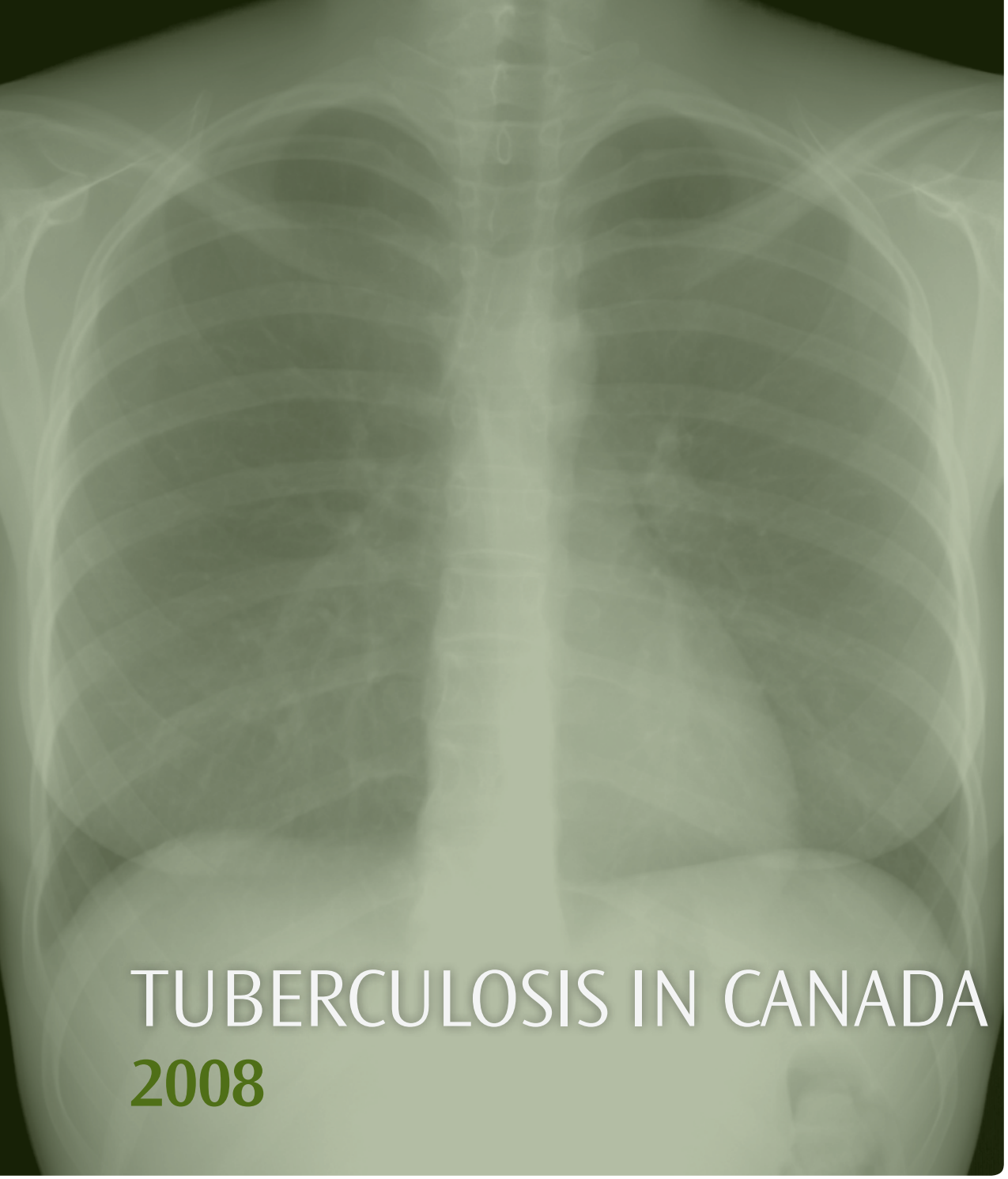

TUBERCULOSIS IN CANADA
2008

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Suggested citation: Public Health Agency of Canada. Tuberculosis in Canada 2008. Ottawa (Canada): Minister of Public Works and Government Services Canada; 2012

ACKNOWLEDGEMENT
The authors would like to acknowledge the provincial and territorial tuberculosis programs and their teams for their contribution to and ongoing participation in the Canadian Tuberculosis Reporting System.

Online Cat.: HP37-5/2008E-PDF
ISBN: 1498-4865

CONTENTS

EXECUTIVE SUMMARY

In 2008, a total of 1,643 new active and re-treatment tuberculosis (TB) cases were reported to the Canadian Tuberculosis Reporting System (CTBRS) for a reported incidence rate of 4.9 per 100,000. The number of cases reported and the incidence rate increased over 2007, representing a 4.3% and 2.1% change, respectively.

British Columbia, Ontario and Quebec, which collectively made up three-quarters of Canada's population in 2008, accounted for 70% of the total number of reported TB cases in that year. Nunavut reported the highest incidence rate at 186.7 per 100,000 population. The rate was less than 1 per 100,000 population in New Brunswick and Nova Scotia, while Prince Edward Island reported no TB cases.

Individuals between 25 and 44 years of age represented 35% of reported cases. However, the group 75 years of age and older had the highest recorded age-specific rate at 9.4 per 100,000. The incidence rate of 7.2 per 100,000 population remained consistently higher for the 65-74 years age group, relative to the younger age groups.

In 2008, foreign-born cases represented the largest proportion of the overall case count when compared with the Canadian-born non-Aboriginal and Canadian-born Aboriginal populations. A total of 1,068 TB cases were reported among the foreign-born population, representing 65% of all reported cases. The Canadian-born non-Aboriginal population accounted for 221 of all cases (13% of the total), while 344 cases (21% of the total) were diagnosed in the Canadian-born Aboriginal population.

Pulmonary TB, including TB of the lungs and conducting airways was the most frequently reported diagnostic site in 2008, accounting for 68% of reported cases. Meanwhile, TB of the peripheral lymph nodes accounted for 11% of reported cases. The proportion of primary TB cases was markedly higher in the Northwest Territories (38%), Saskatchewan (22%) and Yukon (25%) than the overall Canadian proportion (3.6%).

Data on the HIV status of persons diagnosed with active TB continue to be underreported at the national level. Of the 1,643 TB cases reported in 2008, 667 cases (41%) had an HIV test result reported. Reporting of HIV status varied across the provinces and territories, ranging from 0% to 96%.

Of the 1,643 TB cases reported in 2008, 1,328 were culture positive and drug susceptibility data were available for 1,316 cases. Ninety-two percent of these cases showed no resistance to first-line anti-TB drugs (isoniazid, rifampin, ethambutol or pyrazinamide); 7% percent were mono-resistant and 1% showed patterns of resistance to two or more prescribed drugs.

For the 107 cases that were resistant to at least one drug, 80% were monoresistant. Of the 86 monoresistant cases, 89% were resistant to INH. Thirteen percent of the resistant cases were multidrug-resistant TB (MDR-TB), and no cases of extensively drug-resistant TB (XDR-TB) were reported in 2008.

Of the 1,643 TB cases reported in 2008, 141 died before or during the course of treatment. TB was reported as the underlying cause of death for 37 (26%) of these cases and TB contributed to death, but was not the underlying cause for 67 cases (48%).

Partial or complete outcome data were available for 1,424 (90%) of the 1,576 cases reported in 2007. Of these cases, 1,167 (82%) were reported as cured or having completed treatment, 136 (10%) died before or during treatment, 29 (2%) transferred out of Canada, 34 (2%) absconded before completion of 80% of treatment, and treatment was ongoing for 41 (3%) cases.

The total number of TB cases reported in Canada has been declining over the past decade. This trend largely reflects the decreasing number of cases among the Canadian-born non-Aboriginal population, which saw an average annual decrease of 4% in the number of reported cases between 1998 and 2008. The number of cases in the foreign-born population also decreased each year, but only by an average of 1%. In the Canadian-born Aboriginal population, however, the number of cases increased by an average of 3% per year over the past decade.

INTRODUCTION

The 2008 *Tuberculosis in Canada* annual report is a publication of the Centre for Communicable Diseases and Infection Control (CCDIC), Public Health Agency of Canada (PHAC). Collection of statistics on reported cases of tuberculosis in Canada began in 1924. PHAC stores and maintains copies of all these historical reports. Responsibility for the Canadian Tuberculosis Reporting System (CTBRS) was transferred from Statistics Canada to Health Canada in 1994. PHAC assumed responsibility for the annual reporting in September 2004. Reports of all new active and re-treatment tuberculosis cases are annually submitted to PHAC by all provinces and territories.

This report relates the overall TB case counts and incidence rates, as well as data on selected demographic and clinical characteristics. The following information about TB cases is provided:

- province/territory
- sex
- age
- origin
- new and re-treatment cases[1]
- main diagnostic site
- bacterial status
- method of detection
- immigration status
- HIV status
- risk factors/markers for disease
- patterns of drug resistance
- treatment outcomes
- drug regimens

The appendices to this report provide data tables (Appendix I), technical notes (Appendix II), population estimates for 2008 (Appendix III), the World Health Organization (WHO) estimated incidence of TB in the 22 high-burden countries in 2008 (Appendix IV), the WHO TB epidemiological regions and the member countries (Appendix V), and the Canadian tuberculosis case and treatment outcome reporting forms (Appendix VI).

The format and content of these annual reports are revised each year in order to adapt and improve this publication in response to changes in the epidemiology and clinical management of TB. Comments on the content and format of this document are always welcome.

1 As of 2008, the CTBRS classifies all cases as new or re-treatment cases; see Appendix C of Canadian Tuberculosis Standards, 6th ed. for complete definitions.

RESULTS

Section I - 2008 Case reporting

NATIONAL TRENDS

The reported incidence of tuberculosis (TB) in Canada has gradually declined following a peak in the epidemic in the early 1940s (Figure 1). The number of reported cases and the corresponding incidence rate have generally continued to decrease over the last two decades (Table A; Figure 2). Nonetheless, the rate temporarily stabilized at approximately 5.0 per 100,000 population between 2000 and 2006. The year 2007 saw the lowest TB incidence rate in Canada (at 4.8 per 100,000 population) since reporting began. There was a slight increase from 4.8 per 100,000 population to 4.9 per 100,000 population between 2007 and 2008, representing a 2.1% change.

A total of 1,643 incident cases of TB were reported to the CTBRS in 2008 (Appendix I, Table 1A). New active cases made up the majority (90%) of reported cases with a rate of 4.4 per 100,000 population; the rate for re-treatment cases was 0.4 per 100,000 population (Appendix I, Tables 1B and 1C). A previous history of active TB disease was not reported for 2% of these cases.

Table A: Incidence rate of tuberculosis in Canada: 1998 – 2008

Year	Number of reported cases	Crude rate per 100,000	Three-year moving average
1998	1,810	6.0	
1999	1,821	6.0	5.9
2000	1,724	5.6	5.8
2001	1,772	5.7	5.5
2002	1,667	5.3	5.4
2003	1,631	5.2	5.2
2004	1,613	5.0	5.1
2005	1,641	5.1	5.1
2006	1,654	5.1	5.0
2007	1,576	4.8	4.9
2008	1,643	4.9	

Figure 1: Tuberculosis incidence and mortality rates – Canada: 1924 – 2008

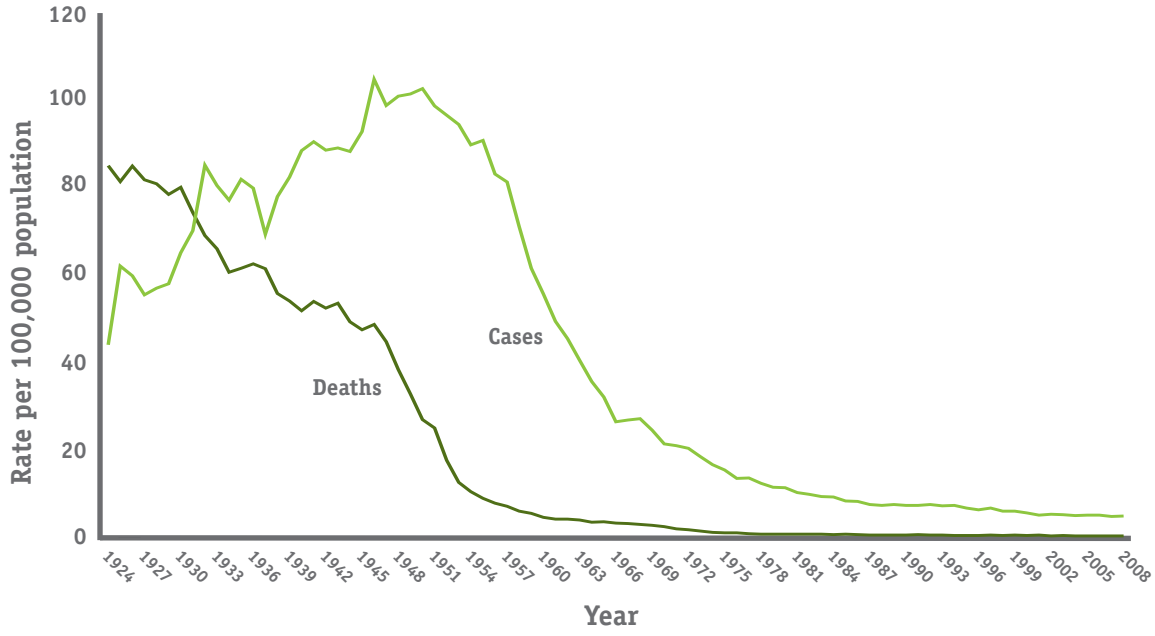
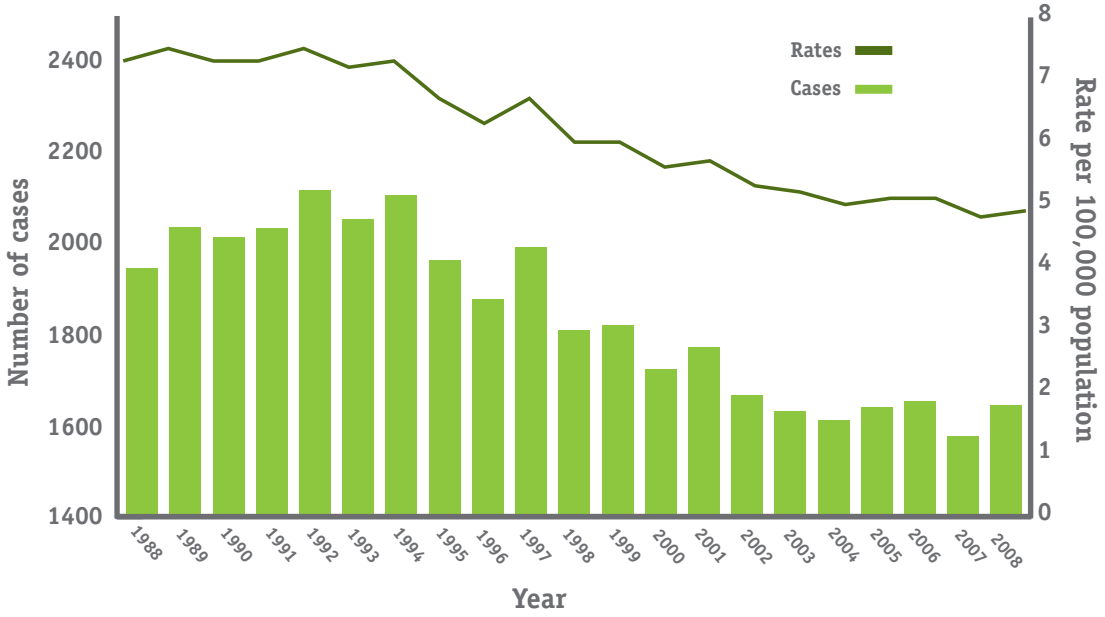


Figure 2: Tuberculosis cases and incidence rate – Canada: 1988 – 2008



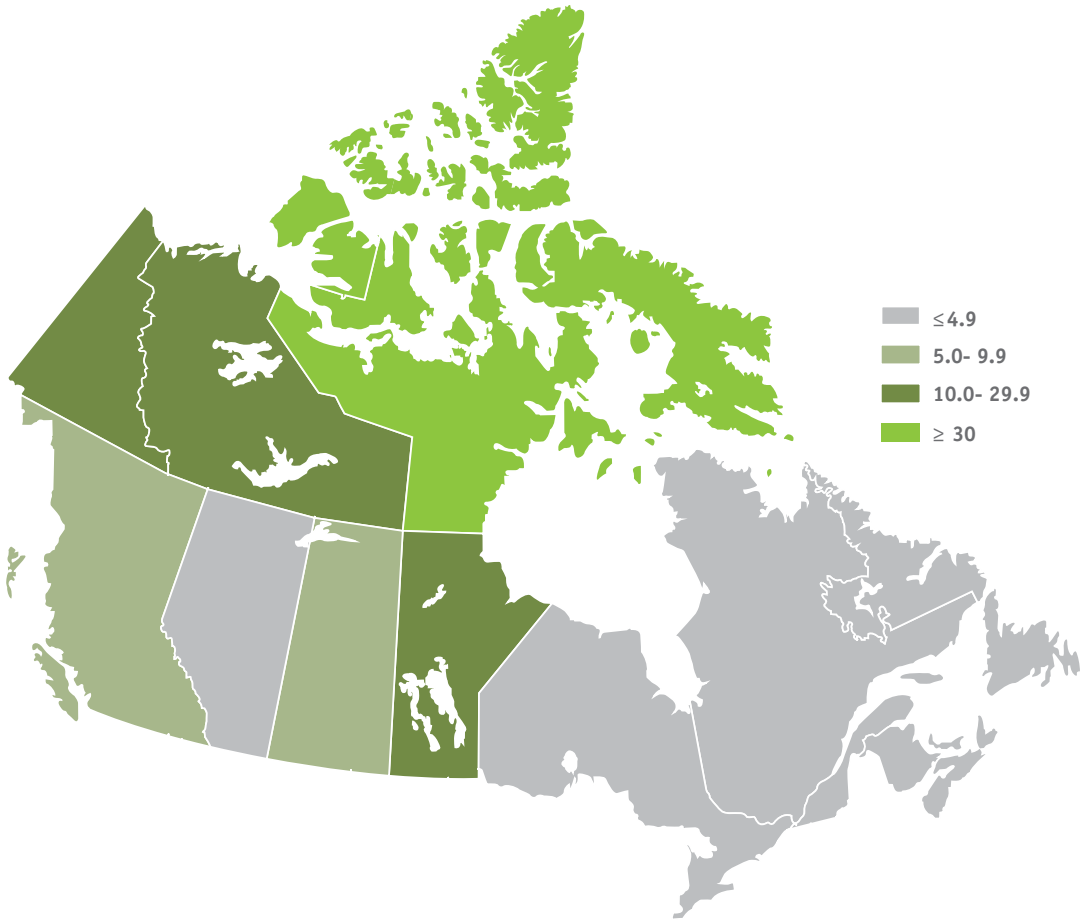
GEOGRAPHIC DISTRIBUTION

The reported TB incidence rates across Canada for 2008 ranged from 0.0 (Prince Edward Island) to 186.7 (Nunavut) cases per 100,000 population (Table B, Figure 3). Nunavut saw a notable increase in the reported incidence rate from 99.1 per 100,000 population in 2007 to 186.7 per 100,000 population in 2008. The Northwest Territories, Nova Scotia, Ontario and Saskatchewan reported decreases from their 2007 rates for 2008. The remaining provinces and territories reported increases or remained stable from the previous years. No cases were reported from Prince Edward Island for the third consecutive year.

Table B: Ranked tuberculosis incidence rate in Canada - provinces/territories: 2008

Reporting province or territory	Abbreviation	Incidence rate per 100,000
Nunavut	Nvt.	186.7
Northwest Territories	N.W.T.	29.7
Yukon	Y.T	24.2
Manitoba	Man.	11.7
Saskatchewan	Sask.	9.4
British Columbia	B.C.	6.8
Ontario	Ont.	4.7
Alberta	Alta.	4.7
Quebec	Que.	3.1
Newfoundland and Labrador	N.L.	1.6
New Brunswick	N.B.	0.7
Nova Scotia	N.S.	0.4
Prince Edward Island	P.E.I.	0.0
CANADA		**4.9**

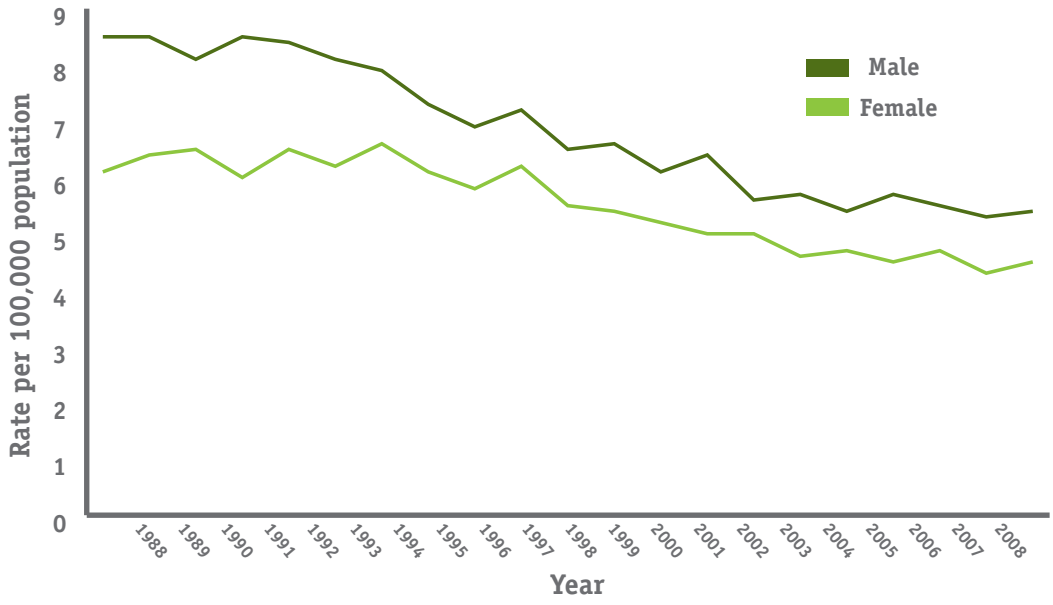
Figure 3: Tuberculosis incidence rate by province/territory compared to national rate (4.9 per 100,000): 2008



SEX AND AGE DISTRIBUTION

Both male and female incidence rates of TB have declined in tandem with the overall rate for Canada over the past twenty years. While reported TB cases and incidence rates have always been higher in males, the differential between males and females has gradually diminished. In 2008, the ratio of males to females was 1:0.9, with males continuing to account for the larger proportion of reported cases (887 cases, 5.4 per 100,000 population) when compared with females (756 cases, 4.5 per 100,000 population) (Figure 4; Appendix I, Tables 2B and 2C).

Figure 4: Tuberculosis incidence rate by sex – Canada: 1988-2008



Individuals between the ages of 25 and 34 years comprised the largest number of reported TB cases, representing 18% of the total. However, the age-specific incidence rate of 9.4 per 100,000 for those 75 years and older remains the highest rate for all reported age groups (Figure 5; Appendix I, Table 2A).

Figure 5: Tuberculosis incidence rate by age group – Canada: 2008

An important measure of TB control is the incidence of active TB disease in children under 15 years of age, since these cases represent recent TB infections. Furthermore, the risk of TB disease and severe forms of TB disease after infection are inversely related to age. Between 1998 and 2008, the proportion of cases among individuals less than 15 years of age decreased from 8.4% in 1998 to 5.5 % in 2008. In 2008, the reported incidence rate in children under the age of 15 was 1.6 per 100,000 population (Appendix I, Table 2A).

