Comprehensive Report on Injuries in Nova Scotia

Technical Report

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Release Date: May 16, 2002.

FAST FACTS

- The Canadian Public Health Association has identified injury as a ***public health priority***.
- Over 400 people (≥16 years of age) die in Nova Scotia every year from injury. People who die from injuries are, on average, decades younger than people who die from all other causes.
- There are over 7,600 hospital admissions for injury in Nova Scotia every year (on average 21 people *every* day, for those ≥16 years of age).
- The average length of stay in hospital for an injury-related admission in Nova Scotia is 8.7 (±17.8) days.
- In Canada, it is estimated that for every hospital admission for injury, there are as many as 321 visits to the emergency department. Using a more conservative estimate of 40, still results in over 306,000 emergency department visits for the treatment of injuries in those 16 years of age and older in our province every year (on average over 800 *every* day).
- The leading causes of injury-related deaths and hospitalizations are self inflicted injury, motor vehicle traffic collisions and falls.
- Falls accounted for over 80% of all lower limb fractures, over 50% of all fractures of the spine and upper limb, and more than 40% of other cranial injuries and contusions reported over the 8 year period. Close to 80% of all hospitalizations for head injuries in those 65 years of age and older were the result of falls.
- Of all external causes, motor vehicle traffic collisions were responsible for the highest mortality rates in males under the age of 35. Motor vehicle traffic collisions accounted for 37% of all internal injuries reported over an 8 year period.
- The mortality rates from suicide were 5 times higher in males than in females in all age categories. The hospitalization rates for self inflicted injury were highest in females under the age of 35. Self inflicted injury accounted for more than 80% of all poisonings in those 16 years of age and older.
- It is estimated that injuries cost Canadians $14.3 billion every year. Injuries are ranked as having the third highest total direct and indirect costs of all diagnostic categories, with cardiovascular and musculoskeletal diseases ranked first and second respectively, and cancer ranked fourth.
- Injuries are ***not*** accidents. Up to 90% of injuries are predictable and preventable.

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ACKNOWLEDGEMENTS

This work was made possible through the successful collaboration of departments within the Nova Scotia Department of Health and Dalhousie University. The population-based data were provided by the Population Health Research Unit (PHRU) in the Department of Community Health and Epidemiology at Dalhousie University. The Nova Scotia Trauma Program provided financial support to obtain the data and publish the report. The data were analysed and the report was prepared in the Department of Emergency Medicine at Dalhousie University.

The authors would like to gratefully acknowledge the following people for their review of working drafts of the report:

Janet Braunstein Moody
Cathy Chenhall
Deshayne Fell
John LeBlanc
Sally Lockhart
David Petrie
Jeff Scott
Brett Taylor
Natalie Yanchar

The authors would especially like to acknowledge and thank Mike Pennock, from the Population Health Research Unit, for his support and collaboration.

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HIGHLIGHTS OF THE TECHNICAL REPORT

Comprehensive Report on Injuries in Nova Scotia

Background

Injury has been referred to as the `silent epidemic'. The Canadian Public Health Association has recently recognized injury as a public health priority.[1] Injury is the fourth leading cause of death for all ages in Canada, and it is the leading cause of death for those under the age of forty.[2] Consistent with the public health approach to injury prevention, the first step of the process is to identify the burden of injury in Nova Scotia.[3-5] In 2000, the Nova Scotia Child Safety and Injury Prevention Program, in collaboration with the Population Health Research Unit of Dalhousie University, released a comprehensive report on injuries among the children and youth of Nova Scotia.[6] The current report attempts to extend that picture of injury in Nova Scotia to the those *16 years and older* to complete the epidemiologic profile of this disease for our province.

Data Source

The population-based data were compiled by the Population Health Research Unit within the Department of Community Health and Epidemiology at Dalhousie University. The report describes injury-related hospitalization data from 1992-1999 and mortality data (Vital Statistics) from 1990-1999 inclusive. The injury data are derived from the ICD-9CM nature of injury codes (N-codes) and external cause of injury codes (E-codes). The results are presented for both genders as well as for different age groups and geographic areas. The latter uses the health regions that were in existence at the time the data were collected (see page 14 for map).

Mortality Data

The highest *overall* mortality rates were due to suicide, motor vehicle traffic collisions and falls. The average number of deaths per year was 412. The leading causes of death in *males* were from suicide, motor vehicle traffic collisions and falls. The leading causes of death in *females* were from falls, motor vehicle traffic collisions and suicide. The mortality rates were higher in males than in females for all external causes, except for falls.

The highest mortality rates were in those 65 years or older and the lowest in those 35-64 years of age. The mortality rates from falls in those 65 years of age or older were higher than in any other age group for all regions and for all other external causes of injury.

The highest overall mortality rates in Nova Scotia from motor vehicle traffic collisions, fall-related injuries and suicide were in the Western region. This region also had the highest overall mortality rates for all age groups compared to other regions.

The Eastern region had the highest mortality rates due to fire/flame, assaults and drowning/submersion compared to other regions. However, it had the lowest overall mortality rate in those 65 years or older than any other region in the province.

The Northern region had the lowest overall mortality rates from suicide and drowning/submersion than any other region. It also had the lowest overall mortality rate in those 35-64 years of age compared with other regions in the province.

The Central region had the lowest overall mortality rates from motor vehicle traffic collisions, falls and fire/flame than any other region. It also had the lowest overall mortality rate in those 16-34 years of age compared with other regions in the province.

Hospital Separation Data

The highest *overall* rates of injury-related hospitalizations were due to falls, motor vehicle traffic collisions and self inflicted injury. The hospitalization rates due to falls were over 4 times greater than the rates due to other causes. The average annual number of hospitalizations per year was approximately 7666. The average length of stay for each admission to hospital was 8.7 (± 17.8) days.

The leading causes of hospital separations in *males* were from falls; motor vehicle traffic collisions and self inflicted injury. The leading causes of hospital separations in *females* were from falls; self inflicted injury and motor vehicle traffic collisions. The rates of injury-related hospital separations were lower in females than in males for all external causes, except for falls and self inflicted injury.

Hospital separation rates show similar patterns across the regions with the highest rates in those 65 years or older and the lowest rates in those 35-64 years of age. The hospital separation rates due to falls in those 65 years of age or older were higher than in any other age group for all regions and for all other external causes of injury.

The lowest overall hospital separation rates in Nova Scotia for assaults were in the Western region. The Eastern region had the highest overall hospital separation rates due to falls, self inflicted injury, fire/flame and firearms for all regions. It also had the highest overall hospital separation rates for all age groups when compared with other regions. The highest overall separation rates for injuries related to motor vehicle traffic and motor vehicle non-traffic collisions were in the Northern region. The Central region had the highest overall hospital separation rates for assaults and the lowest rates for falls, injuries related to motor vehicle traffic collisions, self inflicted injury and fire/flame for all regions.

Nature of Injury

Data describing the nature of injuries were only available for hospitalizations. A total of 49,306 injuries were reported over the 8 year period. Overall, the most common injuries reported were fractures of the lower and upper limbs, followed by open wounds, fractured spine, poisoning, fractured skull, sprains and dislocations.

Falls accounted for over 80% of all lower limb fractures, over 50% of all upper limb fractures, fractures of the spine and medical/surgical complications (not elsewhere classified), and more than 40% of other cranial injuries and contusions reported over the 8 year period. Close to 80% of all hospitalizations for head injuries in those 65 years of age or older were the result of falls.

Leading External Causes of Injury

Self Inflicted Injury

Overall, the highest mortality rates due to suicide were in males aged 35-64. The mortality rates from suicide were almost 5 times higher in males than in females for all age categories. The highest hospital separation rates due to self inflicted injury were in females 16-34 years of age.

Motor Vehicle Traffic Collisions

Overall, the highest mortality and hospital separation rates due to motor vehicle traffic collisions were in males aged 16-34 years. The mortality and hospital separation rates from motor vehicle traffic collisions were higher in males than in females for all age categories.

Unintentional Falls

The mortality and hospital separation rates from unintentional falls in both males and females over the age of 65 were higher than for any other cause of injury in any other age category.

Place of Occurrence

The place of occurrence was reported in 40,888 hospital separation records. There were no data on place of occurrence for fatal injuries. The home was most often recorded as the place of occurrence for males and females in all age categories. Falls accounted for 75% of the injuries reported in the home. A residential institution was the second most frequently recorded place of occurrence for females. Falls accounted for close to 90% of the injuries reported in a residential institution. The rates of injury that were reported to have occurred on a farm and in an industrial place or premise were higher in males than in females for all age categories. A place for recreation or sports was the second most frequently recorded place of occurrence for males. The rates of injury in this setting as well as injuries that occurred on a street or highway were higher for males than females in those under the age of 65. Falls accounted for 67.7% of the injuries reported to have occurred on a street or highway.

Future Directions

Despite the staggering personal, economic and community costs of injury, the prevailing perception is that injuries are the consequence of `accidents' and are seen to be out of one's control. The science of injury prevention and control has demonstrated that injuries are both predictable and preventable. Chapter 11 describes opportunities for reducing the burden of injury in Nova Scotia. Chapter 12 provides examples of organizations that are actively engaged in injury prevention and control as well as information about the Atlantic Network for Injury Prevention.

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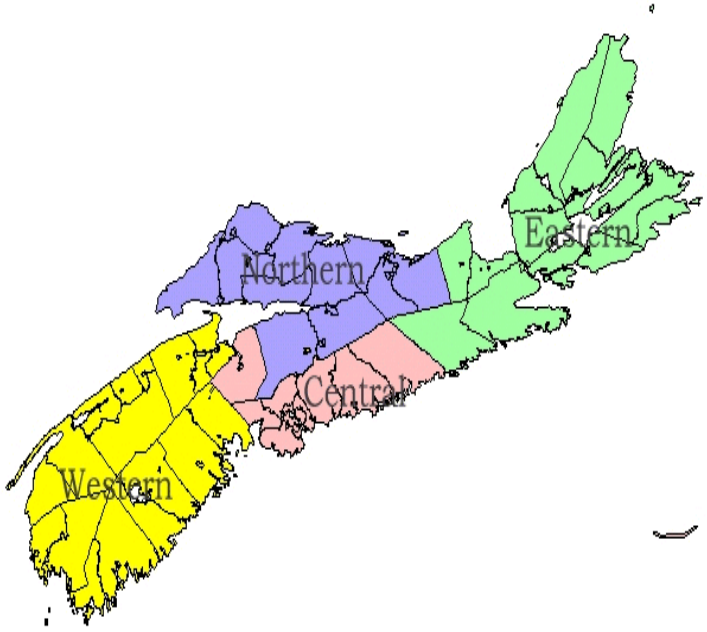
Table 3.1 **Health Regions in Nova Scotia**[b]

Nova Scotia Health Regions (& Counties)*			
Western	**Central**	**Northern**	**Eastern**
Shelburne	West Hants*	East Hants*	Guysborough
Yarmouth	Halifax	Colchester	Antigonish
Digby		Cumberland	
Queens		Pictou	
Annapolis			
Lunenburg			
Kings			

*Hants is divided by municipality between Central & Northern Regions. When assigning Health Region by County, Hants is assigned to the Central Region.

[b]From: Population Health Research Unit Concept Dictionary, http://www.medicine.dal.ca/phru/concepts/conceptfr.html
*Replaced by District Health Authorities October 1, 2000

Figure 3.1



INTRODUCTION

INTRODUCTION

Injury represents a poorly appreciated disease process, which is however, epidemic in modern society. The science and study of injury is predicated upon perceiving injury as a disease process, that is, an entity like any other public health issue such as infectious diseases. Injury thus has an epidemiology associated with it, preventative measures that will obviate it, treatment measures that will reduce its burden and rehabilitation interventions that will return the injured person to full or partial functioning. If injury is regarded in this public health fashion then interventions at all potential points of amelioration can be successfully modelled, studied and implemented.[1,2]

Injury remains the commonest cause of death in the first four decades of life and the fourth commonest cause of death overall in western society.[1,3-5] The cost to society is immense and is most recently estimated in Canada to be over 14 billion dollars per year in direct and indirect costs.[6] Unlike cardiovascular disease or cancer, injury remains a relatively poorly researched and understood disease entity with a low profile both academically and with the public and health policy makers in Canada. Injuries are a leading cause of death for Canadians of all ages, regardless of gender, race or economic status. Injuries kill more children and young adults than all diseases combined.[7,8] But injury deaths are only part of the picture. Thousands of Canadians are injured each year and survive. For many of them, the injury causes temporary pain and inconvenience, but for some, the injury leads to disability, chronic pain, and a profound change in lifestyle. Injuries are one of the most under-recognized major public health problems facing North America today.

Injuries are classically defined as tissue destruction or disruption secondary to the transfer of energy, most often kinetic energy (motor vehicle collisions) but can also be thermal (burns) or other energy transfer which damages tissue (e.g., radiation).[1] There are two main categories of injury:

- ***Unintentional injuries*** are involuntarily caused by motor vehicle collisions (MVCs), drownings, falls, burns, poisonings, etc. and are very amenable to preventative interventions.
- ***Intentional injuries*** are deliberate acts such as child abuse, family violence, suicide, homicide, etc.

