



Conditions and diseases

H *Health status and, in particular, the existence of health problems can be ascertained directly, by probing for the existence of specific conditions such as depression (Topic 75) or being overweight (Topic 67), or indirectly, by inference from the use of health services, such as rates of psychiatric hospitalization (Topic 76). This section reports on a range of specific conditions and diseases, using data from administrative and survey sources. The administrative sources provide direct as well as indirect evidence of conditions, the most complete and consistent being the registries of congenital defects (Topic 65), notifiable diseases (Topics 69–72), and cancer (Topic 73), along with the routine administrative reports of pregnancy outcomes (Topic 64). The data also vary between person level (all survey and registry sources) and condition level, where an administrative record is based on an event such as a hospital discharge (e.g., causes of hospitalization, Topics 76 and 77).*

Overview

Some of these indicators of health problems that have been tracked for a decade or more reveal clear improvements: fewer congenital anomalies (Topic 65), sexually transmitted diseases (Topic 70), new AIDS cases (Topic 71), and male cancer deaths (Topic 73) and less coronary heart disease and stroke (Topic 74). Others, such as low birth weight and teen pregnancies (Topic 64), declined until 1993 and may have increased subsequently. Other trends are negative: increased prevalence of overweight population (Topic 67), more allergies (Topic 68), a levelling off of the decline in tuberculosis (Topic 71), and stubborn cancer death rates for women (Topic 73). Still others defy easy interpretation: more abortions (Topic 66), more psychiatric patient-days but fewer cases (Topic 76), and reduced rates of overall hospitalization (Topic 77).

Only very limited detail on personal characteristics is available for this set of indicators. Depression and being overweight are both known to be inversely associated with education and income, but the existence of a social status gradient in the other indicators is only suspected.

Disparities among the provinces/territories in these health conditions are more demonstrable, and some of these are substantial: differences of 40–50%

between the lowest- and highest-ranked in low birth weight, probable health risk associated with being overweight, and new male cancer cases and a 100% difference in chlamydia rates. Variations in hospitalization rates are also marked (66–80%), although these do not necessarily reflect corresponding differences in health status.

On data sources and gaps

The strength of this section of indicators is their diversity and coverage of many aspects of health; their shortcoming is the impossibility of summarizing them. It should be clear that the more direct measures are preferable as indicators of health status, and that the statistics originating from the health care system may reflect more than health status. As an (extreme) example, it seems unlikely that the *89-fold* difference in rates of therapeutic abortion between the Northwest Territories and Prince Edward Island (Topic 66) accurately indicates the relative incidence of unwanted pregnancies. More likely, this reflects the availability of a specific service. In contrast, data from registries and surveys are relatively unambiguous and thus should receive more weight in assessing the population's health. There are no long-term care data in this section, as they do not exist on a national basis.

Teen pregnancy and underweight births

Introduction

The weight of infants at birth is a principal determinant of their chances for survival and good health. Low birth weight (less than 2,500 grams) can result in mental and physical disabilities and, in the most extreme cases, death (Topic 78). Over half of low birth weights are due to premature births (before the 37th week). The rest are due to lack of nourishment *in utero*, preeclampsia (pregnancy-induced hypertension), or heavy smoking by the mother during pregnancy (see Topics 36 and 40). Low birth weights are also clustered among the youngest and oldest mothers. This topic therefore presents data on both underweight births and teen pregnancy. Not only is young parenthood a risk to the newborn, but it also increases the chances of single-parent status (Topic 2) and the low income that single-parent status often implies (Topic 6).

Incidence of underweight births and teen pregnancy, 1996

In 1996, 5.8% of all infants born alive were underweight. This amounts to 21,025 low birth weight newborns (Table 64).^{1,2} About 5.3% of boys were born with a low birth weight, compared with 6.2% of girls.²

From 1970 to 1993, the prevalence of underweight births declined fairly steadily, from 7.1% of all male infants and 8.6% of all female infants in 1970 to the current levels (Fig. 64a).^{2,3} There has consistently been a higher percentage of female newborns than male newborns under 2,500 grams. Until 1993, there had been little change in the rate of low birth weights since the early 1980s. However, the proportion of low birth weight babies increased for three consecutive years before returning to the 1993 level in 1996.¹

In 1996, Canada was in the middle of other industrialized countries in terms of underweight births (Fig. 64b),^{2,4} as reported by the OECD. Finland had the lowest percentage of births below 2,500 grams (4.1%), while Japan had the highest (7.5%).

There were 38,502 teenage pregnancies (births, abortions, and stillbirths) in 1995.^{2,5} Although the totals have increased slightly since a low of 34,584 pregnancies in 1993, they are still below teen pregnancy levels from 1975 to 1984 (Fig. 64c).^{3,5} Similarly, teen births and abortions (see also Topic 66) have rebounded from their recent respective lows, but are below their historic highs. This is especially true of teen *births*, which in 1995 were at 60% of the level of 20 years earlier.

Differences among groups

Low birth weights are more common among very young or older mothers (Table 64). Mothers less than 15 years of age and 45 and older were almost twice as likely as the average Canadian woman to have an underweight newborn.

There were some differences in low birth weight by province/territory. The variation in percentage of underweight births ranged from a low of 4.3% (Yukon) to a high of 6.1% (Newfoundland and Alberta) (Table 64).¹

In 1995, there were 621 pregnancies of young women age 13–14, 13,498 for age 15–17, and 24,383 for age 18–19 (Fig. 64d).^{2,5} The number of pregnancies for age 13–14 decreased slowly from the mid-1970s to a low of 573 in 1988; since then, it has remained at around 600 pregnancies per year. Pregnancies among women age 15–17 and age 18–19 have followed a similar trend over this time period, although with much higher numbers.

On definitions and methods

The standard definition of low birth weight newborns is infants who are born weighing less than 2,500 grams (5.5 pounds).⁶ The average full-term infant weighs 3,400 grams (7.5 pounds). The original source for birth weight is the birth certificate.

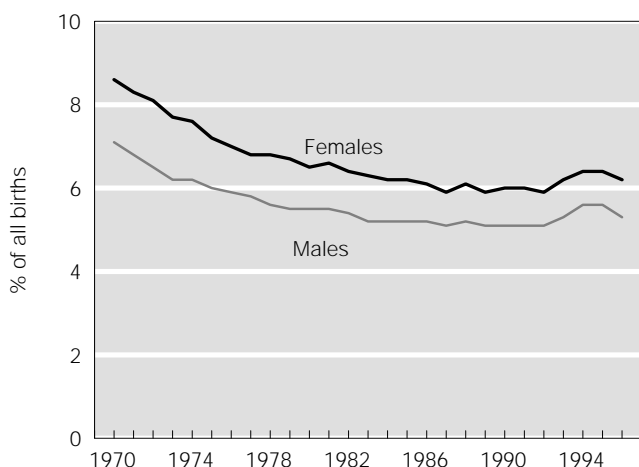
Teen pregnancy data came from *Health Indicators, 1996*⁵ as well as special tabulations from the Health Statistics Division of Statistics Canada². The number of pregnancies each year was determined by adding the number of births, abortions, and stillbirths (after 20 weeks of gestation).

2. Statistics Canada, Health Statistics Division. Special tabulations.
3. Statistics Canada. *Births and Deaths, 1995*.
4. Organisation for Economic Co-operation and Development. *OECD Health Data 98* (CD-ROM).
5. Statistics Canada, Health Statistics Division. *Health Indicators, 1999* (Statistics Canada Cat. No. 82-221-XCB).
6. Statistics Canada. *Compendium of Vital Statistics 1996*. Ottawa: Statistics Canada, 1999 (Statistics Canada Cat. No. 84-214-XPE).

References

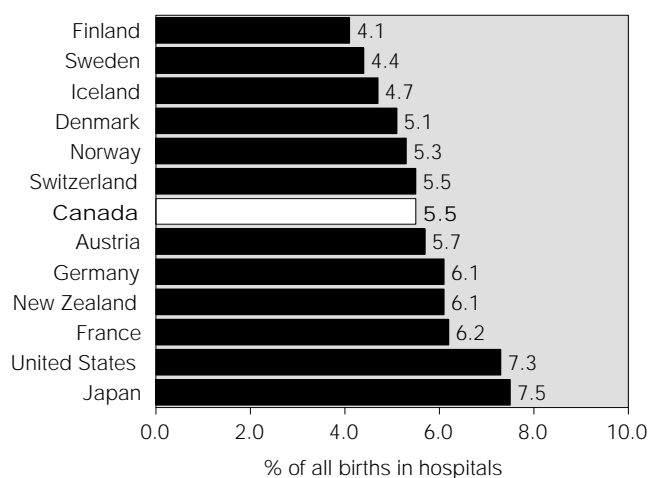
1. Statistics Canada. Births 1996. *The Daily*, July 8, 1998 (Statistics Canada Cat. No. 11-001-XIE). See the Statistics Canada Internet site: www.statcan.ca.

Figure 64a. Births less than 2,500 grams, by sex, Canada, 1970–1996



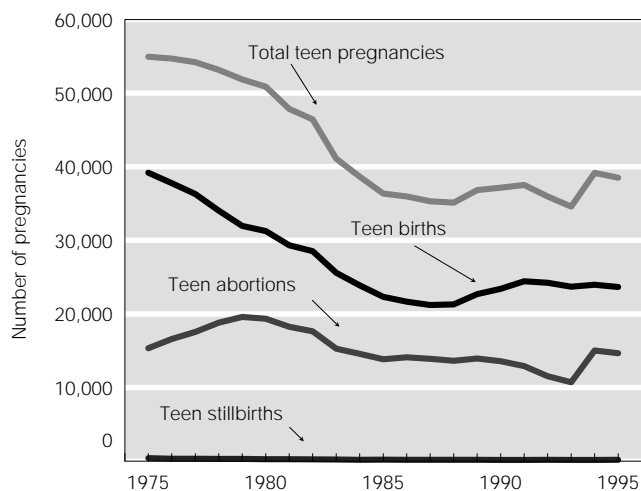
Sources: Statistics Canada, Health Statistics Division, *Births and Deaths, 1995*; Statistics Canada, Health Statistics Division, special tabulations (for 1996 data).

Figure 64b. Births less than 2,500 grams, selected OECD countries, 1995



Sources: Organisation for Economic Co-operation and Development, *OECD Health Data 98* (CD-ROM); Statistics Canada, Health Statistics Division, special tabulations.

Figure 64c. **Teenage pregnancies, age 13–19, Canada, 1975–1995**



Sources: Statistics Canada, Health Statistics Division, *Health Indicators, 1999* (Statistics Canada Cat. No. 82-221-XCB); Statistics Canada, Health Statistics Division, *Births and Deaths, 1995*.

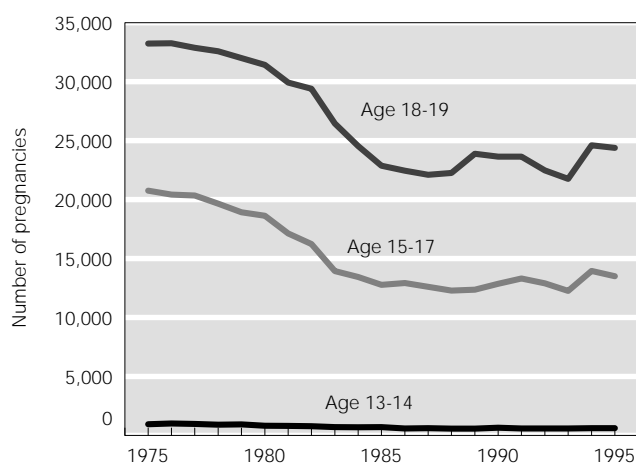
Table 64. **Low birth weight newborns, by age of mother and by province/territory, age 10+, Canada, 1996**

	Number of births <2,500 grams	% of all live births
Total, age 10+	21,025^a	5.8
Age 10–14	21	9.3
Age 15–19	1,516	7.0
Age 20–24	3,934	5.9
Age 25–29	6,107	5.3
Age 30–34	6,195	5.6
Age 35–39	2,730	6.4
Age 40–44	487	8.1
Age 45+	23	10.0
Newfoundland	349	6.1
Prince Edward Island	90	5.3
Nova Scotia	571	5.4
New Brunswick	419	5.1
Quebec	4,920	5.9
Ontario	8,361	6.0
Manitoba	845	5.5
Saskatchewan	664	5.0
Alberta	2,300	6.1
British Columbia	2,401	5.2
Yukon	19	4.3
Northwest Territories	86	5.5

^a Births excluded in age groupings where age of mother is unknown.

Sources: Statistics Canada, *Births 1996, The Daily*, July 8, 1998 (Statistics Canada Cat. No. 11-001-XIE); Statistics Canada, Health Statistics Division, special tabulations.

Figure 64d. **Teen pregnancies, by age, age 13–19, Canada, 1975–1995**



Sources: Statistics Canada, Health Statistics Division, *Health Indicators, 1999* (Statistics Canada Cat. No. 82-221-XCB); Statistics Canada, Health Statistics Division, special tabulations.

Stillbirths and birth defects

Introduction

In addition to the possibility of infertility, couples contemplating a family must consider the potential of a birth defect or stillbirth. Although the odds for a normal birth are overwhelming, stillbirths and anomalies are not unknown in modern-day Canada.

This topic presents data on the incidence of both stillbirths and congenital anomalies (see also Topic 78 on perinatal mortality).

Incidence of stillbirths and birth defects, 1995

There were 1,844 stillborn fetuses in 1995, or 65.4 for every 10,000 births (Table 65).¹ Among the children born, there were 13,629 anomalies, which is 483.5 for every 10,000 births. This rate is the lowest recorded since surveillance began in 1989 (Fig. 65a).¹

By far the most common anomalies are musculoskeletal (130.6 per 10,000 births) and congenital heart defects (78.8 per 10,000). Other forms of anomaly are relatively rare (Fig. 65b).¹ The most frequent musculoskeletal defects are congenital dislocation of the hip and clubfoot (Fig. 65c),¹ each of which is more common than anomalies of the digestive system, genital organs, and central nervous system and Down's syndrome (Table 65).

There are no adequate international data with which to compare the Canadian situation.

Differences among groups

The only breakdown available for stillbirths and birth defects from this surveillance system is by province/territory (Table 65). Excluding Yukon, which reported no stillbirths in 1995, provincial/territorial rates range

from a low of 31.3 per 10,000 in the Northwest Territories to a high of 78.2 per 10,000 in Manitoba and 70.4 per 10,000 in Prince Edward Island — that is, double the rate from the highest to the lowest. Total anomalies are lowest in New Brunswick (326.7 per 10,000) and Alberta (343.3 per 10,000), although the Northwest Territories (359.7 per 10,000) and Prince Edward Island (404.7 per 10,000) are also substantially below the Canadian average of 483.5 per 10,000. In 1995, birth defects were most often reported in Newfoundland (800.6 per 10,000). Manitoba (633.0 per 10,000) and Saskatchewan (608.2 per 10,000) were also well above the Canadian average.

On definitions and methods

Data on stillbirths and births for the provinces of Alberta and Manitoba were obtained from Statistics Canada; data for all other provinces and territories were obtained from the Canadian Institute for Health Information. Data on birth defects in Alberta were obtained from the Alberta Congenital Anomalies Surveillance System, and in Manitoba from their Hospitalisation Database; for all other provinces and territories, the data were obtained from the Canadian Institute for Health Information. These data are compiled by the Canadian Congenital Anomalies Surveillance System in the Laboratory Centre for Disease Control at Health Canada. The provinces of Nova Scotia and Quebec are not included because their birth coverage by the Canadian Institute for Health Information is not comprehensive.

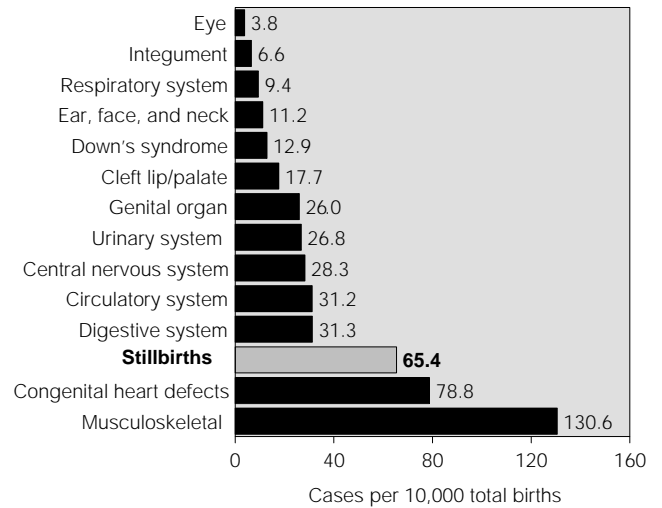
The designation of province/territory reflects the place of birth, not the mother's place of residence; thus, interprovincial/territorial migration in the event of a difficult pregnancy or suspected anomaly could affect rates between neighbouring jurisdictions — for example, British Columbia and Yukon.

Data used in this topic should not be confused with those collected by the provincial/territorial vital statistics registries, which may differ somewhat from these figures.

References

1. Health Canada, Laboratory Centre for Disease Control, Canadian Congenital Anomaly Surveillance System. *Birth Defect Prevalences in Canada, 1995*. Ottawa: Health Canada, 1997.

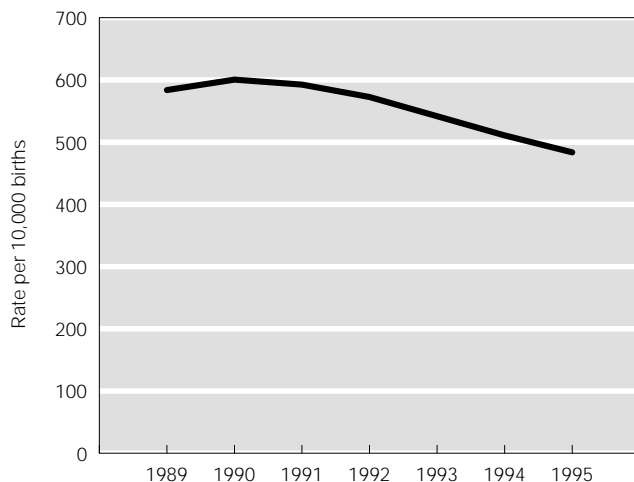
Figure 65b. **Birth defects and stillbirths, Canada,* 1995**



* Excluding Nova Scotia and Quebec.

