**100**	3	7	4	12	7	7	15	12	7	26
		Total	**256**	4	9	5	23	20	32	41	31	35	56
	Total	**Male**	**279**	**3**	**18**	**8**	**24**	**33**	**48**	**43**	**29**	**38**	**35**
		Female	**217**	**4**	**22**	**15**	**26**	**29**	**23**	**29**	**20**	**15**	**34**
		Total	**496**	**7**	**40**	**23**	**50**	**62**	**71**	**72**	**49**	**53**	**69**
Foreign-born (WHO region)	Africa	Male	**57**	–	1	–	14	24	10	3	4	1	–
		Female	**53**	–	–	6	12	20	7	3	2	1	2
		Total	**110**	–	1	6	26	44	17	6	6	2	2
	Americas	Male	**32**	–	–	1	3	7	7	7	4	1	2
		Female	**33**	–	–	1	4	8	7	6	2	1	4
		Total	**65**	–	–	2	7	15	14	13	6	2	6

…cont'd

Table 8 *Cont'd*

Reported new active and relapsed tuberculosis cases by birthplace, sex and age group – Canada: 2002

Birthplace			TOTAL	Age group									
				< 1	1–4	5–14	15–24	25–34	35–44	45–54	55–64	65–74	75 +
Foreign-born (WHO region) *(cont'd)*	East Mediterranean	Male	**63**	–	1	3	15	10	16	5	8	4	1
		Female	**53**	–	–	2	14	12	8	5	4	7	1
		Total	**116**	–	1	5	29	22	24	10	12	11	2
	Europe	Male	**49**	–	–	–	4	4	4	5	7	10	15
		Female	**50**	–	–	–	4	6	7	1	3	11	18
		Total	**99**	–	–	–	8	10	11	6	10	21	33
	South East Asia	Male	**113**	–	–	–	4	35	24	11	7	13	19
		Female	**101**	–	–	–	15	19	12	15	8	17	15
		Total	**214**	–	–	–	19	54	36	26	15	30	34
	Western Pacific	Male	**216**	–	–	–	25	39	27	24	27	41	33
		Female	**241**	–	2	2	32	44	52	32	26	26	25
		Total	**457**	–	2	2	57	83	79	56	53	67	58
	Unknown region	Male	**17**	–	–	1	2	5	2	2	1	2	2
		Female	**16**	–	–	2	3	4	3	–	–	2	2
		Total	**33**	–	–	3	5	9	5	2	1	4	4
	Total	**Male**	**547**	–	**2**	**5**	**67**	**124**	**90**	**57**	**58**	**72**	**72**
		Female	**547**	–	**2**	**13**	**84**	**113**	**96**	**62**	**45**	**65**	**67**
		Total	**1,094**	–	**4**	**18**	**151**	**237**	**186**	**119**	**103**	**137**	**139**
Unknown birthplace		Male	**26**	–	–	1	1	2	4	4	4	7	3
		Female	**18**	–	–	–	1	4	–	2	4	4	3
		Total	**44**	–	–	1	2	6	4	6	8	11	6
TOTAL		**Male**	**852**	3	**20**	**14**	**92**	**159**	**142**	**104**	**91**	**117**	**110**
		Female	**782**	4	**24**	**28**	**111**	**146**	**119**	**93**	**69**	**84**	**104**
		Total	**1,634**	7	**44**	**42**	**203**	**305**	**261**	**197**	**160**	**201**	**214**

Table 9

Reported new active and relapsed tuberculosis cases and incidence rate per 100,000 by age group and main diagnostic site – Canada: 2002

Age group		TOTAL	Main diagnostic site					
			Primary	Meninges and CNS	Respiratory (pulm/ other resp)*	Peripheral lymph node	Miliary/ disseminated	Other sites*
< 1	Cases	**7**	4	-	1	-	2	-
	Rate	**2.2**	1.2	-	0.3	-	0.6	-
1 – 4	Cases	**44**	35	-	6	1	-	2
	Rate	**3.2**	2.5	-	0.4	0.1	-	0.1
5 – 14	Cases	**42**	17	-	17	6	1	1
	Rate	**1.0**	0.4	-	0.4	0.1	-	-
15 – 24	Cases	**203**	8	2	144	27	1	21
	Rate	**4.9**	0.2	-	3.5	0.6	-	0.5
25 – 34	Cases	**305**	7	4	186	67	6	35
	Rate	**6.9**	0.2	0.1	4.2	1.5	0.1	0.8
35 – 44	Cases	**261**	1	4	166	55	9	26
	Rate	**4.9**	-	0.1	3.1	1.0	0.2	0.5
45 – 54	Cases	**197**	3	2	125	28	9	30
	Rate	**4.3**	0.1	0.0	2.7	0.6	0.2	0.7
55 – 64	Cases	**160**	3	1	107	18	6	25
	Rate	**5.2**	0.1	0.0	3.5	0.6	0.2	0.8
65 – 74	Cases	**201**	2	4	145	13	5	32
	Rate	**9.3**	0.1	0.2	6.7	0.6	0.2	1.5
75 +	Cases	**214**	5	-	155	16	11	27
	Rate	**11.8**	0.3	-	8.5	0.9	0.6	1.5
TOTAL	**Cases**	**1,634**	**85**	**17**	**1,052**	**231**	**50**	**199**
	Rate	**5.2**	**0.3**	**0.1**	**3.4**	**0.7**	**0.2**	**0.6**

* Please refer to Technical Notes for definition.

Table 10

Reported new active and relapsed tuberculosis cases by birthplace and main diagnostic site – Canada: 2002

Birthplace		TOTAL	Main diagnostic site					
			Primary	Meninges and CNS	Respiratory (pulm/ other resp)*	Peripheral lymph node	Miliary/ disseminated	Other sites*
Canadian-born	Aboriginal							
	Status Indian	**165**	32	2	93	11	10	17
	Non-Status Indian/Métis	**43**	8	-	25	6	-	4
	Inuit	**32**	9	-	23	-	-	-
	Total	**240**	**49**	**2**	**141**	**17**	**10**	**21**
	Non-Aboriginal	**256**	11	2	194	14	7	28
	Total	**496**	**60**	**4**	**335**	**31**	**17**	**49**
Foreign-born (WHO region)	Africa	**110**	3	1	68	15	6	17
	Americas	**65**	2	-	43	13	4	3
	East Mediterranean	**116**	2	3	65	28	1	17
	Europe	**99**	3	1	71	6	3	15
	South East Asia	**214**	1	4	134	43	6	26
	Western Pacific	**457**	10	3	291	88	12	53
	Unknown region	**33**	3	-	21	3	1	5
	Total	**1,094**	**24**	**12**	**693**	**196**	**33**	**136**
Unknown birthplace		**44**	1	1	24	4	-	14
TOTAL		**1,634**	**85**	**17**	**1,052**	**231**	**50**	**199**

* Please refer to Technical Notes for definition.

