
CANADA

GENERAL SITUATION AND TRENDS

Socioeconomic, Political, and Demographic Overview

Canada is the largest country in the Western Hemisphere, with a land area of 10 million km². It is a confederation governed by 1 national, 10 provincial, and 2 territorial governments. Canadians enjoy one of the highest standards of living in the world. This is evident in the fact that Canada has ranked first in the United Nations Human Development Index each year between 1994 and 1997.

In 1994, it was determined that the majority of Canadians between ages 16 and 69 have the literacy and numeracy abilities to meet everyday living requirements. Overall, 99% of the population is considered literate. Educational levels also continue to rise. The number of First Nations students living on reserves has increased from less than half to 75% in the past six years.¹

Since 1992, the Canadian economy has expanded at a moderate pace. The 1995 gross domestic product (GDP) per capita was Can\$ 26,184. Health expenditures for 1996 reached Can\$ 2,510 per capita. This represented 9.5% of the GDP, down from the 1992 peak level of 10.2%.

As of 1 July 1996, there were 29,963,000 people living in Canada, a 9.7% increase since 1991. The 1995–1996 increases in population yielded a growth rate of 1.2%, lower than the 1.7% average annual rate for the 1991–1995 period. Census figures for 1991 revealed the self-identified Aboriginal population to be 1,002,675, or 3.6% of the total Canadian population. There were nearly 602,700 registered Indians, of whom 346,291 lived on-reserve and 256,400 lived off-reserve. Ac-

ording to the 1991 census, 60.5% of the population reported English as their mother tongue, 23.8% reported French, and 13% reported a mother tongue other than English or French.

There are more women than men in the oldest age groups (65–74 years and 75 and older), but in all other age groups, there are virtually equal numbers of women and men. The number of young Canadians (age 0–19) decreased from 8.6 million in 1970 to a low of 7.5 million in 1985. Since then, the absolute number has grown slightly to 7.9 million in 1993. Still, the proportion of Canadians under age 19 has decreased from approximately 40% in 1970 to 26.6% in 1996, largely due to the aging of the “baby boom” generation.

Canadians 20–64 years of age now make up 61% of the population. The number of Canadians age 65 and older has doubled from 1.7 to 3.5 million since 1970, and account for 12.2% of the population. This proportion is expected to increase to 14% by 2011. As the “baby boomer” population approaches retirement, health services consumption will likely increase.

The majority of the Canadian population is concentrated in two provinces: Ontario (37%) and Quebec (25%). Twenty-nine percent lives in Alberta, Saskatchewan, Manitoba, and British Columbia, compared with 9% in New Brunswick, Nova Scotia, Prince Edward Island, and Newfoundland. The vast differences in provincial population size are illustrated by the ratio of the largest (Ontario) to the smallest (Prince Edward Island), which is 81:1. The territorial populations are even less than that of the smallest province.

Canada’s population is highly urbanized. From 1991 to 1995, the percentage of the population residing in rural areas declined from 23% to slightly less than 20% and by 1995, over 80% of the population was urban. At present, metropolitan areas account for 61% of the population, with the balance living in smaller urban places.

Immigration has diversified the ethnic and cultural makeup of the Canadian population. In 1996, there were 209,000 international migrants, down slightly from 255,740

¹ The term “First Nations” refers to those persons who are registered as Indians under the terms of the Indian Act, and whose names appear in the Indian Register maintained by the Department of Indian Affairs and Northern Development. The term “Aboriginal” refers to all indigenous persons of Canada, specifically those of North American Indian, Inuit, or Metis ancestry.

in 1993. The majority of immigrants were from Asia (136,982), followed by Europe (40,735). Since immigrants tend to settle primarily in urban areas, immigration has the greatest impact on urban centers.

The Canadian population has grown substantially since 1970, the two principal reasons being immigration and new births. More than 383,000 babies were born in Canada in 1995, a rate of 12.9 per 1,000. The 1995 crude birth rate is the lowest since 1972. The birth rate for First Nations peoples was 27.5 per 1,000 in 1993, approximately twice that of the general Canadian population, whose crude birth rate was 13.4 in the same year.

For 1995, the fertility rate varied dramatically by age group. Women in the 25–29-year age group account for 109 births per 1,000 women, followed by those in the 30–34-year age group (86.8 per 1,000); almost two-thirds of all babies were born to women within this 10-year range. Less than 1% of babies were born to mothers aged 10–14 and only 1.3% to women age 45 or older. There is a wide range of fertility rates by geographic area, from a low of 1,250 per 10,000 women in Newfoundland, to a high of 2,778 per 10,000 women in the Northwest Territories.

Mortality Profile

Overall mortality rates have declined significantly since the early 20th century. As Canada moved into public insurance coverage of health care services, specific causes of mortality showed further declines.

In 1995, the crude death rate for the general Canadian population was 7.1 per 1,000. The crude death rate for First Nations peoples in 1993 was 5.52 per 1,000. This rate was slightly lower than that of the general Canadian population, whose crude death rate in 1993 was 7.08 per 1,000. It is plausible that the favorable difference is attributable to the larger proportion of youth in the First Nations population rather than to better health.

Average life expectancy (1995) at birth for a male is 75.4 years while the average life expectancy for a female is 81.3 years. Total life expectancy decreased marginally from 1992 to 1993 due to an influenza epidemic; nevertheless, the gains since 1971 are impressive for both sexes. Improvements in living conditions, infectious disease control, and health care have contributed to increases in longevity.

At all ages, females have a greater total life expectancy than males, although the 6-year advantage that exists at birth declines to a 3-year advantage upon reaching age 75. To some extent, the female advantage with respect to length of life is offset by a lower quality of life, as the additional years lived by a woman are frequently accompanied by an increasing degree of poor health.

TABLE 1
Vital statistics summary, Canada, 1993 and 1995.

Indicator	General Canadian population (1995)	First Nations population (1993)
Live births ^a	12.8	27.5
Deaths ^a	7.1	5.5
Infant deaths ^b	6.1	10.9
Neonatal deaths ^b	4.2	4.0
Post-neonatal deaths ^b	1.9	6.9
Perinatal deaths ^b	7.0	11.8
Maternal deaths ^c	4.0	...
Stillbirths ^b (20+ weeks)	6.2	7.0

^a Rate per 1,000 population.

^b Rate per 1,000 live births.

^c Rate per 100,000 population.

With respect to First Nations people, between 1980 and 1990, the life expectancy of the population increased by six years for both sexes. In 1992, the life expectancy of First Nations females was estimated at 74.9 years, or 6 years less than females in the general Canadian population. Life expectancy for First Nations in 1992 was estimated at 67.8 years or 6.8 years less than the general Canadian population.

A major reason for the overall increase in life expectancy in the general Canadian and First Nations population is the drop in infant mortality, largely due to better pre- and postnatal health care and improved nutrition. Infant mortality rates declined about 83% between 1951 and 1991, and reached 6.1 per 1,000 live births in 1995 (see Table 1). Infant mortality rates for the First Nations population have declined from 27.6 per 1,000 live births in 1979 to 10.9 per 1,000 in 1993. The First Nations post-neonatal death rate (defined as deaths of infants from the 28th day to 1 year of age) dropped 60% from 14.5 per 1,000 live births in 1979 to 6.9 in 1993. By comparison, the post-neonatal mortality rate for the general population was 3.7 in 1979 and declined to 2.1 in 1993.

Since the 1970s, death rates from most major causes have declined, particularly deaths due to heart disease and injuries. Diseases of the circulatory system (including ischemic heart disease and stroke) are the leading causes of death in Canada, accounting for 36.3% of deaths among men and 39.7% among women. Although there were an estimated 54,671 deaths from cardiovascular disease in 1995, this represents a decrease in absolute terms. The decline has been due to a combination of factors: reduced smoking among men, less consumption of dietary fat, improved control of hypertension, and improvements in medical and surgical care. Exceptions to the positive trend are the fairly stable death rates due to suicide, and deaths from all types of cancer combined. Other major causes of death in Canada, for both men and

TABLE 2
Nine leading causes of death, Canada, 1991–1993 and 1995.

Leading causes of death	General Canadian population (1995) ^a	First Nations population (1991–1993) ^a
Circulatory disease	267	350
Neoplasm	199	182
Injury and poisoning	46	174
Respiratory disease	59	108
Digestive disease	26	56
Endocrine and immune system disorders	23	45
Infectious and parasitic diseases	12	17
Congenital anomalies	4	6
Perinatal condition	3	4

^a Rates per 100,000 population.