This report deals with both major categories of injury, that is, intentional and unintentional.

Other countries have clearly recognized the importance of injury to public health and wellness and have developed comprehensive, organized responses. The British have recently identified injury as a health care priority (in the top five national priorities including heart disease, stroke, cancer and mental health) and the United States has

established a national Centre for Injury Prevention and Control.[9,10] In Canada the Federal/Provincial/Territorial Sub-Committee on Injury Prevention and Control has taken a leadership role in identifying national priorities, however, much of the response to injury occurs at a provincial, regional or local level.[11]

The burden of injury can be amply illustrated with the use of the Injury Pyramid paradigm to demonstrate increasing numbers of injury associated with different levels of health care access and severity of the injury (Figure 4.1).[12]

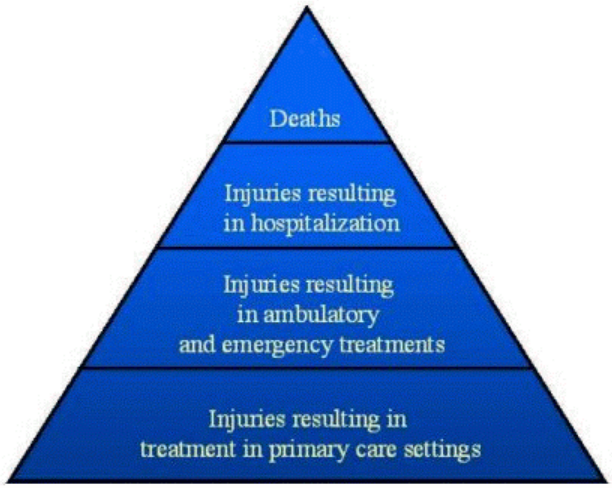


Figure 4.1

It is important to appreciate that mortality is just the tip of the pyramid. For each death from injury there are many more injuries that result in hospitalization, treatment in emergency departments or by primary health care providers and treatment outside of hospitals. The Injury Pyramid helps to illustrate this fact. The actual numbers associated with each level vary from jurisdiction to jurisdiction but the same principle applies. If injury-related deaths alone are studied, the entire spectrum of disease associated with injury in a population is missed.

Every hour of every day over 220 Canadians are unintentionally injured, 21 Canadians die daily from these injuries and over 47,000 are disabled every year. Motor vehicle crashes are the number one cause of death from unintentional injury followed by falls.[8] Car crashes remain the number one cause of death among Canadian males up to age 35 in regard to unintentional injury with suicide the commonest intentional injury in this cohort. The annual rate of deaths in Canada

from motor vehicle collisions would be similar to the monthly crash of a wide-bodied jet with all individuals on board killed.

In Canada, the total cost of major causes of illness for 1993 was estimated at $156.9 billion, roughly 22 percent of the gross domestic product. The total economic burden of injury (unintentional and intentional) was 11.1 percent, or $14.3 billion, ranking as the third largest contributor to the cost of illness among all categories.[6] These costs include direct medical care, rehabilitation, lost wages and lost productivity. These numbers, while dramatic and sobering in themselves, do not reflect the human and emotional costs for the injured individuals, their families and their communities.

An injury affects more than just the person injured – it affects everyone who is involved in the injured person's life. With a fatal injury, family, friends, co-workers, employers, and other members of the injured person's community feel the loss. In addition to experiencing grief, they may experience a loss of income or the loss of a primary caregiver, as well. With a nonfatal injury, family members are often called upon to care for the injured person, which can result in stress, time away from work, and possibly lost income. They may also experience a change in their relationship with the injured person and with others in the family. For instance, if a wife and mother is seriously injured, her spouse may find himself in the role of primary caregiver–not only for his wife, but also for his children. Friends of the injured person may be called upon to help out and, like family members, may experience a change in their relationship with the injured person. The injured person's employer may struggle with the temporary or permanent loss of a valued employee. Others in the community–volunteer groups, religious organizations, and neighbours–may also feel the effects of the injury. Society at large is also profoundly affected by injury.[7]

Injury prevention and control initiatives are important for several reasons. For example, our aging population is very susceptible to the process and consequences of injury. Falls are the leading cause of injury among seniors. Of those Nova Scotians over the age of 65, it is expected that one third will experience a fall each year. Of these falls, one fifth will result in fractures, representing an enormous cost to the health care system.[13] Falls resulting in injury contribute the highest direct and indirect costs of injury, while motor vehicle collisions resulting in injury are the second most costly to society and the health care system.[8]

Motor vehicle collisions have been one of the commonest causes of unintentional major injury admission to hospitals in Canada. One in eight of these admitted patients had alcohol consumption beyond the legal limit. MVCs accounted for over 65% of severe injury admissions in the 15 to 24 age category nationally.[14] Among the five provinces where data were most recently available, the highest percentage of motor vehicle-related severe injury admissions was in Nova Scotia (56%). Nova Scotia also had the highest percentage of cases (18%) with a positive alcohol concentration greater than the legal limit in this cohort.[15]

Many Canadians do not appreciate the magnitude of the injury epidemic. Data such as those included in this report allow us to demonstrate the magnitude of the problem. Data identify the biggest injury problems so we can best focus our resources for research and evidence-based prevention programs. Moreover, data are essential to the process of comprehensive evaluation to determine the effectiveness of our injury prevention programs.

When one considers that 90 to 95% of all injuries are potentially preventable, it is obvious that there are significant opportunities to obviate the large burden of injury prevalent in society. *It is the purpose of this report to attempt to measure and delineate the extent of injury, as a disease process, in Nova Scotia in the population 16 years of age or older.* In 2000, the Nova Scotia Child Safety and Injury Prevention Program compiled a comprehensive report on injuries in children and youth.[16] The current report attempts to extend that picture of injury across all ages to complete the epidemiological profile of this disease in Nova Scotia.

The report is intended to contribute to a more complete understanding of the full picture of injury as a public health issue for Nova Scotians. It is also hoped that the data contained herein and the accompanying discussion will lead to interventions to decrease the burden of injury for Nova Scotians and to encourage appropriate research to evaluate future interventions. The cost to society is huge. The price that individuals and families pay in the tragic consequences of injury are immeasureable. We hope that this report, as did the previous report on childhood injuries in Nova Scotia, will serve as a document to increase the awareness of injury as a devastating, yet very preventable disease process. This need for awareness is imperative in order for injury to be addressed by our public and institutional health bodies.

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DATA & METHODS

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Data

The population-based data were obtained from the Population Health Research Unit (PHRU) in the Department of Community Health and Epidemiology at Dalhousie University.

Mortality Data

The mortality data were from the Canadian Institute for Health Information (CIHI) discharge abstract database and Vital Statistics from Nova Scotia for the calendar years of 1990-1999 inclusive. This data set included the following variables: year, gender, age, external cause of injury (E-code)[1], health region and county. Ten records were excluded because data on age were missing. In 346 records, the health region was not available, however these records were included because data surrounding the injury event were available. A total of 4,128 records were included in the analysis.

Hospitalization Data

The hospitalization data were from the Canadian Institute for Health Information (CIHI) discharge abstract database for the calendar years of 1992-1999, inclusive. The hospitalization data are described in terms of `separations'. It is important to note that the data describe the number of hospital separations, not the number of individuals (i.e., an individual patient may have more than one hospital separation over the period of time under review). This data set included the following variables: year, gender, age, nature of injury (N-code)[1], external cause of injury (2 E-codes, the second often related to place of occurrence), health region, county and length of stay. Three records were excluded because data on gender were missing and 43 were excluded because data on the external cause of injury were missing. In 6,542 records, the health region was not available, however these records were included because data surrounding the injury event were available. A total of 61,325 records were included in the analysis.

Outliers

Two continuous variables in the hospitalization data set had outliers: age and length of stay (LOS). The following decision-rules were made to deal with the outliers:

- For any age recorded as >100 years, the age was treated as missing, but the record was included in the analysis (n=47).
- For any annual LOS >365, the average LOS was assigned and the record was included in the analysis (n=83).

Health Regions

For purposes of the analyses, the province was divided into four health regions. The boundaries are similar to those in place until October 2000 (see map on

Page 14)[2]. It is recognized that the boundaries have changed since then with the formation of health districts, however, historical data were not available in the current configurations for the years being analysed.

`Other' Category for External Causes of Injury

The category of `other' consists of a diverse group of external causes of injury including such things as:

- struck `accidentally' by a falling object
- `accidents' caused by machinery
- `accident' caused by hot substance, or object, caustic or corrosive material and steam
- exposure to radiation
- overexertion & strenuous movements
- injury due to legal intervention

Given the diversity of external causes, it is difficult to develop appropriate prevention strategies for the category as a whole. Therefore, the category is included in all of the tables, but not ranked. The ranks for leading causes of injury-related morbidity and mortality are reserved for categories of external causes of injury that are sufficiently homogenous to identify approaches to prevention.

`Other' Category for Nature of Injury

The category of `other' consists of a diverse group of injuries including such things as:

- effects of foreign bodies entering through orifice
- other and unspecified effects of external causes
- non-injury-related primary diagnoses

Given the diversity of injuries, the category is included in all of the tables, but not ranked. The ranks for leading injuries are reserved for categories that are more homogenous.

Analyses

Descriptive data analyses were performed using STATA (Version 6). Wherever possible, rates per 100,000 were calculated. Denominator data were obtained from PHRU. These population data were used instead of the population data from Statistics Canada because, in addition to the full-time residents, the PHRU population data also capture individuals who resided for a portion of a year in a particular region. Age-specific rates were calculated for health regions and for the three leading causes of morbidity and mortality.

Analyses to determine the statistical significance of differences were not performed for several reasons. Although regional comparisons are of interest, the regions no longer exist in the pre-2000 configuration, aside from the internal use for some government departments. Therefore a determination of `statistically significant' differences between regions would have little practical benefit. There are

multiple comparisons that can be made with the data (e.g., by external cause, gender, age, region etc.). However, the intent of the report is to *describe* the epidemiology of injury in Nova Scotia in order to identify priorities for action. It is the opinion of the authors that there are sufficient descriptive data that can be used by Regional Health Authorities, health care providers, community members, researchers and policy makers to begin to address the issues related to injury prevention and control. Further research can use more detailed statistical analyses to understand the significance of specific questions. To assist the reader in determining the practical significance of the findings, the rates reported in the "Highlights" box adjacent to the tables include a comparison with the provincial rates wherever possible.

In order to avoid the possibility of identifying individuals, cell counts less than 5 in any of the tables were not reported. A null value was reported unless it could be used to identify cell counts less than 5 when cell values for a table were summed.

Limitations

Some of the causes included in the `other' category for external causes of injury could have been selected as a separate category (e.g., E-917 "Striking against or struck accidentally by objects or persons"). The categories selected included those with the highest frequency and/or to maintain consistency with other reports. An effort was made to minimize the number of categories to simplify the description without overlooking significant external causes of injury.

The quality of the data are dependent upon the coding performed in each facility. In turn, the coding is dependent upon documentation in the health record. Therefore, it should be acknowledged that there may be errors or inconsistencies in the documentation and/or coding that cannot be identified in this analysis.

