



STROKE IN CANADA

HIGHLIGHTS FROM THE CANADIAN CHRONIC DISEASE SURVEILLANCE SYSTEM

THE BURDEN AT A GLANCE

Stroke is the third leading cause of death¹ in Canada and the tenth largest contributor to disability-adjusted life years (the number of years lost due to ill-health, disability or early death).²

WHAT IS A STROKE?

A stroke is a sudden loss of brain function caused by a brain blood vessel blockage (ischemic stroke) or rupture (hemorrhagic stroke). Symptoms of a stroke can include weakness or loss of sensation (often on one side of the body), confusion or difficulty speaking, vision difficulties, headache or loss of coordination and balance. The onset of these symptoms is typically sudden. The symptoms or subsequent complications of a stroke can persist and impact the quality of life.³

Certain risk factors for stroke, such as age and sex, cannot be modified. Hypertension (high blood pressure) is the most important modifiable risk factor for stroke. Other important factors for stroke prevention include maintaining a healthy weight, eating a healthy diet, getting regular exercise, not smoking, not drinking excessively, and to some extent, controlling blood cholesterol.^{4,5}

HOW MANY CANADIANS HAVE EXPERIENCED A STROKE?

526,200 Stroke survivors in 2003–2004

741,800 Stroke survivors in 2012–2013

According to the most recent data from the Canadian Chronic Disease Surveillance System,^{*} the number of adults aged 20 and older who experienced a stroke rose steadily over the decade between 2003–2004 and 2012–2013 with the addition of over 215,000 survivors.

The age-standardized occurrence¹ of stroke slightly increased from 2.3% for both sexes in 2003–2004 up to 2.6% in 2012–2013. This represents an average annual increase of 1.0%. During the same time period, the age-standardized occurrence rate of first stroke decreased on average 2.7% annually from 383.0 per 100,000 in 2003–2004 to 297.3 per 100,000 in 2012/13 (**Figure 1**).

¹ Occurrence refers to the frequency of a disease or condition in a population during a defined period of time expressed as the proportion of that population that has the disease or condition. It provides a measure of the burden of the disease or condition in the population. Also presented in this document is the occurrence rate of first stroke which refers to the number of new cases of a stroke occurring in a given time period in a population at risk, expressed as a proportion or rate.



FIGURE 1: Age-standardized[†] stroke occurrence (%) and occurrence rate of first stroke (per 100,000 population), among people aged 20 years and older, by sex, Canada,* from 2003–2004 to 2012–2013



[†] Age-standardized to the 2011 Canadian population. * Data from New Brunswick and Yukon were not available.

NOTES: The 95% confidence interval shows an estimated range of values which is likely to include the true value 19 times out of 20.

SOURCE: Public Health Agency of Canada, using Canadian Chronic Disease Surveillance System data files contributed by provinces and territories, May 2016.