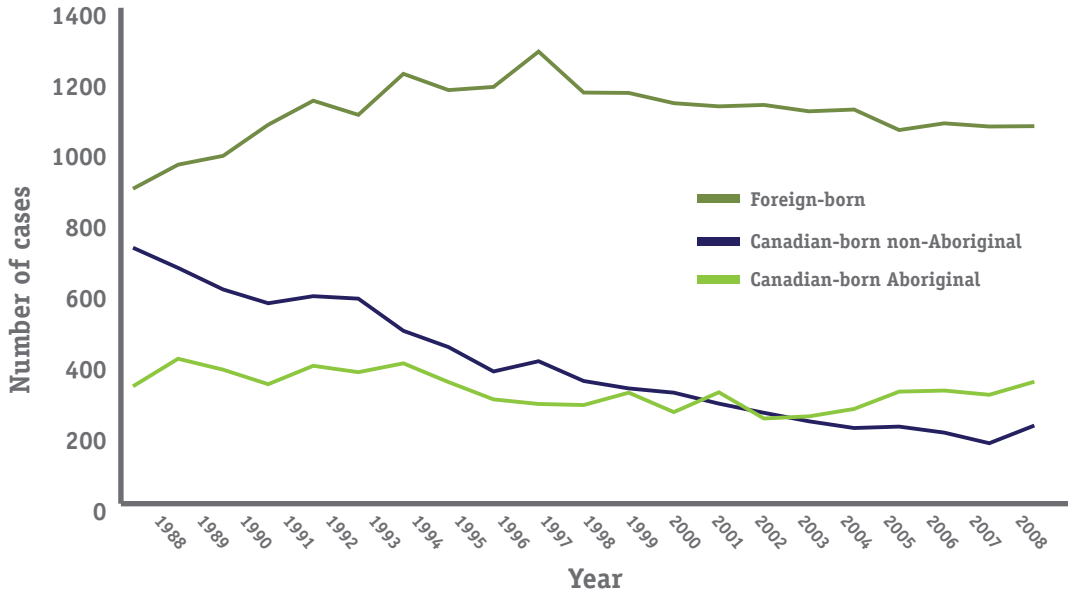
The reported TB incidence rates were similar for males and females between birth and 45 years of age. The incidence rate increases in males (relative to females) among those 45 years and older. By 75 years of age, the reported incidence rate for males is almost twice the rate for females in the same age group (Figure 6; Appendix I, Tables 5B and 5C).

Figure 6: Tuberculosis incidence rate by age group and sex – Canada: 2008

ORIGIN

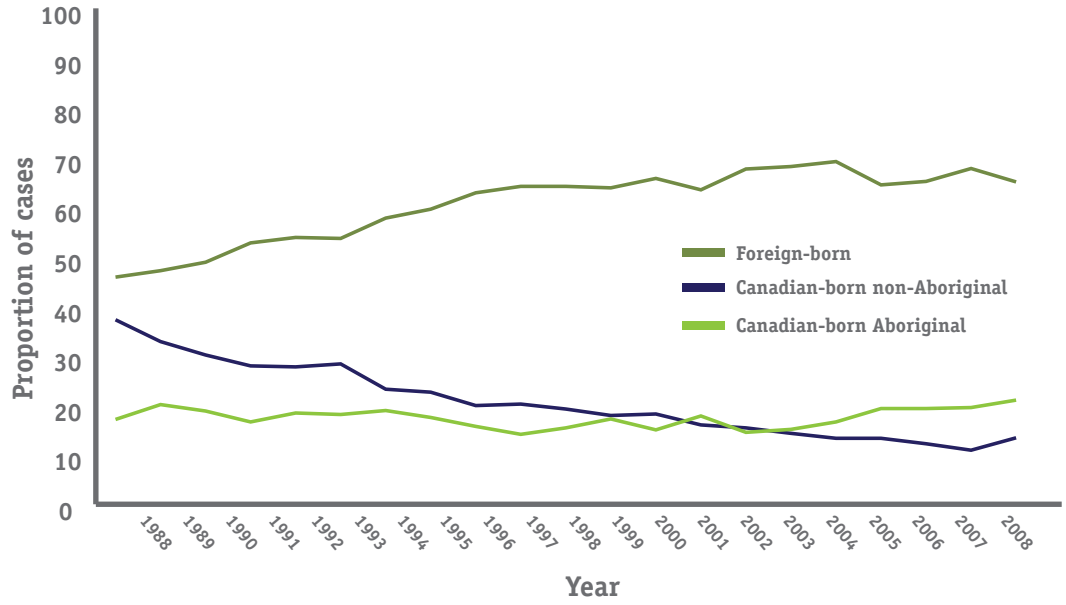
Foreign-born individuals continued to represent the largest proportion of the overall TB case count in 2008 when compared with Canadian-born non-Aboriginal and Canadian-born Aboriginal populations. A total of 1,068 TB cases were reported among foreign-born individuals in 2008, representing 65% of all reported TB cases. A total of 221 cases (13% of the total case count) were in the Canadian-born non-Aboriginal population, and 344 cases (21% of the total case count) were reported in the Canadian-born Aboriginal population. Origin was unknown for 0.6% of the cases (Figures 7 and 8; Appendix I, Table 3).

Figure 7: Number of tuberculosis cases by origin – Canada: 1988-2008



Although the total number of reported cases of TB in Canada has generally decreased over the past decade, the decline largely reflects a decrease in the number of cases in the Canadian-born non-Aboriginal population. Between 1998 and 2008, the Canadian-born non-Aboriginal population saw an average annual decrease of 4% in the number of cases reported. The number of cases in the foreign-born population also decreased annually, but only by an average of 1%. In the Canadian-born Aboriginal population, however, the number of cases increased by an average of 3% per year over the past decade (Figures 7 and 8; Appendix I, Table 3).

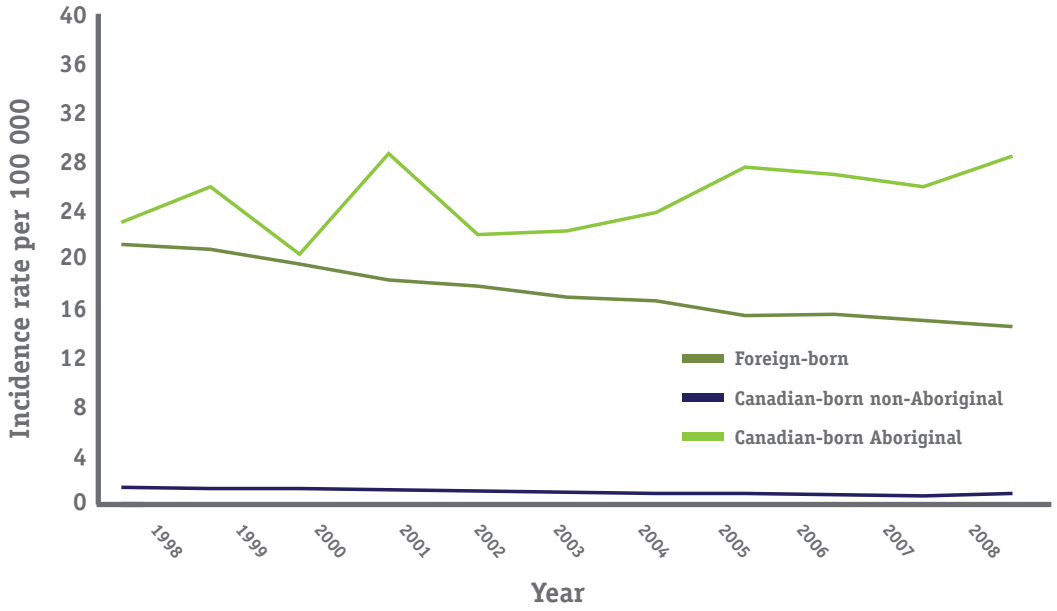
Figure 8: Proportion of tuberculosis cases by origin - Canada: 1988 – 2008



The reported TB incidence rate for the Canadian-born non-Aboriginal population remained at approximately 1 per 100,000 population between the years 2001 and 2008. The reported TB incidence rate for the foreign-born population has declined steadily over the same period, though the absolute number of cases has remained relatively stable at an average of 1,100 per year. This reflects the increasing population base of foreign-born individuals in Canada.

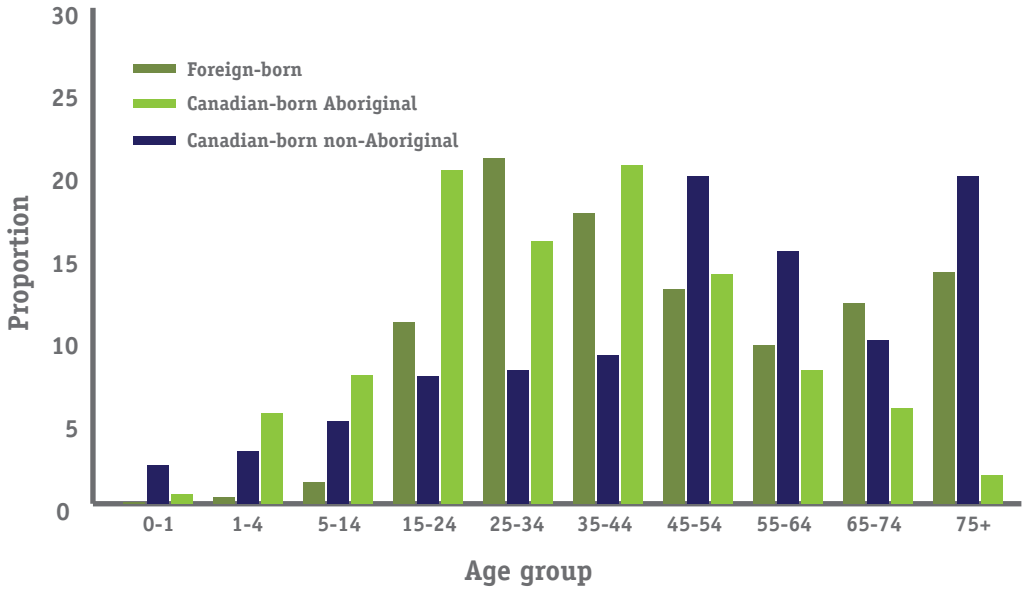
The rate for the Canadian-born Aboriginal population has varied between 20 and 30 per 100,000 population. Between 2007 and 2008, the reported incidence rate for Canadian-born Aboriginals increased from 25.9 to 28.4 per 100,000 population (Figure 9; Appendix I, Table 3), mostly as a result of a rise in the reported TB case count and incidence rate in the Inuit population.

Figure 9: Tuberculosis incidence rate by origin – Canada: 1998-2008



Of all foreign-born TB cases reported in 2008, the 25-34 age group had the largest relative proportion of cases. Less than 2% of the reported cases were under the age of 15. The largest proportion of cases among the Canadian-born non-Aboriginal population belonged to the older age groups (65 years of age and older), and 10% of cases were in those under 15 years of age. Finally, there was a relatively even spread of reported Canadian-born Aboriginal cases among those 15 to 44 years of age, representing almost 60% of the cases in this group; 14% of the cases were under the age of 15 (Figure 10; Appendix I, Table 8).

Figure 10: Proportion of tuberculosis cases by age group and origin – Canada: 2008



Using the epidemiological regions categories provided by the STOP-TB Partnership/WHO TB (Appendix V), 41% of the reported foreign-born cases originated from the Western Pacific Region, primarily from China, the Philippines and Viet Nam (Appendix I, Tables 6 and 8). The highest reported incidence rate (45.2 per 100,000 population) was recorded in individuals from the Africa, High HIV Prevalence region (AFR-High). Table C shows the foreign-born TB incidence rate in Canada by WHO region of birth compared with the WHO estimated TB incidence rate for that region. This illustrates that the pattern of TB in foreign-born populations in Canada mirrors the incidence rates in their countries of origin. Figure 11 shows the proportion of foreign-born TB cases by region reported in Canada between 1998 and 2008.

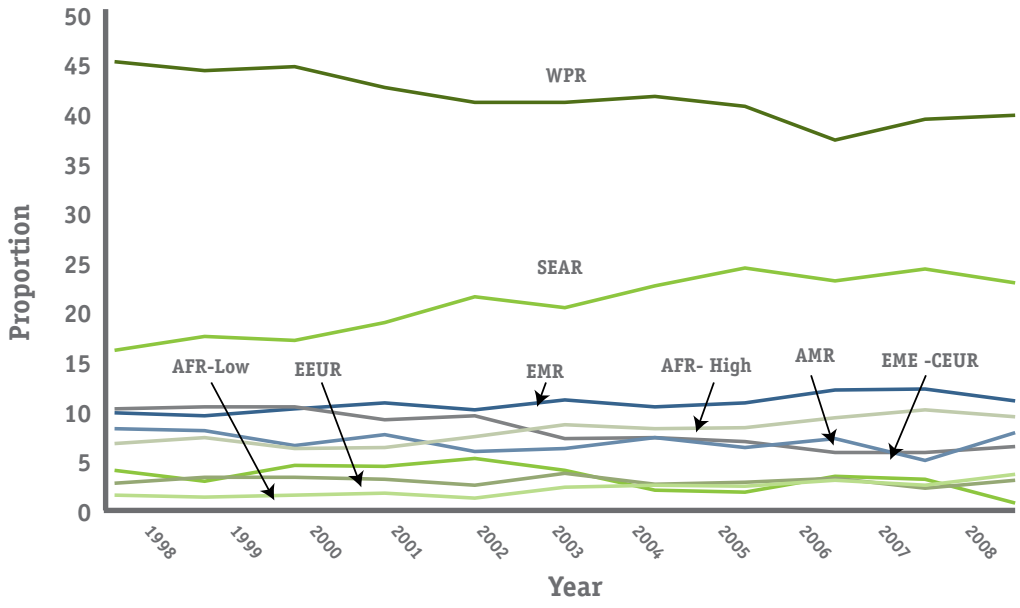
Table C: Comparison of the reported foreign-born tuberculosis incidence rate in Canada by STOP-TB Partnership/WHO TB epidemiological regions of birth (per 100,000 population) with WHO estimated tuberculosis incidence rate in the respective region.

WHO Regions*	Reported rate in Canada, 2008	WHO estimated TB incidence rate in regions, 2008**
Africa, High HIV Prevalence, (AFR High)	45.2	414
Africa, Low HIV Prevalence, (AFR Low)	22.2	217
American Region (AMR) - Latin American Countries (LAC)	7.4	56
Eastern Europe (EEUR)	4.9	91
Eastern Mediterranean (EMR)	15.4	104
Established Market Economies (EME) and Central Europe (CEUR)	2.3	12
South-East Asia (SEAR)	33.3	180
Western Pacific (WPR)	25.5	117
Overall	14.5	139

* Source: The Stop TB Partnership and World Health Organization. Global Plan to Stop TB 2006-2015. Geneva, World Health Organization, 2006 (WHO/HTM/STB/2006.35).

**Source: Global tuberculosis control: surveillance, planning, financing, WHO report 2009. Geneva, World Health Organization (WHO/HTM/TB/2009.411).

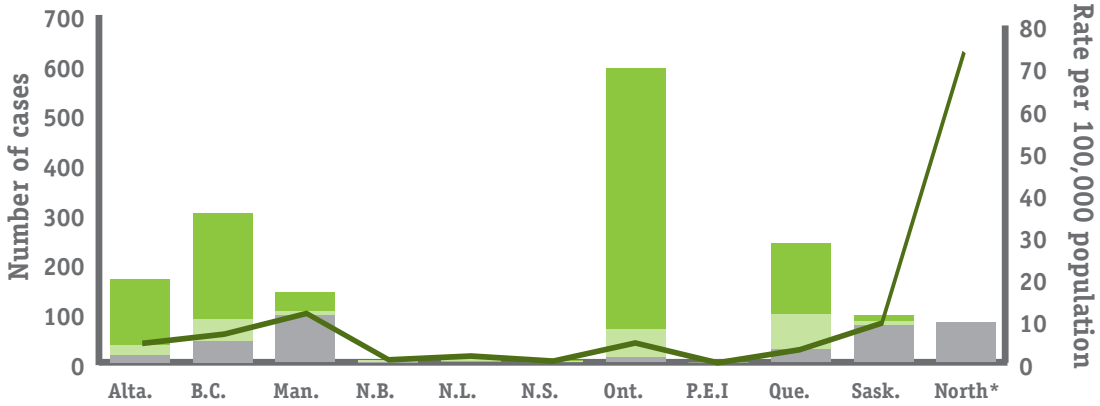
Figure 11: Proportion of foreign-born tuberculosis cases by STOP-TB Partnership/WHO TB epidemiological regions – Canada: 1998- 2008



The highest proportions of foreign-born cases were reported in Alberta (79%), British Columbia (71%) and Ontario (88%). Foreign-born cases accounted for 59% of reported cases in Quebec. Of the four reported cases in Nova Scotia, two (50%) were foreign-born (Appendix I, Table 6). For the remaining provinces and territories, foreign-born cases accounted for fewer than 30% of the total case count.

Canadian-born Aboriginal cases accounted for 21% of all cases reported in Canada. In Saskatchewan and the North (which includes the Northwest Territories, Nunavut and Yukon), Canadian-born Aboriginal peoples accounted for over 75% of reported cases. In Manitoba, Canadian-born Aboriginals made up 67% of cases (Figure 12; Table D; Appendix I, Table 6).

Figure 12: Origin of tuberculosis cases and overall incidence rate – provinces/territories: 2008



	Alta.	B.C.	Man.	N.B.	N.L.	N.S.	Ont.	P.E.I	Que.	Sask.	North*
Canadian-born Aboriginal	15	43	94	1	2	0	10	0	26	74	80
Canadian-born non-Aboriginal	20	43	10	3	6	2	56	0	72	9	0
Foreign-born	132	214	37	1	0	2	528	0	142	12	0
Rate per 100,000	4.7	6.8	11.7	0.7	1.6	0.4	4.7	0	3.1	9.4	73.8

* Includes Northwest Territories, Nunavut and Yukon

Table D: Proportion of tuberculosis cases in Canada by origin -provinces/territories: 2008

Reporting Province or Territory	Canadian-born non-Aboriginal	Canadian-born Aboriginal	Foreign -Born	Unknown Birthplace
Alberta	12.0	9.0	79.0	0.0
British Columbia	14.3	14.3	71.3	0.0
Manitoba	7.1	66.7	26.2	0.0
New Brunswick	60.0	20.0	20.0	0.0
Newfoundland and Labrador	75.0	25.0	0.0	0.0
Nova Scotia	50.0	0.0	50.0	0.0
North*	0	100.0	0.0	0.0
Ontario	9.2	1.7	87.6	1.5
Prince Edward Island	-	-	-	-
Quebec	30.0	10.8	59.2	0.0
Saskatchewan	9.5	77.9	12.6	0.0
Canada	**13.4**	**21.0**	**65.0**	**0.5**

Note: Totals may not always equal 100 due to rounding.
* North includes Northwest Territories, Nunavut and Yukon.

DIAGNOSTIC DISTRIBUTION

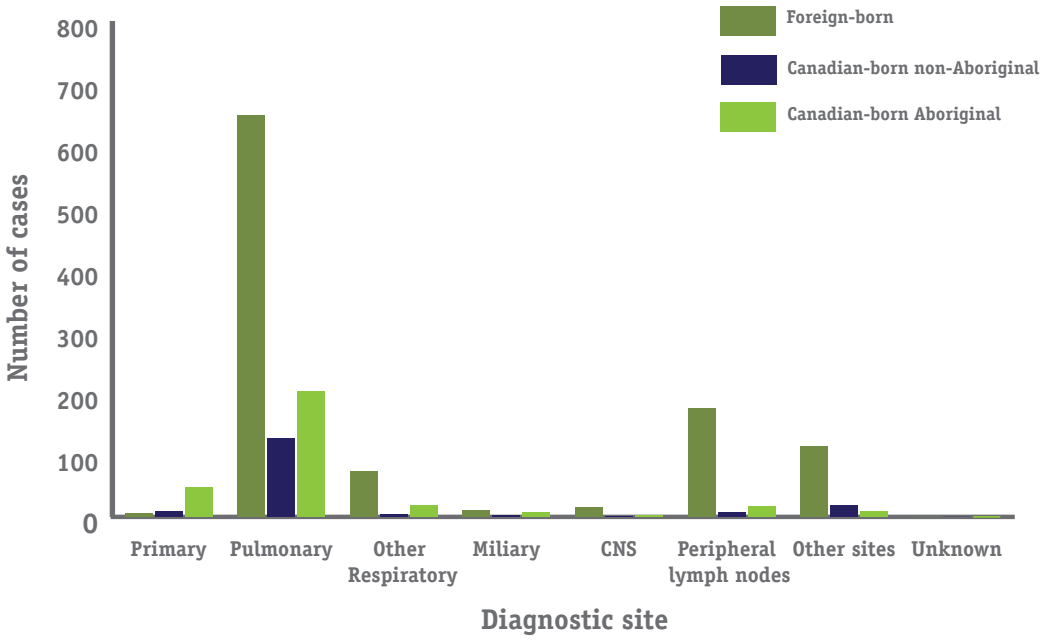
Pulmonary TB, including TB of the lungs and conducting airways (see Appendix II: Technical Notes for complete definition), continues to be the most frequently reported diagnostic site in Canada, accounting for 68% of reported cases in 2008. TB of the peripheral lymph nodes accounted for an additional 11% of the reported cases. Nine percent of the cases were classified as "Other," which included: TB of the intestines, peritoneum and mesenteric glands, bones and joints, genitourinary system, skin, eye, ear, thyroid, adrenal and spleen. The ten year trend in the proportion of cases by each diagnostic site is shown in Table 4 (Figure 13; Appendix I, Table 4).

The proportion of cases represented by a primary diagnosis was less than 10% for the majority of the reporting provinces and territories. However, the proportion of cases represented by a primary diagnosis was 38% for the Northwest Territories, 22% for Saskatchewan and 25% for Yukon (Appendix I, Table 7).

Table 9 shows the distribution of sites of disease by age group for the cases reported in 2008. For primary diagnosis, 56% of those reported were between 0 and 15 years of age. For all other age groups, pulmonary disease was the most common site of disease reported (Appendix I, Table 9).

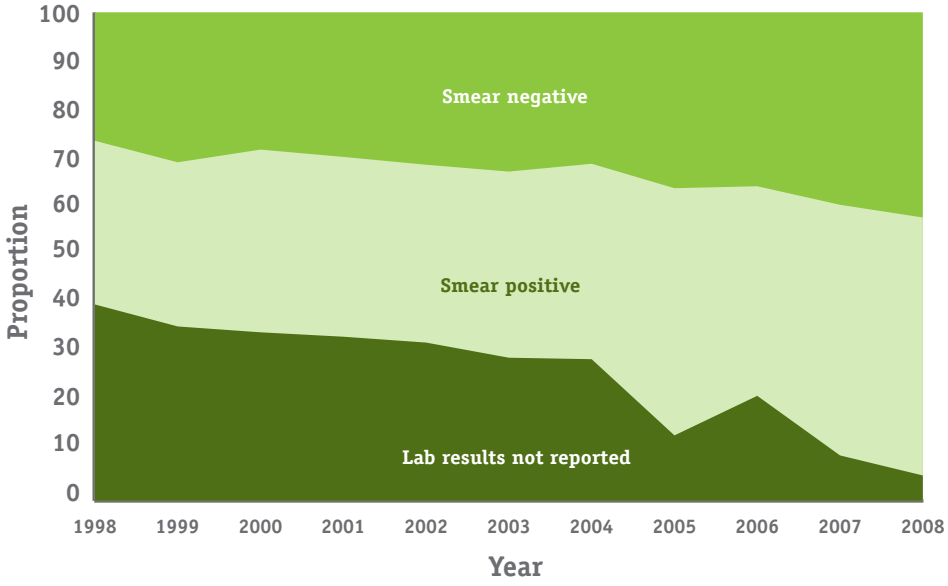
Three-quarters of TB cases in 2008 among Canadian-born Aboriginals were diagnosed with pulmonary TB. The percentage was slightly lower among Canadian-born non-Aboriginals (74%) and foreign-born (65%) individuals. A larger percentage of the foreign-born cases in 2008 (15%) were diagnosed with TB of the peripheral lymph nodes, compared with 8% of the Canadian-born non-Aboriginal cases and 3% of the Canadian-born Aboriginal cases. Of the 59 cases of primary TB, 68% were reported among the Canadian-born Aboriginal population, representing 12% of the total number of Aboriginal cases. TB of the central nervous system (CNS) was rare, accounting for only 12 (0.7%) of all reported cases (Figure 13; Appendix I, Table 10).