Source: Health Canada, Laboratory Centre for Disease Control, Canadian Congenital Anomaly Surveillance System, *Birth Defect Prevalences in Canada, 1995*, Ottawa: Health Canada, 1997.

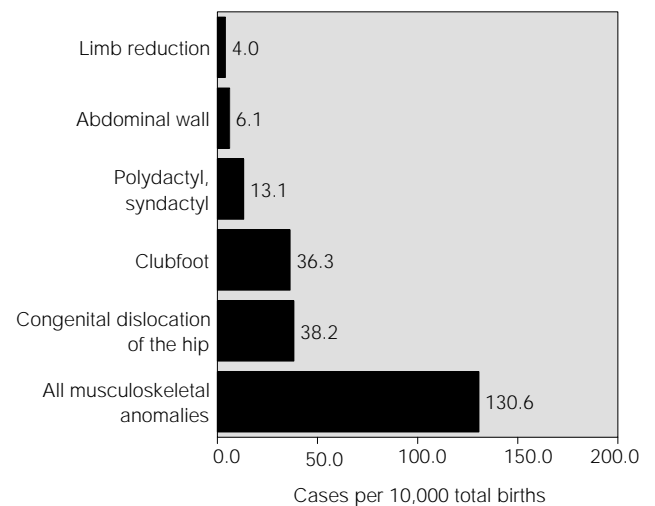
Figure 65a. **Total birth anomalies, Canada,* 1989–1995**



* Excluding Nova Scotia and Quebec.

Source: Health Canada, Laboratory Centre for Disease Control, Canadian Congenital Anomaly Surveillance System, *Birth Defect Prevalences in Canada, 1995*, Ottawa: Health Canada, 1997.

Figure 65c. **Musculoskeletal anomalies, by type, Canada,* 1995**



* Excluding Nova Scotia and Quebec.

Source: Health Canada, Laboratory Centre for Disease Control, Canadian Congenital Anomaly Surveillance System, *Birth Defect Prevalences in Canada, 1995*, Ottawa: Health Canada, 1997.

Table 65. **Incidence of stillbirths and birth defects per 10,000 total births, by province/territory,^a Canada, 1995**

	Stillbirths		Total anomalies		Rate per 10,000 births					
	Number	Rate per 10,000 births	Number	Rate per 10,000 births	Musculo-skeletal	Heart	Digestive	Genital	Central nervous system	Down's syndrome
Canada, total	1,844	65.4	13,629	483.5	130.6	78.8	31.3	26	28.3	12.9
Newfoundland	26	44.8	465	800.6	229.0	142.9	65.4	24.1	58.5	20.7
P.E.I.	12	70.4	69	404.7	93.8	134.9	17.6	29.3	5.9	17.6
New Brunswick	31	35.3	287	326.7	66.0	75.1	36.4	19.4	30.7	9.1
Ontario	978	65.8	6,878	462.6	111.4	80.8	32.6	25.8	27.6	11.0
Manitoba	127	78.2	1,028	633.0	176.1	86.8	27.7	38.8	33.9	13.5
Saskatchewan	78	60.6	783	608.2	156.1	117.3	35.0	17.1	41.9	12.4
Alberta	262	66.9	1,345	343.3	92.4	44.9	17.9	19.4	19.7	12.0
British Columbia	326	69.5	2,706	577.1	201.3	77.8	33.9	31.6	28.6	19.4
Yukon	0	0	22	540.5	319.4	73.7	0	98.3	0	0
N.W.T.	4	31.3	46	359.7	93.8	86.0	39.1	7.8	31.3	0

^a Of reporting institution, not necessarily of patient's residence.

Source: Health Canada, Laboratory Centre for Disease Control, Canadian Congenital Anomaly Surveillance System, *Birth Defect Prevalences in Canada, 1995*, Ottawa: Health Canada, 1997.

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Therapeutic abortions

Introduction

Abortion is a sensitive issue, and public opinion is sharply divided on it. Numbers and rates of induced (therapeutic) abortion are useful measures of available abortion facilities and the extent of induced pregnancy terminations for health and other reasons. This topic describes the number of Canadian abortions, rates per 100 live births, and rates per 1,000 women age 15–44.

Incidence of abortion, 1995

In 1995, 70,549 Canadian women had therapeutic abortions in hospitals. Another 35,650 abortions were performed in clinics in seven provinces, and 459 abortions on Canadian women were reported from the United States. The total abortion rate per 100 live births was 28.2 (Fig. 66a).¹ The rates for hospital therapeutic abortions were 18.7 per 100 live births and 10.3 per 1,000 women age 15–44 (Table 66).¹

Following amendments to abortion laws in 1969, the numbers and rates of therapeutic abortions increased significantly from 1970 to 1982: abortions increased from 11,152 to 75,071 (data not shown), and the abortion rate per 100 live births in hospitals increased from 3.0 to 17.8 (Fig. 66a). In 1983, both the numbers and rates of abortions dropped by about 8% and remained stable for the next couple of years. This was followed by increases in the following eight years, accentuated by an increased number of clinical abortions between 1989 and 1995. The year-to-year abortion rate increases have slowed since 1993 in hospitals. Although total abortions and the abortion rate both reached all-time highs in 1995, the total hospital abortions declined for the second consecutive year after peaking in 1993 at 72,434.²

The number and rate of abortions rose substantially after 1989, primarily because of those performed in clinics. The first abortion clinics were

opened in Quebec in 1978. Before the January 1988 Supreme Court decision to strike down the 1969 abortion law, abortion clinics operated only in Quebec.² By the end of 1994, abortion clinics were operating in all provinces except Prince Edward Island and Saskatchewan (but not in the two territories).² By 1995, almost one-third of the total abortions were performed in the clinics of the eight provinces, up from one-quarter in 1991.² The increase in clinical abortions may partly explain the decrease in those performed in hospitals and in those taking place in the United States (Fig. 66a).¹

There are no recent data available for international comparisons.

Differences among groups

As a proportion of all abortions, the number of teenage abortions decreased significantly between 1975 and 1995. Abortions in Canadian hospitals for girls less than 15 years of age accounted for just over 1% of the total abortions in 1975 and only 0.5% of the total in 1995. The decrease was even more marked among teens age 15–19, falling from a high of 30% of all abortions in Canadian hospitals in 1975 to a low of 19% in 1992 and 1993.¹ The level for teens peaked in 1979 at about 19,757 hospital abortions and declined to a low of 13,939 in 1995 (Fig. 66b).¹

The incidence of abortion is highly variable among the non-teenage groups. About 50% of women who received abortions were in their 20s (Table 66). In fact, women most likely to have received a hospital abortion in 1995 were single, in their 20s, and with at least one baby.² While only 38% of women having hospital abortions in 1985 had had at least one previous delivery, the proportion increased to 50% in 1995.² While the proportion of married women having hospital abortions in 1995 was about the same as in 1985 and the proportion of single women

receiving abortions fell from 67% to 63% over that same time period, the proportion of common-law, separated, divorced, or widowed women receiving abortions increased from 11% in 1985 to 16% in 1995.³ In abortion clinics, the average woman was single, with no previous delivery, and with at least one prior induced abortion.

There are striking interprovincial/territorial differences in hospital abortion rates. They are lowest in Prince Edward Island, which is not surprising, since there are no facilities for therapeutic abortions in this province. Newfoundland, New Brunswick, and Saskatchewan all have hospital abortion rates that fall well below the national average. Quebec, Ontario, and Yukon all have higher than average abortion rates per 100 live births, while the Northwest Territories is also well above average in rates per 1,000 women (Table 66). British Columbia experienced the largest decline in hospital abortions (a drop of 12%) from 1994 to 1995,¹ to fall just below the national average in both rate per 100 live births and rate per 1,000 women age 15–44.

On definitions and methods

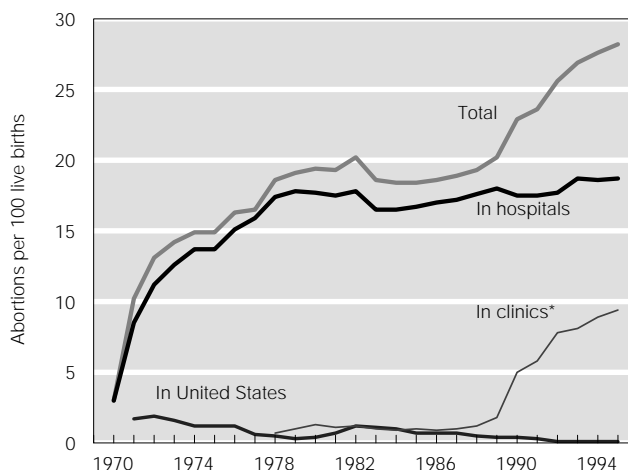
Although Table 66 shows abortions for women under 15 years of age and 40 and over, the conventional basis for rates is to calculate the abortions as a proportion of women age 15–44, arbitrarily defined as the childbearing years.

Interprovincial/territorial comparisons are complicated by differences in the availability of independent clinics, ease of travel to the United States, and other local factors. The data for hospital abortions should not be taken as a simple reflection of all abortion activity in any given jurisdiction. Similarly, international comparisons are complicated by differences in laws and access to facilities. They are not shown here, as the most recent international data are for 1987.

References

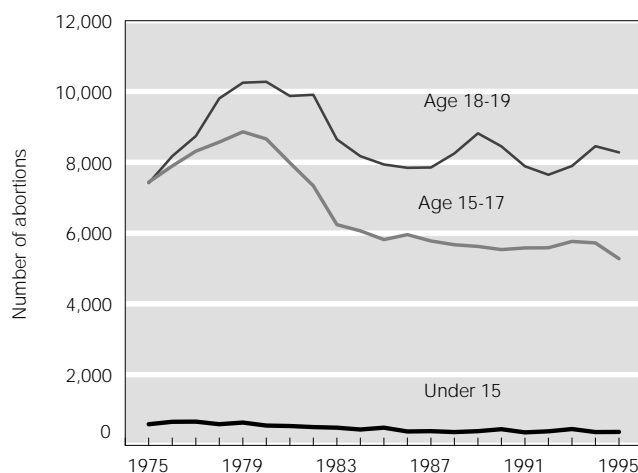
1. Statistics Canada. *Therapeutic Abortions, 1995* (Statistics Canada Cat. No. 82-219-XPB).
2. Statistics Canada. *Therapeutic abortions 1995. The Daily*, November 5, 1997 (Statistics Canada Cat. No. 11-001-XIE). See the Statistics Canada Internet site: www.statcan.ca.
3. Wadhera S, Millar WJ. Marital status and abortion. *Health Reports* 1997; 9(3): 19–26 (Statistics Canada Cat. No. 82-003-XPB).

Figure 66a. Therapeutic abortions, Canadian residents, 1970–1995



* For 1978–1989, information pertains to Quebec only. For 1990, clinics in Newfoundland, Nova Scotia, Quebec, Ontario, Manitoba, and British Columbia are included. Alberta clinics are added in 1991–1995 data, and New Brunswick clinics are included in 1994 and 1995.
Source: Statistics Canada, *Therapeutic Abortions, 1995* (Statistics Canada Cat. No. 82-219-XPB), Table 11.

Figure 66b. Therapeutic teenage abortions in hospitals, by age,* Canada, 1975–1995



* Includes redistribution where the age of women was unknown.
Source: Statistics Canada, *Therapeutic Abortions, 1995* (Statistics Canada Cat. No. 82-219-XPB), Table 5.

Table 66. Therapeutic abortions in Canadian hospitals, by mother's age and province/territory of residence, Canada, 1995

	Therapeutic abortions			
	Number	%	Number per 100 live births	Number per 1,000 women ^a
Total	70,549	100	18.7	10.3
Age <15 ^b	381	0.5	—	1.9
Age 15–17	5,277	7.5	—	9.1
Age 18–19	8,281	11.7	—	21.3
Age 20–24	21,042	29.8	—	20.9
Age 25–29	15,352	21.8	—	13.8
Age 30–34	11,255	16.0	—	8.5
Age 35–39	6,802	9.6	—	5.3
Age 40–44 ^c	2,159	3.1	—	1.9
Newfoundland	527	0.7	9.0	3.7
Prince Edward Island	9	0.01	0.5	0.3
Nova Scotia	1,804	2.6	16.8	8.3
New Brunswick	624	0.9	7.3	3.5
Quebec	18,203	25.8	20.8	10.8
Ontario	29,093	41.2	19.9	11.3
Manitoba	2,833	4.0	17.6	11.2
Saskatchewan	1,830	2.6	13.6	8.4
Alberta	6,620	9.4	17.0	10.1
British Columbia	8,552	12.1	18.3	9.8
Yukon	128	0.2	27.2	16.1
Northwest Territories	276	0.4	17.1	26.7
Residence unknown	50	—	—	—

^a Rate per 1,000 women for the Canadian and provincial/territorial totals are for women age 15–44.

^b Rate per 1,000 women is based on females age 14 years.

^c Includes therapeutic abortions for women over 44 years of age. Rate is based on females age 40–44 years.

Source: Statistics Canada, *Therapeutic Abortions, 1995* (Statistics Canada Cat. No. 82-219-XPB), Tables 5 and 17.

Body weight

Introduction

Body weight depends on a combination of factors, including genetics, dietary practices (Topic 47), and other aspects of lifestyle, such as active living (Topic 46). Overweight and obesity are linked to a wide range of health problems, especially cardiovascular disease (Topic 74), diabetes (Topic 68), and some forms of cancer (Topic 73). While overweight and obesity are best measured with special equipment, body mass index (BMI) is an acceptable indicator of relative weight (weight for height).¹ It is also the most common indicator, because it can be derived from self-reported data, although this method tends to underestimate measured values.

Underweight, acceptable weight, and overweight, 1996–97

In 1996–97, 44% of Canadians age 20–64 were an acceptable weight for their height (BMI between 20.0 and 24.9). A significant proportion had some excess weight to the point of *possible* health risk (19% with a BMI between 25.0 and 26.9) or were overweight to the point of a *probable* health risk (29% with a BMI of 27.0 or greater). Close to one-tenth (8%) of the population were underweight (BMI less than 20.0) (Table 67).²

Since 1985, the proportion of the Canadian population between the ages of 20 and 64 that is definitely overweight has increased steadily (Fig. 67a).^{2,3,4} This is true for both men and women, although the prevalence of overweight did not increase from 1994–95 to 1996–97. Since 1985, there has been a decrease in *underweight* women but no clear trend among men; these proportions have remained low throughout the period.

The proportion of adults who are definitely overweight is greater in Canada than in Australia or

Scotland, but excess body weight is becoming more prevalent with time in all three countries as well as the United States.⁵

Differences among groups

There are significant gender differences in BMI. Women are about five times more likely than men to be underweight (14% vs. 3%) and are also substantially more likely to have an acceptable weight (49% compared with 39%). Men are almost twice as likely to have some excess weight (24% vs. 14%) and are also more likely to be definitely overweight (35% vs. 23%) to the level of probable health risk (BMI = 27.0+) (Table 67).

Age differences in BMI are striking, but not surprising. The younger age groups have a greater concentration of low or acceptable body weight than the older age groups. Twice as many Canadians age 45–64 either have some excess weight or were definitely overweight compared with Canadians age 20–24 (Table 67).² It is worth noting that the proportion of overweight Canadians age 45–54 dropped from 39% in 1994–95 to 36% in 1996–97; all other age groups between these two periods remained the same.^{2,3}

The chances of being definitely overweight decrease with each successive level of education. One and a half times as many Canadians with less than a high school education faced a probable health risk because of their weight compared with university graduates (36% and 22%, respectively) (Table 67).

When some excess weight and definite overweight are combined, the three middle income groups face a slightly higher health risk (49%) than the lower (43%) and highest (47%) income groups (Fig. 67b).² However, as income increases, there is a decreasing likelihood that excess weight constitutes probable health risk. Being definitely overweight is more common among the low-income groups.

There are large interprovincial variations in BMI, with people in British Columbia, Quebec, and Ontario most likely to have acceptable weights (47%, 45%, and 44%, respectively) (Table 67). New Brunswick has the highest prevalence of overweight (42%), while British Columbia and Quebec residents have the lowest (27%). From 1994–95 to 1996–97, New Brunswick and Nova Scotia had the highest *increase* in the number of overweight people (four and three percentage points, respectively), while there was a two percentage point *decrease* in the number of overweight people in Ontario and Manitoba.^{2,3} Compared with the national average of 8% who were underweight, women in Quebec and Ontario were twice as likely to have weights *below* acceptable levels (17% and 15%, respectively; data not shown).²

On definitions and methods

These data are from the personal interview portion of the second cycle of the *National Population Health Survey*, conducted by Statistics Canada from June 1996 to August 1997. The survey visited over 20,000 households that had also participated in the first cycle two years earlier, for a total of 16,000 respondents who provided full information; an additional 66,000 respondents (who were not part of the longitudinal panel) were also surveyed to provide detailed cross-sectional data on the in-depth health questions. The findings for this topic are based on the full sample of 82,000 respondents age 12 and older.⁶ Only non-pregnant Canadians age 20–64 were asked this question, or about 50,000 respondents.

Body mass index or BMI is calculated only for adults under age 65 with the standard formula (weight in kilograms/[height in metres, squared]) and

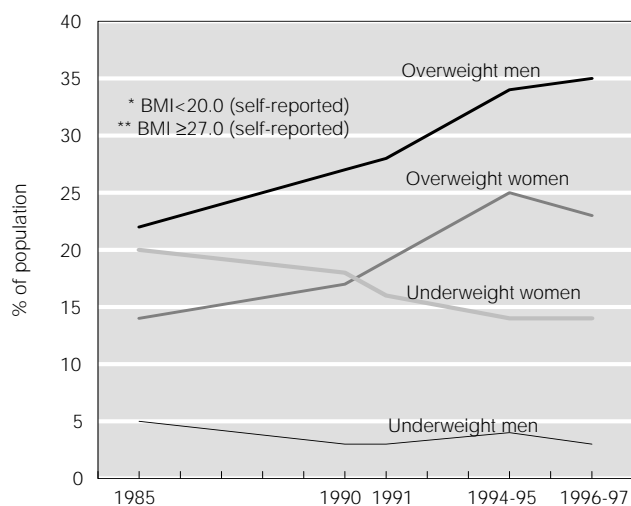
interpreted with the standard groupings.¹ The two categories of excess weight reported here are labelled with respect to the health risk; unlike some reports using the BMI, the term “obesity” is not used for BMI = 27.0+, because obesity requires the measurement of fat as well as relative weight.¹

Gender comparisons should be made with caution, because men tend to be more muscular than women, and muscle tissue is more dense than fat. This tends to increase the BMI value of a muscular person.

