

The Built Environment, Injury Prevention and Nursing: A Summary of the Issues

What's the issue?

Injury is an important public health issue in Canada. It is the leading cause of death for Canadians between the ages of one and 44 years. It ranks fourth among causes of death for all ages and is the major cause of premature mortality (before 70 years).

The Canadian Injury Prevention Strategy defines injury as: *Unintentional or intentional damage to the body resulting from exposure to thermal, mechanical, electrical or chemical energy or from the absence of such essentials as heat or oxygen.*

At the individual level, injury prevention is the practice of assessing and managing risk, which leads to injury preventing behaviours, or to living in healthy ways that minimize the risk of injury.

In practical terms, injury prevention means making positive choices about minimizing risk at all levels of society while maintaining healthy, active and safe communities and lifestyles. These choices are strongly influenced by the social, economic and physical environments where one lives, works, learns and plays. A *population health* approach to promoting the prevention of injury considers how the range of factors listed below can influence policy and the behaviour of groups:

- **Knowledge** of which behaviours will increase safety and well-being and minimize risk for injury, including knowledge gained from exposure to injury prevention programs.
- **Skills** to carry out injury preventing behaviours and manage risk.
- **Motivation** to feel good about engaging in injury preventing behaviours and managing risk effectively, thus enhancing self-esteem.
- **Opportunity and access** to carry out injury preventing behaviours, given varied life circumstances.
- **Supportive environments** to make it easier to engage in injury preventing behaviours with the minimum of risk. This involves supportive policies (including legislative approaches) and environments (including physical environments designed to reduce the risk of injury).

(Canadian Injury Prevention Strategy, n.d)

The **built environment** has a major impact on the health of Canadians – particularly relating to injury prevention. The built environment consists of any part of the physical environment that is constructed/assembled/fabricated by humans. This includes homes, workplaces, parks, roads and sidewalks – many of which are used by people on a daily basis. It also includes articles produced and used by humans, such as cars, bicycles and tools. The built environment is influenced by legal and other requirements, as well as by investments related to safety, land-use, urban planning and community infrastructure.

The built environment can have an impact on the health of the public. Poorly designed or poorly maintained built environments cause injuries. Injuries are responsible for considerable costs to the Canadian economy, including the direct costs of treatment and rehabilitation, as well as the indirect costs of time lost from work and potential years of life lost. Most medium and large workplaces employ occupational health nurses who have specialized training and a clear mandate to act in this area.

Why is this issue important?

How this issue relates to the health of Canadians

Injuries pose a significant threat to the health and well-being of Canadians throughout the life cycle. Each year, at least 13,000 Canadians die of injury and an additional 200,000 are admitted to hospital because of injury. For all ages, injury is ranked fourth among leading causes of death, surpassed only by cancer, cardiovascular disease and respiratory disease. Of all diseases, unintentional injuries rank second for potential years of life lost.

Certain groups are at higher risk of injury than the general population, including children, workers and seniors.

a) Children

- Injuries are the leading cause of death among young people between the ages of one and 19 years of age. Injuries account for about 20 per cent of all hospitalizations in North America within this age range.
- Male children of all ages experience more frequent and more severe injuries than females.
- Motor vehicle related injury is a leading cause of death for preschool and school-age children.
- Preschool children experience injuries most frequently in and around the home. They are at risk for drowning, suffocation and choking, fires and burns, poisoning, and falls.
 - o Drowning most often occurs when young children are left unattended in bathtubs or near swimming pools. Falls often occur off beds, down stairs, and from heights when climbing (e.g., on furniture).
- For school-age children, many injuries occur when they are participating in activities outside the home resulting in a shift to predominantly: pedestrian injuries; falls, particularly from playground equipment; and sports/recreation injuries (e.g., bicycling).
 - o Children are among the groups at highest risk of pedestrian injury. Increased exposure to roadways and driveways is associated with increased risk among children; the greater the number of streets crossed, the higher the risk of child pedestrian injury. Boys experience more frequent and severe pedestrian injuries than girls.