STROKE AMONG MEN AND WOMEN

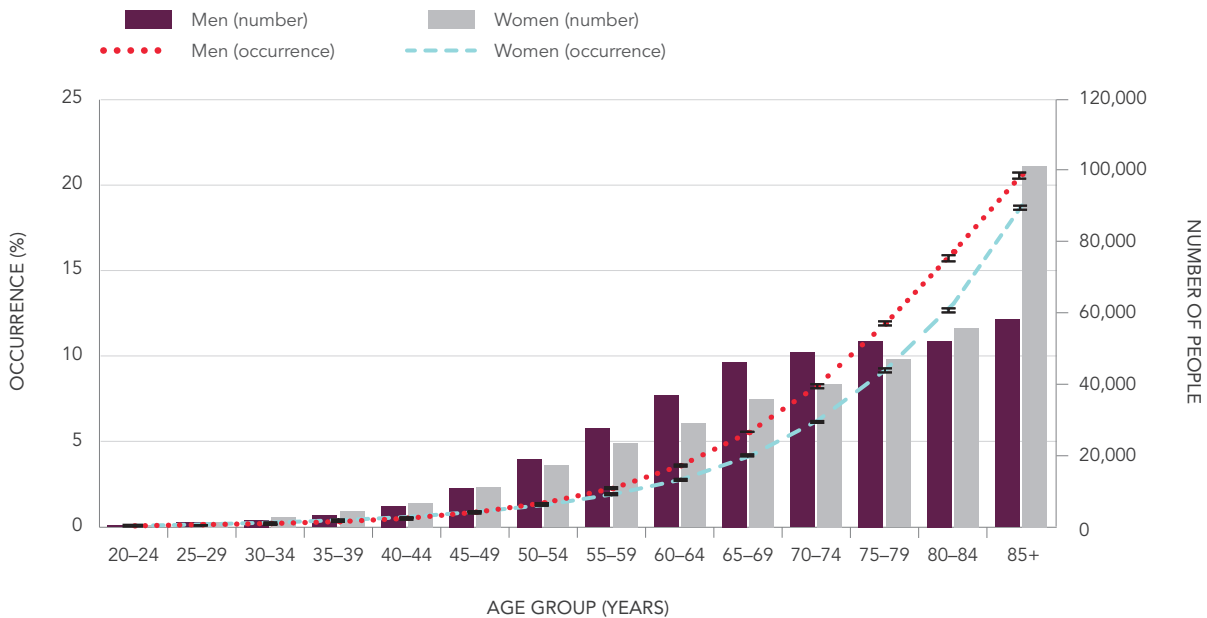
The burden of stroke is shared by both sexes. The occurrence and rate of first stroke are consistently higher among men than women over time (**Figure 1**). However, more women than men have a stroke each year, in part because women have a longer life expectancy.



STROKE ACROSS THE LIFE COURSE

Stroke predominantly affects older people with about 10% of adults aged 65 years and older having experienced a stroke (**Figure 2**).

Women and men have similar stroke occurrences in the younger age groups. However, men aged 60 years and older have consistently higher occurrence than women of the same age. The pattern is markedly different for the absolute number of people who survived a stroke. Although a greater number of men than women are stroke survivors between the ages of 50 and 79 years, among those ages 80 and older, the number of women who survived a stroke exceeds that of men.

FIGURE 2: Stroke occurrence (%) and number of people, by five-year age group and sex, Canada,* 2012–2013

* Data from New Brunswick and Yukon were not available.

NOTES: The 95% confidence interval shows an estimated range of values which is likely to include the true value 19 times out of 20.

SOURCE: Public Health Agency of Canada, using Canadian Chronic Disease Surveillance System data files contributed by provinces and territories, May 2016.

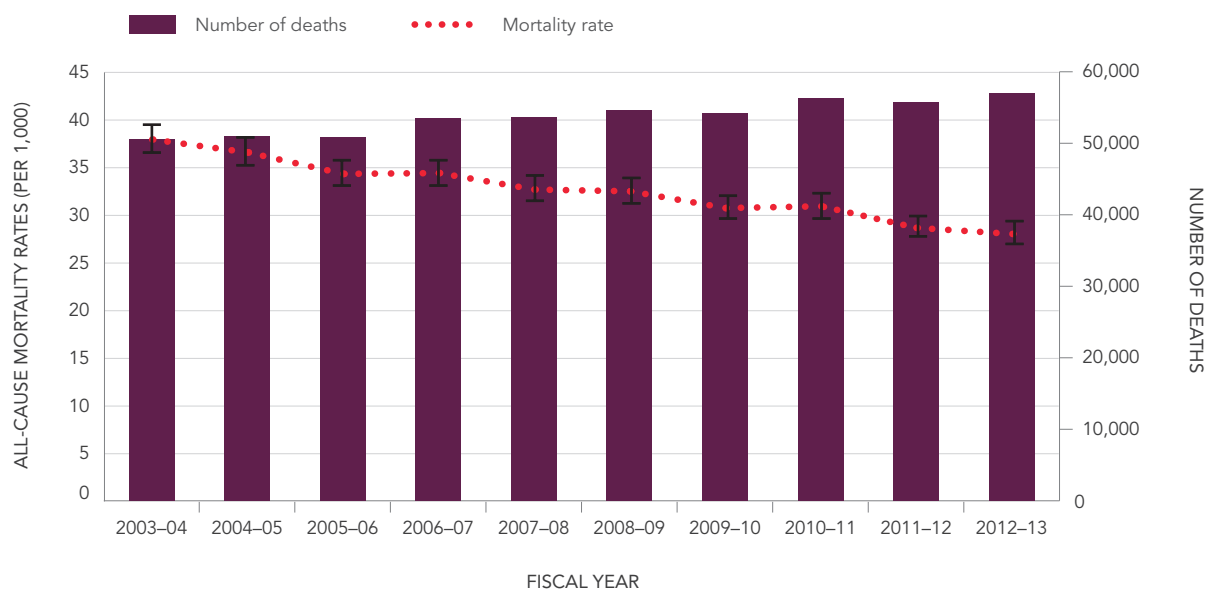
STROKE MORTALITY (DUE TO ANY CAUSE)