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Table 5.1 Categories for External Cause of Injury Codes (E-Codes) Included[1]

E-Code	Definition
E810 - E819	MV traffic
E820 - E825	MV non-traffic
E826	Pedal cycles (e.g., bicycles)
E800 - E807, E827 - E829, E831, E833 - E838, E840 - E848	Other vehicle or transport (including railway, water & air)
E850.1, 854.1, E860 - E869	Unintentional poisonings
E880 - E888	Falls
E890 - E899	Fire & flame
E900 - E909	Incidents due to natural & environmental factors
E830, E832, E910	Drowning & Submersion
E911 - E913	Suffocation
E914 - E915	Foreign body (excludes choking)
E920	Cutting & piercing
E922	Firearms
E929, E959, E969, E977, E989, E999	Late effects of injury
E950 - E958	Self inflicted injury*
E960 - E968	Assaults
E916 - E919, E921, E923 - E928, E970 - E976, E978, E980 - E988, E990 - E998	Other incidents
E849	Place of Occurrence
E849.0	Home
E849.1	Farm
E849.2	Mine & quarry
E849.3	Industrial place & premises
E849.4	Place for recreation & sport
E849.5	Street & highway
E849.6	Public building
E849.7	Residential institution
E849.8	Other, specified
E849.9	Other, unspecified

***Will be referred to as "suicide" for mortality data and "self injury" for hospital separation data**

Table 5.2 Categories for External Cause of Injury Codes (E-Codes) Excluded[1,3]

E-Code	Definition
E870 - E876	Misadventures to patients during surgical & medical care
E878 - E879	Complications of medical & surgical procedures
E850 - E858 (except E850.1 & E854.1), E930 - E 949	Adverse effects of drugs

Table 5.3 Nature of Injury, Description and ICD9-CM Codes (N-Codes)[1]

Nature of Injury	Description	ICD9-CM Codes
Fractured skull	Fractured skull or face bones	800-804
Fractured spine	Fracture of vertebral column, ribs, sternum, pelvis, or other trunk area	805-809
Fractured limb	Fracture of parts of upper or lower limbs	810-829
Dislocation	Dislocation of jaw, elbow, knee, shoulder etc.	830-839
Sprains	Sprains and strains of shoulder, arms, hips, thighs etc.	840-848
Other cranial	Concussion, cerebral lacerations, hemorrhages	850-854
Internal	Internal injury to chest, abdomen and pelvis	860-869
Open wound	Any open wound to head, neck & trunk of body	870-899
Blood vessel	Injury to blood vessels	900-904
Late effects	Late effects of injuries, poisonings or other external causes	905-909
Superficial	Superficial injuries to face, trunk, limbs etc.	910-919
Contusion	Bruise & hematoma of face, neck, trunk, limbs etc.	920-924
Crushing	Crushing of face, neck, trunk, limbs etc.	925-929
In orifice	Effects of foreign bodies entering through orifice (eye, nose, respiratory tract etc.)	930-939
Burns	Burns to face, neck, trunk, limbs, internal organs	940-949
Nerves & spinal cord	Injury to nerves (optic, cranial, trunk etc.) & spinal cord (without evidence of bone injury)	950-957
Poison	Poisonings by drugs, medicaments, toxic non-medicinal substances	960-989
Other	Other & unspecified effects of external causes & non-injury-related primary diagnoses	990-995, 958, 959 & all ICD0 less than 800
Medical/surgical complications	Complications of surgical & medical care not elsewhere classified	996-999

INJURY-RELATED MORTALITY

INJURY-RELATED MORTALITY

Nova Scotia

The highest overall mortality rates were due to suicide (14.9/100,000), motor vehicle traffic collisions (13.6) and falls (10.5). *Annually* in Nova Scotia, amongst those 16 years or older, there were approximately:

- 108 deaths due to suicide
- 99 deaths due to motor vehicle traffic collisions
- 76 deaths due to falls
- 19 deaths due to drowning/submersion
- 15 deaths due to assaults
- 15 deaths due to fire/flame
- 15 deaths due to suffocation
- <5 deaths due to poisoning, late effects, firearms, cutting/piercing, pedal cycles (e.g., bicycles) or foreign bodies

The average annual number of deaths per year was 412, with a low of 349 in 1994 and a high of 586 in 1998. The last figure includes persons (≥16 years) killed in the crash of Swissair 111 as seen under the "other vehicle or transport" category in Table 6.1. It was not possible to identify these individuals in the records, nor to separate them from the other persons killed in another vehicle or transport-related injury in the same year, and therefore they have not been excluded from the tables.

The leading causes of death in males were from suicide (25.9/100,000); motor vehicle traffic collisions (20.4) and falls (9.9). The leading causes of death in females were from falls (11.0); motor vehicle traffic collisions (7.4) and suicide (4.8). The rates of injury-related mortality were higher in males than in females for all external causes, except for falls.

The age-specific rates show similar patterns across the regions with the highest rates in those 65 years or older (110/100,000) and the lowest rates in those 35-64 years of age (44.4), with the exception of the Central region where the age-specific rate is slightly higher in the 35-64 age group as compared to those under the age of 35. The rates of death from falls in those 65 years of age or older were higher than in any other age group for all regions and for all other external causes of injury.

Western Region

The highest overall mortality rates in Nova Scotia from motor vehicle traffic and fall-related injuries, as well as suicide were in the Western region (16.4, 16.0 and 12.7/100,000 respectively). This region also had the highest overall rates of death in all age groups as compared to the other regions. The leading external causes of death differed depending on the age group. In those 16-34 years of age, *annually* in the Western region there were approximately:

- 13 deaths due to motor vehicle traffic collisions
- 8 deaths due to suicide
- 2 deaths due to drowning/submersion

In those 35-64 years of age, *annually* in the Western region there were approximately:

- 14 deaths due to suicide
- 8 deaths due to motor vehicle traffic collisions
- 3 deaths due to drowning/submersion

In those 65 years of age or older, *annually* in the Western region there were approximately:

- 20 deaths due to falls
- 6 deaths due to motor vehicle traffic collisions
- 4 deaths due to suicide

The highest rates of suicide in the Western region were in those 35-64 years of age (17.3/100,000). The highest rates of injury-related to motor vehicle traffic collisions were in those 16-34 years of age (25.2/100,000).

Eastern Region

The Eastern region had the highest mortality rates due to fire/flame, drowning/submersion and assaults for all regions in Nova Scotia (3.3, 3.2 and 2.3/100,000 respectively). It had the lowest overall mortality rate in those 65 years or older than any other region in the province (95.8/100,000). The leading external causes of death differed depending on the age group. In those 16-34 years of age, *annually* in the Eastern region there were approximately:

- 8 deaths due to suicide
- 8 deaths due to motor vehicle traffic collisions
- 2 deaths due to assaults

In those 35-64 years of age, *annually* in the Eastern region there were approximately:

- 10 deaths due to suicide
- 8 deaths due to motor vehicle traffic collisions
- 3 deaths due to fire/flame

In those 65 years of age or older, *annually* in the Eastern region there were approximately:

- 14 deaths due to falls
- 3 deaths due to motor vehicle traffic collisions
- 2 deaths due to suicide

The highest rates of suicide and injury-related to motor vehicle traffic collisions in the Eastern region were in those 16-34 years of age (16.4/100,000 each).

Northern Region

The lowest overall mortality rates from self injury and drowning/submersion were in the Northern region (13.2 and 1.3/100,000 respectively). It had the lowest overall mortality rate in those 35-64 years of age than any other region in the province (34.5/100,000).

The leading external causes of death differed depending on the age group. In those 16-34 years of age, *annually* in the Northern region there were approximately:

- 7 deaths due to motor vehicle traffic collisions
- 5 deaths due to suicide
- 1 death due to fire/flame

In those 35-64 years of age, *annually* in the Northern region there were approximately:

- 8 deaths due to suicide
- 4 deaths due to motor vehicle traffic collisions

In those 65 years of age or older, *annually* in the Northern region there were approximately:

- 12 deaths due to falls
- 3 deaths due to motor vehicle traffic collisions
- 3 deaths due to suicide

The highest rates of suicide in the Northern region were in those 65 years or older (14.7/100,000). The highest rates of injury-related to motor vehicle traffic collisions in the Northern region were in those 16-34 years of age (17.7/100,000).

Central Region

The Central region had the lowest overall mortality rates due to injuries from motor vehicle traffic collisions, falls and fire/flame for all regions in Nova Scotia (10.9, 8.7 and 1.0/100,000 respectively). It had the lowest overall mortality rate in those 16-34 years of age than any other region in the province (38.4/100,000). The leading external causes of death differed depending on the age group. In those 16-34 years of age, *annually* in the Central region there were approximately:

- 14 deaths due to motor vehicle traffic collisions
- 14 deaths due to suicide
- 3 deaths due to assaults

In those 35-64 years of age, *annually* in the Central region there were approximately:

- 24 deaths due to suicide
- 11 deaths due to motor vehicle traffic collisions
- 3 deaths due to falls

In those 65 years of age or older, *annually* in the Central region there were approximately:

- 20 deaths due to falls
- 6 deaths due to motor vehicle traffic collisions
- 5 deaths due to suicide

The highest rates of self injury were in those 35-64 years of age in the Central region (16.7/100,000). The highest rates of injury-related to motor vehicle traffic collisions were in those 65 years or older (14.6/100,000).

NOVA SCOTIA

Table 6.1 Number of Deaths by Year for Persons ≥ 16 Years of Age in Nova Scotia 1990-1999

Cause of Injury	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Total
Suicide	116	114	98	108	98	123	115	89	109	114	1084
MV Traffic	140	109	108	96	85	107	101	83	77	85	991
Falls	63	49	55	68	76	93	89	102	82	85	762
Other	21	44	47	28	16	21	31	28	29	25	290
Other vehicle or transport	0	*	0	*	*	7	*	*	196	*	213
Drowning & submersion	26	14	12	25	13	6	28	26	18	19	187
Assaults	10	17	22	15	12	14	15	16	18	10	149
Fire & flame	22	16	20	25	10	12	13	10	9	10	147
Suffocation	14	14	14	7	22	12	16	15	16	15	145
Natural & environmental	6	*	*	*	*	8	*	*	*	10	48
MV non-traffic	6	*	8	*	*	*	*	7	*	*	40
Poisoning	*	7	*	5	5	*	*	6	*	*	38
Late effects	0	*	*	*	*	*	*	*	*	*	18
Firearms	*	*	*	0	*	0	0	0	0	*	9
Cutting & piercing	*	*	0	0	0	0	*	0	*	0	*
Pedal	*	*	*	*	*	*	*	*	*	*	*
Foreign body	*	*	*	*	*	*	*	*	*	*	*
Total	428	395	399	390	349	414	417	390	565	381	4128

*Cell contents <5

HIGHLIGHTS

Leading Causes of Death (Rate/100,000): suicide (14.9); motor vehicle traffic (13.6) & falls (10.5)

Average # of deaths per year: 412 (peak of 565 in 1998 includes those killed in the Swissair crash & low of 349 in 1994). The average # of deaths per year is reduced to 395 if the total for 1998 does not include those killed in the crash of Swissair 111.

NOVA SCOTIA

Table 6.2 Average Annual Mortality Rates/100,000 and Number of Deaths by External Cause and Gender for Persons ≥16 Years of Age in Nova Scotia 1990-1999

Cause of Injury	Male	Rate	Female	Rate	Total	Rate
Suicide	904	25.9	180	4.8	1084	14.9
MV Traffic	710	20.4	281	7.4	991	13.6
Falls	345	9.9	417	11	762	10.5
Other	238	6.8	52	1.4	290	4
Other vehicle or transport	129	3.7	84	2.2	213	3
Drowning & submersion	171	4.9	16	0.4	187	2.6
Assaults	92	2.6	57	1.5	149	2
Fire & flame	105	3	42	1.1	147	2
Suffocation	95	2.7	50	1.3	145	2
Natural & environmental	41	1.2	7	0.2	48	0.7
MV non-traffic	37	1.1	*	-	40	0.5
Poisoning	29	0.8	9	0.2	38	0.5
Late effects	15	0.4	*	-	18	0.2
Firearms	9	0.3	0	-	9	0.1
Cutting & piercing	*	-	*	-	*	-
Pedal	*	-	*	-	*	-
Foreign body	*	-	*	-	*	-
Total	2925	83.8	1203	31.8	4128	56.7

*Cell contents <5

	Leading cause of injury
	2nd leading cause of injury
	3rd leading cause of injury

HIGHLIGHTS

Leading External Causes of Death (Rate/100,000)

Cause	Males	Females	Nova Scotia
Suicide	25.9	4.8	14.9
MV traffic	20.4	7.4	13.6
Falls	9.9	11.0	10.5

NOVA SCOTIA

Table 6.3 Average Annual Mortality Rates/100,000 and Number of Deaths by External Cause and Health Region for Persons ≥ 16 Years of Age in Nova Scotia 1990-1999

Cause of Injury	Western	Eastern	Northern	Central	Nova Scotia[b]	NS Rate/100000
Suicide	265	201	159	432	1084	14.9
MV Traffic	271	191	142	315	991	13.6
Falls	210	156	135	252	762	10.5
Other	54	57	51	120	290	4
Other vehicle or transport	*	*	*	13	213	2.9
Drowning & submersion	51	49	16	52	187	2.6
Assaults	28	34	15	64	149	2
Fire & flame	34	50	31	30	147	2
Suffocation	33	32	26	52	145	2
Natural & environmental	13	13	7	14	48	0.7
MV non-traffic	10	8	10	11	40	0.5
Poisoning	10	8	8	9	38	0.5
Late effects	*	*	5	5	18	0.2
Firearms	*	*	*	*	9	0.1
Cutting & piercing	*	*	0	*	*	0.05
Pedal	*	*	0	0	*	0.03
Foreign body	0	*	0	0	*	0.01
Total	990	813	608	1373	4128	56.7

[b]Totals may not add up because region was not identified for all cases (n=346, region unknown)
*Cell contents < 5

HIGHLIGHTS

Leading External Causes of Death (Rate/100,000)

Cause	Western	Eastern	Northern	Central	Nova Scotia*
Suicide	16.0	13.3	13.2	14.9	14.9
MV traffic	16.4	12.7	11.8	10.9	13.6
Falls	12.7	10.3	11.2	8.7	10.5

*Includes cases where region was not identified (n=346), for this & other tables

NOVA SCOTIA

Table 6.4 Average Annual Age-Specific Mortality Rates/100,000 and Number of Deaths by Health Region for Persons ≥ 16 Years of Age in Nova Scotia 1990-1999

Age Group	Western	Rate	Eastern	Rate	Northern	Rate	Central	Rate	Nova Scotia [b]	Rate
16-34	267	51.4	242	49	164	41	403	38.4	1216	49.4
35-64	352	42.9	314	42.1	206	34.5	573	39.1	1611	44.4
≥ 65	371	118	257	95.8	238	109	397	104	1301	110
Total ≥ 16	990	59.8	813	53.9	608	50	1373	47.4	4128	56.7

[b]Totals may not add up because region was not identified for all cases (n=346, region unknown)

HIGHLIGHTS

Age	Highest Mortality Rates	Lowest Mortality Rates	Nova Scotia Rates
16-34	Western (51.4)	Central (38.4)	49.4
35-64	Western (42.9)	Northern (34.5)	44.4
≥65	Western (118.0)	Eastern (95.8)	110.0

Rates are highest amongst those ≥65 years of age in all regions.