Table 11

Reported new active and relapsed tuberculosis cases by birthplace and activity status – Canada: 2002

Birthplace		TOTAL	Activity status		
			New active cases	Relapsed cases	Unknown status
Canadian-born	Aboriginal				
	Status Indian	**165**	153	11	1
	Non-Status Indian/Métis	**43**	35	8	-
	Inuit	**32**	26	6	-
	Total	**240**	**214**	**25**	**1**
	Non-Aboriginal	**256**	231	19	6
	Total	**496**	**445**	**44**	**7**
Foreign-born (WHO region)	Africa	**110**	98	4	8
	Americas	**65**	63	1	1
	East Mediterranean	**116**	104	10	2
	Europe	**99**	84	12	3
	South East Asia	**214**	196	14	4
	Western Pacific	**457**	399	49	9
	Unknown region	**33**	26	7	-
	Total	**1,094**	**970**	**97**	**27**
Unknown birthplace		**44**	34	-	10
TOTAL		**1,634**	**1,449**	**141**	**44**

Table 12

Reported new active and relapsed tuberculosis cases by bacillary status – Canada and provinces/territories: 2002

Bacillary status	CANADA	Province/territory							
		Atlantic*	Que.	Ont.	Man.	Sask.	Alta.	B.C.	North*
1. Culture positive									
a. Microscopy positive	**719**	14	129	194	95	32	65	182	8
b. Microscopy negative	**342**	7	68	124	1	13	39	77	13
c. Microscopy not done/unk.	**217**	1	42	159	-	7	-	8	-
Total	**1,278**	**22**	**239**	**477**	**96**	**52**	**104**	**267**	**21**
2. Culture negative									
a. Microscopy positive	**33**	1	1	26	1	-	2	2	-
b. Microscopy negative	**83**	-	16	42	-	4	5	11	5
c. Microscopy not done/unk.	**27**	-	1	10	-	16	-	-	-
Total	**143**	**1**	**18**	**78**	**1**	**20**	**7**	**13**	**5**
3. Culture not done/unk.									
a. Microscopy positive	**40**	-	5	32	1	2	-	-	-
b. Microscopy negative	**18**	-	3	13	-	-	2	-	-
c. Microscopy not done/unk.	**155**	2	17	92	-	15	15	9	5
Total	**213**	**2**	**25**	**137**	**1**	**17**	**17**	**9**	**5**
TOTAL	**1,634**	**25**	**282**	**692**	**98**	**89**	**128**	**289**	**31**

* "Atlantic" includes New Brunswick, Newfoundland and Labrador, Nova Scotia, Prince Edward Island.
"North" includes Northwest Territories, Nunavut, Yukon.

Table 13

Reported new active and relapsed tuberculosis cases by bacillary status and birthplace – Canada: 2002

Bacillary status	TOTAL	Birthplace			
		Canadian-born Aboriginal	Canadian-born non-Aboriginal	Foreign-born	Unknown birthplace
1. Culture positive					
a. Microscopy positive	**719**	130	127	450	12
b. Microscopy negative	**342**	33	47	257	5
c. Microscopy not done/unk.	**217**	16	28	156	17
Total	**1,278**	**179**	**202**	**863**	**34**
2. Culture negative					
a. Microscopy positive	**33**	3	4	26	-
b. Microscopy negative	**83**	12	8	62	1
c. Microscopy not done/unk.	**27**	16	5	6	-
Total	**143**	**31**	**17**	**94**	**1**
3. Culture not done/unk.					
a. Microscopy positive	**40**	1	11	28	-
b. Microscopy negative	**18**	-	3	15	-
c. Microscopy not done/unk.	**155**	29	23	94	9
Total	**213**	**30**	**37**	**137**	**9**
TOTAL	**1,634**	**240**	**256**	**1,094**	**44**

Table 14

Reported new active and relapsed tuberculosis cases by bacillary status and main diagnostic site – Canada: 2002

Bacillary status	TOTAL	Main diagnostic site					
		Primary	Meninges and CNS	Respiratory (pulm/ other resp)*	Peripheral lymph node	Miliary/ disseminated	Other sites*
1. Culture positive							
a. Microscopy positive	**719**	13	4	508	84	36	74
b. Microscopy negative	**342**	5	3	280	40	4	10
c. Microscopy not done/unk.	**217**	9	4	86	64	4	50
Total	**1,278**	**27**	**11**	**874**	**188**	**44**	**134**
2. Culture negative							
a. Microscopy positive	**33**	1	–	24	6	–	2
b. Microscopy negative	**83**	10	1	62	4	–	6
c. Microscopy not done/unk.	**27**	16	–	10	–	–	1
Total	**143**	**27**	**1**	**96**	**10**	**–**	**9**
3. Culture not done/unk.							
a. Microscopy positive	**40**	1	–	21	5	5	8
b. Microscopy negative	**18**	1	1	9	4	–	3
c. Microscopy not done/unk.	**155**	29	4	52	24	1	45
Total	**213**	**31**	**5**	**82**	**33**	**6**	**56**
TOTAL	**1,634**	**85**	**17**	**1,052**	**231**	**50**	**199**

* Please refer to Technical Notes for definition.

Table 15

Pattern of reported drug resistance to first-line anti-tuberculosis drugs at time of reporting by birthplace – Canada*: 2002

Drug pattern	TOTAL	Canadian-born		Foreign-born	Unknown birthplace
		Aboriginal	Non-Aboriginal		
	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)
Total positive cultures	**1,278 (100)**	**179 (100)**	**202 (100)**	**863 (100)**	**34 (100)**
No resistance	**1,132 (88.6)**	174 (97.2)	186 (92.1)	740 (85.7)	32 (94.1)
Resistance to one or more drugs	**146 (11.4)**	**5 (2.8)**	**16 (7.9)**	**123 (14.3)**	**2 (5.9)**
Monoresistance					
INH	**56 (4.4)**	2 (1.1)	3 (1.5)	50 (5.8)	1 (2.9)
SM	**29 (2.3)**	–	1 (0.5)	27 (3.1)	1 (2.9)
EMB	**4 (0.3)**	2 (1.1)	1 (0.5)	1 (0.1)	–
RMP	–	–	–	–	–
PZA	**12 (0.9)**	–	11 (5.4)	1 (0.1)	–
Total monoresistance	**101 (7.9)**	**4 (2.2)**	**16 (7.9)**	**79 (9.2)**	**2 (5.9)**
Multi-drug resistant (MDR) TB**					
INH & RMP	**4 (0.3)**	–	–	4 (0.5)	–
INH & SM & RMP	**3 (0.2)**	–	–	3 (0.3)	–
INH & EMB & RMP	**2 (0.2)**	–	–	2 (0.2)	–
INH & RMP & PZA	**1 (0.1)**	–	–	1 (0.1)	–
INH & SM & EMB & RMP	**5 (0.4)**	–	–	5 (0.6)	–
INH & SM & RMP & PZA	**1 (0.1)**	–	–	1 (0.1)	–
INH & EMB & RMP & PZA	**2 (0.2)**	–	–	2 (0.2)	–
INH & SM & EMB & RMP & PZA	**3 (0.2)**	–	–	3 (0.3)	–
Total MDR-TB**	**21 (1.6)**	–	–	**21 (2.4)**	–

* Not all provinces/territories routinely test for resistance to all first-line anti-tuberculosis drugs (SM – New Brunswick, Nova Scotia, Prince Edward Island, Quebec; PZA – British Columbia, Saskatchewan, Yukon).

** MDR-TB is defined as resistance to at least INH and RMP.

...cont'd

Table 15 *Cont'd*

Pattern of reported drug resistance to first-line anti-tuberculosis drugs at time of reporting by birthplace – Canada*: 2002

Drug pattern	TOTAL	Canadian-born		Foreign-born	Unknown birthplace
		Aboriginal	Non-Aboriginal		
	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)
Other patterns					
INH & SM	**15 (1.2)**	-	-	15 (1.7)	-
INH & EMB	**2 (0.2)**	1 (0.6)	-	1 (0.1)	-
INH & PZA	**2 (0.2)**	-	-	2 (0.2)	-
INH & SM & EMB	**2 (0.2)**	-	-	2 (0.2)	-
INH & SM & PZA	**2 (0.2)**	-	-	2 (0.2)	-
INH & SM & EMB & PZA	**1 (0.1)**	-	-	1 (0.1)	-
Total other patterns	**24 (1.9)**	**1 (0.6)**	-	**23 (2.7)**	-

* Not all provinces/territories routinely test for resistance to all first-line anti-tuberculosis drugs (SM – New Brunswick, Nova Scotia, Prince Edward Island, Quebec; PZA – British Columbia, Saskatchewan, Yukon).
** MDR-TB is defined as resistance to at least INH and RMP.

