

TUBERCULOSIS IN CANADA 2009



PROTECTING CANADIANS FROM ILLNESS



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Suggested citation: Public Health Agency of Canada. *Tuberculosis in Canada 2009*.
Ottawa (Canada): Minister of Public Works and Government Services Canada; 2013

Acknowledgement

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

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Cat.: HP37-5/2009E-PDF
ISSN: 1498-4865
Pub.: 120190

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EXECUTIVE SUMMARY

In 2009, a total of 1,658 new active and re-treatment tuberculosis (TB) cases was reported to the Canadian Tuberculosis Reporting System (CTBRS) for an incidence rate of 4.9 per 100,000 population. Compared with 2008, there was no substantial change in the total number of cases reported in 2009 and the overall reported incidence rate by population remained unchanged.

All provinces and territories reported at least one case of active TB in 2009. British Columbia, Ontario and Quebec, which collectively made up three quarters of Canada's population in 2009, continued to account for over two thirds (67%) of the total number of reported TB cases. Nunavut reported the highest incidence rate at 173.7 per 100,000 population. As a result of an outbreak, Newfoundland and Labrador reported a significant increase in the number of cases in 2009 compared with 2008. For the Maritime Provinces, Prince Edward Island reported its first case in four years, while both Nova Scotia and New Brunswick reported a slight increase in the number of cases reported in 2009 compared to 2008.

In 2009, the overall ratio of males to females in Canada was 1:0.8, with males continuing to account for the larger number of reported cases (920 cases, 5.5 per 100,000 population) when compared with females (738 cases, 4.3 per 100,000 population).

Thirty-six percent of all reported cases were between the ages of 25 and 44 years. Eighteen percent of cases were reported in individuals between the ages of 25 and 34 years and an additional 18% were in individuals between 35 and 44 years of age; 5% of cases were under the age of 15; individuals over the age of 65 comprised 20% of the cases. The age-specific incidence rate of 8.7 per 100,000 for those 75 years and older remained the highest rate for all reported age groups.

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. Between 1999 and 2009, the Canadian-born, non-Aboriginal population saw an average annual decrease of 2% in the number of cases reported. The number of foreign-born cases 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 2% per year over the past decade.

In 2009, foreign-born individuals made up the largest percentage of reported cases when compared with the Canadian-born, non-Aboriginal and Canadian-born, Aboriginal populations. A total of 1,061 TB cases were reported among the foreign-born population, representing 64% of all reported cases. The Canadian-born, non-Aboriginal population accounted for 239 of all reported cases (14% of the total), while 343 cases (21% of the total) were diagnosed and reported in the Canadian-born, Aboriginal population. The Canadian-born, Aboriginal population continued to have the highest incidence rate at 27.8 per 100,000; the reported incidence rate for Canadian-born, non-Aboriginal was 1.0 per 100,000.

Of the 1,658 TB cases reported in 2009, 650 cases (39%) had an HIV test result reported. Of these, 64 cases (9.8%) were reported to be HIV positive. Due to the limited data on HIV status, this co-infection rate should be interpreted with caution.

The majority (76%) of TB cases reported in 2009 were culture positive. Drug susceptibility data were available for 92% of these cases. Ninety percent of these cases showed no resistance to first-line anti-TB drugs (isoniazid, rifampin, ethambutol or pyrazinamide); 7% percent were mono-resistant and 2% showed patterns of resistance to two or more prescribed drugs. Fourteen percent of the resistant cases were multidrug-resistant TB (MDR-TB), and no cases of extensively drug-resistant TB (XDR-TB) were reported in 2009.

Of the 1,658 TB cases reported in 2009, 128 were reported to have died before or during the course of treatment. TB was reported as the underlying cause of death for 20 (16%) of these cases and TB contributed to death, but was not the underlying cause for 63 cases (49%).

Partial or complete outcome data were available for 1,595 (97%) of the 1,642 cases reported in 2008. Of the 1,595 cases with outcomes reported, 1,389 (87%) were reported as cured or having completed treatment, 143

(9%) died before or during treatment, 31 (2%) transferred out of Canada, 12 reported outcome as 'other', and 20 (1%) absconded before completion of 80% of treatment. At the time of reporting, 25 cases were still on treatment.

INTRODUCTION

The *Tuberculosis in Canada 2009* annual report is a publication of the Centre for Communicable Diseases and Infection Control (CCDIC), Public Health Agency of Canada (the Agency). Collection of statistics on reported cases of TB in Canada began in 1924. The Agency stores and maintains copies of all these historical reports. Responsibility for the CTBRS was transferred from Statistics Canada to Health Canada in 1994. The Agency assumed responsibility for the annual reporting in September 2004. Reports of all new active and re-treatment tuberculosis cases are voluntarily submitted annually to the Agency by all provinces and territories.

This report relates the overall TB case counts, proportions 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 cases¹
- main diagnostic site
- bacterial status
- method of detection
- immigration status
- HIV status
- risk factors/markers for disease
- initial and acquired TB drug resistance
- drug regimens
- treatment outcomes

The appendices to this report include data tables (Appendix I), technical notes (Appendix II), population estimates for 2009 (Appendix III), the World Health Organization (WHO) estimated incidence of TB in the 22 high-burden countries in 2009 (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 – 2009 CASE REPORTING

NATIONAL TRENDS

A total of 1,658 incident cases of active TB disease was reported to the CTBRS in 2009 (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 retreatment cases was 0.3 per 100,000 population (Appendix I, Tables 1B and 1C). A previous history of active TB disease was not reported for 4% of all cases.

Overall, compared with the 2008 reports, there was no substantial change in the total number of cases reported or in the overall incidence rate by population for 2009. Following a modest increase in the reported number of cases in the early 1990s, over the past 11 years, between 1999 and 2009, the number of reported cases has declined by 9% (Appendix 1, Table 1).

HISTORICAL CONTEXT

The reported incidence of 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 rates have generally continued to decline 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. The reported incidence rate for 2009, 4.9 per 100,000 population, was unchanged from the rate reported in 2008.

FIGURE 1: Tuberculosis incidence and mortality rates – Canada: 1924–2009

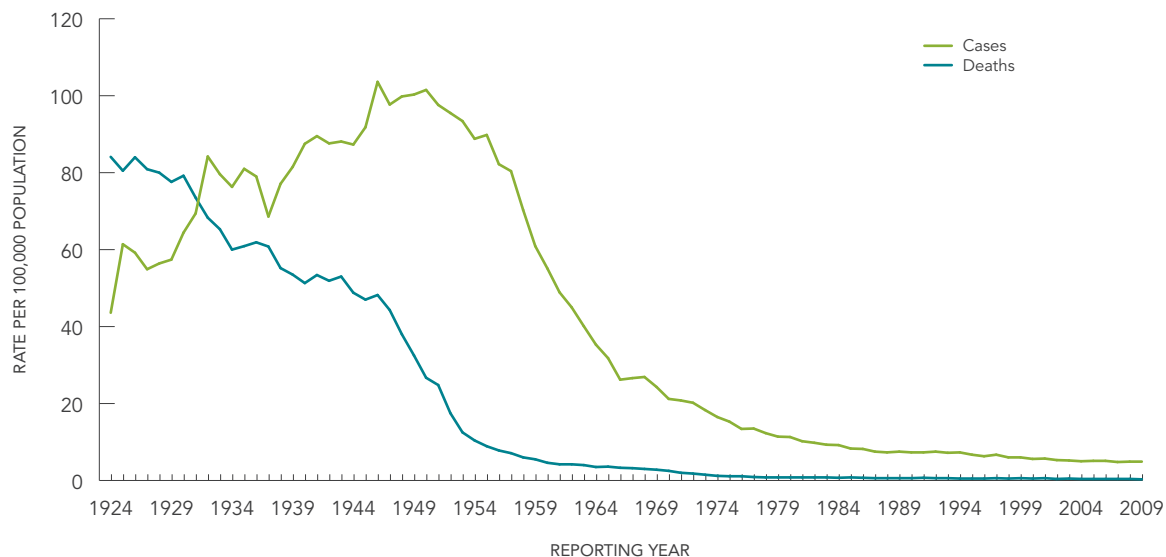
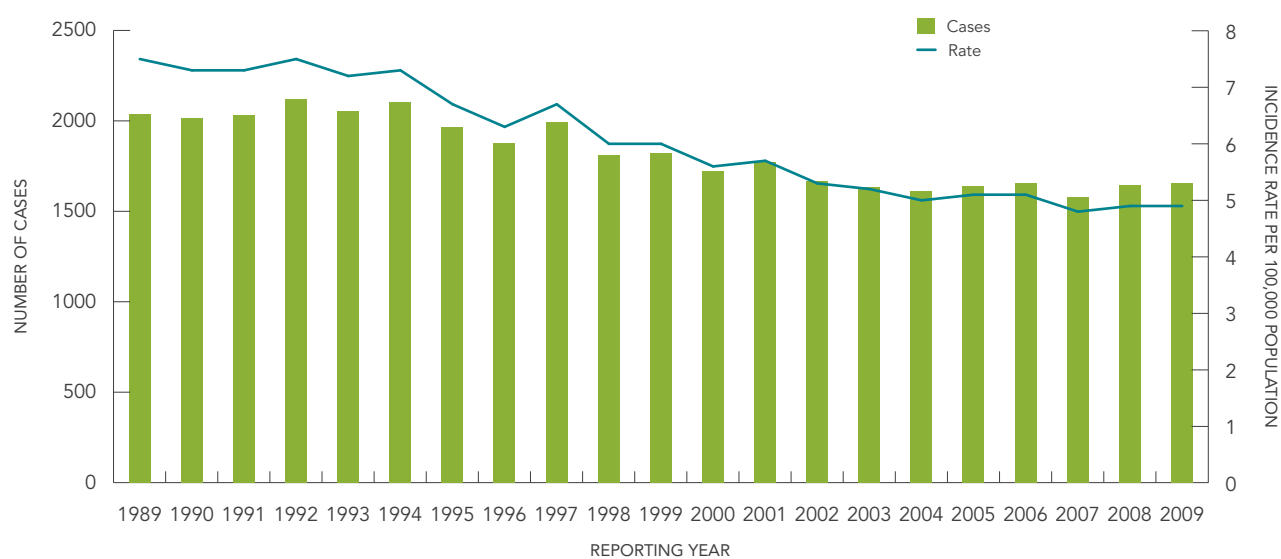


TABLE A: Incidence rate of tuberculosis in Canada: 1999–2009

YEAR	NUMBER OF REPORTED CASES	CRUDE RATE PER 100,000	THREE-YEAR MOVING AVERAGE
1999	1,821	6.0	
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	1,640	5.1	5.1
2006	1,654	5.1	5.0
2007	1,576	4.8	4.9
2008	1,642	4.9	4.9
2009	1,658	4.9	

FIGURE 2: Tuberculosis cases and incidence rate – Canada: 1989–2009

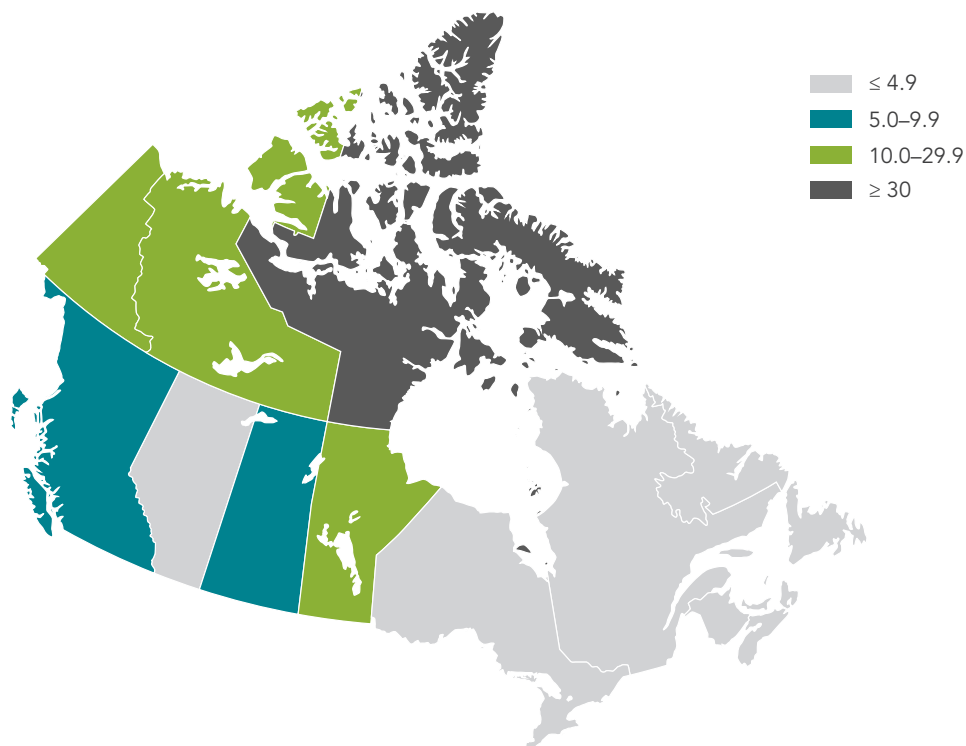
GEOGRAPHIC DISTRIBUTION

Ontario reported the largest number of cases, comprising 38% of all reported cases in Canada in 2009. The highest incidence rate was reported in Nunavut (Table B). While

the overall case count and incidence rate for TB in Canada has seen a downward trend over the past 11 years, both Manitoba and Alberta have reported a slight but steady increase in the number of cases and in the incidence rate over this period.

TABLE B: Ranked tuberculosis incidence rate in Canada – provinces/territories: 2009

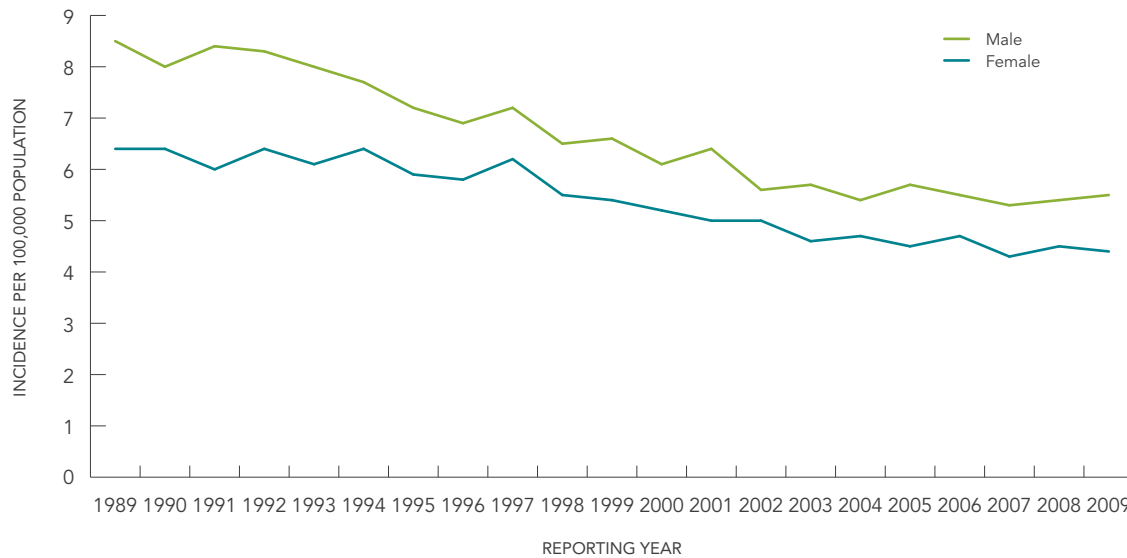
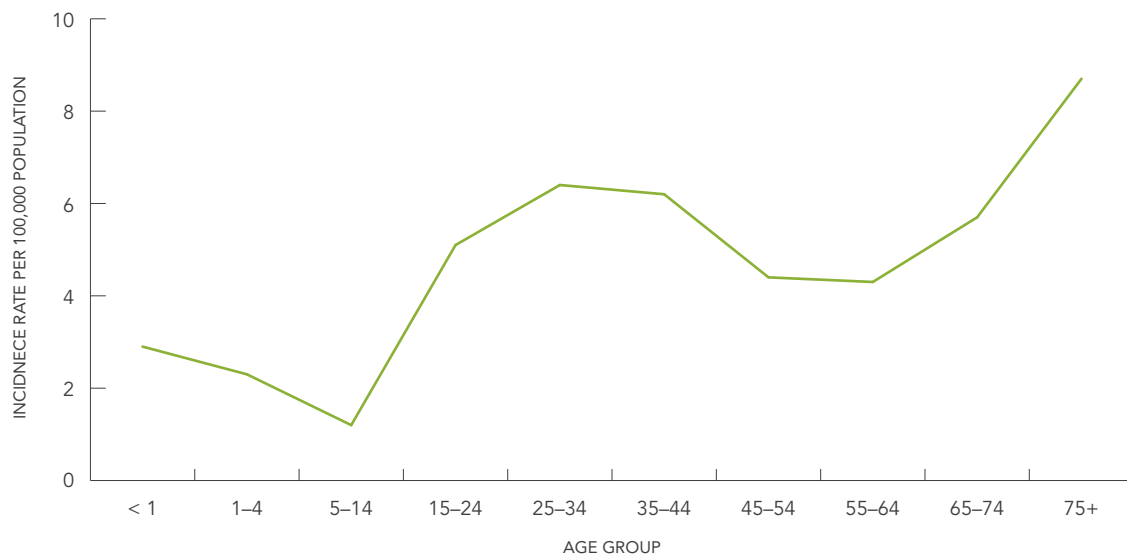
REPORTING PROVINCE OR TERRITORY	ABBREVIATION	INCIDENCE RATE PER 100,000
Nunavut	Nvt.	173.7
Northwest Territories	N.W.T.	27.5
Manitoba	Man.	12.8
Yukon	Y.T.	11.9
Saskatchewan	Sask.	9.0
British Columbia	B.C.	6.6
Ontario	Ont.	4.8
Alberta	Alta.	4.8
Newfoundland and Labrador	N.L.	4.3
Quebec	Que.	2.5
New Brunswick	N.B.	1.5
Nova Scotia	N.S.	0.9
Prince Edward Island	P.E.I.	0.7
CANADA		4.9

FIGURE 3: Tuberculosis incidence rate by province/territory compared to national rate (4.9 per 100,000): 2009

SEX AND AGE DISTRIBUTION

The reported incidence rates for both males and females have declined over the past 20 years. While the reported TB cases and incidence rates have always been higher for males, the differential between males and females has gradually diminished. In 2009, the ratio of males to females was 1:0.8, with males accounting for the larger number and rate (920 cases, 5.5 per 100,000 population) when compared with females (738 cases, 4.3 per 100,000 population) (Figure 4; Appendix I, Tables 2B and 2C).