Sources: Health Canada. *Trends in First Nations Mortality: 1979–1993*; 1996. Statistics Canada, *Mortality Summary, List of Causes*, 1995.

women, include respiratory diseases, and adverse effects and diseases of the digestive system (see Table 2).

Deaths due to injury have declined as a result of several factors, including increased safety consciousness and safer behaviors. Legislation and programs aimed at such issues as improved roads and vehicles, impaired driving, and seatbelt and helmet use have also contributed to the improving trend.

In the First Nations population, the four leading causes of death have not changed significantly since 1979, although three of the four causes (injury and poisoning and diseases of the circulatory and respiratory systems) have seen significant decreases in their crude mortality rates. Injury and poisoning remains among the leading causes of death. This category has seen a 36.6% improvement in mortality rates, from an average of 243 deaths per 100,000 in the 1979–1981 period to an average of 174 deaths per 100,000 in the 1991–1993 period. Diseases of the circulatory and respiratory systems, the second and fourth leading causes of death in First Nations people, have had lesser decreases in crude mortality rates over this period: 11.1% and 6.5%, respectively. The third leading cause of death among First Nations peoples is neoplasms, which have continued to rise from 55 deaths per 100,000 in 1979–1981 to 76 in 1991–1993, an increase of 38.2%.

Among the Canadian population as a whole, obesity is an emerging health problem. Data indicate that there has been a significant increase in obesity since the mid-1980s, particularly among women. In 1994–1995, almost one third of Canadians aged 18–74 were overweight, to the point of probable health risk. Other chronic health problems for Canadians apart from those that result in death include arthritis and rheumatism; disorders of the back, limbs, and joints; mental disorders; allergies; and dental trouble.

SPECIFIC HEALTH PROBLEMS

Analysis by Population Group

Health of Children

Children in Canada generally have a healthy start in terms of their mothers' health, access to prenatal care, and limited exposure to drugs and alcohol during pregnancy, and the health conditions surrounding their birth. Nevertheless, despite significant health gains since the 1970s, the majority of childhood health indicators for the First Nations population are worse than the Canadian average.

The infant mortality rate for the general Canadian population has declined significantly, reaching 6.0 per 1,000 live births in 1996. The First Nations infant mortality rate has also fallen from 27.6 per 1,000 live births in 1979 to 10.9 per 1,000 in 1993, but it still remains 1.7 times higher than the national average. Although the First Nations neonatal mortality rate was 61.7% higher than the Canadian rate from 1979–1981, it has declined more sharply than the Canadian rate, and by 1991–1993, rates reached an average of 4.7 deaths per 1,000 live births, a rate that was 14.6% higher than the Canadian rate for the same period.

The First Nations perinatal mortality rate has shown substantial improvement from 21.8 deaths per 1,000 births in 1979–1981 to 11.8 deaths per 1,000 births in 1993. Even so, the First Nations perinatal death rate continues to be well above that of the general Canadian population (7.1 in 1994).

Infant mortality and perinatal mortality rates are higher for boys than girls, the most pronounced ratio being for early neonatal death at 1.25:1. Provincial and territorial variations in these rates are quite striking. Infant mortality is lowest in Quebec and British Columbia (5.7 per 1,000) and highest in Prince Edward Island (9.1 per 1,000) and the Northwest Territories (9.6 per 1,000). By contrast, Prince Edward Island has the lowest rate of perinatal mortality (5.7 per 1,000), while the highest is in Yukon (11.7 per 1,000).

While the majority of Canadian babies are born healthy, the rate of low birthweight babies has not declined since the early 1980s. Between 1991 and 1995, almost 6.0% of all newborns had low (1,500–2,499 g) or very low (500–1,500 g) birthweight. Women who live in the poorest urban neighborhoods have 1.4 times as many low birthweight babies as women in higher-income areas. A mother's age or racial background did not seem to contribute significantly to low birthweight.

Breast-feeding initiation and continuation varies widely across Canada; the average is 75% initiation and only 30% continuation at 4–6 months. Among those of lower socioeconomic status, the rate of breast-feeding initiation is lower.

Since the mid-1980s, all provinces have stressed infectious

disease elimination through immunization and education programs. Between 85% and 90% of 2-year-olds in the general Canadian population have been fully immunized against diphtheria, tetanus, pertussis, *Hemophilus influenzae* type b (Hib), polio, mumps, rubella, and measles. Ninety-six percent of 2-year-olds have been immunized against measles, 85% have been immunized against DPT, and 90% against polio. Unfortunately, statistics are not as positive for First Nations children. The highest rate of coverage for this population in 1993 was for measles, mumps, and rubella at 73.6%, and the lowest was for pertussis at 45.8%. Nevertheless, figures from 1993 reveal that deaths from infectious and parasitic diseases have become less frequent among the general population of Canadian and First Nations infants.

In 1996, the mortality rate for children of both sexes under age 5 was 8 per 1,000. This represents a 4.3% decline in males and a 1.7% decline for females under age 5 since 1980. Along with premature birth, conditions such as sudden infant death syndrome and congenital anomalies are among the main contributors to infant death.

Injuries also pose a national threat to the health and well-being of children. Unintentional injuries are the leading cause of death for children over 1 year of age and account for more child deaths in Canada than the next six causes combined. The leading causes of injury-related deaths in Canadian children from infancy through early adolescence are suffocation, burns, drownings, falls, and motor-vehicle-related accidents. Injuries during play are typical of the 5–9-year age group. Males are at two to four times greater risk of injury than females, and the severity of injuries is also greater for males.

The prevalence of obesity in children has increased in the past decade from 14% to 24% among girls and from 18% to 26% among boys. At the same time, there are approximately 2.4 million Canadians, of whom 900,000 are children, who rely on government food banks to supplement their diets.

Injuries in the 10–14-year and 15–19-year age groups are more likely to occur at school, a playground, or a sports facility. Poisoning is also common among youth in the 15–24-year age group.

Health of Adolescents and Adults

Lifestyle choices such as alcohol and tobacco use affect the health of young Canadians. Alcohol-attributable mortality remains a major cause of death, particularly among youth in Canada. This is especially true when drinking is combined with driving.

In 1994–1995, 55% of Canadians age 12 and over reported drinking at least one drink per month in the previous year. The proportion of drinkers rose steadily with age. Twelve percent reported never drinking. Nearly 20% of teens aged 15–19

and 30% of youths aged 20–24 reported regular heavy drinking. With the exception of the 12–14-year-old age group, males were significantly more likely than females to have reported being drinkers. There is also a relationship between drinking and education. University graduates were almost twice as likely as those with less than high school education to report drinking at least once a month (71% and 47%, respectively).

While overall tobacco consumption declined by 27% from 1970 to 1990, it has remained steady since 1990. In 1994–1995, 29% of Canadians age 12 and over smoked. Among those in the 15–19-year age group, 29% (261,000) of girls and 26% (244,000) of boys were regular or occasional smokers. While smoking by teens in the 15–19-year age group is not as prevalent as among those 20–44 years old, teen smoking is distinctive in a number of ways. Most significantly, the rate of current teen smokers increased substantially between 1991 and 1995, from 21% to 29%. Teenage females were more likely than males to smoke. For example, in the 12–14-year age group, 15% of girls are current smokers—three times the rate of boys the same age.

Sexual health has become an increasingly important part of healthy living. In 1990, approximately 63% of Canadians age 15 and over reported having their first sexual intercourse before the age of 20. Relatively few (9%) reported their first sexual intercourse as occurring before the age of 15. Differences between genders, age groups, and education levels all characterize variations in sexual practices. The gender variation regarding number of sex partners is most pronounced among 15–19-year-olds: 83% of females report having had only one sex partner in the previous year compared with 64% of males.

Educational and provincial differences in sexual practice are less pronounced than gender and age differences, but some are notable. For instance, the population with a high school education are slightly more likely to have had sex before the age of 20 than are university graduates (69% and 50%, respectively).

The prevalence of sexually transmitted diseases (STDs) other than AIDS, in particular chlamydia, gonorrhea, and syphilis, is highest among youth and young adults in 15–29-year age group. Chlamydia and gonorrhea infection rates are highest among female teens (1,358.7 and 124.9 per 100,000, respectively). Syphilis infection rates among 20–24-year-old males and females are 1.3 and 1.6 per 100,000, respectively.

Low socioeconomic status also continues to be associated with poorer sexual and reproductive adolescent health. Between 1987 and 1994, the rate of teenage pregnancy rose by more than 20%. The teenage pregnancy rate in the poorest neighborhoods was nearly five times that of teenagers living in affluent areas.

