Submission to the Social Affairs, Science and Technology Committee:

Study of the issue of dementia in our society

Senate of Canada

May 2016
About Us

The Heart and Stroke Foundation (HSF) is a national volunteer-based charity led and supported by more than 125,000 volunteers and over 1.4 million donors. The HSF aims to create healthy lives free of heart disease and stroke, through the advancement of research and its application, the promotion of healthy living and advocacy. The Foundation’s two key goals are to decrease the risks factors for heart disease and stroke by 10 per cent by 2020 and to reduce the death rate in Canada from heart disease and stroke by 25 per cent by 2020.

The Heart and Stroke Foundation leads the fight against heart disease and stroke in Canada. We have a presence in every community across the country, from coast to coast to coast. Since we unified as one single organization four years ago, we have become more efficient and effective at mobilizing programs and providing public education to Canadians.

Our primary focus is supporting heart disease and stroke research. Since our inception, we have funded almost $1.5 billion in research, something we are very proud of. The Foundation has funded research in every province, through research grants and awards.

Executive Summary

The Heart and Stroke Foundation, along with partner organizations Alzheimer’s Society of Canada, the Canadian Diabetes Association and the YMCA, have been advocating for a number of years for the federal government to drastically increase research investments for dementia in Canada. Stroke and the onset of dementia are well documented. Thirty-three per cent of dementia can be attributed to vascular causes and 10 per cent of patients had dementia before their first stroke. As the Social Affairs, Science and Technology Committee continues to study the issue of dementia and the role of the federal government, the HSF is keen to ensure that committee members are aware of the work of the HSF on brain health and our recommendations focusing on dementia prevention.

In 2011, 747,000 (or almost 15% of Canadians 65 and older) were living with cognitive impairment, including dementia. If the status quo is maintained, 1.4 million Canadians will have a cognitive impairment by 2031. Dementia is intrinsically linked to vascular health - evidence suggests that 25-50% of patients with heart failure have a cognitive impairment. In older adults, vascular disease is implicated in 80% of persons with cognitive impairment/dementia, while 54 per cent of Alzheimer's can be prevented by addressing lifestyle risk factors (hypertension, physical activity, diet, etc). The risk of developing dementia can be minimized by adopting a healthy lifestyle, which includes being physically active, eating right and being smoke-free.

In a recent public opinion poll, the majority of Canadians (over 70%) confirmed that they are unaware that maintaining a healthy lifestyle is a significant factor relating to the development of dementia. As a result, many Canadians may not be taking actions to reduce their risk of dementia1.

The HSF has recommended that the government invest $20 million per annum towards initiatives to prevent dementia. This will support public awareness initiatives, hypertension management, nutrition, physical activity and self-management initiatives through HSF partnerships with the Alzheimer’s Society of Canada, the Canadian Diabetes Association and the YMCA.

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1 Earnscliffe Strategy Group, Public Opinion Research, field dates: August 11-25, 2015
Background

Dementia, heart disease and stroke share common risk factors, and each increases the risk of the other. These include hypertension, physical inactivity, poor nutrition, high cholesterol, Atrial Fibrillation and obesity. The incidence of these diseases can be mitigated by managing hypertension, being physically active, eating well, challenging one’s brain and staying social.

Hypertension is a leading risk factor for many heart diseases and dementia, the most powerful prognostic factor for stroke, and common among those with diabetes. Although hypertension is well known as a cause of vascular dementia (VaD), recent findings highlight the role of hypertension in the development of Alzheimer’s disease (AD) as well as mild cognitive impairment (MCI).1

In Canada, six million adults have high blood pressure, and an additional six million people show high normal or pre-hypertensive levels. Of Canadians with high blood pressure, 17 per cent are unaware of their condition. Untreated hypertension may be responsible for about 40 per cent of cases of dementia.2

The majority of Canadians (almost 70%) are concerned that they or a loved one will develop dementia, and 86% feel it is important that the government fund initiatives and develop programs to help Canadians adopt a healthy lifestyle to reduce their risk.2

Cognitive impairment including dementia currently affects 15.9 per cent of Canadian seniors aged 65 and older. Future incidence of dementia is significantly predicted by high age (≥47 years), low education (<10 years), hypertension, high cholesterol levels, and obesity.3 With our rapidly aging population, the number of Canadians living with dementia is expected to rise dramatically over the coming decades. Without immediate action, an estimated 1.4 million Canadians will be living with the effects of cognitive impairment by 2031.