References

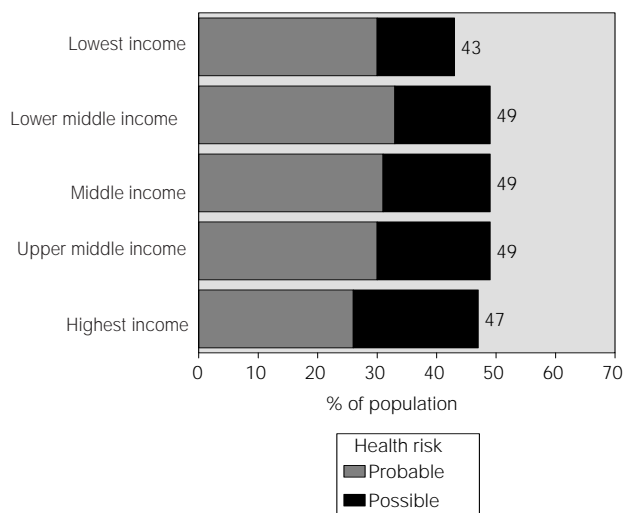
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6. Statistics Canada. *National Population Health Survey Overview, 1996–97*. Ottawa: Minister of Industry, 1998 (Statistics Canada Cat. No. 82-567-XPB).

Figure 67a. **Underweight* and overweight,** by sex, age 20–64, Canada, 1985 to 1996–97**



Sources: Millar WJ, Weight and height, in Statistics Canada, Housing, Family and Social Statistics Division, *Health Status of Canadians: Report of the 1991 General Social Survey*, General Social Survey Analysis Series, Ottawa: Minister of Industry, Science and Technology, 1994 (Statistics Canada Cat. No. 11-612E, No. 8); Statistics Canada, *National Population Health Survey, 1994–95 and 1996–97*, special tabulations.

Figure 67b. **Overweight, by income adequacy, age 20–64, Canada, 1996–97**



Source: Statistics Canada, *National Population Health Survey, 1996–97*, special tabulations.

Table 67. **Body mass index (BMI),^a by age and sex, by education (age-standardized), and by province, age 20–64, Canada, 1996–97**

	Population estimate	Underweight BMI < 20.0	Acceptable weight BMI = 20.0–24.9	Some excess weight BMI = 25.0–26.9	Overweight BMI = 27.0+
	('000)	(%)	(%)	(%)	(%)
Total, age 20–64	17,165	8	44	19	29
Male	8,825	3	39	24	35
Female	8,339	14	49	14	23
Age 20–24, total	1,801	15	56	13	15
Male	938	6	57	17	20
Female	863	26	55	9	10
Age 25–34, total	4,202	11	46	18	24
Male	2,181	4	43	23	30
Female	2,021	19	50	12	19
Age 35–44, total	5,041	8	45	18	29
Male	2,615	2	37	24	36
Female	2,426	13	53	12	21
Age 45–54, total	3,641	5	38	21	36
Male	1,881	2	31	25	43
Female	1,760	9	45	17	29
Age 55–64, total	2,480	4	36	21	39
Male	1,210	2	32	25	41
Female	1,270	6	40	17	36
Less than high school	3,068	7	39	19	36
High school	7,337	9	43	19	30
College	3,601	8	44	19	29
University	3,069	9	51	18	22
Newfoundland	333	#	39	18	39
Prince Edward Island	77	5	36	21	37
Nova Scotia	549	6	38	18	38
New Brunswick	442	5	34	19	42
Quebec	4,357	10	45	18	27
Ontario	6,434	9	44	19	29
Manitoba	603	6	40	19	35
Saskatchewan	519	5	36	23	36
Alberta	1,582	8	43	20	30
British Columbia	2,268	8	47	19	27

Data suppressed because of high sampling variability

^a Weight in kilograms/(height in metres, squared).

Source: Statistics Canada, *National Population Health Survey, 1996–97*, special tabulations.

Chronic conditions

Introduction

Certain chronic conditions attract attention because they are major causes of death (Topic 82), potential years of life lost (Topic 84), or hospitalization (Topics 76 and 77). Cancer and cardiovascular disease are examples of such chronic conditions (Topics 73 and 74). Other conditions may affect functional health (Topic 56) or quality of life of many more people, although their effects are less severe for the individual.

This topic examines the prevalence of chronic conditions as revealed by a population survey, in contrast to the administrative statistics that are the other principal source of information about health conditions (Topic 77). For this purpose, “chronic conditions” refers to conditions with a duration of at least six months.

Prevalence of chronic conditions, 1996–97

The most common condition among the household population age 12 and older was non-food allergies, affecting 22%, or more than 5.5 million Canadians (Table 68).¹ This is up from the level of 17% in 1994–95, when such allergies were also ranked first.²

Arthritis/rheumatism and back problems were the second-ranked conditions (14% each), followed by high blood pressure (10%). Back problems, which were cited as the main cause for restricted activity (Topic 59), were reported by 3.5 million Canadians. Other conditions, such as migraine headaches (8%), asthma (7%) and food allergies (7%) also affected significant numbers. Indeed, there were several conditions with a reported prevalence approximately equal to or greater than that of heart disease or cancer, as revealed by the survey self-report (Fig. 68).¹ All chronic conditions were more common in 1996–97 than two years earlier.^{1,2}

Differences among groups

Most conditions were more likely to be reported by females than by males, a difference that is particularly distinct for allergies, migraine headaches and arthritis/rheumatism (Table 68). Sex differences tended to become more pronounced with increasing years.

Some, but not all, chronic conditions increased in prevalence with age. Non-food allergies were concentrated among the younger age groups (Table 68). Asthma was most prevalent at the youngest (12–19) age groups.¹ Arthritis, back problems and high blood pressure were most prevalent among those 45 and older. The only condition that was distributed almost evenly across all age groups is food allergies.

There was no systematic relationship between these chronic conditions and education (Table 68).

Provincial comparisons reveal that Newfoundlanders were least likely to have allergies of either type and that Quebeckers and Newfoundlanders were least likely to have back problems (Table 68). Residents of Nova Scotia were the most likely to have non-food allergies, high blood pressure and arthritis/rheumatism compared with residents of the other provinces, and people in New Brunswick and Saskatchewan were most likely to have food allergies.

On definitions and methods

These data are from the personal interview portion of the second cycle of the *National Population Health Survey*, conducted by Statistics Canada from June 1996 to August 1997. The survey visited over 20,000 households that had also participated in the first cycle two years earlier, for a total of 16,000 respondents who provided full information; an additional 66,000 respondents (who were not part of the longitudinal panel) were also surveyed to provide detailed cross-sectional data on the in-depth health questions. The

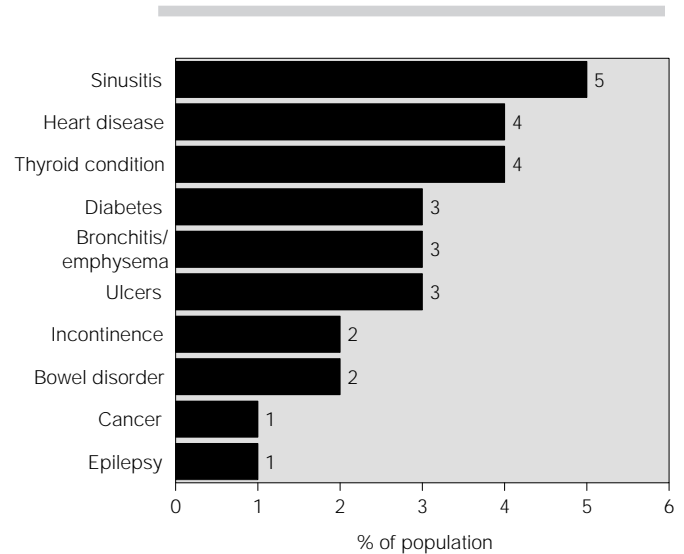
findings for this topic are based on the full sample of 82,000 respondents age 12 and older.³

As noted above, these conditions were defined for the respondent as having a duration of six months or more. They were read from a list and were supposed to have been diagnosed by a health professional, unlike earlier surveys. This qualification makes it impossible to establish temporal trends for these conditions.

References

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3. Statistics Canada. *National Population Health Survey Overview, 1996–97*. Ottawa: Minister of Industry, 1998 (Statistics Canada Cat. No. 82-567-XPB).

Figure 68. **Prevalence of selected chronic conditions, age 12+, Canada, 1996–97**



Source: Statistics Canada, *National Population Health Survey, 1996–97*, special tabulations.

Table 68. Prevalence of diagnosed chronic conditions, by age and sex, by education (age-standardized), and by province, age 12+, Canada, 1996–97

	Population estimate	Non-food allergies	Food allergies	Arthritis/rheumatism	Back problems	High blood pressure	Migraine headache	Asthma
	('000)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Total, age 12+	24,595	22	7	14	14	10	8	7
Male	12,099	19	5	10	13	9	4	6
Female	12,495	26	9	18	15	11	11	8
Age 12–14, total	1,151	21	6	#	2	#	4	12
Male	580	23	6	#	#	#	3	12
Female	571	20	6	#	#	#	4	12
Age 15–17, total	1,284	27	8	#	7	#	6	14
Male	683	25	4	#	5	#	3	13
Female	601	30	13	#	9	#	8	16
Age 18–19, total	826	27	8	2	7	#	6	14
Male	403	28	5	#	4	#	#	14
Female	424	26	10	#	10	#	9	15
Age 20–24, total	1,873	28	7	2	10	1	7	9
Male	948	27	6	1	7	#	4	7
Female	924	30	9	4	12	#	10	11
Age 25–34, total	4,472	26	7	4	13	1	10	8
Male	2,209	23	5	3	13	1	5	6
Female	2,263	28	9	5	13	1	15	9
Age 35–44, total	5,238	23	7	8	15	4	10	6
Male	2,645	19	7	6	15	5	6	4
Female	2,593	27	7	10	15	4	14	7
Age 45–54, total	3,771	20	7	15	18	12	10	5
Male	1,922	14	5	11	17	11	5	4
Female	1,849	25	8	20	19	13	15	7
Age 55–64, total	2,565	19	7	28	20	22	7	5
Male	1,231	12	4	20	20	21	3	3
Female	1,334	26	9	36	20	24	10	7
Age 65–74, total	2,096	17	6	40	17	31	4	6
Male	930	11	3	32	15	28	2	6
Female	1,166	23	8	46	18	34	6	6
Age 75+, total	1,320	14	5	47	17	34	3	6
Male	549	9	4	37	14	26	1	5
Female	771	18	7	54	19	40	4	6
Less than high school	7,526	16	5	16	15	12	7	7
High school	9,307	23	7	14	15	10	8	7
College	4,134	22	6	14	15	10	9	6
University	3,461	24	7	10	11	8	7	6
Newfoundland	478	15	4	14	11	11	6	5
Prince Edward Island	113	18	7	18	12	12	7	6
Nova Scotia	775	25	7	20	14	16	9	6
New Brunswick	632	22	9	16	13	11	8	6
Quebec	6,131	22	5	12	11	9	7	7
Ontario	9,323	23	7	14	15	10	8	7
Manitoba	902	18	7	15	16	11	7	7
Saskatchewan	801	23	9	19	17	11	5	7
Alberta	2,244	21	7	13	15	8	7	7
British Columbia	3,196	25	8	14	16	10	8	8

Data suppressed because of high sampling variability

Source: Statistics Canada, *National Population Health Survey, 1996–97*, special tabulations.

Vaccine-preventable diseases

Introduction

Many childhood and adult diseases are prevented through proper vaccination (see Topic 15), and the tremendous decrease in vaccine-preventable diseases in Canada demonstrates the effectiveness of provincial and territorial immunization programs. Compared with the pre-vaccine era, Canada has witnessed a 95% decrease in the incidence of childhood measles and invasive infections due to *Haemophilus influenzae* type b and the total elimination of polio. However, in spite of public health's best efforts, cases of disease continue to occur.

This topic examines the incidence of nine diseases that are prevented through vaccination: diphtheria, measles, mumps, pertussis, polio, rubella, congenital rubella, tetanus, and *Haemophilus influenzae* type b.

Incidence of disease, 1996

Diphtheria

No cases were reported in 1996 (Fig. 69).¹ Diphtheria incidence has remained at a very low level since the early 1980s; only 2–5 cases were reported annually from 1986 to 1995. Classic diphtheria is rare in Canada; no deaths have been reported since 1983.¹

Measles

In 1996, 335 cases were reported nationally, and the rate was 1.1 cases per 100,000 population (Table 69).¹ Since 1990, the annual incidence rate of reported cases of measles has fluctuated from a high of 22.9 cases per 100,000 population in 1991 to a low of 0.7 cases per 100,000 population in 1993. In 1993, 203 cases of measles were reported in Canada, representing an almost 15-fold decrease in incidence compared with 1992. This was also the lowest total reported for any year since national notification began in 1924.

However, the incidence of reported measles in 1994 increased about 2.5 times over that in 1993 and, in 1995, 4.4 times over that in 1994. The 1996 incidence was a seven-fold decrease from 1995. Mass catch-up campaigns and the implementation of routine two-dose measles immunization programs across Canada in 1996 account for this decreased incidence. This puts Canada in a very good position to achieve its goal of eliminating measles by 2005 and allows for the potential elimination of measles by 2000 as per the goal of the Pan American Health Organization.¹

Mumps

From 1990 to 1996, 367 cases on average were reported annually, a dramatic decrease from the average of 30,000 cases reported annually during the 1940s and 1950s.¹ In recent years, the incidence rates have ranged from 1.6 cases per 100,000 population in 1990¹ to 1.0 per 100,000 population in 1996 (Table 69).

Pertussis

Overall, the average annual incidence has decreased by approximately 90%, from 157 cases per 100,000 population (17,463 cases) in the immediate pre-vaccine era of the mid-1930s to 24 cases per 100,000 (4,900 cases) for 1990–1996. In 1996, there were 18.0 cases of pertussis per 100,000 population (Table 69). In recent years, the incidence of pertussis has increased across Canada, and epidemics have increased in size. The reported incidences in 1994 and 1995 (34.7 and 33.2 cases per 100,000 population, respectively) have been the highest in a decade, which will make it difficult for Canada to reach its disease reduction target.¹

Poliomyelitis

The last case of paralytic poliomyelitis due to indigenous wild virus infection in Canada occurred in 1977; polio-free status was certified officially in 1994,

when the elimination of the disease in the World Health Organization's Region of the Americas was announced.

Rubella

There were 302 rubella cases in 1996 (Table 69). Approximately 990 cases (ranging from 237 — in 1994 — to 2,265) on average were reported annually from 1990 to 1996; this represents a mean rate of 2.7 cases per 100,000 population. The incidence increased slightly in 1995 and 1996.¹

Congenital rubella

Thirty-two cases of congenital rubella were reported in Canada from 1986 to 1995¹; however, this disease is believed to be grossly under-reported.

Tetanus

Three cases of tetanus were reported in 1996. The incidence of the disease decreased significantly with the introduction of tetanus toxoid in Canada in 1949: 29 cases have been reported since 1990.¹

Haemophilus influenzae type b (Hib)

There were 55 cases of Hib in 1996. Before the introduction of the first line of Hib vaccines in 1987, approximately 200 cases of invasive Hib disease were reported annually; over 50% were meningitis. Only 117 cases were reported in 1993, the first year after introduction of the infant conjugate vaccines. From 1991 to 1996, the incidence decreased from 1.4 cases per 100,000 population (370 cases) to 0.2 cases per 100,000 (55 cases); this represents a seven-fold reduction. The incidence of Hib invasive disease is expected to decrease further, because more children receive immunization against Hib in infancy.¹

Differences among groups

There are few differences between males and females, except for rubella, but there are pronounced age-related differences in many vaccine-preventable diseases (Table 69). For example, more than 75% of mumps cases occur among children age 1–14 years, with peak incidence in those 5–9 years of age, while the highest age-specific incidence of pertussis is reported in infants. In contrast, a number of college

and university outbreaks of rubella have been reported in recent years, and about one-third of the rubella cases reported in the last five years have been among adolescents 10–19 years of age.¹ Overall, 50–60% of reported cases in Canada occur in persons between the ages of 10 and 39 years.

Interprovincial differences in rates for measles, mumps, and rubella are generally low, but there are notable exceptions, such as rubella rates in Manitoba and rates for pertussis and mumps in Yukon (Table 69). The increased incidence of measles in 1994, which is still reflected in the 1996 rates to a small extent, was mainly reported from Quebec and Ontario.¹

There is much more interprovincial variability in pertussis (Table 69), the rate in Yukon being an impressive 65.9 times the rate in Ontario.

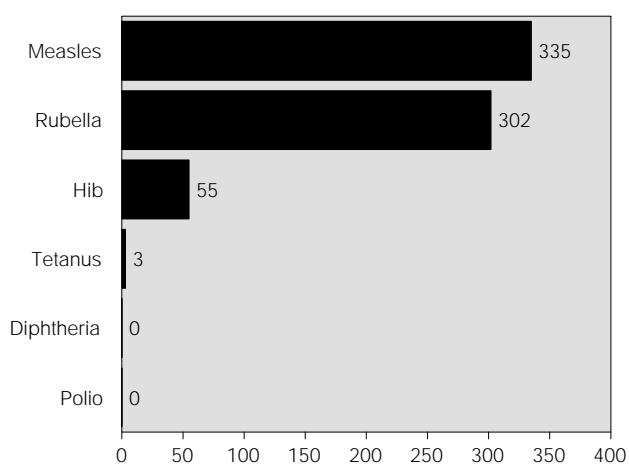
Only three provinces have legislation or regulations under their health protection acts requiring proof of immunization for school entrance. Ontario and New Brunswick require proof for diphtheria, tetanus, polio, measles, mumps, and rubella immunization. In Manitoba, only measles vaccination is covered. Exceptions are permitted for medical or religious grounds and reasons of conscience; legislation and regulations thus do not guarantee immunization. All provinces and territories have regulations that allow for the exclusion of unvaccinated children from school during outbreaks of vaccine-preventable diseases.

