

Deaths 1993

François Nault and Kathryn Wilkins*

Between 1992 and 1993, the life expectancy at birth of Canadians fell slightly, from 78.06 to 77.95 years. This decline reflected an unusually sharp upturn in the number of deaths in 1993, which was attributable, to some extent, to an influenza outbreak in early spring that year, and to substantial increases in tobacco-related deaths among women. The overall decline in life expectancy occurred in every province except Nova Scotia, and affected both sexes, although it was more pronounced among females.

Number of deaths

In 1993, the number of deaths in Canada totalled 204,912, up 8,377 or 4.3% over 1992 (Table 1). This was the largest annual absolute increase ever recorded and the largest annual percentage increase since World War II. Among females, deaths were up 5.3%, from 90,670 to 95,505, and among males, 3.3%, from 105,865 to 109,407. Percentage increases in the number of deaths were above the national average in Quebec, Saskatchewan, British Columbia, Alberta, and Yukon (Chart 1).

Over time, the annual number of deaths has generally risen, because of total population growth and growth in the proportion of elderly people. However, had 1992 mortality rates prevailed in 1993, the number of deaths would have increased by only 3.0%.^a

Same trends in the United States

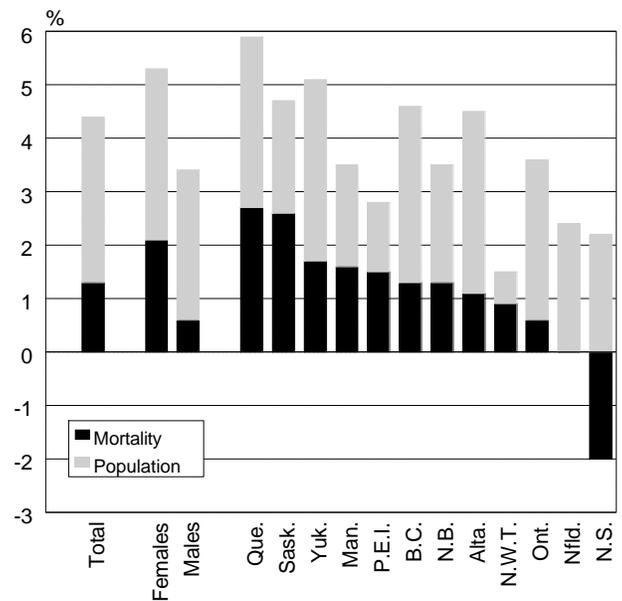
Provisional mortality estimates for 1993 from the United States are strikingly similar to the Canadian data.¹ In both countries, the number of deaths increased by 4% from 1992 to 1993; influenza deaths rose sharply in the winter of 1993; and life expectancy at birth dropped by 0.2 of a year.

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Higher mortality rates in 1993 raised the percentage increase in the number of deaths to 4.3%.

Chart 1

Percentage increase in deaths due to changes in mortality rates and population, by sex, province and territory, Canada, 1992-1993



Seasonal variations

The upturn in deaths was particularly pronounced in March and April of 1993. The number of deaths in that two-month period was 12.8% higher than in 1992. This

^a The expected number of deaths in 1993 is defined as the sum of 1992 age-sex-specific central provincial death rates multiplied by the 1993 age-sex-specific provincial population count, summed over all age groups and both sexes. The sum of the differences between the observed number of deaths and the expected number of deaths is the "unexpected" number of deaths, or deaths in excess of the number that would have occurred if 1992 death rates had prevailed in 1993.