Figure 13: Tuberculosis cases by main diagnostic site and origin – Canada: 2008



Sputum smear results were reported for 1,063 of the 1,121 reported cases of pulmonary TB, and 56% (592 cases) were smear-positive[2] (Appendix I, Table 14). A smear-positive diagnosis denotes a highly infectious form of pulmonary TB. Figure 14 shows the proportion of pulmonary TB from sputum smear microscopy results between 1998 and 2008.

Figure 14: Proportion of pulmonary cases by sputum smear microscopy results: Canada 1998-2008



2 Samples for smear positive detection were obtained through direct collection, bronchoscopy, or gastric aspiration.

PREVIOUS HISTORY OF TB DISEASE

Of the 1,643 TB cases reported in Canada in 2008, 1,481 (90%) were new active cases; 126 (8%) were re-treatment cases (defined as having had at least one previous diagnosis of TB disease in the past); and the previous history of TB disease was reported as unknown for 36 cases (2%). Of the 126 re-treatment cases, 67% belonged to the foreign-born population. Eight percent of the total number of cases among Canadian-born Aboriginals and 6% of the total among Canadian-born non-Aboriginal were re-treatment cases (Appendix I, Table 11). Finally, the year of the previous episode was recorded for 72 (57%) of the 126 re-treatment cases. The previous episode of TB disease occurred within two years of the current episode in 11 of these re-treatment cases. However, the majority of re-treatment cases for which the year of the previous episode was recorded occurred more than 20 years prior to the current episode (38 cases; 53%) (Appendix I, Table 20).

CASE DETECTION

Seventy-three percent of all 2008 TB cases were diagnosed when individuals presented with symptoms to a medical professional. However, this pattern varies across jurisdictions. In Manitoba and Saskatchewan, for example, most cases were diagnosed as a result of symptoms, while other jurisdictions identified a larger proportion of cases through contact investigation. In the Northwest Territories, Yukon and Nunavut, fully one-half or more of cases were diagnosed as a result of a contact investigation (Appendix I, Table 16). Seventy percent of the 173 cases identified through contact tracing by origin were among Canadian-born Aboriginals (Appendix I, Table 17).

FOREIGN-BORN

Of foreign born TB cases reported in 2008 for which year of arrival was known (96%), 10% were diagnosed with active TB disease within the first year of arrival; 22% were reported to have had TB disease within two years of arrival.[3] Thirty-seven percent of the cases had developed TB within five years of arrival in Canada (Appendix I, Table 18). The majority of foreign-born cases were Canadian citizens or permanent residents at the time of diagnosis, where citizenship at the time of diagnosis was known (54%) (Appendix I, Table 19).

DEATHS

For the 1,576 reported TB cases in 2007 for which outcomes were reported, 136 (9%) were reported to have died before or during treatment. TB was reported as the underlying cause of death in 30 of these cases (22%). TB contributed to death, but was not the underlying cause in 63 cases (46%) (Appendix I, Table 21).

Of the 1,643 reported TB cases in 2008, 141 (9%) were reported to have died before or during treatment. TB was reported as the underlying cause of death in 37 of these cases (26%). TB contributed to death, but was not the underlying cause in 67 cases (47%) (Appendix I, Table 21). The number of deaths reported for 2008 will be updated in the 2009 report, once the outcome data for these cases have been submitted.

More males than females were reported to have died before or during TB treatment in 2007 and 2008. By age group, the majority of deaths were reported among cases 65 years of age and older (Appendix I, Table 22).

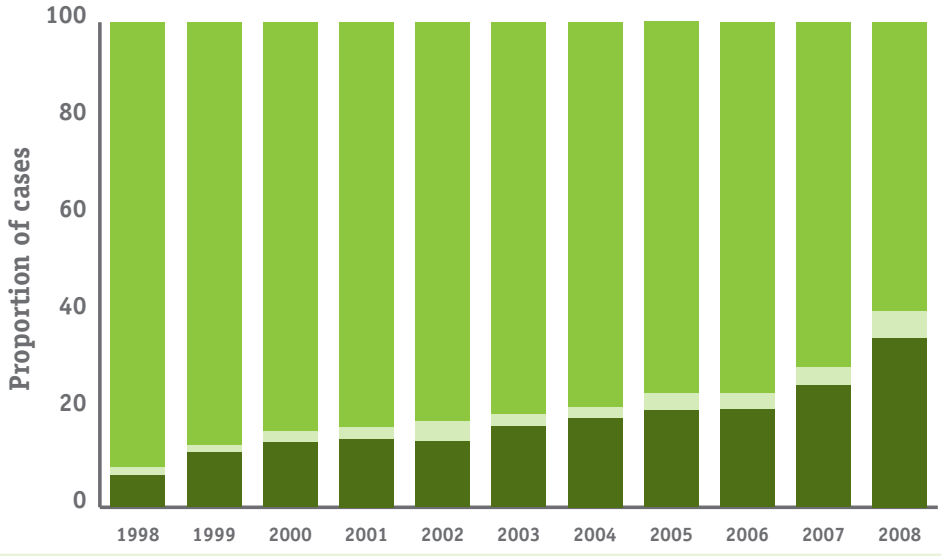
3 Since only the year and not the full date of arrival is reported for the majority of foreign-born cases, calculation on the time from arrival to diagnosis is based only on the year value.

HIV STATUS

Although it has been slowly increasing, data on HIV status continues to be underreported to the federal level. Of the 1,643 cases reported to PHAC in 2008, 667 (41%) included an HIV test result (Figure 15; Appendix 1, Table 23). Provinces and territories vary widely in the proportion of cases for which HIV status was reported. Alberta and British Columbia reported the HIV status for over 90% of cases. The territories reported the HIV status of 73% of their cases. For the remaining jurisdictions, the proportion ofcases where the HIV status was reported ranged from 0% to 60% (Figure 15; Appendix 1, Table 23).

Of TB cases that included HIV status (667), 14% were HIV-positive. On the assumption that the 976 cases for which no status report was given were in fact negative, the HIV-positive prevalence rate for TB cases would be 6%. The actual prevalence rate lies somewhere between 6% and 14%.

Figure 15: Proportion of tuberculosis cases by HIV status - Canada: 1998-2008



	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Unknown	91.7	87.1	84.2	83.4	82.2	80.8	79.2	76.5	76.3	71.1	59.4
Positive	1.5	1.4	2.1	2.5	4.0	2.3	2.4	3.4	3.5	3.6	5.7
Negative	6.8	11.5	13.6	14.1	13.8	16.9	18.4	20.2	20.2	25.3	34.9

Patterns of drug resistance

INITIAL DRUG RESISTANCE

Resistance patterns described in this report include: a) mono-resistance, defined as resistance to one of the first-line drugs (INH, RMP, EMB or PZA); b) poly-resistance, defined as resistance to two or more first-line drugs (not including the isoniazid and rifampin combination); c) multidrug-resistant tuberculosis (MDR-TB), defined as TB resistant to at least the two best first-line anti-tuberculosis drugs, isoniazid and rifampin, but which does not meet the definition of extensively drug-resistant TB (XDR-TB); and finally d) extensively drug-resistant TB (XDR-TB), defined as TB that is resistant to at least the two best first-line anti-tuberculosis drugs, isoniazid and rifampin, plus resistance to second-line drugs including any fluoroquinolone, and to at least one of three injectable second-line anti-tuberculosis drugs (amikacin, capreomycin and kanamycin).

Of the 1,643 TB cases reported in 2008, 1,328 were reported as culture positive. Resistance information was available for 1,316 of these cases. Ninety-two percent of cases with reported drug sensitivity information showed no resistance to first-line anti-TB drugs (isoniazid, rifampin, ethambutol or pyrazinamide) (Appendix I, Table 15).

For the 107 cases resistant to at least one drug, 86 (80%) were monoresistant; and 77 (90%) of these 86 cases were resistant to INH. Two cases were reported as mono-resistant to RMP.

Of the 107 resistant cases, 13% were multidrug-resistant (MDR), defined as resistance to at least isoniazid and rifampin. The remaining 7% of the resistant cases were poly-resistant, not including MDR-TB. No extensively drug- resistance cases were identified in 2008 (Appendix I, Table 15).

Eighty-eight of the 107 resistant cases were among the foreign-born. Of the 14 MDR-TB cases, 13 were among the foreign-born TB cases; one was Canadian-born non-Aboriginal (Appendix I, Table 15).

Drug resistance was reported in five cases among the Canadian-born Aboriginal population (three First Nations, one Métis and one non-Status). All were mono-resistant: three to INH and two to RMP (Appendix I, Table 15).

Section II - 2007 Treatment outcomes

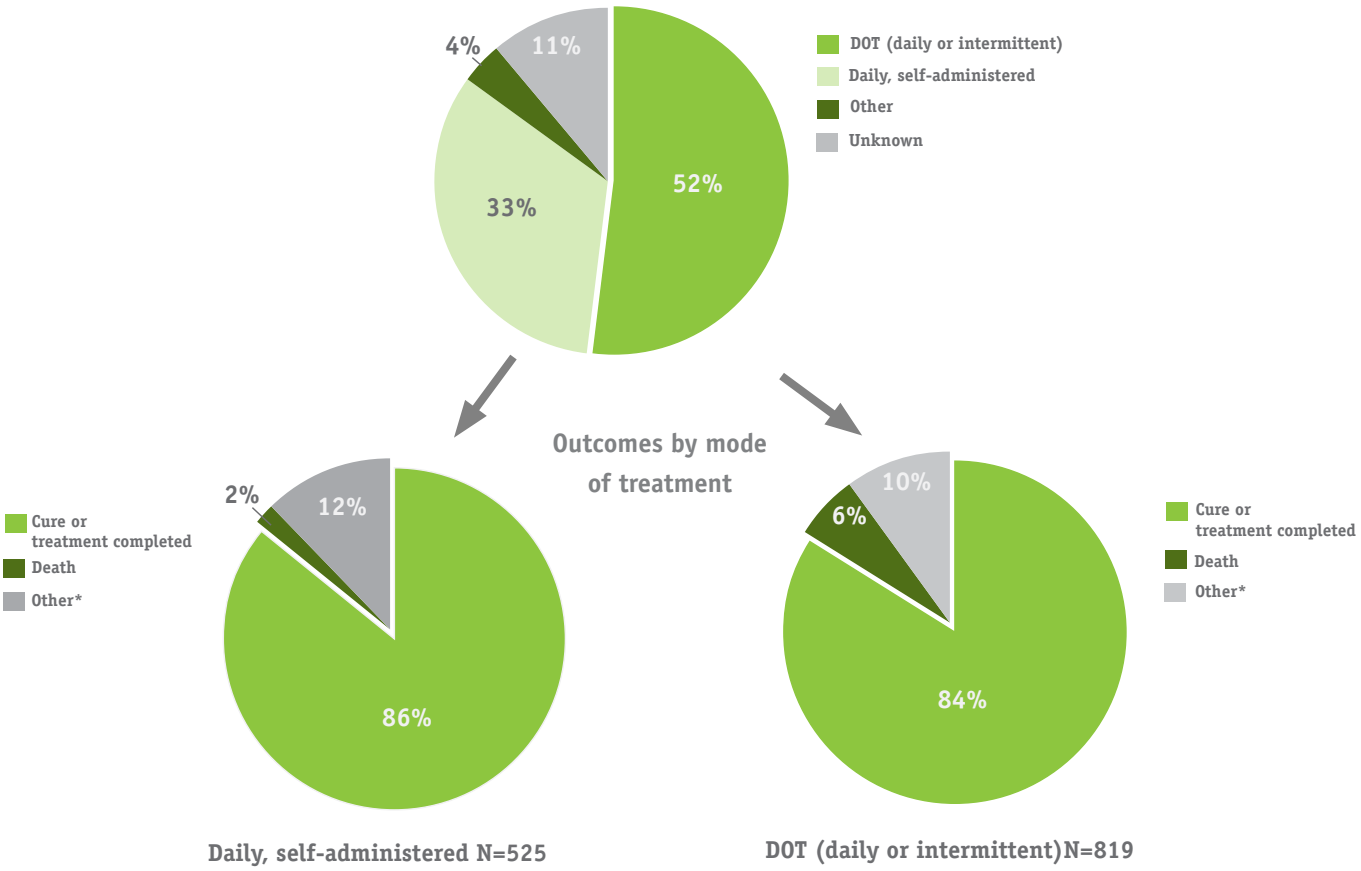
Treatment outcome data for new active and re-treatment cases reported for 2007 were submitted to PHAC using a separate reporting form (Appendix VII – Reporting forms). Partial or complete outcome data were available for 1,424 (90%) of the 1,576 cases reported in 2007. Of these cases, 1,167 (82%) were reported as cured or having completed treatment, 136 (9%) died before or during treatment, 29 (2%) transferred out of Canada, 34 (2%) absconded before completion of 80% of treatment, and treatment was ongoing for 41 (3%) cases (Appendix I, Table 24).

The majority of individuals for whom the drug regimen was reported and could be associated with the outcome results were reported to have received treatment as per the Canadian Tuberculosis Standards (6th Edition).[4] Almost eighty percent of these cases received three or more anti-tuberculosis drugs (Appendix I, Table 25).

4 Long R, Ellis E, (eds.), *Canadian Tuberculosis Standards*, 6th ed. Ottawa: Public Health Agency of Canada and the Canadian Lung Association/Canadian Thoracic Society; 2007.

Of the 1,576 cases reported in 2007, 819 (52%) were on directly observed therapy (DOT); 525 cases (33%) self-administered their medications; and 4% were treated using another treatment regimen. A treatment regimen was not indicated for 11% of the cases. Eighty-four percent of those patients on DOT, and 86% who self-administered, were reported to have been cured or to have completed treatment (Figure 16; Appendix I, Table 26).

Figure 16: Treatment outcome by major mode of treatment – 2007.



* Other: absconded, transferred, treatment ongoing, unknown

PHAC annually provides data to the WHO on pulmonary smear-positive cases and the treatment outcomes of these cases by major mode of treatment (e.g., DOTS or non-DOTS). The WHO's global target for TB treatment includes 70% detection of all pulmonary smear-positive cases and an 85% cure or treatment completion rate for identified cases. Table E provides the reported treatment outcome data for laboratory confirmed pulmonary cases in Canada between 1998 and 2007, inclusive. Laboratory-confirmed cases include smear-positive cases plus any cases confirmed by additional laboratory methods.

Table E: Treatment outcome of laboratory confirmed pulmonary cases, Canada: 1998 – 2007 [5]

Treatment Outcome	1998		1999		2000		2001		2002		2003		2004		2005*		2006		2007	
	DOTS	Non-DOTS	DOTS	Non-DOTS	DOTS	Non-DOTS	DOTS	Non-DOTS	DOTS	Non-DOTS	DOTS	Non-DOTS	DOTS	Non-DOTS	DOTS	Non-DOTS	DOTS	Non-DOTS	DOTS	Non-DOTS
Total cohort registered for treatment	196	244	224	161	237	150	268	176	207	133	203	160	231	145	446	229	464	250	490	249
Cured	74	68	78	70	110	74	83	55	83	10	56	11	48	14	66	13	66	11	63	4
Completed	95	94	130	54	92	53	145	82	103	99	123	123	142	115	330	175	338	194	346	186
Cured or completed (% of total)	169	162	208	124	202	127	228	137	186	109	179	134	190	129	396	188	404	205	409	190
	86	66	93	77	85	85	85	78	90	82	88	84	82	89	89	82	87	82	83	76
Died	8	30	7	26	22	10	25	24	11	13	17	14	28	9	29	24	27	24	38	30
Failed	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Defaulted	1	3	5	2	6	3	9	5	4	6	3	3	3	2	5	3	9	7	12	4
Transferred	3	23	2	5	1	8	3	9	2	3	2	5	6	2	8	8	6	7	9	12
Treatment Ongoing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	6	13	2
Unknown	15	26	2	4	4	2	3	1	4	2	2	4	4	3	8	6	4	1	8	11

* The sharp increase in the number of cases registered between 2004 and 2005 is attributed to the submissions of outcome data from Ontario.

5 Numbers may differ from Global Tuberculosis Control, WHO Report 2009 update report (which reports 2008 case data and 2007 treatment outcome data) due to late reporting of cases to the Public Health Agency of Canada.

Acquired drug resistance

ACQUIRED DRUG RESISTANCE OCCURS WHEN PATIENTS WHO INITIALLY HAD DRUG-SUSCEPTIBLE

TB bacteria later become drug-resistant as a result of inadequate, inappropriate or irregular treatment, or, more importantly, because of non-adherence to the drug regimen. One case of acquired resistance was reported in 2007 (Appendix I, Table 28).

Section III – Measuring progress towards national targets

In 1997, the National Consensus Conference on Tuberculosis recommended that the Canadian goal of TB prevention and control should be to reduce the annual number of TB cases (new and re-treatment) by five percent. Overall, the average rate of change was 1.9% for such cases between 1998 and 2008 (Table F).

Table F: Average rate of change in the number of cases and incidence rate for new and re-treatment TB cases in Canada: 1998 – 2008

Reporting year	Number of Reported Cases	Rate	Rate of Change (%)	
			cases	rate
1998	1,810	6.0		
1999	1,821	6.0	↑0.6	no change
2000	1,724	5.6	↓5.3	↓6.7
2001	1,772	5.7	↑2.8	↑1.8
2002	1,667	5.3	↓6.0	↓7.0
2003	1,631	5.2	↓2.1	↓3.8
2004	1,613	5.0	↓1.1	↓2.0
2005	1,641	5.1	↑1.7	↑2.0
2006	1,654	5.1	↑0.8	no change
2007	1,576	4.8	↓4.7	↓5.9
2008	1,643	4.9	↑4.3	↑2.1
Average rate of change			↓0.9	↓1.9

In 2006, the Canadian Tuberculosis Committee (CTC) reviewed this national goal in light of the Global Plan to Stop TB 2006-2015,[6] which aimed to reduce the global burden of TB disease in 2015 by 50% (relative to 1990 levels). The CTC recommended that the target to reduce the Canadian TB (new and re-treatment) incidence rate be set at 3.6 per 100,000 population (or less) by 2015. This represents one half of the disease burden in Canada, as compared to the 1990 incidence rate. Achieving this goal will require an annual 3.3% reduction in the incidence rate between 2007 and 2015.

The Canadian Tuberculosis Standards (6th Edition) has established program performance standards for the ideal anti-tuberculosis drug regimen and its delivery. The minimum standards for treatment require:

- conversion of sputum cultures to negative after four months of treatment;
- achievement of relapse (re-treatment) rates of less than 3% within two years following cessation of treatment;
- achievement of acquired drug resistance rates of 0%;
- cost-effectiveness (since DOT is the optimal mode of drug delivery, intermittent regimens of 120 doses [9 months] or 95 doses [6 months] are recommended);
- toleration by the patient (< 5% of patients will discontinue or modify therapy because of adverse effects); and
- achievement of at least a 90% cure rate (negative sputum culture at the end of treatment) or treatment completion rate (treatment completed but no sputum culture at the end of treatment) within 12 months of starting treatment for patients who did not die or transfer out during treatment.

The CTBRS contains data that can approximately measure progress towards achieving some of these standards for the entire cohort of TB cases reported in Canada.

In 2007, 1,167 patients were deemed cured or had completed treatment, representing 93% of cases with reported outcomes, after subtracting the patients who died (136 cases), who transferred out of the region (29 cases) or for whom treatment outcome was unknown (152).

Of the 9,781 TB cases reported in Canada between 2002 and 2007, 715 (7% of all cases) were re-treatment cases. Of these, 227 were known to have been previously diagnosed in Canada, and of these, 211 had a year of previous diagnosis recorded. Thirty-five of the re-treatment cases with a previous diagnosis in Canada were diagnosed with their current episode of TB within two years of the previous episode. The rate of re-treatment within two years of cessation of treatment was therefore extremely low for cases previously diagnosed in Canada, averaging less than one percent of all reported cases for the last five years of reporting (2002 – 2007).

6 Stop TB Partnership and World Health Organization. *Global Plan to Stop TB 2006-2015*. Geneva, World Health Organization, 2006 (WHO/HTM/STB/2006.35).

CONCLUSION

The total number of reported cases of TB in Canada has generally decreased over the past two decades. However, this reduction mostly reflects a decreasing number of cases in the Canadian-born non-Aboriginal population. The number of cases in the Canadian-born Aboriginal population has increased by an annual average of 3% over the past 10 years, while a minimal decline in the number cases among foreign-born populations occurred over the same time period.

Generally, the TB incidence rate has been slowly declining among Canadian-born non-Aboriginal and foreign-born populations (the latter due to the significant growth of the total foreign-born population in Canada). However, no significant TB incidence rate change has occurred in the Canadian-born Aboriginal population. The relatively high rate in the Aboriginal population continues to be a major concern.

Pulmonary tuberculosis makes up the majority of TB cases reported in Canada. Of the pulmonary TB cases reported, 56% were smear-positive. The number of sputum smear-positive cases has decreased very little over the past ten years.

Determining the Canadian incidence rate of TB-HIV co-infection from this surveillance system is not yet possible. HIV status was reported for 41% of cases, of which 14% were HIV sero-positive. In the unlikely event that the positive cases reported were the only co-infected cases, the overall co-infection rate would have been 6%. 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 and prevention of TB in patients with HIV.[7] Screening for HIV in TB cases and reporting the results are essential activities for prevention and control of TB cases in Canada.

Drug resistance has not yet emerged as a significant problem in Canada. Cases of MDR-TB represent less than 1% of the reported cases of drug resistance in this reporting system.

The majority of TB cases were reported as cured or completed treatment for the treatment outcome data received. Analysis on the treatment outcome status of laboratory confirmed pulmonary cases indicates a cure or treatment completion rate of 84% for patients receiving DOTS and 86% for non-DOTS (total 85%).

In keeping with the targets set in the Global Plan to Stop TB 2006-2015[8] to reduce the global burden of TB disease by 50%, the Canadian tuberculosis incidence rate would have to be reduced to 3.6 per 100,000 by 2015. Achieving this incidence rate will require an average per annum decrease in the number of reported cases by 3.3% between 2007 and 2015. This will require a concerted effort on behalf of everyone working on TB prevention and control in Canada.

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

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7 Long R, Ellis E, (eds.) *Canadian Tuberculosis Standards*, 6th ed., Appendix G: Recommendations for the screening and prevention of tuberculosis in patients with human immunodeficiency virus (HIV) and the screening for HIV in tuberculosis patients and their contacts. Ottawa: Public Health Agency of Canada and the Canadian Lung Association/Canadian Thoracic Society; 2007.Stop TB

8 Partnership and World Health Organization. *Global Plan to Stop TB 2006–2015*. Geneva, World Health Organization, 2006 (WHO/HTM/STB/2006.35).

