

Healthy Aging

Prevention of Unintentional Injuries Among Seniors

*Our mission is to help the people of Canada
maintain and improve their health.*

Health Canada

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Foreword

This document on the topic of seniors and injury prevention was developed as a background paper for the *Workshop on Healthy Aging: Aging and Health Practices*, organized by Health Canada's Division of Aging and Seniors in November 2001. Following a series of internal investigations, the Division identified four key determinants that play key roles in healthy aging: healthy eating, injury prevention, physical activity, and smoking cessation. The Division convened a workshop to solicit the advice of experts and stakeholders on the development of an action plan on healthy aging, with a specific focus on the four areas noted above. Prior to the workshop, participants were provided with a series of background papers viewing the four key determinants through a healthy aging lens. This document is a revised version of the paper on injury prevention, incorporating comments from experts and stakeholders.

A. Overview of the Issue

Significance of the Issue

Unintentional injuries among seniors are a major public health problem that has received relatively little attention compared to other age groups and to other health problems. Injuries to seniors are costly to the health care system and often have serious consequences to seniors themselves. Many injuries lead to an irreversible decline in function, institutionalization and even death. The annual direct and indirect costs related to unintentional injuries for all Canadians are estimated at \$8.7 billion. In 1994, those 71 years of age or older accounted for over 27% of all unintentional injuries resulting in hospitalization and 34% of the deaths resulting from unintentional injury.

Of all the causes of seniors' injuries, falls are by far the biggest problem, accounting for over 87% of unintentional injuries resulting in hospitalization for those 71 years of age or over, and 75% of the deaths resulting from injury. For Canadians 65 years of age or older, direct and indirect cost to the health care system for fall-related injuries alone is estimated at \$2.8 billion annually. The other leading causes of unintentional injury for seniors are motor vehicle crashes, poisoning, drowning, suffocation and fires. Falls and other causes of unintentional injuries are not the result of accidental events but are predictable. The risk factors are identifiable and there are preventive interventions available that can eliminate or minimize their impacts.

Magnitude of the Problem

While seniors comprise only 12% of the Canadian population, they account for 35% of all injury hospitalizations. In addition to the substantial economic costs of seniors' injuries, the impact to their loss of independence is also considerable. It is estimated that 20% of seniors who enter a hospital for treatment of an injury are moved from their private residences to institutionalized care.

Approximately one million, or one in every three seniors living in the community, will experience at least one fall per year, and up to 50% of these individuals will experience repeated falls. These numbers are even higher for seniors living in institutional settings.

The issue of older drivers in Canada and injuries and fatalities due to motor vehicle crashes has been receiving increasing attention. An examination of absolute numbers suggests that older drivers have fewer collisions than younger people. However, according to an Ontario study, on the basis of kilometres driven, older drivers get into approximately the same number of motor vehicle crashes as those 16 to 24 years of age. While the research on the risk that older drivers pose is not conclusive, it is known that seniors are more likely to die from their injuries or take longer to recover. In 1996, although seniors represented 11% of the population, they accounted for 18% of all fatalities and 6% of injuries occurring on Canadian roadways (this includes older passengers and pedestrians as well as drivers).

An Alberta study found that unintentional deaths due to house fires among those 80 years of age or older were the highest for all age groups at 3.2 per 100,000 per year, with children aged 0 to 4 the next highest at 2.9 per 100,000 per year. While the contributors to most fires were found to be multifactorial, cigarettes or other smoking products were involved in 33% of the fires and alcohol consumption in 59%.

Seniors, children and persons with disabilities account for approximately 85% of the burns due to scalding. Scalds often occur among frail seniors due to exposure to excessively hot water in bathtubs and showers, as their skin has reduced sensitivity to temperature and they cannot get out of harm's way quickly.

The picture of injuries differs for specific populations of seniors, such as those living on farms and Aboriginal people. The significant problem of injuries for seniors living on farms has been demonstrated in a recent report on fatal farm injuries in Canada. This report identified seniors, in particular males over the age of 60, as one of the high-risk groups for farm fatalities – the other high-risk group being children. To illustrate, although farm-dwelling seniors between the 70 and 79 years of age make up only 3.2% of the farm population, they account for 17.8% of farm work-related deaths and 20% of hospitalized injury cases.