On definitions and methods

The incidence data on vaccine-preventable diseases are reported by the provinces and territories to the National Notifiable Diseases Registry, maintained by the Division of Disease Surveillance, Bureau of Infectious Diseases, Laboratory Centre for Disease Control, Health Canada.

References

1. Health Canada. The Canadian national report on immunization, 1996. *Canada Communicable Diseases Report 1997*; 23 (Suppl.).

Figure 69. **Cases of vaccine-preventable disease, Canada, 1996**


Source: Health Canada, The Canadian national report on immunization, 1996, *Canada Communicable Diseases Report 1997*; 23(Suppl.).

 Table 69. **New cases of vaccine-preventable diseases, by sex, by age, and by province/territory, Canada, 1996**

	Measles	Mumps	Rubella	Pertussis
Total cases, all ages	335	313	302	5,400
	Rate per 100,000 population			
Total	1.1	1.0	1.0	18.0
Male	1.2	1.2	1.4	17.0
Female	1.1	0.9	0.6	19.0
Age <1	6.8	0.5	5.4	153.5
Age 1-4	4.3	3.9	2.5	101.0
Age 5-9	3.0	5.0	1.1	91.2
Age 10-14	3.3	2.4	0.3	37.2
Age 15-19	3.1	1.1	4.7	6.1
Age 20-24	0.9	1.1	2.0	2.8
Age 25-29	0.4	0.6	1.0	3.5
Age 30-39	0.3	0.3	0.6	4.0
Age 40-59	0.1	0.3	0.3	1.9
Age 60+	0.0	0.1	0.0	0.5
Newfoundland	0.0	0.0	0.3	10.7
P.E.I.	0.0	0.0	0.0	24.9
Nova Scotia	0.3	0.7	0.1	24.3
New Brunswick	0.0	0.4	0.5	16.4
Quebec	1.1	1.1	0.7	17.9
Ontario	1.7	0.7	0.6	6.4
Manitoba	0.0	0.4	8.2	17.4
Saskatchewan	0.8	1.9	0.1	52.2
Alberta	0.3	2.1	2.0	36.9
British Columbia	1.1	1.3	0.5	25.4
Yukon	6.4	16.0	0.0	421.7
N.W.T.	0.0	1.5	0.0	72.0

Source: Health Canada, The Canadian national report on immunization, 1996, *Canada Communicable Diseases Report 1997*; 23(Suppl.).

Sexually transmitted diseases

Introduction

The repercussions of becoming infected with any of the major sexually transmitted diseases (STDs) can be severe; infection can result in infertility in both sexes, severe illness, and, in the case of AIDS (Topic 71), death.

The most important impact of infection by *Chlamydia trachomatis* is non-specific urethritis; gonorrhoea may lead to prostate inflammation in men, and both chlamydia and gonorrhoea can lead to pelvic inflammatory disease and eventually tubal infertility in women. Syphilis can damage tissues and organs, including the brain, spinal cord, and heart valves. In an attempt to control the spread of AIDS, as well as other STDs, public awareness campaigns over the past decade have sought to inform the public of the dangers of unsafe sexual activity (Topic 50).

This topic describes the incidence of the principal bacterial STDs — chlamydia, gonorrhoea, and infectious syphilis — all of which are notifiable.

Incidence of STDs, 1996

As of 1996, chlamydia was the most common STD. The rate of infection was 114.8 per 100,000 population. In contrast, the gonorrhoea infection rate was 16.8 per 100,000, and the syphilis infection rate was significantly lower, at 0.4 per 100,000 population (Table 70).¹

Between 1986 and 1996, rates of both gonorrhoea and syphilis infection decreased (Fig. 70).¹ The decrease was much more significant for gonorrhoea (from 153.8 to 19.2 per 100,000 for men and from 121.7 to 14.3 per 100,000 for women) than for syphilis. Chlamydia infection has been systematically monitored only since 1991, but there was a decrease between that time and 1996. The incidence of chlamydia infection still remains high,

especially for women (172.4 per 100,000 in 1996), who can become infertile as a result.

Differences among groups

The chances of having an STD other than AIDS are highest among youth age 15–24 (Table 70). This is true for chlamydia and gonorrhoea; however, syphilis incidence is highest in the 25–29 year age group. Historically, men were more likely than women to be infected with gonorrhoea and syphilis; however, analysis of the 1996 data indicates that this may now be true only for ages 20 and over for gonorrhoea and 30 and over for syphilis. Up until age 60 and over, women are much more likely than men to be infected with chlamydia; however, much of this may reflect the fact that women are more likely than men to get tested. Recent developments in non-invasive test methods may have an equalizing effect on the gender differential.

Chlamydia and gonorrhoea infection rates are highest among female 15–19 year olds (998.6 and 86.4 per 100,000, respectively), while the highest male incidence is found in the 20–24 year age group (302.7 per 100,000 for chlamydia and 66.6 per 100,000 for gonorrhoea). Syphilis infection is most common in the 25–29 year age group, with minimal gender differential (1.2 per 100,000 for males and 1.3 per 100,000 for females) (Table 70), but it is important to remember that the overall incidence of infectious syphilis is now very low in Canada. In 1980, the incidence rate of syphilis (primary, secondary, and early latent) in Canada was 12.5 per 100,000¹; by 1996, this had declined to 0.4 cases per 100,000 (Table 70).

Gonorrhoea and chlamydia infection rates are highest in the Northwest Territories (187.8 and 1,344.9 per 100,000, respectively) and lowest in Newfoundland (0.4 and 48.8 per 100,000, respectively). Syphilis

is most common in Saskatchewan (1.0 per 100,000), while several provinces/territories had no reported cases of syphilis in 1996 (Alberta, Newfoundland, New Brunswick, Prince Edward Island, Northwest Territories, and Yukon).

On definitions and methods

Data on these and other STDs are collected by provincial/territorial health departments at the time of first diagnosis and forwarded to the Laboratory Centre for Disease Control of Health Canada, where national statistics are produced.

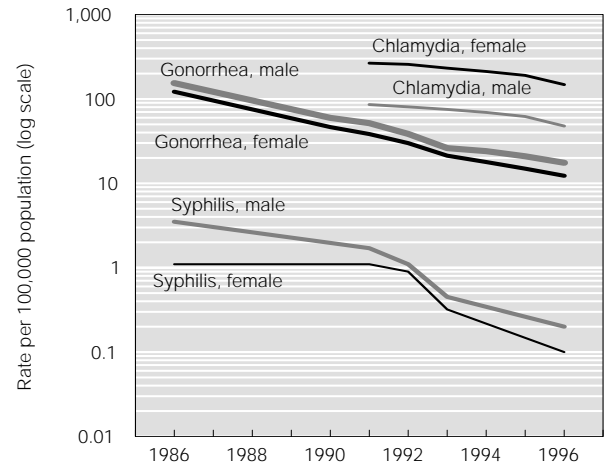
Interprovincial/territorial comparisons should be made with caution owing to the possibility of double-counting anonymous cases and the possibility of one individual having more than one STD.

It should be noted that there are sparse data available on the incidence and prevalence of viral STDs in Canada. It is important to recognize HIV (see Topic 71), human papillomavirus, genital herpes, and hepatitis B — all viral STDs — as serious STDs, although the numbers of cases in Canada may not be readily available for all of these infections.

References

1. Health Canada, Laboratory Centre for Disease Control, Bureau of HIV/AIDS, STD and TB, Division of STD Prevention and Control. Special tabulations.

Figure 70. **Incidence of gonorrhoea and syphilis, 1986–1996, and chlamydia, 1991–1996, by sex, Canada**



Source: Health Canada, Laboratory Centre for Disease Control, Bureau of HIV/AIDS, STD and TB, Division of STD Prevention and Control, special tabulations.

Table 70. **Sexually transmitted diseases, by age and sex and by province/territory, Canada, 1996**

	Rate per 100,000 population		
	Chlamydia	Gonorrhoea	Syphilis ^a
Total, all ages	114.8	16.8	0.4
Male	56.0	19.2	0.5
Female	172.4	14.3	0.3
Age <1, total	6.2	0.8	0
Male	4.8	0.5	0
Female	7.8	1.1	0
Age 1–4, total	0.6	0.3	0
Male	0.1	0.3	0
Female	1.2	0.4	0
Age 5–9, total	0.7	0.2	0
Male	0.0	0.1	0
Female	1.4	0.2	0
Age 10–14, total	22.7	3.4	0
Male	2.2	0.5	0
Female	44.0	6.5	0
Age 15–19, total	563.3	59.4	0.6
Male	148.5	33.6	0.3
Female	998.6	86.4	0.9
Age 20–24, total	617.4	65.9	0.8
Male	302.7	66.6	0.7
Female	941.2	65.0	0.9
Age 25–29, total	238.1	42.0	1.2
Male	155.6	54.8	1.2
Female	322.0	29.0	1.3
Age 30–39, total	66.2	19.5	0.7
Male	51.2	30.6	1.0
Female	81.5	8.0	0.4
Age 40–59, total	12.8	5.0	0.3
Male	11.5	8.5	0.6
Female	14.0	1.6	0.1
Age 60+, total	1.0	0.6	0.1
Male	1.0	1.2	0.1
Female	1.0	0.1	0
Newfoundland	48.8	0.4	0
Prince Edward Island	95.8	0.7	0
Nova Scotia	113.9	10.3	0.3
New Brunswick	109.3	5.4	0
Quebec	90.1	6.5	0.2
Ontario	94.2	20.5	0.7
Manitoba	224.4	48.4	0.1
Saskatchewan	219.3	39.5	1.0
Alberta	174.3	16.9	0
British Columbia	106.7	13.7	0.5
Yukon	458.6	31.8	0
Northwest Territories	1,344.9	187.8	0

^a Early symptomatic syphilis.

Source: Health Canada, Laboratory Centre for Disease Control, Bureau of HIV/AIDS, STD and TB, Division of STD Prevention and Control, special tabulations.

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HIV/AIDS/TB

Introduction

Acquired immune deficiency syndrome (AIDS) is perhaps the deadliest communicable disease in modern times. Public health campaigns have sought to educate the public about the principal means of infection and have promoted safe sex and sterile needle use in an attempt to slow the transmission of the human immunodeficiency virus (HIV) and thus the incidence of new cases of AIDS (see Topic 50).

In its own right, tuberculosis (TB) continues to be one of the most important infectious diseases worldwide. As a leading global cause of disability and death, it has been estimated that one-third of the world's population is infected with *Mycobacterium tuberculosis* and that this disease is responsible for 7–8 million new active cases and 2–3 million deaths each year.

A major concern is that the spread of HIV has intensified, and continues to intensify, the impact of the worldwide TB epidemic. The proportion of HIV-associated TB is becoming increasingly important, and it has been estimated that 1.5 million or 15% of all TB cases by the year 2000 will be among individuals living with HIV/AIDS.¹ Already, TB is the leading worldwide cause of death among individuals with HIV infection.

Prevalence of HIV infection, 1996, incidence of AIDS, 1997, and incidence of TB, 1996

HIV

An estimated 50,000–54,000 cumulative HIV infections had occurred in Canada by the end of 1996, for a population rate of 175 per 100,000. Approximately 40,100 Canadians were living with HIV infection at this date.²

There were an estimated 4,200 new HIV infections in Canada during 1996. This is lower than the peak in annual HIV incidence of about 5,000–6,000 that occurred in the mid-1980s, but higher than a previous estimate of 2,500–3,000 per year for the period 1989–1994. The majority of this recent increase in HIV infections is among injection drug users (IDUs).²

The character of the HIV epidemic in Canada has changed from an early epidemic that affected primarily men who have sex with men (MSM) to the current epidemic that affects primarily IDUs. This shift is clearly shown in the surveillance data of new HIV diagnoses (new HIV-positive test reports). The percentage of new HIV diagnoses attributed to MSM declined from 75% in the period 1985–1994 to 38% in 1997; correspondingly, the percentage of new HIV diagnoses attributed to IDUs increased from 8% in 1985–1994 to 33% in 1997. Over this same time interval, the percentage of new diagnoses among women increased from 10% to 22%, and diagnoses attributed to heterosexual transmission increased from 7% to 22%.³

AIDS

As of December 31, 1997, a total of 15,528 cumulative AIDS cases had been reported in Canada (approximately 20,000 after adjustment for reporting delay). Almost three-quarters (73%) of all reported AIDS cases — more than 11,000 persons — had died by this date (Table 71).³ The trend in delay-adjusted AIDS cases has declined sharply since 1995 (Fig. 71a),³ and this decrease may be attributed at least in part to the new anti-retroviral treatments that prevent or delay the onset of AIDS. Canada's cumulative rate of AIDS cases is 511.8 per 1 million persons. This puts Canada in the middle of a group of industrial nations, among whom the reported rates range widely (Fig. 71b).^{4,5}

The proportion of new AIDS cases attributed to MSM has steadily declined from nearly 80% in the 1980s to just over 50% in 1997. By contrast, 20% of adult AIDS cases were attributed to intravenous drug use transmission in 1997, compared with only 5% in 1993 and less than 2% prior to 1990. The proportion of annual AIDS cases among women has increased from 4–6% during 1982–1991 to 8% in 1994 and to 14% in 1997.⁶

TB

In 1996, there were 1,849 cases of TB in Canada, for an overall rate of 6.2 per 100,000. The country continues to have one of the lowest reported incidence rates of TB in the world. However, it is recognized that the epidemiology of TB is changing in Canada, as the reported incidence rate has essentially levelled off since 1987 after decades of declining rates (Fig. 71c).⁶

There are limited national data available to date regarding the interaction between TB and HIV. One recent study indicated that 4.2% of the cumulative reported AIDS cases in Canada to the end of 1996 also had TB.⁷

Differences among groups

HIV

HIV incidence rates among MSM in Canada's major cities have declined from a range of 7–11 new infections per 100 person-years in the 1980s to 1–2 per 100 person-years in 1995–1997. HIV prevalence among inner-city IDUs has increased dramatically in many Canadian cities (in Ottawa, from 10% in 1993 to 21% in 1997), and estimated HIV incidence is high (6.5 per 100 person-years in Montreal in 1995–1997 and 18.2 in Vancouver in 1996–97).⁷

Aboriginal persons are over-represented in inner-city IDU communities, and AIDS cases in this group are more likely than non-Aboriginal cases to be attributed to intravenous drug use (19% vs. 3% for men, 50% vs. 17% for women).⁸

About 17% of adult Canadians have ever been tested for HIV, and approximately 11,000–17,000 (30–40%) of the 40,100 Canadians living with HIV infection are unaware of their infection (not tested positive for HIV).⁹

AIDS

Of the 15,528 AIDS cases reported to the end of 1997, 15,358 (99%) were diagnosed among adults and 170

(1%) were among children less than 15 years old. Of the 11,373 reported AIDS deaths, 105 (1%) were among children (Table 71).

Males outnumber females by approximately 14 to 1 (Table 71) in both number of reported AIDS cases and number of reported deaths, but this ratio is changing. In 1997, adult women comprised 13% of adult cases diagnosed. In 1996, the figure was 11%, and in 1995, it was 8%. Prior to 1995, adult women comprised only 6% of all adult cases diagnosed.³

Reported cases and reported deaths due to AIDS in the provinces are roughly proportionate to their populations (Topic 1) with the exception of Quebec, which reports 33% of the cases (Table 71) but has 24% of the population.

TB

With increasing travel, trade, and migration between countries, it is not surprising that Canada is being impacted by the global TB epidemic. This is reflected by the fact that the proportion of the total reported cases that have occurred among individuals born outside of Canada has been steadily increasing over the years. In 1980, there was a total of 976 foreign-born cases, representing 35% of the total of 2,762. In 1996, 1,159 or 63% of the total of 1,849 cases were born outside of Canada (data not shown). Aboriginal peoples continue to be another group at increased risk for this disease, with reported incidence rates several times greater than that of the general population (Fig. 71d).⁶

On definitions and methods

As is the case with other notifiable diseases (see Topics 69, 70, and 72), records of new AIDS cases are obtained from provincial and territorial public health authorities and forwarded to the Laboratory Centre for Disease Control of Health Canada, where national statistics are produced.

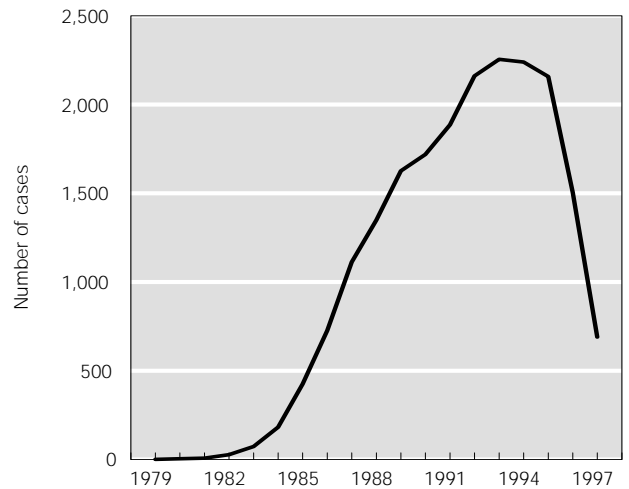
The reporting delay-adjusted number of AIDS cases takes into consideration delays that occur between the date of diagnosis and the date when the Laboratory Centre for Disease Control receives the information.³

Person-years is a measurement combining persons and time and is used as a denominator in person-time incidence and mortality rates. For example, an HIV incidence rate of five per 100 person-years means that for every 100 uninfected persons in the population at the start of a year, five will become infected with HIV by the end of the year.