Table 16

Reported new active and relapsed tuberculosis cases by method of detection – Canada and provinces/territories: 2002

Method of detection	CANADA	Province/territory							
		Atlantic*	Que.	Ont.	Man.	Sask.	Alta.	B.C.	North*
Immigration	**41**	-	-	-	2	1	14	23	1
Symptoms/incidental findings	**1,211**	23	186	520	77	51	105	239	10
Post-mortem	**12**	-	2	3	1	-	2	4	-
Contact investigation	**97**	2	8	28	10	19	5	12	13
Screening	**99**	-	35	29	3	15	2	8	7
Other	**100**	-	19	73	5	-	-	3	-
Unknown	**74**	-	32	39	-	3	-	-	-
TOTAL	**1,634**	**25**	**282**	**692**	**98**	**89**	**128**	**289**	**31**

* "Atlantic" includes New Brunswick, Newfoundland and Labrador, Nova Scotia, Prince Edward Island.
"North" includes Northwest Territories, Nunavut, Yukon.

Table 17

Reported new active and relapsed tuberculosis cases by method of detection and birthplace – Canada: 2002

Method of detection	TOTAL	Birthplace					
		Canadian-born				Foreign-born	Unknown birthplace
		Status Indian	Non-Status Indian/Métis	Inuit	Non-Aboriginal		
Immigration	**41**	-	-	-	1	40	-
Symptoms/incidental findings	**1,211**	119	32	11	194	836	19
Post-mortem	**12**	4	-	-	2	5	1
Contact investigation	**97**	22	8	14	25	28	-
Screening	**99**	16	2	7	12	61	1
Other	**100**	2	-	-	14	84	-
Unknown	**74**	2	1	-	8	40	23
TOTAL	**1,634**	**165**	**43**	**32**	**256**	**1,094**	**44**

Table 18

Reported new active and relapsed foreign-born tuberculosis cases by birthplace and year of arrival in Canada: 2002

Birthplace (WHO region)	TOTAL	Year of arrival														
		≤ 1962	1963-1972	1973-1982	1983-1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	Unk.
Africa	**110**	-	-	6	8	-	-	3	4	4	4	6	8	29	34	4
Americas	**65**	2	5	8	16	1	2	3	1	3	-	1	6	7	4	6
East Mediterranean	**116**	-	3	1	13	3	3	4	10	3	4	8	16	22	16	9
Europe	**99**	23	9	4	8	1	1	4	4	2	2	3	4	7	9	16
South East Asia	**214**	2	8	18	36	4	13	3	13	6	13	8	14	36	26	14
Western Pacific	**457**	10	18	72	115	19	26	15	12	23	9	19	20	45	35	18
Unknown region	**33**	1	2	1	4	-	-	-	1	-	1	3	3	6	2	9
TOTAL	**1,094**	**38**	**45**	**110**	**200**	**28**	**45**	**32**	**45**	**41**	**33**	**48**	**71**	**152**	**126**	**76**

Table 19

Reported new active and relapsed foreign-born tuberculosis cases by immigration status – Canada and provinces/territories: 2002

Immigration status	CANADA	Province/territory							
		Atlantic*	Que.	Ont.	Man.	Sask.	Alta.	B.C.	North*
Landed immigrant or Canadian citizen	**270**	1	-	-	30	-	80	157	2
Refugee claimant	**8**	-	-	-	-	-	3	5	-
Non-resident (visitor, student, illegal alien)	**27**	3	-	-	2	-	8	14	-
Other	**1**	-	-	-	-	-	-	1	-
Unknown	**788**	-	164	600	-	4	2	18	-
TOTAL	**1,094**	**4**	**164**	**600**	**32**	**4**	**93**	**195**	**2**

* "Atlantic" includes New Brunswick, Newfoundland and Labrador, Nova Scotia, Prince Edward Island.
"North" includes Northwest Territories, Nunavut, Yukon.

Table 20

Reported relapsed tuberculosis cases by length of inactive interval – Canada and provinces/territories: 2002

Interval	CANADA	Province/territory							
		Atlantic*	Que.	Ont.	Man.	Sask.	Alta.	B.C.	North*
< 2 years	**5**	-	2	-	-	-	-	3	-
2-5 years	**19**	-	4	-	4	-	1	8	2
6-9 years	**6**	-	-	-	1	2	-	3	-
10-19 years	**10**	3	1	-	-	2	2	2	-
20+ years	**33**	2	6	-	1	2	4	15	3
Unknown	**68**	1	6	58	-	-	-	3	-
TOTAL	**141**	**6**	**19**	**58**	**6**	**6**	**7**	**34**	**5**

* "Atlantic" includes New Brunswick, Newfoundland and Labrador, Nova Scotia, Prince Edward Island.
"North" includes Northwest Territories, Nunavut, Yukon.

Table 21

Reported new active and relapsed tuberculosis cases who died in 2002*, by cause of death – Canada and provinces/territories: 2002

Cause of death	CANADA	Province/territory							
		Atlantic**	Que.	Ont.	Man.	Sask.	Alta.	B.C.	North**
Cases reported in 2001									
TB was underlying cause of death	**2**	–	–	1	1	–	–	–	–
TB contributed to death but was not the underlying cause	**9**	–	–	4	–	1	1	3	–
TB did not contribute to death	**7**	–	1	2	–	–	–	4	–
Cause not reported	**–**	–	–	–	–	–	–	–	–
TOTAL	**18**	**–**	**1**	**7**	**1**	**1**	**1**	**7**	**–**
Cases reported in 2002									
TB was underlying cause of death	**27**	1	4	11	3	2	2	4	–
TB contributed to death but was not the underlying cause	**41**	–	3	20	2	2	7	7	–
TB did not contribute to death	**39**	1	7	13	–	–	2	16	–
Cause not reported	**8**	–	3	5	–	–	–	–	–
TOTAL	**115**	**2**	**17**	**49**	**5**	**4**	**11**	**27**	**–**

NB: These numbers are based on number of known deaths at time of reporting.
* See Technical Notes.
** "Atlantic" includes New Brunswick, Newfoundland and Labrador, Nova Scotia, Prince Edward Island.
"North" includes Northwest Territories, Nunavut, Yukon.

Table 22

Reported new active and relapsed tuberculosis cases reported in 2002 who died in 2002*, by age group and sex – Canada: 2002

Sex	TOTAL	Age group									
		< 1	1 – 4	5 – 14	15 – 24	25 – 34	35 – 44	45 – 54	55 – 64	65 – 74	75 +
Male	**58**	–	–	–	–	–	7	4	11	15	21
Female	**50**	–	–	–	1	2	3	8	7	3	26
TOTAL	**108**	**–**	**–**	**–**	**1**	**2**	**10**	**12**	**18**	**18**	**47**

NB: These numbers are based on number of known deaths at time of reporting.
* See Technical Notes.