Aboriginal people experience three times the injury death rate of Canadians as a whole. Among this population, the most common cause of death from injury is motor vehicle crashes, suicide and accidental drug overdose. Although Aboriginal people comprise only 3% to 5% of the Canadian population, they account for 26% of snowmobile drownings, 16% of drownings from falls into water, 10% of drownings during aquatic activities and 9% of boating drownings. In British Columbia, the age standardized mortality rate for deaths due to fall-related injury is three times that of the provincial average.

Trends

The proportion of Canadians 65 years of age or over will double from the current level of 12% to 23% of the population by 2041. This will significantly increase the economic and personal burden of injuries in this population group if current patterns continue.

The risk of serious injury and death due to falls increases dramatically with age among older people. For example, from 1996 to 1997, the number of hospitalizations due to falls for those between the ages of 65 and 74 was 837 per 100,000; for those 75 to 84 it was 2,443 per 100,000 and for those over 85 years of age it was 6,281 per 100,000.

Hip fractures are the most common type of fall injury among seniors and account for approximately 40% of hospital admissions for fall-related injuries for those 65 years of age or older. A recent Canadian study estimated that the number of annual hip fractures among seniors would increase annually from 23,375 in 1993 to 88,214 by 2041 due to aging of the population.

Some Key Considerations

Injuries result from an interaction of many factors. Theoretical development in the study of falls and fall-related injuries among older adults has focused on a two-tiered conceptual framework based on studies of intrinsic (those internal to the individual) and extrinsic (those external to the individual) factors. Findings from these studies point to falls and fall-related injuries as resulting from a complex combination of factors reflecting physical and behavioural conditions operating alone, or in conjunction with environmental hazards. Results of studies indicate that the more internal and/or external risk factors, the greater chances that a fall will occur. Risk factors are also shown to have an additive effect, where having two risk factors imparts more than twice the risk of having each factor alone.

A considerable amount of research has been conducted into risk factors for falls. One review of epidemiological studies of falls among seniors identified over 400 variables that have been investigated. Despite this, opinions differ on the contribution of specific factors and few studies have been conducted to investigate the interactions between factors or their combined effects. Understanding the problem of falls and fall-related injuries among seniors is further hampered by a lack of investigations into factors that may be indirectly linked to falls and fall-related injuries.

To reflect the complex nature of the problem of fall-related injuries among older adults, one needs to apply a broad health determinants model, where studies of factors associated with fall-related injuries among older adults are reviewed under biological, behavioural, environmental and socio-economic factors. While these separations are arbitrary – as most fall-related injuries result from the overlapping and compounding effects of multiple factors – they are useful to help us understand the contribution of like clusters of factors and identify target areas for risk reduction.

Biological factors, including those pertaining to the human body, are related to the natural aging process and the effects of chronic and acute health conditions. Behavioural factors include those concerning human actions, emotions or choices. Environmental factors concern physical structures or objects, and policies designed to regulate them. Socio-economic factors are those concerned with the influence and interaction of social or economic factors. In Table I, these four domains are presented, followed by an overview of key direct and indirect risk factors shown in the literature to be associated with fall-related and other injuries among older adults. Evidence is stronger for some of these factors than others, and many are found to be problematic only when found in combinations. Some factors, such as those concerned with social and economic conditions, are found in the literature to be related only indirectly to fall-related injuries.