Table 1

Deaths by sex, province and territory, Canada, 1992 and 1993

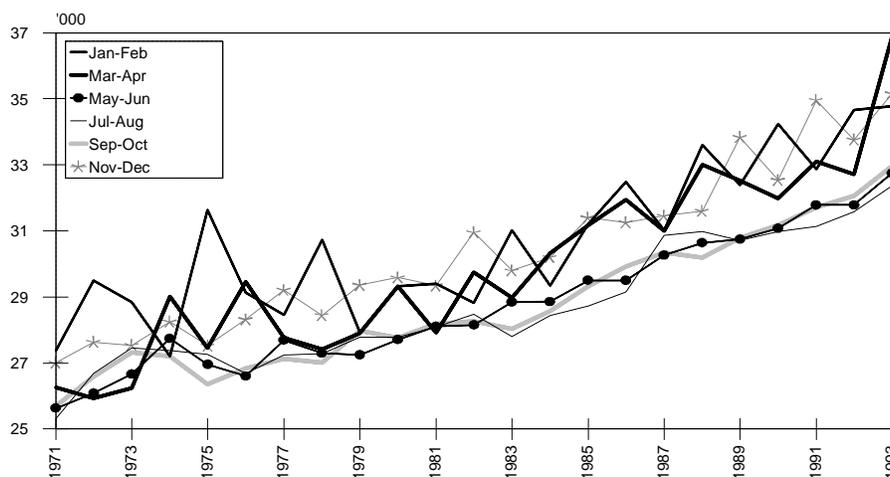
	Number of deaths		Increase
	1992	1993	%
Canada	196,535	204,912	4.3
Females	90,670	95,505	5.3
Males	105,865	109,407	3.3
Quebec	48,824	51,711	5.9
Yukon	117	123	5.1
Saskatchewan	7,793	8,164	4.8
British Columbia	24,615	25,764	4.7
Alberta	14,679	15,338	4.5
Ontario	73,206	75,853	3.6
Manitoba	8,980	9,299	3.6
New Brunswick	5,609	5,806	3.5
Prince Edward Island	1,114	1,145	2.8
Newfoundland	3,798	3,890	2.4
Northwest Territories	256	260	1.6
Nova Scotia	7,544	7,559	0.2

was partially because of a dramatic increase in deaths from influenza: in March and April of 1993, 125 persons died of the flu, compared with 8 in the same months of 1992, and 35 in March and April of 1991. Deaths attributed to chronic, ultimately fatal disorders, such as HIV-AIDS and lung cancer, also increased substantially during March and April of 1993, suggesting that influenza may have hastened the deaths of persons already weakened by disease.

The number of deaths tends to increase in the winter. From 1971 to 1993, deaths in the six colder months (November to April) consistently exceeded the number in the six warmer ones (May to October) (Chart 2). The November-December and January-February periods usually bring the highest numbers of deaths, but in 1993, March-April surpassed the other two periods by a considerable margin.

Chart 2

Number of deaths, by two-month period, Canada, 1971-1993



What caused the rise in deaths in 1993?

Females contributed more than males to the increase in deaths in 1993. The age-standardized female mortality rate^b for all causes combined rose from 523.9 deaths per 100,000 population in 1992 to 534.1 in 1993, a difference of 2%. For males, the age-standardized mortality rate rose from 885.2 to 890.3 deaths per 100,000, a difference of 0.6%.

Deaths due to smoking-related causes accounted for a large share of the increase in females' mortality rate (Table 2a). Age-standardized mortality rates for chronic obstructive pulmonary diseases rose 8.1%, from 17.2 to 18.6 deaths per 100,000, and for lung cancer, 6.8%, from 29.6 to 31.6 deaths per 100,000. Increases in mortality rates for diabetes (up 11.1% from 13.5 to 15.0 deaths per 100,000 population) and pneumonia and

influenza (up 4.9% from 18.2 to 19.1 per 100,000 population) also contributed substantially to the 1993 increase in the female death rate.

The causes of death in males with the greatest relative increases in age-standardized mortality rates were HIV-AIDS, up 12.4% from 8.9 deaths per 100,000 population in 1992 to 10.0 in 1993; diabetes, up 6.7% from 17.9 to 19.1 deaths per 100,000; chronic obstructive lung disease, up 5.7% from 45.4 to 48.0 deaths per 100,000; and cerebrovascular diseases (the major component of which is stroke), up 3.3% from 54.3 to 56.1 deaths per 100,000 (Table 2b).

^b Age-standardized rates in this article were calculated by the direct method, using the age distribution of the 1991 population as the standard.

Table 2a

Causes of death with greatest percentage increases, females, Canada, 1992-1993

Cause of death	Deaths			
	Number		Increase %	Increase in ASMR* %
	1992	1993		
Diabetes mellitus	2,354	2,682	13.9	11.1
Chronic obstructive pulmonary diseases and allied conditions	2,978	3,325	11.7	8.1
Lung cancer	4,677	5,130	9.7	6.8
Pneumonia and influenza	3,444	3,759	9.1	4.9

* Age-standardized mortality rate; deaths per 100,000 population using the total Canadian population of 1991 (adjusted for net census undercoverage and including non-permanent residents) as the standard.