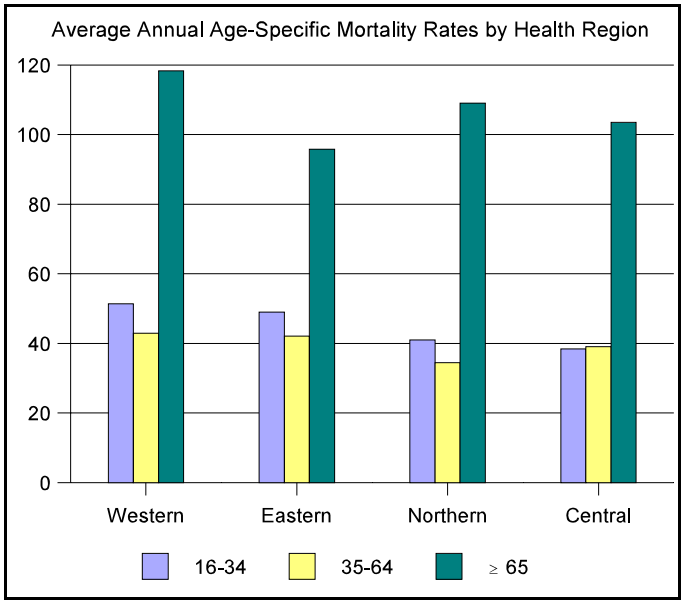


Figure 6.1

WESTERN REGION

Table 6.5 Average Annual Age-Specific Mortality Rates/100,000 and Number of Deaths by External Cause for Persons ≥ 16 Years of Age in the Western Region 1990-1999

Cause of Injury	16-34	Rate	35-64	Rate	≥65	Rate	Total	Western Rate/100000
MV Traffic	131	25.2	83	10.1	57	18.2	271	16.4
Suicide	80	15.4	142	17.3	43	13.7	265	16
Falls	*	-	13	1.6	195	62.2	210	12.7
Other	12	2.3	23	2.8	19	6.1	54	3.3
Drowning & submersion	16	3.1	29	3.5	6	1.9	51	3.1
Fire & flame	10	1.9	12	1.5	12	3.8	34	2.1
Suffocation	*	0.4	12	1.5	19	6.1	33	2
Assaults	7	1.3	19	2.3	*	-	28	1.7
Natural & environmental	0	-	*	-	9	2.9	13	0.8
Poisoning	*	-	5	0.6	*	-	10	0.6
MV non-traffic	*	-	5	0.6	*	-	10	0.6
Late effects	*	-	*	-	*	-	*	-
Other vehicle or transport	*	-	*	-	*	-	*	-
Cutting & piercing	*	-	*	-	*	-	*	-
Firearms	*	-	*	-	*	-	*	-
Pedal	*	-	*	-	*	-	*	-
Foreign body	0	-	0	-	0	-	0	-
Total	267	51.4	352	42.9	371	118.3	990	59.8

*Cell contents <5

HIGHLIGHTS

Leading Causes of Death (Rate/100,000)

16-34 years	35-64 years	>65 years
MV traffic (25.2)	Suicide (17.3)	Falls (62.2)
Suicide (15.4)	MV traffic (10.1)	MV traffic (18.2)
Drowning/submersion (3.1)	Drowning/submersion (3.5)	Suicide (13.7)

EASTERN REGION

Table 6.6 Average Annual Age-Specific Mortality Rates/100,000 and Number of Deaths by External Cause for Persons ≥ 16 years of age in the Eastern Region 1990-1999

Cause of Injury	16-34	Rate	35-64	Rate	≥65	Rate	Total	Eastern Rate/100000
Suicide	81	16.4	96	12.9	24	8.9	201	13.3
MV Traffic	81	16.4	78	10.5	32	11.9	191	12.7
Falls	*	-	11	1.5	141	52.5	156	10.3
Other	10	2	30	4	17	6.3	57	3.8
Fire & flame	15	3	28	3.8	7	2.6	50	3.3
Drowning & submersion	15	3	27	3.6	7	2.6	49	3.2
Assaults	19	3.9	13	1.7	*	-	34	2.3
Suffocation	*	-	14	1.9	15	5.6	32	2.1
Natural & environmental	*	-	5	0.7	6	2.2	13	0.9
Poisoning	*	-	*	-	*	-	8	0.5
MV non-traffic	6	1.2	*	-	*	-	8	0.5
Late effects	*	-	*	-	*	-	*	-
Firearms	*	-	*	-	*	-	*	-
Other vehicle or transport	*	-	*	-	*	-	*	-
Cutting & piercing	*	-	*	-	*	-	*	-
Pedal	*	-	*	-	*	-	*	-
Foreign body	*	-	*	-	*	-	*	-
Total	242	49	314	42.1	257	95.8	813	53.9

*Cell contents <5

HIGHLIGHTS

Leading Causes of Death (Rate/100,000)

16-34 years	35-64 years	>65 years
Suicide (16.4)	Suicide (12.9)	Falls (52.5)
MV traffic (16.4)	MV traffic (10.5)	MV traffic (11.9)
Assaults (3.9)	Fire & flame (3.8)	Suicide (8.9)

NORTHERN REGION

Table 6.7 Average Annual Age-Specific Mortality Rates/100,000 and Number of Deaths by External Cause for Persons ≥ 16 Years of Age in the Northern Region 1990-1999

Cause of Injury	16-34	Rate	35-64	Rate	≥65	Rate	Total	Northern Rate/100000
Suicide	47	11.7	80	13.6	32	14.7	159	13.2
MV Traffic	71	17.7	39	6.6	32	14.7	142	11.8
Falls	*	-	8	1.4	124	57.1	135	11.2
Other	10	2.5	34	5.8	7	3.2	51	4.2
Fire & flame	12	3	7	1.2	12	5.5	31	2.6
Suffocation	*	-	10	1.7	14	6.4	26	2.2
Drowning & submersion	*	-	8	1.4	*	-	16	1.3
Assaults	6	1.5	7	1.2	*	-	15	1.2
MV non-traffic	*	-	5	0.8	*	-	10	0.8
Poisoning	*	-	*	-	*	-	8	0.7
Natural & environmental	*	-	*	-	*	-	7	0.6
Late effects	*	-	*	-	*	-	5	0.4
Other vehicle or transport	*	-	*	-	*	-	*	-
Firearms	*	-	*	-	*	-	*	-
Cutting & piercing	0	-	0	-	0	-	0	-
Pedal	0	-	0	-	0	-	0	-
Foreign body	0	-	0	-	0	-	0	-
Total	164	41	206	34.5	238	109	608	50

*Cell contents <5

HIGHLIGHTS

Leading Causes of Death (Rate/100,000)

16-34 years	35-64 years	>65 years
MV traffic (17.7)	Suicide (13.6)	Falls (57.1)
Suicide (11.7)	MV traffic (6.6)	MV traffic (14.7)
Fire & flame (3.0)	Suffocation (1.7)	Suicide (14.7)

CENTRAL REGION

Table 6.8 Average Annual Age-Specific Mortality Rates/100,000 and Number of Deaths by External Cause for Persons ≥ 16 Years of Age in the Central Region 1990-1999

Cause of Injury	16-34	Rate	35-64	Rate	≥65	Rate	Total	Central Rate/100000
Suicide	138	13.2	245	16.7	49	12.8	432	14.9
MV Traffic	146	13.9	113	7.7	56	14.6	315	10.9
Falls	15	1.4	35	2.4	202	52.7	252	8.7
Other	27	2.6	72	4.9	21	5.5	120	4.1
Assaults	31	3	30	2	*	-	64	2.2
Drowning & submersion	19	1.8	25	1.7	8	2.1	52	1.8
Suffocation	5	0.5	16	1.1	31	8.1	52	1.8
Fire & flame	*	-	17	1.2	10	2.6	30	1
Natural & environmental	*	-	*	-	8	2.1	14	0.5
Other vehicle or transport	6	0.6	5	0.3	*	-	13	0.4
MV non-traffic	6	0.6	*	-	*	-	11	0.4
Poisoning	0	-	7	0.5	*	-	9	0.3
Late effects	*	-	*	-	*	-	5	0.2
Firearms	*	-	*	-	*	-	*	-
Cutting & piercing	*	-	*	-	*	-	*	-
Pedal	0	-	0	-	0	-	0	-
Foreign body	0	-	0	-	0	-	0	-
Total	403	38.4	573	39.1	397	103.5	1373	47.4

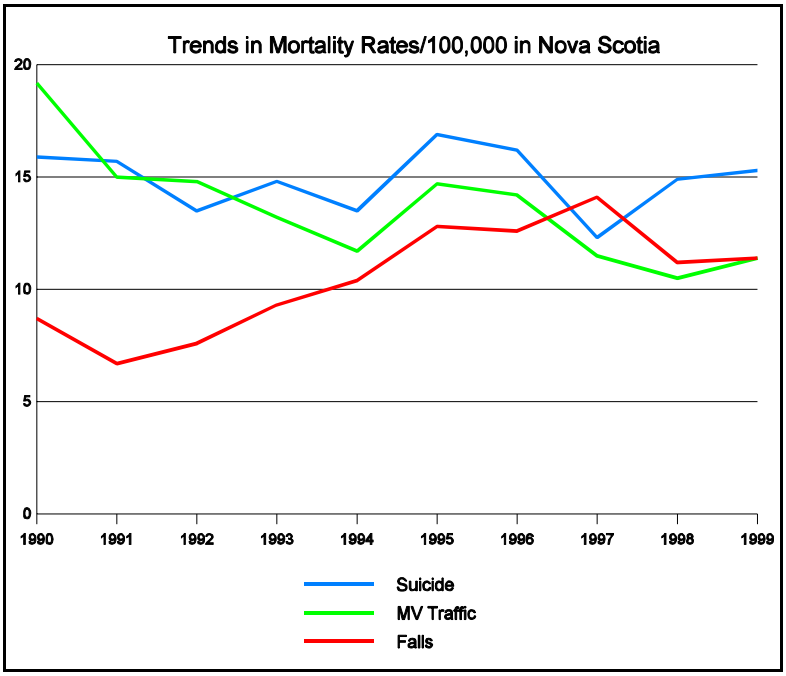
*Cell contents <5

HIGHLIGHTS

Leading Causes of Death (Rate/100,000)

16-34 years	35-64 years	>65 years
MV traffic (13.9)	Suicide (16.7)	Falls (52.7)
Suicide (13.2)	MV traffic (7.7)	MV traffic (14.6)
Assaults (3.0)	Falls (2.4)	Suicide (12.8)

Figure 6.2


Trends in Mortality Rates/100,000 in Nova Scotia
20
15
10
5
0
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
Suicide
MV Traffic
Falls

INJURY-RELATED HOSPITAL SEPARATIONS

INJURY-RELATED HOSPITAL SEPARATIONS

Nova Scotia

The highest overall rates of injury-related hospital separations were due to falls (455.2/100,000), motor vehicle traffic collisions (102.2) and self injury (85.6). *Annually* in Nova Scotia, amongst those 16 years or older, there were approximately:

- 3311 hospital separations due to falls
- 744 hospital separations due to motor vehicle traffic collisions
- 623 hospital separations due to self injury
- 372 hospital separations due to late effects of injury
- 319 hospital separations due to assaults
- 309 hospital separations due to cutting/piercing
- 180 hospital separations due to foreign body
- 114 hospital separations due to motor vehicle non-traffic collisions

The average annual number of hospital separations per year was 7665.6 with a low of 6873 in 1992 and a high of 8846 in 1993. The average length of stay in hospital for each separation was 8.7 (± 17.8) days.

The leading causes of hospital separations in males were from falls (367.3/100,000); motor vehicle traffic collisions (134.0) and self injury (81.5). The leading causes of hospital separations in females were from falls (536.3); self injury (89.4) and motor vehicle traffic collisions (72.9). The rates of injury-related hospital separations were lower in females than in males for all external causes, except for falls and self injury.

The age-specific hospital separation rates show similar patterns across the regions with the highest rates in those 65 years or older (2166.5/100,000) and the lowest rates in those 35-64 years of age (750.4). The hospital separation rates due to falls in those 65 years of age or older were higher than in any other age group for all regions and for all other external causes of injury.