References

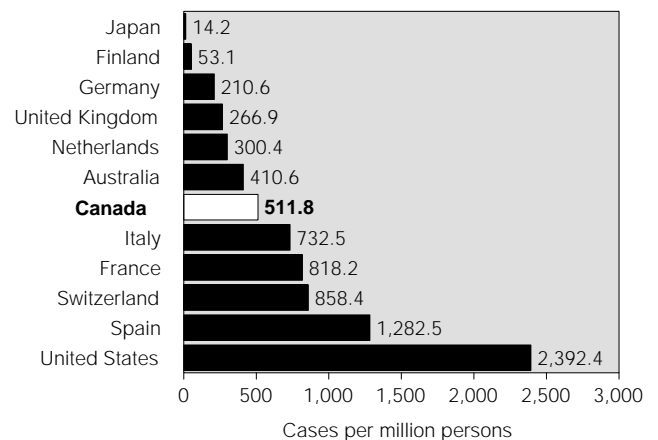
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3. Health Canada. *HIV and AIDS in Canada, Surveillance Report to December 31, 1997*. Ottawa: Health Canada, Health Protection Branch, Laboratory Centre for Disease Control, Bureau of HIV/AIDS, STD and TB, April 1998. For updates, see the Laboratory Centre for Disease Control Internet site: www.hc-sc.gc.ca/hpb/lcdc.
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7. Health Canada, Laboratory Centre for Disease Control, Bureau of HIV/AIDS, STD and TB. *Inventory of HIV Incidence/Prevalence Studies in Canada, April 1998*.
8. Health Canada, Laboratory Centre for Disease Control, Bureau of HIV/AIDS, STD and TB. *Epi Updates: HIV/AIDS Epidemiology Among Aboriginal People in Canada, May 1998*.
9. Health Canada, Laboratory Centre for Disease Control, Bureau of HIV/AIDS, STD and TB. *Epi Updates: HIV Testing Among Canadians: An Estimated 11,000–17,000 Current HIV Infections May Not Be Diagnosed*.

Figure 71a. **Estimated number of new AIDS cases,* Canada, 1979–1997**



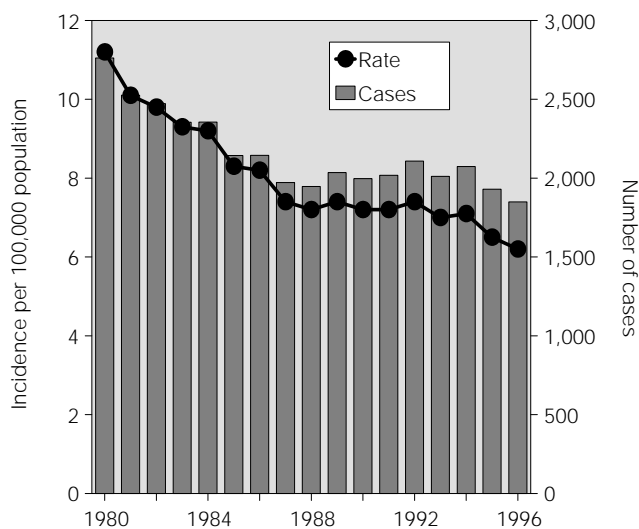
* Adjusted for reporting delay to the end of 1997 and under-reporting.
 Source: Health Canada, *HIV and AIDS in Canada, Surveillance Report to December 31, 1997*, Ottawa: Health Canada, Health Protection Branch, Laboratory Centre for Disease Control, Bureau of HIV/AIDS, STD and TB, April 1998.

Figure 71b. **Prevalence of AIDS, selected countries, 1997**



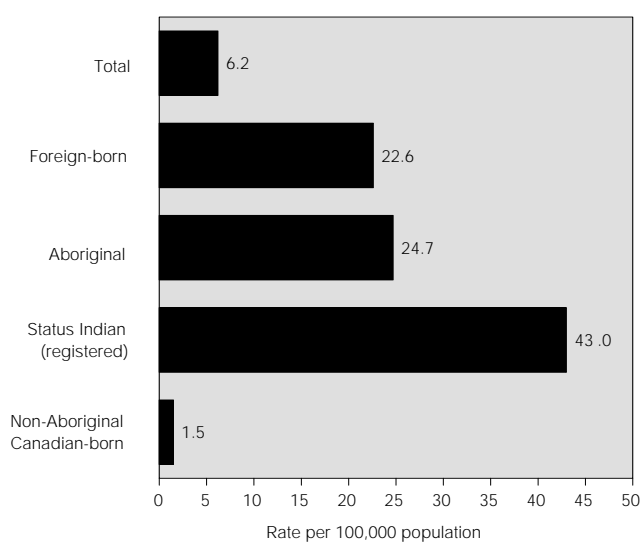
Sources: World Health Organization, Global AIDS Surveillance, *Weekly Epidemiological Record/Résumé Épidémiologique Hebdomadaire, 26 June 1998*, Geneva: World Health Organization, 1998, Table 1, pp. 193–194; Central Intelligence Agency, *World Factbook, 1997* (see the Central Intelligence Agency Internet site: www.ocdi.gov/cia/publications/factbook/index/html, 26 June 1998).

Figure 71c. Reported TB cases, Canada, 1980–1996



Source: Health Canada, Laboratory Centre for Disease Control, Bureau of HIV/AIDS, STD and TB, special tabulations.

Figure 71d. Reported TB cases, by population sub-group, Canada, 1996



Source: Health Canada, Laboratory Centre for Disease Control, Bureau of HIV/AIDS, STD and TB, special tabulations.

Table 71. **Number of HIV-positive tests, by age and by province/territory, and reported cases of AIDS and deaths due to AIDS, by age and sex and by province/territory, Canada, cumulative total to December 31, 1997**

	HIV positive	AIDS cases	AIDS deaths
Total, all ages	41,049^a	15,528^b	11,373^b
Male	—	14,414	10,643
Female	—	1,113	729
Age <1, total	—	76	57
Male	—	36	25
Female	—	40	32
Age 1–4, total	—	56	28
Male	—	25	15
Female	—	31	13
Age 5–9, total	—	18	9
Male	—	13	6
Female	—	5	3
Age 10–14, total	—	20	11
Male	—	16	9
Female	—	4	2
Age <15, total	625	170	105
Age 15–19, total	567	52	35
Male	—	44	32
Female	—	8	3
Age 20–29, total	10,599	2,623	1,865
Male	—	2,323	1,673
Female	—	300	192
Age 30–39, total	15,219	6,819	4,920
Male	—	6,425	4,665
Female	—	394	255
Age 40–49, total	6,843	4,137	3,109
Male	—	3,959	2,993
Female	—	178	116
Age 50+, total	2,655	1,727	1,339 ^b
Male	—	1,573	1,225
Female	—	153	113
Newfoundland	178	64	51
P.E.I. and Nova Scotia	531	247	189
New Brunswick	217	125	79
Quebec	8,553 ^c	5,154	3,325
Ontario	18,552	6,211	5,247
Manitoba	621	147	116
Saskatchewan	378	118	96
Alberta	2,976	927	350
British Columbia	8,993	2,515	1,910
Yukon	21	4	1
Northwest Territories	29	16	9

^a Age is unknown for 4,541 HIV-positive tests.

^b Gender is unknown for one AIDS death.

^c Does not include 1997.

Source: Health Canada, *HIV and AIDS in Canada, Surveillance Report to December 31, 1997*, Ottawa: Health Canada, Health Protection Branch, Laboratory Centre for Disease Control, Bureau of HIV/AIDS, STD and TB, April 1998.

Enteric, foodborne, and waterborne diseases

Introduction

Enteric, foodborne, and waterborne diseases are caused by a variety of microorganisms (bacteria, viruses, and parasites) and their toxins. Symptoms may range from mild diarrhea, vomiting, and stomach cramps to severe life-threatening illness. Some groups in the population are at greater risk of severe illness, including infants, the elderly, people with existing serious illness, or individuals whose immune systems are depressed either because of illness (e.g., people with AIDS) or because of treatment they are receiving (e.g., people receiving chemotherapy). A small proportion of individuals who have enteric infections may go on to develop long-term health problems, including arthritis-like symptoms and kidney failure. Infections usually result when the microorganism or its toxins enter the body through the mouth, either by the consumption of contaminated food, beverages, or water or via contaminated fingers or objects. These may have been contaminated directly by human or animal feces or indirectly by contact with a contaminated surface. In many instances, thorough cooking, correct storage of foods (keeping foods either very cold or very hot), and good hygiene practices will greatly reduce the risk of illness.

The diseases described in this topic are some of the most common enteric, foodborne, and waterborne diseases reported in Canada, and all are nationally notifiable. Although all of them can be spread by the mechanisms outlined above, the bacteria *Salmonella*, *Campylobacter*, and *E. coli* O157 are usually foodborne; *Campylobacter* may also be waterborne, along with the parasite *Giardia*; and the hepatitis A virus and the bacterium *Shigella* are often associated with spread in situations of poor personal hygiene.

Incidence of enteric, foodborne, and waterborne diseases, 1996

In 1996, *Campylobacter* (42.7 per 100,000 population) was the most commonly notified infection, followed by *Salmonella* (22.0 per 100,000) and *Giardia* (20.3 per 100,000) (Table 72).¹ Notification rates for the remaining three infections were much lower (<10.0 per 100,000 population).

There have been no dramatic changes in the notification rates for the six diseases in the period 1990–1996. Apart from annual fluctuations, the trends in notification for all but *Salmonella* and *Giardia* infection remained fairly consistent or declined slightly (Fig. 72).¹ Notifications of *Salmonella* and *Giardia* have, however, declined by about 25% since 1991.

Public health scientists acknowledge that these illnesses are far more common than the reported numbers suggest. Estimates from studies in North America and Europe indicate that as few as 1–10% of cases are recorded. This may in part reflect the mild nature of many infections, which are managed at home, or the fact that only a small proportion of patients have specimens taken for laboratory tests.

Differences among groups

The likelihood of having a reported enteric, foodborne, or waterborne infection is greatest in young children, followed by young adults (Table 72). Rates of reported cases of *Salmonella* infection are highest in infants, in children under 9 years, and in young adults in their 20s. Among infants, *Salmonella* infection is reported more often (128.1 per 100,000 population) than any other of these diseases. *Campylobacter*, *Shigella*, *Giardia*, and *E. coli* O157 infections are reported most often for age 1–4.

Hepatitis A infections are highest in the age group 5–9 years. It is unclear, particularly in young children, to what extent these trends reflect actual incidence or the increased likelihood that physicians test young children. The higher incidence of hepatitis A in the 5–9 year age group corresponds with the elementary school years and may reflect increased risk of infection in a setting where attention to personal hygiene is poor.

Rates of reported cases of *Campylobacter*, *Giardia*, and hepatitis A infection are consistently higher in males than in females. Rates of reported cases for all six infections for males and females are similar for *Salmonella* and *Shigella* infection but are higher in females in most age groups for *E. coli* O157 infection.

Reported rates vary by province/territory and disease. In 1996, *Campylobacter* infection was most common in British Columbia (67.9 per 100,000 population); *Salmonella* in the Northwest Territories (41.9 per 100,000 population); *Giardia* in Yukon (70.1 per 100,000 population); hepatitis A and *Shigella* in Saskatchewan (44.1 and 11.3 per 100,000 population, respectively); *E. coli* O157 in Manitoba (9.1 per 100,000 population). Rates of reported cases for all six infections were low in Newfoundland. Rates of hepatitis A, *Shigella*, and *E. coli* O157 were lower in the Atlantic provinces and the territories.

On definitions and methods

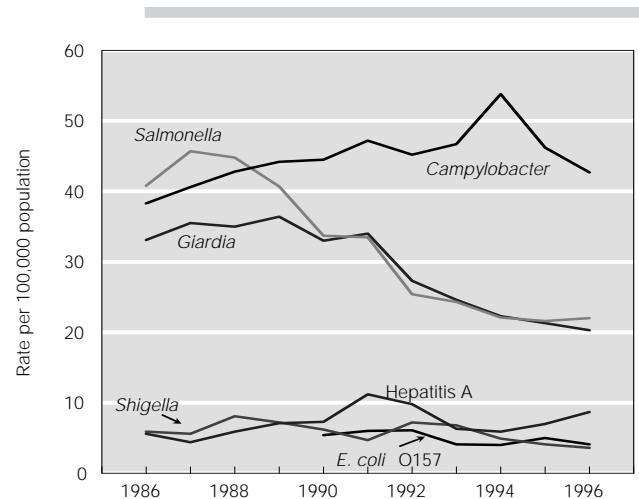
Data on all nationally notifiable diseases, including these six enteric, foodborne, and waterborne diseases, are reported to provincial and territorial health departments on confirmation of diagnosis. These are forwarded to the Laboratory Centre for Disease Control of Health Canada, where national statistics are collated.

These data are subject to a number of potential biases and inconsistencies relating to local or provincial/territorial testing and reporting practices. As noted, only a small fraction of cases are thought to result in reports. Any comparisons of reporting trends between provinces/territories and age groups should thus be interpreted with caution.

References

1. Health Canada. Notifiable diseases annual summary, 1996. *Canada Communicable Diseases Report* 1998; 24–20 (October).

Figure 72. Incidence of enteric, foodborne, and waterborne infections, Canada, 1986–1996



Source: Health Canada, Notifiable diseases annual summary, 1996, *Canada Communicable Diseases Report* 1998; 24–20 (October).

Table 72. Enteric, foodborne, and waterborne diseases, by age and sex and by province/territory, Canada, 1996

	Cases per 100,000 population					
	<i>Campylobacter</i>	<i>Salmonella</i>	<i>Giardia</i>	Hepatitis A	<i>Shigella</i>	<i>E. coli</i> O157
Total, all ages	42.7	22.0	20.3	8.7	3.6	4.1
Male	45.9	21.8	21.7	10.8	3.5	3.9
Female	39.3	22.0	18.7	6.5	3.7	4.3
Age <1, total	69.4	128.1	21.6	1.9	6.5	10.8
Male	77.6	124.6	16.9	1.1	7.9	12.1
Female	60.9	131.2	26.6	2.8	5.0	9.4
Age 1–4, total	91.4	72.9	71.3	9.7	13.2	18.7
Male	101.5	73.5	81.0	9.9	12.8	18.3
Female	80.6	72.0	61.1	9.6	13.6	19.1
Age 5–9, total	39.5	29.5	31.8	20.6	5.5	8.0
Male	46.9	31.9	31.3	18.3	4.7	7.9
Female	31.7	27.0	32.4	22.9	6.3	8.0
Age 10–14, total	28.1	15.3	13.8	9.6	2.3	4.2
Male	35.3	17.1	15.4	8.5	2.2	5.0
Female	20.6	13.4	12.0	10.6	2.3	3.1
Age 15–19, total	37.1	14.3	11.0	9.3	2.4	3.8
Male	43.1	15.1	11.9	9.8	1.9	3.5
Female	30.8	13.4	10.0	8.7	2.9	4.2
Age 20–24, total	64.6	22.9	21.7	10.0	5.2	3.0
Male	68.2	20.8	20.4	12.6	4.3	2.7
Female	60.9	25.1	23.0	7.3	6.1	3.3
Age 25–29, total	62.0	20.1	24.0	12.1	4.7	1.9
Male	63.8	20.7	25.3	17.3	4.2	1.6
Female	60.1	19.5	22.6	6.8	5.3	2.2
Age 30–39, total	43.7	16.6	22.7	11.9	3.7	1.9
Male	45.5	15.9	24.5	18.7	3.4	1.3
Female	41.9	17.2	20.8	4.9	3.9	2.4
Age 40–59, total	33.7	15.0	14.7	5.3	2.4	2.2
Male	34.3	14.1	15.9	6.9	2.5	1.8
Female	33.0	15.9	13.5	3.8	2.3	2.6
Age 60+, total	27.9	16.7	8.2	2.5	1.1	4.0
Male	28.3	15.4	8.0	2.4	1.3	3.7
Female	27.5	17.7	8.2	2.5	1.0	4.3
Newfoundland	17.7	8.9	7.3	0.2	0.2	0.3
Prince Edward Island	31.5	11.0	6.6	0.7	1.5	7.3
Nova Scotia	22.5	15.6	15.8	1.2	0.6	3.9
New Brunswick	33.6	21.0	14.6	1.0	0.5	0.7
Quebec	38.1	21.8	12.6	8.0	3.8	4.1
Ontario	47.8	23.7	22.5	5.5	2.8	4.1
Manitoba	17.5	18.9	NR	21.4	8.5	9.1
Saskatchewan	24.4	25.5	39.2	44.1	11.3	3.0
Alberta	32.0	21.2	19.5	7.1	2.1	5.1
British Columbia	67.9	21.7	33.7	12.6	5.2	3.6
Yukon	28.7	25.5	70.1	0.0	0.0	0.0
Northwest Territories	29.9	41.9	32.9	3.0	0.0	0.0

NR = not reported

Source: Health Canada, Notifiable diseases annual summary, 1996, *Canada Communicable Diseases Report* 1998; 24–20 (October).

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Cancer

Introduction

Cancer in its many forms was the second leading cause of death in 1996 (Topic 82) and accounted for over 310,000 years of potential life lost in 1996 (Topic 83). As a cause of hospitalization, cancer ranked sixth in hospital care in 1995–96, accounting for 774 separations per 100,000 population (Topic 77).

This topic describes the incidence of both new cases of cancer and deaths caused by cancer. Data are presented for cancer of all types (excluding non-melanoma skin cancer) and for specific cancers of particular interest, such as breast, prostate, and lung cancer.