Age-standardized all-cause mortality rates among those who experienced a stroke decreased between 2003–2004 and 2012–2013, from 38.0 per 1,000 to 28.1 per 1,000 (**Figure 3**). During the same time period, the number of deaths due to any cause among stroke survivors followed an upward trend, increasing from about 50,500 to 57,000 deaths, an increase likely due to population growth.

All-cause mortality rates are higher among men than women in all age groups. Similarly, more men than women who ever had a stroke die at all ages, except among those aged 85 years and over. Women's longer life expectancy likely explains this pattern.



FIGURE 3: Age-standardized[†] all-cause mortality rates (per 1,000 population) and number of deaths among people aged 20 years and older with a stroke occurrence, both sexes, Canada,* from 2003–2004 to 2012–2013



[†] Age-standardized to the 2011 Canadian population. * Data from New Brunswick and Yukon were not available.

NOTES: The 95% confidence interval shows an estimated range of values which is likely to include the true value 19 times out of 20.

SOURCE: Public Health Agency of Canada, using Canadian Chronic Disease Surveillance System data files contributed by provinces and territories, May 2016.

WHAT DO NATIONAL DATA ON STROKE TELL US?

- The absolute number of people having survived a stroke continues to increase mainly due to population growth and aging.
- While the occurrence and rates of first stroke are consistently higher among men than women, a greater number of women than men have a stroke each year.
- First stroke and all-cause mortality rates have shown a steady decline in recent years. Raised awareness, better stroke care and improvements in the management of risk factors have likely contributed to this decline over several decades.⁶

HOW TO LEARN MORE ABOUT STROKE

VISIT	www.canada.ca SEARCH: <i>stroke</i>
GET DATA	http://infobase.phac-aspc.gc.ca/CCDSS-SCSMC
FOLLOW US	https://twitter.com/phac_gc
LIKE US	www.facebook.com/Public-Health-Agency-of-Canada-10860597051
MORE	www.heartandstroke.ca

* WHAT'S IN THE DATA?

The data used in this publication are from the Canadian Chronic Disease Surveillance System (CCDSS), a collaborative network of provincial and territorial chronic disease surveillance systems, led by the Public Health Agency of Canada (PHAC). The CCDSS identifies chronic disease cases from provincial and territorial administrative health databases, including physician billing claims and hospital discharge abstract records, linked to provincial and territorial health insurance registry records using a unique personal identifier. Data on all residents eligible for provincial or territorial health insurance (about 97% of the Canadian population) are captured in the health insurance registries.

In the CCDSS, individuals aged 20 years and older with a stroke are identified as having either one or more hospitalization record or two or more physician claims in one year, whichever comes first, with an International Classification of Diseases code for a stroke.

Trends in rate of first stroke may reflect true change in population health status, but may also be a function of change in administrative data characteristics or collection methods. Factors such as coding/classification systems, clinical practices, and/or billing methods may all influence the rates that are estimated from administrative data.

ACKNOWLEDGMENTS

This work was made possible through collaboration between PHAC and all Canadian provincial and territorial governments and expert contribution from the CCDSS Stroke Working Group. Results and interpretations reported in this fact sheet are those of the authors. No endorsement by the provinces and territories is intended or should be inferred.

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