Western Region

The lowest overall hospital separation rates in Nova Scotia for assaults were in the Western region (25.0/100,000). The leading external causes of hospital separations differed depending on the age group. In those 16-34 years of age, *annually* in the Western region there were approximately:

- 96 hospital separations due to motor vehicle traffic collisions
- 80 hospital separations due to falls
- 67 hospital separations due to self injury

In those 35-64 years of age, *annually* in the Western region there were approximately:

- 182 hospital separations due to falls
- 59 hospital separations due to self injury
- 56 hospital separations due to motor vehicle traffic collisions

In those 65 years of age or older, *annually* in the Western region there were approximately:

- 519 hospital separations due to falls
- 32 hospital separations due to motor vehicle traffic collisions
- 18 hospital separations due to foreign body

The highest hospital separation rates for injury-related to motor vehicle traffic collisions and self injury in the Western region were in those 16-34 years of age (184.0 and 128.9/100,000 respectively).

Eastern Region

The Eastern region had the highest overall hospital separation rates due to falls, self injury, fire/flame and firearms for all regions in Nova Scotia (514.7, 115.6, 10.3 and 2.1/100,000 respectively). This region also had the highest overall hospital separation rates in all age groups as compared to the other regions. The leading external causes of hospital separations differed depending on the age group. In those 16-34 years of age, *annually* in the Eastern region there were approximately:

- 83 hospital separations due to self injury
- 82 hospital separations due to motor vehicle traffic collisions
- 82 hospital separations due to falls

In those 35-64 years of age, *annually* in the Eastern region there were approximately:

- 196 hospital separations due to falls
- 86 hospital separations due to self injury
- 57 hospital separations due to late effects of injury

In those 65 years of age or older, *annually* in the Eastern region there were approximately:

- 499 hospital separations due to falls
- 26 hospital separations due to motor vehicle traffic collisions
- 13 hospital separations due to foreign body

The highest rates of self injury and injury-related to motor vehicle traffic collisions in the Eastern region were in those 16-34 years of age (167.7 and 166.4/100,000 respectively). The average length of stay was highest in this region (9.7 ± 20.0 days).

Northern Region

The highest overall hospital separation rates for injuries related to motor vehicle traffic and motor vehicle non-traffic collisions were in the Northern region (115.1 and 22.7/100,000 respectively). The leading external causes of hospital separations differed depending on the age group. In those 16-34 years of age, *annually* in the Northern region there were approximately:

- 71 hospital separations due to motor vehicle traffic collisions
- 59 hospital separations due to self injury
- 52 hospital separations due to falls

In those 35-64 years of age, *annually* in the Northern region there were approximately:

- 136 hospital separations due to falls
- 51 hospital separations due to self injury
- 48 hospital separations due to motor vehicle traffic collisions

In those 65 years of age or older, *annually* in the Northern region there were approximately:

- 373 hospital separations due to falls
- 22 hospital separations due to motor vehicle traffic collisions
- 18 hospital separations due to foreign body

The highest rates of injury-related to motor vehicle traffic collisions and self injury in the Northern region were in those 16-34 years of age (176.2 and 148.1/100,000 respectively).

Central Region

The Central region had the highest overall hospital separation rates for assaults for all regions in Nova Scotia (52.8/100,000). It had the lowest overall hospital separation rates for falls, injuries related to motor vehicle traffic collisions, self injury and fire/flame for all regions in Nova Scotia (385.8, 74.0, 66.3 and 4.7/100,000 respectively). It had the lowest overall hospital separation rate in all age groups than any other region in the province. The leading external causes of death differed depending on the age group. In those 16-34 years of age, *annually* in the Central region there were approximately:

- 164 hospital separations due to falls
- 110 hospital separations due to motor vehicle traffic collisions
- 106 hospital separations due to assaults

In those 35-64 years of age, *annually* in the Central region there were approximately:

- 345 hospital separations due to falls
- 95 hospital separations due to self injury
- 76 hospital separations due to motor vehicle traffic collisions

In those 65 years of age or older, *annually* in the Central region there were approximately:

- 609 hospital separations due to falls
- 29 hospital separations due to motor vehicle traffic collisions
- 14 hospital separations due to foreign body

The highest rates of injury-related to motor vehicle traffic collisions and self injury were in those 16-34 years of age (104.4 and 83.7/100,000 respectively).

Foreign Body

The external cause of injury categorized as `foreign body' included E-914 (foreign body accidentally entering eye and adnexa) and E-915 (foreign body accidentally entering other orifice) and *excludes* choking.

NOVA SCOTIA

Table 7.1 Number of Hospital Separations by Year for Persons ≥ 16 Years of Age in Nova Scotia 1992-1999

Cause of Injury	1992	1993	1994	1995	1996	1997	1998	1999	Total
Falls	2656	3651	3424	3327	3214	3501	3398	3319	26490
Other	1248	1604	1412	1444	1284	1290	1171	1182	10635
MV Traffic	844	992	796	764	684	637	599	632	5948
Self Injury	460	598	630	674	685	669	628	639	4983
Late effects	397	493	422	358	371	342	279	312	2974
Assaults	325	374	327	320	309	304	293	303	2555
Cutting & piercing	349	391	344	320	259	268	275	266	2472
Foreign body	127	182	180	192	187	180	189	200	1437
MV non-traffic	113	121	109	115	87	124	106	138	913
Natural & environmental	78	117	102	91	91	76	54	69	678
Suffocation	69	84	84	75	87	77	78	44	598
Other vehicle or transport	65	72	69	67	55	50	60	56	494
Fire & flame	42	62	56	50	48	42	45	50	395
Poisoning	41	59	58	63	38	29	29	21	338
Pedal	31	27	39	41	23	23	26	37	247
Firearms	19	12	15	13	9	7	7	11	93
Drowning & submersion	9	7	13	11	9	5	8	13	75
Total	6873	8846	8080	7925	7440	7624	7245	7292	61325

HIGHLIGHTS

Leading Causes of Hospital Separations (Rate/100,000):
Falls (455.2); MV traffic (102.2) & Self injury (85.6)

Average # of Hospital Separations per year: 7665.6

NOVA SCOTIA

Table 7.2 Average Annual Hospital Separation Rates/100,000 and Number of Hospital Separations by External Cause and Gender for Persons ≥ 16 Years of Age in Nova Scotia 1992-1999

Cause of Injury	Male	Rate	Female	Rate	Total	Rate
Falls	10251	367.3	16239	536.3	26490	455.2
Other	7802	279.5	2833	93.6	10635	182.8
MV Traffic	3740	134	2208	72.9	5948	102.2
Self Injury	2275	81.5	2708	89.4	4983	85.6
Late effects	2093	75	881	29.1	2974	51.1
Assaults	2157	77.3	398	13.1	2555	43.9
Cutting & piercing	1915	68.6	557	18.4	2472	42.5
Foreign body	869	31.1	568	18.8	1437	24.7
MV non-traffic	770	27.6	143	4.7	913	15.7
Natural & environment	381	13.7	297	9.8	678	11.7
Suffocation	357	12.8	241	8	598	10.3
Other vehicle or transport	318	11.4	176	5.8	494	8.5
Fire & flame	289	10.4	106	3.5	395	6.8
Poisoning	214	7.7	124	4.1	338	5.8
Pedal	186	6.7	61	2	247	4.2
Firearms	85	3	8	0.3	93	1.6
Drowning & submersion	60	2.1	15	0.5	75	1.3
Total	33762	1209.6	27563	910.2	61325	1053.8

	Leading cause of injury
	2nd leading cause of injury
	3rd leading cause of injury

HIGHLIGHTS

Leading External Causes of Injury by Gender (Rate/100,000):

Cause	Males	Females	Nova Scotia
Falls	367.3	536.3	455.2
MV traffic	134.0	72.9	102.2
Self injury	81.5	89.4	85.6

NOVA SCOTIA

Table 7.3 Average Annual Hospital Separation Rates/100,000 and Number of Hospital Separations by External Cause and Health Region for Persons ≥ 16 Years of Age in Nova Scotia 1992-1999

Cause of Injury	Western	Eastern	Northern	Central	Nova Scotia[b]	NS Rate/100000
Falls	6242	6208	4493	8939	26490	455.2
Other	2325	2410	1608	3952	10635	182.8
MV Traffic	1465	1304	1119	1715	5948	102.2
Self Injury	1068	1394	910	1535	4984	85.6
Late effects	489	840	532	978	2974	51.1
Assaults	331	561	349	1223	2555	43.9
Cutting & piercing	514	530	377	989	2472	42.5
Foreign body	370	266	341	393	1437	24.7
MV non-traffic	258	171	221	228	913	15.7
Natural & environmental	161	116	133	252	678	11.7
Suffocation	191	180	55	161	598	10.3
Other vehicle or transport	116	76	68	166	494	8.5
Fire & flame	66	124	87	110	395	6.8
Poisoning	81	105	53	74	338	5.8
Pedal	40	38	37	117	247	4.2
Firearms	26	25	16	21	93	1.6
Drowning & submersion	19	16	5	26	75	1.3
Total	13762	14364	10404	20878	61325	1053.8

[b]Totals may not add up because region was not identified for all cases (n=1916, region unknown)

HIGHLIGHTS

Leading External Causes of Injury (Rate/100,000):

Cause	Western	Eastern	Northern	Central	Nova Scotia
Falls	471.6	514.7	462.1	385.8	455.2
MV traffic	110.7	108.1	115.1	74.0	102.2
Self injury	80.7	115.6	93.6	66.3	85.6

NOVA SCOTIA

Table 7.4 Average Annual Age-Specific Hospital Separation Rates/100,000 and Number of Hospital Separations by Health Region for Persons ≥ 16 Years of Age 1992-1999

Age Group	Western	Rate	Eastern	Rate	Northern	Rate	Central	Rate	Nova Scotia	Rate
16-34	3837	922.8	4192	1061.9	3107	970.8	7145	851.5	19027	966
35-64	4592	699	5211	873.2	3510	734.8	7708	658.2	21779	750.4
≥ 65	5333	2125	4961	2310.8	3787	2168.2	6026	1964.1	20519	2166.5
Total ≥ 16	13762	1039.7	14364	1190.9	10404	1069.9	20879	901.2	61325	1053.8

HIGHLIGHTS

Age	Highest Separation Rates	Lowest Separation Rates	Nova Scotia Rates
16-34	Eastern (1061.9)	Central (851.5)	966.0
35-64	Eastern (873.2)	Central (658.2)	750.4
≥65	Eastern (2310.8)	Central (1964.1)	2166.5

Hospital separation rates are at least 2 times higher in those ≥ 65 years than any other age, in all regions.

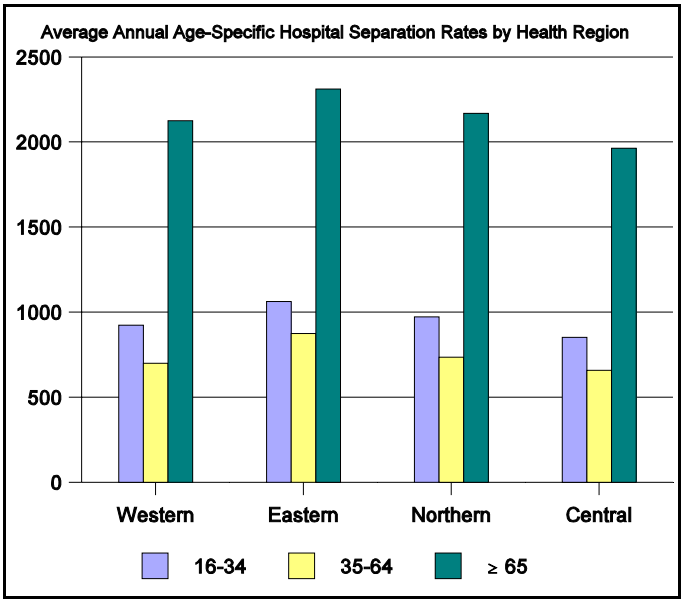


Figure 7.1

WESTERN REGION

Table 7.5 Average Annual Age-Specific Hospital Separation Rates/100,000 and Number of Hospital Separations by External Cause for Persons ≥16 Years of Age for the Western Region 1992-1999

Cause of Injury	16-34	Rate	35-64	Rate	≥65	Rate	Total	Western Rate
Falls	637	153.2	1454	221.3	4151	1654	6242	471.6
Other	901	216.7	1074	163.5	350	139.5	2325	175.6
MV Traffic	765	184	444	67.6	256	102	1465	110.7
Self Injury	536	128.9	474	72.2	58	23.1	1068	80.7
Cutting & piercing	254	61.1	221	33.6	39	15.5	514	38.8
Late effects	167	40.2	243	37	79	31.5	489	36.9
Foreign body	44	10.6	180	27.4	146	58.2	370	28
Assaults	213	51.2	105	16	13	5.2	331	25
MV non-traffic	140	33.7	93	14.2	25	10	258	19.5
Suffocation	14	3.4	79	12	98	39	191	14.4
Natural & environmental	40	9.6	54	8.2	67	26.7	161	12.2
Other vehicle or transport	44	10.6	63	9.6	9	3.6	116	8.8
Poisoning	23	5.5	36	5.5	22	8.8	81	6.1
Fire & flame	18	4.3	34	5.2	14	5.6	66	5
Pedal	18	4.3	16	2.4	6	2.4	40	3
Firearms	12	2.9	14	2.1	0	-	26	2
Drowning & submersion	11	2.6	8	1.2	0	-	19	1.4
Total	3837	922.8	4592	699	5333	2125	13762	1039.7