Estimated incidence of cancer, 1998

In 1998, there will be an estimated 129,200 new cases of cancer and 62,700 deaths from cancer in Canada.¹ The most common site of new cancer among men will be the prostate (16,100 estimated cases, compared with 12,200 new lung cancer cases). However, deaths due to lung cancer among men (an estimated 10,600) will far exceed the deaths due to prostate cancer (4,300). Among women, breast cancer will be the most common newly diagnosed cancer (19,300 estimated cases), followed by lung (8,200) and colorectal cancer (7,600). The leading cause of cancer death for women, however, will be lung cancer (6,500 deaths in 1998, compared with 5,300 for breast cancer).¹

Differences among groups

Well over half of all new cancers in each sex are accounted for by just three sites: prostate, lung, and colorectal in men, and breast, lung, and colorectal in women. Lung cancer alone accounts for 32% of male cancer deaths and 22% of female cancer deaths.¹

The incidence of all forms of cancer for males has been steadily increasing since the early 1970s (Fig. 73a),¹ while the incidence in females has remained relatively stable since the early 1980s. Mortality rates for males have decreased slightly since the late 1980s, while female cancer mortality has remained relatively stable over the same period.

Lung cancer incidence and mortality for males have decreased slightly since the mid-1980s (Fig. 73b).¹ Prostate cancer incidence for males has increased substantially since the early 1970s, although prostate cancer mortality has been relatively stable over that time period. The sharp peak of increased prostate cancer incidence from 1990 to 1993 is explained by better use of early detection and screening techniques; the slow increase that occurred prior to 1990 is expected to be the trend in the future.¹ Breast cancer incidence as well as lung cancer incidence and mortality for women have been increasing since the early 1970s, while breast cancer mortality has been relatively stable over the same period, with a slight decrease since 1986 (Fig. 73c).¹

In general, the incidence of cancer and mortality due to cancer among males exceeded those of females (Fig. 73a). Men had a much higher incidence rate of cancer per 100,000 population at age 60 and older compared with women the same age, and men accounted for many more deaths per 100,000 population due to cancer at age 60 and older than women the same age (Table 73).^{1,2} Even though there are more women than men age 60 and older, men still exceed women in total incidence of cases and total deaths due to cancer in 1998. The preponderance of cancer among older age groups and the much higher rates of new cases and deaths in males at these ages account for the overall greater impact of cancer on males than on females.

Provincial differences in new cancer incidence and deaths are rather marked. Nova Scotia has the

highest male age-standardized incidence and death rates (Table 73), due largely to lung cancer (incidence 30% above the Canadian average and mortality 35% higher than the Canadian average).¹ Among females, the highest new case incidence rate is also in Nova Scotia, and the highest death rates, in Nova Scotia and Prince Edward Island. The lowest incidence of new cancers is in Newfoundland for both males and females, while the lowest death rates are in British Columbia for males and in Saskatchewan for females.

On definitions and methods

The cancer mortality figures for 1996–1998 and cancer incidence figures for 1994–1998 are estimates and should be interpreted with some caution. Data for actual and estimated incidence and mortality (Table 73, age and sex rates) are summarized by Statistics Canada from the National Cancer Incidence Reporting System and mortality files.

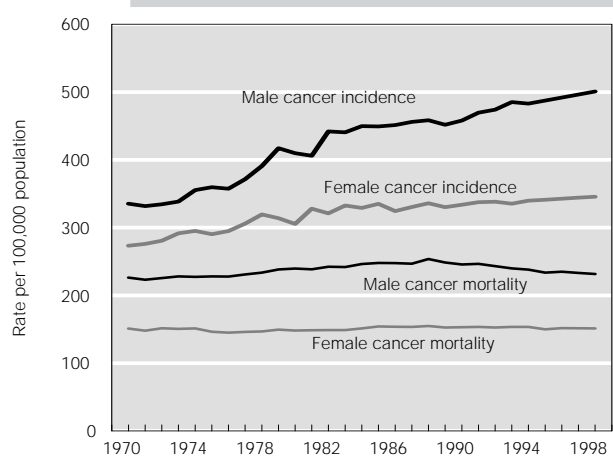
The rapid increases in incidence rates through the 1970s (Fig. 73a) largely reflect improved registration of new cases during this period by several provincial registries. Registration levels, however, have generally stabilized since 1981 owing to increasing consistency of cancer reporting procedures across Canada.¹

Prior to 1995, rates were adjusted to the World Standard Population; they are now standardized to the 1991 Canadian population. As such, it is not appropriate to compare age-standardized rates presented in *Canadian Cancer Statistics 1998* with those presented prior to 1995, or to other publications that employ a different standard population.

References

1. National Cancer Institute of Canada. *Canadian Cancer Statistics 1998*. Toronto: National Cancer Institute of Canada, 1998.
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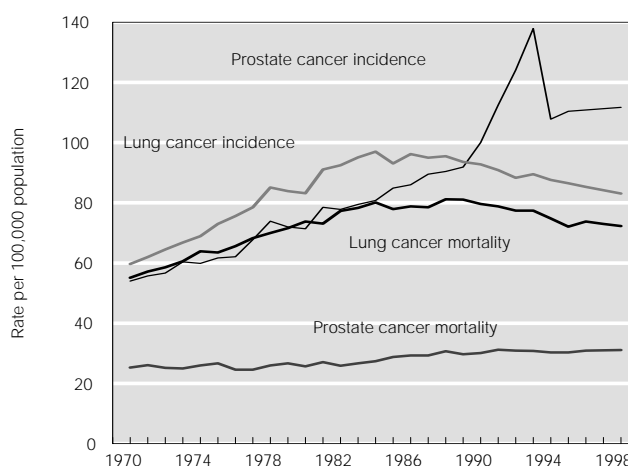
Figure 73a. **Cancer* incidence and mortality, age-standardized, Canada, 1970–1998**



* Excluding non-malignant melanoma; mortality for 1996–1998 and incidence from 1994 to 1998 are estimates.

Source: National Cancer Institute of Canada, *Canadian Cancer Statistics 1998*, Toronto: National Cancer Institute of Canada, 1998.

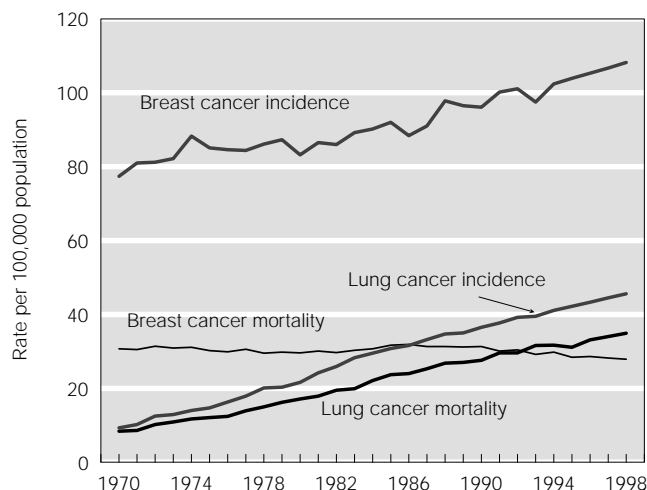
Figure 73b. **Incidence and mortality rates for selected cancer sites, age-standardized, males, Canada, 1970–1998***



* Incidence rates from 1994 to 1998 are estimated. Mortality rates from 1996 to 1998 are estimated.

Source: National Cancer Institute of Canada, *Canadian Cancer Statistics 1998*, Toronto: National Cancer Institute of Canada, 1998.

Figure 73c. **Incidence and mortality rates for selected cancer sites, age-standardized, females, Canada, 1970–1998***



* Incidence rates from 1994 to 1998 are estimated. Mortality rates from 1996 to 1998 are estimated.

Source: National Cancer Institute of Canada, *Canadian Cancer Statistics 1998*, Toronto: National Cancer Institute of Canada, 1998.

Table 73. **Estimated rates of new cases of cancer and deaths due to cancer per 100,000 population,^a by age and sex and by province (age-standardized),^b Canada, 1998**

	New cases, 1998		Deaths, 1998	
	Male	Female	Male	Female
Total, all ages	501	346	232	151
Age 0–19	18	17	3	2
Age 20–29	37	42	6	6
Age 30–39	69	114	14	21
Age 40–49	163	309	59	78
Age 50–59	597	654	235	218
Age 60–69	1,894	1,155	740	493
Age 70–79	3,282	1,597	1,485	868
Age 80+	3,719	1,818	2,592	1,378
Newfoundland	390	286	273	149
Nova Scotia	563	384	281	168
P.E.I.	478	354	264	167
New Brunswick	532	335	255	158
Quebec	511	334	260	157
Ontario	493	350	223	151
Manitoba	549	360	228	154
Saskatchewan	451	329	217	139
Alberta	453	338	211	143
British Columbia	447	332	201	143

^a Excluding non-melanoma skin cancer.

^b Provincial data are age-standardized to the 1991 Canadian population.

Sources: National Cancer Institute of Canada, *Canadian Cancer Statistics 1998*, Toronto: National Cancer Institute of Canada, 1998; Statistics Canada, Health Statistics Division, special tabulations.

Heart disease and stroke

Introduction

Cardiovascular disease is the major cause of death, disability, and illness in Canada. It has a significant impact on the health care system, accounting for more discharges from hospital than any other major disease group (Topic 77). The costs of hospitalization, medical care, drugs, and research related to cardiovascular disease in 1993 were estimated at \$7.3 billion or 17% of the total direct costs of illness¹ (see also Topic 29). The two major components of cardiovascular disease are ischemic heart disease, including acute myocardial infarction or heart attack, and cerebrovascular disease (stroke).

Burden of cardiovascular disease, 1996

In 1996, cardiovascular disease accounted for 79,447 deaths, or 37% of all deaths in Canada (Table 74),² compared with 79,117 in 1995.² Although the absolute number of cardiovascular deaths increased modestly, the growth of the population and the increasing number of elderly persons mean that the toll of cardiovascular disease remained the same. Ischemic heart disease accounted for 20.7% and stroke accounted for 7.3% of all deaths in Canada in 1996 (Fig. 74a).² In 1996, cardiovascular disease accounted for 25,604 potential years of life lost (Topic 83).

When the mortality rate is adjusted for age, cardiovascular disease still has the highest death rate, at 226 deaths per 100,000 population, followed by cancer at 185 deaths per 100,000 (Topic 82). However, the cardiovascular disease mortality rate has been declining in Canada since the mid-1960s.¹ In particular, ischemic heart disease has been declining by about 2% each year since the early 1970s; stroke declined by about 2% from the 1950s to 1988 and has remained relatively stable since then (Fig. 74b).³ The

decline in cardiovascular disease is partly due to the reduction in smoking (Topic 40) and the consumption of dietary fat (Topic 47), more exercise (Topic 46), improved identification and control of high blood pressure (Topic 68), and improved medical and surgical procedures.¹

The 1996–97 *National Population Health Survey* asked people 12 years of age and older if they had a chronic health problem lasting more than six months that had been diagnosed by a health professional.⁴ Results showed that 10% reported high blood pressure, 4% reported heart disease, and under 1% of respondents reported the effects of a stroke as a chronic condition (Topic 68). However, the prevalence of high blood pressure may be under-reported when it is under control.

Incidence data on cardiovascular disease are very difficult to obtain, in contrast to those on cancer (Topic 73). Longitudinal data from the *National Population Health Survey* (using 1994–95 and 1996–97 cycles) make it possible to estimate *self-reported* incidence for certain diseases. One study using these self-reported data estimated the two-year incidence rates for heart disease to be 2.07 and 1.93 cases per 100 population for males and females, respectively.⁵ Another study that used national hospitalization data estimated that during the 1993–94 fiscal year, there were 44,800 men and 28,653 women who were hospitalized for acute myocardial infarction.⁶

Differences among groups

In 1996, cardiovascular disease accounted for 36% of male deaths and 39% of female deaths. While more men than women die of ischemic heart disease (22% vs. 19%), more women die of stroke (9% vs. 6%) (Table 74).

The Atlantic provinces have had consistently higher mortality rates than the western provinces for

cardiovascular disease.¹ In 1996, the highest age-standardized mortality rate for cardiovascular disease for males was in Prince Edward Island (365 per 100,000), and the lowest rate was in British Columbia (265). For women, the highest rate was in Newfoundland (225 per 100,000), and the lowest in British Columbia (164) (Topic 82). Provincial prevalence rates of smoking, high blood pressure, and obesity run parallel to the rates for cardiovascular disease.¹

Study results using the longitudinal files of the *National Population Health Survey* (1994–95 and 1996–97 cycles) showed that the estimated incidence rate of heart disease, as for all other chronic diseases studied, was higher for people in the two lowest income adequacy groups than for those in the upper three income groups.⁴

Although cardiovascular disease is the leading cause of death throughout the world, the rates vary widely (Fig. 74c).^{1,7} In the countries selected for comparison, the rates for men range from a high of 1,130.7 deaths per 100,000 population in the Russian Federation to a low of 232.7 deaths per 100,000 in Japan. For women, much the same pattern is seen. Of the selected countries, Canada has the fifth lowest cardiovascular mortality rate overall — fourth lowest for men and ninth lowest for women.

On definitions and methods

Cardiovascular disease refers to all diseases of the circulatory system. Two major components of this disease are ischemic heart disease and stroke. Ischemic heart disease, also known as coronary heart disease, includes any condition in which the muscles of the heart are damaged by insufficient blood supply, usually as a result of atherosclerosis. Ischemic heart disease includes angina pectoris, acute myocardial infarction (heart attack), chronic ischemic heart disease, and sudden death. Cerebrovascular disease, or stroke, as it is more commonly known, is any sudden development of focal brain damage due to disease of the blood vessels, usually due to atherosclerosis and high blood pressure.

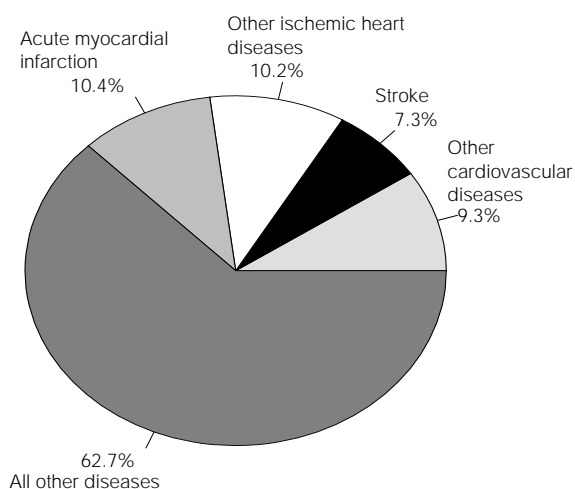
There is no provincial/territorial or national registry that tracks the incidence or prevalence of cardiovascular disease in Canada. Consequently, proxy estimates must be calculated, using available sources such as the longitudinal data files from the *National Population Health Survey* and national hospital morbidity files. When looking at data from the *National Population Health Survey*, it is important to remember that these data are based on self-reported information. Hospital morbidity data used to calculate the incidence of acute myocardial infarction did not include individuals who died prior to reaching hospital.

The values shown in Figure 74c are adjusted to the standard European age composition. This adjustment is essential for such international comparisons. The comparisons are also for various years, depending upon when the statistics were collected.

References

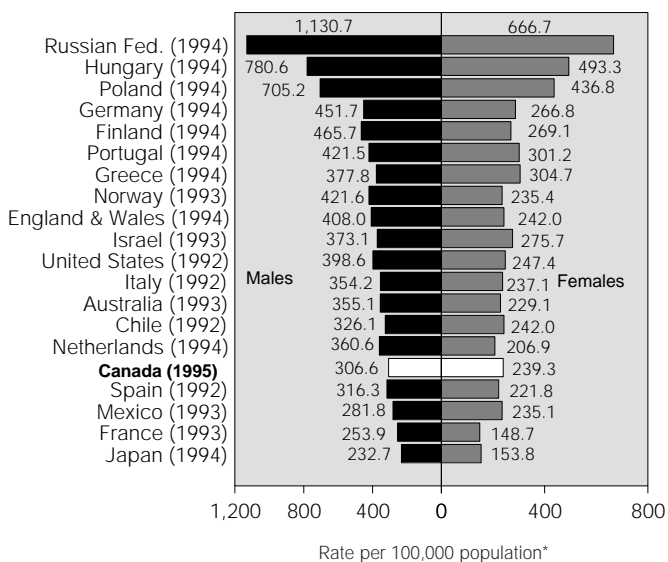
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Figure 74a. **Cardiovascular disease as a cause of mortality, Canada, 1996**



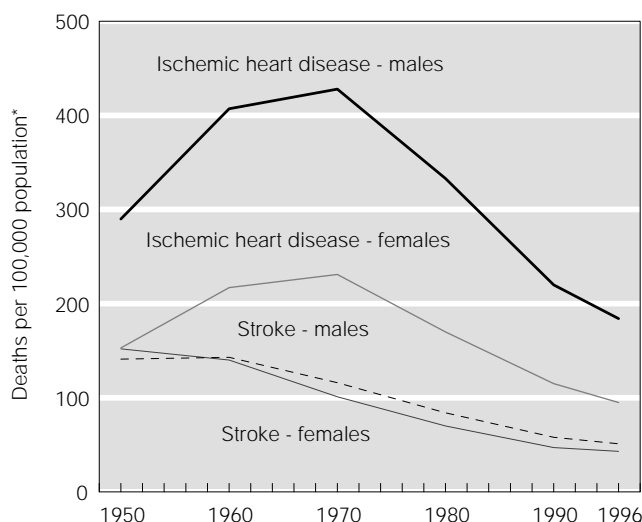
Source: Statistics Canada, Health Statistics Division, unpublished vital statistics standard tables for 1996, special tabulations.

Figure 74c. **Age-standardized mortality rates, cardiovascular disease, selected countries, mid-1990s**



* Standardized to the European population.
 Source: Heart and Stroke Foundation of Canada, *Heart Disease and Stroke in Canada*, Ottawa: Heart and Stroke Foundation of Canada, 1997; World Health Organization, *1995 World Health Statistics Annual*, Geneva: World Health Organization, 1995.

Figure 74b. **Deaths due to ischemic heart disease and stroke, Canada, 1950–1996**



* Age-standardized to the 1991 Canadian population.
 Source: Statistics Canada, Health Statistics Division, *Health Indicators, 1999* (Statistics Canada Cat. No. 82-221-XCB).