- o Throughout childhood, falls pose a significant health threat, accounting for one third of all injury-related emergency visits by children. Falls in playgrounds account for 75 per cent of playground injuries that receive medical attention.
- o Sports and recreation injuries are common among school-age children. It has been estimated that children age five to 12 years spend 18 hours per week engaged in physical activity. These activities (organized and informal) account for about 17 per cent of hospitalizations for injury and 19 per cent of emergency room visits.

b) Workers

- In 1998, there were 798 work-related fatalities and 375,360 work-related time-loss injuries, with significantly more males than females represented in these statistics. Work-related injuries arise from multiple causes (e.g., hazardous exposures, overexertion, poor ergonomic designs, etc.) and vary tremendously from industry to industry.
- For 1996-1998, the leading types of injuries were: sprains and strains, followed by contusion, crushing and bruising injuries, cuts, lacerations and puncture injuries, and fractures.
- Although workers at all ages may be exposed to hazards on the job, young workers are a particularly high-risk group for traumatic occupational injuries in Canada.

c) Older Adults

- The highest incidence of unintentional injury among older adults is falls, accounting for 75 per cent of all injuries among persons aged 71 years and older.
- Approximately 30 per cent of community-living adults 65 years or older experience at least one fall per year.
- Among older adults in long-term care facilities, one in two individuals experiences a fall each year, and 10-25 per cent of these falls are sufficiently serious to require medical treatment.

(Morrongiello, 2003)

How this issue relates to the functioning of the health care system

Investing in injury prevention saves money and lives. Canadians do not need to spend \$8.7-billion to treat nearly two million injuries that largely could have been prevented in the first place. Preventing falls for children and the elderly, and preventing motor vehicle crashes are two examples where significant savings could be achieved.

Falls among the elderly:

- Over \$980-million of the \$2.4-billion in direct costs spent on falls was devoted to treating falls among the elderly.
- Many falls can be prevented by recognizing risk factors, such as a history of falls, impairment related to cognition, balance and gait, low body mass index, misuse of medications, and hazards in the home.
- A hospitalization reduction target of 20 per cent could lead to 7,500 fewer hospital stays and 1,800 fewer Canadians permanently disabled. The overall savings could amount to over \$138-million annually.

Childhood falls:

- Injuries from childhood falls cost Canadians \$630-million every year.
- These are falls that can be prevented by redesigning the structure of playgrounds, targeting hazards in the home and teaching children how to fall.
- If these types of prevention strategies reduced the incidence of falls by 20 per cent for children ages 0-9, there would be 1,500 fewer hospitalizations, 13,000 less non-hospitalized injuries, and 54 fewer injuries leading to permanent disability. The net annual savings could total over \$126-million.

Preventing motor vehicle crashes:

- Wearing seat belts and installing air bags can reduce motor vehicle injuries by 61 per cent.
- Drinking and driving is responsible for about 40 per cent of all fatal motor vehicle crashes. It is estimated that the mortality rate could be reduced by 20 per cent through a reduction in drunk driving.
- Reducing speed limits by 10 km an hour could lead to a 15 per cent decrease in mortality, with the number of deaths lowered and the severity of injury reduced.
- Improving road design and maintenance could result in a further 10 per cent decrease in crashes, and 1,100 fewer deaths each year.
- By implementing a prevention strategy based on buckling up, driving sober, slowing down and looking first on the roads, there would also be 2,800 fewer hospitalizations, 19,000 fewer injuries treated outside a hospital setting and over 750 fewer injuries leading to permanent disability. The net savings to Canadians would amount to over \$500-million annually.

(Public Health Agency of Canada, n.d.)

Why is this issue important to nurses?

Nurses working in public health, primary health care settings and home care are ideally positioned to help their patients acquire the skills and knowledge that can help them reduce their risk of injury. Nurses working in emergency rooms can gather important information about the causes of injuries. Nurses working in acute care can play an important role in preventing further injuries by starting the educational process with their patients.