APPENDICES

Appendix I: Data Tables: 2008

Table 1A: Reported new active and re-treatment tuberculosis cases and incidence rate per 100,000 – Canada and provinces/territories: 1998-2008

Year of diagnosis		CANADA	Province/territory												
			N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Nvt.
1998	Cases	1,810	8	2	18	9	290	742	116	98	158	329	2	38	-
	Rate	6.0	1.5	1.5	1.9	1.2	4.0	6.5	10.2	9.6	5.5	8.3	6.4	56.6	-
1999	Cases	1,821	12	2	15	15	314	699	132	116	149	328	1	23	15
	Rate	6.0	2.3	1.5	1.6	2.0	4.3	6.1	11.6	11.4	5.0	8.2	3.2	56.6	55.9
2000	Cases	1,724	10	2	3	10	318	700	98	104	133	286	3	10	47
	Rate	5.6	1.9	1.5	0.3	1.3	4.3	6.0	8.5	10.3	4.4	7.1	9.9	24.7	170.9
2001	Cases	1,772	19	3	8	10	261	699	115	114	116	379	0	8	40
	Rate	5.7	3.6	2.2	0.9	1.3	3.5	5.9	10.0	11.4	3.8	9.3	0.0	19.6	142.2
2002	Cases	1,667	9	1	9	11	288	716	98	89	128	287	0	4	27
	Rate	5.3	1.7	0.7	1.0	1.5	3.9	5.9	8.5	8.9	4.1	7.0	0.0	9.6	93.7
2003	Cases	1,631	7	3	6	12	257	693	127	91	110	305	1	12	7
	Rate	5.2	1.3	2.2	0.6	1.6	3.4	5.7	10.9	9.1	3.5	7.4	3.2	28.2	23.9
2004	Cases	1,613	7	1	8	10	219	700	144	70	109	299	4	10	32
	Rate	5.0	1.4	0.7	0.9	1.3	2.9	5.6	12.3	7.0	3.4	7.2	12.7	23.1	107.2
2005	Cases	1,641	9	1	7	6	255	643	114	139	146	265	3	8	45
	Rate	5.1	1.7	0.7	0.7	0.8	3.4	5.1	9.7	14.0	4.4	6.3	9.4	18.4	148.4
2006	Cases	1,654	12	0	10	2	228	673	134	87	131	320	3	6	48
	Rate	5.1	2.4	0.0	1.1	0.3	3.0	5.3	11.3	8.8	3.8	7.5	9.3	13.9	155.8
2007	Cases	1,576	7	0	7	5	229	680	103	106	112	278	3	15	31
	Rate	4.8	1.4	0.0	0.7	0.7	3.0	5.3	8.6	10.6	3.2	6.5	9.2	34.4	99.1
2008	Cases	1,643	8	0	4	5	240	603	141	95	167	300	8	13	59
	Rate	4.9	1.6	0.0	0.4	0.7	3.1	4.7	11.7	9.4	4.7	6.8	24.2	29.7	186.7

Table 1B: Reported new active tuberculosis cases and incidence rate per 100,000 – Canada and provinces/territories: 1998-2008

Year of diagnosis		CANADA	Province/territory												
			N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Nvt.
1998	Cases	1,607	7	2	16	7	263	631	104	91	146	306	2	32	-
	Rate	5.3	1.3	1.5	1.7	0.9	3.6	5.6	9.1	8.9	5.0	7.7	6.4	47.6	-
1999	Cases	1,623	11	2	12	13	278	596	123	110	141	304	1	17	15
	Rate	5.3	2.1	1.5	1.3	1.7	3.8	5.2	10.8	10.8	4.8	7.6	3.2	41.8	55.9
2000	Cases	1,540	10	2	3	8	297	599	88	100	120	264	2	7	40
	Rate	5.0	1.9	1.5	0.3	1.1	4.0	5.1	7.7	9.9	4.0	6.5	6.6	17.3	145.5
2001	Cases	1,575	17	2	5	10	235	610	108	104	106	336	0	8	34
	Rate	5.1	3.3	1.5	0.5	1.3	3.2	5.1	9.4	10.4	3.5	8.2	0.0	19.6	120.9
2002	Cases	1,487	6	1	7	10	258	631	92	83	120	253	0	4	22
	Rate	4.7	1.2	0.7	0.7	1.3	3.5	5.2	8.0	8.3	3.8	6.2	0.0	9.6	76.3
2003	Cases	1,473	4	1	5	11	243	613	118	82	104	275	1	9	7
	Rate	4.7	0.8	0.7	0.5	1.5	3.2	5.0	10.1	8.2	3.3	6.7	3.2	21.1	23.9
2004	Cases	1,469	4	1	8	9	204	634	132	63	100	277	4	9	24
	Rate	4.6	0.8	0.7	0.9	1.2	2.7	5.1	11.2	6.3	3.1	6.7	12.7	20.8	80.4
2005	Cases	1,491	8	1	7	6	223	586	105	127	131	247	3	8	39
	Rate	4.6	1.6	0.7	0.7	0.8	2.9	4.7	8.9	12.8	3.9	5.9	9.4	18.4	128.6
2006	Cases	1,513	9	0	9	2	207	620	125	79	123	287	3	5	44
	Rate	4.6	1.8	0.0	1.0	0.3	2.7	4.9	10.6	8.0	3.6	6.8	9.3	11.6	142.9
2007	Cases	1,423	7	0	6	5	210	606	96	96	106	252	2	14	23
	Rate	4.3	1.4	0.0	0.6	0.7	2.7	4.7	8.0	9.6	3.0	5.8	6.1	32.2	73.5
2008	Cases	1,481	7	0	4	5	217	527	135	90	158	265	8	11	54
	Rate	4.4	1.4	0.0	0.4	0.7	2.8	4.1	11.2	8.9	4.4	6.0	24.2	25.2	170.9

Table 1C: Reported re-treatment tuberculosis cases and incidence rate per 100,000 – Canada and provinces/territories: 1998-2008

Year of diagnosis		CANADA	Province/territory												
			N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Nvt.
1998	Cases	153	1	0	2	2	22	66	12	7	12	23	0	6	-
	Rate	0.5	0.2	0.0	0.2	0.3	0.3	0.6	1.1	0.7	0.4	0.6	0.0	8.9	-
1999	Cases	158	1	0	2	1	33	69	9	6	8	23	0	6	0
	Rate	0.5	0.2	0.0	0.2	0.1	0.5	0.6	0.8	0.6	0.3	0.6	0.0	14.8	0.0
2000	Cases	147	0	0	0	1	18	70	10	4	13	21	1	3	6
	Rate	0.5	0.0	0.0	0.0	0.1	0.2	0.6	0.9	0.4	0.4	0.5	3.3	7.4	21.8
2001	Cases	152	2	1	3	0	17	59	5	10	10	39	0	0	6
	Rate	0.5	0.4	0.7	0.3	0.0	0.2	0.5	0.4	1.0	0.3	1.0	0.0	0.0	21.3
2002	Cases	138	3	0	2	1	19	56	6	6	8	32	0	0	5
	Rate	0.4	0.6	0.0	0.2	0.1	0.3	0.5	0.5	0.6	0.3	0.8	0.0	0.0	17.3
2003	Cases	104	3	1	1	1	14	35	9	9	6	22	0	3	0
	Rate	0.3	0.6	0.7	0.1	0.1	0.2	0.3	0.8	0.9	0.2	0.5	0.0	7.0	0.0
2004	Cases	120	3	0	0	1	15	42	12	7	9	22	0	1	8
	Rate	0.4	0.6	0.0	0.0	0.1	0.2	0.3	1.0	0.7	0.3	0.5	0.0	2.3	26.8
2005	Cases	106	1	0	0	0	12	33	9	12	15	18	0	0	6
	Rate	0.3	0.2	0.0	0.0	0.0	0.2	0.3	0.8	1.2	0.5	0.4	0.0	0.0	19.8
2006	Cases	137	3	0	1	0	20	51	9	8	8	32	0	1	4
	Rate	0.4	0.6	0.0	0.1	0.0	0.3	0.4	0.8	0.8	0.2	0.8	0.0	2.3	13.0
2007	Cases	110	0	0	1	0	10	40	7	10	6	26	1	1	8
	Rate	0.3	0.0	0.0	0.1	0.0	0.1	0.3	0.6	1.0	0.2	0.6	3.1	2.3	25.6
2008	Cases	126	1	0	0	0	22	44	6	4	9	34	0	2	4
	Rate	0.4	0.2	0.0	0.0	0.0	0.3	0.3	0.5	0.4	0.3	0.8	0.0	4.6	12.7

Table 2A. Reported new active and re-treatment tuberculosis cases and incidence rate per 100,000 by age group – Canada: 1998-2008												
Year of diagnosis		**CANADA**	<1	1-4	5-14	15-24	25-34	35-44	45-54	55-64	65-74	75+
1998	Cases	1,810	20	60	72	187	314	308	184	174	235	256
	Rate	6.0	5.8	3.9	1.8	4.6	7.0	5.9	4.5	6.6	11.0	16.0
1999	Cases	1,821	32	55	61	205	340	253	193	173	244	265
	Rate	6.0	9.5	3.7	1.5	5.0	7.7	4.8	4.6	6.3	11.4	16.1
2000	Cases	1,724	17	50	44	207	316	279	208	160	204	239
	Rate	5.6	5.0	3.4	1.1	5.0	7.3	5.3	4.8	5.7	9.5	14.0
2001	Cases	1,772	11	33	70	180	325	289	207	182	219	256
	Rate	5.7	3.3	2.3	1.7	4.3	7.5	5.5	4.6	6.2	10.1	14.5
2002	Cases	1,667	11	43	45	211	314	264	202	162	199	216
	Rate	5.3	3.4	3.1	1.1	4.9	7.3	5.0	4.4	5.2	9.2	11.9
2003	Cases	1,631	7	34	41	198	332	277	207	154	178	203
	Rate	5.2	2.1	2.5	1.0	4.6	7.7	5.3	4.4	4.7	8.1	10.8
2004	Cases	1,613	6	33	45	198	324	272	198	167	177	193
	Rate	5.0	1.8	2.4	1.1	4.6	7.5	5.3	4.1	4.9	8.0	10.0
2005	Cases	1,641	10	38	71	254	279	278	212	143	168	188
	Rate	5.1	2.9	2.8	1.8	5.8	6.4	5.4	4.3	4.0	7.5	9.5
2006	Cases	1,654	10	46	51	261	253	287	201	158	168	219
	Rate	5.1	2.9	3.3	1.3	5.8	5.8	5.7	4.0	4.3	7.4	10.7
2007	Cases	1,576	12	33	53	200	254	285	209	160	152	218
	Rate	4.8	3.3	2.4	1.4	4.4	5.7	5.7	4.0	4.2	6.5	10.4
2008	Cases	1,643	8	30	52	205	297	279	232	165	172	203
	Rate	4.9	2.2	2.1	1.4	4.5	6.6	5.7	4.4	4.2	7.2	9.4

Table 2B: Reported new active and re-treatment tuberculosis cases and incidence rate per 100,000 by age group – males – Canada: 1998-2008												
Year of diagnosis		**CANADA**	<1	1-4	5-14	15-24	25-34	35-44	45-54	55-64	65-74	75+
1998	Cases	966	16	31	38	78	162	164	100	105	125	147
	Rate	6.5	9.1	4.0	1.8	3.7	7.1	6.3	4.9	8.0	12.6	24.7
1999	Cases	999	20	28	24	99	176	141	117	96	144	154
	Rate	6.6	11.5	3.7	1.1	4.7	7.9	5.4	5.6	7.1	14.4	25.0
2000	Cases	924	10	27	24	97	168	149	117	88	101	143
	Rate	6.1	5.8	3.6	1.1	4.5	7.7	5.6	5.4	6.3	10.0	22.3
2001	Cases	985	6	15	45	92	154	168	123	111	127	144
	Rate	6.4	3.5	2.1	2.1	4.2	7.1	6.3	5.5	7.7	12.5	21.7
2002	Cases	869	6	19	15	96	169	143	105	90	116	110
	Rate	5.6	3.6	2.7	0.7	4.4	7.7	5.4	4.6	5.9	11.3	15.9
2003	Cases	896	3	21	14	102	162	161	128	87	105	113
	Rate	5.7	1.8	3.0	0.7	4.6	7.4	6.1	5.5	5.4	10.1	15.8
2004	Cases	848	5	22	23	85	146	147	104	99	110	107
	Rate	5.4	2.9	3.1	1.1	3.8	6.7	5.7	4.3	5.9	10.5	14.4
2005	Cases	909	6	20	33	128	142	154	124	83	97	122
	Rate	5.7	3.4	2.8	1.6	5.7	6.5	6.0	5.0	4.7	9.1	15.8
2006	Cases	882	6	24	24	137	117	150	118	86	90	130
	Rate	5.5	3.3	3.4	1.2	6.0	5.3	5.9	4.7	4.7	8.3	16.2
2007	Cases	864	11	14	31	100	123	157	128	97	86	117
	Rate	5.3	6.0	1.9	1.6	4.3	5.5	6.3	5.0	5.1	7.7	14.1
2008	Cases	887	5	18	21	104	132	143	142	106	103	113
	Rate	5.4	2.6	2.4	1.1	4.5	5.8	5.8	5.4	5.4	9.0	13.2

Table 2C: Reported new active and re-treatment tuberculosis cases and incidence rate per 100,000 by age group – females – Canada: 1998-2008												
Year of diagnosis		**CANADA**	<1	1-4	5-14	15-24	25-34	35-44	45-54	55-64	65-74	75+
1998	Cases	844	4	29	34	109	152	144	84	69	110	109
	Rate	5.5	2.4	3.9	1.7	5.5	6.8	5.6	4.1	5.1	9.7	10.9
1999	Cases	822	12	27	37	106	164	112	76	77	100	111
	Rate	5.4	7.3	3.7	1.9	5.3	7.5	4.3	3.6	5.6	8.8	10.7
2000	Cases	800	7	23	20	110	148	130	91	72	103	96
	Rate	5.2	4.2	3.2	1.0	5.4	6.9	4.9	4.2	5.1	9.0	9.0
2001	Cases	787	5	18	25	88	171	121	84	71	92	112
	Rate	5.0	3.1	2.6	1.3	4.3	8.0	4.6	3.7	4.8	8.1	10.2
2002	Cases	798	5	24	30	115	145	121	97	72	83	106
	Rate	5.0	3.1	3.5	1.5	5.5	6.8	4.6	4.2	4.6	7.2	9.4
2003	Cases	735	4	13	27	96	170	116	79	67	73	90
	Rate	4.6	2.5	1.9	1.4	4.6	8.0	4.5	3.3	4.1	6.3	7.8
2004	Cases	765	1	11	22	113	178	125	94	68	67	86
	Rate	4.7	0.6	1.6	1.1	5.3	8.3	4.9	3.9	3.9	5.8	7.3
2005	Cases	732	4	18	38	126	137	124	88	60	71	66
	Rate	4.5	2.4	2.7	2.0	5.9	6.4	4.9	3.6	3.3	6.0	5.4
2006	Cases	772	4	22	27	124	136	137	83	72	78	89
	Rate	4.7	2.4	3.3	1.4	5.7	6.3	5.5	3.3	3.9	6.5	7.2
2007	Cases	712	1	19	22	100	131	128	81	63	66	101
	Rate	4.3	0.6	2.8	1.2	4.6	6.0	5.2	3.1	3.2	5.4	8.0
2008	Cases	756	3	12	31	101	165	136	90	59	69	90
	Rate	4.5	1.7	1.7	1.7	4.6	7.4	5.6	3.4	2.9	5.5	6.9

Table 3: Reported new active and re-treatment tuberculosis cases and incidence rate per 100,000 by origin– Canada: 1998-2008

Origin			Year										
			1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Canadian-born	North American Indian	Cases	205	255	173	203	171	206	206	218	224	230	229
		Rate				28.5	23.5	27.8	27.2	28.3	28.5	28.7	28.1
	Status Indian	Cases	191	247	167	199	165	204	202	213	223	226	221
		Rate	29.0	36.6	24.2	28.3	23.0	27.9	26.4	27.4	28.2	28.0	27.0
	Status Indian - On reserve	Cases	109	160	85	97	87	120	113	133	135	130	118
		Rate	28.0	40.4	20.9	23.1	20.1	26.9	26.5	30.4	30.1	28.2	25.0
	Status Indian - Off reserve	Cases	64	68	65	74	56	75	64	78	88	83	97
		Rate	23.6	24.4	23.0	26.1	19.7	26.3	19.0	22.9	25.7	24.0	27.9
	Status Indian - Unknown	Cases	18	19	17	28	22	9	25	2	0	13	6
		Rate	-	-	-	-	-	-	-	-	-	-	-
	Non-status Indian	Cases	14	8	6	4	6	2	4	5	1	4	8
		Rate	-	-	-	-	-	-	-	-	-	-	-
	Inuit	Cases	35	28	56	53	33	11	41	63	61	46	88
		Rate	-	-	-	111.4	67.8	22.1	80.4	120.7	114.3	84.2	157.5
	Métis	Cases	39	31	29	49	35	30	21	35	29	32	27
		Rate	-	-	-	16.0	11.3	9.5	6.6	10.8	8.8	9.6	8.0
	Total Aboriginal	**Cases**	**279**	**314**	**258**	**305**	**239**	**247**	**268**	**316**	**314**	**308**	**344**
		Rate	**-**	**-**	**-**	**28.6**	**22.0**	**22.3**	**23.8**	**27.5**	**26.9**	**25.9**	**28.4**
	Non-Aboriginal	Cases	347	326	314	283	257	233	214	218	201	171	221
		Rate	-	-	-	1.2	1.1	1.0	0.9	0.9	0.8	0.7	0.9
	Total Canadian Born	**Cases**	**626**	**640**	**572**	**588**	**496**	**480**	**482**	**534**	**515**	**479**	**565**
		Rates	**-**	**-**	**-**	**2.4**	**2.0**	**1.9**	**1.9**	**2.1**	**2.0**	**1.9**	**2.2**

Table 3 Cont'd: Reported new active and re-treatment tuberculosis cases and incidence rate per 100,000 by origin– Canada: 1998-2008

Origin			Year										
			1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Foreign-born	AFR - High	Cases	79	66	66	78	91	85	87	93	103	92	98
		Rate	-	-	-	49.5	54.1	48.1	48.1	49.3	53.0	44.7	45.2
	AFR - Low	Cases	9	12	14	8	20	22	21	26	21	33	25
		Rate	-	-	-	11.3	25.8	26.0	23.7	27.6	21.7	31.7	22.2
	AMR	Cases	87	70	80	61	64	74	65	71	48	78	64
		Rate	-	-	-	9.0	9.1	10.2	8.7	9.4	6.0	9.4	7.4
	EME - CEUR	Cases	115	115	97	101	76	76	71	56	57	62	60
		Rate	-	-	-	3.8	2.8	2.9	2.7	2.1	2.2	2.3	2.3
	EEUR	Cases	33	32	30	23	36	23	26	29	18	25	17
		Rate	-	-	-	9.0	13.2	7.9	8.6	9.1	5.7	7.6	4.9
	EMR	Cases	104	113	117	108	120	110	115	123	125	116	106
		Rate	-	-	-	22.9	23.0	19.2	19.0	19.1	20.3	17.8	15.4
	SEAR	Cases	197	193	208	236	224	245	267	239	258	240	248
		Rate	-	-	-	47.4	41.4	41.8	43.3	36.8	38.4	33.8	33.3
	WPR	Cases	509	514	477	455	458	457	448	389	417	418	441
		Rate	-	-	-	34.6	32.9	31.1	29.4	24.6	26.2	25.2	25.5
	Unknown	Cases	28	47	44	53	39	18	15	31	29	3	9
		Rate	-	-	-	-	-	-	-	-	-	-	-
	Total Foreign-born	**Cases**	**1,161**	**1,162**	**1,133**	**1,123**	**1,128**	**1,110**	**1,115**	**1,057**	**1,076**	**1,067**	**1,068**
		Rate	**-**	**-**	**-**	**18.3**	**17.8**	**16.9**	**16.6**	**15.4**	**15.5**	**15.0**	**14.5**
Unknown		Cases	23	19	19	61	43	41	16	50	63	30	10
Total		**Cases**	**1,810**	**1,821**	**1,724**	**1,772**	**1,667**	**1,631**	**1,613**	**1,641**	**1,654**	**1,576**	**1,643**
		Rate	**6.0**	**6.0**	**5.6**	**5.7**	**5.3**	**5.2**	**5.0**	**5.1**	**5.1**	**4.8**	**4.9**

Table 4: Reported new active and re-treatment tuberculosis cases and incidence rate per 100,000 by main diagnostic site –Canada:1998-2008

Main diagnostic site			Year										
			1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Respiratory	Primary*	Cases	130	154	99	121	88	79	94	106	91	64	59
		Rate	0.4	0.5	0.3	0.4	0.3	0.2	0.3	0.3	0.3	0.2	0.2
	Pulmonary**	Cases	1,092	1,121	1,085	1,145	1,038	974	948	972	1,079	1,023	1,121
		Rate	3.6	3.7	3.5	3.7	3.3	3.1	3.0	3.0	3.3	3.1	3.4
	Other respiratory^	Cases	63	59	63	51	55	64	97	115	92	97	84
		Rate	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.3	0.3	0.3
Nonrespiratory	Miliary	Cases	15	15	13	7	12	17	20	18	19	16	28
		Rate	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.1
	Meninges and CNS	Cases	24	15	16	17	20	26	19	20	18	22	12
		Rate	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0
	Peripheral lymph node	Cases	276	244	258	234	240	249	251	245	210	205	183
		Rate	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.6	0.6	0.5
	Other^^	Cases	187	187	161	163	180	170	181	165	144	149	156
		Rate	0.6	0.6	0.5	0.5	0.6	0.5	0.6	0.5	0.4	0.5	0.5
Unknown		Cases	23	26	29	34	34	52	3	0	1	0	0
		Rate	0.1	0.1	0.1	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.0
Total		Cases	1,810	1,821	1,724	1,772	1,667	1,631	1,613	1,641	1,654	1,576	1,643
		Rate	6.0	6.0	5.6	5.7	5.3	5.2	5.0	5.1	5.1	4.8	4.9

* Primary includes primary respiratory tuberculosis and tuberculous pleurisy in primary progressive tuberculosis, (ICD-9 codes 010.0-010.9; ICD-10 A15.7 and A16.7).

** Pulmonary includes tuberculosis of the lungs and conducting airways which includes tuberculous fibrosis of the lung, tuberculous bronchiectasis, tuberculous pneumonia, tuberculous pneumothorax, isolated tracheal or bronchial tuberculosis and tuberculous laryngitis; (ICD-9 codes 011-011.9, 012.2, 012.3; ICD-10 codes A15.0-A15.3, A15.5, A15.9, A16.0-A16.2, A16.4, A16.9).

^ Other Respiratory includes tuberculous pleurisy (non-primary); tuberculosis of: intrathoracic lymph nodes, mediastinum, nasopharynx, nose (septum), and sinus (any nasal) (ICD-9 codes: 012.0, 012.1 and 012.8; ICD-10 codes: A15.4, A15.6, A15.8, A16.3, A16.5, A16.8).

^^ Other includes tuberculosis of intestines, peritoneum and mesenteric glands, bones and joints, genitourinary system, skin, eye, ear, thyroid, adrenal and spleen.