Table 74. **Deaths due to cardiovascular disease, Canada, 1996**

	All deaths	All CVD ^a	IHD ^b	AMI ^c	Stroke ^d
		(%)	(%)	(%)	(%)
Total	212,855	37.3	20.7	10.4	7.3
Male	111,383	35.9	21.8	11.4	5.8
Female	101,472	38.9	19.4	9.4	9.0
Age <35, total	9,375	4.8	0.9	0.5	0.9
Male	6,291	4.0	1.0	0.6	0.6
Female	3,084	6.4	0.6	0.5	1.5
Age 35–44, total	7,226	13.8	7.6	4.6	2.4
Male	4,668	14.8	9.4	5.5	1.7
Female	2,558	12.0	4.3	3.0	3.6
Age 45–54, total	11,916	22.9	15.0	9.0	3.1
Male	7,350	28.1	20.3	12.2	2.6
Female	4,566	15.0	6.6	4.0	3.9
Age 55–64, total	21,697	29.2	19.5	11.5	3.7
Male	13,569	33.5	23.7	13.9	3.5
Female	8,128	22.0	12.5	7.5	3.9
Age 65–74, total	46,433	35.2	21.4	12.0	5.7
Male	28,164	37.3	24.2	13.3	5.3
Female	18,269	32.0	17.1	10.0	6.4
Age 75–84, total	63,844	43.0	22.3	12.4	9.0
Male	32,754	42.2	24.6	12.6	7.8
Female	31,090	44.0	19.9	12.1	10.2
Age 85+, total	52,364	48.0	23.2	9.2	11.1
Male	18,587	43.8	22.6	9.4	8.9
Female	33,777	50.0	23.6	9.0	12.3
Newfoundland	3,928	42.5	23.4	11.0	8.6
Prince Edward Island	1,268	41.2	22.4	10.4	9.0
Nova Scotia	7,751	36.7	19.4	9.3	6.5
New Brunswick	5,896	37.9	18.9	10.0	6.8
Quebec	52,336	35.2	20.4	11.8	6.3
Ontario	79,099	38.1	21.9	10.1	7.6
Manitoba	9,497	40.0	21.8	11.0	8.3
Saskatchewan	8,765	39.5	20.2	10.6	7.8
Alberta	16,391	38.2	19.9	8.6	7.6
British Columbia	27,539	36.4	18.5	10.0	8.0

^a All CVD: all cardiovascular diseases (International Classification of Diseases, 9th revision [ICD-9], codes 390–459).

^b IHD: ischemic heart disease (ICD-9 codes 410–414).

^c AMI: acute myocardial infarction (heart attack) (ICD-9 code 410). Note: AMI is a sub-category of IHD.

^d Stroke (also known as cerebrovascular disease) (ICD-9 codes 430–438).

Source: Statistics Canada, Health Statistics Division, unpublished vital statistics standard tables for 1996, special tabulations.

Depression

Introduction

Depression is a disabling condition that accounts for an important proportion of psychiatric hospitalizations (Topic 76) and, arguably, the majority of suicides (Topic 81).¹ It is a condition characterized by feelings of sadness, sometimes accompanied by a sense of helplessness, irritability, and hopelessness. Depression is often linked with other conditions, such as alcoholism (Topic 43) or substance abuse (Topic 45), eating disorders, or anxiety disorders.

This topic describes the prevalence of depression in the household population of Canada, based on a non-clinical interview that indicates the probability of being classified as depressed with a more thorough clinical examination. It does not include the institutionalized population, who are described in the following topic.

Prevalence of depression, 1996–97

Overall, 4% of Canadians age 12 and older — approximately 1 million people — reported a major depressive episode and were probably clinically depressed in 1996–97 (Table 75a).² This is down from the 6% reported in the 1994–95 *National Population Health Survey*.³ Another 2% had some tendency to depression and could possibly be rated as depressed; the vast majority (94%) showed no symptoms of depression.²

Over 1 million Canadians reported that they were blue, were depressed, or had lost interest in things for at least two weeks in the previous year (Table 75b).² Their depression lasted an average of 7.5 weeks. About two-fifths (42%) were depressed for only 2–4 weeks, while over one-tenth (13%) were blue for more than half the year. The remainder of depressed Canadians (45%) were in that state for 5–26 weeks.

There are no international data using this measure with which to make comparisons.

Differences among groups

Despite the fact that men are more likely to commit suicide (Topic 81), women were twice as likely as men to be depressed (Table 75a), and the duration of their depression is likely to be longer (Table 75b).

Young women age 15–19 are the most likely of any age–sex group to exhibit symptoms of depression (8–9%). For both sexes, depression is most likely in the younger years (especially age 18–19), and the probability declines with age, starting at age 55. However, the situation is reversed for the duration of depression; the mean number of weeks increases with each successive age group, from a low of about five weeks for youths 12–19 to a high of 10.3 weeks for seniors 75 and older. About two-thirds of youths who were blue or depressed stayed that way for only about 2–4 weeks in total, compared with less than half of seniors age 75 and older (Table 75b).

There is an inverse relationship between depression and income. About 9% of people in the lowest income adequacy group were depressed (along with 3% possibly at risk), compared with 3% of Canadians in the highest income group (along with 1% possibly at risk) (Table 75a). In addition, sad people in the lower middle income group were by far the most likely (23%) to be blue for more than half the year, while sad people in the highest income group were the least likely (6%) to be blue for the same length of time (Table 75b).

Although some data are suppressed because of high sampling variability, there are no pronounced differences in depression between provinces (Table 75a). The lone minor exception is that people who were sad, blue, or depressed in Quebec tended to be in

that state for one week longer than the Canadian average (Table 75b).

Canadians in a couple with children were least likely to be probably depressed (3%), while single parents were most likely (9%) (Fig. 75).² Unattached depressed people were least likely (12%) to be blue for more than half the year, while single parents who were depressed were most likely (18%) to be blue for this long (data not shown). This may reflect the higher level of social support received by unattached individuals compared with single parents (Topic 30).

These findings are consistent with multivariate analyses on the 1994–95 data, showing that being young, single, and female are independent risks for depression.⁴

On definitions and methods

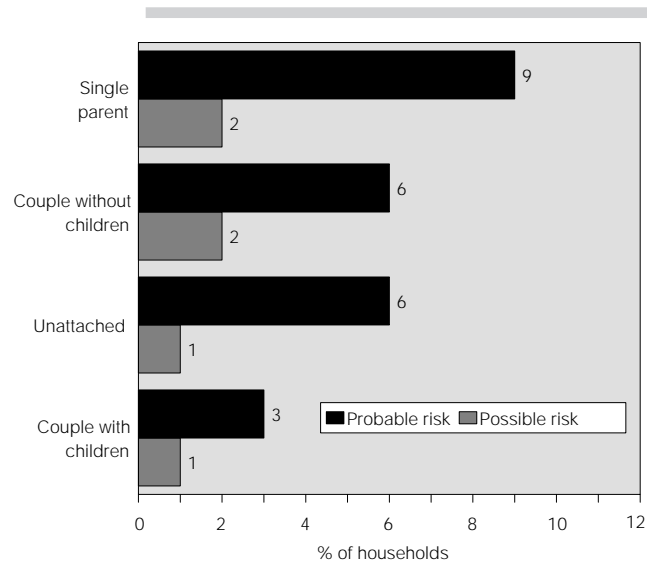
These data are from the personal interview portion of the second cycle of the *National Population Health Survey*, conducted by Statistics Canada from June 1996 to August 1997. The survey visited over 20,000 households that had also participated in the first cycle two years earlier, for a total of 16,000 respondents who provided full information; an additional 66,000 respondents (who were not part of the longitudinal panel) were also surveyed to provide detailed cross-sectional data on the in-depth health questions. The findings for this topic are based on the full sample of 82,000 respondents age 12 and older.⁵

Depression scores are based on direct (non-proxy) responses to 27 questions and a scoring algorithm that establishes the probability of suffering a major depressive episode. Individuals classified here as depressed have at least a 90% probability of such an episode.⁶ Those defined as possible cases have a probability greater than zero but less than 90%. It is important to remember that this component of the *National Population Health Survey* provides data on the household population only; anyone institutionalized with depression (or for any other reason) would not be included in these results⁵ (see Topic 76).

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Figure 75. Prevalence of depression, by household type (age-standardized), age 12+, Canada, 1996–97



Source: Statistics Canada, *National Population Health Survey, 1996–97*, special tabulations.

Table 75a. Risk of clinical depression, by age and sex, by income adequacy (age-standardized), and by province, age 12+, Canada, 1996–97

	Population estimate	Risk level	
		Possible	Probable
		(%)	(%)
Total, age 12+	23,671	2	4
Male	11,562	2	3
Female	12,109	2	6
Age 12–14, total	1,036	#	2
Male	506	#	#
Female	530	#	3
Age 15–17, total	1,245	2	5
Male	663	#	2
Female	583	#	8
Age 18–19, total	807	2	7
Male	394	#	4
Female	413	#	9
Age 20–24, total	1,817	2	5
Male	908	2	3
Female	909	2	7
Age 25–34, total	4,386	2	5
Male	2,156	2	3
Female	2,230	2	7
Age 35–44, total	5,120	2	5
Male	2,578	2	4
Female	2,542	2	7
Age 45–54, total	3,637	1	5
Male	1,834	1	3
Female	1,803	1	6
Age 55–64, total	2,470	2	3
Male	1,181	#	2
Female	1,289	2	3
Age 65–74, total	1,981	1	2
Male	874	#	1
Female	1,107	1	2
Age 75+, total	1,171	1	2
Male	468	#	#
Female	703	#	1
Lowest income	935	3	9
Lower middle income	2,169	2	8
Middle income	5,940	1	4
Upper middle income	7,753	2	4
Highest income	3,030	1	3
Income not stated	3,844	1	3
Newfoundland	458	#	#
Prince Edward Island	109	#	#
Nova Scotia	751	#	5
New Brunswick	616	#	5
Quebec	5,933	2	4
Ontario	8,921	1	4
Manitoba	869	1	5
Saskatchewan	778	#	5
Alberta	2,112	2	5
British Columbia	3,124	#	5

Data suppressed because of high sampling variability

Source: Statistics Canada, *National Population Health Survey, 1996–97*, special tabulations.

Table 75b. **Average number of weeks depressed in previous 52 weeks, by age and sex, by income adequacy (age-standardized), and by province, depressed people age 12+, Canada 1996–97**

	Population estimate (‘000)	Number of weeks depressed in past 52 weeks ^a				
		Mean	2–4	5–11	12–26	27–52
			(%)	(%)	(%)	(%)
Total, age 12+	1,314	7.5	42	24	21	13
Male	480	8.0	51	21	16	12
Female	834	7.0	36	26	24	14
Age 12–14, total	27	4.6	70	#	#	#
Male	9	4.7	#	0	#	0
Female	18	4.4	62	#	#	#
Age 15–17, total	86	5.0	51	24	#	#
Male	26	5.0	77	#	#	0
Female	60	5.0	40	25	#	#
Age 18–19, total	70	5.4	69	18	#	#
Male	22	5.3	#	#	#	0
Female	48	5.4	70	#	#	#
Age 20–24, total	122	6.1	43	30	23	#
Male	42	6.4	55	#	#	#
Female	80	6.0	37	33	26	#
Age 25–34, total	294	6.2	43	28	19	9
Male	110	6.0	54	19	18	9
Female	184	6.3	37	34	20	9
Age 35–44, total	344	6.9	37	27	24	12
Male	134	6.8	42	27	17	13
Female	210	6.9	34	27	29	11
Age 45–54, total	200	7.8	31	22	27	20
Male	78	8.0	41	25	13	22
Female	122	7.7	24	21	36	19
Age 55–64, total	95	8.4	38	10	28	24
Male	29	8.9	51	#	#	#
Female	66	8.1	32	11	29	28
Age 65–74, total	48	9.1	38	17	16	#
Male	18	9.2	#	#	#	#
Female	30	9.0	31	#	#	#
Age 75+, total	28	10.3	46	#	#	#
Male	12	10.8	#	#	#	#
Female	16	10.0	#	#	#	#
Lowest income	107	8.3	43	22	20	15
Lower middle income	185	8.0	35	21	20	23
Middle income	323	7.5	38	23	22	17
Upper middle income	391	6.7	45	23	21	11
Highest income	150	6.8	46	21	28	6
Income not stated	158	7.6	40	22	19	19
Newfoundland	22	8.0	#	#	#	#
Prince Edward Island	3	7.3	#	#	#	#
Nova Scotia	48	7.8	#	#	#	#
New Brunswick	39	8.4	#	#	#	#
Quebec	299	8.6	39	27	25	#
Ontario	448	7.4	46	21	20	12
Manitoba	49	7.6	37	24	28	11
Saskatchewan	50	7.7	#	#	#	#
Alberta	139	7.4	43	26	20	11
British Columbia	217	7.1	42	#	#	#

Data suppressed because of high sampling variability

^a Asked only of people who were reported as feeling sad, blue, or depressed or as having lost interest in things.

Source: Statistics Canada, *National Population Health Survey, 1996–97*, special tabulations.

Psychiatric hospitalization

Introduction

Mental disorders were an important cause of hospitalization in 1995–96, with a rate of 709 per 100,000 population,¹ which was similar to the rate for cancer (772 per 100,000) and genitourinary disorders (709 per 100,000) (Topic 77). Depression is a condition that affects large numbers of Canadians (Topic 75), and suicide is a major cause of death (Topics 81 and 82) and especially of potential years of life lost (Topic 83). Dementia is a major problem among the elderly, especially those 75 and older, in both community and institutional settings.²

This topic describes the mental disorders treated in psychiatric and general hospitals and the rates of separation from these institutions.

Psychiatric hospitalization, 1995–96

Between 1994–95 and 1995–96, there was a decrease in the rate of psychiatric hospitalization from 722 to 709 per 100,000 population. The most notable change occurred in affective psychoses, with a 2% decrease over this time period. Other conditions either stayed at the same level or had a smaller change.¹ From 1982–83 through 1993–94, there was also a steady increase in patient-days for mental disorders (Fig. 76a)³; combined with a decrease in the number of discharges, this indicates a clear trend towards longer hospital stays for fewer patients — that is, towards hospitalizing the more serious cases.³

In 1995–96, affective psychoses including manic-depressive disorder accounted for 23% (48,429) of psychiatric separations — more than any other single category of mental disorder; schizophrenia and alcohol and drug dependence were also responsible for large numbers — more than 15%

(31,027) and 12% (25,854) of separations, respectively (Fig. 76b).¹

There are no comparable international data for this topic.

Differences among groups

Across all ages, female rates of separation are markedly higher than male rates for neurotic disorders (a ratio of 1.9:1), depressive disorders (1.8:1), affective psychoses (1.7:1), and adjustment reaction (1.4:1) (Table 76).¹ In contrast, males are much more likely than females to be hospitalized due to alcohol/drug dependence (2.4:1) and schizophrenia (1.4:1).¹

The relationship with age varies somewhat from condition to condition: separations for affective psychoses and alcohol/drug dependence peak at age 35–44, but schizophrenia separations are most common at age 25–44. Senile psychoses and depressive disorders are the only conditions for which the rate of separations is clearly highest for the oldest group (Table 76).¹ Although definitions are not the same, this contrasts with the prevalence of depression in the household population, which *declines* with age (Topic 75).

Provincial/territorial rates vary widely, possibly reflecting a number of factors in addition to the incidence of specific illness. These factors could include access to facilities, policies on length of stay, and diagnostic biases. Prince Edward Island has the highest rate of separation (1,182 per 100,000), and Alberta has the lowest (647 per 100,000). The Northwest Territories has the lowest rates of separation for senile and pre-senile conditions, schizophrenic psychoses, and affective psychoses but the highest rates for two other conditions — neurotic disorders and alcohol/drug dependence (Table 76). Quebec rates are lowest for neurotic disorders, while Yukon has the

lowest rate of separation for adjustment reaction. Manitoba and British Columbia have the highest separation rates for senile and pre-senile conditions. Saskatchewan has the highest rate for affective psychoses, whereas Prince Edward Island has the highest rate for depression.¹

No data are available on separations classified by the patient's education level or income.

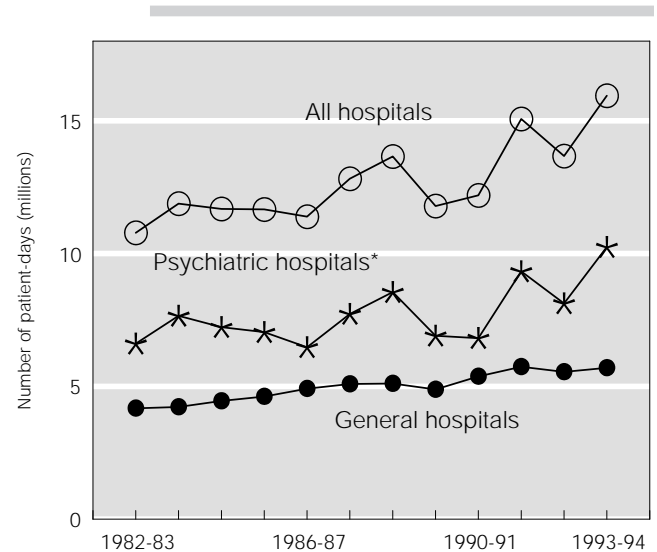
On definitions and methods

Data on hospital separations (discharges and deaths) are collected as administrative records from hospitals and provincial/territorial health departments by the Canadian Institute for Health Information and then forwarded to Statistics Canada, where national summaries are prepared and, for the purpose of this *Report*, rates were calculated.¹

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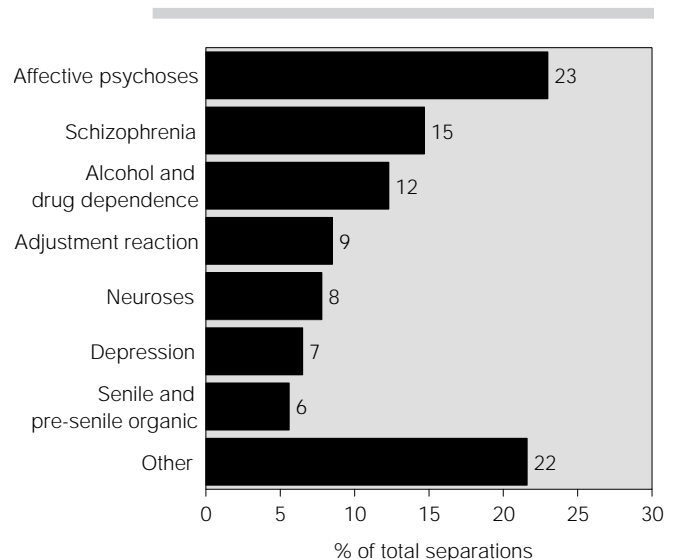
Figure 76a. **Patient-days for mental disorders, by type of hospital, Canada, 1982-83 to 1993-94**



* Excluding Manitoba and New Brunswick.