Nurses can have a significant impact on injury prevention, as well as on successful treatment and rehabilitation after injuries have occurred. Four characteristics in particular make nurses especially effective in this role:

- **Nurses have a strong skill base in assessment.** They are able to integrate information about the impact of a wide range of environmental factors on a person's physical and mental health. At a community level, nurses are also able to make the link between injury risks and patterns affecting groups of people.
- **Nurses are skilled educators.** They can put these abilities to use in helping people to acquire the knowledge and skills that will be useful for preventing injuries. Different groups in the population experience different levels of risk (e.g., risk of injury to school-aged boys is significantly higher than for girls). Educational programs need to take into account the variety of characteristics – individual, social-peer context, organizational, family and societal – that may have a bearing on how the risk is perceived.
- **Nurses are present in all parts of the health system.** As such, they are often the point of first contact for patients looking for information, and often the first ones to assess a patient who has experienced an injury.
- **Nurses often have long-term relationships with patients.** These relationships can be particularly important for injury prevention, especially among members of higher risk groups. For example, community health nurses provide new parents with information on issues such as how to child-proof their house; occupational health nurses work with younger workers to help them develop the skills and acquire the knowledge they need to reduce risk of injury; nurses, particularly those working in home care, often have opportunities to visit seniors in their homes, and can evaluate the homes for safety.

Nurses have an important role to play in injury prevention through their participation on occupational health and safety committees, at management tables, and with their unions. They can use their knowledge and experience to make their workplaces safer for all employees.

In addition, nurses themselves are at high risk of certain kinds of injury, such as musculoskeletal injuries as a result of lifting heavy patients, and needle-stick injuries.

What has CNA done to address this issue?

- CNA has presented to parliamentary and government officials around injury prevention.
- CNA is a founding member of the Coalition for Public Health in the 21st Century.
- CNA is member of the National Children's Alliance.
- CNA consults with Health Canada relating to product safety issues.

What can nurses do about this issue?

Primary prevention

- Advocate for safer design of products, automobiles, equipment and buildings. Speak from the experience of what you have seen with your patients and from research.
- Teach home safety related to falls and fire prevention, especially to families with children and elderly members.
- Help parents and caregivers to develop knowledge and skills that reduce in-home hazards, and that support effective supervision skills.
- Work with parents, schools and recreational staff on such issues as safety in sports, safety on the streets (as pedestrians or on bicycles), and safety in playgrounds.
- Develop worksite health and safety programs. Advocate other policies and practices that contribute to healthy workplaces (e.g., opportunities for physical activity, healthy lunches and stress reduction).
- Ensure that younger workers, who are more vulnerable to job hazards because of their inexperience, are well-informed about workplace hazards.
- Help older adults to understand the benefit of regular exercise as a strategy to strengthen the body, improve coordination and balance, and lessen risk of falls.
- Winter poses an increased risk of falling, especially for seniors. Help older adults to use techniques to reduce their risk (for example, canes with picks or “grippers” that slip on over boots). Work with the community to identify icy stretches of sidewalk and advocate better snow clearing by the municipality.

Secondary prevention

- Assess homes, schools, worksites and communities for environmental hazards.
- Routinely obtain occupational health histories from individuals, counsel about hazard reduction, and refer for diagnosis and treatment.

- Help community groups to take action with the local municipality to deal with hazardous roads and intersections.
- Work with older adults to understand what parts of their homes may pose risks for falls. Help them to access modifications (e.g., hand-rails in the bathtub) that will reduce their risk.

Tertiary prevention

- Provide appropriate nursing care at worksite or home for persons with injury-related disabilities.

Where can you go for further information?

- Canadian Centre for Occupational Health and Safety (www.ccohs.ca)
- Canadian Health Network websites for Injury Prevention, Workplace Health (www.canadian-health-network.ca)
- Canadian Occupational Health Nurses Association (<http://www.cohna-aciist.ca>)
- Canada Health Portal (www.chp-pcs.gc.ca)
- Canadian Injury Prevention Strategy (www.injurypreventionstrategy.ca)
- Canadian Institute of Child Health (www.cich.ca)
- Health Canada. *Safety and Injury*. (www.hc-sc.gc.ca/english/lifestyles/injury.html).

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