HIGHLIGHTS

Leading External Causes of Injury

16-34
MV traffic (184.0)
Falls (153.2)
Self injury (128.9)

35-64
Falls (221.3)
Self injury (72.2)
MV traffic (67.6)

>65
Falls (1654.0)
MV traffic (102.0)
Foreign body (58.2)

EASTERN REGION

Table 7.6 Average Annual Age-Specific Hospital Separation Rates/100,000 and Number of Hospital Separations by External Cause for Persons ≥16 Years of Age for the Eastern Region 1992-1999

Cause of Injury	16-34	Rate	35-64	Rate	≥65	Rate	Total	Eastern Rate
Falls	653	165.4	1567	262.6	3988	1857.6	6208	514.7
Other	953	241.4	1170	196.1	287	133.7	2410	199.8
Self Injury	662	167.7	690	115.6	42	19.6	1394	115.6
MV Traffic	657	166.4	439	73.6	208	96.9	1304	108.1
Late effects	293	74.2	459	76.9	88	41	840	69.6
Assaults	394	99.8	158	26.5	9	4.2	561	46.5
Cutting & piercing	258	65.4	238	39.9	34	15.8	530	43.9
Foreign body	45	11.4	120	20.1	101	47	266	22.1
Suffocation	10	2.5	81	13.6	89	41.5	180	14.9
MV non-traffic	97	24.6	57	9.6	17	7.9	171	14.2
Fire & flame	50	12.7	48	8	26	12.1	124	10.3
Natural & environmental	18	4.6	53	8.9	45	21	116	9.6
Poisoning	29	7.3	54	9	22	10.2	105	8.7
Other vehicle or transport	29	7.3	46	7.7	*	-	76	6.3
Pedal	22	5.6	15	2.5	*	-	38	3.2
Firearms	16	4.1	9	1.5	0	-	25	2.1
Drowning & submersion	6	1.5	7	1.2	*	-	16	1.3
Total	4192	1062	5211	873.2	4961	2310.8	14364	1190.9

*Cell contents <5

HIGHLIGHTS

Leading External Causes of Injury

16-34
Self injury (167.7)
MV traffic (166.4)
Falls (165.4)

35-64
Falls (262.6)
Self injury (115.6)
Late effects (76.9)

>65
Falls (1857.6)
MV traffic (96.9)
Foreign body (47.0)

NORTHERN REGION

Table 7.7 Average Annual Age-Specific Hospital Separation Rates/100,000 and Number of Hospital Separations by External Cause for Persons ≥16 Years of Age for the Northern Region 1992-1999

Cause of Injury	16-34	Rate	35-64	Rate	≥65	Rate	Total	Northern Rate
Falls	419	130.9	1089	228	2985	1709	4493	462.1
Other	711	222.2	683	143	214	122.5	1608	165.4
MV Traffic	564	176.2	382	80	173	99	1119	115.1
Self Injury	474	148.1	407	85.2	29	16.6	910	93.6
Late effects	198	61.9	257	53.8	77	44.1	532	54.7
Cutting & piercing	183	57.2	165	34.5	29	6.6	377	38.8
Assaults	248	77.5	93	19.5	8	4.6	349	35.9
Foreign body	48	15	148	31	145	83	341	35.1
MV non-traffic	121	37.8	78	16.3	22	12.6	221	22.7
Natural & environmental	23	7.2	67	14	43	24.6	133	13.7
Fire & flame	36	11.2	30	6.3	21	12	87	8.9
Other vehicle or transport	25	7.8	40	8.4	*	-	68	7
Suffocation	9	2.8	23	4.8	23	13.2	55	5.7
Poisoning	17	5.3	25	5.2	11	6.3	53	5.5
Pedal	19	5.9	14	2.9	*	-	37	3.8
Firearms	9	2.8	7	1.5	0	-	16	1.6
Drowning & submersion	*	-	*	-	*	-	5	0.5
Total	3107	970.8	3510	734.8	3787	2168.2	10404	1069.9

*Cell contents <5

HIGHLIGHTS

Leading External Causes of Injury (Rates/100,000):

16-34	35-64	>65
MV traffic (176.2)	Falls (228.0)	Falls (1709.0)
Self injury (148.1)	Self injury (85.2)	MV traffic (99.0)
Falls (130.9)	MV traffic (80.0)	Foreign body (83.0)

CENTRAL REGION

Table 7.8 Average Annual Age-Specific Hospital Separation Rates/100,000 and Number of Hospital Separations by External Cause for Persons ≥16 Years of Age for the Central Region 1992-1999

Cause of Injury	16-34	Rate	35-64	Rate	≥65	Rate	Total	Central Rate
Falls	1313	156.5	2757	235.4	4869	1587	8939	385.8
Other	1993	237.5	1591	135.8	368	119.9	3952	170.6
MV Traffic	876	104.4	611	52.2	228	74.3	1715	74
Self Injury	702	83.7	757	64.7	76	24.8	1535	66.3
Assaults	850	101.3	351	30	22	7.2	1223	52.8
Cutting & piercing	516	61.5	422	36	51	16.6	989	42.7
Late effects	399	47.6	475	40.6	104	33.9	978	42.2
Foreign body	76	9.1	203	17.3	114	37.2	393	17
Natural & environmental	75	8.9	126	10.8	51	16.6	252	10.9
MV non-traffic	115	13.7	88	7.5	25	8.1	228	9.8
Other vehicle or transport	68	8.1	88	7.5	10	3.3	166	7.2
Suffocation	20	2.4	73	6.2	68	22.2	161	6.9
Pedal	64	7.6	50	4.3	*	-	117	5
Fire & flame	32	3.8	61	5.2	17	5.5	110	4.7
Poisoning	20	2.4	38	3.2	16	5.2	74	3.2
Drowning & submersion	11	1.3	12	1	*	-	26	1.1
Firearms	15	1.8	5	0.4	*	0.3	21	0.9
Total	7145	851.5	7708	658.2	6026	1964.1	20779	901.2

*Cell contents <5

HIGHLIGHTS

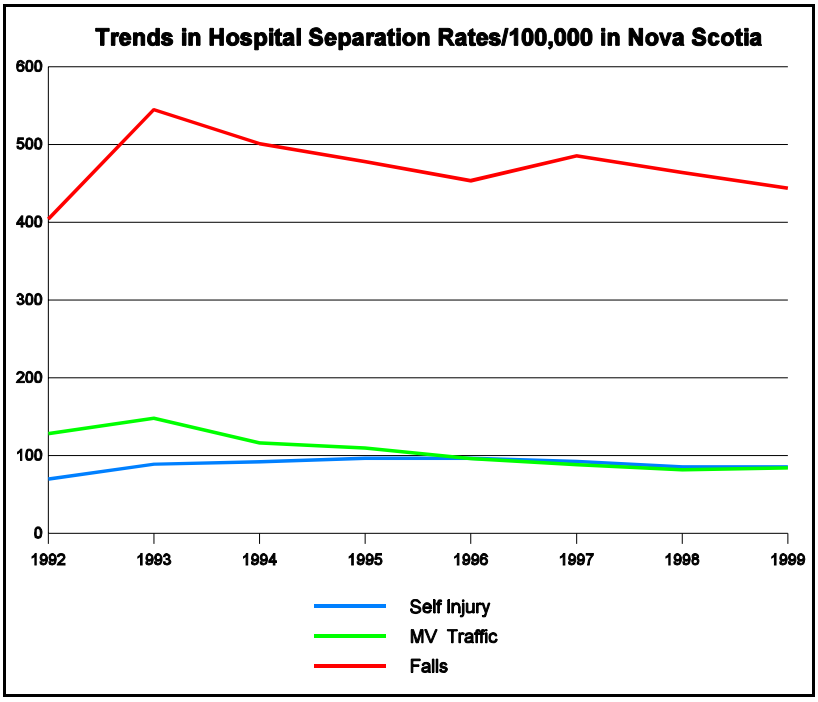
Leading External Causes of Injury

16-34
Falls (156.5)
MV traffic (104.4)
Assaults (101.3)

35-64
Falls (235.4)
Self injury (64.7)
MV traffic (52.2)

>65
Falls (1587.0)
MV traffic (74.3)
Foreign body (37.2)

Figure 7.2


Trends in Hospital Separation Rates/100,000 in Nova Scotia
600
500
400
300
200
100
0
1992
1993
1994
1995
1996
1997
1998
1999
Self Injury
MV Traffic
Falls

NOVA SCOTIA

Table 7.9 Number of Hospital Separations & Days of Stay by External Cause of Injury for Persons ≥ 16 Years of Age in Nova Scotia 1992-1999

Cause of Injury	Number	Percent	Average Days of Stay	Range
Falls	26490	43.2	11.5 (± 19.3)	0-346
Other	10635	17.3	4.4 (± 12.9)	0-324
MV Traffic	5948	9.7	10.5 (± 19.7)	0-316
Self Injury	4983	8.1	7.2 (± 15.6)	0-261
Late effects	2974	4.9	11.4 (± 27.5)	0-365
Assaults	2555	4.2	3.9 (± 11.0)	0-175
Cutting & piercing	2472	4	2.0 (± 6.2)	0-133
Foreign body	1437	2.3	2.3 (± 7.3)	0-109
MV non-traffic	913	1.5	6.7 (± 11.3)	0-123
Natural & environmental	678	1.1	6.8 (± 11.6)	0-113
Suffocation	598	1	7.4 (± 22.6)	0-232
Other vehicle or transport	494	0.8	6.4 (± 11.0)	0-84
Fire & flame	395	0.7	13.9 (± 21.8)	0-163
Poisoning	338	0.5	5.7 (± 13.2)	0-138
Pedal	247	0.4	3.4 (± 5.2)	0-33
Firearms	93	0.2	10.6 (± 21.3)	0-178
Drowning & submersion	75	0.1	4.6 (± 9.0)	0-74
Total	61325	100	8.7 (± 17.8)	0-365

HIGHLIGHTS

Total average length of stay for injury-related separations 8.7 (± 17.8)
Highest average length of stay - fire & flame 13.9 (± 21.8)
Lowest average length of stay - cutting & piercing 2.0 (± 6.2)

NATURE OF INJURY

NATURE OF INJURY

Data describing the nature of injuries were only available for hospitalizations (i.e., not deaths or injuries treated in an outpatient setting). A total of 49,306 injuries were reported. Overall, the most common injuries reported were fractures of the lower limb (27.8% of 49,306) and the upper limb (12.4%), followed by open wound (8.0%), fractured spine (7.1%), poisoning (6.9%), fractured skull (6.5%), sprains (4.4%) and dislocations (4.2%).

Distribution of Injuries by Age and Gender

In total, 27, 407 injuries were reported for males and 21,899 were reported for females. The two leading injuries were similar for males and females, however, there were differences in the proportions of males sustaining a lower limb fracture (18.9% of 27,407) compared with females (38.9% of 21,899). The proportion of males and females sustaining a fracture of the upper limb were similar (12.2 and 12.7% respectively). Overall, in males, after fractures of the upper and lower limbs, the most common injuries included: open wound (11.2% of 27,407), fractured skull (9.5%) and fractured spine (6.8%). In females, the most common injuries included: poisoning (8.4% of 21,899), fractured spine (7.4%) and open wound (4.0%). In all age categories, males had more internal injuries and fewer poisonings than females, however the differences diminished with increasing age.

The distribution of injuries varied by age category. In those 16-35 years of age, males had at least twice as many fractures of the spine, skull, upper and lower limbs as well as cranial and internal injuries when compared with females. Fractures of the upper limb, skull and other cranial and internal injuries were highest for males in this age category compared with all other ages. In females, fractures of the skull and poisoning were highest in this age category compared with other ages (Figure 8.1).

In those 35-64 years of age, the distribution of injuries was similar, however, the differences between males and females was considerably less. In males, poisoning and fractures of the lower limb and spine were highest in this age category compared with all other ages. In females, the number of internal injuries were highest in this age category (Figure 8.2).

In those 65 years or older, the distribution of injuries between males and females was markedly different. Females had over three times as many fractures of the lower limb and close to four times as many fractures of the upper limb than males did in this age category. In addition, the number of fractured spines reported for females was close to twice as many as for males. The differences between males and females for the reports of fractured skulls, poisoning, other cranial and internal injuries were very small (Figure 8.3).

External Causes of Injury

Falls accounted for more than 80% of all lower limb fractures and at least half of all reports of medical/surgical complications (not elsewhere classified) and fractures of the upper limb and spine. Falls also accounted for more than 40% of other cranial injuries and contusions. Motor vehicle traffic collisions accounted for more than 35% of all internal injuries reported and more than 23% of all superficial injuries. Self injury accounted for more than 80% of all poisonings. Of note, assaults accounted for close to 40% of fractured skulls.