Table 23

Reported new active and relapsed tuberculosis cases by HIV status – Canada and provinces/territories: 2002

HIV status	CANADA	Province/territory							
		Atlantic*	Que.	Ont.	Man.	Sask.	Alta.	B.C.	North*
Positive	**66**	–	–	21	5	4	8	28	–
Negative	**232**	4	–	–	38	–	51	121	18
Unknown	**1,336**	21	282	671	55	85	69	140	13
TOTAL	**1,634**	**25**	**282**	**692**	**98**	**89**	**128**	**289**	**31**

* "Atlantic" includes New Brunswick, Newfoundland and Labrador, Nova Scotia, Prince Edward Island.
"North" includes Northwest Territories, Nunavut, Yukon.

Table 24

Treatment outcome status – Canada and provinces/territories: 2001

	TOTAL	Treatment outcome							
		Cure	Treatment completed without culture	Death during treatment	Trans-ferred	Absconded	Treatment ongoing	Other	Unknown
CANADA	**1,702**	**160**	**483**	**99**	**16**	**26**	**10**	**15**	**893**
Province/territory									
Atlantic*	**40**	5	21	6	1	1	2	4	–
Quebec**	**259**	–	–	–	–	–	–	–	259
Ontario**	**632**	–	–	–	–	–	–	–	632
Manitoba	**115**	1	87	14	1	9	–	3	–
Saskatchewan	**114**	10	92	11	–	–	–	–	1
Alberta	**116**	38	58	15	1	–	3	1	–
British Columbia	**379**	73	214	50	13	16	5	7	1
North*	**47**	33	11	3	–	–	–	–	–

* "Atlantic" includes New Brunswick, Newfoundland and Labrador, Nova Scotia, Prince Edward Island.
"North" includes Northwest Territories, Nunavut, Yukon.
** Treatment outcome data are not available for Ontario and Quebec.

Table 25

Treatment outcome status by treatment regimen – Canada: 2001

Treatment regimen	TOTAL	Treatment outcome							
		Cure	Treatment completed without culture	Death during treatment	Trans-ferred	Absconded	Other	Treatment ongoing	Unknown
INH only	**1**	1	–	–	–	–	–	–	–
INH & RMP	**84**	3	75	5	–	1	–	–	–
EMB & RMP	**1**	–	1	–	–	–	–	–	–
INH & EMB & RMP	**31**	5	24	2	–	–	–	–	–
INH & EMB & PZA	**2**	1	1	–	–	–	–	–	–
INH & RMP & PZA	**161**	33	95	19	1	6	4	2	1
SM & EMB & RMP	**1**	–	–	1	–	–	–	–	–
EMB & RMP & PZA	**5**	1	3	1	–	–	–	–	–
INH & RMP & other drug(s)	**3**	–	3	–	–	–	–	–	–
INH & EMB & other drug(s)	**1**	–	1	–	–	–	–	–	–
SM & EMB & other drug(s)	**1**	–	–	1	–	–	–	–	–
EMB & RMP & other drug(s)	**1**	1	–	–	–	–	–	–	–
INH & SM & EMB & RMP	**3**	–	2	1	–	–	–	–	–
INH & SM & RMP & PZA	**4**	–	2	2	–	–	–	–	–
INH & EMB & RMP & PZA	**377**	93	232	19	12	15	6	–	–
SM & EMB & RMP & PZA	**1**	1	–	–	–	–	–	–	–
INH & EMB & RMP & other drug(s)	**10**	3	6	–	–	–	1	–	–
INH & EMB & PZA & other drug(s)	**6**	2	3	–	–	–	1	–	–
INH & RMP & PZA & other drug(s)	**6**	2	3	–	–	–	1	–	–
EMB & RMP & PZA & other drug(s)	**2**	1	1	–	–	–	–	–	–
INH & SM & EMB & RMP & PZA	**19**	5	5	4	–	–	1	4	–

...cont'd

Table 25 *Cont'd*

Treatment outcome status by treatment regimen – Canada: 2001

Treatment regimen	TOTAL	Treatment outcome							
		Cure	Treatment completed without culture	Death during treatment	Trans-ferred	Absconded	Other	Treatment ongoing	Unknown
INH & SM & EMB & RMP & other drug(s)	**3**	–	3	–	–	–	–	–	–
INH & SM & RMP & PZA & other drug(s)	**2**	1	–	1	–	–	–	–	–
INH & EMB & RMP & PZA & other drug(s)	**30**	7	21	1	1	–	–	–	–
Other drugs	**1**	–	–	–	1	–	–	–	–
None prescribed	**35**	–	2	31	1	–	–	–	1
Unknown	**911**	–	–	11	–	4	1	4	891
TOTAL	**1,702**	**160**	**483**	**99**	**16**	**26**	**15**	**10**	**893**

Table 26

Treatment outcome status by major mode of treatment – Canada*: 2001

Major mode of treatment	TOTAL	Treatment outcome							
		Cure	Treatment completed without culture	Death during treatment	Transferred	Absconded	Treatment ongoing	Other	Unknown
DOT (daily/intermittent)	**406**	91	247	34	3	14	6	11	–
Daily – self administered	**351**	69	233	21	12	11	1	3	1
Other	**41**	–	3	35	1	–	1	–	1
Unknown	**904**	–	–	9	–	1	2	1	891
TOTAL	**1,702**	**160**	**483**	**99**	**16**	**26**	**10**	**15**	**893**

* Treatment outcome data are not available for Ontario and Quebec.

Table 27

Treatment outcome status by compliance estimate – Canada*: 2001

Compliance estimate	TOTAL	Treatment outcome							
		Cure	Treatment completed without culture	Death during treatment	Transferred	Absconded	Treatment ongoing	Other	Unknown
≥ 80%	**693**	156	467	44	11	2	5	8	–
50–79%	**28**	2	12	–	–	8	1	4	1
< 50%	**10**	–	–	2	1	7	–	–	–
Unknown	**971**	2	4	53	4	9	4	3	892
TOTAL	**1,702**	**160**	**483**	**99**	**16**	**26**	**10**	**15**	**893**

* Treatment outcome data are not available for Ontario and Quebec.

Appendix III
Population Estimates: 2002

Population by age group and sex, Canada, provinces and territories: 2002

Male

	CANADA	Nfld./Lab.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Nun.
< 1	**165,570**	2,420	726	4,676	3,956	35,293	66,610	7,224	6,172	17,887	19,737	173	331	365
1 – 4	**702,098**	10,295	2,938	19,395	16,437	152,218	278,688	29,303	25,091	79,154	85,378	656	1,222	1,323
5 – 14	**2,093,219**	32,101	9,591	60,095	47,417	469,479	821,807	84,591	76,085	222,722	259,689	2,123	3,744	3,775
15 – 24	**2,132,465**	37,631	10,158	63,862	51,716	490,679	801,208	81,868	76,478	237,293	273,450	2,160	3,374	2,588
25 – 34	**2,228,346**	36,510	8,782	62,702	53,763	509,110	870,178	80,311	64,179	245,150	289,788	1,960	3,487	2,426
35 – 44	**2,665,760**	43,520	10,891	77,517	62,702	641,127	1,039,091	90,269	75,489	267,404	349,218	2,819	3,757	1,956
45 – 54	**2,294,283**	43,119	10,082	71,350	59,019	571,813	841,741	79,382	68,968	227,404	314,793	2,460	2,748	1,404
55 – 64	**1,517,384**	28,568	6,973	48,758	38,742	393,720	564,849	52,858	43,898	130,469	204,794	1,621	1,473	661
65 – 74	**1,017,186**	16,988	4,667	31,723	24,041	249,394	390,729	36,391	34,063	86,757	140,975	587	580	291
75 +	**689,283**	11,105	3,268	21,625	17,500	154,017	261,977	29,225	29,779	55,352	104,684	318	276	157
TOTAL	**15,505,594**	**262,257**	**68,076**	**461,703**	**375,293**	**3,666,850**	**5,936,878**	**571,422**	**500,202**	**1,569,592**	**2,042,506**	**14,877**	**20,992**	**14,946**