Comparing the distribution of cases across age groups, 18% of cases were reported in individuals between the ages of 25 and 34 years and an additional 18% were in individuals between 35 and 44 years of age; 5% of cases were under the age of 15; individuals over the age of 65 comprised 20% of the cases. The age-specific incidence rate of 8.7 per 100,000 for those 75 years and older remained the highest rate for all reported age groups (Figure 5; Appendix I, Table 2A).

FIGURE 4: Tuberculosis incidence rate by sex – Canada: 1989–2009**FIGURE 5:** Tuberculosis incidence rate by age group – Canada: 2009

An important measure of TB control is the incidence of active TB disease in children under 15 years of age, since these cases may represent recent ongoing transmission of TB. Furthermore, the risk of TB disease and severe forms of TB disease after infection are inversely related to age. Between 1999 and 2009, the percentage of reported cases in Canada among individuals less than 15 years of age decreased from 8.1% in 1999 to 5.4% in 2009. In 2009, the reported incidence rate in children under the age of 15 remained steady at 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 reported incidence rate increased in males (relative to females) among those cases 45 years of age and older. By 75 years of age, the reported incidence rate for males was over twice the rate for females in the same age group (Figure 6; Appendix I, Tables 5B and 5C).

ORIGIN

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 1999 and 2009, the Canadian-born, non-Aboriginal population saw an average annual decrease of 2% 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 2% per year over the past decade (Figures 7 and 8; Appendix I, Table 3).

Foreign-born individuals made up 64% of all reported TB cases in 2009 with a total of 1,061 TB cases reported. A total of 239 cases (14% of the total case count) were in the Canadian-born, non-Aboriginal population, and 343 cases (21% of the total case count) were reported in the Canadian-born, Aboriginal population. Origin was unknown for 0.9% of the cases (Figures 7 and 8; Appendix I, Table 3).

FIGURE 6: Tuberculosis incidence rate by age group and sex – Canada: 2009

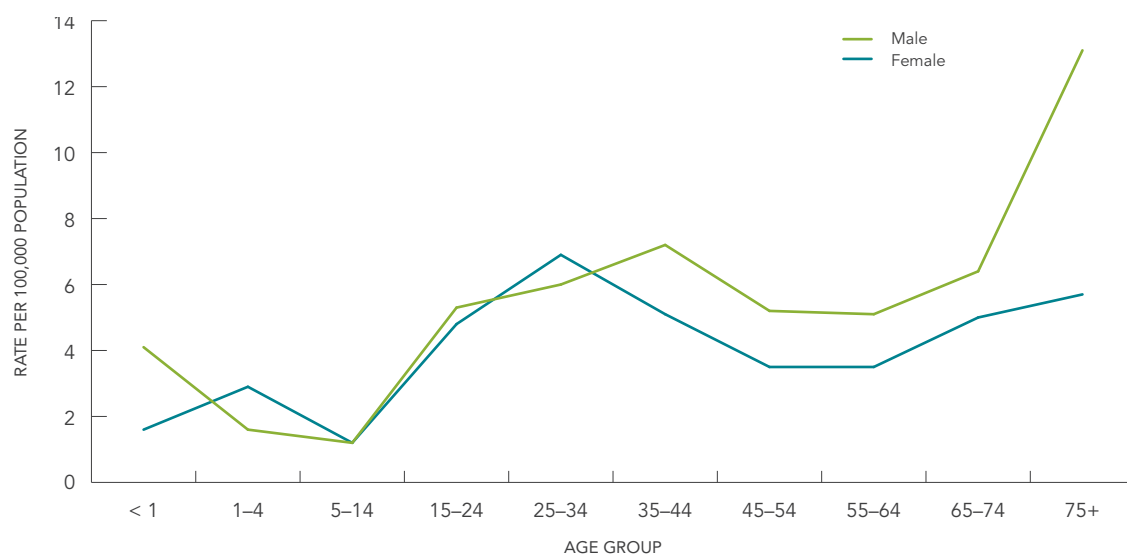
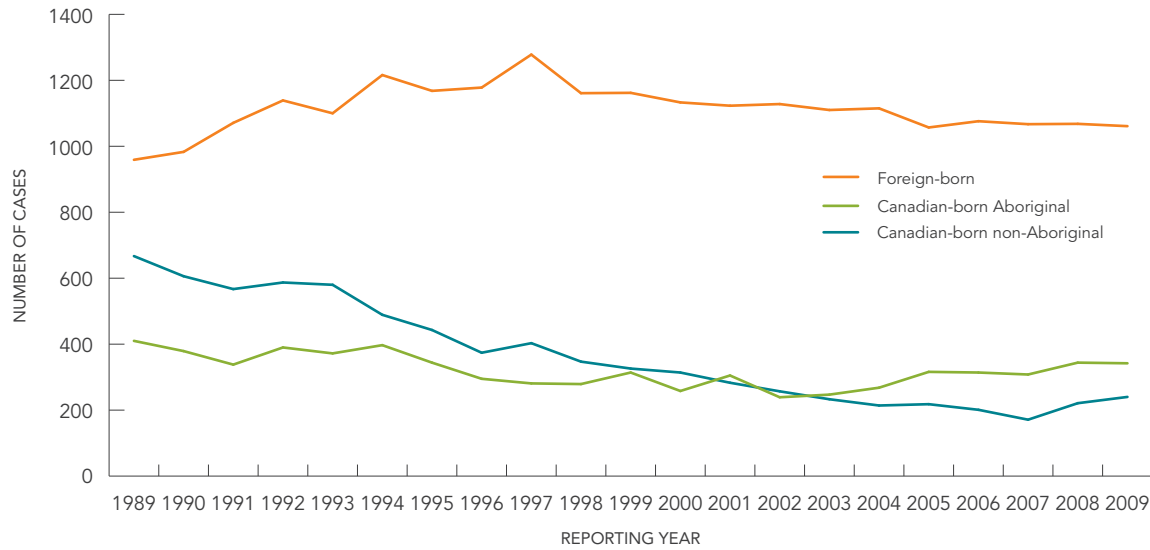
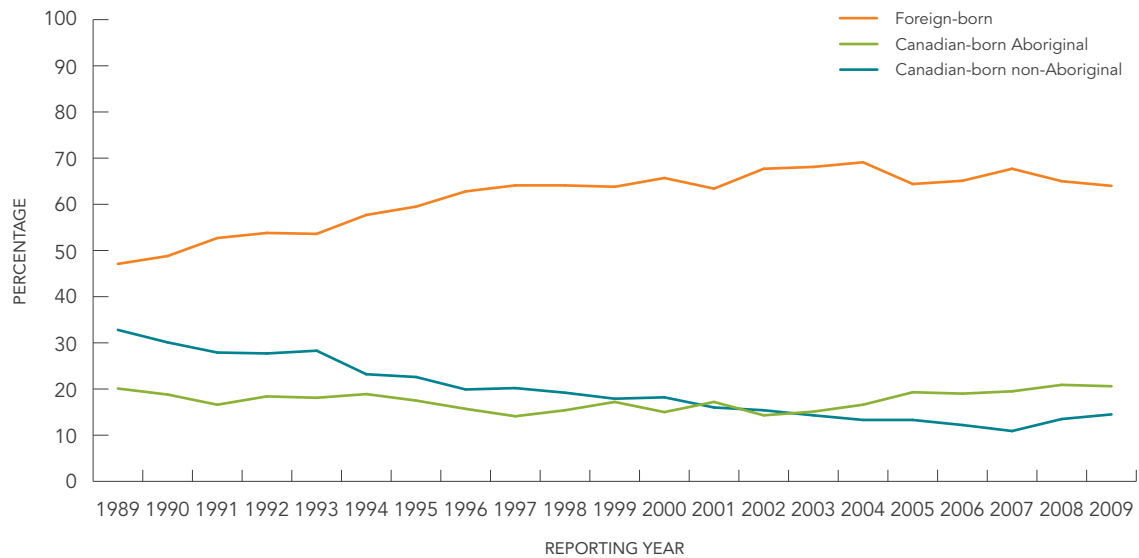


FIGURE 7: Number of tuberculosis cases by origin – Canada: 1989–2009**FIGURE 8:** Percentage of tuberculosis cases by origin – Canada: 1989–2009

The reported TB incidence rate, however, indicates that the Canadian-born, Aboriginal population continues to have the highest burden of TB disease in Canada. Between 1999 and 2009, the reported incidence rate for the Canadian-born, Aboriginal population has ranged between 20 and 29 per 100,000 population. In comparison, the TB incidence rate in the Canadian-born, non-Aboriginal population remained at approximately 1.0 per 100,000 population during the same time period. For 2009, the reported TB incidence rate for the foreign-born population was 14.0 per 100,000 population. This rate has declined steadily from 1999 and 2009, although the absolute number of cases has remained relatively stable at an average of 1,100 per year. This likely reflects the increasing population base of foreign-born individuals in Canada.

The proportion of reported cases representing the three origin group varies by province and territory. In Saskatchewan, Newfoundland and Labrador, and the North (which includes the Northwest Territories, Nunavut and Yukon), Canadian-born, Aboriginal peoples accounted for over 75% of the reported cases in each jurisdiction. In Manitoba, Canadian-born, Aboriginal individuals comprised 55% of cases (Figure 10; Table C; Appendix I, Table 6).

For Ontario, 86% of all reported cases were in the foreign-born population. For Alberta, British Columbia and Quebec, foreign-born individuals comprised over 65% of all cases in each province. In New Brunswick foreign-born cases made up 45% of reported cases. For the remaining provinces and territories, foreign-born cases accounted for fewer than 30% of the total case count (Appendix I, Table 6).

FIGURE 9: Tuberculosis incidence rate by origin – Canada: 1999–2009

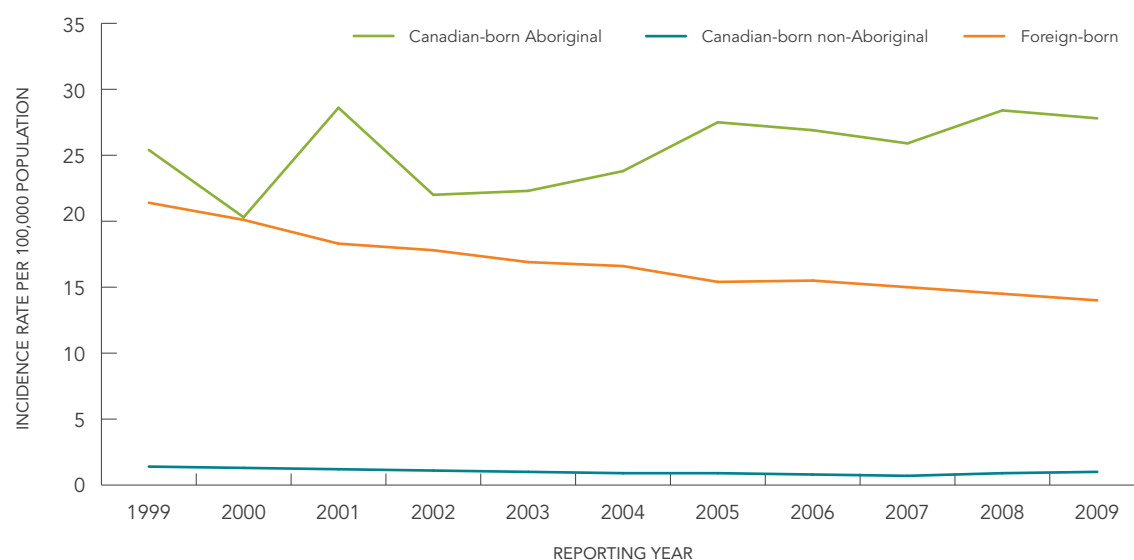
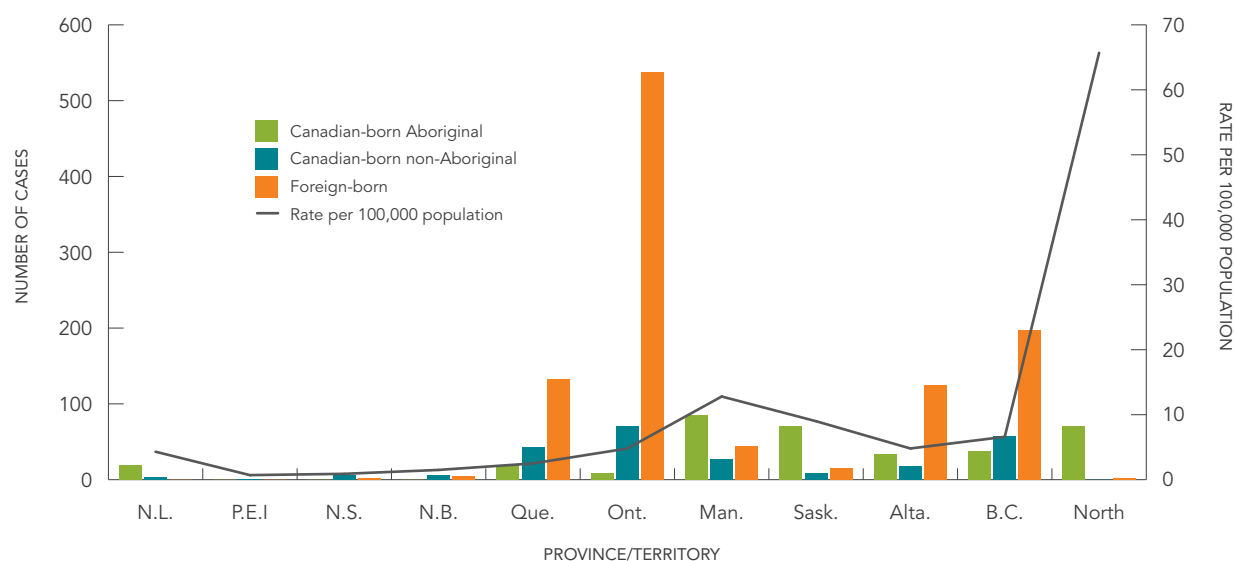


FIGURE 10: Origin of tuberculosis cases and overall incidence rate provinces/territories: 2009**TABLE C:** Proportion of tuberculosis cases in Canada by origin – provinces/territories: 2009

REPORTING PROVINCE OR TERRITORY	CANADIAN-BORN NON-ABORIGINAL	CANADIAN-BORN ABORIGINAL	FOREIGN-BORN	UNKNOWN BIRTHPLACE
Alberta	10.2	18.8	71.0	0.0
British Columbia	19.4	12.6	67.0	1.0
Manitoba	17.3	54.5	28.2	0.0
New Brunswick	54.5	0.0	45.5	0.0
Newfoundland and Labrador	13.6	86.4	0.0	0.0
North*	0.0	97.2	2.8	0.0
Nova Scotia	75.0	0.0	25.0	0.0
Ontario	11.3	1.6	85.5	1.7
Prince Edward Island	100.0	0.0	0.0	0.0
Quebec	21.9	9.7	67.9	0.5
Saskatchewan	8.6	75.3	16.1	0.0
CANADA	14.4	20.6	64.0	0.9

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

* North includes Northwest Territories, Nunavut and Yukon.

The distribution of cases by age also varies by origin group. For Canadian-born, Aboriginal cases, 32% were 24 years of age or younger, whereas for Canadian-born, non-Aboriginal and foreign-born cases the percentages reported in this age range were 20% and 15%, respectively. For the Canadian-born, non-Aboriginal cases, 40% were 55 years of age or older, whereas for foreign-born and Canadian-born Aboriginal these percentages were 33% and 13%, respectively. While only 39% of the reported Canadian-born, non-Aboriginal cases were between 25 and 54 years of age, 51% of the reported foreign-born cases and 54% of the Aboriginal cases were in this age range (Figure 11; Appendix I, Table 8).

COUNTRY OF ORIGIN AND WORLD REGION

Between 1999 and 2009, foreign-born individuals accounted for 12,098 of the 18,398 reported cases in Canada, representing over 170 countries of origin.

However, cumulatively over 50% of these cases reported their country of birth as India, China, Philippines or Viet Nam. Using the epidemiological regions categories provided by the STOP-TB Partnership/WHO TB (Appendix V), 41% of cases in the foreign-born population were reported in individuals who arrived in Canada from the Western Pacific Region (Appendix I, Tables 6 and 8). The highest reported incidence rate, however, was among foreign-born individuals from the Africa, High HIV Prevalence Region (AFR-High) at 36.3 per 100,000 population. Table D 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 12 shows the proportion of foreign-born TB cases in Canada by region of birth, from 1999 to 2009.