Table I: Direct and Indirect Risk Factors for Falls and Fall-related Injuries Among Older Adults

<u>Biological</u>	<u>Behavioural</u>	<u>Environmental</u>	<u>Social/Economic</u>
Advanced age Female gender Chronic illness: <i>Stroke</i> <i>Osteoporosis</i> <i>Urinary or bowel incontinence/frequency</i> <i>Physical disability</i> <i>Cognitive impairment</i> <i>Mobility changes</i> <i>Gait disorders</i> <i>Poor balance</i> <i>Postural sway</i> <i>Diminished muscle Strength</i> <i>Sensory changes</i> <i>Poor vision</i> <i>Diminished proprioception</i>	Taking multiple medications or excessive alcohol Taking: <i>Tranquilizers</i> <i>Sleeping pills</i> <i>Anti-depressants</i> <i>Anti-hypertensives</i> <i>Anti-diabetic agents</i> Risk-taking behaviours Lack of exercise Lack of adequate nutrition Previous fall/frequent falling Fear of falling Inappropriate footwear Mobility aids Not using mobility aids	Poor building design and/or maintenance Unenforced codes or inadequate standards Poor stair design Lack of: <i>Handrails</i> <i>Curb ramps</i> <i>Rest areas</i> <i>Lighting</i> <i>Grab bars</i> Poor lighting or sharp contrasts Slippery or uneven surfaces Obstacles, including: <i>Scatter rugs</i> <i>Trashcans</i> <i>Poles</i> <i>Sidewalk furniture</i>	Income Social status Education level Employment Early childhood experiences Living conditions: <i>Dwelling ownership</i> <i>Safe housing</i> Living arrangements Social environment: <i>Caring relationships</i> <i>Support networks</i> <i>Social interaction</i> <i>Emotional support</i> <i>Ageism, negative socio-cultural values</i>

Biological factors

Injuries, in particular falls, are more common among those with decreased visual acuity, slowed protective reflexes, declining muscle strength and mass, and osteoporotic changes. Certain chronic diseases, such as cerebrovascular, cardiovascular and neurological disorders, also present increased risk. Problems with gait and balance are also associated with falls; however, these problems may be related to increased frailty, disease processes, medication use or malfunctioning of basic body systems.

A consistent finding in the literature is that age and gender are important issues in relation to falling. For example, women 65 years of age or older fall twice as often as their male counterparts. The gender gap, however, decreases in progressively older age groups. Women who experience multiple falls tend to be older, have poorer vision and are more likely to have osteoporosis and be wearing poorly designed high-heeled shoes. Between 1983 and 1992, falls were the second leading cause of hospitalization among women 65 years of age or older. In 1998, deaths attributed to fall-related injuries among men 85 years of age or over were 20 times higher than the rate for men between the ages of 65 and 74. Among women of the same ages, the rate was 44 times higher.

An analysis of the 1996 National Population Health Survey found that although more women are injured than men, men and women are equal in terms of the most serious injury due to falls. Other studies have also shown that whereas more women are injured in falls, more men die from fall-related injuries.

However, it should be noted that it is not the age or gender per se that increases the risk of falling but presence of illness or disability, and the symptoms or limitations imposed by these conditions, that contribute to the risk.

Behavioural factors

Behavioural factors are most often considered those under the control of the person at risk of falling. However, for many of these factors, changes in the behaviours of others have the potential to lessen the risk (e.g. therapists and retailers who provide information for seniors on the safe and appropriate use of mobility aids and physicians who monitor seniors' prescriptions for side effects that increase the risk of falling).

It is well known that medication use increases with advancing age due to the greater prevalence and severity of health problems among seniors. In addition to taking more drugs, older people also develop a heightened sensitivity to drug effects. Drug interactions, side effects and polypharmacy are all associated with increased risk of falling and injury among older persons. The class of drugs with the most well-established link to fall-related injuries among seniors is benzodiazepines (sedatives and tranquilizers). One study found that seniors taking psychotropic drugs have a 70% to 100% increase in the risk of hip fracture. Drugs most commonly associated with increased risk injury due to motor vehicle crashes among older drivers are anti-depressants and opioid analgesics.

Alcohol, like medication, is known to attain higher levels in the blood stream of older people compared to younger people who have consumed equal amounts. Prolonged and heavy use is also linked to neurological impairments and is suspected of contributing to decreased bone density in older persons – both known risk factors for fall-related injuries. A recent study in the United States showed that over three years, half of the 7,772 trauma patients 65 years of age or older tested positive for alcohol; of these, 50% were involved in a fall and 37% in a motor vehicle crash.