Female

< 1	**158,063**	2,265	756	4,435	3,659	33,826	63,532	6,813	6,128	16,980	18,853	151	321	344
1 – 4	**673,652**	9,848	2,968	18,763	15,226	146,516	267,216	27,812	25,099	75,313	81,852	588	1,232	1,219
5 – 14	**1,990,264**	30,572	9,131	56,997	45,612	450,813	779,202	80,267	72,760	209,531	246,007	2,015	3,887	3,470
15 – 24	**2,033,984**	36,750	9,905	61,784	48,770	467,395	765,149	78,226	71,392	225,437	261,505	2,091	2,927	2,653
25 – 34	**2,189,612**	36,426	9,095	64,606	52,323	486,234	869,735	76,839	64,481	230,201	291,676	2,082	3,513	2,401
35 – 44	**2,633,302**	45,045	11,014	78,831	61,780	621,612	1,035,297	87,753	74,540	261,768	347,603	2,833	3,490	1,736
45 – 54	**2,304,287**	43,317	10,533	71,853	58,816	575,145	859,782	80,184	66,571	215,582	316,587	2,352	2,245	1,320
55 – 64	**1,564,748**	28,152	6,803	50,599	39,235	410,710	590,037	54,048	44,727	130,302	207,102	1,307	1,205	521
65 – 74	**1,138,337**	18,446	5,158	35,107	27,882	295,581	437,485	40,635	37,794	90,849	148,035	558	591	216
75 +	**1,131,753**	17,204	5,508	38,508	29,653	277,915	424,585	48,994	45,419	85,892	157,309	327	351	88
TOTAL	**15,818,002**	**268,025**	**70,871**	**481,483**	**382,956**	**3,765,747**	**6,092,020**	**581,571**	**508,911**	**1,541,855**	**2,076,529**	**14,304**	**19,762**	**13,968**

TOTAL

< 1	**323,633**	4,685	1,482	9,111	7,615	69,119	130,142	14,037	12,300	34,867	38,590	324	652	709
1 – 4	**1,375,750**	20,143	5,906	38,158	31,663	298,734	545,904	57,115	50,190	154,467	167,230	1,244	2,454	2,542
5 – 14	**4,083,483**	62,673	18,722	117,092	93,029	920,292	1,601,009	164,858	148,845	432,253	505,696	4,138	7,631	7,245
15 – 24	**4,166,449**	74,381	20,063	125,646	100,486	958,074	1,566,357	160,094	147,870	462,730	534,955	4,251	6,301	5,241
25 – 34	**4,417,958**	72,936	17,877	127,308	106,086	995,344	1,739,913	157,150	128,660	475,351	581,464	4,042	7,000	4,827
35 – 44	**5,299,062**	88,565	21,905	156,348	124,482	1,262,739	2,074,388	178,022	150,029	529,172	696,821	5,652	7,247	3,692
45 – 54	**4,598,570**	86,436	20,615	143,203	117,835	1,146,958	1,701,523	159,566	135,539	442,986	631,380	4,812	4,993	2,724
55 – 64	**3,082,132**	56,720	13,776	99,357	77,977	804,430	1,154,886	106,906	88,625	260,771	411,896	2,928	2,678	1,182
65 – 74	**2,155,523**	35,434	9,825	66,830	51,923	544,975	828,214	77,026	71,857	177,606	289,010	1,145	1,171	507
75 +	**1,821,036**	28,309	8,776	60,133	47,153	431,932	686,562	78,219	75,198	141,244	261,993	645	627	245
TOTAL	**31,323,596**	**530,282**	**138,947**	**943,186**	**758,249**	**7,432,597**	**12,028,898**	**1,152,993**	**1,009,113**	**3,111,447**	**4,119,035**	**29,181**	**40,754**	**28,914**

Population estimates by Canadian-born origin and foreign-born birthplace – Canada and provinces/territories: 2002

	CANADA	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Nun.
TOTAL	**31,323,596**	**530,282**	**138,947**	**943,186**	**758,249**	**7,432,597**	**12,028,898**	**1,152,993**	**1,009,113**	**3,111,447**	**4,119,035**	**29,181**	**40,754**	**28,914**
Canadian-born														
Aboriginal														
Status Indian	**558,165**	3,605	845	10,870	10,525	49,110	107,400	90,655	84,075	80,775	103,550	5,070	11,585	100
NSI/Métis	**426,525**	11,755	550	6,715	7,590	27,040	91,425	65,710	50,660	82,745	75,975	1,660	4,620	80
Inuit	**45,085**	4,555	25	350	160	9,535	1,375	345	235	1,090	800	145	3,910	22,560
Total Aboriginal	**1,029,775**	19,915	1,420	17,935	18,275	85,685	200,200	156,710	134,970	164,610	180,325	6,875	20,115	22,740
Non-Aboriginal	**24,646,756**	501,387	113,357	881,306	735,564	6,599,752	8,708,043	858,043	823,238	2,491,222	2,891,725	19,236	18,119	5,764
Total Canadian-born	**25,676,531**	**521,302**	**114,777**	**899,241**	**753,839**	**6,685,437**	**8,908,243**	**1,014,753**	**958,208**	**2,655,832**	**3,072,050**	**26,111**	**38,234**	**28,504**
Foreigh-born														
Africa	**205,615**	340	795	1,080	25	47,900	99,960	4,230	2,370	20,525	28,155	85	120	30
Americas	**883,040**	2,090	9,575	10,625	1,610	158,015	504,725	25,615	9,220	63,090	97,330	695	365	85
East Mediterranean	**430,740**	425	840	4,485	155	106,600	250,340	3,195	2,120	25,150	37,270	45	105	10
South East Asia	**460,660**	565	590	1,485	40	34,020	280,650	6,525	1,840	29,970	104,785	120	70	0
Europe	**2,379,975**	4,540	10,495	21,940	2,300	309,360	1,385,395	64,785	25,440	191,665	361,065	1,660	1,110	220
Western Pacific	**1,282,390**	910	1,690	4,125	260	90,435	597,785	33,760	9,850	124,855	417,460	465	740	55
Other/unknown	**4,645**	110	185	205	20	830	1,800	130	65	360	920	0	10	10
Total foreign-born	**5,647,065**	**8,980**	**24,170**	**43,945**	**4,410**	**747,160**	**3,120,655**	**138,240**	**50,905**	**455,615**	**1,046,985**	**3,070**	**2,520**	**410**

Source(s): Canada: Statistics Canada – 2002 Population Projections based on the Census 2001 data
Aboriginal: Statistics Canada – Census 2001 data
Non-Aboriginal: Calculated
Foreign-born: Statistics Canada – Census 2001 data