FIGURE 11: Percentage of tuberculosis cases by age group and origin – Canada: 2009

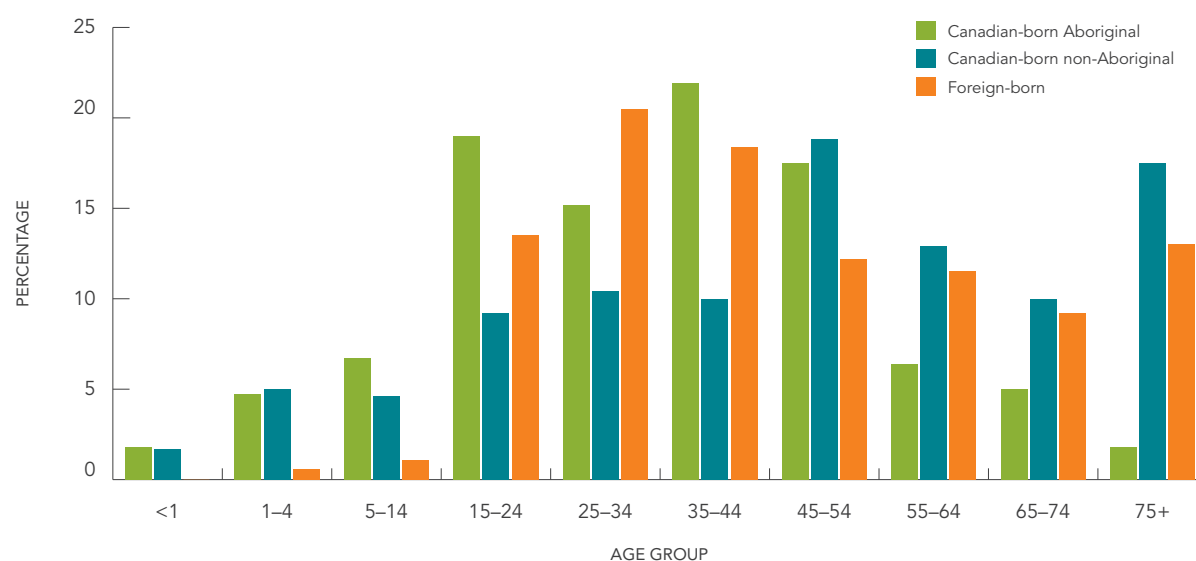


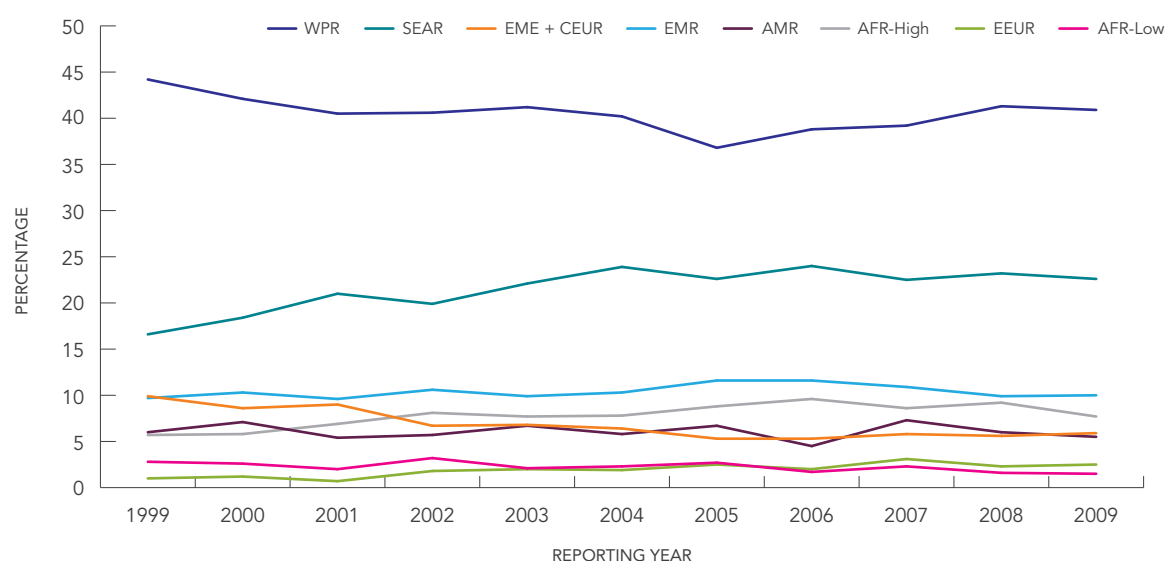
TABLE D: Comparison of the reported foreign-born tuberculosis incidence rate in Canada by STOP-TB Partnership/WHO TB epidemiological regions of birth (per 100,000 population) with WHO estimated tuberculosis incidence rate in the respective region

WHO REGIONS*	REPORTED RATE IN CANADA, 2009	WHO ESTIMATED TB INCIDENCE RATE IN REGIONS, 2009**
Africa, High HIV Prevalence, (AFR High)	36.3	307
Africa, Low HIV Prevalence, (AFR Low)	22.3	191
American Region (AMR) – Latin American Countries (LAC)	6.5	45
Eastern Europe (EEUR)	4.5	95
Eastern Mediterranean (EMR)	14.6	109
Established Market Economies (EME) and Central Europe (CEUR)	2.4	10
South-East Asia (SEAR)	30.6	196
Western Pacific (WPR)	24.0	104
Overall	14.0	130

* 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 2011. Geneva, World Health Organization (WHO/HTM/TB/2009.411).

FIGURE 12: Percentage of foreign-born tuberculosis cases by STOP-TB Partnership/WHO TB epidemiological regions – Canada: 1999–2009



DIAGNOSTIC DISTRIBUTION

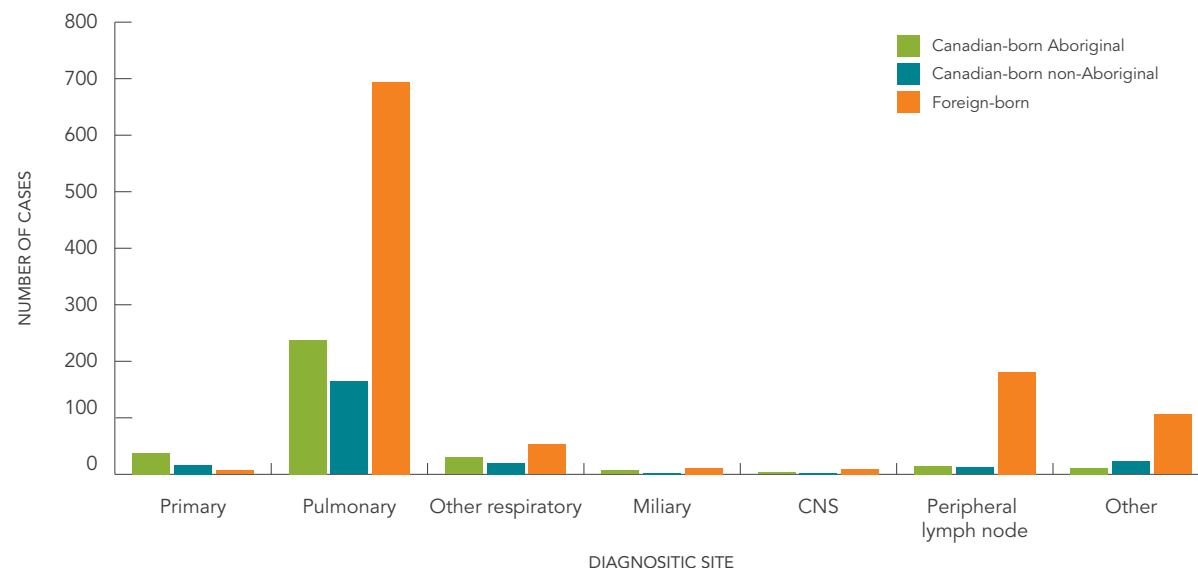
Pulmonary TB, including TB of the lungs and conducting airways (see Appendix II: Technical Notes for complete definition), continued to be the most frequently reported diagnostic site in Canada, accounting for 67% of reported cases in 2009. TB of the peripheral lymph nodes accounted for an additional 12% 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. (Appendix I, Table 7).

Table 9 provides a breakdown of diagnostic site by age group. For cases under the age of five years, primary disease was the most frequently reported diagnoses. For all other age groups, pulmonary disease was the most common site of disease reported (Appendix I, Table 9).

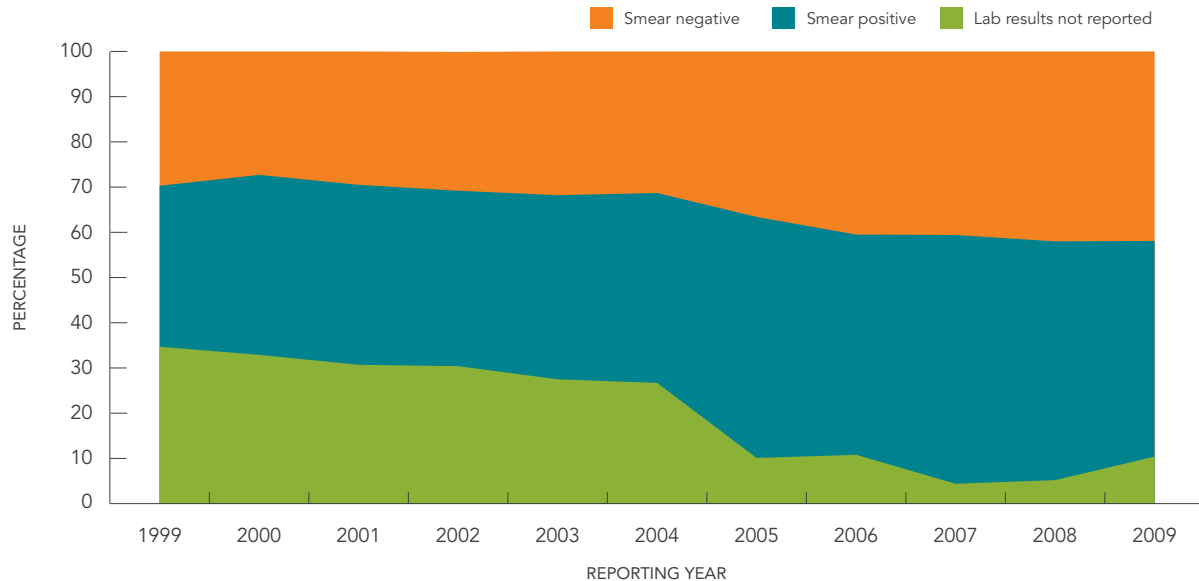
For all origin groups, pulmonary disease was the most frequently reported site at over 68% for each group. Primary disease was reported more frequently for the Canadian-born, Aboriginal population compared with the Canadian-born, non-Aboriginal. A small number of the foreign-born cases were diagnosed with a primary infection. However, compared with the other groups, the foreign-born cases had a greater number of cases diagnosed with peripheral lymph node disease (Figure 13; Appendix I, Table 10).

Sputum smear results were reported for 993 of the 1,108 reported cases of pulmonary TB, and 53% (529 cases) were smear-positive² (Appendix I, Table 14). A smear-positive diagnosis denotes a potentially more infectious form of pulmonary TB. Figure 14 shows the proportion of pulmonary TB from sputum smear microscopy results between 1999 and 2009.

FIGURE 13: Tuberculosis cases by main diagnostic site and origin – Canada: 2009



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

FIGURE 14: Percentage of pulmonary cases by sputum smear microscopy results: Canada 1999–2009

HISTORY OF PREVIOUS TB DISEASE

Of the 1,658 TB cases reported in Canada in 2009, 1,499 (90%) were new active cases; 96 (6%) were re-treatment cases (defined as having had at least one previous diagnosis of TB disease in the past); previous history of TB disease was reported as unknown for 63 cases (4%). Of the reported re-treatment cases, 65% were foreign-born. Seven percent of the total reported Canadian-born, Aboriginal cases and 3% of the total among Canadian-born, non-Aboriginal were re-treatment cases (Appendix I, Table 11).

The year of the previous episode was recorded for 52 (55%) of the 96 re-treatment cases. The previous episode of TB disease occurred within two years of the current episode in 9 (17%) of these re-treatment cases. In the majority of re-treatment cases for which the year of the previous episode was recorded, the previous diagnosis was more than 10 years prior to the current episode (12 cases; 46%) (Appendix I, Table 20).

CASE DETECTION

Seventy-seven percent of all TB cases reported in 2009 were diagnosed after the individual presented with symptoms to a medical professional. Contact investigation was the detection method reported for 10% of the cases. Immigration screening was the detection method for 4% of cases. Fewer than 1% of reported cases were detected post-mortem (Appendix I, Table 17).

FOREIGN-BORN: TIME FROM ARRIVAL IN CANADA TO DIAGNOSIS

Of the 1,061 foreign-born TB cases reported in 2009 for which year of arrival was known (97%), 9% arrived in Canada in 2009, 21% were reported to have had arrived on or after January 1, 2008.³ Thirty-eight percent of the cases reported arrived on or after January 1, 2005 (Appendix I, Table 18). The citizenship at the time of diagnosis was reported for only 53% of all foreign-born cases. Of these, 85% were reported to be Canadian citizens or permanent residents at the time of diagnosis (Appendix I, Table 19).

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.

DEATHS

For the 1,642 TB cases reported in 2008 for which outcomes were reported, 143 (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 68 cases (48%) (Appendix I, Table 21).

Of the 1,658 reported TB cases in 2009, 128 (8%) were reported to have died before or during treatment. TB was reported as the underlying cause of death in 20 of these cases (16%). TB contributed to death, but was not the underlying cause in 63 cases (49%) (Appendix I, Table 21). The number of deaths reported for 2009 will be updated in the 2010 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 2008 and 2009. By age group, most deaths were reported among cases 65 years of age and older (Appendix I, Table 22).

HIV STATUS

Of the 1,658 cases reported to the Agency in 2009, an HIV test result (Figure 15; Appendix 1, Table 23) was included for 650 (39%). Provinces and territories vary widely in the proportion of cases for which HIV status was reported. Alberta and British Columbia each reported the HIV status for over 88% of cases. The territories (including Northwest Territories, Nunavut and Yukon) reported the HIV status of 73% of their cases. For the remaining jurisdictions, between 0% and 63% of the reported cases had a known HIV status (Figure 15; Appendix 1, Table 23).

Of TB case reports that included HIV status (650), 9.8% were HIV positive. On the assumption that the 1,008 cases for which no status report was given were in fact HIV negative, the HIV-positive prevalence rate for TB cases would be 4%. However, due to the high percentage of cases without documented HIV test results, these numbers should be interpreted with caution.

INITIAL DRUG RESISTANCE

Resistance patterns described in this report include the following: 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 that is 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 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).

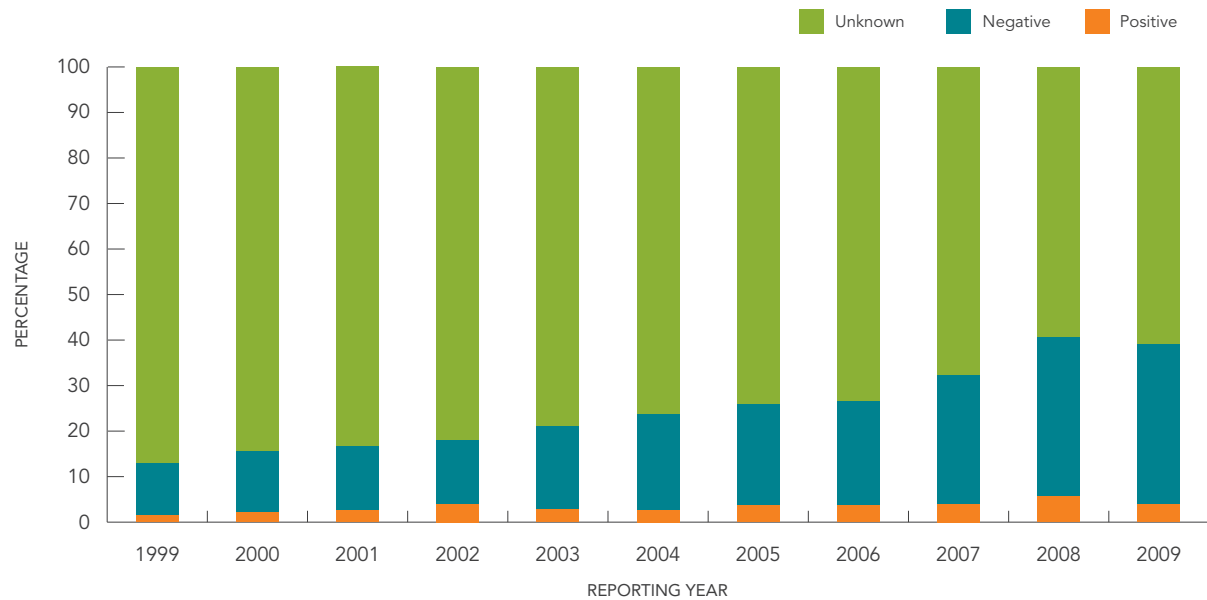
Of the 1,658 TB cases reported in 2009, 1,268 were reported as culture-positive. Resistance information was available for 1,162 of these cases. Ninety-one percent of cases with reported drug sensitivity results showed no resistance to first-line anti-TB drugs (isoniazid, rifampin, ethambutol or pyrazinamide) (Appendix I, Table 15).

For the 112 cases resistant to at least one drug, 86 (77%) were mono-resistant; and 74 (86%) of these 86 cases were resistant to INH.

Of the 112 resistant cases, 14% were multidrug-resistant (MDR), defined as resistance to at least isoniazid and rifampin. The remaining 9% of the resistant cases were poly-resistant, not including MDR-TB. No extensively drug-resistant cases were identified in 2009 (Appendix I, Table 15).

Eighty-six of the reported 112 TB drug resistant cases were among the foreign-born. Of the 16 MDR-TB cases, all were among foreign-born TB individuals (Appendix I, Table 15).

Drug resistance was reported for seven (3%) of the culture-positive cases among the Canadian-born, Aboriginal population. All were mono-resistant: three to INH and two to RMP (Appendix I, Table 15).