Table 2b

Causes of death with greatest percentage increases, males, Canada, 1992-1993

Cause of death	Deaths			
	Number		Increase %	Increase in ASMR* %
	1992	1993		
HIV-AIDS	1,288	1,474	14.4	12.4
Diabetes mellitus	2,119	2,339	10.4	6.7
Chronic obstructive pulmonary diseases and allied conditions	5,129	5,573	8.7	5.7
Cerebrovascular disease	6,052	6,478	7.0	3.3

* Age-standardized mortality rate; deaths per 100,000 population using the total Canadian population of 1991 (adjusted for net census undercoverage and including non-permanent residents) as the standard.

Life expectancy at birth

Life expectancy at birth is the single best index for summarizing the mortality rates of a given year. It represents the average number of years that a newborn can expect to live, based on the age-specific mortality rates in a given year.^c

The sharp increase in the number of deaths in 1993 meant that between 1992 and 1993, Canadian life expectancy at birth decreased by 0.11 of a year: 0.03 of a year for males, and 0.18 of a year for females (Table 3). Male life expectancy declined in just four

provinces: Newfoundland, Quebec, Saskatchewan, and British Columbia. In contrast, female life expectancy fell in all provinces except Newfoundland and Nova Scotia.

^c The life expectancies reported in this article may differ from previously published ones. The life expectancies presented here are calculated using the deaths of the current year only, and therefore may be affected by larger random fluctuations than those from the official life tables, which are based on three years of mortality data. As well, the population counts have been adjusted for net census undercoverage and include non-permanent residents.

Table 3

Life expectancy at birth, by sex and province, Canada, 1992 and 1993*

	1992	1993	Difference 1993-1992
	Years		
Both sexes	78.06	77.95	-0.11
Newfoundland	76.92	76.89	-0.03
Prince Edward Island	77.56	77.14	-0.42
Nova Scotia	77.07	77.44	0.37
New Brunswick	77.64	77.52	-0.12
Quebec	77.80	77.53	-0.27
Ontario	78.22	78.18	-0.04
Manitoba	77.89	77.68	-0.21
Saskatchewan	78.92	78.52	-0.40
Alberta	78.29	78.28	-0.01
British Columbia	78.46	78.36	-0.10
Males	74.89	74.86	-0.03
Newfoundland	74.39	73.86	-0.53
Prince Edward Island	74.08	74.24	0.16
Nova Scotia	73.79	74.30	0.51
New Brunswick	74.31	74.40	0.09
Quebec	74.26	74.03	-0.23
Ontario	75.19	75.25	0.06
Manitoba	74.66	74.66	0.00
Saskatchewan	75.89	75.42	-0.47
Alberta	75.43	75.55	0.12
British Columbia	75.35	75.34	-0.01
Females	81.20	81.02	-0.18
Newfoundland	79.67	80.22	0.55
Prince Edward Island	81.28	80.14	-1.14
Nova Scotia	80.42	80.62	0.20
New Brunswick	81.05	80.67	-0.38
Quebec	81.22	80.92	-0.30
Ontario	81.17	81.02	-0.15
Manitoba	81.16	80.72	-0.44
Saskatchewan	82.08	81.78	-0.30
Alberta	81.23	81.05	-0.18
British Columbia	81.65	81.43	-0.22

* Given the small numbers involved, some of the results should be interpreted with caution, particularly those for Prince Edward Island.

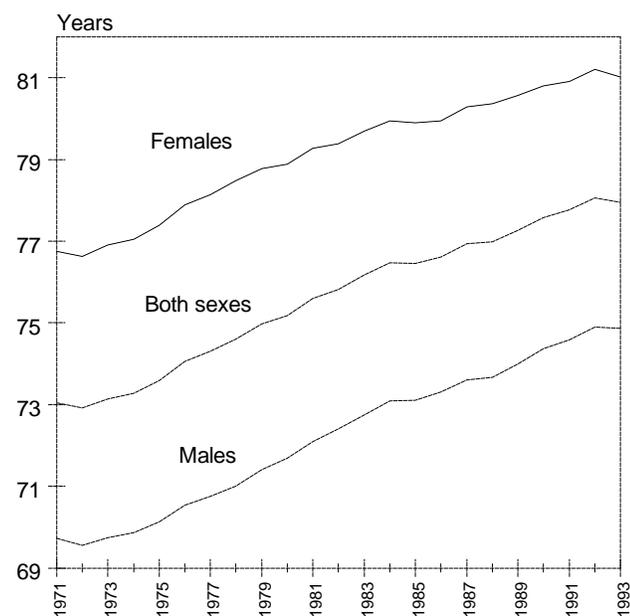
From 1971 to 1993, life expectancy at birth rose from 73.1 to 78.0 years (Chart 3). This amounted to an average annual gain of 0.22 of a year. Slight declines, however, occurred in 1972 (0.14 of a year) and 1985 (0.01 of a year), as well as in 1993 (0.11 of a year).