Table 5A. Reported new active and re-treatment tuberculosis cases and incidence rate per 100,000 by age group – Canada and provinces/territories: 2008

Age group		CANADA	Province/territory												
			N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Nvt.
<1	Cases	8	0	0	0	0	1	2	1	2	1	1	0	0	0
	Rate	2.2	0.0	0.0	0.0	0.0	1.2	1.4	6.5	14.9	2.0	2.3	0.0	0.0	0.0
1-4	Cases	30	1	0	0	0	3	4	7	6	4	1	2	0	2
	Rate	2.1	5.4	0.0	0.0	0.0	1.0	0.7	12.1	12.1	2.2	0.6	133.6	0.0	71.9
5-14	Cases	52	1	0	0	0	12	15	5	9	6	1	0	0	3
	Rate	1.4	1.9	0.0	0.0	0.0	1.4	1.0	3.2	7.0	1.4	0.2	0.0	0.0	44.6
15-24	Cases	205	0	0	0	0	29	67	15	23	17	24	0	3	27
	Rate	4.5	0.0	0.0	0.0	0.0	2.9	3.8	8.6	15.2	3.2	4.1	0.0	41.3	441.6
25-34	Cases	297	1	0	2	0	59	99	28	15	36	43	0	2	12
	Rate	6.6	1.7	0.0	1.8	0.0	5.6	5.7	17.9	11.6	6.4	7.4	0.0	27.4	239.8
35-44	Cases	279	0	0	0	1	31	106	35	18	26	50	3	2	7
	Rate	5.7	0.0	0.0	0.0	0.9	2.8	5.4	21.6	14.3	4.8	7.8	57.1	29.2	159.2
45-54	Cases	232	1	0	0	2	30	84	23	6	22	58	1	3	2
	Rate	4.4	1.2	0.0	0.0	1.6	2.4	4.2	12.7	3.9	4.0	8.3	15.9	45.7	63.8
55-64	Cases	165	0	0	0	0	21	67	14	6	15	38	1	1	2
	Rate	4.2	0.0	0.0	0.0	0.0	2.1	4.5	10.3	5.4	4.1	6.9	23.2	25.8	114.5
65-74	Cases	172	1	0	2	0	23	76	8	3	19	33	1	2	4
	Rate	7.2	2.4	0.0	2.6	0.0	3.8	8.3	9.8	4.2	9.5	9.9	60.7	148.5	597.9
75+	Cases	203	3	0	0	2	31	83	5	7	21	51	0	0	0
	Rate	9.4	9.6	0.0	0.0	3.8	5.9	10.0	5.9	8.9	12.0	16.9	0.0	0.0	0.0
Total	Cases	1,643	8	0	4	5	240	603	141	95	167	300	8	13	59
	Rate	4.9	1.6	0.0	0.4	0.7	3.1	4.7	11.7	9.4	4.7	6.8	24.2	29.7	186.7

Table 5B. Reported new active and re-treatment tuberculosis cases and incidence rate per 100,000 by age group – males - Canada and provinces/territories: 2008

Age group		CANADA	Province/territory												
			N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Nvt.
<1	Cases	5	0	0	0	0	0	1	1	2	1	0	0	0	0
	Rate	2.6	0.0	0.0	0.0	0.0	0.0	1.4	12.9	28.9	4.0	0.0	0.0	0.0	0.0
1-4	Cases	18	0	0	0	0	1	2	5	3	3	1	1	0	2
	Rate	2.4	0.0	0.0	0.0	0.0	0.6	0.7	16.8	11.7	3.2	1.1	126.3	0.0	140.1
5-14	Cases	21	0	0	0	0	7	5	1	3	3	0	0	0	2
	Rate	1.1	0.0	0.0	0.0	0.0	1.6	0.6	1.2	4.5	1.3	0.0	0.0	0.0	58.3
15-24	Cases	104	0	0	0	0	15	30	9	11	7	10	0	2	20
	Rate	4.5	0.0	0.0	0.0	0.0	3.0	3.3	10.1	14.2	2.5	3.3	0.0	52.3	631.3
25-34	Cases	132	0	0	1	0	30	37	16	5	16	17	0	2	8
	Rate	5.8	0.0	0.0	1.9	0.0	5.6	4.3	20.0	7.7	5.4	5.9	0.0	54.1	311.8
35-44	Cases	143	0	0	0	0	15	49	21	8	16	27	2	2	3
	Rate	5.8	0.0	0.0	0.0	0.0	2.7	5.0	25.6	12.6	5.7	8.5	79.2	56.2	134.0
45-54	Cases	142	0	0	0	2	13	52	13	3	16	38	1	2	2
	Rate	5.4	0.0	0.0	0.0	3.3	2.1	5.2	14.1	3.9	5.6	11.0	30.6	58.8	117.1
55-64	Cases	106	0	0	0	0	11	46	13	3	8	24	0	1	0
	Rate	5.4	0.0	0.0	0.0	0.0	2.3	6.4	19.3	5.4	4.4	8.8	0.0	45.3	0.0
65-74	Cases	103	1	0	2	0	19	40	3	2	12	19	1	1	3
	Rate	9.0	4.9	0.0	5.4	0.0	6.6	9.3	7.8	5.8	12.4	11.7	111.0	141.4	833.3
75+	Cases	113	2	0	0	1	19	51	3	5	7	25	0	0	0
	Rate	13.2	15.9	0.0	0.0	4.9	9.5	15.4	9.2	15.7	9.8	19.6	0.0	0.0	0.0
Total	Cases	887	3	0	3	3	130	313	85	45	89	161	5	10	40
	Rate	5.4	1.2	0.0	0.7	0.8	3.4	4.9	14.2	8.9	4.9	7.4	29.5	44.2	244.0

Table 5C. Reported new active and re-treatment tuberculosis cases and incidence rate per 100,000 by age group – females - Canada and provinces/territories: 2008

Age group		CANADA	Province/territory												
			N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Nvt.
<1	Cases	3	0	0	0	0	1	1	0	0	0	1	0	0	0
	Rate	1.7	0.0	0.0	0.0	0.0	2.4	1.5	0.0	0.0	0.0	4.7	0.0	0.0	0.0
1-4	Cases	12	1	0	0	0	2	2	2	3	1	0	1	0	0
	Rate	1.7	11.3	0.0	0.0	0.0	1.3	0.7	7.1	12.4	1.2	0.0	141.8	0.0	0.0
5-14	Cases	31	1	0	0	0	5	10	4	6	3	1	0	0	1
	Rate	1.7	3.9	0.0	0.0	0.0	1.2	1.3	5.3	9.5	1.4	0.4	0.0	0.0	30.4
15-24	Cases	101	0	0	0	0	14	37	6	12	10	14	0	1	7
	Rate	4.6	0.0	0.0	0.0	0.0	2.9	4.2	7.1	16.4	3.9	4.9	0.0	29.0	237.6
25-34	Cases	165	1	0	1	0	29	62	12	10	20	26	0	0	4
	Rate	7.4	3.3	0.0	1.7	0.0	5.6	7.1	15.6	15.5	7.5	8.9	0.0	0.0	164.1
35-44	Cases	136	0	0	0	1	16	57	14	10	10	23	1	0	4
	Rate	5.6	0.0	0.0	0.0	1.9	3.0	5.8	17.5	15.9	3.9	7.1	36.7	0.0	185.3
45-54	Cases	90	1	0	0	0	17	32	10	3	6	20	0	1	0
	Rate	3.4	2.3	0.0	0.0	0.0	2.7	3.2	11.2	3.9	2.2	5.6	0.0	31.6	0.0
55-64	Cases	59	0	0	0	0	10	21	1	3	7	14	1	0	2
	Rate	2.9	0.0	0.0	0.0	0.0	2.0	2.8	1.5	5.4	3.9	5.0	50.1	0.0	250.6
65-74	Cases	69	0	0	0	0	4	36	5	1	7	14	0	1	1
	Rate	5.5	0.0	0.0	0.0	0.0	1.2	7.5	11.7	2.7	6.8	8.2	0.0	156.3	323.6
75+	Cases	90	1	0	0	1	12	32	2	2	14	26	0	0	0
	Rate	6.9	5.4	0.0	0.0	3.1	3.7	6.4	3.9	4.2	13.6	14.9	0.0	0.0	0.0
Total	Cases	756	5	0	1	2	110	290	56	50	78	139	3	3	19
	Rate	4.5	1.9	0.0	0.2	0.5	2.8	4.4	9.2	9.8	4.4	6.3	18.5	14.2	125.0

Table 6: Reported new active and re-treatment tuberculosis cases and incidence rate per 100,000 by origin – Canada and provinces/territories: 2008

Origin			CANADA	Province/territory										
				N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	North*
Canadian born	North American Indian	Cases	229	0	0	0	0	4	8	93	55	11	38	20
		Rate	28.1	0.0	0.0	0.0	0.0	5.1	4.5	79.1	49.6	9.6	25.8	90.7
	Status (registered) Indian	Cases	221	0				4	7	89	55	9	37	20
		Rate	27.0	0.0				5.4	3.9	66.1	41.3	8.3	28.6	75.8
	On Reserve (registered) Indian	Cases	118	0				0	4	57	35	8	14	0
		Rate	25	0.0				-	4.4	67.0	51.0	11.3	21.3	0.0
	Off reserve (registered) Indian	Cases	97	0				0	3	32	20	1	21	20
		Rate	27.9	0				-	3.4	64.4	31.0	2.7	33.1	195.1
	Unknown	Cases	6	0				4	0	0	0	0	2	0
		Rate	-	-				-	-	-	-	-	-	-
	Non-status Indian	Cases	8	0				0	1	4	0	2	1	0
		Rate	-	-				-	-	-	-	-	-	-
	Inuit	Cases	88	2	0	0	1	22	2	0	0	1	1	59
		Rate	157.5	38.3	0.0	0.0	-	190.1	107.3	0.0	0.0	77.1	98.3	176.0
	Métis	Cases	27	0	0	0	0	0	0	1	19	3	3	0
		Rate	8.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	37.1	3.8	6.1	0.0
	Total Aboriginal	Cases	344	2	0	0	1	26	10	94	74	15	42	80
		Rate	28.4	8.7	0.0	0.0	5.0	24.2	4.2	51.2	45.6	7.7	21.3	131.8
	Non-Aboriginal	Cases	221	6	0	2	3	72	56	10	9	20	43	0
		Rate	0.9	1.3	0.0	0.2	0.4	1.1	0.6	1.2	1.1	0.7	1.5	0.0
	Total Canadian Born	Cases	565	8	0	2	4	98	66	104	83	35	85	80
		Rates	2.2	1.6	0.0	0.2	0.6	1.5	0.7	10.2	8.7	1.2	2.8	79.6
	AFR- High	Cases	98	0	0	1	0	21	32	6	2	23	13	0
		Rate	45.2	0.0	0.0	64.9	0.0	64.4	29.5	84.4	61.1	78.1	40.3	0.0

Table 6 Cont'd: Reported new active and re-treatment tuberculosis cases and incidence rate per 100,000 by origin – Canada and provinces/territories: 2008

Origin			CANADA	Province/territory										
				N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	North*
Foreign-born	AFR - Low	Cases	25	0	0	0	0	8	9	0	1	5	2	0
		Rate	22.2	0.0	0.0	0.0	0.0	13.2	23.9	0.0	119.3	83.7	54.2	0.0
	AMR	Cases	64	0	0	0	1	29	28	1	0	3	2	0
		Rate	7.4	0.0	0.0	0.0	47.5	14.4	5.5	3.9	0.0	5.2	3.6	0.0
	EME - CEUR	Cases	60	0	0	0	0	7	32	0	1	7	13	0
		Rate	2.3	0.0	0.0	0.0	0.0	2.1	2.3	0.0	3.4	2.8	2.7	0.0
	EEUR	Cases	17	0	0	0	0	4	6	1	0	2	4	0
		Rate	4.9	0.0	0.0	0.0	0.0	5.5	3.1	7.7	0.0	7.7	11.4	0.0
	EMR	Cases	106	0	0	0	0	21	57	4	2	18	4	0
		Rate	15.4	0.0	0.0	0.0	0.0	13.1	14.5	52.3	48.6	33.2	7.1	0.0
	SEAR	Cases	248	0	0	1	0	11	154	3	1	28	50	0
		Rate	33.3	0.0	0.0	35.8	0.0	25.3	32.9	26.4	26.2	46.9	32.4	0.0
	WPR	Cases	441	0	0	0	0	39	207	19	5	46	125	0
		Rate	25.5	0.0	0.0	0.0	0.0	31.8	25.6	37.0	32.9	24.4	23.7	0.0
	Unknown	Cases	9	0	0	0	0	2	3	3	0	0	1	0
		Rate	-	-	-	-	-	-	-	-	-	-	-	-
	Total Foreign-Born	**Cases**	**1,068**	**0**	**0**	**2**	**1**	**142**	**528**	**37**	**12**	**132**	**214**	**0**
		Rate	**14.5**	**0.0**	**0.0**	**3.3**	**2.7**	**13.8**	**13.4**	**19.6**	**18.5**	**19.8**	**16.0**	**0.0**
	Unknown	Cases	10	0	0	0	0	0	9	0	0	0	1	0
	Total	**Cases**	**1,643**	**8**	**0**	**4**	**5**	**240**	**603**	**141**	**95**	**167**	**300**	**80**
		Rate	**4.9**	**1.6**	**0.0**	**0.4**	**0.7**	**3.1**	**4.7**	**11.7**	**9.4**	**4.7**	**6.8**	**73.8**

*North Includes: Northwest Territories, Nunavut and Yukon.

Table 7: Reported new active and re-treatment tuberculosis cases and incidence rate per 100,000 by main diagnostic site – Canada and provinces/territories: 2008

Main diagnostic site			CANADA	Province/territory												
				N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Nvt.
Respiratory	Primary*	Cases	59	0	0	0	0	5	9	9	21	6	1	2	5	1
		Rate	0.2	0.0	0.0	0.0	0.0	0.1	0.1	0.7	2.1	0.2	0.0	6.0	11.4	3.2
	Pulmonary**	Cases	1,121	5	0	3	3	168	399	99	52	101	227	6	6	52
		Rate	3.4	1.0	0.0	0.3	0.4	2.2	3.1	8.2	5.1	2.8	5.2	18.1	13.7	164.6
	Other respiratory^	Cases	84	0	0	0	0	7	35	11	7	8	12	0	1	3
		Rate	0.3	0.0	0.0	0.0	0.0	0.1	0.3	0.9	0.7	0.2	0.3	0.0	2.3	9.5
Non-respiratory	Miliary	Cases	28	1	0	0	0	13	8	1	0	5	0	0	0	0
		Rate	0.1	0.2	0.0	0.0	0.0	0.2	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0
	Meninges and CNS	Cases	12	2	0	0	0	0	5	0	1	2	1	0	0	1
		Rate	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	3.2
	Peripheral lymph node	Cases	183	0	0	0	1	27	78	10	12	27	27	0	0	1
		Rate	0.5	0.0	0.0	0.0	0.1	0.3	0.6	0.8	1.2	0.8	0.6	0.0	0.0	3.2
	Other^^	Cases	156	0	0	1	1	20	69	11	2	18	32	0	1	1
		Rate	0.5	0.0	0.0	0.1	0.1	0.3	0.5	0.9	0.2	0.5	0.7	0.0	2.3	3.2
Unknown		Cases	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Rate	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total		**Cases**	**1,643**	**8**	**0**	**4**	**5**	**240**	**603**	**141**	**95**	**167**	**300**	**8**	**13**	**59**
		Rate	**4.9**	**1.6**	**0.0**	**0.4**	**0.7**	**3.1**	**4.7**	**11.7**	**9.4**	**4.7**	**6.8**	**24.2**	**29.7**	**186.7**

* Primary includes primary respiratory tuberculosis and tuberculous pleurisy in primary progressive tuberculosis, (ICD-9 codes 010.0-010.9; ICD-10 A15.7 and A16.7).

** Pulmonary includes tuberculosis of the lungs and conducting airways which includes tuberculous fibrosis of the lung, tuberculous bronchiectasis, tuberculous pneumonia, tuberculous pneumothorax, isolated tracheal or bronchial tuberculosis and tuberculous laryngitis; (ICD-9 codes 011-011.9, 012.2, 012.3; ICD-10 codes A15.0-A15.3, A15.5, A15.9, A16.0-A16.2, A16.4, A16.9).

^ Other Respiratory includes tuberculous pleurisy (non-primary); tuberculosis of: intrathoracic lymph nodes, mediastinum, nasopharynx, nose (septum), and sinus (any nasal) (ICD-9 codes: 012.0, 012.1 and 012.8; ICD-10 codes: A15.4, A15.6, A15.8, A16.3, A16.5, A16.8).

^^ Other includes tuberculosis of intestines, peritoneum and mesenteric glands, bones and joints, genitourinary system, skin, eye, ear, thyroid, adrenal and spleen.

Table 8: Reported new active and re-treatment tuberculosis cases by origin, sex and age group – Canada: 2008

Origin			Total	Age group										
				<1	1-4	5-14	15-24	25-34	35-44	45-54	55-64	65-74	75+	Unknown
Canadian-born	Aboriginal													
	North American Indian	Male	**129**	2	10	4	19	18	26	23	16	8	3	0
		Female	**100**	0	3	9	17	16	27	15	6	6	1	0
		Total	**229**	2	13	13	36	34	53	38	22	14	4	0
	Status Indian	Male	**124**	2	10	4	18	18	24	22	15	8	3	0
		Female	**97**	0	3	8	17	15	26	15	6	6	1	0
		Total	**221**	2	13	12	35	33	50	37	21	14	4	0
	Status Indian - On reserve	Male	**71**	2	7	4	14	11	14	8	6	3	2	0
		Female	**47**	0	0	7	11	3	13	7	3	2	1	0
		Total	**118**	2	7	11	25	14	27	15	9	5	3	0
	Status Indian - Off reserve	Male	**51**	0	3	0	4	7	10	13	8	5	1	0
		Female	**46**	0	3	1	5	12	13	7	3	2	0	0
		Total	**97**	0	6	1	9	19	23	20	11	7	1	0
	Status Indian - Unknown	Male	**2**	0	0	0	0	0	0	1	1	0	0	0
		Female	**4**	0	0	0	1	0	0	1	0	2	0	0
		Total	**6**	0	0	0	1	0	0	2	1	2	0	0
	Non-status Indian	Male	**5**	0	0	0	1	0	2	1	1	0	0	0
		Female	**3**	0	0	1	0	1	1	0	0	0	0	0
		Total	**8**	0	0	1	1	1	3	1	1	0	0	0
	Métis	Male	**15**	0	0	0	2	2	5	2	1	1	2	0
		Female	**12**	0	2	2	1	2	2	2	1	0	0	0
		Total	**27**	0	2	2	3	4	7	4	2	1	2	0
	Inuit	Male	**54**	0	3	7	23	10	3	4	0	4	0	0
		Female	**34**	0	1	5	8	7	7	1	4	1	0	0
		Total	**88**	0	4	12	31	17	10	5	4	5	0	0
	Total	Male	**198**	**2**	**13**	**11**	**44**	**30**	**34**	**29**	**17**	**13**	**5**	**0**
		Female	**146**	**0**	**6**	**16**	**26**	**25**	**36**	**18**	**11**	**7**	**1**	**0**
		Total	**344**	**2**	**19**	**27**	**70**	**55**	**70**	**47**	**28**	**20**	**6**	**0**
	Non-Aboriginal	Male	**137**	2	3	4	9	7	13	31	28	16	24	0
		Female	**84**	3	4	6	8	11	7	13	6	6	20	0
		Total	**221**	5	7	10	17	18	20	44	34	22	44	0
	Total	Male	**335**	**4**	**16**	**15**	**53**	**37**	**47**	**60**	**45**	**29**	**29**	**0**
		Female	**230**	**3**	**10**	**22**	**34**	**36**	**43**	**31**	**17**	**13**	**21**	**0**
		Total	**565**	**7**	**26**	**37**	**87**	**73**	**90**	**91**	**62**	**42**	**50**	**0**

Table 8 Con't: Reported new active and re-treatment tuberculosis cases by origin, sex and age group – Canada: 2008

Origin			Total	Age group										
				<1	1-4	5-14	15-24	25-34	35-44	45-54	55-64	65-74	75+	Unknown
Foreign-born	AFR - High	Male	**45**	1	0	2	6	15	8	9	1	2	1	0
		Female	**53**	0	0	4	13	21	12	3	0	0	0	0
		Total	**98**	1	0	6	19	36	20	12	1	2	1	0
	AFR - Low	Male	**16**	0	0	0	4	2	4	4	0	2	0	0
		Female	**9**	0	0	0	1	5	1	1	1	0	0	0
		Total	**25**	0	0	0	5	7	5	5	1	2	0	0
	AMR	Male	**39**	0	0	0	4	9	14	4	2	5	1	0
		Female	**25**	0	1	1	0	7	7	5	3	0	1	0
		Total	**64**	0	1	1	4	16	21	9	5	5	2	0
	EME - CEUR	Male	**39**	0	0	0	1	2	0	0	8	12	16	0
		Female	**21**	0	0	0	1	3	3	0	0	5	9	0
		Total	**60**	0	0	0	2	5	3	0	8	17	25	0
	EEUR	Male	**9**	0	0	0	0	4	0	0	0	2	3	0
		Female	**8**	0	0	0	0	4	0	0	2	1	1	0
		Total	**17**	0	0	0	0	8	0	0	2	3	4	0
	EMR	Male	**57**	0	0	2	4	11	11	15	4	5	5	0
		Female	**49**	0	0	3	13	9	10	3	3	4	4	0
		Total	**106**	0	0	5	17	20	21	18	7	9	9	0
	SEAR	Male	**118**	0	1	0	20	23	26	12	9	13	14	0
		Female	**130**	0	0	1	22	34	15	7	10	22	19	0
		Total	**248**	0	1	1	42	57	41	19	19	35	33	0
	WPR	Male	**218**	0	1	1	12	28	33	35	35	33	40	0
		Female	**223**	0	1	0	17	45	42	39	23	23	33	0
		Total	**441**	0	2	1	29	73	75	74	58	56	73	0
	Unknown	Male	**5**	0	0	1	0	1	0	1	1	0	1	0
		Female	**4**	0	0	0	0	0	2	1	0	0	1	0
		Total	**9**	0	0	1	0	1	2	2	1	0	2	0
	Total	Male	**546**	**1**	**2**	**6**	**51**	**95**	**96**	**80**	**60**	**74**	**81**	**0**
		Female	**522**	**0**	**2**	**9**	**67**	**128**	**92**	**59**	**42**	**55**	**68**	**0**
		Total	**1,068**	**1**	**4**	**15**	**118**	**223**	**188**	**139**	**102**	**129**	**149**	**0**
Unknown		M	**6**	0	0	0	0	0	0	2	1	0	3	6
		F	**4**	0	0	0	0	1	1	0	0	1	1	4
		Total	**10**	0	0	0	0	1	1	2	1	1	4	10
Total		M	**887**	**5**	**18**	**21**	**104**	**132**	**143**	**142**	**106**	**103**	**113**	**6**
		F	**756**	**3**	**12**	**31**	**101**	**165**	**136**	**90**	**59**	**69**	**90**	**4**
		Total	**1,643**	**8**	**30**	**52**	**205**	**297**	**279**	**232**	**165**	**172**	**203**	**10**

Table 9: Reported new active and re-treatment tuberculosis cases and incidence rate per 100,000 by age group and main diagnostic site – Canada: 2008

Age group		Total	Main diagnostic site						
			Respiratory			Nonrespiratory			
			Primary*	Pulmonary**	Other respiratory^	Miliary	CNS	lymph	Other^^
< 1	Cases	8	3	4	0	1	0	0	0
	Rate	2.2	0.8	1.1	0.0	0.3	0.0	0.0	0.0
1-4	Cases	30	17	11	0	1	1	0	0
	Rate	2.1	1.2	0.8	0.0	0.1	0.1	0.0	0.0
5-14	Cases	52	13	27	1	0	1	5	5
	Rate	1.4	0.3	0.7	0.0	0.0	0.0	0.1	0.1
15-24	Cases	205	10	146	11	2	0	24	12
	Rate	4.5	0.2	3.2	0.2	0.0	0.0	0.5	0.3
25-34	Cases	297	4	189	19	6	1	48	30
	Rate	6.6	0.1	4.2	0.4	0.1	0.0	1.1	0.7
35-44	Cases	279	4	186	17	4	2	36	30
	Rate	5.7	0.1	3.8	0.3	0.1	0.0	0.7	0.6
45-54	Cases	232	2	162	10	5	2	28	23
	Rate	4.4	0.0	3.1	0.2	0.1	0.0	0.5	0.4
55-64	Cases	165	1	123	9	2	2	13	15
	Rate	4.2	0.0	3.1	0.2	0.1	0.1	0.3	0.4
65-74	Cases	172	3	117	6	4	0	16	26
	Rate	7.2	0.1	4.9	0.2	0.2	0.0	0.7	1.1
75+	Cases	203	2	156	11	3	3	13	15
	Rate	9.4	0.1	7.2	0.5	0.1	0.1	0.6	0.7
Total	**Cases**	**1,643**	**59**	**1,121**	**84**	**28**	**12**	**183**	**156**
	Rate	**4.9**	**0.2**	**3.4**	**0.3**	**0.1**	**0.0**	**0.5**	**0.5**

* Primary includes primary respiratory tuberculosis and tuberculous pleurisy in primary progressive tuberculosis, (ICD-9 codes 010.0-010.9; ICD-10 A15.7 and A16.7).