Among Canadian women age 15–44, 86% report using contraception. The vast majority of Canadian women also consult with trained personnel at some point during their pregnancy. Women who do not receive prenatal care are more

likely to live in isolated communities, are new to Canada, or experience other marginalized circumstances. Prenatal care is universally available, usually from a doctor (92.4%), nurse (2.9%), or midwife (1.4%). In 1992–1993, physicians performed 98% of deliveries.

Studies indicate that a disproportionate number of low-income women live in areas, both rural and urban, where there are few facilities for sexual and reproductive health services, including abortion services and STD clinics. Lower-income women are also more likely not to have had, or to have delayed preventive procedures such as mammograms and Pap tests.

Health of the Elderly

The population age 65 and over experience activity limitations that are almost three times that of younger age groups. The poorest segments of the senior population tend to experience the highest rates of activity limitation. However, this pattern is most evident among younger seniors (age 65–69). Close to 20% of low-income seniors age 65–69 reported a health-related activity limitation as compared to 12% for middle- and upper-income seniors in the same age bracket. This is particularly pronounced for seniors from First Nations, Inuit, and other minority groups, and for seniors with disabilities, who tend to experience a lifetime of low income, sporadic employment if any, or little opportunity to acquire savings.

Twenty-nine percent of seniors 65–69 years old experience chronic pain. The number increases to 35% for those 75 years and over. The severity of pain increases with age, being 17% for those 65–74 years old and 20% for those 75 and over. Sources of chronic pain include migraine headaches, arthritis, rheumatism, angina, and vascular disease. Among both age groups, women were more likely to report chronic pain than men (34% and 27%, respectively).

Falls and home injuries also impact the health of seniors. For both genders, the injury and mortality rates from accidental falls increase with age. Of deaths resulting from accidental falls in 1993, 35.7% occurred among men and 51.6% among women age 65 and over. Visual impairment affects 9% of the population age 65 and over. Women tend to experience the onset of these and other health-related activity limitations earlier than men. In every age group of the senior population, the rates of activity limitation are higher for women than for men, though the difference is pronounced only in those 75 years and older.

A problem that has only recently come to public attention is elder abuse, a term generally used for the physical, psychosocial, or financial mistreatment of seniors. Approximately 4% of non-institutionalized seniors reported being abused. Financial abuse is the most prevalent type of abuse, affecting 60,000 Canadian elders. Chronic verbal aggression

affects approximately 34,000 seniors, and 12,000 seniors experience physical abuse. In the majority of physical abuse cases, the abusers are spouses of the victim.

Health of the Family

In Canada, as in almost all other parts of the industrialized world, marriage rates are declining. The number of marriages peaked in 1972 at around 200,500. Subsequent brief upturns merely moderated the downward trend, which resulted in fewer marriages being registered in 1994 (159,959) than 25 years earlier, although the population had increased by almost 30% during this time. The number of divorces in 1994 was 78,880, with small annual variation since 1989.

In 1994, 80% of the population or 23.5 million Canadians were living in families. While more families are being formed, fewer births are occurring; in 1995, average family size was 3.0. Thirteen percent were single-parent families. Although this percentage has remained steady since 1986, it represents an increase of 4% since 1971. Men headed only 17% of all single-parent families.

Family violence, particularly wife and child abuse, has become a major social issue. In 1993, 10% of women age 18 and older had experienced violence in the preceding year. Women in the 18–24-year age group were significantly more likely to have reported experiencing violence than any other age group.

One-half of Canadian women (51%) have experienced at least one incident of physical or sexual violence since the age of 16. There are some striking geographical variations in the occurrence of violence against women. Women in Newfoundland were significantly less likely than average to have been victims of violence (33%), while women in Alberta and British Columbia were the most likely to have experienced violence (58% and 59%, respectively).

The presumed child abuse mortality rate for infants less than 1 year old between 1985 and 1990 was 2.7 per 100,000 live births. In 1992, 40,000 children were removed from their homes and taken into protective custody by the state. While children of all ages are at risk of child abuse, those 3 years old or younger are most likely to suffer from neglect, and children 12–15 years old from physical abuse. Child abuse is not confined to any one social class or sector of the population, but economic disadvantage is a major contributor to child neglect.

Workers' Health

Substantial proportions of Canadians are in the labor force (63.8%). Unemployment rates are higher for men in all age groups than they are for women. Female labor force participation increased from 36% in 1970, peaking at 59% in 1992, and

declining to 57% in 1995. The overall increase in female participation has important health implications, given that women are entering the labor market at unprecedented rates but often maintain the majority of child-rearing responsibilities. A 1991 survey found that 19% of employed mothers in Canada with children under 13 years of age reported experiencing a great deal of tension on a daily basis balancing work, family, and child-care responsibilities. Thirty-two percent of women in dual-income households reported high work-family conflict, compared with 23% of men. Single mothers are more likely to report high levels of work-family tension: 27% of employed single mothers with children under age 13 experience severe work-family tension on a day-to-day basis, compared with 18% of employed married mothers.

The vast majority of men and women in the paid labor force report experiencing considerable satisfaction with their work, even though this figure has declined since 1991. At the individual level, the pace and volume of work, the sense of control, the repetitiveness of tasks, and the range of skills used are all related to health outcomes. Organizational factors such as level and method of remuneration, the quality of benefits, the degree of worker participation in decision-making, and the overall management philosophy toward workers and workers' well-being have all been found to be related to health in the workplace.

Health of the Disabled

The functional health status of Canadians in general age 12 years and over has been assessed based on self reported data on vision, hearing, speech, mobility, use of hands and fingers, memory and thinking, feelings, and pain and discomfort. Data from 1994–1995 indicate that most Canadians either are in perfect health or have fully correctable minor problems, for example, nearsightedness and slight hearing loss.

Close to 5 million Canadians age 12 and over report a disability or limitations on a continuing basis because of a health problem. Conditions causing these limitations include non-arthritic back problems (17%), vision or hearing difficulties (17%), respiratory or digestive conditions (9%), and heart conditions other than coronary heart disease (7%). Thirteen percent are limited in home activities, 5% of students are limited in school activities, and 8% of working persons are limited on the job.

In all age groups, females are somewhat more likely to report an activity limitation at home or at school, while males are more likely to report work limitations. With the exception of school, the rate of limitations decreases sharply with age, until age 65. Over 36% of older seniors report some limitation of activity at home. Among working Canadians, those in the 45–64-year age group are most likely to report work limitations.

Health of the Indigenous People

Unlike the general Canadian population, 1991 data indicate that 31% of First Nations people have some form of disability. Forty-five percent reported problems with mobility, 35% with agility, 35% with hearing difficulties, and 25% with vision. Sixty-five percent of these disabilities were classified as mild and 12% as severe. Among Inuit people, 29% report a disability. Forty-four percent suffer from hearing impairment (a higher proportion than found in other subgroups or in the general Canadian population), 36% report problems with mobility, 26% with agility, and 24% with vision. The literature suggests that the major causes of disabilities in First Nations and Inuit peoples are high accident rates, poor housing and community conditions, alcohol and substance abuse, and chronic conditions such as diabetes.

First Nations and Inuit peoples continue to be among the country's most socially and economically disadvantaged groups. Despite ongoing problems, however, over the past three decades significant improvements have been made in many aspects of First Nations and Inuit health. These advances are due mainly to improved living conditions, better access to good health care, and greater involvement by indigenous communities in the health care system. In 1994–1995, 6% of First Nations dwellings lacked an adequate water supply, and 12% were without adequate sewage disposal, compared with 1986 when over 25% were without adequate water and 33% without adequate sewage disposal.

Analysis by Type of Disease

Communicable Diseases

In Canada, communicable diseases considered to be of particular public health importance are Creutzfeldt-Jacob disease, blood-borne pathogens such as hepatitis B and C, influenza and respiratory syncytial virus, antimicrobial-resistant *Streptococcus pneumoniae*, nosocomial infections, vancomycin-resistant enterococci, methicillin-resistant *Staphylococcus aureus*, waterborne enteric diseases, measles, hantavirus, acute flaccid paralysis, congenital rubella syndrome, and HIV/AIDS.

Vector-Borne Diseases. Data from 1996 indicate that there were 744 new cases of malaria, up from 637 in 1995. All cases of malaria were contracted overseas. There were no reported cases of yellow fever or plague in 1996. There have been no reported cases of yellow fever in Canada for a few decades.