Appendix IV
WHO Estimated incidence of TB, 22 high-burden countries: 2002

COUNTRY	POPULATION (THOUSANDS)	NUMBER ESTIMATED				CUMULATIVE INCIDENCE (%) (REGIONAL PROPORTION OF GLOBAL TOTAL)
		ALL CASES		SMEAR-POSITIVE CASES		
		NUMBER (THOUSANDS)	RATE PER 100,000	NUMBER (THOUSANDS)	RATE PER 100,000	
1 India	1,049,549	1,761	168	787	75	20
2 China	1,294,867	1,459	113	656	51	37
3 Indonesia	217,131	557	256	250	115	43
4 Nigeria	120,911	368	304	159	132	47
5 Bangladesh	143,809	318	221	143	99	51
6 Pakistan	149,911	272	181	122	81	54
7 Ethiopia	68,961	255	370	110	159	57
8 Philippines	78,580	251	320	113	144	60
9 South Africa	44,759	250	558	102	227	62
10 DR Congo	51,201	196	383	85	167	65
11 Russian Federation	144,082	182	126	81	56	67
12 Kenya	31,540	170	540	70	223	69
13 Viet Nam	80,278	155	192	69	86	70
14 UR Tanzania	36,276	132	363	56	155	72
15 Brazil	176,257	110	62	49	28	73
16 Uganda	25,004	94	377	41	164	74
17 Zimbabwe	12,835	88	683	35	271	75
18 Mozambique	18,537	81	436	34	182	76
19 Thailand	62,193	80	128	35	57	77
20 Afghanistan	22,930	76	333	34	150	78
21 Cambodia	13,810	76	549	33	242	79
22 Myanmar	48,852	75	154	33	68	80
Total, high-burden countries	**3,892,274**	**7,005**	**180**	**3,100**	**80**	**80**
Africa	672,238	2,354	350	1,000	149	26
Americas	856,916	370	43	165	19	4.2
East Mediterranean	502,824	622	124	279	55	7.2
Europe	877,887	472	54	211	24	5.4
South East Asia	1,590,833	2,890	182	1,294	81	33
Western Pacific	1,718,314	2,090	122	939	55	24
Global total	**6,219,011**	**8,797**	**141**	**3,887**	**63**	**100**

Source: World Health Organization. *Global Tuberculosis Control: Surveillance, Planning, Financing*. WHO Report 2004. Geneva, Switzerland, ISBN 92 4 156264 1.

Appendix V
WHO regions and member countries

WHO region	Country
AFRICA	Algeria
	Angola
	Benin
	Botswana
	Burkina Faso
	Burundi
	Cameroon
	Cape Verde
	Central African Republic
	Chad
	Comoros
	Congo
	Côte d'Ivoire
	DR Congo
	Equatorial Guinea
	Eritrea
	Ethiopia
	Gabon
	Gambia
	Ghana
	Guinea
	Guinea-Bissau
	Kenya
	Lesotho
	Liberia
	Madagascar
	Malawi
	Mali
	Mauritania
	Mauritius
	Mozambique
	Namibia
	Niger
	Nigeria
	Rwanda

WHO region	Country
AFRICA (cont'd)	Sao Tome and Principe
	Senegal
	Seychelles
	Sierra Leone
	South Africa
	Swaziland
	Togo
	Uganda
	UR Tanzania
	Zambia
	Zimbabwe
AMERICAS, THE	Anguilla
	Antigua and Barbuda
	Argentina
	Bahamas
	Barbados
	Belize
	Bermuda
	Bolivia
	Brazil
	British Virgin Islands
	Canada
	Cayman Islands
	Chile
	Colombia
	Costa Rica
	Cuba
	Dominica
	Dominican Republic
	Ecuador
	El Salvador
	Grenada
	Guatemala
	Guyana
	Haiti

WHO region	Country
AMERICAS, THE (cont'd)	Honduras
	Jamaica
	Mexico
	Montserrat
	Netherlands Antilles
	Nicaragua
	Panama
	Paraguay
	Peru
	Puerto Rico
	Saint Kitts and Nevis
	Saint Lucia
	St Vincent & Grenadines
	Suriname
	Trinidad and Tobago
	Turks & Caicos Islands
	Uruguay
	US Virgin Islands
	USA
	Venezuela
EAST MEDITER-RANEAN	Afghanistan
	Bahrain
	Djibouti
	Egypt
	Iran
	Iraq
	Jordan
	Kuwait
	Lebanon
	Libyan Arab Jamahiriya
	Morocco
	Oman
	Pakistan
	Qatar
	Saudi Arabia
	Somalia
	Sudan
	Syrian Arab Republic
	Tunisia
	United Arab Emirates
	Yemen
EUROPE	Albania
	Andorra
	Armenia

WHO region	Country
EUROPE (cont'd)	Austria
	Azerbaijan
	Belarus
	Belgium
	Bosnia & Herzegovina
	Bulgaria
	Croatia
	Cyprus
	Czech Republic
	Denmark
	Estonia
	Finland
	France
	Georgia
	Germany
	Greece
	Greenland
	Hungary
	Iceland
	Ireland
	Israel
	Italy
	Kazakhstan
	Kosovo
	Kyrgyzstan
	Latvia
	Lithuania
	Luxembourg
	Malta
	Monaco
	Netherlands
	Norway
	Poland
	Portugal
	Republic of Moldova
	Romania
	Russian Federation
	Saint Pierre and Miquelon
	San Marino
	Serbia and Montenegro
	Slovakia
	Slovenia
	Spain
	Sweden

WHO region	Country
EUROPE (cont'd)	Switzerland
	Tajikistan
	TFYR Macedonia
	Turkey
	Turkmenistan
	Ukraine
	United Kingdom
	Uzbekistan
SOUTH EAST ASIA	Bangladesh
	Bhutan
	DPR Korea
	India
	Indonesia
	Maldives
	Myanmar
	Nepal
	Sri Lanka
	Thailand
	Timor-Leste
WESTERN PACIFIC	American Samoa
	Australia
	Brunei Darussalam
	Cambodia
	China
	China, Hong Kong SAR
	China, Macao SAR
	Cook Islands
	Fiji
	French Polynesia
	Guam
	Japan
	Kiribati
	Lao PDR
	Malaysia
	Marshall Islands
	Micronesia
	Mongolia
	Nauru
	New Caledonia
	New Zealand
	Niue
	Northern Mariana Is
	Palau
	Papua New Guinea

WHO region	Country
WESTERN PACIFIC (cont'd)	Philippines
	Pitcairn Islands
	Rep. Korea
	Samoa
	Singapore
	Solomon Islands
	Tokelau
	Tonga
	Tuvalu
	Vanuatu
	Viet Nam
	Wallis & Futuna Is

Appendix VI
WHO reporting form for 2002 cases

WHO TB data collection form for strategies and notifications in 2002, treatment outcomes of cases registered in 2001, and financial information for fiscal years 2002-2003.

1. Identification

A	**Country**		
B	**Date**		
		National TB control programme manager or equivalent:	*Person filling out this form (if different from name at left)*
C	**Name**		
D	**Functional Title**		
E	**Address**		
F	**Telephone**		
G	**Fax**		
H	**E-mail**		

See separate "Instructions" document. Please send completed form to your WHO country/regional office.

WHO TB data collection form for strategies and notifications in 2002, treatment outcomes of cases registered in 2001, and financial information for fiscal years 2002-2003.

2. Strategic components of TB control in 2002

Response for question A: No, Yes (Select one). Question B: No, Yes, NA [not applicable] (Select one)

		No	Yes	NA
A	**Did you have a national TB control manual (or guidelines for TB diagnosis and treatment) in 2002?** (If Yes, please provide a copy to WHO country office, if you have not already done so.)			
B	**Were TB drug forecasting, financing and procurement centralized in 2002?**			

Responses for questions C - E: absolute numbers for C and D; percentage for E.