** Pulmonary includes tuberculosis of the lungs and conducting airways which includes tuberculous fibrosis of the lung, tuberculous bronchiectasis, tuberculous pneumonia, tuberculous pneumothorax, isolated tracheal or bronchial tuberculosis and tuberculous laryngitis; (ICD-9 codes 011-011.9, 012.2, 012.3; ICD-10 codes A15.0-A15.3, A15.5, A15.9, A16.0-A16.2, A16.4, A16.9).

^ Other Respiratory includes tuberculous pleurisy (non-primary); tuberculosis of: intrathoracic lymph nodes, mediastinum, nasopharynx, nose (septum), and sinus (any nasal) (ICD-9 codes: 012.0, 012.1 and 012.8; ICD-10 codes: A15.4, A15.6, A15.8, A16.3, A16.5, A16.8).

^^ Other includes tuberculosis of intestines, peritoneum and mesenteric glands, bones and joints, genitourinary system, skin, eye, ear, thyroid, adrenal and spleen.

Table 10: Reported new active and re-treatment tuberculosis cases by origin and main diagnostic site – Canada: 2008

Origin		Total	Main diagnostic site						
			Respiratory			Nonrespiratory			
			Primary*	Pulmonary**	Other respiratory^	Miliary	CNS	Peripheral lymph node	Other^^
Canadian-born	North American Indian	**229**	29	166	19	1	1	8	5
	Status -Indian	**221**	29	159	19	1	1	8	4
	Status Indian - On reserve	**118**	16	86	10	1	1	2	2
	Status Indian - Off reserve	**97**	13	69	9	0	0	4	2
	Status Indian - Unknown	**6**	0	4	0	0	0	2	0
	Non-status Indian	**8**	0	7	0	0	0	0	1
	Métis	**27**	5	20	0	0	0	1	1
	Inuit	**88**	6	72	4	2	2	1	1
	Total Aboriginal	**344**	**40**	**258**	**23**	**3**	**3**	**10**	**7**
	Non-aboriginal	**221**	8	163	9	5	1	17	18
	Total	**565**	**48**	**421**	**32**	**8**	**4**	**27**	**25**
Foreign-born	AFR - High	**98**	2	67	5	2	0	10	12
	AFR - Low	**25**	0	14	1	1	0	3	6
	AMR	**64**	1	44	2	2	0	6	9
	EEUR	**17**	0	17	0	0	0	0	0
	EME - CEUR	**60**	3	39	2	1	0	6	9
	EMR	**106**	0	59	5	0	1	18	23
	SEAR	**248**	3	148	15	7	0	45	30
	WPR	**441**	2	307	19	5	4	65	39
	Unknown	**9**	0	2	0	2	0	3	2
	Total	**1,068**	**11**	**697**	**49**	**20**	**5**	**156**	**130**
Unknown		**10**	0	3	3	0	3	0	1
Total**		**1,643**	**59**	**1,121**	**84**	**28**	**12**	**183**	**156**

* Primary includes primary respiratory tuberculosis and tuberculous pleurisy in primary progressive tuberculosis, (ICD-9 codes 010.0-010.9; ICD-10 A15.7 and A16.7).

** Pulmonary includes tuberculosis of the lungs and conducting airways which includes tuberculous fibrosis of the lung, tuberculous bronchiectasis, tuberculous pneumonia, tuberculous pneumothorax, isolated tracheal or bronchial tuberculosis and tuberculous laryngitis; (ICD-9 codes 011-011.9, 012.2, 012.3; ICD-10 codes A15.0-A15.3, A15.5, A15.9, A16.0-A16.2, A16.4, A16.9).

^ Other Respiratory includes tuberculous pleurisy (non-primary); tuberculosis of: intrathoracic lymph nodes, mediastinum, nasopharynx, nose (septum), and sinus (any nasal) (ICD-9 codes: 012.0, 012.1 and 012.8; ICD-10 codes: A15.4, A15.6, A15.8, A16.3, A16.5, A16.8).

^^ Other includes tuberculosis of intestines, peritoneum and mesenteric glands, bones and joints, genitourinary system, skin, eye, ear, thyroid, adrenal and spleen.

Table 11: Reported new active and re-treatment tuberculosis cases by origin and activity status – Canada: 2008

Origin		Total	Activity status		
			New active cases	Re-treatment cases	Unknown status
Canadian-born	North American Indian	229	214	13	2
	Status Indian	221	206	13	2
	Status Indian - On reserve	118	109	9	0
	Status Indian - Off reserve	97	92	3	2
	Status Indian - Unknown	6	5	1	0
	Non-status Indian	8	8	0	0
	Métis	27	21	6	0
	Inuit	88	80	7	1
	TOTAL	344	315	26	3
	Non-Aboriginal	221	204	14	3
	Total	565	519	40	6
Foreign-born	AFR- High	98	90	5	3
	AFR-Low	25	23	1	1
	AMR	64	61	3	0
	EME -CEUR	60	51	7	2
	EEUR	17	15	2	0
	EMR	106	97	6	3
	SEAR	248	226	15	7
	WPR	441	383	45	13
	Unknown	9	8	1	0
	TOTAL	1,068	954	85	29
Unknown		10	8	1	1
Total		1,643	1,481	126	36

Table 12: Reported new active and re-treatment tuberculosis cases by bacterial status – Canada and provinces/territories: 2008														
Bacterial status	Canada	N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Nvt.
Culture positive														
a. Microscopy positive	642	4	0	1	2	102	212	45	41	65	145	3	3	19
b. Microscopy negative	627	0	0	0	1	90	207	76	31	73	108	3	8	30
c. Microscopy unknown	59	1	0	2	0	15	31	0	3	0	6	1	0	0
Subtotal	**1,328**	**5**	**0**	**3**	**3**	**207**	**450**	**121**	**75**	**138**	**259**	**7**	**11**	**49**
Culture negative														
a. Microscopy positive	17	0	0	0	1	1	9	2	0	0	4	0	0	0
b. Microscopy negative	145	2	0	1	1	17	68	14	4	0	27	0	2	9
c. Microscopy unknown	9	0	0	0	0	0	7	0	2	0	0	0	0	0
Subtotal	**171**	**2**	**0**	**1**	**2**	**18**	**84**	**16**	**6**	**0**	**31**	**0**	**2**	**9**
Culture unknown														
a. Microscopy positive	15	0	0	0	0	1	10	3	0	0	1	0	0	0
b. Microscopy negative	7	0	0	0	0	1	5	0	1	0	0	0	0	0
c. Microscopy unknown	122	1	0	0	0	13	54	1	13	29	9	1	0	1
Subtotal	**144**	**1**	**0**	**0**	**0**	**15**	**69**	**4**	**14**	**29**	**10**	**1**	**0**	**1**
Total	**1,643**	**8**	**0**	**4**	**5**	**240**	**603**	**141**	**95**	**167**	**300**	**8**	**13**	**59**

Table 13: Reported new active and re-treatment tuberculosis cases by bacterial status and origin – Canada: 2008

Bacterial status	TOTAL	Origin			
		Canadian-born Aboriginal	Canadian-born non-Aboriginal	Foreign-born	Unknown Birthplace
Culture positive					
a. Microscopy positive	642	130	116	394	3
b. Microscopy negative	627	143	56	425	3
c. Microscopy unknown	59	4	8	43	4
Subtotal	**1,328**	**277**	**180**	**862**	**9**
Culture negative					
a. Microscopy positive	17	1	4	12	0
b. Microscopy negative	145	40	9	96	0
c. Microscopy unknown	9	2	0	7	0
Subtotal	**171**	**43**	**13**	**115**	**0**
Culture unknown					
a. Microscopy positive	15	1	2	12	0
b. Microscopy negative	7	1	3	3	0
c. Microscopy unknown	122	22	23	76	1
Subtotal	**144**	**24**	**28**	**91**	**1**
TOTAL	**1,643**	**344**	**221**	**1,068**	**10**

Table 14: Reported new active and re-treatment tuberculosis cases by bacterial status and main diagnostic site – Canada: 2008

Bacterial status	TOTAL	Main diagnostic site							
		Primary	Pulmonary	Other respiratory	Miliary	CNS	Peripheral lymph node	Other	Unknown
Culture positive									
a. Microscopy positive	642	8	576	5	5	0	25	23	0
b. Microscopy negative	627	18	392	45	11	5	99	57	0
c. Microscopy unknown	59	2	20	3	3	2	13	16	0
Subtotal	**1,328**	**28**	**988**	**53**	**19**	**7**	**137**	**96**	**0**
Culture negative									
a. Microscopy positive	17	0	8	3	0	0	4	2	0
b. Microscopy negative	145	12	75	19	1	3	17	18	0
c. Microscopy unknown	9	1	2	3	0	0	2	1	0
Subtotal	**171**	**13**	**85**	**25**	**1**	**3**	**23**	**21**	**0**
Culture unknown									
a. Microscopy positive	15	1	8	0	1	0	2	3	0
b. Microscopy negative	7	0	4	1	0	0	2	0	0
c. Microscopy unknown	122	17	36	5	7	2	19	36	0
Subtotal	**144**	**18**	**48**	**6**	**8**	**2**	**23**	**39**	**0**
TOTAL	**1,643**	**59**	**1,121**	**84**	**28**	**12**	**183**	**156**	**0**

Table 15: Drug resistance at time of initial case reporting by origin and activity status – Canada: 2008

Drug Pattern	Total	New				Re-treatment				Unknown			
		Aboriginal	Foreign-born	Non-Aboriginal	Unknown	Aboriginal	Foreign-born	Non-Aboriginal	Unknown	Aboriginal	Foreign-born	Non-Aboriginal	Unknown
Total Positive Culture	**1,328**	**253**	**784**	**168**	**7**	**23**	**60**	**10**	**0**	**2**	**18**	**2**	**1**
Resistance patterns unknown	12	5	3	3	0	0	0	0	0	0	1	0	0
No resistance	1,209	244	703	152	7	22	51	10	0	2	16	1	1
Resistance to one of more drugs	**107**	**4**	**78**	**13**	**0**	**1**	**9**	**0**	**0**	**0**	**1**	**1**	**0**
MONORESISTANCE													
Monoresistance: INH	77	3	61	8	0	0	4	0	0	0	0	1	0
Monoresistance: EMB	1	0	1	0	0	0	0	0	0	0	0	0	0
Monoresistance: RMP	2	1	0	0	0	1	0	0	0	0	0	0	0
Monoresistance: PZA	6	0	2	4	0	0	0	0	0	0	0	0	0
Total Monoresistance	**86**	**4**	**64**	**12**	**0**	**1**	**4**	**0**	**0**	**0**	**0**	**1**	**0**
MULTIDRUG RESISTANT (MDR-TB)*													
INH & RMP	7	0	4	0	0	0	3	0	0	0	0	0	0
INH& RMP & PZA	1	0	1	0	0	0	0	0	0	0	0	0	0
INH & RMP & EMB & PZA	6	0	3	1	0	0	1	0	0	0	1	0	0
Total MDR	**14**	**0**	**8**	**1**	**0**	**0**	**4**	**0**	**0**	**0**	**1**	**0**	**0**

Table 15 Cont'd: Drug resistance at time of initial case reporting by origin and activity status – Canada: 2008

Drug Pattern	Total	New				Re-treatment				Unknown			
		Aboriginal	Foreign-born	Non-Aboriginal	Unknown	Aboriginal	Foreign-born	Non-Aboriginal	Unknown	Aboriginal	Foreign-born	Non-Aboriginal	Unknown
EXTENSIVELY DRUG-RESISTANT (XDR-TB)†													
Total XDR	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
OTHER PATTERNS													
INH & EMB & PZA	2	0	2	0	0	0	0	0	0	0	0	0	0
INH & EMB	4	0	3	0	0	0	1	0	0	0	0	0	0
INH & PZA	1	0	1	0	0	0	0	0	0	0	0	0	0
Total Other Patterns	**7**	**0**	**6**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**

* Multidrug-resistant TB (MDR-TB) is TB that is resistant to at least isoniazid and rifampin but which does not meet the definition of XDR-TB.

† Extensively drug-resistant TB (XDR-TB) is TB that is resistant to at least isoniazid and rifampin plus resistance to any fluoroquinolone and at least one of three injectable second-line drugs: amikacin, capreomycin and kanamycin.

Table 16: Reported new active and re-treatment tuberculosis cases by method of detection – Canada and provinces/territories: 2008

Case finding	Canada	Province/territory												
		N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Nvt.
Immigration	93	0	0	0	0	10	51	2	1	13	16	0	0	0
Symptoms/ incidental findings	1,200	7	0	4	4	146	461	99	70	136	238	2	4	29
Contact investigation	173	1	0	0	1	18	23	33	22	13	22	6	7	27
Post-mortem	19	0	0	0	0	1	6	2	0	0	10	0	0	0
Screening	57	0	0	0	0	1	38	0	2	5	9	0	1	1
Other	68	0	0	0	0	43	17	5	0	0	2	0	1	0
Unknown	33	0	0	0	0	21	7	0	0	0	3	0	0	2
Total	1,643	8	0	4	5	240	603	141	95	167	300	8	13	59

Table 17: Reported new active and re-treatment tuberculosis cases by method of detection and origin – Canada: 2008

Case finding	Total	Origin						
		Canadian-born					Foreign-born	Unknown birthplace
		Status Indian	Non-status Indian	Métis	Inuit	Non-Aboriginal		
Immigration	93	0	0	0	0	0	93	0
Symptoms/ incidental findings	1,200	134	7	22	39	157	834	7
Post-mortem	19	4	0	0	0	3	10	2
Contact-investigation	173	72	1	5	44	28	23	0
Screening	57	4	0	0	1	7	45	0
Other	68	7	0	0	1	18	41	1
Unknown	33	0	0	0	3	8	22	0
TOTAL	1,643	221	8	27	88	221	1,068	10

Table 18: Reported new active and re-treatment foreign-born tuberculosis cases by origin and year of arrival in Canada: 2008															
Origin (WHO epi region)	TOTAL	Year of arrival													
		≤ 1969	1970 -1979	1980 -1989	1990 -1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	Unk
AFR - High	98	1	3	4	12	4	5	0	4	7	10	10	16	20	2
AFR - Low	25	0	2	2	4	1	1	2	1	1	4	2	2	2	1
AMR	64	0	6	9	8	1	4	0	2	1	3	1	10	17	2
EME - CEUR	60	35	5	5	3	0	0	1	1	0	1	1	2	2	4
EEUR	17	2	0	0	5	0	1	1	1	0	0	0	5	2	0
EMR	106	2	2	11	30	4	5	4	5	7	5	4	17	9	1
SEAR	248	7	14	22	58	10	8	12	8	6	11	18	36	27	11
WPR	441	15	33	89	107	12	10	10	17	15	23	29	36	31	14
Unknown	9	0	0	1	1	0	0	0	0	0	0	0	0	0	7
TOTAL	1,068	62	65	143	228	32	34	30	39	37	57	65	124	110	42

Table 19: Reported new active and re-treatment foreign-born tuberculosis cases by immigration status – Canada and provinces/ territories: 2008														
Immigration Status	Canada	Province/territory												
		N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Nvt.
Canadian citizen/ permanent resident	454	0	0	1	0	4	123	30	8	111	177	0	0	0
Refugee claimant	49	0	0	1	1	0	35	1	1	8	2	0	0	0
Other temporary resident (visitor, student, foreign nationals without status in Canada)	35	0	0	0	0	0	0	0	2	13	20	0	0	0
Other	39	0	0	0	0	0	37	0	0	0	2	0	0	0
Unknown	491	0	0	0	0	138	333	6	1	0	13	0	0	0
TOTAL	1,068	0	0	2	1	142	528	37	12	132	214	0	0	0

Table 20: Reported re-treatment tuberculosis cases by length of interval since year of previous diagnosis – Canada and provinces/territories: 2008

Interval	Canada	Province/territory												
		N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Nvt.
0 - 2	11	0	0	0	0	5	0	2	1	1	2	0	0	0
3 - 5	6	0	0	0	0	3	0	0	0	1	2	0	0	0
6 - 9	8	0	0	0	0	1	0	1	0	3	3	0	0	0
10 - 19	9	0	0	0	0	0	0	0	2	1	6	0	0	0
20 +	38	1	0	0	0	9	0	3	1	3	19	0	2	0
Unk	54	0	0	0	0	4	44	0	0	0	2	0	0	4
Total	126	1	0	0	0	22	44	6	4	9	34	0	2	4

Table 21: Reported new active and re-treatment tuberculosis cases who died, by cause of death – Canada and provinces/territories

Cause of death	Canada		Province/territory											
			N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Nvt.
Update on 2007 cases who died before or during treatment*	Number	Percent of total cases reported for year													
TB was the cause of death	30	1.9	0	0	0	0	6	11	3	0	3	7	0	0	0
TB contributed to death but was not the underlying cause	63	4.0	2	0	0	0	7	31	5	2	5	11	0	0	0
TB did not contribute to death but was an incidental finding	43	2.7	0	0	1	0	4	16	3	0	3	14	0	1	1
Total	136	8.6	2	0	1	0	17	58	11	2	11	32	0	1	1
Cases reported in 2008 cases who died before or during treatment															
TB was the cause of death	37	2.2	0	0	0	0	4	18	1	1	4	9	0	0	0
TB contributed to death but was not the underlying cause	67	4.1	1	0	1	0	8	27	3	5	10	10	0	1	1
TB did not contribute to death but was an incidental finding	37	2.2	0	0	0	0	2	17	2	1	0	15	0	0	0
Total	141	8.6	1	0	1	0	14	62	6	7	14	34	0	1	1

* Updates include results from both case and outcome reports.

Table 22: Reported new active and re-treatment tuberculosis cases who died, by age group and sex – Canada and provinces/territories											
Sex	Total	Age group									
		<1	1-4	5-14	15-24	25-34	35-44	45-54	55-64	65-74	75+
Update on 2007 cases who died before or during treatment											
Male	92	0	0	0	0	5	7	10	6	19	45
Female	44	0	0	0	0	2	7	4	2	5	24
Total	136	0	0	0	0	7	14	14	8	24	69
Cases reported in 2008 who died before or during treatment											
Male	95	1	0	0	1	2	5	12	17	17	40
Female	46	0	0	0	2	0	2	6	3	8	25
Total	141	1	0	0	3	2	7	18	20	25	65

* Updates include results from both case outcome reports.

Table 23: Reported new active and re-treatment tuberculosis cases by HIV status – Canada and provinces/territories: 2008													
HIV status	Canada	Province/territory											
		N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Nvt.
Positive	94	0	0	1	1	8	47	7	4	10	16	0	0	0
Negative	573	0	0	1	2	65	0	41	0	150	256	5	10	43
Unknown	976	8	0	2	2	167	556	93	91	7	28	3	3	16
Total	1,643	8	0	4	5	240	603	141	95	167	300	8	13	59

Table 24: Treatment outcome status – Canada and provinces/territories: 2007

	Total	Treatment outcome							
		Cure	Treatment completed without culture	Death during treatment	Transferred	Absconded	Treatment Ongoing	Other	Unknown
Canada	1,576	80	1,087	136	29	34	41	17	152
Province/territory									
Newfoundland	7	2	3	2	0	0	0	0	0
Prince Edward Island	0	0	0	0	0	0	0	0	0
Nova Scotia	7	0	4	1	0	0	0	1	1
New Brunswick	5	1	4	0	0	0	0	0	0
Quebec	229	8	82	17	0	2	0	1	119
Ontario	680	0	522	58	14	10	41	5	30
Manitoba	103	0	89	11	0	2	0	1	0
Saskatchewan	106	1	92	2	0	7	0	2	2
Alberta	112	32	67	11	0	1	0	1	0
British Columbia	278	4	210	32	15	11	0	6	0
Yukon	3	0	3	0	0	0	0	0	0
Northwest Territories	15	12	2	1	0	0	0	0	0
Nunavut	31	20	9	1	0	1	0	0	0

Table 25: Treatment outcome status by treatment regimen – Canada: 2007

Treatment regimen	Total	Cure	Treatment-completed-without-culture	Death-during-treatment	Transferred	Absconded	Treatment-Ongoing	Other	Unknown
Total	1,576	80	1,087	136	29	34	41	17	152
EMB	1	0	0	0	0	0	0	0	1
EMB-OTHER	1	0	0	1	0	0	0	0	0
INH	1	0	0	0	0	0	0	0	1
INH-EMB-PZA	6	0	2	1	0	0	0	0	3
INH-EMB-PZA-OTHER	4	0	3	0	0	0	0	0	1
INH-PZA	3	0	0	1	0	0	0	0	2
INH-PZA-OTHER	6	1	4	1	0	0	0	0	0
INH-RMP	105	3	93	1	0	3	0	0	5
INH-RMP-EMB	25	1	18	1	0	1	0	0	4
INH-RMP-EMB-OTHER	15	0	13	0	0	1	0	1	0
INH-RMP-EMB-PZA	255	31	142	14	5	8	0	4	51
INH-RMP-EMB-PZA-OTHER	35	1	31	2	1	0	0	0	0
INH-RMP-OTHER	8	3	2	1	0	0	0	1	1
INH-RMP-PZA	246	28	151	10	6	6	0	2	43
INH-RMP-PZA-OTHER	5	1	2	1	0	0	0	1	0
PZA	1	0	1	0	0	0	0	0	0
RMP-EMB	4	0	1	1	0	1	0	0	1
RMP-EMB-OTHER	8	1	6	1	0	0	0	0	0
RMP-EMB-PZA	5	1	2	0	0	0	0	0	2
RMP-EMB-PZA-OTHER	6	0	5	0	0	0	0	1	0
RMP-OTHER	1	0	1	0	0	0	0	0	0
RMP-PZA	1	1	0	0	0	0	0	0	0
RMP-PZA-OTHER	3	0	3	0	0	0	0	0	0
UNK	831	8	607	100	17	14	41	7	37

Table 26: Treatment outcome status by major mode of treatment – Canada: 2007

Major mode of treatment	Total	Treatment outcome							
		Cure	Treatment completed without culture	Death during treatment	Transferred	Absconded	Treatment Ongoing	Other	Unknown
DOT (daily or intermittent)	819	69	617	53	13	22	26	5	14
Daily, self-administered	525	9	445	8	12	12	13	9	17
Other	63	0	24	35	1	0	2	1	0
Unknown	169	2	1	40	3	0	0	2	121
Total	1,576	80	1,087	136	29	34	41	17	152

Table 27: Treatment outcome status by compliance estimate – Canada: 2007

Adherence estimate	Total	Treatment outcome							
		Cure	Treatment completed - without cure	Death during treatment	Transferred	Absconded	Treatment Ongoing	Other	Unknown
<50%	30	0	1	13	2	11	0	3	0
50-79%	67	0	43	3	1	16	0	3	1
>=80%	1,147	77	992	62	8	3	0	4	1
Unknown	332	3	51	58	18	4	41	7	150
TOTAL	1,576	80	1,087	136	29	34	41	17	152

Table 28: Initial and acquired drug resistance by origin and activity status – Canada: 2007

Drug pattern		Activity status												
		New					Re-treatment				Unknown			
		Total	Canadian born		Foreign-born	Unknown	Canadian born		Foreign-born	Unknown	Canadian born		Foreign-born	Unknown
			Aboriginal	Non-Aboriginal			Aboriginal	Non-Aboriginal			Aboriginal	Non-Aboriginal		
Initial drug resistance 2007	Total Positive Culture	1244	196	122	792	18	32	7	47	2	0	4	21	3
	Resistance Pattern Unknown	45	3	3	30	0	2	0	3	1	0	0	3	0
	No Resistance	1,086	185	109	686	17	29	7	36	1	0	3	11	2
	Initial Resistance to one or more drugs first line drugs	113	8	10	76	1	1	0	8	0	0	1	7	1
	Monoresistance													
	INH	83	7	5	61	1	1	0	4	0	0	0	3	1
	EMB	6	0	1	4	0	0	0	0	0	0	0	1	0
	RMP	1	0	0	0	0	0	0	1	0	0	0	0	0
	PZA	6	1	3	2	0	0	0	0	0	0	0	0	0
	Total monoresistance	96	8	9	67	1	1	0	5	0	0	0	4	1
	Multi-drug resistance (MDR-TB)*													
	INH & RMP	2	0	0	0	0	0	1	0	0	0	1	0	0
	INH & RMP & EMB	6	0	0	3	0	0	0	1	0	0	0	2	0
	INH & RMP & PZA	1	0	0	1	0	0	0	0	0	0	0	0	0

Table 28: Initial and acquired drug resistance by origin and activity status – Canada: 2007

Drug pattern		Activity status												
		New					Re-treatment				Unknown			
		Total	Canadian born		Foreign-born	Unknown	Canadian born		Foreign-born	Unknown	Canadian born		Foreign-born	Unknown
			Aboriginal	Non-Aboriginal			Aboriginal	Non-Aboriginal			Aboriginal	Non-Aboriginal		
Initial drug resistance 2007 cont'd	INH & EMB & RMP & PZA	1	0	0	0	0	0	0	1	0	0	0	0	0
	Total MDR-TB	10	0	0	4	0	0	1	2	0	0	1	2	0
	† Extensively drug-resistant (XDR-TB)													
	INH & RMP & EMB & CAP & OFLOX	1	0	0	1	0	0	0	0	0	0	0	0	0
	Total XDR-TB	1	0	0	1	0	0	0	0	0	0	0	0	0
	Other Patterns													
	INH & EMB	6	0	1	4	0	0	0	0	0	0	0	1	0
	Total	6	0	1	4	0	0	0	0	0	0	0	1	0
Acquired drug resistance 2007	**Monoresistance**													
	INH	1	1	0	0	0	0	0	0	0	0	0	0	0
	Total Acquired resistance	1	1	0	0	0	0	0	0	0	0	0	0	0

* Multidrug-resistant TB (MDR-TB) is TB that is resistant to at least isoniazid and rifampin but which does not meet the definition of XDR-TB.