Vaccine-Preventable Diseases. In 1995, there was one vaccine-associated case of polio. In 1996, there was an importation of the wild poliovirus, but no reported cases. There

were two reported cases of diphtheria in 1994 (non-travel related) and no cases in 1996. There were six reported cases of tetanus in 1995 and two reported in 1996. In 1996, there were 280 new cases of the mumps and 237 incidents of rubella. The number of new cases of hepatitis B for 1996 was 2,774, down slightly from 3,034 in 1995. It is estimated that 85%–95% of the eligible population in each province or territory has been fully immunized against hepatitis B.

In 1995, there were 2,362 reported cases of measles compared with 503 in 1994. In 1996, the reported number of new measles cases was only 322. In 1996, 11 provinces and territories introduced a routine two-dose measles vaccination program to replace the one-dose strategy. Combined with a massive campaign, the two-dose vaccination programs have resulted in 97% coverage. This has significantly decreased the transmission and incidence of measles.

The introduction in 1992 of *Haemophilus influenzae* type b (Hib) conjugate vaccines for routine immunization of infants has led to a reduction of more than 85% in the reported incidence of Hib disease in Canada. In 1996, there were only 56 reported cases of invasive Hib.

Immunization coverage in First Nations and Inuit communities is below average. Several factors inhibit coverage: the absence of families from their communities for hunting, fishing, berry-picking, or other seasonal employment; the failure of authorities to enforce immunization standards; religious beliefs or philosophical positions; and negative media coverage, particularly regarding pertussis vaccinations.

Cholera. In 1996, there were four reported cases of cholera.

Acute Respiratory Infections. Bacteria and viruses that are carried in or infect the human respiratory tract cause substantial morbidity and mortality among adults and children in Canada. Between April and November, the influenza virus causes an estimated 70,000 hospitalizations and 6,700 deaths per year, especially among the elderly and those with underlying illnesses. Respiratory syncytial virus, a common childhood infection, causes approximately 34 hospitalizations per 1,000 children annually. Recent studies done at Health Canada's Laboratory Center for Disease Control suggest that *Streptococcus pneumoniae*, the most common bacterial cause of pneumonia, affects approximately 15 Canadians per 100,000 per year, especially the very young and the elderly. Similar research has identified rates of disease due to other respiratory tract pathogens, such as group A streptococci (approximately 3.5 cases per 100,000 people per year) and *Neisseria meningitidis*, a common cause of meningitis (approximately one case per 100,000 people per year).

Rabies. There have been no reported cases of human rabies for at least a decade.

AIDS and Other STDs. Since the first diagnosed case of AIDS in 1979, the total number of cases has risen steadily, cumulating in a total of 10,689 cases in 1994. In 1996, there were only 558 new cases of AIDS, representing a decrease from 1,266 in 1995. In 1995, Canada's rate of AIDS cases was 4.0 per 100,000.

In Canada, most persons with AIDS have been exposed to the human immunodeficiency virus (HIV) through sexual contact with infected individuals; the remainder have been infected from using contaminated needles or through the use of blood products and blood transfusions from donors infected with the virus. Only 6% of all reported AIDS cases are among women, and 99% of AIDS cases are in the adult population. The majority of reported cases (77%) occur in homosexual and bisexual men.

The highest rate of infection is in the age group 30–39 years old, followed by the age groups 40–49 years old, and 20–29 years old. These age differences are not believed to reflect current sexual practices, but rather the lengthy incubation period for HIV. Ontario, Quebec, and British Columbia have the largest number of AIDS cases and deaths. The concentration of AIDS in these provinces exceeds their respective proportion of the population.

As of 1996, chlamydia was the most common STD, whereas five years earlier gonococcal infection was the most frequently reported STD. In 1996, there were 24,476 reported cases of chlamydia, down from 37,061 in 1995. In 1996, there were 3,914 gonococcal infections, which represents over a 10-fold drop in the number of cases reported since 1981. In 1996, there was one reported case of congenital syphilis, 14 reported cases of early latent syphilis, 45 reported cases of early symptomatic syphilis, and 248 cases of other syphilis. Across all ages, men are more likely than women to be infected with gonorrhea or syphilis, but women are three times more likely than men to contract chlamydia.

Tuberculosis and Leprosy. In 1994, there were 2,074 reported cases of tuberculosis. In children under 4 years of age, there were 91 reported cases of tuberculosis. For the population as a whole, there were 110 reported deaths attributable to tuberculosis (69 male and 41 female). In 1995, the incidence of tuberculosis decreased to 1,930. The majority of cases of active tuberculosis now being reported in Canada occur among those who have come from other countries where the disease is more prevalent.

The total number of reported cases of active tuberculosis among First Nations Canadians has remained constant in the recent past. In 1980 there were 390 reported cases, while in 1995 there were 343 reported cases. These totals constituted 14% and 18% of all reported cases in Canada for 1980 and 1995, respectively.

In 1996, there were five reported cases of leprosy.

Noncommunicable Diseases and Other Health-Related Problems

Nutritional Diseases and Diseases of Metabolism. Protein-energy malnutrition in children under 5 years old is not generally considered to be a problem in Canada. All salt marketed for table or general household use must be iodized and less than 5% of school-age children have goiter. As a result of fortification programs, the general Canadian population does not suffer from vitamin A deficiency. However, food intake studies since 1991 have identified segments of the First Nations population as being at risk for low intake of vitamin A. Calcium intake is inadequate in some population groups. In addition, folic acid is a micronutrient for which intakes, particularly in women, may not always meet requirements when standard Canadian diets are consumed. Recently, steps have been taken to increase the fortification of flour and other grain products with folic acid to assist in reducing the risk of neural tube birth defects, such as spina bifida.

Iron deficiency anemia and its impact on growth and development remains a problem, especially in certain subgroups of women. Data indicate that iron intakes are low in women 18–49 years of age in Nova Scotia and Quebec. Also, infants in some regions of Canada and among some low-income families are at risk for iron deficiency in later life due to the use of whole cow's milk in infant feeding. Breast-feeding, an important part of infant nutrition, is quite high in mothers of children under 2 years old; 75.3% of children have been or are being breast-fed.

Being overweight is generally more prevalent in Canada's eastern provinces, ranging from 61% in Newfoundland to 44% in British Columbia. Men are more likely to be overweight than women: 57% of Canadian men are at increased risk of cardiovascular disease due to being overweight, compared to 40% of women.

While one out of every two Canadians age 20–69 is at a healthy weight, approximately 48% of Canadians have a body mass index of 25 or more, which puts them at risk of cardiovascular disease and other conditions such as high blood pressure and diabetes. A significant proportion of the population was overweight to the point of possible health risk (17%) and probable health risk (32%). At the other end of the spectrum, close to one-tenth (9%) of the population is underweight. More women (15%) than men (5%) are likely to experience health problems associated with being underweight.

Diabetes has been diagnosed in 1.5 million Canadians. Approximately 60,000 Canadians are diagnosed with diabetes every year. Ten percent of all people with diabetes have Type 1 diabetes and the remaining 90% are diagnosed with Type 2 diabetes. Eighty percent of people with Type 2 diabetes are overweight, and 5% of women will develop diabetes during pregnancy. Canadian men and women are about equally likely

to report having diabetes and the overall prevalence is generally low (4% for women, and 5% for men). Diabetes is at least two to three times higher among First Nations Canadians than the rest of the population.

Cardiovascular Diseases. Death rates from all major categories of cardiovascular diseases have been declining at a rate of about 2% per year in Canada since the mid-1960s. Nevertheless, cardiovascular disease remains a major cause of death, disability, and illness in the country. In 1994, cardiovascular disease accounted for 38% of all deaths. Men experience almost twice the death rates of women in all categories of cardiovascular disease, except stroke, for which the death rates are approximately equal for all ages.

First Nations populations in Canada had, until recent decades, experienced much lower cardiovascular disease death rates than the general population. Yet during the past decade, First Nations men have experienced a death rate for ischemic heart disease similar to that of the general male Canadian population. The age-standardized death rate from stroke for the First Nations population is decreasing as is the relative difference between their death rates and those of the general Canadian population. First Nations women experience higher death rates than the general Canadian female population for both ischemic heart disease and stroke. During the past decade, the difference between First Nations women and the general population with respect to stroke has decreased noticeably, whereas that for ischemic heart disease has remained the same. The higher prevalence of risk factors for cardiovascular diseases such as high blood pressure, diabetes, obesity, and smoking may partially account for this trend.