The link between stroke and dementia

Stroke happens when the blood flow to the brain is interrupted and cells are damaged or die as a result. This damage can lead to dementia. New research is resulting in greater understanding of the link between stroke and dementia and how to reduce their impact.

Clinical strokes vs. covert strokes

Clinical strokes are a medical emergency. They’re recognized by the FAST signs of stroke which include: face droop, arm weakness or paralysis, and speech that is slurred or jumbled. But some strokes are not as obvious: covert strokes have no physical or functional signs – but can lead to dementia. These covert strokes weaken connections among various parts of your brain and affect “executive function” – a set of mental processes that can help you get things done. These include planning, organization, processing information, multi-tasking, problem solving, decision making, reasoning and finding your way home.

Stroke can cause dementia at any age

The older you get, the higher your risk of stroke and dementia. But since stroke risk factors are increasing in younger adults, so is the risk of dementia. But there is something we can do.

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**Prevent stroke, prevent dementia**
The connection between stroke and dementia is frightening, but when we prevent one, we help to prevent the other. And that means tackling risk factors that are common to both, including:
- High blood pressure;
- High cholesterol;
- Diabetes;
- Physical inactivity.

**Proposed Solution**

There is much we know about preventing dementia and other chronic diseases that enables us to act now. In partnership with the Alzheimer’s Society, the Canadian Diabetes Association and the YMCA, the HSF will collaborate to implement a prevention plan that will significantly impact the current trends and reduce the incidence of dementia.

Through our partnerships, a $20M annual investment would support the following initiatives that would: Increase public awareness of dementia prevention; Empower Canadians to understand and manage their blood pressure and hypertension; Increase the level of physical activity among Canadians; Improve the nutrition of Canadians; and Increase capacity for self-management among Canadians.

**Public Awareness Initiatives: $2M**
The HSF and our partners will execute a joint comprehensive national public awareness campaign that alerts Canadians that dementia can be prevented or delayed by managing hypertension, being physically active, eating right, challenging your brain and staying social.

**Hypertension: $12M**
Awareness of hypertension and proper methods to prevent and manage it could significantly impact the prevalence of vascular dementia. Utilizing, collaborating and building on the successes of the community-based model developed by the Cardiovascular Health Awareness Program (CHAP) and with the support of our partnership with the YMCA, pharmacies across Canada and thousands of volunteers, HSF proposes to run blood pressure screening clinics across Canada for people aged 50+.

**Walking: $2M**
HSF will create a national network of walking clubs, clinics and programs. In addition, HSF will host an annual Walking Week that will encourage Canadians to incorporate walking into their daily lives. Furthermore, HSF will build on existing events that support dementia awareness, such as the Alzheimer’s Society’s annual event “Walk for Memories” and a day of walking to be hosted in 2017, leveraging the momentum of Canada’s 150th birthday celebration. The $2 million investment will also allow HSF to create a Walking Network website or mobile app, encouraging Canadians to incorporate walking into their daily activities.

**Nutrition: $2M**
HSF will create a National Healthy Eating Program to increase Canadians’ awareness and knowledge of nutrition and to change the nutritional quality of foods that Canadians consume, contributing to general health and preventing dementia. HSF will develop a comprehensive ‘nutrition centre’ website, enabling users to access nutrition information and e-tools to set and track progress towards personal health goals and increase their nutrition literacy.
Self-Management: $2M
HSF is committed to introducing a patient-centred digital hub of health information to educate, and establish a support system for primary and secondary prevention. This hub will also serve as a resource for stroke and heart disease survivors and their caregivers, enabling them to easily access information about health system navigation, community-based supports and resources specific to their needs. Self-management is a key to effective secondary prevention - a proven approach to reduce the risk of future incidents (stroke, heart disease) known to contribute to elevated risk of developing vascular dementia.