Source: Statistics Canada, *Mental Health Statistics, 1993-94*, Ottawa: Statistics Canada, 1996 (Statistics Canada Cat. No. 83-245-XPB).

Figure 76b. **Mental health problems treated in hospitals, Canada, 1995-96**



Source: Canadian Institute for Health Information, *Mental Health Database, 1995-96*.

Table 76. Separations in psychiatric hospitals and general hospitals, by diagnosis, by age and sex, and by province/territory, Canada, 1995–96

	Rate per 100,000 population								
	Total	Senile and pre-senile organic psychotic conditions	Schizophrenic psychoses	Affective psychoses	Neurotic disorders	Alcohol and drug dependence	Adjustment reaction	Depressive reaction disorder	Other
Total, all ages	709.1	39.5	104.4	162.9	55.2	87.0	60.6	46.2	153.3
Male	663.4	33.0	121.6	120.1	38.1	123.2	50.5	32.6	144.3
Female	753.9	45.8	87.4	205.0	72.0	51.4	70.5	59.7	162.1
Age <4, total	17.7	0.0	0.0	0.0	0.3	0.1	0.6	0.0	16.9
Male	22.9	0.0	0.0	0.0	0.3	0.1	0.8	0.0	21.7
Female	12.2	0.0	0.0	0.0	0.2	0.0	0.3	0.0	11.7
Age 5–9, total	53.6	0.0	0.1	0.8	3.3	0.1	4.0	0.7	44.5
Male	79.5	0.0	0.1	1.5	3.3	0.1	5.5	1.2	67.9
Female	26.6	0.0	0.1	0.1	3.4	0.1	2.6	0.3	20.0
Age 10–14, total	239.2	0.0	2.9	22.1	26.9	3.9	42.2	14.5	126.6
Male	207.1	0.0	2.9	13.9	17.9	3.2	26.1	7.7	135.3
Female	272.8	0.0	2.8	30.7	36.3	4.6	59.0	21.7	117.6
Age 15–17, total	671.0	0.0	28.8	116.8	68.4	29.7	130.5	58.0	238.9
Male	493.7	0.0	36.1	77.8	38.9	37.6	75.5	29.9	198.0
Female	858.1	0.0	21.0	158.0	99.4	21.4	188.5	87.6	282.1
Ages 18–19, total	655.0	0.0	82.4	107.1	62.7	59.8	101.4	43.9	197.8
Male	641.9	0.0	114.5	84.5	47.5	82.2	86.2	32.7	194.3
Female	668.8	0.0	48.9	130.7	78.5	36.3	117.3	55.6	201.5
Ages 20–24, total	666.2	0.1	124.1	125.4	56.8	65.9	83.4	39.6	170.8
Male	702.7	0.2	183.7	107.5	44.0	89.1	74.7	29.4	174.1
Female	628.5	0.0	62.7	144.0	69.9	42.0	92.4	50.2	167.3
Ages 25–34, total	861.6	0.1	183.3	182.9	64.9	108.7	91.9	53.2	176.5
Male	858.8	0.1	244.0	140.7	48.2	142.4	79.3	37.8	166.3
Female	864.3	0.1	121.2	226.2	82.1	74.1	104.7	68.9	186.9
Ages 35–44, total	973.9	0.1	179.8	255.6	75.9	146.5	91.0	62.4	162.6
Male	915.6	0.1	211.1	180.6	53.9	204.8	77.4	42.7	145.0
Female	1,032.3	0.2	148.3	331.1	98.0	87.8	104.7	82.1	180.1
Ages 45–54, total	799.0	1.5	135.6	241.7	63.6	128.6	58.9	53.2	116.0
Male	716.3	1.9	123.2	170.5	43.8	184.9	49.7	39.0	103.3
Female	882.4	1.0	148.1	313.5	83.5	71.9	68.2	67.5	128.7
Ages 55–64, total	679.7	12.6	104.1	206.2	54.1	118.0	30.9	46.8	107.0
Male	628.8	14.5	88.9	155.0	33.2	176.3	26.0	35.1	99.8
Female	729.4	10.7	118.9	256.3	74.6	61.0	35.7	58.2	114.0
Ages 65–74, total	796.0	91.0	63.7	215.7	60.1	109.9	25.9	61.0	168.8
Male	773.9	102.2	43.9	166.4	41.2	178.9	21.4	46.5	173.5
Female	814.7	81.6	80.4	257.3	76.0	51.6	29.8	73.3	164.8
Age 75+, total	1,581.1	634.3	34.0	186.6	93.1	62.1	31.3	97.0	442.8
Male	1,586.8	656.4	26.5	159.4	60.8	110.8	30.1	84.5	458.1
Female	1,577.8	621.0	38.4	202.8	112.4	33.0	32.0	104.6	433.7
Newfoundland P.E.I.	749.9	26.5	90.3	198.1	58.9	84.7	74.6	53.7	163.0
Nova Scotia	1,181.9	14.7	104.5	174.4	113.3	150.1	37.5	343.7	243.6
New Brunswick	749.0	23.9	85.0	140.8	66.7	109.6	94.9	46.9	181.4
Quebec	857.0	43.2	86.0	179.3	98.6	72.9	89.6	85.5	202.0
Ontario	706.7	45.2	124.0	139.8	47.7	79.9	65.5	34.9	169.8
Manitoba	676.9	30.8	104.0	168.2	47.8	85.3	62.3	48.1	130.5
Saskatchewan	857.0	59.4	108.9	153.7	74.4	114.7	48.2	63.4	234.4
Alberta	797.2	29.0	106.3	213.1	78.4	131.2	39.4	51.5	148.2
British Columbia	647.3	37.8	73.5	175.2	61.4	82.0	47.1	36.2	134.1
Yukon	721.7	59.0	99.9	169.7	59.1	82.5	49.7	43.3	158.5
N.W.T.	653.1	6.5	61.4	168.1	97.0	158.4	32.3	22.6	106.7
	811.7	6.0	33.3	130.0	166.3	173.8	72.6	80.1	149.6

Source: Canadian Institute for Health Information, *Mental Health Database, 1995–96*.

Causes of hospitalization

Introduction

Data on the main causes of hospitalization provide information on which health problems contribute most to morbidity requiring hospitalization. This information can be used to determine where prevention efforts should be concentrated to prevent illness and perhaps reduce some of the costs of a financially strained health care system.

This topic describes the main causes of hospitalization in Canada as indicated by data on separations (discharges and deaths) from allied and general hospitals, but excludes some provincial psychiatric facilities. For further information on hospital use in Canada, see Topic 26 on emergency clinic visits, Topic 27 on average length of hospital stays, and Topic 76 on psychiatric hospitals.

Hospital separations, 1995–96

In 1995–96, there were 3.3 million hospital separations in Canada. This amounts to a rate of 11,171 separations per 100,000 population. The highest rate of separations was for pregnancy (1,609 per 100,000 population, or 3,190 per 100,000 females), followed by circulatory diseases (1,588 per 100,000) and digestive diseases (1,268 per 100,000) (Table 77).¹ Hospitalization for perinatal care (54 per 100,000), congenital anomalies (69 per 100,000), and diseases of the blood (87 per 100,000) was significantly less common (Fig. 77a).¹

Between 1990–91 and 1995–96, there was a decrease in both the total *number* of hospital separations (i.e., from 3,618,533 in 1990–91 to 3,320,789 in 1995–96) and the *rate* of separations per 100,000 population (i.e., from 13,865 to 11,171). The *number* of hospital separations decreased among all age groups with the exception of age 65 and older (Fig. 77b).² The *rate* of separations per 100,000 population decreased for all age groups. This contrasts with the

period 1979–80 to 1990–91, during which there was an increase in the total *number* of hospital separations (i.e., from 3,553,621 in 1979–80 to 3,618,533 in 1990–91), although the *rate* of separations per 100,000 population decreased (i.e., from 14,964 to 13,865) (data not shown).³

Differences among groups

Overall, women were more likely than men to be hospitalized in 1995–96 (12,874 vs. 9,438 per 100,000 population). Although a large part of this difference is due to hospitalizations for pregnancy, women were also more likely to have been hospitalized for cancer (Topic 73), some mental disorders (Topic 76), and digestive, genitourinary, and musculoskeletal diseases. Men were more likely than women to have been hospitalized for injuries or poisoning (Topic 60) and circulatory (Topic 74) and respiratory diseases (Table 77).¹ In 1990–91, men were more likely than women to be admitted for digestive diseases,² whereas in 1995–96, women were more likely than men to be hospitalized for digestive diseases.

The relationship between various hospitalization causes and age is predictable. After the age of 12 years, the rate of hospitalization for neoplasms and circulatory, digestive, genitourinary, and musculoskeletal diseases increases with age. Hospitalization for respiratory diseases was most common among children (less than age 12) and seniors (age 65+). Hospital separations for injury or poisoning also had a bimodal relationship with age, with youth age 15–24 and seniors being the most likely to be hospitalized for this reason (Topic 60). Hospitalization for pregnancies was mainly confined to the age group 15–44. Overall, hospitalization rates increase with age, which is consistent with the trend towards longer average stays (Topic 27), adding up to more patient-days with increasing age.

There are some striking interprovincial/territorial variations in hospital separations. Overall, Saskatchewan and New Brunswick had the highest rates of hospitalization (15,710 and 15,416 per 100,000 population, respectively), and Yukon, Quebec, and Ontario had the lowest rates (9,191, 10,540, and 10,610 per 100,000, respectively). The lowest provincial/territorial rate, across all diagnoses, was thus only 59% of the highest.

New Brunswick was well above average in the rate of hospital separations for cancer and circulatory, respiratory, digestive, and genitourinary diseases, and Saskatchewan residents were more likely than the average to be hospitalized for respiratory and musculoskeletal diseases and injury or poisoning. Ontario had the lowest hospital separation rate for respiratory diseases, followed closely by British Columbia. Quebec had the lowest separation rate for injury and poisoning. The Northwest Territories had the lowest separation rate for cancer.

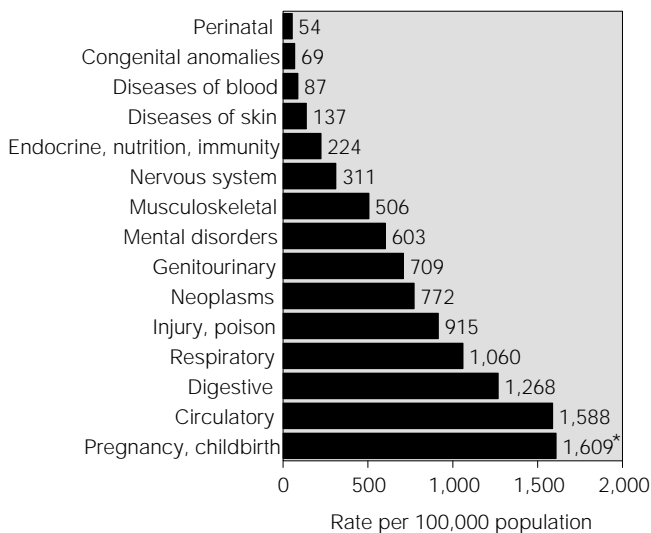
On definitions and methods

Hospital separation records are completed by the hospital for each patient who is discharged or dies in hospital. Hospital separation records provide data on the relative frequency of the principal causes of hospitalization for those who leave hospital. For a more complete picture of the economic significance of each disease group, data on separations must be combined with data on average length of stay (Topic 27). The data in this report exclude newborns.

References

1. Canadian Institute for Health Information. *Hospital Morbidity Database, 1994-95 and 1995-96*.
2. Statistics Canada, Health Statistics Division. *Health Indicators, 1999* (Statistics Canada Cat. No. 82-221-XCB).
3. Statistics Canada, Health Statistics Division. *Hospital Morbidity and Surgical Procedures, 1986-87 to 1993-94*.

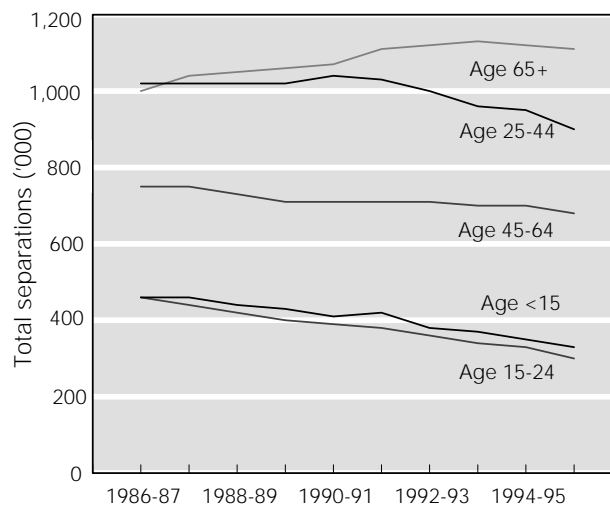
Figure 77a. Hospital separations, by cause, Canada, 1995-96



* Pregnancy rate calculated using entire population. Rate using female population only is 3,190.

Source: Canadian Institute for Health Information, *Hospital Morbidity Database, 1995-96*.

Figure 77b. Total separations from hospital, by age, Canada, 1986-87 to 1995-96



Source: Statistics Canada, Health Statistics Division, *Health Indicators, 1999* (Statistics Canada Cat. No. 82-221-XCB).

Table 77. Hospital separations, by diagnostic group, by age and sex, and by province/territory, Canada, 1995–96

	Rate per 100,000 population									
	Total	Neoplasms	Mental disorders	Circulatory diseases	Respiratory diseases	Digestive diseases	Genitourinary diseases	Pregnancy ^a	Musculoskeletal diseases	Injury and poisoning
Total, all ages	11,171	772	603	1,588	1,060	1,268	709	1,609	506	915
Male	9,438	700	546	1,796	1,145	1,238	509	0	470	976
Female	12,874	842	659	1,383	977	1,298	906	3,190	542	855
Age <12, total	5,987	74	41	36	2,188	623	205	0	80	54
Male	6,786	74	57	38	2,607	691	194	0	85	628
Female	5,149	74	24	34	1,750	553	217	0	75	451
Age 12–14, total	3,209	76	279	33	557	389	139	34	152	709
Male	3,179	75	198	34	486	397	121	0	141	890
Female	3,241	76	363	31	632	380	158	69	164	519
Age 15–17, total	5,308	87	580	55	633	556	284	1,014	218	899
Male	3,685	81	405	61	448	499	116	0	190	1,066
Female	7,020	94	764	49	828	617	460	2,085	249	723
Age 18–19, total	7,246	92	558	67	565	655	408	2,819	232	868
Male	4,070	87	525	71	464	567	106	0	259	1,127
Female	10,565	96	592	64	670	748	723	5,766	205	59
Age 20–24, total	8,970	92	558	88	423	731	469	4,660	235	778
Male	3,847	70	570	84	370	576	125	0	266	1,038
Female	14,246	116	546	91	478	890	823	9,459	203	511
Age 25–34, total	10,799	183	714	171	351	832	602	5,585	317	693
Male	4,275	102	683	177	331	670	181	0	363	879
Female	17,484	266	745	165	371	998	1,034	11,917	270	50
Age 35–44, total	7,425	481	811	467	339	996	780	1,189	426	688
Male	5,586	195	733	596	329	948	276	0	473	825
Female	9,275	770	889	338	348	1,044	1,287	2,387	379	550
Age 45–54, total	8,713	936	671	1,405	450	1,395	787	8	557	728
Male	8,456	564	588	1,904	426	1,380	439	0	554	818
Female	8,973	1,312	754	903	475	1,410	1,137	16	560	638
Age 55–64, total	14,196	1,676	579	3,344	964	2,023	987	0	875	972
Male	15,497	1,705	526	4,472	977	2,126	969	0	823	1,054
Female	12,925	1,647	631	2,242	950	1,923	1,005	0	926	892
Age 65–74, total	24,207	2,880	696	6,424	2,101	2,894	1,538	0	1,417	1,531
Male	27,923	3,469	674	8,239	2,509	3,357	1,956	0	1,227	1,521
Female	21,069	2,383	715	4,891	1,757	2,503	1,185	0	1,577	1,540
Age 75+, total	40,475	3,417	1,458	11,010	4,280	4,151	1,910	0	1,766	3,502
Male	46,742	4,800	1,443	12,947	5,856	4,832	2,985	0	1,452	2,815
Female	36,724	2,589	1,467	9,850	3,337	3,744	1,267	0	1,955	3,912
Newfoundland	12,239	740	506	1,801	1,240	1,538	946	1,453	489	903
Prince Edward Island	13,683	743	932	1,571	1,938	1,708	948	1,654	469	885
Nova Scotia	12,352	870	603	1,976	1,270	1,502	747	1,431	597	924
New Brunswick	15,416	882	814	2,142	2,000	1,975	1,096	1,445	658	1,071
Quebec	10,540	843	614	1,629	964	1,233	701	1,457	453	768
Ontario	10,610	779	541	1,547	924	1,152	670	1,642	493	810
Manitoba	12,690	814	605	1,605	1,334	1,424	701	2,100	494	1,094
Saskatchewan	15,710	873	773	2,072	2,063	1,918	989	1,762	774	1,332
Alberta	10,899	598	565	1,265	1,137	1,234	644	1,775	507	1,111
British Columbia	11,194	672	703	1,514	928	1,226	692	1,580	536	1,167
Yukon	9,191	310	653	734	983	1,077	495	1,865	220	1,047
Northwest Territories	11,795	168	812	472	2,051	1,416	488	2,595	343	1,214

^a Pregnancy rate calculated using entire population. Rate using female population only is 3,190.

Source: Canadian Institute for Health Information, *Hospital Morbidity Database, 1995–96*.