



DEMENTIA IN CANADA, INCLUDING ALZHEIMER'S DISEASE

HIGHLIGHTS FROM THE CANADIAN CHRONIC DISEASE SURVEILLANCE SYSTEM

According to the World Health Organization, 47.5 million people live with dementia, including Alzheimer's disease, worldwide.¹ As these conditions progress, they become highly debilitating for affected individuals and lead to major health impacts. With a growing and aging population, the number of Canadians living with dementiaⁱ is expected to increase in future decades, with corresponding implications for health care needs and use. By 2031, it is projected that the total annual health care costs for Canadians with dementia will have doubled those from two decades earlier, from \$8.3 billion to \$16.6 billion.²

Using data from the Canadian Chronic Disease Surveillance System (CCDSS, **Box 1**), the Public Health Agency of Canada (PHAC) is able to conduct national surveillance for diagnosed dementia, including Alzheimer's disease, to support the planning and evaluation of related policies, programs, and services. This fact sheet presents an overview of these new estimates on diagnosed dementia and highlights information on associated health impacts collected through the National Population Health Study of Neurological Conditions.³

WHAT IS DEMENTIA AND WHAT IS ALZHEIMER'S DISEASE?

Dementia refers to a set of symptoms and signs associated with a progressive deterioration of cognitive functions that affects daily activities. It is caused by various brain diseases and injuries. Alzheimer's disease is the most common cause of dementia. Vascular dementia, frontotemporal dementia, and Lewy body dementia constitute other common types. Symptoms of dementia can include memory loss, judgement and reasoning problems, and changes in behaviour, mood and communication abilities.⁴

ⁱ The term "dementia" includes "Alzheimer's disease", even when not specifically mentioned.



HOW MANY CANADIANS LIVE WITH DEMENTIA, INCLUDING ALZHEIMER'S DISEASE (PREVALENCE) AND HOW MANY ARE NEWLY DIAGNOSED (INCIDENCE) EACH YEAR?

According to the most recent data available (Box 1), more than 402,000 seniors (65 years and older) are living with dementia in Canada (excluding Saskatchewan). This represents a prevalence of 7.1%. About two-thirds of Canadian seniors living with dementia are women. Annually, there are approximately 76,000 new cases of dementia diagnosed in Canada. This represents an incidence of 14.3 new cases per 1,000 in the senior population (65 years and older). The incidence is higher among women than men. The prevalence and the incidence increase with age, as does the differential in prevalence and incidence estimates between men and women (Table 1).

TABLE 1: Prevalence and incidence of diagnosed dementia, including Alzheimer's disease, among Canadians aged 65 years and older, by age group and sex, Canada, 2013–2014

Age (years)	PREVALENCE, % (95% confidence interval)			INCIDENCE, PER 1,000 SENIORS (95% confidence interval)		
	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL
65–69	0.8 (0.8–0.8)	0.7 (0.7–0.8)	0.8 (0.8–0.8)	3.0 (2.9–3.1)	2.8 (2.6–2.9)	2.9 (2.8–2.9)
70–74	2.4 (2.3–2.4)	2.4 (2.4–2.5)	2.4 (2.4–2.4)	5.7 (5.6–5.9)	5.7 (5.5–5.9)	5.7 (5.6–5.9)
75–79	5.6 (5.6–5.7)	6.1 (6.0–6.1)	5.9 (5.8–5.9)	13.1 (12.8–13.5)	13.3 (12.9–13.6)	13.2 (13.1–13.4)
80–84	11.4 (11.2–11.5)	13.1 (13.0–13.2)	12.4 (12.3–12.4)	25.6 (25.0–26.2)	27.3 (26.7–27.8)	26.5 (26.2–26.9)
85+	20.4 (20.3–20.6)	26.9 (26.7–27.0)	24.6 (24.5–24.7)	45.9 (45.0–46.7)	53.1 (52.4–53.8)	50.4 (49.9–51.0)
Total	5.6 (5.6–5.6)	8.3 (8.3–8.4)	7.1 (7.1–7.1)	12.4 (12.3–12.6)	15.8 (15.7–15.9)	14.3 (14.2–14.4)

NOTES: Data do not include Saskatchewan's data. The 95% confidence interval shows an estimated range of values which is likely to include the true value 19 times out of 20.