FIGURE 15: Percentage of tuberculosis cases by reported HIV status – Canada: 1999–2009

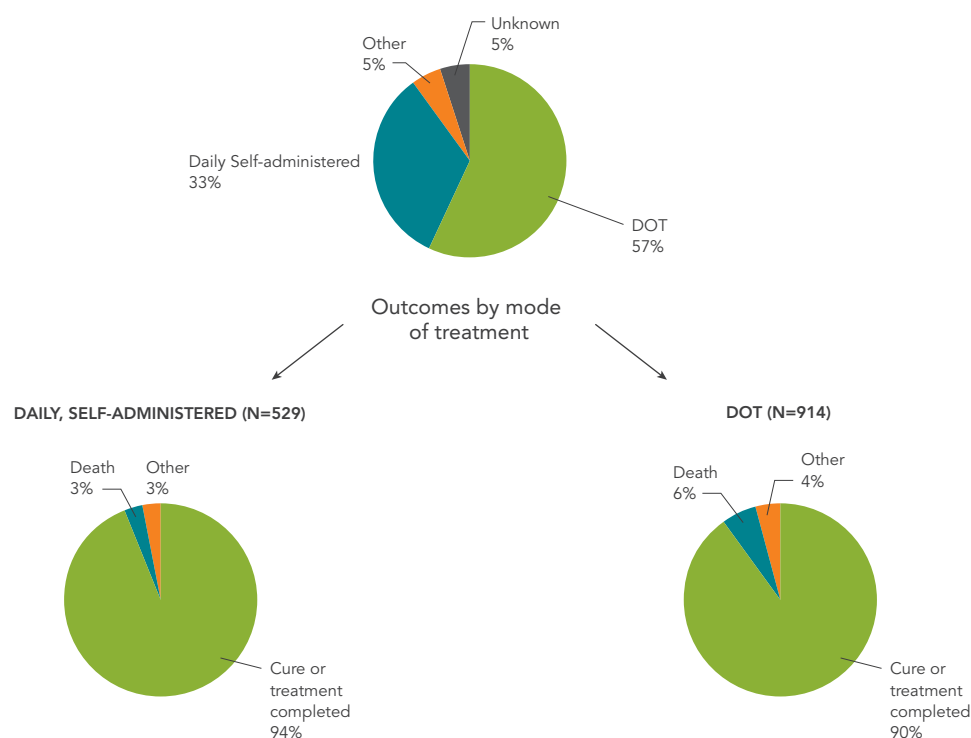
SECTION II – 2008 TREATMENT OUTCOMES

Treatment outcome data for new active and re-treatment cases reported in 2008 were submitted to the Agency using a separate reporting form (Appendix VII – Reporting forms). Partial or complete outcome data were available for 1,595 (97%) of the 1,642 cases reported in 2008. For 47 cases, treatment outcome was not evaluated as treatment was ongoing for 25 cases and treatment was not recorded for the other 22 cases. Of the 1,595 cases with reported outcomes, 1,389 (87%) were indicated as cured or having completed treatment, 143 (9%) died before or during treatment, 31 (2%) transferred out of Canada, 20 (1%) absconded before completion of 80% of treatment (Appendix I, Table 24).

The majority of individuals for whom drug regimen was recorded were reported to have received treatment according to guidelines provided in the *Canadian Tuberculosis Standards* (6th Edition).⁴ Over 87% of cases received 3 or more anti-tuberculosis drugs (Appendix I, Table 25).

Of the 1,642 cases reported in 2008, 939 (57%) were on directly observed therapy (DOT); 538 cases (33%) self-administered their medications; and 5% were treated using another treatment regimen. A treatment regimen was not indicated for 6% of the cases. Of the cases for which treatment outcome was reported, 90% of those patients on DOTs, and 94% 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: Canada – 2008



*Other: absconded, transferred or other

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.

The Agency 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 1999 and 2008, inclusive. 'Laboratory-confirmed' includes all cases confirmed by smear and/or culture.

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 commonly, because of non-adherence to the drug regimen. There were two reported cases of acquired resistance in 2008 (Appendix I, Table 28).

TABLE E: Treatment outcome of laboratory confirmed pulmonary cases, Canada: 1999–2008⁵

TREATMENT OUTCOME	1999		2000		2001		2002		2003		2004		2005		2006		2007		2008	
	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	221	162	240	152	271	195	209	141	205	170	228	153	450	236	468	304	499	257	618	336
Cured	76	70	111	74	81	58	85	10	57	13	47	15	64	14	65	11	63	4	127	22
Completed	130	55	93	55	148	96	102	106	124	128	139	121	335	178	335	241	357	193	410	267
Cured or completed	206	125	204	129	229	154	187	116	181	141	186	136	399	192	400	252	420	197	537	289
(% of total)	93	77	85	85	85	79	89	82	88	83	82	89	89	81	85	83	84	77	87	86
Died	8	30	7	26	22	10	25	24	11	13	17	14	28	9	29	24	27	24	44	32
Failed	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Defaulted	5	3	6	3	9	5	4	6	3	3	3	2	5	3	9	7	12	4	4	5
Transferred	2	5	1	8	3	10	2	4	2	5	6	3	9	8	9	7	9	12	16	6
Treatment Ongoing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19	6	13	2	9	4
Unknown	1	1	3	1	0	0	3	0	1	0	1	0	4	2	3	2	5	9	5	0

* 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 2009 case data and 2008 treatment outcome data) due to late reporting of cases to the Public Health Agency of Canada.

SECTION III – CONCLUSION

Although the total number of reported cases of TB in Canada has decreased over the past two decades, this reduction is largely a reflection of the decreasing number of cases in the Canadian-born, non-Aboriginal population. In contrast, the number of cases in the Canadian-born, Aboriginal population increased by an annual average of 2% over the past 10 years, while there was a minimal decline in the number cases among foreign-born populations over the same time period.

In 2009, among persons with TB who had a documented HIV test result, almost 10% (64 of 650) were HIV sero-positive. If one assumes that all HIV co-infected TB cases were reported, then the overall co-infection rate would have been approximately 4%. However, this figure should be interpreted with caution given the high percentage of cases for whom HIV status was not reported (61%).

Less than 1% of the reported cases of drug resistance in this reporting system were MDR-TB, which continues to indicate that the reported drug resistance has not yet emerged as a significant problem in Canada.

According to the data submitted, 87% of TB cases reported in 2008 were cured or had completed prescribed treatment. Regarding treatment outcome based on mode of treatment, 90% of those patients on DOTS, and 94% who self-administered, were reported to have been cured or to have completed treatment.

A comprehensive understanding of epidemiological trends of TB across Canada is integral to monitoring progress toward the goal of reduced TB burden in this country. As the epidemiology of TB in Canada and the world evolves, CCDIC will continue to work with its partners to improve the quality and nature of the data reported to the CTBRS and published in this annual report, *Tuberculosis in Canada*.

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APPENDIX I: DATA TABLES: 2009

TABLE 1A: Reported new active and re-treatment tuberculosis cases and incidence rate per 100,000 – Canada and provinces/territories: 1999–2009

REPORTING YEAR	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.	
1999	Cases	1821	12	2	15	15	314	699	132	116	149	328	1	23	15
	Rate	6.0	2.3	1.5	2.0	4.3	6.1	6.1	11.6	11.4	5.0	8.2	3.2	56.6	55.9
2000	Cases	1724	10	2	3	10	318	700	98	104	133	286	3	10	47
	Rate	5.6	1.9	1.5	1.3	4.3	6.0	6.0	8.5	10.3	4.4	7.1	9.9	24.7	170.9
2001	Cases	1772	19	3	8	10	261	699	115	114	116	379	0	8	40
	Rate	5.7	3.6	2.2	1.3	3.5	5.9	5.9	10.0	11.4	3.8	9.3	0.0	19.6	142.2
2002	Cases	1667	9	1	9	11	288	716	98	89	128	287	0	4	27
	Rate	5.3	1.7	0.7	1.0	3.9	5.9	5.9	8.5	8.9	4.1	7.0	0.0	9.6	93.7
2003	Cases	1631	7	3	6	12	257	693	127	91	110	305	1	12	7
	Rate	5.2	1.3	2.2	1.6	3.4	5.7	5.7	10.9	9.1	3.5	7.4	3.2	28.2	23.9
2004	Cases	1613	7	1	8	10	219	700	144	70	109	299	4	10	32
	Rate	5.0	1.4	0.7	1.3	2.9	5.6	5.6	12.3	7.0	3.4	7.2	12.7	23.1	107.2
2005	Cases	1640	9	1	7	6	255	642	114	139	146	265	3	8	45
	Rate	5.1	1.7	0.7	0.8	3.4	5.1	5.1	9.7	14.0	4.4	6.3	9.4	18.4	148.4
2006	Cases	1654	12	0	10	2	228	673	134	87	131	320	3	6	48
	Rate	5.1	2.4	0.0	0.3	3.0	5.3	5.3	11.3	8.8	3.8	7.5	9.3	13.9	155.8
2007	Cases	1576	7	0	7	5	229	680	103	106	112	278	3	15	31
	Rate	4.8	1.4	0.0	0.7	3.0	5.3	5.3	8.6	10.6	3.2	6.5	9.2	34.4	99.1
2008	Cases	1642	8	0	5	5	240	601	141	95	167	300	8	13	59
	Rate	4.9	1.6	0.0	0.5	3.1	4.6	4.6	11.7	9.4	4.6	6.8	24.2	29.8	186.5
2009	Cases	1658	22	1	8	11	196	629	156	93	176	294	4	12	56
	Rate	4.9	4.3	0.7	0.9	2.5	4.8	4.8	12.8	9.0	4.8	6.6	11.9	27.5	173.7

TABLE 1B: Reported new active tuberculosis cases and incidence rate per 100,000 – Canada and provinces/territories: 1999–2009

REPORTING YEAR	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.
1999	Cases	1623	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	1540	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	1575	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	1486	6	1	7	10	258	631	92	83	119	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	1473	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	1469	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	1490	8	1	7	6	223	585	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	1513	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	1423	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	1481	7	0	5	5	217	526	135	90	158	265	8	11	54
	Rate	4.4	1.4	0.0	0.5	0.7	2.8	4.1	11.2	8.9	4.4	6.0	24.2	25.2	170.7
2009	Cases	1499	19	1	8	11	182	547	147	86	163	271	4	11	49
	Rate	4.4	3.7	0.7	0.9	1.5	2.3	4.2	12.1	8.4	4.4	6.1	11.9	25.2	152.0

TABLE 1C: Reported re-treatment cases tuberculosis cases and incidence rate per 100,000 – Canada and provinces/territories: 1999–2009

REPORTING YEAR		CANADA	PROVINCE/TERRITORY											
			N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.
1999	Cases	158	1	0	2	1	33	69	9	8	23	0	6	-
	Rate	0.5	0.2	0.2	0.1	0.5	0.6	0.6	0.8	0.3	0.6	0.0	14.8	-
2000	Cases	147	0	0	0	1	18	70	10	13	21	1	3	6
	Rate	0.5	0.0	0.0	0.1	0.2	0.2	0.6	0.9	0.4	0.5	3.3	7.4	21.8
2001	Cases	152	2	1	3	0	17	59	5	10	39	0	0	6
	Rate	0.5	0.4	0.7	0.3	0.2	0.2	0.5	0.4	0.3	1.0	0.0	0.0	21.3
2002	Cases	139	3	0	2	1	19	56	6	9	32	0	0	5
	Rate	0.4	0.6	0.0	0.2	0.3	0.3	0.5	0.5	0.3	0.8	0.0	0.0	17.3
2003	Cases	104	3	1	1	1	14	35	9	6	22	0	3	0
	Rate	0.3	0.6	0.7	0.1	0.2	0.2	0.3	0.8	0.2	0.5	0.0	7.0	0.0
2004	Cases	120	3	0	0	1	15	42	12	9	22	0	1	8
	Rate	0.4	0.6	0.0	0.0	0.2	0.2	0.3	1.0	0.3	0.5	0.0	2.3	26.8
2005	Cases	106	1	0	0	0	12	33	9	15	18	0	0	6
	Rate	0.3	0.2	0.0	0.0	0.2	0.2	0.3	0.8	0.5	0.4	0.0	0.0	19.8
2006	Cases	137	3	0	1	0	20	51	9	8	32	0	1	4
	Rate	0.4	0.6	0.0	0.1	0.3	0.3	0.4	0.8	0.2	0.8	0.0	2.3	13.0
2007	Cases	110	0	0	1	0	10	40	7	6	26	1	1	8
	Rate	0.3	0.0	0.0	0.1	0.1	0.0	0.3	0.6	0.2	0.6	3.1	2.3	25.6
2008	Cases	125	1	0	0	0	22	43	6	9	34	0	2	4
	Rate	0.4	0.2	0.0	0.0	0.3	0.3	0.3	0.5	0.3	0.8	0.0	4.6	12.6
2009	Cases	96	2	0	0	0	11	36	7	11	17	0	1	4
	Rate	0.3	0.4	0.0	0.0	0.1	0.0	0.3	0.6	0.3	0.4	0.0	2.3	12.4

TABLE 2A: Reported new active and re-treatment tuberculosis cases and incidence rate per 100,000 by age group – Canada: 1999–2009

REPORTING YEAR		CANADA	AGE GROUP										
			<1	1–4	5–14	15–24	25–34	35–44	45–54	55–64	65–74	75+	
1999	Cases	1821	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	1724	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	1772	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	1667	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	1631	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	1613	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	1640	10	38	71	254	279	278	212	142	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	1654	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	1576	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	1642	8	30	52	205	297	279	231	165	171	204	
	Rate	4.9	2.1	2.1	1.4	4.5	6.6	5.7	4.4	4.2	7.1	9.5	
2009	Cases	1658	10	34	46	232	297	295	234	177	142	191	
	Rate	4.9	2.6	2.3	1.2	5.1	6.4	6.2	4.4	4.3	5.7	8.7	

TABLE 2B: Reported new active and re-treatment tuberculosis cases and incidence rate per 100,000 by age group – males – Canada: 1999–2009

REPORTING YEAR		CANADA	AGE GROUP										
			<1	1-4	5-14	15-24	25-34	35-44	45-54	55-64	65-74	75+	
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	908	6	20	33	128	142	154	124	82	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	886	5	18	21	104	132	143	142	106	102	113	
	Rate	5.4	2.6	2.4	1.1	4.5	5.8	5.8	5.4	5.4	8.9	13.2	
2009	Cases	920	7	13	24	125	140	174	141	103	77	116	
	Rate	5.5	3.6	1.7	1.2	5.3	6.0	7.2	5.3	5.1	6.5	13.1	

TABLE 2C: Reported new active and re-treatment tuberculosis cases and incidence rate per 100,000 by age group – females – Canada: 1999–2009

REPORTING YEAR		CANADA	AGE GROUP										
			<1	1–4	5–14	15–24	25–34	35–44	45–54	55–64	65–74	75+	
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	89	59	69	91	
	Rate	4.5	1.6	1.7	1.7	4.6	7.4	5.6	3.4	2.9	5.5	7.0	
2009	Cases	738	3	21	22	107	157	121	93	74	65	75	
	Rate	4.3	1.6	2.9	1.2	4.8	6.9	5.1	3.5	3.5	5.0	5.7	

TABLE 3: Reported new active and re-treatment tuberculosis cases and incidence rate per 100,000 by origin – Canada: 1999–2009

ORIGIN		REPORTING YEAR										
		1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Canadian-born	North American Indian	Cases	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 (registered) Indian	Cases	247	167	199	165	204	202	213	223	226	224
		Rate	36.6	24.2	28.3	23.0	27.9	28.4	27.4	28.2	28.0	27.0
	Status Indian – On reserve	Cases	160	85	97	87	120	113	133	135	130	118
		Rate	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	68	65	74	56	75	64	78	88	83	97
		Rate	24.4	23.0	26.1	19.7	26.3	22.4	22.9	25.7	24.0	27.9
	Status Indian – Unknown	Cases	19	17	28	22	9	25	2	0	13	6
		Rate										
	Non-status Indian	Cases	8	6	4	6	2	4	5	1	4	8
		Rate										
	Inuit	Cases	28	56	53	33	11	41	63	61	46	88
		Rate	47.0	89.9	111.4	67.8	22.1	80.4	120.7	114.3	84.2	157.5
	Métis	Cases	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	314	258	305	239	247	268	316	314	308	344
		Rate	25.4	20.3	28.6	22.0	22.3	23.8	27.5	26.9	25.9	28.4
	Non-Aboriginal	Cases	326	314	283	257	233	214	218	201	171	222
		Rate	1.4	1.3	1.2	1.1	1.0	0.9	0.9	0.8	0.7	0.9
	Total Canadian Born	Cases	640	572	588	496	480	482	534	515	479	566
		Rate	2.8	2.5	2.6	2.2	2.1	2.1	2.3	2.2	2.0	2.4