† Extensively drug-resistant TB (XDR-TB) is TB that is resistant to at least isoniazid and rifampin plus resistance to any fluoroquinolone and at least one of three injectable second-line drugs: amikacin, capreomycin and kanamycin.

APPENDIX II: Technical Notes

CONCEPTS, METHODS AND DATA QUALITY

The following information describes the strengths and limitations of the data in this report and how these data can be effectively used and interpreted. This information may be particularly useful when drawing comparisons with data from previous TB in Canada reports or other sources of TB information.

DATA SOURCES

The Canadian Tuberculosis Reporting System (CTBRS) is maintained by the Centre for Communicable Disease and Infection Control at the Public Health Agency of Canada. This surveillance system is derived from records of provincial/territorial tuberculosis registries, which collect information on every new active and re-treatment case of tuberculosis and on the treatment outcome for these cases.

All provinces and territories voluntarily submit their case and outcome data to PHAC. Case data for five of the thirteen provinces and territories (Alberta, Manitoba, Ontario, Quebec and Saskatchewan) are submitted electronically. The remaining provinces and territories submit paper reporting forms (Appendix VI). Outcome data are submitted electronically by Alberta, Manitoba, Ontario and Saskatchewan. The remaining provinces submit outcome results on paper forms.

REFERENCE PERIOD

This report presents summary statistics for TB cases (new and re-treatment) reported to PHAC between January 1, 2008 and December 31, 2008. Outcomes are reported on cases counted between January 1, 2007 and December 31, 2007. TB cases are counted by the year in which the reporting jurisdiction confirmed that the patient had TB and included the patient in its official TB report. This is a change from previous years in which cases were determined on the basis of the diagnosis date. Some jurisdictions reported a case based on the year that symptoms first occurred, which may be different from the year in which the case was diagnosed. This new approach to counting cases will ensure consistency in the number of cases being reported cases at the federal level, with the numbers being reported at the provincial and territorial level.

Tables 1 through 4 present historical counts and rates for the years 1998 to 2008 inclusive. The data in this report reflects the data submitted to the Public Health Agency of Canada as of October 2009. Updates necessitated by late reporting will be reflected in subsequent reports.

DATA QUALITY AND VALIDATION

Prior to analysis and publication, all data are reviewed for errors, inconsistencies and incomplete reporting. Follow-up is done with the reporting jurisdictions to identify any concerns or problems with the reported data. Previously reported data are also subject to revision in the event of late reporting or when revised information from the provinces or territories is received. Revisions are disseminated in subsequent reports.

A pre-release containing selected tables is produced prior to the publication of TB in Canada. The pre-release is sent to the provinces and territories for verification. The numbers reported in the pre-release are strictly provisional and are subject to change. The numbers presented in the full report are considered to be most accurate up to the date of reporting. Numbers in subsequent reports may change for a given year based on new information provided by the reporting province or territory.

DATA ACCURACY

The methods used to collect and analyze the data in this report have been designed to minimize error. However, surveillance data are subject to certain types of error (e.g., coverage, measurement and processing error).

The accuracy of the data (including completeness and coverage of the population of interest) is partially a function of timely reporting/updates to PHAC from the provinces and territories. Some degree of lag does occur (i.e., reporting delay), almost exclusively affecting preliminary data and rarely the final data.

In general, the majority of data elements for case and outcome reports submitted to PHAC are complete. Reporting is less complete for some of the data elements introduced in 1997, such as HIV status. Historically, Ontario and Quebec have not had the capacity to report individual treatment outcomes. Prior to 2005 both Ontario and Quebec only submitted outcome data in aggregated form. In 2005, Ontario began submitting individual outcome data, though Quebec continues to submit only aggregated outcome data.

Provinces and territories do not always report outcomes for all cases. However, reporting is improving and the percentage of outcomes reported in 2008 for 2007 cases was 90% of all cases. Ongoing work with the provinces and territories will ensure that the data reported in the TB in Canada reports correspond with those reported at the provincial or territorial level.

The data reported may be subject to coding, reporting and processing errors that cannot be detected and are not corrected at the source. Not all provinces and territories use ICD-9 or ICD-10 coding systems for disease, which are used to classify patients according to the main diagnostic site (Table 4). Efforts are made to work with those provinces and territories using alternate coding systems, in order to ensure that diagnostic reporting is as accurate as possible.

RATES

Rates are expressed as the number of cases reported each calendar year per 100,000 population. The denominators used to calculate rates for total Canadian, total provincial and territorial, and total Canadian-born Aboriginal, Inuit and Métis were derived from official and custom census products from Statistics Canada, Demography Division.[9]

Current and historical incidence rates for the Status (registered) Indian population are based on population estimates from Indian and Northern Affairs Canada.[10] These estimates are considered a more accurate reflection of the Status Indian population.[11] However, using different population sources does introduce the possibility of conflicting numbers. As a result, caution should be observed when drawing comparative conclusions between the Status (registered) Indian group and those for other origin groups.

9 Statistics Canada, Demography Division, Demographic, Estimates Section, Population estimates 0-90+, July, Canada – Provinces/Territories 1971-2005, updated February, 2008.

10 Registered Indian Population, Household and Family Projections 2004-2029, INAC, 2007.

11 INAC, Registered Indian Population by Sex and Residence 2005. Available at: http://www.ainc-inac.gc.ca/pr/sts/rip/rip05_e.pdf.

In annual Tuberculosis In Canada reports published prior to 2003, the case counts for the Métis and non-Status Indians were combined into one aggregated number; and because populations counts were not available, incidence rates were not calculated. In 2003, population estimates for the Métis were produced by Statistics Canada, Demography Division, which enabled the reporting of rates for this population. Beginning in 2003, the reported case counts for the Métis were separated from those for non-Status counts, and rates for the Métis were reported. Accurate population counts for non-Status Indians, however, are not available and so incidence rates are not calculated. Some jurisdictions have not been able to distinguish non-Status from the Métis cases, due to constraints with their TB program's reporting system. National rates for the Métis may be inflated and need to be interpreted cautiously. It is hoped that working with the jurisdictions will make these data more accurate in future reports.

Incidence rates in the foreign-born population from 2001 onward are based on population estimates from the Canadian Census, a Statistics Canada, Demography Division customized product. These rates are presented according to the Stop-TB /WHO TB Epidemiological Regions described in the Actions for Life: Towards a World Free of Tuberculosis: The Global Plan to Stop TB, 2006 – 2015. The TB epidemiological regions include: the Established Market Economies (EME) and the Central European countries (CEUR); African countries with high HIV prevalence (AFR High HIV); African countries with low HIV prevalence (AFR Low HIV); the American Region (AMR) – Latin American Countries (LAC); Eastern Europe Region (EEUR); Eastern Mediterranean Region (EMR); South-East Asia Region (SEAR); and the Western Pacific Region (WP). Because EME and CEUR have similarly high per capita income levels and low tuberculosis incidence rates, the results for these two regions are combined.

Population denominators for the Canadian-born non-Aboriginal population are derived using the following formula:

Canadian-born non-Aboriginal

=

Total Canadian Population (Statistics Canada) - Foreign Born (Statistics Canada) –

Total Aboriginal persons (Statistics Canada)

Finally, the historical rates presented in this and subsequent reports are updated when new estimates become available, which may explain inconsistencies between rates in this report and in previous TB in Canada reports.

DEATHS

Beginning in 2005, the tabulation of the total number of deaths included cases that were reported in the previous calendar year, but who died at any time during their treatment. Prior to 2005, only deaths that occurred within the calendar year of the current report were counted and thus the count may not have included cases that died while still on treatment into the following calendar year. This enhanced method for determining the number of deaths will more accurately reflect actual deaths.

PRIVACY AND CONFIDENTIALITY

Tables reporting on provincial and territorial case counts and rates have been expanded to report on each province and territory as opposed to aggregating data for the four Atlantic provinces and three territories. However, tables where population counts become too small may be collapsed into regions (e.g., for the three territories into "North") to avoid any potential issues related to confidentiality and privacy. In general, data will be suppressed in all instances where population denominators fall below 40.

VARIABLES MEASURED

The statistical data presented in this report refer to cases and rates for new active or re-treatment tuberculosis and treatment outcomes.

CASE DEFINITIONS IN EFFECT IN 2005:

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

a. Cases with *Mycobacterium tuberculosis* complex (i.e. *M. tuberculosis* [including subspecies *M.canetti*], M. bovis [excluding BCG strain], *M. africanum, M.caprae. M.microti* or *M. pinnipedii*) 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 nonrespiratory tuberculosis (meningeal, bone, kidney, peripheral lymph nodes etc.)

iii. pathologic or post-mortem evidence of active tuberculosis

iv. favourable response to therapeutic trial of antituberculosis drugs.

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.

III. New and re-treatment cases of tuberculosis.[12]

NEW CASE

No documented evidence or adequate history of previously active tuberculosis.

RE-TREATMENT CASE

1. a) Documented evidence or adequate history of previously active TB which was declared cured or treatment completed by current standards, and

b) At least 6 months have passed since the last day of previous treatment, and

c) Diagnosed with a subsequent episode of TB which meets the active TB case definition.

12 As of 2008, the CTBRS classifies all cases as new or re-treatment cases; see Canadian Tuberculosis Standards, 6th ed., Appendix C for complete definitions

OR

2. a) Documented evidence or adequate history of previously active TB which cannot be declared cured or treatment completed by current standards, and
   b) Inactive for 6 months or longer after the last day of previous treatment, and
   c) Diagnosed with a subsequent episode of TB which meets the active TB case definition.

IV. TREATMENT OUTCOMES

Cure - Negative culture at completion of treatment.

Treatment completed - Patient who has completed treatment without culture at the end of treatment.

Died - Death during treatment

a. TB was the cause of death;

b. TB contributed to death but was not the underlying cause; or

c. TB did not contribute to death.

Transfer - Patient transferred to new jurisdiction and the outcome of treatment is unknown.

Failure - Patient is culture positive at 5 months or more.

Absconded - Patient was lost to follow-up before completion of 80% of doses, 8 months after treatment started.

Treatment ongoing – Treatment is ongoing at the time of the treatment outcome report.

Other

Unknown

DIAGNOSTIC CLASSIFICATION

The diagnostic classification of tuberculosis (TB) in Canada is based upon the International Classification of Diseases, 9th and 10th Editions. For each case of TB, up to five individual diagnoses can be captured for reporting purposes. The main diagnostic sites were divided into two broad categories: respiratory and non-respiratory. Respiratory is further subdivided into primary, pulmonary and other respiratory.

Primary includes primary respiratory tuberculosis and tuberculous pleurisy in primary progressive tuberculosis (ICD-9 codes 010.0-010.9; ICD-10 A15.7 and A16.7).

Pulmonary includes tuberculosis of the lungs and conducting airways: tuberculous fibrosis of the lung, tuberculous bronchiectasis, tuberculous pneumonia, tuberculous pneumothorax, isolated tracheal or bronchial tuberculosis and tuberculous laryngitis (ICD-9 codes 011-011.9, 012.2, 012.3; ICD-10 codes A15.0-A15.3, A15.5, A15.9, A16.0-A16.2, A16.4, A16.9).

Other Respiratory includes tuberculous pleurisy (non-primary); tuberculosis of: intrathoracic lymph nodes, mediastinum, nasopharynx, nose (septum), and sinus (any nasal) (ICD-9 codes: 012.0, 012.1 and 012.8;

ICD-10 codes: A15.4, A15.6, A15.8, A16.4, A16.8).

Nonrespiratory tuberculosis includes miliary, central nervous system, lymph and other sites.

The table below summarizes the codes used by the ICD system for each of the diagnostic categories.

Table G: ICD9 and ICD10 codes by diagnostic classification.

ICD System	Primary	Pulmonary	Other respiratory	Miliary	CNS	Peripheral lymph nodes	Other
ICD 9	010, 010.0, 010.1, 010.8, 010.9	011, 011.0, 011.1, 011.2, 011.3, 011.4, 011.5, 011.6, 011.7, 011.8, 011.9, 012.2, 012.3	012, 012.0, 012.1, 012.8	018, 018.0, 018.8, 018.9	013, 013.0, 013.1, 013.8, 013.9	17.2	all other ICD9 codes
ICD 10	015.7, 016.7	015, 015.0, 015.1, 015.2, 015.3, 015.5, 015.9, 016.0, 016.1, 016.2, 016.4, 016.9	015.4, 015.6, 015.8, 016.3 016.5, 016.8	019, 019.0, 019.1, 019.2, 019.8, 019.9	017, 017.0, 017.1, 017.8, 017.9	18.2	all other ICD10 codes

Cases are reported based on the following hierarchy:

1. primary respiratory TB;
2. pulmonary;
3. other respiratory TB;
4. miliary/disseminated;
5. meninges/central nervous system;
6. peripheral lymph node; and
7. other sites (includes tuberculosis of intestines, peritoneum and mesenteric glands, bones and joints, genitourinary system, skin, eye, ear, thyroid, adrenal and spleen).

For cases with multiple diagnostic sites, the placement of the case into a disease group is determined using the hierarchy above. As an example, a case may have been diagnosed with TB of the peripheral lymph nodes (scrofula, scrofulous abscess, tuberculous adenitis) (ICD-9 17.2) and tuberculosis of lung, infiltrative (ICD-9 11.0). Because pulmonary TB is above peripheral lymph TB in the hierarchy, this case would be classified as pulmonary TB.

Code Table Listing by ICD-9 Code for DIAGNOSIS

010 Primary Tuberculosis

- 010.0 Primary tuberculous complex
  - 010.1 Tuberculous pleurisy in primary progressive tuberculosis

    This disease state is characterized by pleuritis and pleural effusion, usually in an adolescent or young adult, but possibly in any age group, due to recent (within the preceding 24 months) infection with Mycobacterium tuberculosis complex. If another site of tuberculosis disease, such as CNS or disseminated/miliary disease, is believed to have occurred as a consequence of recent infection (within the preceding 24 months), it ought to be referred to as primary CNS (etc.) disease.
  - 010.8 Other primary progressive tuberculosis (excl. tuberculous erythema nodosum {017.1})

    This is usually, but not always, in a child, and is due to infection within the preceding 24 months with Mycobacterium tuberculosis complex. It includes pulmonary (lung parenchyma) tuberculosis, as well as tuberculosis of the intrathoracic lymph nodes, larynx, trachea, bronchus, or nasopharyngeal sinuses
  - 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 NOS, tuberculosis of lung NOS)

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 NOS)

014 Tuberculosis of intestines, peritoneum, and mesenteric glands

014.0 Tuberculous peritonitis Tuberculous ascites

014.8 Other Tuberculosis (of):

anus

intestine (large) (small)

mesenteric glands

rectum

retroperitoneal (lymph nodes)

Tuberculous enteritis

015 Tuberculosis of Bones and Joints

Incl. tuberculous: arthritis (711.4), necrosis of bone (730.8), osteitis (730.8), osteomyelitis (730.8), synovitis (727.01), tenosynovitis (727.01).

015.0 Vertebral column
Pott's: curvature (737.4), disease (730.4)
Kyphosis (737.4), spondylitis (720.8)

015.1 Hip

015.2 Knee

015.5 Limb bones

015.6 Mastoid

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 organs (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: NOS, 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 NOS (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)

Code Table Listing by ICD-10 CA Code for DIAGNOSIS

Source: ICD-10 CA/CCI Tabular List - CIHI, 2003

A15 Respiratory tuberculosis, bacteriologically and histologically confirmed

Includes: infections due to Mycobacterium tuberculosis and Mycobacterium bovis

Excludes: congenital tuberculosis (P37.0)

pneumoconiosis associated with tuberculosis (J65)

sequelae of tuberculosis (B90-)

silicotuberculosis (J65)

A15.0 Tuberculous of lung, confirmed by sputum microscopy with or without culture

Includes:

Tuberculous:

bronchiectasis

fibrosis of lung

pneumonia

pneumothorax

A15.1 Tuberculosis of lung, confirmed by culture only

Includes:Conditions listed in A15.0, confirmed by culture only

A15.2 Tuberculosis of lung, confirmed histologically

Includes:Conditions listed in A15.0, confirmed histologically

A15.3 Tuberculosis of lung, confirmed by unspecified means

Includes:Conditions listed in A15.0, confirmed but unspecified whether bacteriologically or histologically

A15.4 Tuberculosis of intrathoracic lymph nodes, confirmed bacteriologically and histologically

Includes:

Tuberculosis of lymph nodes:

hilar

mediastinal

tracheobronchial

Excludes:specified as primary (A15.7)

A15.5 Tuberculosis of larynx, trachea and bronchus confirmed bacteriologically and histologically

Includes:

Tuberculosis of:

bronchus

glottis

larynx

trachea

A15.6 Tuberculosis pleurisy, confirmed bacteriologically and histologically

Includes:

This disease state is characterized by pleuritis and pleural effusion, usually in an adolescent or young adult, but possibly in any age group, due to recent (within the preceding 24 months) infection with Mycobacterium tuberculosis complex. If another site of tuberculosis disease, such as CNS or disseminated/miliary disease, is believed to have occurred as a consequence of recent infection (within the preceding 24 months), it ought to be referred to as primary CNS (etc.) disease.

A15.7 Primary respiratory tuberculosis, confirmed bacteriologically and histologically

This is usually, but not always, in a child, and is due to infection within the preceding 24 months with Mycobacterium tuberculosis complex. It includes pulmonary (lung parenchyma) tuberculosis, as well as tuberculosis of the intrathoracic lymph nodes, larynx, trachea, bronchus, or nasopharyngeal sinuses.

A15.8 Other respiratory tuberculosis, confirmed bacteriologically and histologically

Includes:Mediastinal tuberculosis

Nasopharyngeal tuberculosis

Tuberculosis of:

nose

sinus [any nasal]

A15.9 Respiratory tuberculosis, unspecified, confirmed bacteriologically and histologically

A16 Respiratory tuberculosis, not confirmed bacteriologically or histologically

A16.0 Tuberculosis of lung, bacteriologically and histologically negative

Includes:

Tuberculous:

bronchiectasis

fibrosis of lung

pneumonia

pneumothorax

A16.1 Tuberculosis of lung, bacteriological and histological examination not done

Includes:Conditions listed in A16.0, bacteriological and histological examination not done

A16.2 Tuberculosis of lung, without mention of bacteriological or histological confirmation

Tuberculosis of lung

Tuberculous: NOS (without mention of bacteriological or histological confirmation)bronchiectasis

fibrosis of lung pneumonia

pneumothorax

A16.3 Tuberculosis of intrathoracic lymph nodes, without mention of bacteriological or histological confirmation

Includes:

Tuberculosis of lymph nodes: NOS (without mention of bacteriological or histological confirmation) hilar
intrathoracic
mediastinal
tracheobronchial

Excludes: when specified as primary (A16.7)

A16.4 Tuberculosis of larynx, trachea and bronchus, without mention of bacteriological or histological confirmation

Includes:

Tuberculosis of: NOS (without mention of bacteriological or histological confirmation)
bronchus
glottis
larynx
trachea

A16.5 Tuberculous pleurisy, without mention of bacteriological or histological confirmation

This disease state is characterized by pleuritis and pleural effusion, usually in an adolescent or young adult, but possibly in any age group, due to recent (within the preceding 24 months) infection with Mycobacterium tuberculosis complex. If another site of tuberculosis disease, such as CNS or disseminated/miliary disease, is believed to have occurred as a consequence of recent infection (within the preceding 24 months), it ought to be referred to as primary CNS (etc) disease.
Excludes: Primary respiratory tuberculosis, without mention of bacteriological or histological confirmation (A16.7)

A16.7 Primary respiratory tuberculosis without mention of bacteriological or histological confirmation

This is usually, but not always, in a child, and is due to infection within the preceding 24 months with Mycobacterium tuberculosis complex. It includes pulmonary (lung parenchyma) tuberculosis, as well as tuberculosis of the intrathoracic lymph nodes, larynx, trachea, bronchus, or nasopharyngeal sinuses.
Excludes: Tuberculous pleurisy, without mention of bacteriological or histological confirmation (A16.5)

A16.8 Other respiratory tuberculosis, without mention of bacteriological or histological confirmation

Mediastinal tuberculosis
Nasopharyngeal tuberculosis

Tuberculosis of:

Nose
sinus [any part]

A16.9 Respiratory tuberculosis unspecified, without mention of bacteriological or histological confirmation

Includes: Respiratory tuberculosis NOS

Tuberculosis NOS

A17 Tuberculosis of nervous system

A17.0 Tuberculous meningitis (G01)

Includes:

Tuberculosis of meninges (cerebral) (spinal)

Tuberculous leptomeningitis

A17.1 Meningeal tuberculoma (G07)

Includes: Tuberculoma of meninges

A17.8 Other tuberculosis of nervous system

Includes:

Tuberculoma of:

brain (G07)

spinal cord (G07)

Tuberculosis of:

brain (G07)

spinal cord (G07)

Tuberculous:

abscess of brain (G07)

meningoencephalitis (G05.0)

myelitis (G05.0*)

polyneuropathy (G63.0*)

A17.9 Tuberculosis of nervous system, unspecified (G99.8)

A18 Tuberculosis of other organs

A18.0 Tuberculosis of bones and joints

Includes:

Tuberculosis of:

hip (M01.1)

knee (M01.1)

vertebral column (M49.0)

Tuberculous:

arthritis (M01.1)

mastoiditis (H75.0)

necrosis of bone (M90.0)

osteitis (M90.0)

osteomyelitis (M90.0)

synovitis (M68.0)

tenosynovitis (M68.0)

A18.1 Tuberculosis of genitourinary system

Includes:

Tuberculosis of:

bladder (N33.0)

cervix (N74.0)

kidney (N29.1)

male genital organs (N51)

ureter† (N29.1)

Tuberculous female pelvic inflammatory disease (N74.1)

A18.2 Tuberculous peripheral lymphadenopathy

Includes: Tuberculous adenitis

Excludes:

Tuberculosis of lymph nodes:

intrathoracic (A15.4, A16.3)

mesenteric and retroperitoneal (A18.3)

Tuberculous tracheobronchial adenopathy (A15.4, A16.3)

A18.3 Tuberculosis of intestines, peritoneum and mesenteric lymph nodes

Includes:

Tuberculosis (of):

anus and rectum (K93.0)

intestine (large) (small) (K93.0)

retroperitoneal (lymph nodes)

Tuberculous:

ascites

enteritis (K93.0)

peritonitis (K67.3)

A18.4 Tuberculosis of skin and subcutaneous tissue

Includes: Erythema induratum, tuberculous

Lupus:

exedens

vulgaris:

NOS

of eyelid (H03.1)

Scrofuloderma

Excludes: lupus erythematosus (L93.)

systemic (M32.)