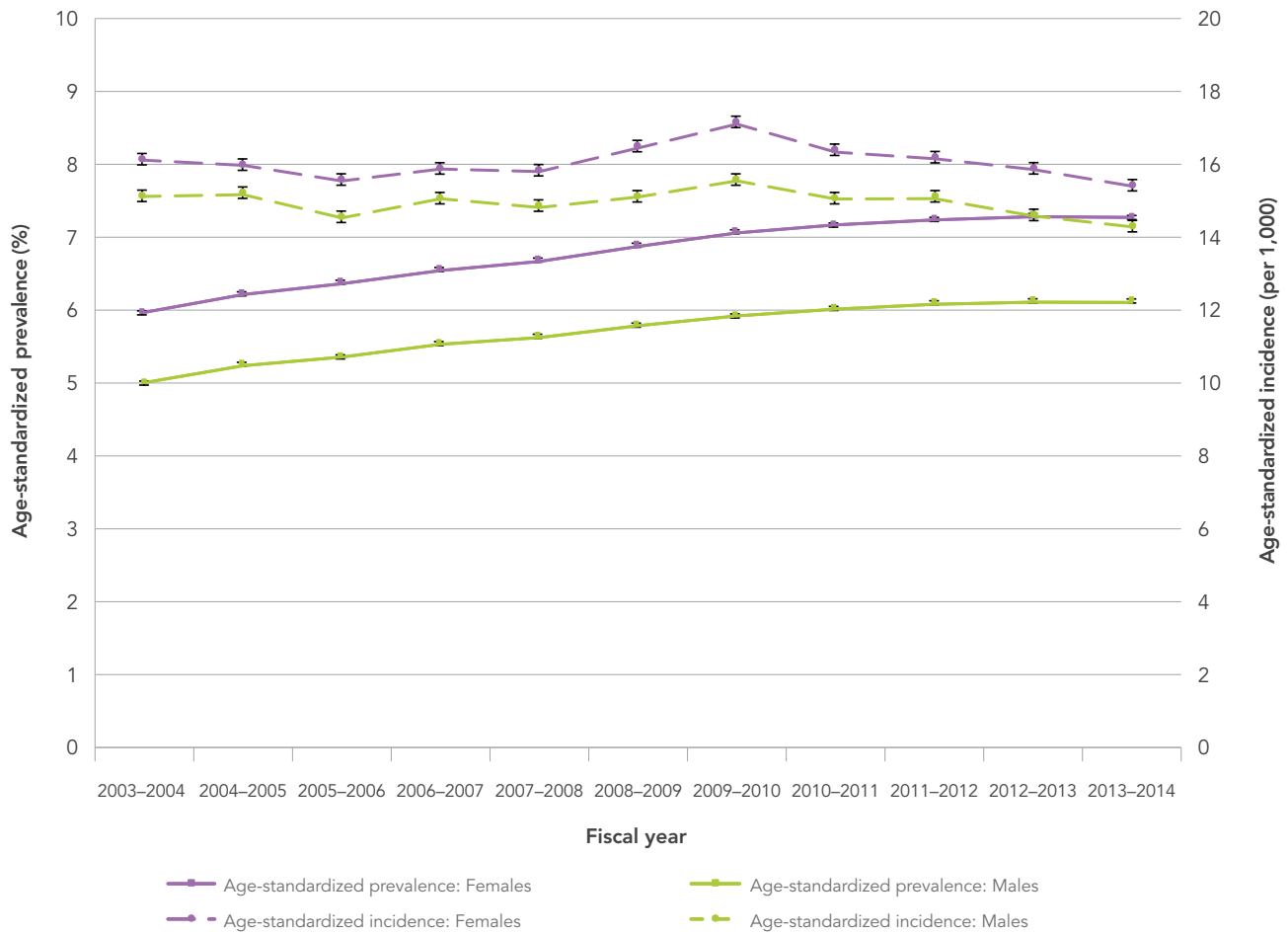
DATA SOURCE: Public Health Agency of Canada, using Canadian Chronic Disease Surveillance System data files contributed by provinces and territories, April 2017.