The prevalence of one or more major modifiable risk factors for cardiovascular disease is uniformly high among men and women ages 18–74 (66% and 62%, respectively). There are no marked gender differences in the overall prevalence of regular smoking. About one-quarter of Canadian men and women age 18–74 smoke on a regular basis. High blood pressure is more prevalent among Canadian men than women; 19% of men have high blood pressure and 13% of women. More than 20% of adults are at increased risk of cardiovascular disease due to elevated blood cholesterol; differences in levels between men and women are not significant. Education level is strongly linked to risk-factor prevalence. Canadians with 11 years of education or less are much more likely to have at least one of the major risk factors for cardiovascular disease than those with more than 11 years of education (76% as compared with 59%).

Malignant Tumors. Trends in the incidence and mortality for all forms of cancer combined have been relatively stable since the mid-1980s, although the number of new cases and deaths continues to rise because of the aging population. In

1995, 125,400 new cases of cancer were diagnosed and an estimated 61,500 Canadians died from cancer in that year. Rising rates of lung cancer and the aging of the population have offset reductions in death rates for many types of cancer, such as leukemia and colorectal cancer. Cancer in its many forms was the second leading cause of death in 1994 and accounted for over 891,000 years of potential life lost. Cancers, including lung and prostate cancer, account for 28.3% of total deaths in men and 27% in women. In 1997, there will be an estimated 60,700 deaths from cancer, an increase of 25% since 1987.

Accidents and Violence. In 1993, accidents, poisoning, and violence accounted for 8% of hospitalizations. The death rate from injuries is higher among First Nations people than in the general Canadian population. However, injury death rates have decreased substantially since 1979, particularly among men. Over the 1990–1994 period, the main causes of death from injury among First Nations people, were, in order of importance, motor vehicle accidents, suicide, homicide, and drowning.

Traffic accidents are one of the leading causes of death among Canadian youth. Teenagers and 20–24-year-olds are twice as likely to be injured or killed in accidents than any other age group. Although traffic accidents are caused by many factors, including driver error, recklessness, and poor road conditions, the combination of drinking and driving is one of the key causes in many serious car accidents each year.

Years of potential life lost as a result of traffic accidents are approximately three times greater for males than for females. There are some important geographical variations in traffic accident casualties. Although Ontario and Quebec account for the most deaths and injuries due to motor vehicle accidents, Quebec is underrepresented in injuries in terms of its current proportion of the population, and Ontario is underrepresented in deaths. In contrast, there is an overrepresentation of traffic accident deaths in Prince Edward Island, Alberta, and British Columbia. British Columbia also has a disproportionate number of injuries due to road user collisions. Quebec and Alberta are distinguished from other provinces by the high proportion of motor vehicle collisions that result in death.

Alcohol, Tobacco, and Drug Use. Aside from caffeine, the most commonly consumed psychoactive drug is alcohol. Nevertheless, alcohol consumption continues to decline: 72.3% of Canadians reported drinking (defined as the consumption of at least one drink each month) in 1994 compared to 79% in 1990. A survey on alcohol and other drugs found that only 5% of Canadians drank on a daily basis. Groups considered to be at particular risk from harm associated with alcohol and other drugs include women, youth, seniors, First Nations and Inuit peoples, and driving-while-impaired offenders. First Nations youths are at two to six times greater risk for alcohol-

related problems than their counterparts in other segments of the Canadian population.

There are large geographic variations in alcohol consumption, with Prince Edward Island and New Brunswick both well below the average in terms of current drinking prevalence, and Quebec and British Columbia above average.

Nicotine is the third most commonly used psychoactive drug. In 1995, 27% of Canadians age 15 and older reported smoking on a regular basis, a decrease of close to 5% since 1989 (31.9%). The average Canadian smoker age 15 and over smoked an average of 20.5 cigarettes per day. In general, more males than females smoke (28.4% and 25.6%, respectively). Rates of use are highest among 20–24-year-olds (37%) and lowest for adults over 65 (14%). There are wide variations between the provinces in the prevalence of regular smoking, ranging from a high of 33.6% in Quebec to a low of 22.4% in Ontario. The majority of First Nations Canadians (57%) smoke; half of those who smoke do so daily.

One in five First Nations youth has used solvents. One-third of all users are under 15 and more than half began to use solvents before the age of 11.

Oral Health. In 1990, 75% of Canadians had visited a dentist in the previous 12 months. From 1993 to 1995, the decayed, filled, missing teeth (DFMT) index was 2.1 for 12-year-olds in the general population. The DFMT index for First Nations children was 4.4.

Approximately 40% of the population receives fluoridated drinking water. Since 1986, there has been little change in the number of cities in Canada who have implemented programs to fluoridate their water. Nearly 72% of the population is served by treated water supplies, and, of that population, 53.7% receives artificially fluoridated water. Fluoride levels in municipal water supply are controlled and monitored by provincial, territorial, and municipal governments.

Natural Disasters. In May 1997, severe flooding caused the evacuation of 28,000 residents in the province of Manitoba. Although the waters damaged 2,500 homes and the cost of the flood is estimated to be close to Can\$ 200 million, well-coordinated disaster relief efforts prevented the loss of life.

RESPONSE OF THE HEALTH SYSTEM

The national principles of the health care system are set out in the Canada Health Act. These principles include public administration on a nonprofit basis, comprehensive service, universal population coverage, accessibility to services, and portability of benefits. Canada's taxpayer-financed, comprehensive health insurance system covers medically necessary hospital, inpatient, outpatient, and physician services for all

residents. No resident may be discriminated against on the basis of such factors as income, age, geographic location, or health status.

National Health Plans and Policies

What has come to be known as “Medicare” comprises 12 interlinked health plans administered by the provinces and territories, which have constitutional authority for health care. Medicare’s two major components are the Hospital Insurance Program and the Medical Care Program. The Hospital Insurance and Diagnostic Services Act of 1957 led to all provinces and territories providing their residents with comprehensive coverage for hospital care by 1961. This was followed by the federal Medical Care Act in 1968, and by 1972, all provincial and territorial health care plans insured physician services. The 1984 Canada Health Act consolidated the previous legislation on hospital and medical care insurance and clarified the broad national standards that provincial plans must meet to qualify for federal funding.

Since the release of the Lalonde report (“A New Perspective on the Health of Canadians”) in 1974, followed by the Ottawa Charter in 1986, Canada has broadened its understanding of the factors that contribute to health and has taken action on a number of fronts. Government policies focus on lifestyle choices (e.g., diet, exercise, and smoking) as well as on public policy (e.g., seat-belt legislation). In addition, there is an awareness of the social dimension of health, beyond factors that are within the immediate control of individuals, professionals, and communities.

In October 1994, the federal government launched the National Forum on Health. The Forum’s mandate was to advise the federal government on ways to improve the health system and the health of Canada’s people. In 1997, after numerous public consultations, the Forum released its final report, “Canada Health Action: Building on the Legacy.” The Forum emphasized that strategies to improve population health status must address a broad range of health determinants: social and economic environments, physical environments, personal health practices, individual capacities and coping skills, as well as the availability of health services.

In 1997, the government announced several initiatives to improve population health. These include the creation of a Health Transition Fund, which will provide Can\$ 150 million over three years to support provincial and territorial projects and innovative approaches to modernize the health care system. The Fund will consider specific projects such as nationally insured pharmaceutical and home care services, primary care, preventive health, and evidence-based decision-making. The Canadian Health Information System aims to strengthen Canada’s health surveillance network and establish a popula-

tion health information database and a First Nations health information system. The Community Action Plan for Children and the Canada Prenatal Nutrition Program build on constructive partnerships with provinces, territories, and stakeholders to provide community-based support that families at risk need to help ensure the health of their children. The Canada Foundation for Innovation will help generate funding for innovative and progressive research in various sectors, including health. Six Networks of Centers of Excellence oriented toward health science (i.e., the Canadian Bacterial Diseases Network, the Canadian Genetic Diseases Network, the Health Evidence Application and Linkage Network, the Respiratory Health Network, the NeuroScience Network, and the Protein Engineering Network) will receive annual funding of close to Can\$ 50 million to support the work of health researchers.

In August 1995, the federal government announced a new policy on the inherent right of self-government of First Nations and Inuit peoples. Under this policy, First Nations and Inuit governments and institutions will acquire the jurisdiction or authority to act in a number of areas, including health. At present, consensus between the federal government and First Nations peoples has not been reached with respect to substance of the policy or the implementation process.

