

Life Expectancy of Canadians

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The official 1990-92 detailed life tables show a continuation of the trend toward longer life expectancy for Canadians (see *Life tables*). Life expectancy at birth has reached an all-time high: 80.89 years for females and 74.55 years for males.¹ Recent improvements in life expectancy are attributable to many factors, including declines in infant mortality, cerebrovascular and cardiovascular disease, and mortality from accidents and poisoning.²⁻⁶

Women outlive men

From 1951 to 1981, the rate of increase in females' life expectancy at birth outpaced the rate for males (Chart 1).^{1,7} Girls born in 1951 were expected to live about 4.5 years longer than boys born in the same year. By 1981, this difference had increased to 7.12 years. By 1991, however, the gap had narrowed to 6.36 years.

The same trend in the difference between women's and men's life expectancy also held at ages 25, 45, and 65 (Table 1). At each of these ages, there was an increase in the sex difference in life expectancy from 1951 to 1981, and a decline in 1991.

The exception to this trend occurred among individuals aged 75 and over in 1991. The rate of change in life expectancy for older women continued to exceed the change for men. Consequently, the gap between the sexes in life expectancy at these ages grew over the entire

period. In 1951, 75-year-old women could expect to live 0.89 years more than 75-year-old men (8.76 and 7.87 years, respectively). By 1991, at age 75, women could expect 2.90 more years of life than men (12.61 and 9.71 years, respectively).

Life tables

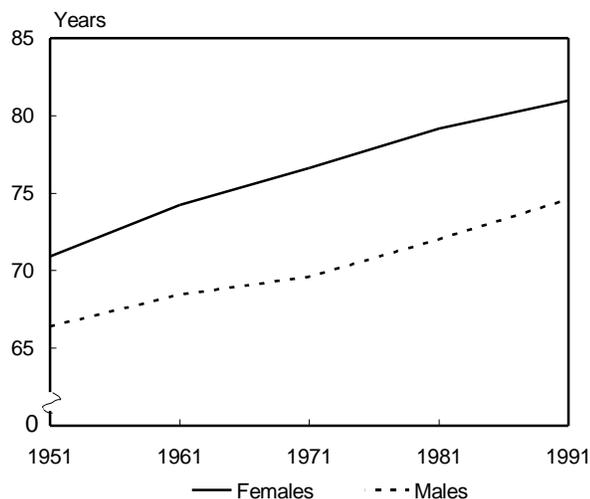
A life table is a universally accepted demographic or actuarial model that synthesizes the mortality experience of a population for a given year or period of time. In the construction of these tables, it is customary to assume that a hypothetical cohort of 100,000 individuals born at the same time is subject to the age- and sex-specific mortality rates actually experienced by the population at that time.

Statistics Canada produces detailed life tables (by single year of age) for males and females at the national and provincial levels, except for Prince Edward Island because of its small population. Abridged life tables (by five-year age group) by sex are also produced for Canada and the provinces (including Prince Edward Island). Life tables are not constructed for the Yukon and Northwest Territories because of their small populations, although they are included in the calculation of national rates.

Life tables are usually based on three years of deaths centered on a census year, the most recent being 1991. In this article, all life tables from 1971 onward are based on adjusted population estimates that take into account net census undercoverage and non-permanent residents.^{8,9} Greville's method was used to calculate these tables¹⁰ (see **The Impact of Estimation Method and Population Adjustment on Canadian Life Table Estimates** in this issue). For a review of the methodology underlying the calculation of the official 1990-92 life tables, see *Life tables, Canada and the provinces, 1990-1992* (Statistics Canada, Cat. No. 84-537).

Abridged life tables for Canada and the provinces may be purchased from the Dissemination Division (613) 951-1127.

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Chart 1**Life expectancy at birth, by sex, Canada, 1951-1991**

Source: Health Statistics Division

Note: Estimates are based on abridged life tables.

Table 1**Excess in female life expectancy at selected ages, Canada, 1951-1991**

Age	1951	1961	1971	1981	1991
	Years				
Birth	4.50	5.82	6.99	7.12	6.36
25	3.49	4.90	6.15	6.44	5.90
45	3.12	4.34	5.60	5.92	5.31
65	1.69	2.55	3.80	4.37	4.18
75	0.89	1.29	2.20	2.88	2.90
80	0.61	0.77	1.48	2.09	2.17

Source: Health Statistics Division

Note: Estimates are based on abridged life tables. Life expectancy values for years before 1971 were obtained from published documents.⁷

Provincial differences

In 1991, residents of eastern Canada had a lower life expectancy than residents of western Canada (Table 2). Males in Prince Edward Island had the lowest life expectancy, at 73.22 years,^a whereas

males in Saskatchewan had the highest (75.31). Among females, the lowest life expectancy was in Newfoundland (79.28), and the highest in Saskatchewan (81.67).