ORIGIN		REPORTING YEAR											
		1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	
Foreign-born	AFR-High	Cases	66	66	78	91	85	87	93	103	92	97	83
		Rate	-	-	49.5	54.1	48.1	48.1	49.3	53.0	44.7	44.7	36.3
	AFR-Low	Cases	12	14	8	20	22	21	26	21	33	25	27
		Rate	-	-	11.3	25.8	26.0	23.7	27.6	21.7	31.7	22.2	22.3
	AMR	Cases	70	80	61	64	74	65	71	48	78	64	58
		Rate	-	-	9.0	9.1	10.2	8.7	9.4	6.0	9.4	7.4	6.5
	EME-CEUR	Cases	115	97	101	76	76	71	56	57	62	60	63
		Rate	-	-	3.8	2.8	2.9	2.7	2.1	2.2	2.3	2.3	2.4
	EEUR	Cases	32	30	23	36	23	26	29	18	25	17	16
		Rate	-	-	9.0	13.2	7.9	8.6	9.1	5.7	7.6	4.9	4.5
	EMR	Cases	113	117	108	120	110	115	123	125	116	106	106
		Rate	-	-	22.9	23.0	19.2	19.0	19.1	20.3	17.8	15.4	14.6
	SEAR	Cases	193	208	236	224	245	267	239	258	240	248	240
		Rate	-	-	47.4	41.4	41.8	43.3	36.8	38.4	33.8	33.3	30.6
	WPR	Cases	514	477	455	458	457	448	389	417	418	440	434
		Rate	-	-	34.6	32.9	31.1	29.4	24.6	26.2	25.2	25.4	24.0
	Unknown	Cases	47	44	53	39	18	15	31	29	3	9	34
		Rate	-	-	-	-	-	-	-	-	-	-	-
Total Foreign-Born	Cases	1162	1133	1123	1128	1110	1115	1057	1076	1067	1066	1061	
	Rate	21.4	20.1	18.3	17.8	16.9	16.6	15.4	15.5	15.0	14.5	14.0	
	Cases	19	19	61	43	41	16	49	63	30	10	15	
Unknown													
TOTAL	Cases	1821	1724	1772	1667	1631	1613	1640	1654	1576	1642	1658	
	Rate	6.0	5.6	5.7	5.3	5.2	5.0	5.1	5.1	4.8	4.9	4.9	

TABLE 4: Reported new active and re-treatment tuberculosis cases and incidence rate per 100,000 by main diagnostic site – Canada:1999–2009

MAIN DIAGNOSTIC SITE		1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Respiratory	Primary*	Cases	154	99	121	88	79	94	106	91	64	59
		Rate	0.5	0.3	0.4	0.3	0.2	0.3	0.3	0.2	0.2	0.2
	Pulmonary**	Cases	1121	1085	1145	1038	974	948	972	1079	1023	1121
		Rate	3.7	3.5	3.7	3.3	3.1	3.0	3.0	3.3	3.1	3.4
	Other respiratory^	Cases	59	63	51	55	64	97	115	92	97	84
		Rate	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.3	0.3	0.3
	Miliary	Cases	15	13	7	12	17	20	18	19	16	28
		Rate	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.1
	Meninges and CNS	Cases	15	16	17	20	26	19	20	18	22	12
		Rate	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0
Nonrespiratory	Peripheral lymph node	Cases	244	258	234	240	249	251	244	210	205	182
		Rate	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.6	0.6	0.5
	Other^^	Cases	187	161	163	180	170	181	165	144	149	156
		Rate	0.6	0.5	0.5	0.6	0.5	0.6	0.5	0.4	0.5	0.5
Unknown		Cases	26	29	34	34	52	3	0	1	0	0
		Rate	0.1	0.1	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.0
TOTAL		Cases	1821	1724	1772	1667	1631	1613	1640	1654	1576	1642
		Rate	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: 2009

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	10	0	0	0	0	2	1	1	4	2	0	0	0	0
	Rate	2.6	0.0	0.0	0.0	2.3	0.7	28.7	6.4	3.9	0.0	0.0	0.0	0.0	0.0
1-4	Cases	34	1	0	0	0	4	6	4	7	6	5	0	0	1
	Rate	2.3	5.3	0.0	0.0	1.2	1.1	13.5	6.7	3.2	2.9	0.0	0.0	0.0	35.7
5-14	Cases	46	2	0	1	0	4	15	11	5	5	2	0	0	1
	Rate	1.2	3.8	0.0	1.0	0.5	1.0	3.9	7.1	1.2	0.4	0.0	0.0	0.0	14.8
15-24	Cases	232	5	0	1	2	29	92	17	21	19	25	0	1	20
	Rate	5.1	7.9	0.0	0.8	2.1	2.9	5.1	9.6	13.8	3.6	4.2	0.0	13.8	319.7
25-34	Cases	297	1	0	0	0	46	110	30	12	37	49	1	2	9
	Rate	6.4	1.7	0.0	0.0	4.3	6.3	8.8	18.7	6.2	8.2	26.9	22.5	26.9	176.5
35-44	Cases	295	3	0	2	0	29	122	29	18	27	46	2	3	14
	Rate	6.2	4.1	0.0	1.6	2.7	6.4	14.5	18.2	5.0	7.3	46.2	38.5	46.2	318.8
45-54	Cases	234	4	0	0	3	25	65	31	10	27	57	1	3	8
	Rate	4.4	4.7	0.0	0.0	2.4	2.0	3.1	16.9	6.5	4.8	8.0	15.8	45.7	241.9
55-64	Cases	177	2	0	2	3	21	74	17	9	19	30	0	0	0
	Rate	4.3	2.6	0.0	1.5	2.8	2.1	4.8	12.1	7.7	5.0	5.2	0.0	0.0	0.0
65-74	Cases	142	2	0	1	2	11	59	11	5	15	33	0	0	3
	Rate	5.7	4.6	0.0	1.2	3.2	1.7	6.3	13.2	6.9	7.3	9.5	0.0	0.0	419.6
75+	Cases	191	2	1	1	1	25	85	5	2	19	47	0	3	0
	Rate	8.7	6.3	10.1	1.5	4.7	10.0	2.5	5.9	2.5	10.6	15.2	0.0	352.5	0.0
TOTAL	Cases	1658	22	1	8	11	196	629	156	93	176	294	4	12	56
	Rate	4.9	4.3	0.7	0.9	2.5	4.8	9.0	12.8	4.8	6.6	27.5	11.9	27.5	173.7

TABLE 5B: Reported new active and re-treatment tuberculosis cases and incidence rate per 100,000 by age group – males – Canada and provinces/territories: 2009

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	7	0	0	0	1	1	1	4	0	0	0	0	0
	Rate	3.6	0.0	0.0	0.0	2.2	1.4	12.6	56.7	0.0	0.0	0.0	0.0	0.0
1-4	Cases	13	0	0	0	3	2	1	3	1	2	0	0	1
	Rate	1.7	0.0	0.0	0.0	1.8	0.7	3.3	11.3	1.0	2.2	0.0	0.0	69.7
5-14	Cases	24	2	1	0	1	8	6	2	1	2	0	0	1
	Rate	1.2	7.4	0.0	0.0	0.2	1.0	7.5	3.0	0.4	0.8	0.0	0.0	28.5
15-24	Cases	125	4	0	1	19	51	10	10	10	11	0	1	8
	Rate	5.3	12.4	0.0	2.0	3.7	5.6	11.1	12.8	3.6	3.5	0.0	26.2	248.3
25-34	Cases	140	1	0	0	25	45	13	7	18	24	1	1	5
	Rate	6.0	3.5	0.0	0.0	4.6	5.2	15.9	10.3	5.8	8.1	45.9	26.9	194.6
35-44	Cases	174	1	0	1	18	70	16	10	20	26	2	3	7
	Rate	7.2	2.8	0.0	1.6	3.3	7.3	19.8	16.0	7.1	8.3	80.6	87.8	314.5
45-54	Cases	141	2	0	1	16	36	19	6	17	37	1	3	3
	Rate	5.3	4.8	0.0	1.7	2.5	3.5	20.4	7.8	5.9	10.5	30.6	89.1	166.5
55-64	Cases	103	0	1	1	12	47	10	4	12	16	0	0	0
	Rate	5.1	0.0	1.6	1.9	2.4	6.3	14.3	6.8	6.2	5.7	0.0	0.0	0.0
65-74	Cases	77	2	0	1	8	33	6	2	4	18	0	0	3
	Rate	6.5	9.4	0.0	3.3	2.7	7.4	15.1	5.7	4.0	10.6	0.0	0.0	804.3
75+	Cases	116	0	0	0	16	51	5	1	10	33	0	0	0
	Rate	13.1	0.0	0.0	0.0	7.7	15.0	15.1	3.1	13.6	25.1	0.0	0.0	0.0
TOTAL	Cases	920	12	3	4	119	344	87	49	93	169	4	8	28
	Rate	5.5	4.8	0.0	1.1	3.1	5.3	14.3	9.6	5.0	7.6	23.2	35.5	168.0

TABLE 5C: Reported new active and re-treatment tuberculosis cases and incidence rate per 100,000 by age group – females – Canada and provinces/territories: 2009

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	0	0	0	2	0	0	0	0
	Rate	1.6	0.0	0.0	0.0	2.3	0.0	0.0	0.0	0.0	7.9	0.0	0.0	0.0	0.0
1-4	Cases	21	1	0	0	0	1	4	3	4	5	3	0	0	0
	Rate	2.9	11.0	0.0	0.0	0.6	1.4	10.3	15.8	5.5	3.5	0.0	0.0	0.0	0.0
5-14	Cases	22	0	0	0	0	3	7	5	3	4	0	0	0	0
	Rate	1.2	0.0	0.0	0.0	0.8	1.0	6.6	4.8	1.9	0.0	0.0	0.0	0.0	0.0
15-24	Cases	107	1	0	1	1	10	41	7	11	9	14	0	0	12
	Rate	4.8	3.2	0.0	1.6	2.2	2.1	4.7	8.1	14.9	3.5	4.8	0.0	0.0	395.5
25-34	Cases	157	0	0	0	0	21	65	17	5	19	25	0	1	4
	Rate	6.9	0.0	0.0	0.0	4.0	7.3	21.6	7.4	6.8	8.3	0.0	0.0	27.0	158.1
35-44	Cases	121	2	0	1	0	11	52	13	8	7	20	0	0	7
	Rate	5.1	5.3	0.0	1.5	0.0	2.1	5.4	16.5	13.0	2.7	6.3	0.0	0.0	323.2
45-54	Cases	93	2	0	0	2	9	29	12	4	10	20	0	0	5
	Rate	3.5	4.6	0.0	0.0	3.2	1.4	2.8	13.4	5.2	3.6	5.5	0.0	0.0	332.2
55-64	Cases	74	2	0	1	2	9	27	7	5	7	14	0	0	0
	Rate	3.5	5.2	0.0	1.5	3.7	1.7	3.5	9.8	8.6	3.7	4.8	0.0	0.0	0.0
65-74	Cases	65	0	0	1	1	3	26	5	3	11	15	0	0	0
	Rate	5.0	0.0	0.0	2.4	3.1	0.9	5.2	11.4	7.9	10.3	8.5	0.0	0.0	0.0
75+	Cases	75	2	1	1	1	9	34	0	1	9	14	0	3	0
	Rate	5.7	10.7	16.9	2.4	3.1	2.7	6.7	0.0	2.1	8.6	7.8	0.0	674.2	0.0
TOTAL	Cases	738	10	1	5	7	77	285	69	44	83	125	0	4	28
	Rate	4.3	3.9	1.4	1.0	1.8	2.0	4.3	11.3	8.5	4.6	5.6	0.0	19.0	179.8

TABLE 6: Reported new active and re-treatment tuberculosis cases and incidence rate per 100,000 by origin – Canada and provinces/territories: 2009

ORIGIN		CANADA		PROVINCE/TERRITORY										
				N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	North*
Canadian-born	First Nations	Cases	229	2	0	0	0	5	9	84	54	27	35	13
		Rate	27.6	17.1	0.0	0.0	0.0	6.3	4.9	69.9	47.4	23.2	23.4	57.7
	Status (registered) Indian	Cases	224		2		5	8	84	54	26	32	13	
		Rate	26.9		5.8		6.7	4.4	61.1	39.8	23.5	24.5	48.8	
	Status Indian – On reserve	Cases	124		2		0	2	62	37	15	6	0	
		Rate	25.7		9.3		0.0	2.1	71.1	52.4	20.7	8.9	0.0	
	Status Indian – Off reserve	Cases	87		0		0	3	22	17	11	22	12	
		Rate	24.6		0.0		0.0	3.4	43.7	26.1	29.1	34.7	116.3	
	Status Indian – Unknown	Cases	13		0		5	3	0	0	0	4	1	
		Rate												
	Non-status Indian	Cases	5	0	0	0	0	1	0	0	1	3	0	
		Rate												
	Inuit	Cases	89	16	0	0	0	14	1	1	0	0	57	
		Rate	154.1	303.1	0.0	0.0	0.0	118.1	0.0	229.9	0.0	0.0	165.9	
	Métis	Cases	25	1	0	0	0	0	0	0	16	6	2	0
		Rate	7.3	15.6	0.0	0.0	0.0	0.0	0.0	30.8	7.5	4.0	0.0	
Total Aboriginal	Cases	343	19	0	0	0	19	10	85	70	33	70		
	Rate	27.8	81.2	0.0	0.0	0.0	17.4	3.7	45.4	42.1	16.6	18.5	112.7	
Non-Aboriginal	Cases	239	3	1	6	6	43	70	27	8	18	57	0	
	Rate	1.0	0.6	0.8	0.7	0.9	0.6	0.8	3.2	1.0	0.7	2.0	0.0	
Total Canadian Born	Cases	582	22	1	6	6	62	80	112	78	51	94	70	
	Rate	2.2	4.4	0.8	0.7	0.8	0.9	0.9	11.0	8.1	1.7	3.1	69.1	

ORIGIN		CANADA	PROVINCE/TERRITORY											
			N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	North*	
Foreign-born	AFR-High	Cases	83	0	0	1	1	15	41	5	2	13	5	0
		Rate	36.3	0.0	0.0	59.3	79.6	41.8	36.4	63.6	54.0	41.2	15.1	0.0
	AFR-Low	Cases	27	0	0	0	0	14	7	2	0	2	2	0
		Rate	22.3	0.0	0.0	0.0	0.0	21.0	17.9	77.0	0.0	30.7	50.7	0.0
	AMR	Cases	58	0	0	0	0	27	19	0	0	9	3	0
		Rate	6.5	0.0	0.0	0.0	0.0	12.7	3.6	0.0	0.0	14.6	5.2	0.0
	EME-CEUR	Cases	63	0	0	0	0	9	30	0	1	5	17	1
		Rate	2.4	0.0	0.0	0.0	0.0	2.7	2.1	0.0	3.3	2.0	3.6	21.9
	EEUR	Cases	16	0	0	0	1	5	6	1	1	0	2	0
		Rate	4.5	0.0	0.0	0.0	104.3	6.6	3.1	7.2	23.3	0.0	5.5	0.0
	EMR	Cases	106	0	0	0	0	12	52	6	3	19	13	1
		Rate	14.6	0.0	0.0	0.0	0.0	7.1	12.6	72.3	65.9	32.8	22.0	392.2
	SEAR	Cases	240	0	0	1	1	13	156	4	0	22	43	0
		Rate	30.6	0.0	0.0	33.5	65.1	28.7	31.9	31.1	0.0	33.9	26.6	0.0
	WPR	Cases	434	0	0	0	1	34	203	24	8	55	109	0
		Rate	24.0	0.0	0.0	0.0	16.4	26.4	24.4	43.0	46.0	27.3	19.8	0.0
	Unknown	Cases	34	0	0	0	1	4	24	2	0	0	3	0
		Rate												
Total Foreign-born	Cases	1061	0	0	2	5	133	538	44	15	125	197	2	
	Rate	14.0	0.0	0.0	3.2	13.0	12.4	13.4	22.2	21.5	17.7	14.3	0.0	
	Cases	15	0	0	0	0	1	11	0	0	0	3	0	
Unknown	Cases	1658	22	1	8	11	196	629	156	93	176	294	72	
TOTAL	Rate	4.9	4.3	0.7	0.9	1.5	2.5	4.8	12.8	9.0	4.8	6.6	65.7	

* 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: 2009

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.
Respiratory	Primary*	Cases	62	8	0	2	0	0	10	9	11	11	5	1	2	3
		Rate	0.2	1.6	0.0	0.2	0.0	0.0	0.1	0.7	1.1	0.3	0.1	3.0	4.6	9.3
	Pulmonary**	Cases	1108	11	1	6	8	148	399	103	59	109	201	3	7	53
		Rate	3.3	2.2	0.7	0.6	1.1	1.9	3.1	8.4	5.7	3.0	4.5	8.9	16.0	164.4
	Other respiratory^	Cases	103	1	0	0	2	8	40	16	8	10	18	0	0	0
		Rate	0.3	0.2	0.0	0.0	0.3	0.1	0.3	1.3	0.8	0.3	0.4	0.0	0.0	0.0
Nonrespiratory	Miliary	Cases	21	1	0	0	0	4	5	2	2	3	3	0	1	0
		Rate	0.1	0.2	0.0	0.0	0.1	0.1	0.0	0.2	0.2	0.1	0.1	0.0	2.3	0.0
	Meninges and CNS	Cases	14	0	0	0	0	1	6	0	2	1	4	0	0	0
		Rate	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.1	0.0	0.0	0.0
	Peripheral lymph node	Cases	208	0	0	0	1	21	107	14	5	23	36	0	1	0
		Rate	0.6	0.0	0.0	0.0	0.1	0.3	0.8	1.1	0.5	0.6	0.8	0.0	2.3	0.0
Unknown	Other^^	Cases	142	1	0	0	0	14	62	12	6	19	27	0	1	0
		Rate	0.4	0.2	0.0	0.0	0.0	0.2	0.5	1.0	0.6	0.5	0.6	0.0	2.3	0.0
		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	1658	22	1	8	11	196	629	156	93	176	294	4	12	56
		Rate	4.9	4.3	0.7	0.9	1.5	2.5	4.8	12.8	9.0	4.8	6.6	11.9	27.5	173.7