C	**How many basic administrative health jurisdictions/operational health units were there in 2002?**	
D	**How many of these admininstrative/operational units were considered as "DOTS" units in 2002?**	
E	**What proportion of the country's population lived within the administrative/operational boundaries (catchment areas) of health facilities that fell under the DOTS scheme in your country in 2002?**	%

Responses for questions F-J: NO, In SOME units, In ALL units (Select one).

		DOTS units			Non-DOTS units		
F	**Was sputum microscopy routinely used to diagnosis suspected pulmonary cases?**	No	Some	All	No	Some	All
G	**Was there a system for monitoring the number of TB suspects assessed by smear microscopy?**	No	Some	All	No	Some	All
H	**Was standardized, short-course chemotherapy (less than 9 months) used routinely to treat sputum smear-positive cases?**	No	Some	All	No	Some	All
I	**Was direct observation of treatment used routinely -- at least during the initial phase (2-3 months) of treatment?**	No	Some	All	No	Some	All
J	**Were TREATMENT outcomes of ALL smear-positive patients monitored, analyzed by cohort, and reported to the next supervisory level?**	No	Some	All	No	Some	All

See separate "Instructions" document. Please send completed form to your WHO country/regional office.

3. Completeness of Reporting in 2002

	DOTS units		Non-DOTS units	
	No	Yes	No	Yes
A **Did you collect aggregated data** (not individualized) **at national level in 2002? (Select No or Yes.** If Yes, please answer questions B-D below.)				
B **How many times were administrative/operational units supposed to report cases registered to the next level in 2002?** (absolute number)				
C **How many reports were EXPECTED in 2002?** (absolute number or "DK" [don't know]) *				
D **How many reports were MISSING in 2002?** (absolute number or "DK" [don't know]) *				

* If you answer "Yes" to question A, please answer questions B-D with regard to the lowest level possible (i.e., the district, or the basic administrative/operational level). The number of expected reports should equal the number of administrative/operational units you listed on page 2 multiplied by the number of times per year that these units should report. (For example, if you have 100 operational units are supposed to report quarterly, then you would expect 100 x 4 = 400 reports.

If district reports are consolidated at provincial level and information on their completeness is not transmitted to central level, then please answer the question with regard to the consolidated reports that you receive from midlevel. (For example, 25 consolidated reports received twice per year = 50 EXPECTED reports.)

WHO TB data collection form for strategies and notifications in 2002, treatment outcomes of cases registered in 2001, and financial information for fiscal years 2002-2003.

4. Notifications for 2002 (absolute numbers)

	DOTS	Non-DOTS
A **New pulmonary smear-positive**		
B **New pulmonary smear-negative**		
C **New pulmonary: no smear or results unknown**		
D **New extra-pulmonary**		
E **Relapse smear-positive**		
F **TOTAL NOTIFICATIONS (A - E) ***		
G **New pulmonary laboratory-confirmed ****		
H **Other registrations** not included in WHO notification rate ***		

* *Total notifications should equal the sum of A-E; it may be more than the sum of A-E if there are some additional cases with unknown site of disease or unknown history.*

** *New pulmonary lab-confirmed cases include all cases in A plus any cases confirmed by additional laboratory methods.*

*** *These include retreatment after failure, retreatment after default, chronic cases.*

5. Notifications for 2002, continued (absolute numbers): age and sex of new smear-positive cases

	0-14	15-24	25-34	35-44	45-54	55-64	65+	TOTAL
DOTS								
A **Male**								
B **Female**								
Non-DOTS								
C **Male**								
D **Female**								

If data are based on less than a year's worth of data, please note this in 'Remarks.'

6. Treatment outcomes for cases registered in 2001 (absolute numbers)

		New smear-positive cases *		Retreatment cases	
		Please see note (*) below, and use this box accordingly		*Please indicate which re-treament case types are including.*	
Y					
	example	**DOTS**	**Non-DOTS**	**DOTS**	**Non-DOTS**
Z **Cohort registered for treatment** *(if different from that notified last year to WHO, please explain under 'Remarks'.)*	*107*				
A **Cured**	*63*				
B **Completed**	*27*				
C **Died**	*3*				
D **Failed**	*4*				
E **Defaulted**	*3*				
F **Transferred out**	*4*				
	total evaluated:	*104*			

* *If culture is routinely available throughout the country, then you should instead use these columns to report outcomes of the cohort of laboratory-confirmed new pulmonary cases, where the outcome is determined by the best laboratory evidence available for each case and indicate "lab-confirmed cohort" in box Y.*

7. Financial information

FISCAL YEAR 2003
(your fiscal year starting between 1 July 2002 and 30 June 2003)

Beginning of your fiscal year 2003 (day, month, year)		**Esimated proportion of new patients hospitalized (%)**	
Expected number of patients to be treated		**Estimated average duration of stay if hospitalized (days)**	
Estimated number of visits to a health facility for one new case during treatment, for D-O-T, collection of drugs and sputum smear monitoring.		**Number of hospital beds used exclusively for TB**	

Please give amounts for budget, funding, and gap in US dollar equivalent, in multiples of 1 000 (example: '78' for 78,000 USD)	**BUDGET REQUIRED**	**EXPECTED Funding**				**GAP[2]**
		Government[1]	**Loans**	**Grants**	**Other**	
Drugs						
Dedicated staff working exclusively for TB control.						
NEW activities to increase case detection and cure rates[3]						
Buildings, equipment (vehicles, lab / office equip. etc.)						
All other budget lines for TB						
TOTAL						

FISCAL YEAR 2002
(your fiscal year starting between 1 July 2001 and 30 June 2002)

Please give amounts spent and received in US dollar equivalent, in multiples of 1 000 (example: '78' for 78,000 USD)	**EXPENDITURE**	**RECEIVED Funding**			
		Government[1]	**Loans**	**Grants**	**Other**
Drugs					
Dedicated staff working exclusively for TB control.					
NEW activities to increase case detection and cure rates[3]					
Buildings, equipment (vehicles, lab / office equip. etc.)					
All other budget lines for TB					
TOTAL					

NOTES:
[1] Include funding from both CENTRAL and PERIPHERAL government sources (provinces, districts etc.)
[2] Values in this column should equal the "Budget" column MINUS the total of all "Expected Funding" columns.
[3] Refers to activities that were NOT in the previous year's budget; possible examples are social mobilization campaigns, activities to engage the private sector, incentives/enablers for providers or patients etc.

WHO TB data collection form for strategies and notifications in 2002, treatment outcomes of cases registered in 2001, and financial information for fiscal years 2002-2003.

8. Remarks

Remarks may include: information on completeness of data, explanations for inconsistencies in data, more detailed data, revision of data reported in previous years, and further explanation of financial data.