As a means to reducing vascular dementia at a population level, our plan will enable Canadians to adopt a healthy lifestyle, which includes being physically active, eating right, challenging your brain, staying social and managing hypertension. This plan could enable a large number of people to live dementia free lives, reduce incidence of other chronic diseases, and greatly improve quality of life for individuals and caregivers. There is also the potential of reducing the economic burden of disease, which by 2040 could amount to $293B in costs to the health care system.4

Further, the impact of these initiatives will be leveraged by the Heart and Stroke Foundation’s broader national and regional efforts and expertise in media relations, sector and corporate partnerships, knowledge exchange, research, policy influence and advocacy and volunteer engagement.

How our proposal can address the problem

Given the risks associated with hypertension, and the number of Canadians who are unaware of their blood pressure numbers, it is essential that more individuals regularly check their blood pressure. If diagnosed, high blood pressure can be managed with lifestyle changes and medication.

The Heart and Stroke Foundation working with its partners is ideally situated to empower Canadians to take action to maintain a healthy blood pressure level. Given our reputation, research, and experience with blood pressure screening in Ontario, Alberta and BC, we can play a significant role in increasing the number of Canadians who know and manage their blood pressure and provide resources so that people can take action to prevent and manage hypertension. Our existing relationship with the Cardiovascular Health Awareness Program (CHAP) in Ontario will also enable us to transfer key learning from their community-based cardiovascular disease awareness program model which successfully implemented and reduced CVD-related incidence and hospitalization costs even at the community level.5

Physical activity and proper nutrition plays a major role in maintaining healthy blood pressure levels and reducing the incidence of obesity, hypertension and high cholesterol levels – risk factors for heart disease, dementia, diabetes and other chronic diseases. This is especially the case in the early years, as many risk factors (e.g. dietary habits) typically track into adulthood.

Walking is a low cost, accessible form of physical activity and is associated with many physical, social and mental health benefits. Physical activity is known to have an inverse association (more physical activity leading to less chronic disease) with several chronic diseases. In an elderly population, a higher level of physical activity was associated with a lower risk of dementia.6 Similarly, leisure-time physical activity at midlife is associated with a decreased risk of dementia and AD later in life. Regular physical activity may reduce the risk or delay the onset of dementia and AD, especially among genetically susceptible individuals.7 In many communities across
Canada, walking programs also serve as a key source of social interaction, building social cohesion among older adults.

HSF has had considerable experience motivating and supporting Canadians to walk through our successful Walkabout program in Nova Scotia, and our Hearts in Motion™ Walking Clubs in British Columbia. Together both programs have successfully engaged thousands of individuals and hundreds of workplaces to participate in walking, and created tools and supportive social networks to continue motivating more to join. Extending these initiatives across Canada could change our culture on walking and physical activity with significant health and social benefits. There is also an opportunity to build on existing events such as the Alzheimer’s Society’s annual event “Walk for Memories” that raises awareness about dementia. This would include establishing an annual national walking week, flagship walking events, national walking tools and resources and a comprehensive public awareness campaign focusing on walking.

More than half of adult Canadians do not consume the recommended daily servings of vegetables and fruits. Epidemiological evidence suggests a protective effect of vegetables and fruit in the development of many chronic diseases. Most studies show that frequent consumption of vegetables is associated with a lower risk of dementia. A long term (30 year) follow-up study shows that higher fruit and vegetable consumption may reduce the risk of dementia, especially among women and those experiencing angina pectoris in midlife. The equivalent of one serving per day increase in fruit and vegetable intake was associated with a 20 per cent reduction in all-cause mortality independent of age, systolic blood pressure, blood cholesterol, cigarette smoking, diabetes and supplement. Research also shows that vegetable and fruit consumption is a modifiable risk factor related to myocardial infarction worldwide. Individuals who consumed vegetables and fruit daily were less likely to have a heart attack. Importantly, this relationship stands up across geographic locations, culture and ethnicity.

A higher consumption of vegetables and fruit can also cause displacement of less healthy foods, which is an additional indirect link to better health. Successful interventions include combining increased vegetable and fruit consumption with a strategy to improve skills and knowledge around purchasing and preparing healthy meals. Enhancing the nutrition literacy of the public is essential and the current efforts of the Federal government to enhance the Nutrition Facts table are good first steps to be applauded. These enhancements will standardize serving sizes and provide more information on sugar content. This is a step in the right direction.