* 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: 2009

ORIGIN	CANADA	AGE GROUP										
		<1	1-4	5-14	15-24	25-34	35-44	45-54	55-64	65-74	75+	Unknown
Canadian-born	ABORIGINAL											
	Male	128	4	5	8	18	32	24	10	7	2	0
	Female	101	0	8	9	15	19	22	6	5	2	0
	Total	229	4	13	17	33	51	46	16	12	4	0
	Male	124	4	5	8	18	30	23	10	6	2	0
	Female	100	0	7	9	15	19	22	6	5	2	0
	Total	224	4	12	17	33	49	45	16	11	4	0
	Male	67	4	4	8	9	15	9	3	4	2	0
	Female	57	0	5	9	8	11	10	1	3	0	0
	Total	124	4	9	17	17	26	19	4	7	2	0
	Male	51	0	1	0	8	15	12	5	2	0	0
	Female	36	0	2	0	5	6	11	4	1	2	0
	Total	87	0	3	0	13	21	23	9	3	2	0
	Male	6	0	0	0	1	0	2	2	0	0	0
	Female	7	0	0	0	2	2	1	1	1	0	0
	Total	13	0	0	0	3	2	3	3	1	0	0
	Male	4	0	0	0	0	2	1	0	1	0	0
	Female	1	0	1	0	0	0	0	0	0	0	0
	Total	5	0	1	0	0	2	1	0	1	0	0
	Male	13	1	0	0	1	4	2	2	0	1	0
	Female	12	0	0	1	3	2	1	3	0	0	0
	Total	25	1	0	1	4	6	3	5	0	1	0
Non-Aboriginal	Male	48	0	1	3	15	9	10	4	6	0	0
	Female	41	1	2	2	13	6	8	7	1	0	0
	Total	89	1	3	5	28	15	18	11	6	1	0
	Male	189	5	6	11	34	29	46	12	13	3	0
	Female	154	1	10	12	31	23	29	10	5	3	0
	Total	343	6	16	23	65	52	75	22	18	6	0
	Male	150	2	4	6	11	13	19	20	15	26	0
	Female	89	2	8	5	11	12	5	11	9	16	0
	Total	239	4	12	11	22	25	24	31	24	42	0
	Male	339	7	10	17	45	42	65	32	28	29	0
	Female	243	3	18	17	42	35	34	21	14	19	0
	Total	582	10	28	34	87	77	99	53	42	48	0

ORIGIN		CANADA	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	41	0	3	9	14	10	2	2	1	0	0
		Female	42	0	1	9	14	12	2	0	2	1	0
		Total	83	0	4	18	28	22	4	2	3	1	0
	AFR-Low	Male	18	0	0	2	3	7	1	0	2	1	0
		Female	9	0	0	2	3	1	0	2	0	1	0
		Total	27	0	0	4	6	8	1	2	2	2	0
	AMR	Male	34	0	0	9	8	7	5	5	0	0	0
		Female	24	0	2	3	3	5	6	4	1	0	0
		Total	58	0	2	12	11	12	11	9	1	0	0
	EME-CEUR	Male	42	0	0	1	3	2	7	5	4	20	0
		Female	21	0	0	3	1	0	1	5	6	5	0
		Total	63	0	0	4	4	2	8	10	10	25	0
	EEUR	Male	4	0	0	0	2	1	0	0	0	1	0
		Female	12	0	0	0	2	4	1	2	1	2	0
		Total	16	0	0	0	4	5	1	2	1	3	0
	EMR	Male	55	0	2	9	13	11	8	4	3	4	0
		Female	51	0	1	14	11	5	4	6	7	2	0
		Total	106	0	3	23	24	16	12	10	10	6	0
	SEAR	Male	122	0	1	16	22	27	14	14	11	17	0
		Female	118	0	1	18	32	22	7	13	8	16	0
		Total	240	0	2	34	54	49	21	27	19	33	0
	WPR	Male	235	0	0	27	25	41	38	39	26	39	0
		Female	199	0	0	15	51	35	31	17	24	26	0
		Total	434	0	0	42	76	76	69	56	50	65	0
	Unknown	Male	21	0	1	5	7	3	1	1	1	2	0
		Female	13	0	0	1	4	2	1	3	1	1	0
		Total	34	0	1	6	11	5	2	4	2	3	0
Unknown	Total	Male	572	0	3	78	97	109	76	70	48	84	0
		Female	489	0	3	65	121	86	53	52	50	54	0
		Total	1061	0	6	143	218	195	129	122	98	138	0
		Male	9	0	0	2	1	0	1	1	1	3	0
		Female	6	0	0	0	1	1	0	1	1	2	0
		Total	15	0	0	2	2	1	1	2	2	5	0
	TOTAL	Male	920	7	13	125	140	174	141	103	77	116	0
		Female	738	3	21	107	157	121	93	74	65	75	0
		Total	1658	10	34	232	297	295	234	177	142	191	0

TABLE 9: Reported new active and re-treatment tuberculosis cases and incidence rate per 100,000 by age group and main diagnostic site – Canada: 2009

AGE GROUP	CANADA	MAIN DIAGNOSTIC SITE							
		RESPIRATORY			NONRESPIRATORY				
		Primary*	Pulmonary**	Other Respiratory^	Miliary	CNS	Peripheral lymph node	Other^^	UNKNOWN
< 1	Cases	10	7	3	0	0	0	0	0
	Rate	2.6	1.8	0.8	0.0	0.0	0.0	0.0	0.0
1–4	Cases	34	21	8	1	2	1	0	0
	Rate	2.3	1.4	0.5	0.1	0.1	0.1	0.0	0.0
5–14	Cases	46	14	19	1	0	6	4	0
	Rate	1.2	0.4	0.5	0.0	0.0	0.2	0.1	0.0
15–24	Cases	232	5	168	2	1	23	17	0
	Rate	5.1	0.1	3.7	0.0	0.0	0.5	0.4	0.0
25–34	Cases	297	3	191	3	2	53	21	0
	Rate	6.4	0.1	4.1	0.1	0.0	1.2	0.5	0.0
35–44	Cases	295	5	197	2	2	50	24	0
	Rate	6.2	0.1	4.1	0.0	0.0	1.0	0.5	0.0
45–54	Cases	234	3	156	5	1	29	28	0
	Rate	4.4	0.1	2.9	0.1	0.0	0.6	0.5	0.0
55–64	Cases	177	1	113	3	3	28	20	0
	Rate	4.3	0.0	2.8	0.1	0.1	0.7	0.5	0.0
65–74	Cases	142	2	105	2	0	9	11	0
	Rate	5.7	0.1	4.2	0.0	0.0	0.4	0.4	0.0
75+	Cases	191	1	148	2	3	9	17	0
	Rate	8.7	0.0	6.7	0.1	0.1	0.4	0.8	0.0
TOTAL	Cases	1658	62	1108	21	14	208	142	0
	Rate	4.9	0.2	3.3	0.1	0.0	0.6	0.4	0.0

* 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: 2009

ORIGIN	CANADA	MAIN DIAGNOSTIC SITE						
		RESPIRATORY			NONRESPIRATORY			
		Primary*	Pulmonary**	Other Respiratory^	Miliary	CNS	Peripheral lymph node	Other^^
Canadian-born	First Nations	229	143	26	5	3	14	11
	Status (registered) Indian	224	140	25	5	3	14	11
	Status Indian – On reserve	124	72	14	1	1	8	7
	Status Indian – Off reserve	87	59	10	3	2	6	2
	Status Indian – Unknown	13	9	1	1	0	0	2
	Non-Status	5	3	1	0	0	0	0
	Métis	25	20	2	1	0	1	0
	Inuit	89	75	2	2	0	0	0
	Total Aboriginal	343	238	30	8	3	15	11
	Non-aboriginal	239	164	20	2	2	11	23
Foreign-born (WHO Regions)	Total	582	402	50	10	5	26	34
	AFR-High	83	53	2	1	1	16	10
	AFR-Low	27	19	0	0	0	5	3
	AMR	58	38	1	2	0	8	8
	EEUR	16	14	1	0	0	1	0
	EME-CEUR	63	45	4	2	0	5	7
	EMR	106	59	8	0	1	21	15
	SEAR	240	151	15	1	1	50	20
	WPR	434	289	21	5	6	72	39
	Unknown	34	26	1	0	0	3	4
Unknown birthplace	Total	1061	694	53	11	9	181	106
	Unknown birthplace	15	12	0	0	0	1	2
	TOTAL**	1658	1108	103	21	14	208	142

* 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: 2009

ORIGIN	TOTAL	ACTIVITY STATUS		
		New active cases	Re-treatment cases	Unknown status
Canadian-born	First Nations	229	16	6
	Status (registered) Indian	224	16	6
	Status Indian – On reserve	124	10	4
	Status Indian – Off reserve	87	6	1
	Status Indian – Unknown	13	0	1
	Non-Status	5	0	0
	Métis	25	2	0
	Inuit	89	7	4
	Total Aboriginal	343	25	10
	Non-aboriginal	239	7	10
Foreign-born	Total	582	32	19
	AFR-High	83	3	1
	AFR-Low	27	3	0
	AMR	58	4	0
	EME-CEUR	63	4	3
	EEUR	16	1	1
	EMR	106	7	4
	SEAR	240	13	3
	WPR	434	27	27
	Unknown	34	0	0
Unknown origin	Total	1,061	62	39
	Unknown origin	15	2	4
	TOTAL	1,658	96	63

TABLE 12: Reported new active and re-treatment tuberculosis cases by bacterial status – Canada and provinces/territories: 2009

BACTERIAL 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.
Culture positive														
a. Microscopy positive	599	7	1	4	7	73	175	58	46	66	137	2	6	17
b. Microscopy negative	607	3	0	2	4	71	215	67	21	85	102	1	4	32
c. Microscopy unknown	62	0	0	0	0	31	26	0	4	0	1	0	0	0
Subtotal	1268	10	1	6	11	175	416	125	71	151	240	3	10	49
Culture negative														
a. Microscopy positive	15	0	0	1	0	4	5	2	0	1	2	0	0	0
b. Microscopy negative	123	11	0	0	0	8	43	13	7	0	33	1	2	5
c. Microscopy unknown	12	0	0	0	0	0	6	0	6	0	0	0	0	0
Subtotal	150	11	0	1	0	12	54	15	13	1	35	1	2	5
Culture unknown														
a. Microscopy positive	14	0	0	0	0	0	9	4	0	0	1	0	0	0
b. Microscopy negative	18	0	0	1	0	2	11	4	0	0	0	0	0	0
c. Microscopy unknown	208	1	0	0	0	7	139	8	9	24	18	0	0	2
Subtotal	240	1	0	1	0	9	159	16	9	24	19	0	0	2
TOTAL	1658	22	1	8	11	196	629	156	93	176	294	4	12	56

TABLE 13: Reported new active and re-treatment tuberculosis cases by bacterial status and origin – Canada: 2009

BACTERIAL STATUS	CANADA	ORIGIN			
		Canadian-born Aboriginal	Canadian-born non-Aboriginal	Foreign-born	Unknown birthplace
Culture positive					
a. Microscopy positive	599	139	96	357	7
b. Microscopy negative	607	130	61	412	4
c. Microscopy unknown	62	3	7	52	0
Subtotal	1268	272	164	821	11
Culture negative					
a. Microscopy positive	15	1	5	9	0
b. Microscopy negative	123	37	22	63	1
c. Microscopy unknown	12	6	2	4	0
Subtotal	150	44	29	76	1
Culture unknown					
a. Microscopy positive	14	0	4	9	1
b. Microscopy negative	18	3	4	11	0
c. Microscopy unknown	208	24	38	144	2
Subtotal	240	27	46	164	3
TOTAL	1658	343	239	1061	15

TABLE 14: Reported new active and re-treatment tuberculosis cases by bacterial status and main diagnostic site – Canada: 2009

BACTERIAL STATUS	CANADA	MAIN DIAGNOSTIC SITE							
		Primary	Pulmonary	Other respiratory	Miliary	CNS	Peripheral lymph node	Other	Unknown
Culture positive									
a. Microscopy positive	599	8	513	13	5	0	41	19	0
b. Microscopy negative	607	11	396	51	10	2	93	44	0
c. Microscopy unknown	62	1	30	3	1	4	13	10	0
Subtotal	1268	20	939	67	14	6	147	73	0
Culture negative									
a. Microscopy positive	15	0	9	1	0	0	2	3	0
b. Microscopy negative	123	18	58	15	3	4	11	14	0
c. Microscopy unknown	12	4	3	1	0	0	1	3	0
Subtotal	150	22	70	17	3	4	14	20	0
Culture unknown									
a. Microscopy positive	14	0	7	1	0	0	5	1	0
b. Microscopy negative	18	0	10	3	0	0	2	3	0
c. Microscopy unknown	208	20	82	15	2	4	40	45	0
Subtotal	240	20	99	19	2	4	47	49	0
TOTAL	1658	62	1108	103	21	14	208	142	0

TABLE 15: Drug resistance at time of initial case reporting by origin and activity status – Canada: 2009

DRUG PATTERN	TOTAL	NEW				RE-TREATMENT				UNKNOWN			
		Aboriginal	Non-Aboriginal	Foreign-born	Unknown	Aboriginal	Non-Aboriginal	Foreign-born	Unknown	Aboriginal	Non-Aboriginal	Foreign-born	Unknown
Total Positive Culture	1268	242	152	752	8	21	3	41	0	9	9	28	3
With Sensitivity result reported	1162	195	144	718	5	18	3	36	0	7	8	25	3
Resistance patterns unknown	106	47	8	34	3	3	0	5	0	2	1	3	0
No resistance	1050	189	127	642	4	16	3	30	0	7	8	21	3
Resistance to one of more drugs	112	6	17	76	1	2	0	6	0	0	0	4	0
MONORESISTANCE													
Monoresistance: INH	74	4	15	47	1	2	0	2	0	0	0	3	0
Monoresistance: RMP	4	0	1	2	0	0	0	1	0	0	0	0	0
Monoresistance: EMB	0	0	0	0	0	0	0	0	0	0	0	0	0
Monoresistance: PZA	8	1	2	5	0	0	0	0	0	0	0	0	0
Total Monoresistance	86	5	18	54	1	2	0	3	0	0	0	3	0
MULTIDRUG RESISTANT (MDR-TB)*													
INH & RMP	8	0	0	6	0	0	0	2	0	0	0	0	0
INH& RMP & PZA	1	0	0	1	0	0	0	0	0	0	0	0	0
INH& RMP & EMB	5	0	0	4	0	0	0	1	0	0	0	0	0
INH & RMP & EMB & PZA	2	0	0	2	0	0	0	0	0	0	0	0	0
Total MDR	16	0	0	13	0	0	0	3	0	0	0	0	0
OTHER PATTERNS													
INH & EMB & PZA	1	0	0	1	0	0	0	0	0	0	0	0	0
INH & EMB	6	0	0	5	0	0	0	0	0	0	0	1	0
INH & PZA	3	0	0	3	0	0	0	0	0	0	0	0	0
Total Other Patterns	10	0	0	9	0	0	0	0	0	0	0	1	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.

TABLE 16: Reported new active and re-treatment tuberculosis cases by case finding – Canada and provinces/territories: 2009

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	58	0	0	0	1	1	31	1	1	11	12	0	0	0
Symptoms/incidental findings	1284	12	1	6	9	131	502	108	73	134	243	2	9	54
Contact investigation	162	10	0	2	0	17	20	39	16	27	24	2	3	2
Post-mortem	14	0	0	0	1	1	4	0	1	1	6	0	0	0
Screening	49	0	0	0	0	3	27	7	2	3	7	0	0	0
Other	57	0	0	0	0	37	18	0	0	0	2	0	0	0
Unknown	34	0	0	0	0	6	27	1	0	0	0	0	0	0
TOTAL	1658	22	1	8	11	196	629	156	93	176	294	4	12	56

TABLE 17: Reported new active and re-treatment tuberculosis cases by case finding and origin – Canada: 2009

CASE FINDING	CANADA	ORIGIN							
		CANADIAN-BORN					FOREIGN-BORN		UNKNOWN BIRTHPLACE
		Status (registered) Indian	Métis	Inuit	Non-status Indian	Non-Aboriginal	BORN	BORN	
Immigration	58	0	0	0	0	0	58	0	0
Symptoms/incidental findings	1284	139	18	72	4	170	870	11	11
Post-mortem	14	2	0	0	0	6	5	1	1
Contact-investigation	162	71	6	17	1	33	34	0	0
Screening	49	7	1	0	0	11	29	1	1
Other	57	5	0	0	0	13	39	0	0
Unknown	34	0	0	0	0	6	26	2	2
TOTAL	1658	224	25	89	5	239	1061	15	15

TABLE 18: Reported new active and re-treatment foreign-born tuberculosis cases by origin and year of arrival in Canada: 2009

ORIGIN (WHO EPI REGION)	TOTAL	YEAR OF ARRIVAL														
		<= 1969	1970-1979	1980-1989	1990-1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Unk
AFR-High	83	0	3	2	11	4	0	2	2	6	1	11	9	14	18	0
AFR-Low	27	0	1	1	3	1	0	0	2	2	1	3	2	6	3	2
AMR	58	0	8	4	13	3	3	1	1	2	2	3	6	8	2	2
EME-CEUR	63	31	9	6	6	0	1	0	1	0	0	0	1	2	3	3
EEUR	16	1	0	1	3	1	0	0	2	0	0	2	1	2	3	0
EMR	106	0	0	11	30	3	3	2	5	3	5	7	7	12	11	7
SEAR	240	4	10	25	52	8	9	10	9	10	17	16	17	28	19	6
WPR	434	10	32	80	101	9	20	12	11	13	13	24	29	46	25	9
Unknown	34	3	0	5	3	1	0	1	0	0	0	1	5	2	7	6
TOTAL	1061	49	63	135	222	30	36	28	33	36	39	67	77	120	91	35

TABLE 19: Reported new active and re-treatment foreign-born tuberculosis cases by immigration status – Canada and provinces/territories: 2009

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	437	0	0	2	3	0	124	37	6	102	161	0	2	0
Refugee claimant	44	0	0	0	0	0	33	3	3	2	3	0	0	0
Other temporary resident (visitor, student, foreign nationals without status in Canada)	33	0	0	0	2	0	0	0	0	10	21	0	0	0
Other	47	0	0	0	0	0	28	4	3	11	1	0	0	0
Unknown	500	0	0	0	0	133	353	0	3	0	11	0	0	0
TOTAL	1061	0	0	2	5	133	538	44	15	125	197	0	2	0

TABLE 20: Reported re-treatment tuberculosis cases by length of interval since year of previous diagnosis – Canada and provinces/territories: 2009

INTERVAL (YRS)	PROVINCE/TERRITORY											
	CANADA											
	N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.
0-2	0	0	0	0	1	0	1	1	3	3	0	0
3-5	0	0	0	0	3	0	4	2	0	5	0	0
6-9	1	0	0	0	2	0	1	0	0	1	0	0
10-19	0	0	0	0	1	0	0	3	3	4	0	1
20 +	0	0	0	0	3	0	1	0	4	4	0	0
Unknown	1	0	0	0	1	36	0	1	1	0	0	4
TOTAL	2	0	0	0	11	36	7	7	11	17	0	1

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											
	Number	Percent of total cases reported for year	N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Nvt.
Update on 2008 cases who died before or during treatment*															
TB was the cause of death	37	2.3	0	0	0	0	4	18	1	1	4	9	0	0	0
TB contributed to death but was not the underlying cause	68	4.1	1	0	1	0	8	28	3	5	10	10	0	1	1
TB did not contribute to death but was an incidental finding	38	2.3	0	0	0	0	2	17	2	1	0	15	0	0	1
TOTAL	143	8.7	1	0	1	0	14	63	6	7	14	34	0	1	2
Cases reported in 2009 cases who died before or during treatment															
TB was the cause of death	20	1.2	0	0	0	0	2	11	1	0	2	3	0	0	1
TB contributed to death but was not the underlying cause	63	3.8	0	0	0	1	9	23	1	6	6	14	0	2	1
TB did not contribute to death but was an incidental finding	45	2.7	0	0	0	0	6	15	8	0	6	10	0	0	0
TOTAL	128	7.8	0	0	0	1	17	49	10	6	14	27	0	2	2

* Updates include results from both case outcome reports.