Appendix VII
Canada – Case and treatment outcome reporting forms

Active Tuberculosis Report Form – New and Relapsed Cases

Serial No._____

For Internal Use Only
Date received at TBPC — Year Month Day
TBPC Number

CONFIDENTIAL WHEN COMPLETED

Date Form Completed — Year Month Day

Province/Territory/Patient ID

1. Reporting province/ territory

2. Register case number

3. Unique Identifier ***(if name not provided)***

4. Date of birth — Year Month Day

5. Sex — 1 M 2 F

Patient Initials and Usual Residence

6. First Middle Last

7. City/Town/Village — County and Health Unit — Postal Code — Geo Codes PR CD PR HU/SC

Origin

8.
1 Status Indian (registered) → Lives on reserve most of the time: 1 Yes 2 No 8 Not Applicable 9 Unknown
2 Métis
3 Inuit
8 Other aboriginal *(specify)* _____
5 Canadian Born non-Aboriginal → If under age 20: country of birth of mother _____ country of birth of father _____
6 Foreign-Born: (a) Country of Birth (b) Year of Arrival in Canada _____ (c) Immigration status: (current status) 1 Landed immigrant or Canadian citizen; 2 Refugee claimant; 3 Non-resident (migrant worker, visitor, student, illegal alien); 8 Other (specify) _____; 9 Unknown

Diagnosis

9. Date of diagnosis — Year Month Day

10. Diagnosis
ICD - 9
ICD - 10

Bacillary Status

11. Check all that apply:

	Microscopy							Culture						
	Sputum	Bronchial Wash	GI Wash	Node biopsy	Urine	CSF	Other	Sputum	Bronchial Wash	GI Wash	Node biopsy	Urine	CSF	Other
Negative														
Positive														
Not Done/ Unknown														

12. Case Criteria
1 Positive culture
2 No positive culture, clinical diagnosis

13. Antibiotic resistance to initial positive culture
1 Yes → 1 INH 2 SM 3 EMB 4 RMP 5 PZA
2 No
8 Other *(specify)* _____
9 Unknown

14. Date Treatment Started — Year Month Day

15. Initial Drugs Prescribed ***(check all boxes that apply)***
1 INH
2 SM
3 EMB
4 RMP
5 PZA
7 No drugs prescribed
8 Other *(specify)* _____
9 Unknown

16. Case Finding
1 Symptoms compatible with site of disease
2 Incidental findings
3 Post-mortem
4 Contact investigation
5 Post-landing surveillance
6 Pre-landing immigration evaluation (in Canada)
7 Occupational screening program
8 Other screening
9 Other *(specify)* _____
10 Unknown

17. First episode of TB
1 Yes 2 No →
If no: (a) Year of previous diagnosis _____
(b) Previous diagnosis occurred in: 1 Canada 2 Other Country:
(c) Previous treatment with *(check all antibiotics used)*:
1 INH
2 SM
3 EMB
4 RMP
5 PZA
8 Other *(specify)* _____

18. Patient died before completion of therapy
1 Yes
1 TB was the cause of death
2 TB contributed to death but was not the underlying cause
3 TB did not contribute to death
Date of death — Year Month Day
2 No
3 Not applicable
9 Unknown

19. HIV status
1 Positive 2 Negative 9 Unknown

HC/SC 4368E (01-2002)

DISPONIBLE EN FRANÇAIS

Health Canada / Santé Canada

CONFIDENTIAL WHEN COMPLETED

Serial No. _____

Treatment Outcome of a New Active or Relapsed Tuberculosis Case

See reverse for Guidelines for Completing the Treatment Outcome form.

For Internal Use Only
Date received at TBPC — Year / Month / Day
TBPC Number

Tuberculosis Prevention and Control (TBPC)
Centre for Infectious Disease Prevention and Control
Population and Public Health Branch
Room 0108B, Brooke Claxton Building
Internal Address Locator: 0900B1
Tunney's Pasture, Ottawa, ON K1A 0L2

Date Form Completed — Year / Month / Day

1. Reporting province / territory:

2. Register case number:

3. Unique Identifier: (if name not provided) _____

4. Date of birth: Year / Month / Day

5. Sex: 1 M 2 F

6. Patient Initials First Middle Last

7. Date of diagnosis: Year / Month / Day

8. Date initial treatment started: Year / Month / Day

9. Initial drugs prescribed (list all that apply):
1 INH 2 SM 3 EMB 4 RMP 5 PZA 7 No drugs prescribed 8 Other *(specify)* _____ 9 Unknown

10. If transfer from original reporting province/territory, please state treating province:

11. Register case number: (if different from 2 above)

12. Unique identifier: (if different from 3 above) _____

13. Date treatment started: Year / Month / Day

14. Last day of this treatment: Year / Month / Day

15. Did resistance develop during treatment?
1 Yes 2 No

If yes, please check drug(s) *(check all that apply)*:
1 INH 2 SM 3 EMB 4 RMP 5 PZA 8 Other *(specify)* _____ 9 Unknown

16. What was the treatment outcome? ***(Check one only).***
1 Cure - negative culture at completion of treatment.
2 Treatment completed - without culture at end of treatment.
3 Death during treatment → 1 TB was the cause of death; 2 TB contributed to death but was not the underlying cause; 3 TB did not contribute to death
Date of Death: Year / Month / Day
4 Transferred to new jurisdiction - outcome of treatment unknown *(specify new jurisdiction)* _____
5 Failure - culture positive at 5 months or more.
6 Absconded (lost to follow-up before completion of 80% of doses, 8 months after treatment started).
7 Treatment Ongoing
8 Other *(specify)* _____ 9 Unknown

17. Treatment regimen ***(for drugs taken > 1 month) (check all that apply)***:
1 INH 2 SM 3 EMB 4 RMP 5 PZA
Duration (months)
8 Other *(specify)* _____ Duration (months)
8 Other *(specify)* _____
9 Unknown

18. Major mode of treatment:
1 DOT (daily or intermittent)
2 Daily, self-administered
8 Other (specify) _____
9 Unknown

19. Compliance estimate ***(% of medication received):***
1 80%+ 3 50-79%
4 <50% 9 Unknown

20. Last sputum smear (respiratory cases only):
1 Positive 2 Negative 3 Not done 9 Unknown
Date of last smear: Year / Month / Day

21. Last sputum culture (respiratory cases only):
1 Positive 2 Negative 3 Not done 9 Unknown
Date of last culture: Year / Month / Day

22. Most recent chest x-ray results (respiratory cases only):
1 Better than initial x-rays 2 Worse than initial x-rays 3 Stable 4 Not done 9 Unknown

23. Date of most recent x-ray: Year / Month / Day

HC/SC 9012E (01-2002) **Copy 1 (white) - TBPC (mailing address at top of form) Copy 2 (yellow) - Provincial / Territorial TB Registry**

DISPONIBLE EN FRANÇAIS

Appendix VIII
The Canadian Tuberculosis Committee

PROVINCIAL/TERRITORIAL TB CONTROL PROGRAM REPRESENTATIVES

Alberta
Dr. Richard Long

British Columbia
Dr. Kevin Elwood

Manitoba
Dr. Pamela Orr

Québec
Dr. Terry Nan Tannenbaum

New Brunswick
Dr. Christofer Balram

Newfoundland and Labrador
Dr. Faith Stratton

Nova Scotia
Dr. Maureen Baikie

Northwest Territories
Ms. Cheryl Case

Nunavut
Ms. Elaine Randall

Ontario
Dr. Barbara H. Kawa

Prince Edward Island
Dr. Lamont Sweet

Saskatchewan
Dr. Vernon Hoeppner

Yukon
Ms. Colleen Hemsley

TUBERCULOSIS PREVENTION AND CONTROL, PUBLIC HEALTH AGENCY OF CANADA
Dr. Edward Ellis

FIRST NATIONS AND INUIT HEALTH BRANCH, HEALTH CANADA
Dr. Marcus Lem

NATIONAL MICROBIOLOGY LABORATORY, PUBLIC HEALTH AGENCY OF CANADA
Dr. Amin Kabani

CANADIAN PUBLIC HEALTH LABORATORY NETWORK
vacant

ASSOCIATION OF MEDICAL MICROBIOLOGY AND INFECTIOUS DISEASE
(liaison member)
Dr. Wendy Wobeser

CANADIAN LUNG ASSOCIATION REPRESENTATIVE
Dr. Brian Graham

CITIZENSHIP AND IMMIGRATION CANADA
Dr. Sylvie Martin

CORRECTIONAL SERVICE OF CANADA
Sylvie-Anne Lavigne