The difference between male and female life expectancy at birth was 7.0 years in 1971, peaked at 7.5 years in 1978, and narrowed to 6.2 years in 1993. During this period, life expectancy rose from 69.7 to 74.9 years for males, and from 76.8 to 81.0 years for females.

Throughout the period, life expectancy at birth was generally higher in the provinces west of Quebec. Estimates of life expectancy for Yukon and the Northwest Territories are somewhat unstable because of the small populations in these areas. Nonetheless, it can be estimated that life expectancy in the territories is below the Canadian average by 3 to 6 years.

Chart 3

Life expectancy at birth, by sex, Canada, 1971-1993



Life expectancy at age 65

Life expectancy at age 65 is a good indicator of the mortality of the elderly population. Between 1992 and 1993, life expectancy at age 65 fell by 0.16 of a year: 0.09 of a year for men and 0.22 of a year for women (Table 4). There was a decline in every province except Newfoundland and Nova Scotia.

Even so, from 1971 to 1993 life expectancy at age 65 rose from 15.9 to 18.1 years: from 14.0 to 15.9 years for men, and from 17.8 to 19.9 years for women (Chart 4). This was an average annual gain of 0.10 of a year. The difference between male and female life expectancy at age 65 was 3.8 years in 1971; it peaked at around 4.4 years in 1981, and has since narrowed – to 4.1 years in 1993. The provincial pattern of life expectancy at age 65 is similar to that at birth, with longer expectancies in the provinces west of Quebec.

Chart 4

Life expectancy at age 65, by sex, Canada, 1971-1993

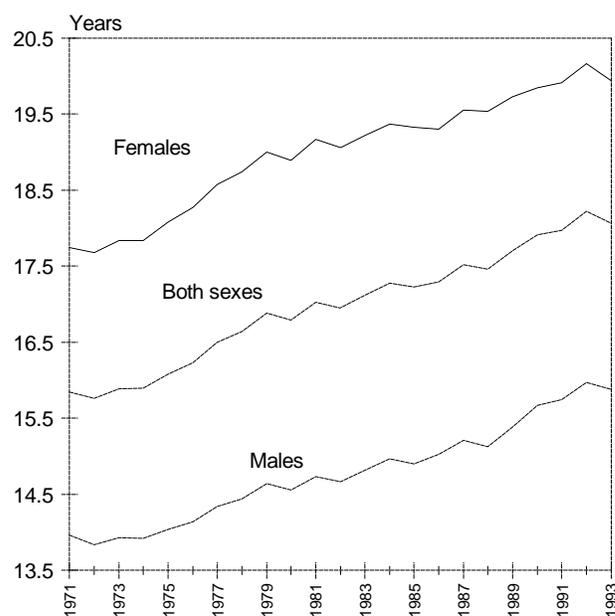


Table 4**Life expectancy at age 65, by sex and province, Canada, 1992 and 1993***

	1992	1993	Difference 1993-1992
	Years		
Canada	18.22	18.06	-0.16
Males	15.97	15.88	-0.09
Females	20.16	19.94	-0.22
Newfoundland	16.94	16.97	0.03
Prince Edward Island	17.74	17.61	-0.13
Nova Scotia	17.30	17.38	0.08
New Brunswick	17.99	17.72	-0.27
Quebec	18.07	17.74	-0.33
Ontario	18.15	18.06	-0.09
Manitoba	18.16	18.07	-0.09
Saskatchewan	19.00	18.87	-0.13
Alberta	18.68	18.40	-0.28
British Columbia	18.75	18.63	-0.12

* Given the small numbers involved, some of the results should be interpreted with caution, particularly those for Prince Edward Island.