Head Injury

Head injury is a significant cause of morbidity and mortality in the injured population. Although the data available did not allow for an analysis of the contribution of head injury to mortality, a crude picture of its role in hospitalizations is possible. Using the nature of injury codes for fractured skull (N800-804) and other cranial injuries including concussion, cerebral lacerations and hemorrhages (N850-854), Table 8.2 describes the average annual age-specific hospital separation rates per 100,000. These rates are likely an underestimate of head injury because it does not include all injuries to the head (e.g., injury to cranial nerves) as there was only one nature of injury code per record. Therefore the results should be interpreted with caution.

Overall, the highest rates of head injury are in those 16-34 years of age (308.2/100,000). In that age category, the leading external cause of head injury was assault (51.4/100,000). In those 35 years of age or older, the leading external cause of head injury was falls (15.8/100,000). The highest age-specific rate of head injury was for falls in those 65 years of age or older (55.3/100,000). Close to 80% of all hospitalizations for head injury in those 65 years of age or older were the result of falls.

Table 8.1 Number of Hospital Separations by Nature of Injury, Age Category and Gender for Persons ≥ 16 Years of Age in Nova Scotia 1992-1999

Nature of Injury	Males				Females				Total
	16-34	35-64	≥65	Total	16-34	35-64	≥65	Total	
Fracture - lower limb	1524	1833	1813	5170	605	1797	6125	8527	13697
Fracture - upper limb	1770	1235	328	3333	409	1073	1292	2774	6107
Other	752	1216	825	2793	399	749	1029	2177	4970
Open wound	1553	1269	239	3061	348	346	183	877	3938
Fractured spine	559	720	582	1861	191	332	1103	1626	3487
Poison	704	771	78	1553	881	862	97	1840	3393
Fractured skull	1837	684	84	2605	336	164	80	580	3185
Sprains	550	689	150	1389	273	313	178	764	2153
Dislocation	698	760	85	1543	182	235	115	532	2075
Other cranial	552	349	249	1150	194	165	246	605	1755
Contusion	291	234	202	727	115	161	419	695	1422
Internal	312	260	112	684	73	80	52	205	889
Burns	211	246	74	531	71	80	47	198	729
Nerves & spinal cord	190	121	19	330	58	62	9	129	459
Late effects	112	107	25	244	39	39	24	102	346
Superficial	73	84	30	187	45	43	44	132	319
Medical/surgical complications	8	31	30	69	5	19	75	99	168
Crushing	53	54	7	114	9	6	*	19	133
Injury to blood vessels	29	27	7	63	8	7	*	18	81
Total	11778	10690	4939	27407	4241	6533	11125	21899	49306

*Cell contents <5

	Leading injury
	2nd leading injury
	3rd leading injury

HIGHLIGHTS

Most Common Injuries

Male
Fracture lower limb (18.9% of 27,407)
Fracture upper limb (12.2)
Open wound (11.2)

Female
Fracture lower limb (38.9% of 21,899)
Fracture upper limb (12.7)
Poison (8.4)

Table 8.2 Most Common External Cause for Nature of Injury for Persons ≥ 16 Years of Age in Nova Scotia 1992-1999

Nature of Injury	Total	Most Common External Cause (% of Total)
Fracture - lower limb	13697	falls (81.7%)
Fracture - upper limb	6107	falls (58.3)
Other	4970	foreign body (23.1)
Open wound	3938	cutting/piercing (40.5)
Fractured spine	3487	falls (57.5)
Poison	3393	self injury (80.4)
Fractured skull	3185	assaults (37.5)
Sprains	2153	other (59.0)
Dislocation	2075	other (59.5)
Other cranial	1755	falls (41.7)
Contusion	1422	falls (47.3)
Internal	889	MV traffic (36.8)
Burns	730	other (53.7)
Nerves & spinal cord	459	cutting/piercing (54.5)
Superficial	319	MV traffic (23.5)
Medical/surgical complications	168	falls (50)
Crushing	133	Other (72.2)
Injury to blood vessels	81	cutting/piercing (25.9)

HIGHLIGHTS

A total of 49,306 injuries were reported. Lower limb fractures made up close to one-third of all injuries (27.8%). Injuries due to late effects are not included in this table because both the nature of injury and the external cause of injury were coded as "late effects" (n=346).

Unintentional Falls accounted for:

- >80% of lower limb fractures
- ≥50% of upper limb fractures, fractures of the spine & medical/surgical complications
- >40% of other cranial injuries & contusions

MV traffic collisions accounted for:

- 36.8% of internal injuries
- 23.5% of superficial injuries

Self injury accounted for:

- >80% of poisonings

Assaults accounted for:

- 37.5% of fractured skulls

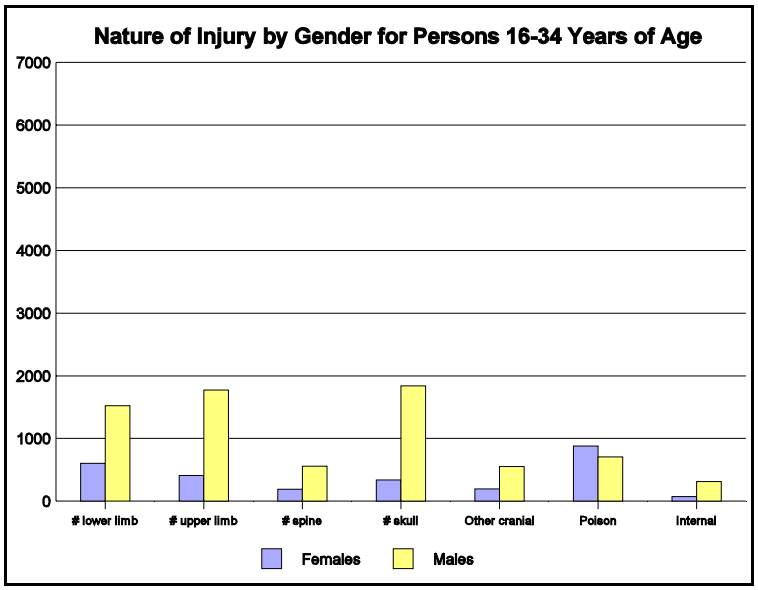


Figure 8.1

Figure 8.2

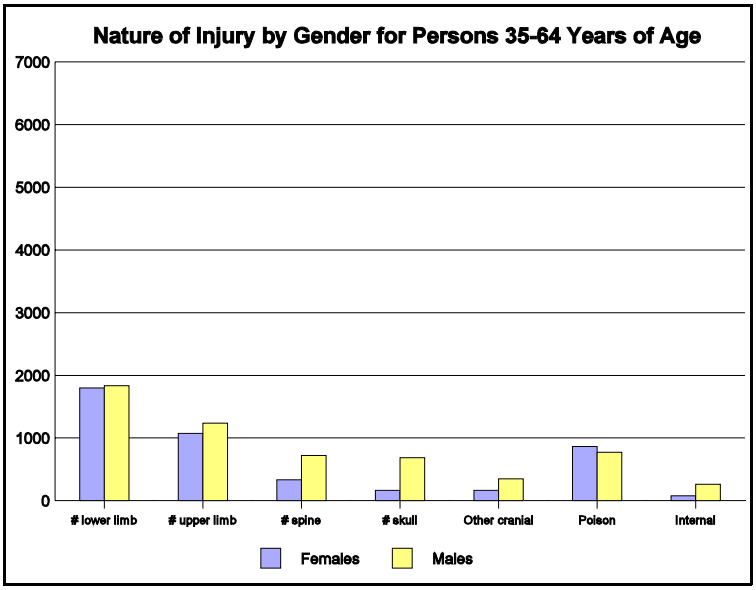


Figure 8.3

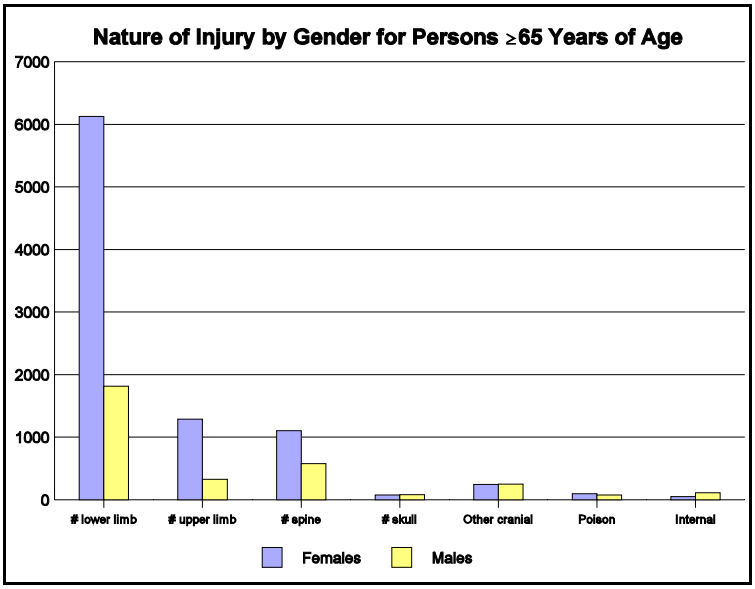


Table 8.3 Average Annual Age-Specific Hospital Separation Rates/100,000 and Number of Hospital Separations for Head Injury by External Cause of Injury for Persons ≥16 Years of Age in Nova Scotia 1992-1999

External Cause	Head Injury					
	16-34	Rate	35-64	Rate	≥65	Rate
Falls	421	21.4	459	15.8	524	55.3
Assaults	1013	51.4	313	10.8	10	1.1
MV traffic	659	33.5	273	9.4	91	9.6
Other	655	33.2	218	7.5	19	2
MV non-traffic	87	4.4	37	1.3	6	0.6
Pedal cycles	39	2	15	0.5	*	-
Other vehicle or transport	25	1.3	27	0.9	*	-
Self injury	5	0.3	7	0.2	*	-
Natural & environmental	*	-	7	0.2	*	-
Late effects	*	-	*	-	*	-
Firearms	*	-	*	-	*	-
Poisoning	*	-	*	-	*	-
Cutting & piercing	*	-	*	-	*	-
Total	2919	308.2	1362	46.9	659	69.6

*** Cell contents <5**

HIGHLIGHTS

Leading External Causes of Head Injury (Rate/100,000)

16-34 years	35-64 years	≥ 65 years
Assaults (51.4)	Falls (15.8)	Falls (55.3)
MV traffic (33.5)	Assaults (10.8)	MV traffic (9.6)
Falls (21.4)	MV traffic (9.4)	Assaults (1.1)

LEADING EXTERNAL CAUSES OF INJURY

LEADING EXTERNAL CAUSES OF INJURY

Mortality

Suicide

Overall, the highest mortality rates due to suicide were in males aged 35-64 (26.6/100,000). The mortality rates from suicide were 5 times higher in males than in females for all age categories. In males, suicide was most commonly inflicted by firearms. The highest rates of suicide by firearms were in the male population 65 years or older (17.1/100,000). In females, the method of suicide varied by age category. For those 16-34 years of age, poisoning was the most common means of suicide (1.6/100,000). In females 35-64 years of age, the most common method of suicide reported was hanging, strangulation or suffocation (1.0/100,000). In females over the age of 64, submersion (drowning) was the most common means of suicide (1.7/100,000).

Motor Vehicle Traffic Collisions

Overall, the highest mortality rates due to motor vehicle traffic collisions were in males aged 16-34 (29.4/100,000). The mortality rates from motor vehicle traffic collisions were almost 2 times higher in males than in females for all age categories. The highest rates of death for all age categories in both males and females involved collisions with a motor vehicle. The only exception to this was in males under the age of 35. In this group, collisions involving a loss of control, without a collision, on the highway accounted for the highest mortality rates (8.7/100,000).

Unintentional Falls

The mortality rates from unintentional falls in both males and females over the age of 65 were higher than for any other cause of injury in any other age category. Overall, the highest mortality rates due to unintentional falls were in females 65 years or older (58.1/100,000). For mortality data, the E-codes did not provide enough detail to describe the cause of the fall. The majority of the E-codes were “other & unspecified fall”. The mortality rates from falls in those under the age of 65 were very low and were more likely to involve a fall “from or out of a building or other structure” or fall “from one level to another”.

Hospital Separations

Unintentional Falls
The hospital separation rates from unintentional falls in both males and females over the age of 65 were higher than for any other cause of injury in any other age category. Overall, the highest hospital separation rates due to unintentional falls were in females 65 years or older (2115.4/100,000). The rates were almost twice as high in females over the age of 65 than in males of the same age. Hospital separation rates were higher in males than in females for persons less than 65 years of age, but higher in females over that age. The highest hospital separation rates for all age categories in both males and females involved falls “on the same level from slipping, tripping or stumbling”.

Motor Vehicle Traffic Collisions
The hospital separations rates due to motor vehicle traffic collisions were higher in males than in females for all age categories. Overall, the highest hospital separation rates due to motor vehicle traffic collisions were in males aged 16-34 (214.7/100,000). The most common cause reported in all age categories for males and in females under the age of 35 was a loss of control, without a collision on the highway. In females 35 years of age or older, collisions with a motor vehicle were responsible for the highest hospital separation rates.