TABLE 22: Reported new active and re-treatment tuberculosis cases who died, by age group and sex – Canada and provinces/territories

SEX	CANADA	AGE GROUP									
		<1	1-4	5-14	15-24	25-34	35-44	45-54	55-64	65-74	75+
Update on 2008 cases who died before or during treatment*											
Male	97	1	0	0	2	2	5	12	17	18	40
Female	46	0	0	0	2	0	2	6	3	8	25
TOTAL	143	1	0	0	3	2	7	18	20	25	65
Cases reported in 2009 who died before or during treatment											
Male	83	0	0	0	1	4	2	14	11	12	39
Female	45	0	0	0	0	1	3	6	9	8	18
TOTAL	128	0	0	0	1	5	5	20	20	20	57

* 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: 2009

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.
Positive	64	0	0	0	1	4	33	4	5	9	7	1	0
Negative	586	7	0	3	6	69	0	45	0	152	252	3	40
Unknown	1008	15	1	5	4	123	596	107	88	15	35	0	16
TOTAL	1658	22	1	8	11	196	629	156	93	176	294	4	56

TABLE 24: Treatment outcome status – Canada and provinces/territories: 2008

	TOTAL	TREATMENT OUTCOME							
		Cure	Treatment completed without culture	Death during treatment	Transferred	Absconded	Treatment Ongoing	Other	Unknown
CANADA	1642	215	1174	143	31	20	25	12	22
Province/territory									
Newfoundland and Labrador	8	1	4	1	0	0	1	1	0
Prince Edward Island	0	0	0	0	0	0	0	0	0
Nova Scotia	5	0	3	1	0	0	0	0	1
New Brunswick	5	2	3	0	0	0	0	0	0
Quebec	240	57	161	14	1	2	1	0	4
Ontario	601	0	485	63	15	6	20	7	5
Manitoba	141	5	122	6	0	6	1	1	0
Saskatchewan	95	62	18	7	0	0	0	0	8
Alberta	167	42	106	14	3	0	1	1	0
British Columbia	300	4	241	34	12	6	1	2	0
Yukon	8	0	8	0	0	0	0	0	0
Northwest Territories	13	4	7	1	0	0	0	0	1
Nunavut	59	38	16	2	0	0	0	0	3

TABLE 25: Treatment outcome status by treatment regimen – Canada: 2008

DRUG-REGIMEN	CANADA	Cure	Treatment completed without culture	Death during treatment	Transferred	Absconded	Treatment Ongoing	Other	Unknown
TOTAL	1642	215	1174	143	31	20	25	12	22
INH-RMP	108	55	39	5	2	1	0	0	6
INH--EMB	1	0	1	0	0	0	0	0	0
RMP-EMB	1	0	0	1	0	0	0	0	0
RMP-PZA	1	0	1	0	0	0	0	0	0
INH-EMB-PZA	7	0	7	0	0	0	0	0	0
INH-RMP-EMB	40	8	24	5	0	1	1	0	1
INH-RMP-PZA	230	38	179	3	5	0	1	3	1
INH-RMP-EMB-PZA	458	94	329	18	4	7	2	1	3
RMP-EMB-PZA	10	0	9	1	0	0	0	0	0
EMB-OTHER	2	0	2	0	0	0	0	0	0
EMB-PZA-OTHER	2	0	2	0	0	0	0	0	0
INH--EMB--OTHER	6	0	6	0	0	0	0	0	0
INH-EMB-PZA-OTHER	9	0	9	0	0	0	0	0	0
INH-OTHER	3	0	3	0	0	0	0	0	0
INH-PZA-OTHER	5	0	4	0	1	0	0	0	0
INH-RMP-EMB--OTHER	9	3	5	1	0	0	0	0	0
INH-RMP-EMB-PZA-OTHER	40	4	34	0	0	1	1	0	0
INH-RMP--OTHER	4	1	2	1	0	0	0	0	0
INH-RMP--PZA-OTHER	23	6	16	1	0	0	0	0	0
RMP-EMB--OTHER	6	1	3	2	0	0	0	0	0
RMP-EMB-PZA-OTHER	13	3	8	1	0	1	0	0	0
RMP-OTHER	2	1	0	1	0	0	0	0	0
RMP--PZA-OTHER	6	1	4	0	1	0	0	0	0
OTHER	1	0	1	0	0	0	0	0	0
Unknown	655	0	486	103	18	9	20	8	11

TABLE 26: Treatment outcome status by major mode of treatment – Canada: 2008

MAJOR MODE OF TREATMENT	CANADA	TREATMENT OUTCOME							
		Cure	Treatment completed without culture	Death during treatment	Transferred	Absconded	Treatment Ongoing	Other	Unknown
DOT (daily or intermittent)	939	168	653	60	19	8	14	6	11
Daily, self-administered	538	28	467	16	8	7	8	3	1
Other	74	3	36	28	1	2	2	2	0
Unknown	91	16	18	39	3	3	1	1	10
TOTAL	1642	215	1174	143	31	20	25	12	22

TABLE 27: Treatment outcome status by compliance estimate – Canada: 2008

ADHERENCE ESTIMATE	CANADA	TREATMENT OUTCOME							
		Cure	Treatment completed without culture	Death during treatment	Transferred	Absconded	Treatment Ongoing	Other	Unknown
< 50%	19	1	2	6	1	5	0	4	0
50–79%	73	5	54	3	0	4	1	2	4
> =80%	1409	186	1095	78	25	4	13	4	4
Unknown	141	23	23	56	5	7	11	2	14
TOTAL	1642	215	1174	143	31	20	25	12	22

TABLE 28: Initial and acquired drug resistance by origin and activity status – Canada: 2008

DRUG PATTERN	TOTAL	ACTIVITY STATUS									
		New				Relapse				Unknown	
		Canadian born	Non-Aboriginal	Foreign-born	Unknown	Canadian born	Non-Aboriginal	Foreign-born	Unknown	Canadian born	Non-Aboriginal
		Aboriginal				Aboriginal				Aboriginal	
Total Postive Culture	1326	253	168	783	7	22	10	59	1	2	2
Resistance Pattern Unknown	8	3	3	2	0	0	0	0	0	0	0
No Resistance	1211	246	152	703	7	21	10	50	1	2	1
Initial Resistance to one or more drugs first line drugs	107	4	13	78		1		9		1	1
Monoresistance											
INH	77	3	8	61	0	0	0	4	0	1	0
EMB	1	0	0	1	0	0	0	0	0	0	0
RMP	2	1	0	0	0	1	0	0	0	0	0
PZA	6	0	4	2	0	0	0	0	0	0	0
Total monoresistance	86	4	12	64	0	1	0	4	0	1	0
Multi-drug resistance (MDR-TB)*											
INH & RMP	7	0	0	4	0	0	0	3	0	0	0
INH & RMP & EMB	0	0	0	0	0	0	0	0	0	0	0
INH & RMP & PZA	1	0	0	1	0	0	0	0	0	0	0
INH & EMB & RMP & PZA	6	0	1	3	0	0	0	1	0	0	1
Total MDR-TB	14	0	1	8	0	0	0	4	0	0	1
Extensively drug-resistant (XDR_TB)											
INH & RMP & EMB & CAP & OFLOX	0	0	0	0	0	0	0	0	0	0	0
Total XDR-TB	0	0	0	0	0	0	0	0	0	0	0
Other Patterns											
INH & EMB	1	0	0	1	0	0	0	0	0	0	0
INH & EMB & PZA	2	0	0	2	0	0	0	0	0	0	0
INH & EMB	4	0	0	3	0	0	0	1	0	0	0
TOTAL	7	0	0	6	0	0	0	1	0	0	0
Monoresistance											
INH	2	0	0	2	0	0	0	0	0	0	0
Total Acquired resistance	2	0	0	2	0	0	0	0	0	0	0

* Multidrug-resistant TB (MDR-TB) is resistance to at least isoniazid and rifampin.

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

All provinces and territories voluntarily submit their case and outcome data to the Agency. Case data for 5 of the 13 jurisdictions (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 jurisdictions submit outcome results on paper forms.

REFERENCE PERIOD

This report presents summary statistics for active TB cases (new and re-treatment) reported to the Agency for the period between January 1, 2009, and December 31, 2009. Outcomes reported here are for cases from the period between January 1, 2008, and December 31, 2008. For federal surveillance purposes, TB cases are counted by the date that the reporting jurisdiction confirmed the individual had TB. This is a change from previous years where cases were determined on the basis of the diagnosis date. Some jurisdictions had 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 between the reporting of cases at both the provincial/territorial and federal levels.

Tables 1 through 4 present historical counts and rates for the years 1999 to 2009 inclusive. Updates necessitated by late reporting will be reflected in subsequent reports.

DATA QUALITY AND VALIDATION

Prior to analysis and report preparation, 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 to previously reported data 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.

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 errors (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 the Agency 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 the Agency 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.

Provinces and territories do not always report outcomes for all cases. However, reporting is improving and the percentage of outcomes reported in 2009 or 2008 cases was over 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 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 the total Canadian, total provincial and territorial, and total Canadian-born Aboriginal, Inuit and Métis sub-populations were derived from official and custom census products from Statistics Canada, Demography Division.⁶

Current and historical incidence rates for the Status (registered) Indian population are based on population projections from Aboriginal Affairs and Northern Development Canada.⁷ 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 other origin groups.

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. Therefore, federal level rates for the Métis may be inflated and need to be interpreted cautiously.

Incidence rates in the foreign-born population from 2001 onward are based on population estimates derived from the Canadian census. 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 (WPR). Because EME and CEUR have similarly high per capita income levels and low tuberculosis incidence rates, the results for these two regions are combined.

⁶ Statistics Canada, Demography Division, Demographic, Estimates Section, Population estimates 0–90+, July, Canada – Provinces/Territories 1971–2005, updated February, 2008.

⁷ Aboriginal Affairs and Northern Development Canada, adjusted Indian Register counts, 2000–2009 (2009 base)

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

$$\begin{aligned} &\text{Canadian-born non-Aboriginal} \\ &= \\ &\text{Total Canadian Population (Statistics Canada) – Foreign} \\ &\quad \text{Born (Statistics Canada) – Total Aboriginal persons} \\ &\quad \text{(Statistics Canada)} \end{aligned}$$

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 provincial and territorial case counts and rates report on each specific province and territory. 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 are suppressed in all instances where the associated population denominator falls 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 SINCE 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. canettii*], *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 non-respiratory tuberculosis (meningeal, bone, kidney, peripheral lymph nodes etc.);
- iii. pathologic or post-mortem evidence of active tuberculosis; and
- 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.⁸

NEW CASE

No documented evidence or adequate history of previously active TB.

⁸ 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

RE-TREATMENT CASE

1. a) Documented evidence or adequate history of previously active TB which was declared cured or treatment completed by current standards;
- b) At least six 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.

OR

2. a) Documented evidence or adequate history of previously active TB which cannot be declared cured or treatment completed by current standards ;
- b) Inactive for six 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.

III. 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 five 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 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 are divided into the following 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).

Non-respiratory 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 F: 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 TB 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. For 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 erythematosus {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 polyserositis

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: 2009

TABLE G: Population estimates by gender and age group, Canada and provinces/territories: 2009

MALE

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	194,329	2487	732	4720	3835	45057	72311	7909	7051	26238	23029	206	344	410
1-4	751,089	9691	2817	18092	14707	167699	291302	30592	26521	95602	90447	806	1379	1434
5-14	1,936,600	26876	8395	49682	40714	418953	772872	79838	66231	223483	241008	2018	3026	3504
15-24	2,345,201	32206	9972	62212	49064	507945	916614	90231	78253	278106	311114	2439	3823	3222
25-34	2,315,452	28940	7521	53138	45366	545014	866794	81642	68185	312833	297555	2177	3718	2569
35-44	2,409,140	35522	9498	63080	50896	545322	956965	80814	62651	282872	313395	2482	3417	2226
45-54	2,684,286	41897	11006	76735	60348	639047	1034137	93216	76872	289484	353103	3271	3368	1802
55-64	2,018,605	37753	9469	63985	52049	500267	746376	69715	58533	193156	281586	2411	2308	997
65-74	1,188,923	21280	5593	38424	30269	301418	445454	39705	35095	100153	169396	1011	752	373
75+	883,614	12991	3978	26412	20920	207685	340531	33095	31993	73742	131321	407	406	133
Total	16,727,239	249,643	68,981	456,480	368,168	3,878,407	6,443,356	606,757	511,385	1,875,669	2,211,954	17,228	22,541	16,670

FEMALE

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	185,630	2420	747	4479	3558	43309	68847	7619	6879	25213	21643	173	363	380
1-4	712,650	9087	2750	17315	13863	160171	276481	29015	25348	90569	84687	695	1299	1370
5-14	1,835,419	25602	7943	47561	38220	398832	734797	75354	62894	210128	225732	1954	3141	3261
15-24	2,226,897	31075	9751	61951	46384	485221	878479	86018	73714	256417	289209	2200	3444	3034
25-34	2,289,937	30080	8262	58001	46191	521904	890602	78877	67538	279397	300588	2261	3706	2530
35-44	2,372,375	37984	9398	65420	52316	520123	961759	78760	61700	258881	318081	2707	3080	2166
45-54	2,677,905	43242	11596	79695	62894	636386	1032167	89820	76982	275328	362013	3078	3199	1505
55-64	2,084,944	38762	9751	66196	53399	521827	781562	71330	57995	188979	290415	2107	1764	857
65-74	1,298,657	22256	6119	41737	32207	333104	496136	43873	37789	106432	177206	800	656	342
75+	1,318,037	18711	5921	41458	32783	327607	508541	51760	47101	104686	178419	480	445	125
Total	17,002,451	259,219	72,238	483,813	381,815	3,948,484	6,629,371	612,426	517,940	1,796,030	2,247,993	16,455	21,097	15,570

TOTAL

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	379,959	4907	1479	9199	7393	88366	141158	15528	13930	51451	44672	379	707	790
1-4	1,463,739	18778	5567	35407	28570	327870	567783	59607	51869	186171	175134	1501	2678	2804
5-14	3,772,019	52478	16338	97243	78934	817785	1507669	155192	129125	433611	466740	3972	6167	6765
15-24	4,572,098	63281	19723	124163	95448	993166	1795093	176249	151967	534523	600323	4639	7267	6256
25-34	4,605,389	59020	15783	111139	91557	1066918	1757396	160519	135723	592230	598143	4438	7424	5099
35-44	4,781,515	73506	18896	128500	103212	1065445	1918724	159574	124351	541753	631476	5189	6497	4392
45-54	5,362,191	85139	22602	156430	123242	1275433	2066304	183036	153854	564812	715116	6349	6567	3307
55-64	4,103,549	76515	19220	130181	105448	1022094	1527938	141045	116528	382135	572001	4518	4072	1854
65-74	2,487,580	43536	11712	80161	62476	634522	941590	83578	72884	206585	346602	1811	1408	715
75+	2,201,651	31702	9899	67870	53703	535292	849072	84855	79094	178428	309740	887	851	258
Total	33,729,690	508,862	141,219	940,293	749,983	7,826,891	13,072,727	1,219,183	1,029,325	3,671,699	4,459,947	33,683	43,638	32,240

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

TABLE H: Population estimates by Canadian-born origin and foreign-born origin – Canada and provinces/territories: 2009