Over a ten-year period (2003–2004 to 2013–2014), the age-standardized prevalence of dementia increased by 21.2%. During the same period, fluctuations in incidence have been observed. Drug data, one of the criteria used for case identification (Box 1), became available in Alberta and Prince Edward Island in 2009–2010, which contributed to the temporary peak in incidence that year. Since then, incidence data suggest a decline (Figure 1).

While CCDSS data capture changes in population health status, they may also reflect changes in data collection methods, coding and classification systems, or clinical and billing practices. These factors must also be taken into consideration when interpreting time trends.



FIGURE 1: Age-standardized prevalence and incidence of diagnosed dementia, including Alzheimer's disease, among Canadians aged 65 years and older, by sex, Canada, 2003–2004 to 2013–2014



NOTES: Data do not include Saskatchewan's data. Age-standardized estimates to the 2011 Canadian population. The 95% confidence interval shows an estimated range of values which is likely to include the true value 19 times out of 20.

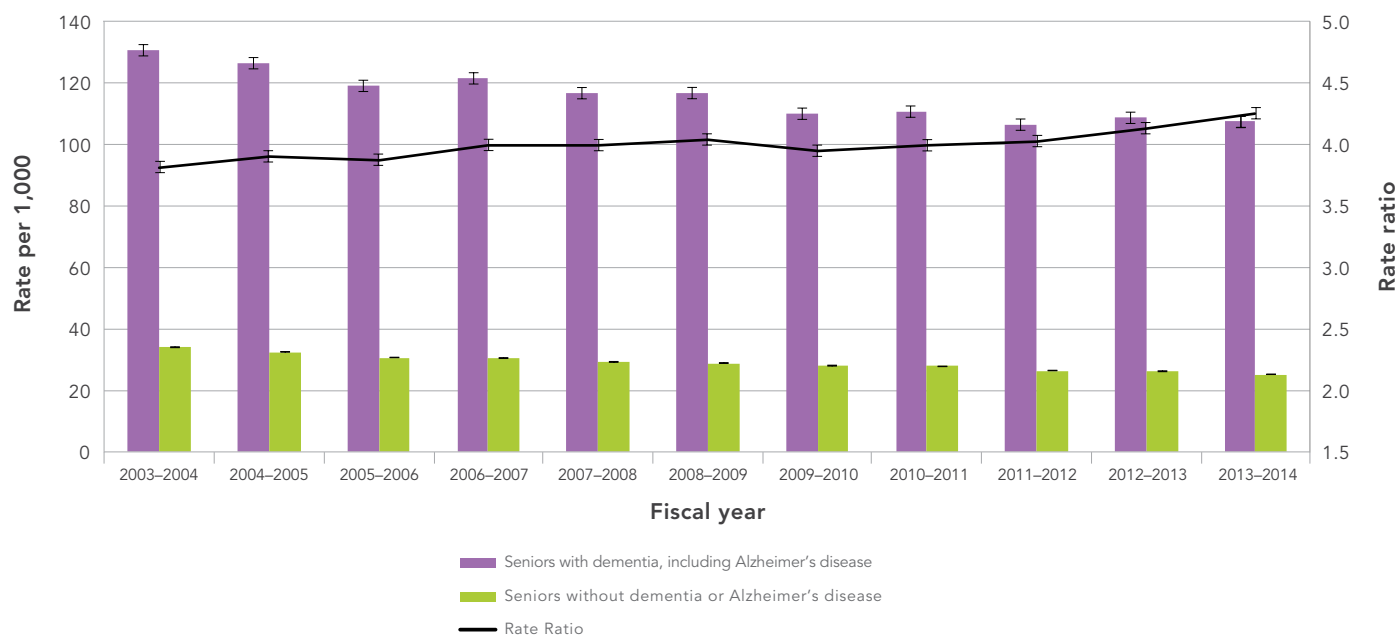
DATA SOURCE: Public Health Agency of Canada, using Canadian Chronic Disease Surveillance System data files contributed by provinces and territories, April 2017.