A18.5 Tuberculosis of eye

Includes:

Tuberculous:

chorioretinitis (H32.0)

episcleritis (H19.0)

interstitial keratitis (H19.2)

iridocyclitis (H22.0)

keratoconjunctivitis (interstitial) (phlyctenular) (H19.2)

Excludes:lupus vulgaris of eyelid (A18.4)

A18.6 Tuberculosis of ear

Includes: Tuberculosis otitis media (H67.0)

Excludes:Tuberculous mastoiditis (A18.0)

A18.7 Tuberculosis of adrenal glands (E35.1)

Includes: Addison's disease, tuberculous

A18.8 Tuberculosis of other specified organs

Includes:

Tuberculosis of:

endocardium (I39.8)

myocardium (I41.0)

oesophagus (K23.0)

pericardium (I32.0)

thyroid gland (E35.0)

Tuberculous cerebral arteritis (I68.1)

A19 Miliary Tuberculosis

Includes:

Tuberculosis:

disseminated

generalized

Tuberculous polyserositits

A19.0 Acute miliary tuberculosis of a single specified site

A19.1 Acute miliary tuberculosis of multiple sites

A19.2 Acute miliary tuberculosis, unspecified

A19.8 Other miliary tuberculosis

A19.9 Miliary Tuberculosis, unspecified

Appendix III: Population Estimates: 2008

Population estimates by gender and age group, Canada and provinces/territories: 2008														
Male														
Age group	Canada	N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Nvt.
< 1	189,887	2,372	683	4,586	3,631	43,905	70,949	7,776	6,918	25,305	22,798	182	366	416
1-4	735,530	9,506	2,788	17,595	14,455	161,465	289,965	29,717	25,555	92,328	88,553	792	1,383	1,428
5-14	1,953,093	27,186	8,433	50,744	41,398	426,454	778,604	80,269	66,120	222,472	242,885	1,979	3,118	3,431
15-24	2,329,927	32,622	9,816	62,319	49,155	505,258	910,384	89,045	77,568	278,720	305,597	2,454	3,821	3,168
25-34	2,263,481	28,805	7,616	52,910	45,230	535,714	854,269	79,886	65,091	298,803	286,769	2,124	3,698	2,566
35-44	2,456,564	36,592	9,569	65,592	52,615	557,872	982,412	81,990	63,267	279,957	318,376	2,525	3,559	2,238
45-54	2,636,308	41,715	10,713	76,082	60,137	631,977	1,008,798	92,199	76,138	283,772	346,401	3,269	3,399	1,708
55-64	1,949,874	36,609	9,213	62,277	50,339	486,358	721,138	67,428	55,869	183,235	271,931	2,319	2,209	949
65-74	1,146,162	20,413	5,463	37,017	29,158	289,320	430,273	38,527	34,591	96,639	162,793	901	707	360
75+	858,175	12,612	3,822	25,746	20,517	200,618	330,335	32,761	31,895	71,680	127,297	379	385	128
Total	16,519,001	248,432	68,116	454,868	366,635	3,838,941	6,377,127	599,598	503,012	1,832,911	2,173,400	16,924	22,645	16,392
Female														
< 1	180,385	2,178	700	4,256	3,489	41,472	67,857	7,550	6,526	24,142	21,339	174	347	355
1-4	695,409	8,884	2,686	17,036	13,722	153,670	274,436	28,212	24,132	86,623	82,665	705	1,283	1,355
5-14	1,853,837	25,817	8,006	48,741	38,923	405,540	741,882	75,657	63,019	209,977	227,848	1,963	3,171	3,293
15-24	2,213,499	31,450	9,649	61,912	46,569	482,764	872,738	85,081	73,315	256,000	285,436	2,188	3,451	2,946
25-34	2,240,406	29,986	8,279	57,742	46,120	513,358	876,771	76,955	64,642	267,679	290,633	2,191	3,612	2,438
35-44	2,414,153	39,025	9,575	67,571	53,710	532,811	979,708	80,040	62,880	258,453	322,209	2,727	3,285	2,159
45-54	2,638,707	43,247	11,311	79,090	62,457	633,413	1,009,620	89,163	76,264	270,562	355,949	3,037	3,167	1,427
55-64	2,009,447	37,255	9,454	64,230	51,717	507,660	752,420	68,734	55,334	179,223	278,963	1,996	1,663	798
65-74	1,256,093	21,292	5,839	40,377	31,099	320,942	481,219	42,813	37,494	102,892	170,430	747	640	309
75+	1,295,039	18,627	5,930	40,914	32,461	320,761	498,519	51,714	47,174	102,929	174,988	464	435	123
Total	16,796,975	257,761	71,429	481,869	380,267	3,912,391	6,555,170	605,919	510,780	1,758,480	2,210,460	16,192	21,054	15,203

Population estimates by gender and age group, Canada and provinces/territories: 2008

Total

Age group	Canada	N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Nvt.
< 1	370,272	4,550	1,383	8,842	7,120	85,377	138,806	15,326	13,444	49,447	44,137	356	713	771
1-4	1,430,939	18,390	5,474	34,631	28,177	315,135	564,401	57,929	49,687	178,951	171,218	1,497	2,666	2,783
5-14	3,806,930	53,003	16,439	99,485	80,321	831,994	1,520,486	155,926	129,139	432,449	470,733	3,942	6,289	6,724
15-24	4,543,426	64,072	19,465	124,231	95,724	988,022	1,783,122	174,126	150,883	534,720	591,033	4,642	7,272	6,114
25-34	4,503,887	58,791	15,895	110,652	91,350	1,049,072	1,731,040	156,841	129,733	566,482	577,402	4,315	7,310	5,004
35-44	4,870,717	75,617	19,144	133,163	106,325	1,090,683	1,962,120	162,030	126,147	538,410	640,585	5,252	6,844	4,397
45-54	5,275,015	84,962	22,024	155,172	122,594	1,265,390	2,018,418	181,362	152,402	554,334	702,350	6,306	6,566	3,135
55-64	3,959,321	73,864	18,667	126,507	102,056	994,018	1,473,558	136,162	111,203	362,458	550,894	4,315	3,872	1,747
65-74	2,402,255	41,705	11,302	77,394	60,257	610,262	911,492	81,340	72,085	199,531	333,223	1,648	1,347	669
75+	2,153,214	31,239	9,752	66,660	52,978	521,379	828,854	84,475	79,069	174,609	302,285	843	820	251
Total	33,315,976	506,193	139,545	936,737	746,902	7,751,332	12,932,297	1,205,517	1,013,792	3,591,391	4,383,860	33,116	43,699	31,595

Source: Statistics Canada, Demography Division, Demographic Estimates Section, July Population Estimates, 2008 Updated Postcensal Estimate

Population estimates by Canadian-born origin and foreign-born Origin – Canada and provinces/territories: 2008

			N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	North#	Y.T.	N.W.T.	Nvt.
Canadian-born	North American Indian	815,290	11,342	1,585	17,383	14,869	78,478	179,474	117,515	110,958	114,198	147,438	22,050	7,506	14,401	143
	Status Indian*	819,223	34,183				73,497	180,165	134,729	133,079	108,014	129,175	26,381	8,407	17,974	0
	Status Indian - On reserve	471,419	20,988				52,344	91,722	85,065	68,594	70,756	65,823	16,128	4,053	12,075	0
	Status Indian - On reserve	347,804	13,195				21,153	88,443	49,665	64,485	37,258	63,352	10,254	4,354	5,900	0
	Non-Status**															
	Inuit	55,860	5,223	31	447	180	11,572	1,864	429	279	1,297	1,017	33,521	217	5,213	28,091
	Metis	338,178	6,313	261	3,496	4,806	17,458	55,910	65,629	51,150	78,927	49,117	5,111	633	4,426	52
	Total Aboriginal†	1,209,328	22,878	1,877	21,326	19,855	107,508	237,248	183,573	162,387	194,422	197,572	60,682	8,356	24,040	28,286
	Non-Aboriginal‡	24,756,636	470,904	129,562	854,428	690,192	6,613,769	8,761,446	833,267	786,610	2,728,931	2,847,715	39,812	21,004	16,069	2,739
	Total Canadian Born	25,965,964	493,782	131,439	875,754	710,047	6,721,277	8,998,694	1,016,840	948,997	2,923,353	3,045,287	100,494	29,360	40,109	31,025
Foreign-born^	AFR High	216,896	548	156	1,541	1,113	32,627	108,501	7,111	3,274	29,462	32,283	280	77	177	26
	AFR Low	112,384	127	99	453	595	60,411	37,651	2,391	838	5,973	3,693	153	4	143	6
	AMR	863,234	813	373	3,539	2,107	202,074	511,350	25,905	4,387	57,358	54,911	417	165	197	55
	EEUR	2,647,368	6,619	4,893	36,592	23,300	336,031	1,415,436	69,944	29,563	246,463	474,005	4,522	2,748	1,478	296
	EMR	343,706	406	127	1,252	886	72,332	190,841	12,973	3,623	26,066	35,001	199	43	150	6
	EME + CEUR	688,498	1,130	366	7,439	2,261	160,457	394,400	7,655	4,114	54,252	56,179	245	42	178	25
	SEAR	745,655	974	200	2,794	1,434	43,486	467,491	11,365	3,815	59,732	154,100	264	124	90	50
	WPR	1,732,271	1,794	1,892	7,373	5,159	122,637	807,933	51,333	15,181	188,732	528,401	1,836	553	1,177	106
	Total foreign-born	7,350,012	12,411	8,106	60,983	36,855	1,030,055	3,933,603	188,677	64,795	668,038	1,338,573	7,916	3,756	3,590	570
	Total Population^^	33,315,976	506,193	139,545	936,737	746,902	7,751,332	12,932,297	1,205,517	1,013,792	3,591,391	4,383,860	108,410	33,116	43,699	31,595

*Source: Registered Indian Population, Household and Family Projections 2004-2029, INAC, 2007

** No accurate population counts for non-Status Indian available.

†Source: Statistics Canada: Projections of the Aboriginal populations, Canada, provinces and territories 2001 to 2017 Demography Division, Statistics Canada Catalogue No. 91-547-XIE

‡Calculated: Non-Aboriginal = Total population - Total Aboriginal - Total Foreign-born

^Source: Statistics Canada: Demography Division, Custom Product

^^ Source: Statistics Canada: Demography Division, Demographic Estimates Section, July Population Estimates, 2008 Updated Postcensal Estimate

North includes Northwest Territories, Nunavut and Yukon

APPENDIX IV: WHO ESTIMATED INCIDENCE OF TB, 22 HIGH-BURDEN COUNTRIES, 2008

COUNTRY		POPULATION (1000s)	NUMBER ESTIMATED				CUMULATIVE INCIDENCE (%) (REGIONAL PROPORTION OF GLOBAL TOTAL)
			ALL CASES		SMEAR-POSITIVE CASES		
			NUMBER (1000s)	RATE PER 100,000	NUMBER (1000s)	RATE PER 100,000	
1	India	1,169,016	1,962	168	873	75	21.2
2	China	1,328,630	1,306	98	585	44	35.2
3	Indonesia	231,627	528	228	236	102	40.9
4	Nigeria	148,093	460	311	195	131	45.9
5	South Africa	48,577	461	948	174	358	50.9
6	Bangladesh	158,662	353	223	159	100	54.7
7	Ethiopia	83,099	314	378	135	163	58.1
8	Pakistan	163,902	297	181	133	81	61.3
9	Philippines	87,960	255	290	115	130	64.0
10	DR Congo	62,636	245	392	109	174	66.7
11	Russian Federation	142,499	157	110	68	48	68.3
12	Viet Nam	87,375	150	171	66	76	70.0
13	Kenya	37,538	132	353	53	142	71.4
14	Brazil	191,791	92	48	49	26	72.4
15	UR Tanzania	40,454	120	297	49	120	73.7
16	Uganda	30,884	102	330	42	136	74.8
17	Zimbabwe	13,349	104	782	40	298	75.9
18	Thailand	63,884	91	142	39	62	76.9
19	Mozambique	21,397	92	431	37	174	77.9
20	Myanmar	48,798	83	171	37	75	78.8
21	Cambodia	14,444	72	495	32	219	79.5
22	Afghanistan	27,145	46	168	21	76	80.0
High-burden countries		4,201,760	7,422	177	3,245	77	80.0
	Africa	792,378	2,879	363	1,188	150	31.0
	Americas	909,820	295	32	157	17	3.2
	East Mediterranean	555,064	583	105	259	47	6.3
	Europe	889,278	432	49	190	21	4.7
	South East Asia	1,745,394	3,165	181	1,410	81	34.1
	Western Pacific	1,776,440	1,919	108	859	48	20.7
Global		6,668,374	9,273	139	4,062	61	100.0

Source: *Global tuberculosis control: surveillance, planning, financing*, WHO report 2009. Geneva, World Heatlh Organization (WHO/HTM/TB/2009.411).

Appendix V: STOP-TB Partnership TB Epidemiological Regions and Member Countries[13]

Africa, High HIV Prevalence (AFR High)	Africa, Low HIV Prevalence (AFR Low)
Botswana	Algeria
Burundi	Angola
Cameroon	Benin
Central African Republic	Burkina Faso
Congo	Cape Verde
Côte d'Ivoire	Chad
Democratic Republic of Congo	Comoros
Ethiopia	Equatorial Guinea
Gabon	Eritrea
Kenya	Gambia
Malawi	Ghana
Mozambique	Guinea
Namibia	Guinea-Bissau
Nigeria	Liberia
Lesotho	Madagascar
Rwanda	Mali
South Africa	Mauritania
Swaziland	Mauritius
Uganda	Niger
United Republic of Tanzania	Sao Tome & Principe
Zambia	Senegal
	Seychelles
Zimbabwe	Sierra Leone
	Togo
American region (AMR) – Latin American countries (LAC)	
Anguilla	Guyana
Antigua & Barbuda	Haiti
Argentina	Honduras
Bahamas	Jamaica
Barbados	Mexico
Belize	Montserrat
Bermuda	Netherlands Antillies
Bolivia	Nicaragua
Brazil	Panama
British Virgin Islands	Paraguay
Cayman Islands	Peru
Chile	Puerto Rico
Colombia	Saint Kitts and Nevis
Costa Rica	Saint Lucia
Cuba	St Vincent and the Grenadines
Dominica	Suriname
Dominican Republic	Trinidad and Tobago
Ecuador	Turks & Caicos Islands
El Salvador	Uruguay
Grenada	US Virgin Islands
Guatemala	Venezuela
Eastern Europe (EEUR)	Eastern Mediterranean (EMR)
Armenia	Afghanistan
Azerbaijan	Bahrain
Belarus	Djibouti
Bulgaria	Egypt
Estonia	Islamic Republic of Iran
Georgia	Iraq
Kazakhstan	Jordan
Kyrgyzstan	Kuwait
Latvia	Lebanon
Lithuania	Libyan Arab Jamahiriya
Republic of Moldova	Morocco
Romania	Oman
Russian Federation	Pakistan
Tajikistan	Qatar
Turkey	Saudi Arabia
Turkmenistan	Somalia
Ukraine	Sudan
	Syrian Arab Republic
	Tunisia
Uzbekistan	United Arab Emirates
	West Bank & Gaza Strip
	Yemen
Established Market Economies (EME)	
Andorra	Luxembourg
Australia	Malta
Austria	Monaco
Belgium	Netherlands
Canada	New Zealand
Czech Republic	Norway
Denmark	Portugal
Finland	San Marino
France	Singapore

13 *Stop TB Partnership and World Health Organization. Global Plan to Stop TB 2006-2015*. Geneva, World Health Organization, 2006 (WHO/HTM/STB/2006.35).

Germany	Spain
Greece	Sweden
Iceland	Switzerland
Ireland	United Kingdom
Israel	USA
Italy	
Japan	
Central Europe (CEUR)	South-East Asia (SEAR)
Albania	Bangladesh
Bosnia and Herzegovina	Bhutan
Croatia	Democratic People's Republic of Korea
Cyprus	India
Hungary	Indonesia
Poland	Maldives
Serbia and Montenegro	Myanmar
Slovakia	Nepal
Slovenia	Sri Lanka
The Former Yugoslav Republic of Macedonia	Thailand
The Former Yugoslav Republic of Macedonia	Timor-Leste

Western Pacific (WPR)	
American Samoa	Micronesia
Brunei Darussalam	Mongolia
Cambodia	Nauru
China	New Caledonia
China, Hong Kong SAR	Niue
China, Macao SAR	Northern Mariana Islands
Cook Islands	Palau
Fiji	Papua New Guinea
French Polynesia	Philippines
Guam	Republic of Korea
Kiribati	Samoa
Lao People's Democratic Republic	Solomon Islands
Malaysia	Tokelau
Marshall Islands	Tonga
	Tuvalu
	Vanuatu
	Viet Nam
	Wallis & Futuna Islands

Appendix VI: Canada – Case and treatment outcome reporting forms

Public Health Agency of Canada / Agence de la santé publique du Canada

Active Tuberculosis Case Report Form – New and Re-treatment Cases

EFFECTIVE JANUARY 2009

CONFIDENTIAL WHEN COMPLETED

Province/Territory/Patient ID

1. Reporting province/territory
2. Register case number
3. Unique identifier
4. Date of birth (Year / Month / Day)
5. Sex (1 Male 2 Female)

6. Usual residence — City/Town/Village; County and Health Unit; Postal code

Lives on First Nation's reserve most of the time? 1 Yes 2 No 8 N/A 9 Unknown

Origin

7. Canadian born? N
   - Y → 1 Status Indian *(Registered)* 2 Métis 3 Inuit 4 Other Aboriginal *(specify)*
   - 5 Canadian born non-Aboriginal → Under age 15? Y → Country of birth of mother; Country of birth of father
   - 6 Foreign-born Y → Country of birth; Year of arrival in Canada (Year)
   - Origin Unknown

Immigration status at the time of diagnosis:
1 Canadian citizen/Permanent resident
2 Refugee Y → 3 Convention refugee 4 Refugee claimant

Temporary resident: 5 Work 6 Student 7 Visitor 8 Immigration status – Other (*If other, specify:*) 9 Unknown

Diagnosis

8. Date of diagnosis (Year / Month / Day)
ICD 9 / ICD 10

9. Chest X-Ray: 1 Normal 2 Abnormal 3 Not done 9 Unknown — If abnormal: 1 Cavitary 2 Non-cavitary

Bacterial Status

10. Microscopy / 11. Culture

	Sputum	Bronchial Wash	GI Wash	Node Biopsy	Urine	CSF	Other
Negative							
Positive							
Not done							
Unknown							

12. Case Criteria: 1 Culture positive 2 Clinical diagnosis

13. If initial positive culture – Antibiotic resistance?

DRUG	Susceptible	Resistant	Not done	Unknown
INH				
EMB				
RMP				
PZA				
Streptomycin				
Kanamycin				
Capreomycin				
Ofloxacin				
Ethionamide				
PAS				
Rifabutin				

Other *(specify)* ____ ____ Unknown

14. Genotyping results? 1 Yes 2 No 9 Unknown — Spoligo ____ MIRU ____ RFLP 1 Yes 2 No

Treatment Details

15. Date treatment started (Year / Month / Day)

16. Initial drugs prescribed *(check all that apply)*
INH RMP EMB PZA
Streptomycin Ofloxacin Rifabutin Kanamycin Ethionamide PAS Capreomycin
No drugs prescribed; Other *(specify)*; Unknown

17. Death before or during treatment? 1 Yes 2 No 9 Unknown — If yes, date of death (Year / Month / Day)
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

TB History/Case Finding/Risk Factors/Markers

18. First episode of TB disease? 1 Yes 2 No — If no: Year of previous diagnosis ____

Previous treatment with *(check all antibiotics used)*:
INH EMB RMP PZA
Streptomycin Ofloxacin Rifabutin Kanamycin Ethionamide PAS Capreomycin
Other *(specify)* ____ Unknown

Previous diagnosis occured in: 1 Canada 2 Other country: ____

Previous treatment completed or cured: 1 Yes 2 No 9 Unknown
If yes, end date of previous treatment: (Year / Month / Day)

19. Case finding
1 Symptoms compatible with site of disease
2 Incidental finding
3 Post-mortem
4 Contact investigation
5 Immigration medical surveillance
7 Occupational screening
1 Initial immigration medical exam done outside Canada
8 Other screening
2 Initial immigration medical exam done inside Canada
9 Other *(specify)* ____
10 Unknown

20. Risk factors/Markers
HIV 1 Positive 2 Negative — If positive, year of 1st positive test / If negative, year of most recent test (Year)
3 Test refused 4 Test not offered 5 Unknown

Contact with person with active TB in past 2 years	1 Yes	2 No	9 Unknown
Diabetes mellitus type 1 or 2	1 Yes	2 No	9 Unknown
End-stage renal disease	1 Yes	2 No	9 Unknown
Homeless *(at diagnosis or within the previous 12 months)*	1 Yes	2 No	9 Unknown
Lives in correctional setting at time of diagnosis	1 Yes	2 No	9 Unknown
Long-term (≥ 1 month) corticosteroid use *(prednisone ≥ 15 mg/day or equivalent)*	1 Yes	2 No	9 Unknown
Previous abnormal chest x-ray *(fibronodular disease)*	1 Yes	2 No	9 Unknown
Substance abuse (known or suspected)	1 Yes	2 No	9 Unknown
Transplant related immunosuppression	1 Yes	2 No	9 Unknown
Travel to high incidence TB country in last 2 years If yes, how long ____ (in weeks)	1 Yes	2 No	9 Unknown
Other *(specify)* ____	1 Yes	2 No	9 Unknown

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Treatment Outcome of a New Active or Re-treatment Tuberculosis Case

EFFECTIVE JANUARY 2008

CONFIDENTIAL WHEN COMPLETED

1. Reporting province/territory

2. Register case number

3. Unique identifier

4. Date of birth Year Month Day

5. Sex 1 Male 2 Female

6. If transfer from diagnosing province/territory, please state treating province/territory

7. Register case number *(if different from 2 above)*

8. Unique identifier *(if different from 3 above)*

9. Date of diagnosis Year Month Day

10. Date treatment started Year Month Day

11. Last day of treatment Year Month Day

12. Initial drugs prescribed *(list all that apply)*

INH | EMB | RMP | PZA

Streptomycin | Capreomycin | Ethionamide | Rifabutin
Kanamycin | Ofloxacin | PAS

No drugs prescribed | Other *(specify)* _____ | Unknown

13. Did resistance develop during treatment?

1 Yes 2 No 3 Not tested

If yes, please check drug(s) *(check all that apply)*

INH | EMB | RMP | PZA

Streptomycin | Ofloxacin | Rifabutin
Kanamycin | Ethionamide
Capreomycin | PAS

Other *(specify)* _____

Unknown

14. 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 before or during treatment → Date of death Year Month Day
- 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

4 Transferred to new country – outcome of treatment unknown *(specify new country)* _____

5 Failure – continued or recurrent positive cultures after 4 or more months of treatment

6 Absconded *(lost to follow-up before completion of 80% of doses)*

7 Treatment ongoing

8 Other *(specify)* _____ 9 Unknown

* if MDR-TB please see guidelines for definitions

15. Treatment regimen ***(for drugs taken ≥1 month)*** *(check all that apply)*

INH | EMB | RMP | PZA

Streptomycin | Ofloxacin | Rifabutin
Kanamycin | Ethionamide
Capreomycin | PAS

No drugs prescribed | Unknown

Other *(specify)* _____

16. Major mode of treatment:

1 DOT *(Directly Observed Therapy)* → 1 Modified, 2 Standard, 3 Enhanced

2 Daily, self-administered

8 Other *(specify)* _____

9 Unknown

17. Adherence estimate *(% of medication received)*

1 80%+ 2 50-79%

3 < 50% 9 Unknown

PHAC/ASPC 4386E (01-2008)

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