Infant mortality rate

At the other extreme of the age spectrum, the infant mortality rate (deaths before age 1 per 1,000 live births) increased in 1993 for the first time since 1962. Most of this increase was in deaths that occurred in the first week of life and resulted from maternal complications

in pregnancy. The 1993 rate was 6.3 deaths per 1,000 live births, up from 6.1 in 1992. The relative increase was greater for girls than for boys: from 5.4 to 5.6 deaths, compared with 6.8 to 6.9 deaths (Table 5).

Table 5**Infant mortality, by sex, province and territory, Canada, 1992 and 1993***

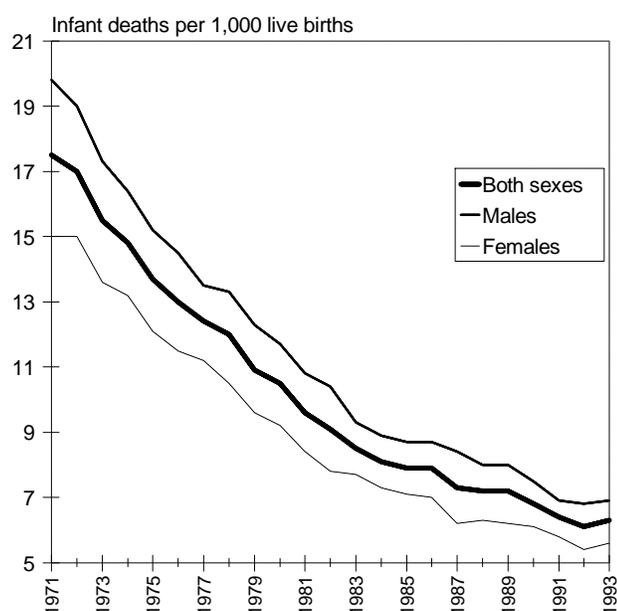
	Number of deaths before age 1		Infant mortality rate		Difference 1993-1992
	1992	1993	1992	1993	
	Infant deaths per 1,000 live births				
Canada	2,431	2,448	6.09	6.28	0.19
Males	1,389	1,379	6.79	6.88	0.09
Females	1,042	1,069	5.36	5.64	0.29
Newfoundland	49	50	7.06	7.71	0.65
Prince Edward Island	3	16	1.62	9.12	7.50
Nova Scotia	71	82	5.97	7.06	1.10
New Brunswick	59	65	6.28	7.16	0.89
Quebec	522	529	5.42	5.69	0.27
Ontario	886	922	5.88	6.22	0.34
Manitoba	113	118	6.77	7.07	0.30
Saskatchewan	110	115	7.31	7.97	0.65
Alberta	304	268	7.21	6.60	-0.61
British Columbia	286	264	6.21	5.73	-0.47
Yukon	2	4	3.78	7.87	4.09
Northwest Territories	26	15	16.73	9.62	-7.11

* Given the small numbers involved, some of the results should be interpreted with caution, particularly those for Prince Edward Island and the territories.

The last two decades, however, have seen a sharp drop in the infant mortality rate, from 17.5 deaths per 1,000 live births in 1971 to 6.3 in 1993. For boys, the decline was from 19.8 to 6.9 deaths, and for girls, from 15.0 to 5.6 deaths (Chart 5). As well, the difference between boys and girls narrowed from 4.8 deaths per 1,000 live births in 1971 to 1.2 in 1993.

Chart 5

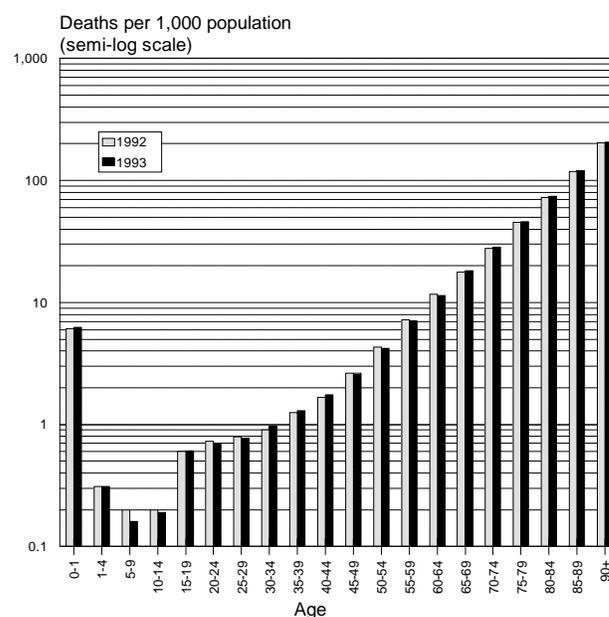
Infant mortality rate, by sex, Canada, 1971-1993