The health benefits from exercise are well documented. However, seniors are not a homogeneous group, and the most appropriate exercise type, duration and intensity for reducing falls and fall injuries among seniors is not well understood. One of the few exercise programs that has been directly linked to a reduction in falls is the Chinese martial art exercise known as Tai Chi. Unfortunately, there are few studies that address the availability of exercise programs for seniors in the lower income brackets or exercise programs adapted to meet the needs of persons who use mobility aids such as wheelchairs or scooters. An additional challenge to promoting exercise among seniors are self-imposed activity limitations commonly found among those who have already experienced a fall, due to a fear of falling again.

Environmental factors

Environmental factors account for one third to one half of all falls among seniors. Outdoor risks for falling include stairs, low-lying objects, cracked and icy sidewalks, rapid changes in illumination and glare. Indoor risks include poor lighting, objects in pathways, lack of stair handrails, slippery rugs and surfaces, and poorly maintained walking aids and equipment. There is a lack of research on links between inadequate policies governing safety in the built environment and injuries due to falls. Few studies point to the responsibility of those who design and construct built environments for creating safe environments for seniors.

Environmental factors also concern policies designed to regulate the physical environment. For the prevention of burn injuries due to scalding and fires, one study showed that changes in legislation were the most effective means of reducing the rate of injury. This included the mandatory lowering of the temperature for hot water tanks, and regulations regarding fire alarms and sprinkler systems in seniors' housing.

Social and economic factors

The relationship between income status and injuries has been identified as indirect, possibly resulting from the relationship between low income and the development of sensory disabilities. For example, the low income of seniors, particularly senior women, may be one contributing factor toward seniors developing sensory disabilities, and impaired vision and hearing may be direct factors for seniors falling. In addition, cost was also one of the most common reasons given by seniors with disabilities for not having a needed assistive device (e.g. walker or cane), thereby further contributing to their risk of falling. A recent study also found that people with lower incomes had more chronic illness; this, in turn, was related to a greater likelihood of falling.

A review of the literature indicates that under-utilization of assistive devices by older adults can be linked to the broader social environment. For example, ageism and negative socio-cultural values concerning loss of independence, functional decline and device use may be barriers to use of such devices among seniors.

Low socio-economic status has also been shown to be one of the strongest risk factors for deaths from residential fires, particularly among seniors.

Compelling Evidence Linked to Healthy Aging

Injured seniors often face an irreversible decline in function, which can lead to institutionalization and death. In particular, falls have a grave impact on seniors and their independence, and are responsible for about 84% of injury-related hospital admissions and 40% of admissions to nursing homes.

The health care cost of injuries is extremely high. In fact, injuries among all ages rank third behind cardiovascular and musculoskeletal disease in terms of total burden of illness, accounting for 11% of the total direct and indirect cost of all illness.

The physical nature of seniors, especially in the older age groups, means that falls often result in more serious fractures and longer periods of recovery and, hence, longer use of health care

resources. According to one study, a reduction of 20% of hospitalizations due to falls among seniors could potentially result in over 7,500 fewer hospitalizations and some 1,800 fewer people over the age of 65 with permanent disabilities. The net savings from this target reduction are estimated at \$138 million annually. Reduction in injuries would also have dramatic implications for seniors themselves by extending their independence, decreasing the likelihood of needing long-term care and thereby having an impact on their quality of life.

Effectiveness of Interventions

Note: The federal, provincial, and territorial Ministers Responsible for Seniors have provided support for an inventory of Canadian falls prevention initiatives and a systematic review of literature to assess the evidence of the effectiveness of interventions to reduce falls and fall-related injuries among community-dwelling seniors. The results of this study form the basis of a best practices guide. These documents are available online through the Seniors Policies and Programs Database at <http://www.sppd.gc.ca>.