Table 2**Life expectancy at birth, by sex and province, Canada, 1991**

	Females	Males
	Years	
Canada	80.89	74.55
Newfoundland	79.28	73.62
Prince Edward Island	80.79	73.22
Nova Scotia	80.59	73.64
New Brunswick	80.85	74.29
Quebec	80.76	73.69
Ontario	80.95	74.93
Manitoba	80.89	74.57
Saskatchewan	81.67	75.31
Alberta	80.96	75.07
British Columbia	81.25	75.19

Source: Health Statistics Division

Note: Except for Prince Edward Island, provincial estimates are based on detailed life tables. For Prince Edward Island, the estimates are based on abridged life tables.

Provincial differences in life expectancy have diminished during the past 40 years. In 1951, for both sexes the difference in life expectancy between the highest and lowest ranking provinces was 4.60 years. By 1991, this difference had been reduced to 1.82 years. The convergence of provincial life expectancies may reflect the benefits of a national health care system, as well as social and economic policies designed to reduce provincial disparities.

Between 1951 and 1991, the largest gain in life expectancy was achieved in Quebec: 10.86 years (Table 3). In 1951, Quebec had ranked the lowest of all the provinces in life expectancy at birth, but by 1991 it ranked seventh.

^a Life expectancy estimates for Prince Edward Island and Newfoundland should be considered with caution. Because of the small populations and the small number of deaths in these provinces, the statistical variation is greater.

Table 3

Increase in life expectancy at birth, by sex and province, Canada, 1951-1991

	Both sexes	Females	Males
	Years		
Canada	9.29	10.07	8.21
Newfoundland	8.70	10.30	7.21
Prince Edward Island	5.72	8.10	3.55
Nova Scotia	7.76	8.63	6.71
New Brunswick	9.74	11.06	8.32
Quebec	10.86	12.23	9.24
Ontario	8.79	9.08	8.16
Manitoba	7.80	8.66	6.58
Saskatchewan	7.77	8.97	6.26
Alberta	8.27	9.12	7.05
British Columbia	9.10	9.13	8.51

Source: *Statistics Canada, Catalogue 85-506 and Health Statistics Division*

Note: *Estimates are based on abridged life tables.*

Health implications

The implications of an increase in life expectancy have fueled a debate among health researchers. Are extensions of life expectancy associated with an increase in life in good health? ¹¹⁻¹⁴ It has been argued that chronic illness can be postponed through a combination of personal lifestyle and medical care, and that the morbidity associated with aging will be compressed into a smaller proportion of the lifespan. A less optimistic view is that the result of increasing life expectancy may be an increase in both the prevalence and duration of chronic diseases. ^{12,15,16}

Further, several researchers have proposed that as mortality rates decline at a given age, there may be a compensatory change in the rate of utilization of certain health services. ^{13,17} Whether this occurs depends on the reason for the decline in mortality rates. If people live longer because they are healthier, the implications for hospital or medical care utilization will be different than if they live longer as a result of intensive medical intervention. ¹⁸

Economic implications

Because women are outliving men by a wider margin in the oldest age groups, they depend on non-employment income for a longer period. Furthermore, older women are less likely than men to have participated in the labour force or to have pensions from past employment. More elderly men than women receive private pensions, and men's average pensions tend to be larger. ¹⁹ Consequently, older women typically need more social support and for a longer time than do men.

Will the trend continue?

The general rise in life expectancy will not necessarily continue indefinitely. Factors such as degradation of the environment foster conditions that adversely affect health status. ^{20,21} More recently, public health researchers have expressed concern about the possible emergence of new viral diseases, or the re-emergence of old infectious diseases, that could put a brake on further improvements in life expectancy. ²²

Current and future life expectancy is associated with past and future efforts in the fields of public health and medical care. Public health programs in the areas of infectious disease control, maternal and child health, chronic disease prevention, environmental health, nutrition education, and injury prevention have all contributed to improvements in longevity and will continue to be instrumental in maintaining or raising levels of life expectancy.

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