In addition to the increase in the infant mortality rate in 1993, there were increases in age-specific death rates for people aged 30 to 49, and aged 65 and over (Chart 6).

Chart 6

Death rates by age group, Canada, 1992 and 1993



Leading causes of death

As they have been for decades, the two major causes of death continue to be heart disease and cancer (malignant neoplasms) (Table 6). In fact, over half of all deaths in 1993 were attributable to these two causes.

However, the age-standardized mortality rate for diseases of the heart has declined steadily since the early 1960s. In contrast, the rate for all cancers combined has not changed appreciably. In 1993, the mortality rate for diseases of the heart, for decades the leading cause of death, was almost the same as for cancer: the rates were 190.1 and 189.2 deaths per 100,000 population, respectively. If recent trends in these diseases persist, cancer will overtake heart disease in the next year or two.

Table 6

Leading causes* of death, by sex, Canada, 1993

	Number	%	ASMR [^]		
			Total	Males	Females
All causes	204,912	100.0	686.6	890.3	534.1
Diseases of heart	57,043	27.8	190.1	255.8	140.2
Malignant neoplasms	56,192	27.4	189.2	241.0	153.9
Cerebrovascular diseases	15,429	7.5	51.2	56.1	47.2
Accidents and adverse effects	8,970	4.4	30.6	42.6	19.5
Chronic obstructive pulmonary disease and allied conditions	8,898	4.3	29.7	48.0	18.6
Pneumonia and influenza	7,047	3.4	23.3	30.4	19.1
Diabetes mellitus	5,021	2.5	16.8	19.1	15.0
Suicide	3,803	1.9	13.1	21.1	5.3
Nephritis, nephrotic syndrome and nephrosis	2,411	1.2	8.0	10.8	6.3
Chronic liver disease and cirrhosis	2,237	1.1	7.6	10.8	4.7
All other causes	37,860	18.5	127.0	154.6	104.3

* See Appendix I for category definitions.

[^] Age-standardized mortality rate; deaths per 100,000 population using the total Canadian population of 1991 (adjusted for net census undercoverage and including non-permanent residents) as the standard.

Mortality rates calculated for both sexes together may mask important differences in causes of death. Because cause-specific mortality rates for males often surpass the corresponding rates for females, total rates are weighted more heavily by the male rate and do not always reflect females' situation. For example, in 1993 the age-standardized mortality rate due to heart disease for males was 255.8 deaths per 100,000, compared with 241.0 for cancer. Among females, however, cancer became the leading cause of death in 1990. By 1993, the rate for cancer was 153.9 deaths per 100,000, compared with 140.2 for heart disease.

As well, lung cancer, which has risen steadily since the mid-1960s, overtook breast cancer as the leading cause of cancer death among females in 1993. The age-standardized mortality rate for lung cancer was 31.6 deaths per 100,000, and for breast cancer, 29.2.

The cancers that cause the most deaths among males are lung (for which the age-standardized 1993 mortality rate was 77.3 deaths per 100,000) prostate

(30.8), and intestinal and colon (25.0). Male mortality rates for lung and prostate cancer have both been quite stable for the past 10 years; the rate for intestinal and colon cancer has declined from 28.7 deaths per 100,000 in 1984.

Together, chronic obstructive pulmonary disease and lung cancer accounted for the deaths of 24,011 persons in 1993. These diseases are largely the result of smoking,^{2,d} and, as such, are mostly preventable.

International ranking

Despite the 1993 figures, Canada continues to rank among the countries with the highest life expectancies at birth and lowest infant mortality rates (Table 7). The future will tell whether 1993 marked a turning point in the long-run trend toward greater longevity or was simply a bad year.

^d Numerous other diseases are associated with smoking. It is estimated that tobacco use causes one-fifth of all deaths in Canada each year (see Reference 2).

Acknowledgements

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