Research shows that many injury risk factors can be modified when appropriate interventions are put in place. However, many interventions are implemented in time-limited programs with limited resources. As a result, few rigorous evaluation studies have been completed to determine the effectiveness of interventions, particularly those that adopt a multifaceted approach.

Interventions that have shown promising results in falls prevention among seniors include the effects of Tai Chi exercises. After adjustment for fall risk prior to entering a study on falls prevention, the results demonstrated that Tai Chi training (a form of Chinese martial arts) completed two times per week for 15 weeks served to reduce falls by 47.5% among seniors 70 years of age or older compared to a discussion only group.

Environmental modifications to the home have been shown to reduce falls requiring medical attention by 55% over 24 months. Clinical interventions by emergency room nurses and physicians for senior patients with a primary diagnosis of a fall-related injury, followed by home interventions under the direction of an occupational therapist, were found to significantly reduce falls over one year, with 32% of intervention participants versus 52% of control group participants reporting at least one fall.

A community-wide, multi-strategy intervention in Australia showed a 20% lower, age-standardized rate for fall-related hospital admissions in the intervention area relative to the control area. A similar multi-strategy approach in Norway showed a significant 26.3% reduction in fractures due to falls over five years.

Multifaceted strategies that target a variety of risk factors hold great promise for reducing falls and are considered to be a good investment in injury prevention. However, the impact of these strategies needs to be further evaluated. Examples of interventions that could be combined

include exercise and balance promotion programs, vision checks, medication management and environmental modifications.

More research is also needed to better understand the cost-effectiveness of injury prevention strategies. A study that examined the cost savings attributed to a multi-strategy falls prevention program showed that for an average investment of \$906, there was a cost saving of \$3,695 due to a reduction in fall injuries. Cost-effectiveness was also measured as part of a New Zealand study using an exercise program delivered by visiting nurses to seniors 80 years of age or older. The findings showed that there was a cost saving of NZ\$1,563 per injurious fall prevented, after accounting for program costs and averted hospital costs.

Specific strategies targeted at fracture prevention have also been shown to save health care dollars. One study shows that an investment of \$8,000 for hip protectors per 40 nursing home residents will translate into the prevention of one hip fracture. This is a considerable savings, given that one hip fracture costs the health system approximately \$25,000.

To maximize the effectiveness of injury prevention programs, it must be recognized that injuries result from a combination of factors. It is, therefore, important that sectors associated with these factors, such as transportation, housing and local government, are included as partners in the implementation and evaluation of prevention strategies.

B. Support for Action

Partners for Action

Current federal government interventions and strategies

While there is currently no comprehensive federal approach to the prevention of unintentional injuries, the federal government has undertaken activities in several areas related to injury prevention:

- contributions for community-based projects through the Population Health Fund (e.g. the University of Victoria's Adult Injury Management Network)
- promotion and public education of safe behaviours and environments (*The Safe Living Guide*, *Bruno and Alice* and *Fitness Guide for Seniors*)
- surveillance and epidemiological analysis of injuries (e.g. the Canadian Hospitals Injury Reporting and Prevention Program [CHIRPP], which collects detailed information on the circumstances of injuries treated at the emergency departments of 10 pediatric and six general hospitals across Canada)
- legislation and regulations (e.g. hazardous products).

Injury prevention activities take place all across Health Canada, in particular in the Population and Public Health Branch, the Healthy Environments and Consumer Safety Branch, the Inuit and First Nations Branch and the Health Products and Food Branch.

Other federal departments that currently work in the area of injury prevention or that have an

interest in this area include:

- Veterans Affairs Canada
- Industry Canada
- Transport Canada
- Agriculture and Agri-Food Canada
- Human Resources Development Canada
- Statistics Canada
- Indian and Northern Affairs Canada
- Canadian Heritage
- National Research Council.

Provincial and territorial governments

Many of the provinces and territories have identified injury as a serious health issue and are engaged in a number of ways: funding programs, research and data collection; establishing injury prevention mandates within health boards and public health departments; undertaking activities within their own ministries (e.g. the ministries of transportation and health); and participation in federal, provincial and territorial committees.