Organization of the Health Sector

Institutional Organization

Canada’s health care system relies extensively on primary care physicians (e.g., family physicians and general practitioners), who account for about 60% of all active physicians in Canada. They are usually the initial points of contact with the formal health care system and control access to most specialists, many allied health providers, hospital admission, diagnostic testing, and prescription drug therapy.

Doctors are not employed by the government. Rather, most physicians are private practitioners who work in independent or group practices and enjoy a high degree of autonomy. Some doctors work in community health centers, hospital-based group practices or work in affiliation with hospital outpatient departments. Private practitioners are generally paid on a fee-for-service basis and submit their service claims directly to the provincial insurance plan for payment.

In most instances, when Canadians need medical care they go to a physician or clinic of their choice and present the health insurance card issued to all eligible residents of a province. Canadians do not pay directly for insured hospital and physician services, nor are they required to fill out forms for insured services. There are no deductibles, copayments, or dollar limits on coverage for insured services.

A number of allied health care professionals are also involved in primary health care. Dentists work independently of the health care system, except where in-hospital dental surgery is required. While nurses are generally employed in the hospital sector, they also provide support for primary services, typically in conjunction with private practices. Pharmacists dispense prescribed medicines and drug preparations as well as providing information on prescribed drugs or assisting in the purchase of non-prescription drugs.

Specialized ambulatory physician care is provided on much the same basis as general practitioner care. Specialists control access to other physicians and allied providers, admissions to hospitals, and prescribe necessary diagnostic testing, treatment, and prescription drug therapy.

Over 95% of Canadian hospitals are operated as nonprofit entities run by community boards of trustees, voluntary organizations, or municipalities. Hospitals have control of day-to-day resources provided that they stay within the operating budgets established by regional or provincial health authorities. Hospitals are primarily accountable to the communities they serve, not to the provincial bureaucracy. For-profit hospital operations account for less than 5% of the total number of hospitals and are predominantly long-term care facilities or specialized services such as addiction centers.

In addition to insured hospital and physician services, provinces and territories also provide coverage for health services that remain outside the national health insurance framework for certain groups of the population. These supplementary health benefits often include prescription drugs, dental and vision care, services of allied health professionals such as podiatrists and chiropractors, and aids to independent living.

Although the provinces and territories do provide some additional benefits, supplementary health services are largely privately financed. The individual's out-of-pocket expenses may depend on income or ability to pay. Individuals and families can acquire private insurance or may benefit from an employment-based group insurance plan to offset some portion of the expense of supplementary health services. Under most provincial laws, private insurers are restricted from offering coverage that duplicates governmental programs, but they can compete in the supplementary benefits market.

Since the federal, provincial, and territorial governments share responsibility for health, a structure that allows for consultation and collaboration among them has been established. It comprises the Conference of Ministers of Health, the Conference of Deputy Ministers of Health, several federal/provincial/territorial advisory committees, and numerous subcommittees and working groups established to deal with subjects requiring more detailed study. An example is the "Report on the Health of Canadians" prepared in 1996 by the Federal, Provincial, and Territorial Advisory Committee

on Population Health. The Report helped policymakers to measure Canada's progress in achieving better population health and to identify actions that can be taken to make continued improvements.

In most provinces and territories, the administration and payment for health services operate either from within the Ministry of Health or through a separate agency closely linked to the Ministry. These health insurance plans administer payment to service providers on behalf of provincial residents. The operation of these plans must respect the principles of the Canada Health Act in order for the province to qualify for full federal health funding transfers. The Minister of Health in each province or territory is politically accountable for the operation of the health care system in his or her jurisdiction.

The provinces and territories are responsible for providing hospital and physician services to all residents, including First Nations peoples, through provincial insurance plans. The federal government provides treatment and public health services in remote First Nations communities and public services to other First Nations people through the Medical Services Branch of the federal Department of Health. The Medical Services Branch also provides or pays for non-insured health benefits for on- and off-reserve First Nations and Inuit peoples. The Medical Services Branch spends close to Can\$ 976 million annually on the development and delivery of health services to First Nations and Inuit peoples. At present, the federal government is working in partnership with First Nations communities to promote good health and to assist them in assuming control of their own health programs.

Provincial, regional, and municipal health authorities also manage other health services such as safe water provision and sewage treatment, operate public health programs such as communicable disease surveillance and health education, provide inspection of food-service establishments, offer home and hospital services to mothers and newborns, and provide school health services such as immunization clinics and preventive care dental clinics.

At the federal level, the Department of Health is the principal agency concerned with health matters. The Department undertakes a broad leadership role in fostering essential national relationships by establishing active health system partnerships with the provinces and territories, supporting initiatives to redress health inequalities, improving knowledge management and research dissemination, and creating innovative and effective health programs to advance the health of Canadians.

The federal Minister of Health is politically responsible for ensuring that provinces abide by the criteria contained in the Canada Health Act. In this respect, the Department of Health regulates monetary transfers to the provinces, which assist in the financing of insured health services.

Organization of Health Regulatory Activities

The Department of Health provides occupational health, environmental health, and emergency health services within its areas of jurisdiction. It is also responsible for regulatory functions to safeguard the quality and safety of foods, cosmetics, pesticides, drinking water, and air quality, as well as the safety and effectiveness of drugs and medical devices. The Department is charged with monitoring disease incidence, assessing risks, providing disease control services, providing national epidemiological and laboratory surveillance of HIV/AIDS, and identifying and assessing environmental hazards.

Monitoring of hospitals is undertaken at many levels. Provinces typically control facilities by monitoring budgets and expenditures. The Royal College of Physicians and Surgeons regularly evaluates hospitals for inclusion in residency training programs. Allied professions, such as physiotherapists, assess individual hospital programs and departments as candidates for internships. The quality of Canadian hospitals is monitored by the Canadian Council for Health Facility Accreditation. The accreditation process requires hospitals to meet minimum standards to maintain their status. Failure to meet these standards may lead to a ratings change, loss of teaching hospital status, or in some cases, a reduction in funding.

In March 1996, the federal government separated responsibility for food inspection activities from food safety initiatives by creating the Canadian Food Inspection Agency. Although the traditional inspection and compliance activities performed by the Health Protection Branch of the Department of Health have been transferred to the Inspection Agency, the Department of Health retains its jurisdiction over food safety and nutritional value of the Canadian food supply. In particular, the Health Protection Branch continues to direct research, risk assessment, and standards setting in the area of food safety. It also evaluates the safety of industry submissions in regard to the use of food and food-related products, for example, veterinary drugs, food additives, and foods derived from biotechnology. Coordinating bodies at the federal level include intersectoral committees on food regulation, food inspection, and food safety in addition to committees of the Canadian Agricultural Research Council.

In Canada, only physicians and dentists can prescribe drugs. Pharmacists who work in private pharmacies dispense prescription medicines. The Health Protection Branch of the Department of Health, which ensures that drugs are safe and efficacious before they are allowed on the Canadian market, conducts the drug approval process at the federal level. All therapeutic products are regulated under the Food and Drugs Act and Narcotics Control Act, which prohibit the importation for sale of any drug that would be in violation of provisions of the Act. As of 1997, the Department of Health requires that an establishment license be issued annually to reflect that a

manufacturer or distributor meets the appropriate standard, thereby ensuring uniform requirements for fabricating, packaging, import, distribution, or testing drugs in Canada.

The manufacturer prices of patented medicines are regulated by the Patented Medicine Pricing Review Board, a federal agency established in 1987 when the length of effective patent protection for pharmaceuticals was extended to 20 years. In 1997, the federal government announced its intention to consider broadening the mandate of the Review Board to include non-patented drugs.

The Health Protection Branch of the Department of Health concerns itself with chemical and radiological hazards in the environment, the safety and effectiveness of medical devices, and radiation hazards associated with drugs and devices sold in Canada.

The Canadian Environmental Assessment Act was approved in 1995 and is administered by the Canadian Environmental Assessment Agency. The Act requires federal departments and agencies to assess the environmental implications of all their projects. Intersectoral aspects of the Act provide the means to integrate environmental, health, and economic factors as well as public concerns into the government decision-making process. Jointly administered at the federal level by the Departments of Health and the Environment, the Act evaluates the potential health risks of environmental contaminants, regulates the entry into Canada of new materials that may damage health and the environment, and assesses the health risks of new substances, including those created through biotechnology.

Overall, purchases of expensive technologies such as diagnostic tools are regulated through provincial control of capital expenditures. Assessments to ensure the quality and effectiveness of these technologies are undertaken at the federal level by the Canadian Coordinating Office for Health Technology Assessment and at the provincial level by several similar assessment agencies.