MORTALITY DUE TO ANY CAUSE (ALL-CAUSE MORTALITY)

All-cause mortality rates increase with age. In 2013–2014, for Canadians with dementia, the rate was 75.5 deaths per 1,000 population in the 65–69 years age group, and it reached 207.2 deaths per 1,000 population in the 85 years and older age group. However, as the overall mortality among Canadians with and without dementia increases later in life, mortality rates between the two groups tend to converge. In other words, the all-cause mortality rate ratios (comparing the rates of deaths due to any cause among Canadians with and without dementia) decrease with age. In 2013–2014, the rate ratio was 7.6 in the 65–69 years age group, and it decreased to 2.9 in the 85 years and older age group.

Since 2003–2004, all-cause mortality rates have decreased among all Canadians. Among Canadians with dementia however, rates decreased at a slower pace. This is illustrated by the increasing rate ratios between 2003–2004 and 2013–2014. In 2013–2014, the age-standardized all-cause mortality rate was about four times higher among seniors with dementia compared to those without (Figure 2).

FIGURE 2: Age-standardized all-cause mortality rates and rate ratios among Canadians aged 65 years and older with and without diagnosed dementia, including Alzheimer's disease, Canada, 2003–2004 to 2013–2014



NOTES: Data do not include Saskatchewan's data. Age-standardized estimates to the 2011 Canadian population. The 95% confidence interval shows an estimated range of values which is likely to include the true value 19 times out of 20.

DATA SOURCE: Public Health Agency of Canada, using Canadian Chronic Disease Surveillance System data files contributed by provinces and territories, April 2017.

HEALTH IMPACTS

In addition to CCDSS data on the burden of diagnosed dementia, including Alzheimer's disease, further information on associated health impacts was collected using the Survey on Living with Neurological Conditions in Canada.⁵ Almost half (48.4%) of Canadians aged 35 years and older with dementia reported having fair or poor general health, and almost one-third (29.7%) having mood disorders. Dementia was associated with high levels of overall disability and specific functional impairments. For example, 58.4% reported impaired mobility, and 37.0% reported moderate or severe pain and discomfort. More than half (56.8%) of Canadians with dementia also reported urinary incontinence, and about one-third (31.7%) reported bowel incontinence. It was estimated that men with dementia would lose on average 16.0 years of life in full health due to disability and premature death, and that women would lose 15.2 years on average.²

PREVENTION AND TREATMENT

The causes of dementia are not all specifically known, and there is currently no cure for Alzheimer's disease, the most common type of dementia. Non-modifiable risk factors such as age, sex, and genetics are associated with the development of dementia. Depending on the type of dementia, research also points to preventable risk factors, including risk factors for vascular disease (e.g. hypertension, hypercholesterolemia, hyperglycemia), unhealthy diet, physical inactivity, severe brain injury, and environmental factors. Healthy lifestyles, control of vascular risk factors, higher level of education, participation in cognitively stimulating activities, social engagement, and medications may help to delay onset, reduce symptoms, slow progression and improve quality of life among people affected. However, more research is needed to better understand the causes of the different types of dementia, and the most effective ways to prevent, identify and treat them.^{4,6-9}

BOX 1: WHAT'S IN THE DATA?

Each data source has strengths and limitations. As such, dementia estimates vary among population-based studies, depending on factors like the definition of dementia, type of data, and methodology used. 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. Data on diagnosed dementia, including Alzheimer's disease, from Saskatchewan are not included in the CCDSS due to a different utilisation pattern of the International Classification of Diseases (ICD) codes that would lead to an underestimation of incidence and prevalence in that province.

Definition of diagnosed dementia, including Alzheimer's disease, in the CCDSS

Canadians aged 65 years and older are identified as having diagnosed dementia, including Alzheimer's disease, if they have: at least one hospitalization record or at least three physician claims in a two-year period (with at least 30 days between each claim) with an ICD-9 or ICD-10 code for dementia, including Alzheimer's disease; or at least one anti-dementia prescription drug record.¹⁰

HOW TO LEARN MORE ABOUT DEMENTIA, INCLUDING ALZHEIMER'S DISEASE, IN CANADA

VISIT	Canada.ca SEARCH "Dementia, including Alzheimer's disease, in Canada"
READ	Mapping connections - An understanding of neurological conditions in Canada
GET DATA	infobase.phac-aspc.gc.ca/CCDSS-SCSMC
FOLLOW US	@PHAC_GC
LIKE US	Public Health Agency of Canada's Facebook page
MORE	www.alzheimer.ca www.who.int/topics/dementia/en

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