Municipal governments

Public health departments and boards of health are actively involved in injury prevention activities that range from producing public education materials to operating programs, supporting research, coordinating community coalitions and providing input into policy decisions.

Examples of non-governmental stakeholders

Non-governmental groups involved in injury prevention include:

National organizations: Smartrisk, Canada Safety Council, Canada Standards Association International, Canadian Institute for Health Information, Canadian Injury Research Network, Canadian Red Cross Society.

Provincial and regional organizations: Alberta Centre for Injury Prevention and Control; Edmonton Capital Health Region, Population Health; the University of Victoria School of Nursing; British Columbia Injury Research and Prevention Unit; Winnipeg Regional Health Authority, Community Services for Seniors; Saskatoon District Health, Public Health Services; University of Ottawa Community Health Research Unit; York Region Health Services Department; Kingston, Frontenac, Lennox & Addington Falls Prevention Coalition; Thunder Bay District Health Unit; Centre for Studies in Aging, Sunnybrook and Women's College Health Sciences Centre; Montreal Regional Public Health Department PIED Program; Public Health Department for the Gaspé Peninsula and Madeleine Islands; Quebec Public Health Department and Regional Health and Social Services; Community Health Promotion Network Atlantic.

Private sector

Private sector stakeholders include:

- architects/home builders: design of barrier-free and safe homes and buildings, and development and implementation of building codes

- product designers/manufacturers/retailers: creation of safe products and effective and innovative assistive devices
- engineers: design of public places.

Gaps and Challenges

The following gaps and challenges have been identified in addressing the prevention of unintentional injuries among seniors.

Coordination

Currently, there is no central program that integrates injury prevention activities within Health Canada or the federal government as a whole. The Health Canada Injury Prevention Working Group was established to improve networking and coordination within the department. Health Canada has also assumed the lead in other federal strategies addressing specific aspects of the injury issue (e.g. the Family Violence Prevention Initiative). Health Canada is also working toward strengthening cooperation with partners such as the Canadian Agriculture Safety Program.

Research and knowledge development

Identifying and addressing gaps in knowledge about this issue is hampered by:

- a lack of research funding
- a shortage of researchers in Canada who have an injury focus and the epidemiological expertise to use existing data
- a lack of standardization of information on patterns of injury; namely, a minimum data set for injury surveillance
- isolation of injury prevention researchers and practitioners. This situation is improving with the creation of the Canadian Collaborating Centres on Injury Prevention and the Canadian Injury Research Network.

The availability of data on seniors' injuries is limited. In particular, it is difficult to obtain data on the circumstances of injuries; this information is crucial for determining appropriate interventions. CHIRPP collects and analyses data on the circumstances of injuries treated at the emergency departments of 15 hospitals across Canada. Since most of the participating hospitals are pediatric hospitals, the current capacity for surveillance of seniors' injuries is insufficient. In addition, the geographic distribution of CHIRPP centres is non-representative of Canadian communities. Rural populations are under-represented and four provinces and territories are not included. Currently, Health Canada, through the Laboratory Centre for Disease Control, is working with partner organizations and injury experts in developing a minimum injury dataset suitable for community-based surveillance of non-hospitalized injuries, particularly in communities not served by CHIRPP. This initiative may contribute to the availability of data on seniors' injuries; however, further work is required.

Programs and interventions

Preventing injuries through direct intervention is hampered by a lack of:

- networking and communications among practitioners
- information about existing programs and resources

- funding to sustain injury prevention programs
- knowledge of how to secure potential funding
- knowledge of effective programs
- knowledge of how to access and analyze injury data.

Capacity building

Overall coordination and collaboration among stakeholders and across sectors has been lacking (e.g. provincial networks of stakeholders are not comprehensive, as seniors' injuries are often not given priority). However, this situation is changing quickly.