Health Services and Resources

Organization of Services for Care of the Population

Health Promotion. As part of its national mandate, the Department of Health focuses on the promotion of public health through a variety of programs. The Child Development Initiative (formerly Brighter Futures) aims to improve the well-being of Canada's children. Activities have included work to control solvent abuse in First Nations and Inuit communities and the development of a national childhood cancer information system. Aboriginal Head Start is an early intervention initiative to address the needs of First Nations children living in urban centers and large northern communities.

Early intervention typically includes parental involvement, early childhood education, nutrition education, and social services for children and families. The Canada Prenatal Nutrition Program enables community groups to develop and deliver comprehensive prenatal programs to pregnant women who are at risk of having an unhealthy baby due to poor health and nutrition of the mother.

The Student Leadership Development program focuses on developing leadership skills of youth at the elementary and secondary school levels, through their participation in planning and running of intramural physical activities. The Canadian Active Living Challenge is primarily a school-based program that supports more participation in physical activity and a developmental learning process for active living. Canada's "Guide to Healthy Physical Activity" is being developed to provide standard recommendations on physical activity and will complement Canada's "Food Guide." A Guide supplement is also being developed that will highlight special considerations for older Canadians on integrating physical activity into their daily lives.

Violence in families is a serious social problem that negatively impacts mostly women, children, and seniors. The Department of Health, through the Family Violence Prevention Division leads multi-departmental federal efforts to address the problem.

There are 12 federal agencies addressing HIV/AIDS issues. Eleven of these are within the Department of Health. Federal action in the areas of education and prevention, research, community action, care, treatment and support, coordination, and international initiatives are conducted in an environment that encourages partnerships, creates supportive social environments and enhances the ability of persons infected and affected by HIV/AIDS to participate in health care decisions.

The Tobacco Demand Reduction Strategy aims at reducing the incidence of smoking. Funded by a health promotion surtax on tobacco manufacturing profits, the strategy includes a comprehensive public education and awareness component as well as community action initiatives. The Health in Perspective program focuses on smoking prevention and cessation for adolescent females aged 12–15 years of age.

Food Consumption Surveys are carried out in order to assess the potential risks to health resulting from the presence of chemical contaminants or inadequate quantities of nutrients in food.

The St. Lawrence Vision 2000 Knowledge Development Fund, jointly funded by the Department of Health and the Fonds de la Recherche en Santé du Québec, finances research projects to study the direct impacts on human health of contamination in the St. Lawrence River, Canada's major waterway.

Housing. In 1996, the government introduced a new housing policy that provides additional resources and em-

phasizes community control and flexibility in design, labor requirements, and partnerships with the private sector. The federal government's First Nations and Inuit housing policy is aimed at improving living conditions on reserve by addressing the basic shelter needs of residents. The government provides capital subsidies and loan guarantees to First Nations communities and individuals to help build, buy, and renovate houses on reserves, and allocates operating funds for housing-related administration, training, and technical assistance. First Nations peoples themselves directly administer this program.

Water Supply and Sanitation. In Canada, approximately 99% of the population has safe water. The majority (86%) is served by central systems and 14% by individual systems. Approximately 95% of the population also has satisfactory excreta disposal facilities. The federal and provincial governments recently completed a \$Can 6 billion infrastructure upgrading program and are updating drinking water, recreational water, and ambient water quality guidelines.

The federal government provides funding for First Nations and Inuit peoples to acquire, construct, operate, and maintain such basic community facilities as water, electrical and sewage services, schools, roads, community buildings, and fire protection facilities. Over 90% of the capital program budget is managed directly by communities themselves. In 1995 and 1996, 95% of dwellings in First Nations and Inuit communities had water service and 90% had sewage services as compared to 75% and 67%, respectively, in 1985 and 1986.

Organization and Operation of Personal Health Care Services

Canada's hospitals, which are primarily nonprofit and run by community boards or trustees, are highly autonomous of the federal and provincial governments, with the provincial role limited to broad planning functions, funding, and capital budgeting. Currently, the only hospitals directly run by provinces tend to be psychiatric institutions; however, many of the provinces are in the process of divesting themselves of these institutions. The federal government operates a number of hospitals for the military, provides some facilities for First Nations and Inuit peoples, and until recently administered a number of veterans' hospitals.

Hospitals are typically organized as general or acute care facilities, community or secondary care, and long-term or chronic care. Depending on affiliation with a medical school, any of these hospitals may also be classified as a teaching hospital. In the largest cities, some institutions have become highly specialized, with hospitals focused on arthritis care, orthopedics, and children's and women's health. As part of the restructuring of the health system, many highly specialized

services are being consolidated into single urban centers that serve an entire province or region.

Public health services are typically funded and provided separately from the main components of health care, and are administered through local or regional health units. They range from broad immunization programs, such as the provision of second-dose measles immunizations, to health programs that educate identified at-risk groups. They provide child and maternal health counseling programs, reproductive health services, and are at the forefront of the effort to control the spread of AIDS. In addition, most public health services coordinate or directly provide personal and home care services such as home nursing care. As such, public health services are an integral part of community care.

Community care services are organized at two levels: institutional-based care and home-based care. Community institutional care is largely focused on the provision of long-term and chronic care, ranging from residential care facilities that provide only limited health services, to intensive chronic care facilities. Increasingly, the majority of patients in these institutions are the frail elderly. Institutional long-term care health services are typically paid for by the provincial government, while accommodation costs (room and board) are largely the responsibility of the individual.

Inputs for Health

Pharmaceuticals are a key component of the Canadian health care system. Drugs include prescription medicines, non-prescription medicines, and personal health supplies. Prescription medicines are usually prescribed by physicians, dispensed by pharmacists, and are received either in a hospital or in the community. Non-prescription medicines, such as cough and cold remedies, are available without prescription through retail outlets. Personal health supplies include items such as oral hygiene products and home diagnostics kits and are also available through retail outlets.

Except for medicines received while in institutional care, drugs are not covered by the Canada Health Act. In 1995, it is estimated that 88% of Canadians had coverage for prescription medicines: 62% were covered under private plans, 19% under provincial plans, and 7% were covered under both. Of the 12% of the population without any coverage, more than half were employees and their dependents whose employers did not provide a supplementary drug benefit plan. For the most part, the consumer pays for non-prescription medicines and personal health supplies out-of-pocket.

Drug expenditure estimates indicate that in 1996, Canada spent Can\$ 10.8 billion on drugs. This estimate encompasses all drug spending in the health care system, including drugs in hospitals and other institutions, drugs in the offices of pri-

private practitioners, and public health spending on drugs such as vaccines. Without the controls of a single-payer system, pharmaceuticals have become the fastest growing component of national health care expenditures.

Both public and private sector payers are implementing measures to contain the costs of pharmaceutical benefits. These measures include the use of restrictive formularies with emphasis on the use of generic products and use of pharmacoeconomic studies to demonstrate the cost-effectiveness of products as a prerequisite for listing on the formulary. Other measures include increasing deductibles and copayments, restricting eligibility for coverage, capping benefits, and improving information to guide appropriate prescribing. The federal and provincial governments are exploring the possibility of a single-payer pharmaceutical program.

Medical equipment is provided both on a public and private basis. While some equipment is available through hospital or community-based programs, a large proportion of medical equipment is funded by the private sector, either out-of-pocket or through private insurance. Expensive personal equipment such as wheelchairs are often subsidized by service organizations.

Human Resources

Employment in health services represents an increasing portion of total employment in Canada. In 1995, health services employment (723,000 employees in health and medicine, or 244.21 per 10,000) represented close to 5.5% of total employment. From 1975 to 1995, total health personnel employment increased by over 16.4%. Nurses account for almost half of all health personnel (232,869 or 78.66 nurses per 10,000). The number of physicians has also increased significantly from 44,200 in 1975 to 55,006 or 18.58 physicians per 10,000 in 1995. In 1995, there were 22,197 pharmacists (7.50 per 10,000 population) and 15,636 dentists (5.28 per 10,000 population).

Today, there is a general over-supply of physicians in Canada, particularly in urban areas. At the same time, there is a chronic shortage of physicians in rural and remote areas. Some jurisdictions have also found that the ratio of general practitioners to specialists is unacceptable. The problems encountered with physician supply led to the development of a national action plan on physician resources. Provinces have introduced human resource plans to control medical school enrollment, the number of practicing physicians, and the number of foreign medical students and doctors. In addition, many provinces are developing programs to induce physicians to work in under-served areas or sectors.