		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-born															
First Nations	830,681	11709	1630	17814	15078	79699	181976	120247	113940	116603	149442	7676	14712	155	
Status Indian*	832,571		34706			74,423	182,196	137,547	135,807	110,438	130,787	8,465	18,201	0	
Status Indian – On reserve	482,555		21,456			53,327	93,665	87,157	70,663	72,575	67,361	4,089	12,263	0	
Status Indian – Off reserve	350,016		13,251			21,096	88,531	50,390	65,145	37,863	63,426	4,376	5,939	0	
Non-Status**															
Inuit	57,124	5278	31	454	181	11857	1894	435	284	1321	1035	225	5339	28790	
Métis	342,791	6,398	266	3,540	4,864	17,572	56,549	66,553	51,993	80,447	49,400	638	4,513	58	
TOTAL ABORIGINAL†	1,230,596	23,385	1,927	21,808	20,123	109,128	240,419	187,235	166,217	198,371	199,877	8,539	24,564	29,003	
Non-Aboriginal‡	24,933,708	472,324	129,760	855,157	691,266	6,645,866	8,823,608	833,720	793,472	2,768,691	2,880,584	21,193	15,431	2,636	
TOTAL CANADIAN BORN	26,164,304	495,709	131,687	876,965	711,389	6,754,994	9,064,027	1,020,955	959,689	2,967,062	3,080,461	29,732	39,995	31,639	
Foreign-born⁴															
AFR-High	228,780	624	193	1685	1257	35875	112559	7863	3706	31559	33138	92	192	37	
AFR-Low	121,214	146	100	511	657	66625	39066	2599	903	6507	3948	4	142	6	
AMR	891,455	843	403	3715	2233	211925	521598	26401	4585	61790	57509	190	208	55	
EME-CEUR	2,652,964	6709	4989	37061	23426	339097	1405061	70493	30026	252809	478717	2842	1449	285	
EEUR	355,368	427	164	1394	959	75529	194808	13860	4292	27473	36244	47	164	7	
EMR	725,546	1242	444	8126	2446	168815	414215	8297	4550	57941	59215	44	183	28	
SEAR	784,190	1088	241	2984	1535	45259	489417	12868	4183	64841	161488	130	99	57	
WPR	1,805,869	2074	2998	7852	6081	128772	831976	55847	17391	201717	549227	602	1206	126	
TOTAL FOREIGN-BORN	7,565,386	13,153	9,532	63,328	38,594	1,071,897	4,008,700	198,228	69,636	704,637	1,379,486	3,951	3,643	601	
TOTAL POPULATION**	33,729,690	508,862	141,219	940,293	749,983	7,826,891	13,072,727	1,219,183	1,029,325	3,671,699	4,459,947	33,683	43,638	32,240	

* 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

⁴ SOURCE: Statistics Canada: Demography Division, Custom Product

⁵ SOURCE: Statistics Canada: Demography Division, Demographic Estimates Section, July Population Estimates, 2009 Updated Postcensal Estimate

APPENDIX IV:

WHO ESTIMATE INCIDENCE OF TB, 22 HIGH-BURDEN, 2009

COUNTRY	POPULATION	ESTIMATED		CUMULATIVE INCIDENCE (%) (REGIONAL PROPORTION OF GLOBAL TOTAL)
		ALL CASES (INCIDENT)		
		NUMBER	RATE PER 100,000	
Afghanistan	30,577,756	58,000	190	0.7
Bangladesh	147,030,145	330,000	224	4.4
Brazil	193,246,610	87,000	45	5.4
Cambodia	13,977,903	62,000	444	6.1
China	1,334,908,820	1,100,000	82	18.5
Democratic Republic of the Congo	64,204,304	210,000	327	20.9
Ethiopia	81,187,751	210,000	259	23.3
India	1,207,740,408	2,300,000	190	49.3
Indonesia	237,414,495	450,000	190	54.4
Kenya	39,462,188	120,000	304	55.8
Mozambique	22,858,607	120,000	525	57.1
Myanmar	47,601,374	180,000	378	59.1
Nigeria	154,488,072	200,000	129	61.4
Pakistan	170,494,367	390,000	229	65.8
Philippines	91,703,090	260,000	284	68.8
Russian Federation	143,064,078	150,000	105	70.5
South Africa	49,751,503	480,000	965	75.9
Thailand	68,706,122	94,000	137	77.0
Uganda	32,367,909	73,000	226	77.8
United Republic of Tanzania	43,524,738	79,000	182	78.7
Viet Nam	86,901,173	170,000	196	80.6
Zimbabwe	12,473,992	83,000	665	81.5
High-burden countries	4,273,685,405	7,206,000	169	81.5
AFR	817,045,180	2,260,687	277	25.6
AMR	923,883,420	275,596	30	3.1
EMR	584,791,516	638,260	109	7.2
EUR	893,231,620	423,943	47	4.8
SEA	1,784,957,899	3,506,720	196	39.7
WPR	1,787,620,952	1,731,797	97	19.6
GLOBAL	6,791,530,587	8,837,003	130	100.0

SOURCE: Global tuberculosis control: surveillance, planning, financing, WHO report 2011.
Geneva, World Health Organization (www.who.int/tb/country/data/download/en/index.html).

APPENDIX V: STOP-TB PARTNERSHIP TB EPIDEMIOLOGICAL REGIONS AND MEMBER COUNTRIES⁹

AFRICA, HIGH HIV PREVALENCE	AFRICA, LOW HIV PREVALENCE
(AFR HIGH)	(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
Zimbabwe	Seychelles
	Sierra Leone
	Togo

⁹ SOURCE: *Stop TB Partnership and World Health Organization. Global Plan to Stop TB 2006-2015*. Geneva, World Health Organization, 2006 (WHO/HTM/STB/2006.35).

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
Uzbekistan	Syrian Arab Republic
	Tunisia
	United Arab Emirates
	West Bank & Gaza Strip
	Yemen

ESTABLISH MARKET ECONOMIES (EME)	
Andorra	Luxembourg
Australia	Malta
Austria	Monaco
Belgium	Netherlands
Canada	New Zealand
Czech Republic	Norway
Denmark	Portugal
Finland	San Marino
France	Singapore
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
	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

CONFIDENTIAL
WHEN COMPLETED

EFFECTIVE JANUARY 2009

Province/Territory/Patient ID		2. Register case number		3. Unique identifier		4. Date of birth		5. Sex																																									
1. Reporting province/territory <input type="text"/>		<input type="text"/>		<input type="text"/>		Year <input type="text"/> Month <input type="text"/> Day <input type="text"/>		Male <input type="checkbox"/> Female <input type="checkbox"/>																																									
6. Usual residence City/Town/Village <input type="text"/>																																																	
County and Health Unit <input type="text"/>																																																	
Lives on First Nation's reserve most of the time? 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 8 <input type="checkbox"/> N/A 9 <input type="checkbox"/> Unknown																																																	
Origin																																																	
7. Canadian born? <input checked="" type="checkbox"/> N					6. Foreign-born <input checked="" type="checkbox"/> Country of birth <input type="text"/>																																												
1 <input type="checkbox"/> Status Indian (Registered) 2 <input type="checkbox"/> Métis 3 <input type="checkbox"/> Inuit 4 <input type="checkbox"/> Other Aboriginal (specify) <input type="text"/> 5 <input type="checkbox"/> Canadian born non-Aboriginal Under age 15? <input checked="" type="checkbox"/> Y Country of birth of mother <input type="text"/> Country of birth of father <input type="text"/>					Year of arrival in Canada <input type="text"/> Immigration status at the time of diagnosis: 1 <input type="checkbox"/> Canadian citizen/Permanent resident 2 <input type="checkbox"/> Refugee <input checked="" type="checkbox"/> 3 <input type="checkbox"/> Convention refugee 4 <input type="checkbox"/> Refugee claimant Temporary resident: 5 <input type="checkbox"/> Work 6 <input type="checkbox"/> Student 7 <input type="checkbox"/> Visitor 8 <input type="checkbox"/> Immigration status – Other If other, specify: <input type="text"/> 9 <input type="checkbox"/> Unknown																																												
Diagnosis																																																	
8. Date of diagnosis		ICD 9 <input type="text"/> • <input type="text"/> • <input type="text"/> • <input type="text"/> • <input type="text"/> ICD 10 <input type="text"/> • <input type="text"/> • <input type="text"/> • <input type="text"/> • <input type="text"/>																																															
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9. Chest X-Ray 1 <input type="checkbox"/> Normal 2 <input type="checkbox"/> Abnormal 3 <input type="checkbox"/> Not done 9 <input type="checkbox"/> Unknown																																																	
If abnormal <input checked="" type="checkbox"/> 1 <input type="checkbox"/> Cavitory 2 <input type="checkbox"/> Non-cavitory																																																	
Bacterial Status																																																	
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th></th> <th>Sputum</th> <th>Bronchial Wash</th> <th>GI Wash</th> <th>Node Biopsy</th> <th>Urine</th> <th>CSF</th> <th>Other</th> </tr> <tr> <td>Negative</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Positive</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Not done</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Unknown</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </table>											Sputum	Bronchial Wash	GI Wash	Node Biopsy	Urine	CSF	Other	Negative	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Positive	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Not done	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Unknown	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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	Sputum	Bronchial Wash	GI Wash	Node Biopsy	Urine	CSF	Other																																										
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Unknown	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																										
12. Case Criteria 1 <input type="checkbox"/> Culture positive 2 <input type="checkbox"/> Clinical diagnosis																																																	
13. If initial positive culture – Antibiotic resistance?																																																	
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>DRUG</th> <th>Susceptible</th> <th>Resistant</th> <th>Not done</th> <th>Unknown</th> </tr> <tr> <td>INH</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>EMB</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>RMP</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>PZA</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </table>										DRUG	Susceptible	Resistant	Not done	Unknown	INH	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	EMB	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	RMP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	PZA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>															
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Kanamycin	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																													
Capreomycin	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																													
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Rifabutin	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																													
<input type="checkbox"/> Other (specify) <input type="text"/> <input type="checkbox"/> Unknown																																																	
14. Genotyping results? 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 9 <input type="checkbox"/> Unknown																																																	
MIRU <input type="text"/> Spoligo <input type="text"/>																																																	
RFLP 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No																																																	
Treatment Details																																																	
15. Date treatment started		16. Initial drugs prescribed (check all that apply)																																															
Year <input type="text"/> Month <input type="text"/> Day <input type="text"/>		<input type="checkbox"/> INH <input type="checkbox"/> RMP <input type="checkbox"/> Streptomycin <input type="checkbox"/> Ofloxacin <input type="checkbox"/> Rifabutin <input type="checkbox"/> EMB <input type="checkbox"/> PZA <input type="checkbox"/> Kanamycin <input type="checkbox"/> Ethionamide <input type="checkbox"/> PAS <input type="checkbox"/> Capreomycin <input type="checkbox"/> PAS																																															
		<input type="checkbox"/> No drugs prescribed <input type="checkbox"/> Other (specify) <input type="text"/> <input type="checkbox"/> Unknown																																															
17. Death before or during treatment?																																																	
1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 9 <input type="checkbox"/> Unknown If yes, date of death Year <input type="text"/> Month <input type="text"/> Day <input type="text"/> 1 <input type="checkbox"/> TB was the cause of death 2 <input type="checkbox"/> TB contributed to death but was not the underlying cause 3 <input type="checkbox"/> TB did not contribute to death																																																	
TB History/Case Finding/Risk Factors/Markers																																																	
18. First episode of TB disease?																																																	
1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No <input checked="" type="checkbox"/> Y If no: Year of previous diagnosis <input type="text"/> Previous treatment with (check all antibiotics used): <input type="checkbox"/> INH <input type="checkbox"/> EMB <input type="checkbox"/> RMP <input type="checkbox"/> PZA <input type="checkbox"/> Streptomycin <input type="checkbox"/> Ofloxacin <input type="checkbox"/> Rifabutin <input type="checkbox"/> Kanamycin <input type="checkbox"/> Ethionamide <input type="checkbox"/> PAS <input type="checkbox"/> Capreomycin <input type="checkbox"/> PAS <input type="checkbox"/> Other (specify) <input type="text"/> <input type="checkbox"/> Unknown																																																	
Previous diagnosis occurred in: 1 <input type="checkbox"/> Canada 2 <input type="checkbox"/> Other country: <input type="text"/> Previous treatment completed or cured: 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 9 <input type="checkbox"/> Unknown If yes, end date of previous treatment: Year <input type="text"/> Month <input type="text"/> Day <input type="text"/>																																																	
20. Risk factors/Markers																																																	
HIV 1 <input type="checkbox"/> Positive 2 <input type="checkbox"/> Negative If positive, year of 1 st positive test <input type="text"/> If negative, year of most recent test <input type="text"/> 3 <input type="checkbox"/> Test refused 4 <input type="checkbox"/> Test not offered 5 <input type="checkbox"/> Unknown																																																	
Contact with person with active TB in past 2 years 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 9 <input type="checkbox"/> Unknown Diabetes mellitus type 1 or 2 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 9 <input type="checkbox"/> Unknown End-stage renal disease 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 9 <input type="checkbox"/> Unknown Homeless (at diagnosis or within the previous 12 months) 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 9 <input type="checkbox"/> Unknown Lives in correctional setting at time of diagnosis 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 9 <input type="checkbox"/> Unknown Long-term (> 1 month) corticosteroid use (prednisone > 15 mg/day or equivalent) 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 9 <input type="checkbox"/> Unknown Previous abnormal chest x-ray (fibronodular disease) 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 9 <input type="checkbox"/> Unknown Substance abuse (known or suspected) 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 9 <input type="checkbox"/> Unknown Transplant related immunosuppression 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 9 <input type="checkbox"/> Unknown Travel to high incidence TB country in last 2 years (in weeks) 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 9 <input type="checkbox"/> Unknown Other (specify) <input type="text"/> 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 9 <input type="checkbox"/> Unknown																																																	
19. Case finding																																																	
1 <input type="checkbox"/> Symptoms compatible with site of disease 2 <input type="checkbox"/> Incidental finding 3 <input type="checkbox"/> Post-mortem 4 <input type="checkbox"/> Contact investigation 5 <input type="checkbox"/> Immigration medical surveillance 7 <input type="checkbox"/> Occupational screening 1 <input type="checkbox"/> Initial immigration medical exam done outside Canada 8 <input type="checkbox"/> Other screening 2 <input type="checkbox"/> Initial immigration medical exam done inside Canada 9 <input type="checkbox"/> Other (specify) <input type="text"/> 10 <input type="checkbox"/> Unknown																																																	



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		5. Sex	
						Year Month Day		Male Female 1 2	
6. If transfer from diagnosing province/territory, please state treating province/territory				7. Register case number <i>(if different from 2 above)</i>			8. Unique identifier <i>(if different from 3 above)</i>		
9. Date of diagnosis				10. Date treatment started			11. Last day of treatment		
Year Month Day				Year Month Day			Year Month Day		
12. Initial drugs prescribed (<i>list all that apply</i>)									
<input type="checkbox"/> INH <input type="checkbox"/> EMB <input type="checkbox"/> RMP <input type="checkbox"/> PZA				<input type="checkbox"/> Streptomycin <input type="checkbox"/> Capreomycin <input type="checkbox"/> Ethionamide <input type="checkbox"/> Rifabutin <input type="checkbox"/> Kanamycin <input type="checkbox"/> Ofloxacin <input type="checkbox"/> PAS					
<input type="checkbox"/> No drugs prescribed <input type="checkbox"/> Other (<i>specify</i>) _____				<input type="checkbox"/> Unknown					
13. Did resistance develop during treatment?				14. What was the treatment outcome? (<i>Check one only</i>)					
1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 3 <input type="checkbox"/> Not tested				1 <input type="checkbox"/> Cure – negative culture at completion of treatment*					
↓				2 <input type="checkbox"/> Treatment completed – without culture at end of treatment*					
If yes, please check drug(s) (<i>check all that apply</i>)				3 <input type="checkbox"/> Death before or during treatment					
<input type="checkbox"/> INH <input type="checkbox"/> EMB <input type="checkbox"/> RMP <input type="checkbox"/> PZA				Date of death Year Month Day					
<input type="checkbox"/> Streptomycin <input type="checkbox"/> Ofloxacin <input type="checkbox"/> Rifabutin				1 <input type="checkbox"/> TB was the cause of death					
<input type="checkbox"/> Kanamycin <input type="checkbox"/> Ethionamide				2 <input type="checkbox"/> TB contributed to death but was not the underlying cause					
<input type="checkbox"/> Capreomycin <input type="checkbox"/> PAS				3 <input type="checkbox"/> TB did not contribute to death					
<input type="checkbox"/> Other (<i>specify</i>) _____				4 <input type="checkbox"/> Transferred to new country – outcome of treatment unknown (<i>specify new country</i>) _____					
<input type="checkbox"/> Unknown				5 <input type="checkbox"/> Failure – continued or recurrent positive cultures after 4 or more months of treatment					
				6 <input type="checkbox"/> Absconded (<i>lost to follow-up before completion of 80% of doses</i>)					
				7 <input type="checkbox"/> Treatment ongoing					
				8 <input type="checkbox"/> Other (<i>specify</i>) _____					
				9 <input type="checkbox"/> Unknown					
15. Treatment regimen (<i>for drugs taken ≥ 1 month</i>) (<i>check all that apply</i>)				16. Major mode of treatment:					
<input type="checkbox"/> INH <input type="checkbox"/> EMB <input type="checkbox"/> RMP <input type="checkbox"/> PZA				1 <input type="checkbox"/> Modified					
<input type="checkbox"/> Streptomycin <input type="checkbox"/> Ofloxacin <input type="checkbox"/> Rifabutin				2 <input type="checkbox"/> Standard					
<input type="checkbox"/> Kanamycin <input type="checkbox"/> Ethionamide				3 <input type="checkbox"/> Enhanced					
<input type="checkbox"/> Capreomycin <input type="checkbox"/> PAS				4 <input type="checkbox"/> DOT (<i>Directly Observed Therapy</i>)					
<input type="checkbox"/> No drugs prescribed <input type="checkbox"/> Unknown				5 <input type="checkbox"/> Daily, self-administered					
<input type="checkbox"/> Other (<i>specify</i>) _____				6 <input type="checkbox"/> Other (<i>specify</i>) _____					
				7 <input type="checkbox"/> Unknown					
				17. Adherence estimate (% of medication received)					
				1 <input type="checkbox"/> 80%+ 2 <input type="checkbox"/> 50-79%					
				3 <input type="checkbox"/> < 50% 9 <input type="checkbox"/> Unknown					