A Population Health Fund project in the British Columbia region was effective in building an adult injury prevention network in the province. In addition, Health Canada and Veterans Affairs Canada have come together to form the Falls Prevention Initiative, a community-based health promotion effort to help identify effective fall prevention strategies for veterans and seniors. Veterans Affairs Canada has committed \$10 million over a four-year period to pilot approved projects at the national level and in three regions: Atlantic Canada, Ontario and British Columbia. The funds are being distributed through Health Canada's Population Health Fund. One of the key objectives of this initiative is to develop the capacity of veterans and other community organizations to develop and deliver sustainable community-based health promotion programs addressing falls prevention using the population health approach.

Practitioners in health, social services and recreation often lack specific training in injury prevention and may not understand the multifactorial nature of injuries. There are also many groups in the private sector that have a significant role to play in the prevention of injuries. However, many of these key players do not see themselves in this role. A current project in Alberta to develop and test an injury prevention curriculum may assist in addressing this problem.

Public and political support for the issue

There is a strong degree of interest and activity in the non-governmental sector. Over the past few years, many groups have called on the federal government to establish a national injury prevention strategy that encompasses all injuries and all age groups. Government and non-governmental groups that have taken particular interest in seniors' injuries include Smartrisk; the University of Victoria; Community Health Research Unit of the University of Ottawa; Alberta Centre for Injury Research and Control; BC Injury Research and Prevention Unit; Canada Standards Association International; federal, provincial and territorial Ministers Responsible for Seniors; and federal, provincial and territorial Deputy Ministers of Health.

In the Speech from the Throne, injury prevention was identified as a priority area for government action.

In September 1999, the federal, provincial and territorial Ministers Responsible for Seniors directed their officials to undertake the following activities:

- Disseminate to all levels of government the reference document *Enhancing Safety and Security for Canadian Seniors*, which was prepared for Ministers.
- Evaluate current fall prevention programs and practices and disseminate the

- findings.
- Investigate the costs and implications of strengthening injury prevention data on seniors.
- Work with key organizations to ensure that building codes and product standards address the safety needs of seniors.

Recommended Strategies for an Action Plan on Healthy Aging:

Coordination of leadership and policy

An effective process within Health Canada is essential to ensure that the problem of seniors' injuries is fully addressed and that key stakeholders are fully engaged. In particular, leadership is needed to coordinate policies and programs for injury prevention across government jurisdictions, such as those with responsibility for building codes, product standards, housing and health care.

Research and knowledge development

There is a need to increase the allocation of research dollars for injury prevention to accurately reflect the economic burden of injury. Currently, the total of Canadian research dollars allocated to injury is almost inverse to the total direct and indirect costs of injury. A review of the literature provides an indication of some of the gaps in knowledge regarding seniors' injuries, particularly for causes of injuries other than falls; however, there has yet to be a process to determine priority areas of research. Thus, Health Canada would benefit from the development of an injury research agenda, as has been done in other countries, which would seek to reduce gaps in research knowledge, ensure an appropriate breadth and quality of research skills, and identify emerging areas where injury risks can be reduced.

While there are limited data on the incidence of seniors' injuries, it is not clear whether the lack of information is strictly a function of a limited surveillance system or if there is also an under-utilization of existing data, namely a need for research studies using current data in order to identify appropriate interventions.

Programs and interventions

The dissemination of information on intervention methods that are known to be effective must be improved. Interventions should be evaluated.

Capacity building

The development of a national network of seniors' injury stakeholders should be supported. As the issue of injury prevention moves forward, it is crucial that there be a strong voice to ensure that seniors' concerns are addressed equally.

Legislation and regulation

Building codes play an important role in injury prevention. Data from CHIRPP identified that construction features of a house or building, such as stairs, floors and steps, are indicated in seniors' falls more often than any household product. For example, in Canada, persons 65 years of age or older account for 70% of the deaths resulting from stair accidents. Building codes are the jurisdiction of provinces and territories; however, the National Building Code, a federal

responsibility, often sets the standard and therefore should include features that are known to prevent injuries.

Finally, many products have not been designed to take into account the physical changes that may occur with the aging process. Thus, there is a need for product standards or guidelines that take into account the needs of all age groups, including seniors.

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