The distribution of nurses is almost entirely dependent on the dispersion of hospitals and clinics. As such, there is a rea-

sonably adequate distribution of nurses in most of the country, although many remote areas remain under-served. The supply of nurses is also tempered by downsizing in the acute care sector.

The majority of health care professionals in Canada require some degree of university training. Physicians typically have the longest training programs, which include undergraduate and graduate training, as well as several years of practical instruction. Individuals who specialize undergo even longer periods of formal training. Nurses, physiotherapists, pharmacists, chiropractors, and other allied health professionals require university degrees.

Nurse practitioner and midwifery programs have found renewed support across the country. Two new programs to prepare nurse practitioners were established, and in 1993 a baccalaureate midwifery program was introduced in the province of Ontario. Training for rehabilitation assistants, who work under the supervision of occupation and physical therapists, is available in most provinces.

Utilization of multi-skilled workers in health services has increased as has the general trend toward recognition of alternative health providers. In this regard, in May 1997, the Minister of Health announced that an advisory panel will be established to provide a regulatory framework for herbal remedies, including product licensing, establishment licensing, cost recovery, and international harmonization.

Research and Technology

The Department of Health offers coordination and policy advice on health and health care delivery based on research. The National Health Research and Development Program funds strategic, population-based, applied health research to support departmental policy and program needs.

During 1996, significant developments occurred in the area of health research in Canada. An endowment of Can\$ 65 million was made to support health services research, and the Canadian Health Services Research Foundation was created to administer the endowment and to raise additional funds. The Foundation supports peer-reviewed research into health services and is responsible for supporting the dissemination and uptake of the resulting research evidence.

The Medical Research Council of Canada has pursued several private and publicly financed endeavors to facilitate technology transfer. The Council was instrumental in creating the Canadian Medical Discoveries Fund, a labor-sponsored venture capital fund that has raised Can\$ 200 million to commercialize promising medical science developments. The Council also administers the health component of the Networks of Centers of Excellence Program, which encourages technology transfer by linking researchers and the busi-

ness community. The program has succeeded in attracting private sector capital to support the development of research in the health sector, such as, for example, the NeuroScience Partners Funds.

The Canadian Coordinating Office for Health Technology Assessment was created by the federal, provincial, and territorial governments in 1989 to provide information on emerging and existing health care technologies to decision-makers and to facilitate the exchange and coordination of information on health technologies. The Office has developed a library that assists in the identification, collection, and dissemination of information on medical technologies, and publishes and disseminates health technology assessment information. Two areas of focus are drug assessment (therapeutic effectiveness and economic impact) and assistive or home-use devices.

Expenditures and Sectoral Financing

In 1996, Canada spent an estimated Can\$ 75,224 million on health care, representing 9.5% of the gross domestic product and a real per capita total health expenditure of Can\$ 2,510. Public expenditures accounted for about 70% of total national health care spending. Federal transfers accounted for 22% of the expenditures; disbursements by the federal government for health care services for special groups such as First Nations and Inuit peoples, Armed Forces personnel and veterans, and expenditures for health research, health promotion, and health protection accounted for 4%; provincial expenditures made for those insured accounted for 44%; and private funds accounted for 30%. One of the components that contributes heavily to the cost of health care is the aging of the population. In 1996, health expenditures for the population 65 years and older represented almost 40% of the total spent.

Until 1995–1996, federal transfers to provinces and territories included both cash and tax transfers for the health portion of the Established Programs Financing and cash payments under the Canada Assistance Plan, as well as payments made by the Department of Indian and Northern Affairs for medical and hospital insurance plans of First Nations people. Beginning in April 1996, federal transfers to provincial and territorial governments for their health, post-secondary education, and social assistance/social services programs were combined into the Canada Health and Social Transfer, which is a single block transfer of cash and tax points. The need to contain costs in the health system has resulted in an increase of 13% in total health expenditures between 1991 and 1996, compared with a 26% increase between 1988 and 1991. Table 3 provides a breakdown of national and private sector health expenditures by category.

TABLE 3
Total national and private sector health expenditures
by category, Canada, 1994 and 1996
(in billions of Canadian dollars).

Category	Total national health expenditure (1996)	Private sector health expenditure (1994)
Institutional and related services		
Hospitals	25.7	2.8
Other institutions ^a	7.5	2.1
Professional services		
Physicians	10.9	0.1
Other professionals	6.6	5.3
Drugs	10.8	6.2
Other health expenditures	13.7 ^b	3.8 ^c

^a“Other institutions” refers to residential care facilities and includes homes for the aged, physically and mentally disabled, psychiatrically disabled, and clients with alcohol and drug problems.

^bIncludes public health expenditures, for example, public measures to prevent the spread of communicable diseases, food and drug safety, health inspections and health promotion activities (Can\$ 3.8 billion), and capital expenditures (Can\$ 1.9 billion).

^cIncludes capital expenditures (Can\$ 0.5 billion).

External Technical and Financial Cooperation

Canada's external technical and financial cooperation in health includes ongoing cooperation with other countries through institutions such as the World Bank, the World Health Organization, the Pan American Health Organization, and the Organization for Economic Cooperation and Development. Canadian health regulators have initiated efforts to encourage harmonization of regulations, standards, and labeling requirements related to foods, pharmaceuticals, and medical devices within trading blocs and between countries.

The Canadian International Development Agency (CIDA) is a federal agency responsible for managing approximately 80% of Canada's Official Development Assistance (ODA). CIDA pursues the following programming priorities: basic human needs; women in development; infrastructure services; human rights; democracy and good governance; private sector development; and environment.

CIDA's "Strategy for Health" was launched in 1996. This document presents a comprehensive and integrated approach to health and development. Top priorities are to strengthen national health systems and improve women's health and reproductive health. Other priority objectives include improving children's health; decreasing malnutrition and eliminating micronutrient deficiencies; prevention and control of

major pandemics that cause more than 1 million deaths per year (HIV/AIDS, tuberculosis, tobacco use, malaria, trauma, and violence); and support for the introduction of appropriate technologies and special initiatives.

CIDA's development activities in Latin America and the Caribbean are provided through three main delivery channels: (1) the partnership program, which enables CIDA to provide funding in support of health projects in developing countries undertaken by Canadian nongovernmental organizations, institutions such as universities and colleges, professional associations, and private firms; (2) the multilateral program, which supports multilateral development approaches through international organizations such as United Nations agencies, the Commonwealth, and international financial institutions; and (3) the bilateral program, which enables Canada to support projects through consultation and cooperation with recipient country partners.

The bilateral program in the Americas underscores CIDA's principles of equity for sustainable development. CIDA's Americas branch is active in supporting programming in health and supports efforts through various mechanisms. In Bolivia, for example, a small contribution is helping UNICEF to eliminate iodine deficiency disorders. Through UNICEF's Safe Motherhood and Reproductive Health project, CIDA funds supported government establishment of a maternity and childhood insurance program that has increased access to public health services. The "Support to Health Sector Reform in Bolivia" project was developed with Canadian partners to enhance national health policy formulation and implementation, to strengthen health management capacities at the municipal level in selected pilot areas, and to improve information systems. Counterpart funds in Bolivia are used to support a Chagas' disease control program. In Peru, CIDA supports UNICEF's program in primary health care.

In the Caribbean, CIDA supports the Caribbean Epidemiology Center (CAREC), which provides technical support and collaboration among its Member Countries. The aim of this project is to strengthen the capacity of the national ministries of health and community-based organizations in the provision of services for the prevention and control of HIV/AIDS and other STDs, and the care of infected persons in their communities. In Haiti, CIDA funding is being used to reinforce reproductive health care services through support to UNFPA.

In addition to core funding to the UN system, CIDA contributes to various PAHO projects. These include a project to improve perinatal health services and increase community participation through a regional safe motherhood program in Bolivia, Honduras, Nicaragua, and Peru. CIDA has financed PAHO's Regional Program of Surveillance and Epidemiology Strengthening in nine countries in the Region. The aim of this intervention is to enhance the human resource expertise and institutional capacity in epidemiology

and surveillance of some of the major causes of early childhood respiratory diseases.

Canada contributes to the World Bank's Energy Sector Management Assistance Program for the elimination of lead from gasoline throughout the Americas.

Areas where future programming is actively being pursued include support to reproductive health initiatives; a regional

tuberculosis prevention and control project; and health-related projects through the transfer of technology funds in certain Southern Cone countries and Brazil.

With its limited resources, Canada focuses its interventions on strategic areas where leverage and impact can be achieved and where development efforts reflect both the needs of developing countries and Canada's ability to meet those needs.