Finally, we need to support Canadians after an event/ illness or serious risk factors have already been diagnosed to make the necessary changes to halt or slow the progress of disease or prevent co-morbidity of chronic diseases. Similar focus should be on more effectively supporting care-partners and families in the period following a health emergency. Self-management support is key to this and may reduce visits to healthcare services by up to 80 per cent, alleviating the increasing burden on acute care services.

A patient centered approach to self-managed care enables individuals to receive the information, build the skills, and gain the confidence required to deal with physical and emotional changes along the recovery journey. Self-management is a key to effective secondary prevention. Moreover, secondary prevention is a proven approach to reduce the risk of future incidents (stroke, heart disease) known to contribute to elevated risk of developing vascular dementia.

The Benefits

Population based services, programs and interventions that focus on health promotion and disease prevention, like the initiatives outlined in the preventing dementia plan, would reduce the incidence and prevalence of dementia while also reducing the incidence of other chronic
diseases and conditions. This would result in social and economic benefits, including a decrease in demand for acute care services and overall reduced health care expenditures.

A substantial body of new evidence now exists demonstrating spending money on community-based CVD awareness programs yields a significant return on investment in Canada.

Additionally, recent evidence also suggests that:

- Lifestyle changes and prevention or treatment of chronic conditions such as hypertension can prevent an estimated 54 per cent of Alzheimer’s cases in North America.\(^\text{12}\)

- An estimated 8 per cent of AD cases are potentially attributable to midlife hypertension. A 10 per cent reduction in prevalence of midlife hypertension could potentially lower AD prevalence by almost 40,000 cases; a 25 per cent reduction could lower prevalence by nearly 100,000 cases.\(^\text{13}\)

- A 10 per cent reduction in the prevalence of physical inactivity could potentially prevent about 380,000 AD cases worldwide and nearly 90,000 cases in the USA, whereas a 25 per cent reduction in physical inactivity prevalence could potentially prevent nearly one million AD cases worldwide and 232,000 cases in the USA.\(^\text{14}\)

- In the short-term (10 years), a prevention program to increase levels of physical activity by 50 per cent for Canadians (65+) without dementia who are already moderately to highly active, would result in:
  - a reduction in the number of new cases of dementia of more than 5,970 (4.3 per cent reduction from the number of cases that would occur without the program);
  - a reduction in the number of Canadians living with dementia of more than 32,450 (-5.1 per cent);
  - over 13,570 fewer Canadians (65+) living with dementia in long-term care (-7.4 per cent);
  - over 11,690 fewer Canadians (65+) living with dementia in community care (-5.3 per cent);
  - a reduction in the cumulative Total Economic Burden of more than $5.6B (in 2008 dollars) (-2.4 per cent).\(^\text{15}\)

Our plan will contribute new evidence and information to the Public Health Agency of Canada’s overarching goal to reduce the chronic disease burden by developing innovative programs and tools and sharing new disease-specific knowledge on reducing the incidence of vascular dementia.

**Conclusion**

Today, there are nearly 750,000 Canadians living with dementia. With our aging population, this number will double to 1.4 million in less than 20 years. Annual costs related to dementia will also rise, from $33B today to $293B by 2040.

The good news is there is much we can do to reduce the risk of this terrible disease. Many of the same factors that increase dementia are the same that increase the risk of heart disease and
stroke and can be managed. By targeting these common risk factors with community-based prevention programs, we can not only reduce the incidence of these diseases but also the heavy financial burden on families, our health care system and our economy.

The HSF, working with the Alzheimer’s Society of Canada, the Canadian Diabetes Association, the YMCA of Canada and other key players can, with the support of the federal government, launch a program to reduce significantly the incidence of dementia and other chronic diseases. This objective would be met with a federal government investment of $20M per annum to support dementia prevention initiatives,

The HSF and its partners look forward to collaborating with the federal government to help Canadians improve their health and well-being.

Endnotes

1 Hypertension and Dementia. Am J Hypertens 2010; 23:116-124


3 Risk score for the prediction of dementia risk in 20 years among middle aged people: a longitudinal, population-based study. The Lancet Neurology 5:9 (Sep 2006): 735-41.

4 Alzheimer Society of Canada. 2010. Rising tide: the impact of dementia on Canadian Society


15 *Alzheimer Society of Canada. 2010. Rising tide: the impact of dementia on Canadian society*