Self Injury
Overall, the highest hospital separation rates due to self injury were in females aged 16-34 (132.6/100,000). The hospital separation rates were higher in females than in males in ages less than 65, but greater in males over that age. Poisoning was the most common method of self injury reported for all age categories in both males and females.

Other External Causes

It should be noted that although the three leading external causes of injury comprise a significant proportion of injury in Nova Scotia, other causes (e.g., drowning) also contribute to the overall burden.

Table 9.1 Average Annual Age-Specific Mortality Rates/100,000 and Number of Deaths by External Cause and Gender for Persons ≥ 16 Years of Age in Nova Scotia 1990-1999

Age Group	Suicide				MV Traffic				Falls			
	Male	Rate	Female	Rate	Male	Rate	Female	Rate	Male	Rate	Female	Rate
16-34	304	25	56	4.5	357	29.4	107	8.6	22	1.8	*	-
35-64	475	26.6	99	5.4	242	13.6	95	5.2	61	3.4	11	0.6
≥ 65	125	25.5	25	3.6	111	22.7	79	11.4	262	53.5	403	58.1
Total ≥ 16	904	25.9	180	4.8	710	20.4	281	7.4	345	9.9	417	11

HIGHLIGHTS

Suicide
Mortality rates from suicide were 5 times higher in males than in females for all age categories.

MV Traffic
Mortality rates from MV traffic-related injuries were almost 2 times higher in males than in females for all age categories.

Falls
The highest mortality rates were from fall-related injuries for both males (53.5) and females (58.1) ≥65 years of age. The lowest mortality rates were from fall-related injuries for both males (1.8) and females (0.2) 16-34 years of age.

Figure 9.1

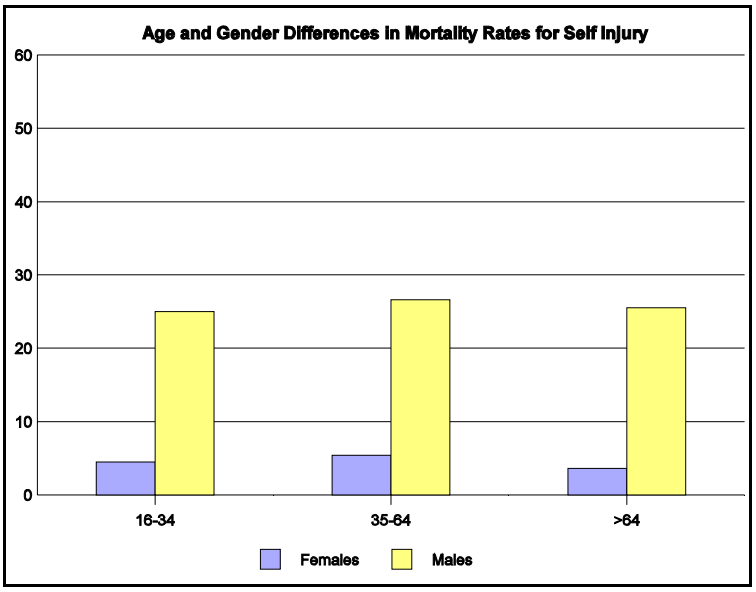


Figure 9.2

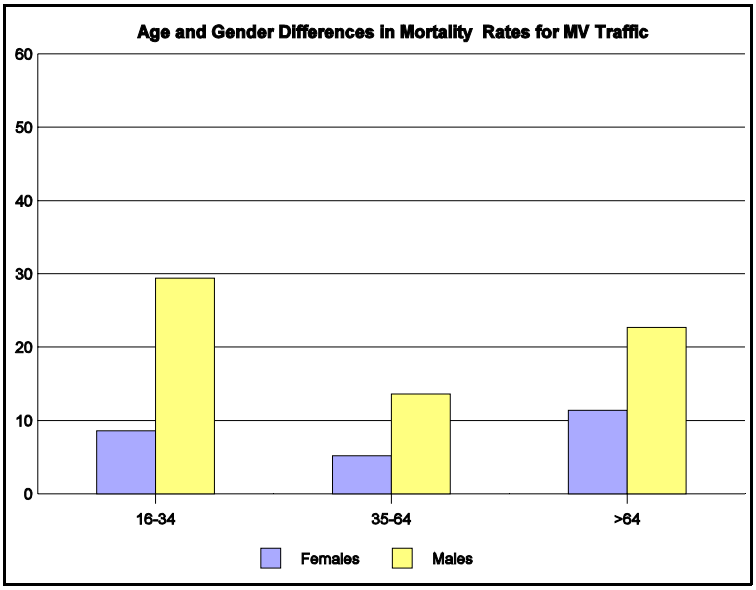


Figure 9.3

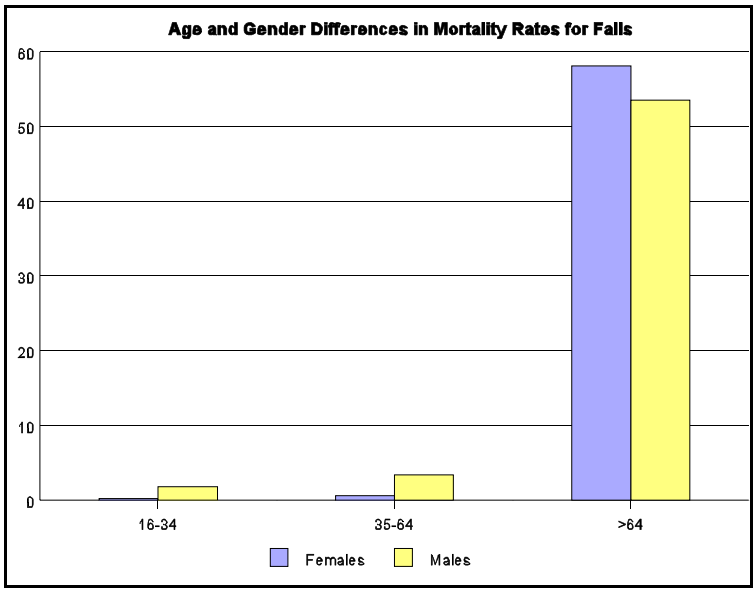


Table 9.2 Average Annual Age-Specific Mortality Rates/100,000 and Number of Deaths from Suicide by Gender for Persons ≥16 Years of Age in Nova Scotia 1990-1999

External Cause of Injury	Males						Females					
	16-34	Rate	35-64	Rate	≥65	Rate	16-34	Rate	35-64	Rate	≥65	Rate
Self inflicted poisoning by solid or liquid substances	21	1.7	61	3.4	5	1	20	1.6	7	0.4	6	0.9
Self inflicted poisoning by gases in domestic use	*	-	*	-	0	-	0	-	0	-	0	-
Self inflicted poisoning by other gases & vapours	28	2.3	47	2.6	7	1.4	*	-	7	0.4	0	-
Self inflicted injury by hanging, strangulation & suffocation	90	7.4	122	6.8	17	3.5	14	1.1	19	1	*	-
Self inflicted by submersion (drowning)	11	0.9	19	1.1	*	-	*	-	7	0.4	12	1.7
Self inflicted by firearms & explosives	137	11.3	189	10.6	84	17.1	10	0.8	14	0.8	*	-
Self inflicted injury by cutting & piercing instrument	7	0.6	11	0.6	5	1	*	-	*	-	0	-
Self inflicted by jumping from high place	8	0.7	16	0.9	*	-	*	-	*	-	*	-
Self inflicted by other & unspecified means	*	-	9	0.5	*	-	*	-	6	0.3	*	-
Total	304	25	475	26.6	125	25.5	56	4.5	99	5.4	25	3.6

Cell contents <5

HIGHLIGHTS

Leading External Causes of Suicide (Rate/100,000)

	Males	Females
16-34 years	Firearms (11.3)	Poisoning (1.6)
35-64	Firearms (10.6)	Hanging, strangulation/ suffocation (1.0)
≥65	Firearms (17.1)	Submersion (1.7)

Table 9.3 Average Annual Age-Specific Mortality Rates/100,000 and Number of Deaths from Motor Vehicle Traffic Collisions by Gender for Persons ≥16 Years of Age in Nova Scotia 1990-1999

External Cause of Injury	Males						Females					
	16-34	Rate	35-64	Rate	≥65	Rate	16-34	Rate	35-64	Rate	≥65	Rate
Involving collision with train	*	-	*	-	0	-	0	-	0	-	*	-
Involving re-entrant collision with another MV	0	-	0	-	0	-	0	-	0	-	*	-
Involving collision with MV	80	6.6	74	4.1	37	7.6	49	3.9	46	2.5	31	4.5
Involving collision with other vehicle	*	-	*	-	*	-	0	-	0	-	0	-
Involving collision with pedestrian	19	1.6	30	1.7	21	4.3	6	0.5	12	0.7	15	2.2
Involving collision on the highway	46	3.8	24	1.3	7	1.4	6	0.5	*	-	*	-
Due to loss of control, without collision on the highway	106	8.7	51	2.9	20	4.1	22	1.8	14	0.8	12	1.7
Non-collision while boarding or alighting	*	-	0	-	0	-	*	-	0	-	*	-
Other non-collision	13	1.1	8	0.4	*	-	*	-	*	*	*	-
Unspecified	88	7.2	53	3	23	4.7	22	1.8	20	1.1	17	2.5
Total	357	29.4	242	13.6	111	22.7	107	8.6	95	5.2	79	11.4

*Cell contents <5

HIGHLIGHTS

Leading External Causes of Death from MV Traffic Collisions (Rate/100,000)

	Males	Females
16-34 years	Loss of control without collision (8.7)	Collision with MV (3.9)
35-64	Collision with MV (4.1)	Collision with MV (2.5)
≥65	Collision with MV (7.6)	Collision with MV (4.5)

Table 9.4 Average Annual Age-Specific Mortality Rates/100,000 and Number of Deaths from Unintentional Falls by Gender for Persons ≥16 Years of Age in Nova Scotia 1990-1999

External Cause of Injury	Males						Females					
	16-34	Rate	35-64	Rate	≥65	Rate	16-34	Rate	35-64	Rate	≥65	Rate
Fall on or from stairs or steps	*	-	13	0.7	31	6.3	0	-	*	-	16	2.3
Fall on or from ladders or scaffolding	*	-	*	-	5	1	0	-	0	-	*	-
Fall from or out of building or other structure	7	0.6	11	0.6	*	-	0	-	0	-	*	-
Fall into hole or other opening in surface	*	-	*	-	*	-	0	-	0	-	0	-
Other fall from one level to another	*	-	6	0.3	20	4.1	*	-	*	-	34	4.9
Fall on same level from slipping, tripping or stumbling	*	-	*	-	23	4.7	0	-	*	-	31	4.5
Fall on same level from collision, pushing, or shoving, by or with another person	0	-	0	-	*	-	0	-	0	-	*	-
Fracture, cause unspecified	*	-	*	-	49	10	*	-	0	-	105	15.1
Other & unspecified fall	*	-	20	1.1	133	27.1	*	-	7	0.4	215	31
Total	22	1.8	61	3.4	262	53.5	*	0.2	11	0.6	403	58.1

*** Cell contents <5**

HIGHLIGHTS

Leading External Causes of Unintentional Falls (Rate/100,000)

	Males	Females
16-34 years	Fall from or out of building (0.6)	--
35-64	Other & unspecified (1.1)	Other & unspecified (0.4)
≥65	Other & unspecified (27.1)	Other & unspecified (31.0)

Table 9.5 Average Annual Age-Specific Hospital Separation Rates/100,000 and Number of Hospital Separations by External Cause and Gender for Persons ≥ 16 Years of Age in Nova Scotia 1992-1999

Age Group	Self Injury				MV Traffic				Falls			
	Male	Rate	Female	Rate	Male	Rate	Female	Rate	Male	Rate	Female	Rate
16-34	1096	112.8	1323	132.6	2086	214.7	911	91.3	2114	217.6	1035	103.7
35-64	1076	76.8	1283	87	1218	85.3	805	54.6	3606	252.6	3462	234.7
≥ 65	103	26.3	102	18.4	436	111.2	492	88.6	4531	1155.8	11742	2115.4
Total ≥ 16	2275	81.5	2708	89.4	3740	134	2208	72.9	10251	367.3	16239	536.3

HIGHLIGHTS

Self Injury

Hospital separation rates were higher in females than in males for persons < 65 years of age, but higher in males in the older population. Self injury in females ≥65 years of age resulted in the lowest hospital separation rates for the three leading external causes of injury.

MV Traffic

Hospital separation rates were higher in males than in females in all age categories.

Falls

Hospital separation rates were higher in males than in females for persons < 65 years of age, but higher in females over that age. The rates were almost twice as high in females ≥ 65 years of age than in males in the same age category. Falls in females ≥65 years of age resulted in the highest hospital separation rates for all external causes of injury.

Figure 9.4

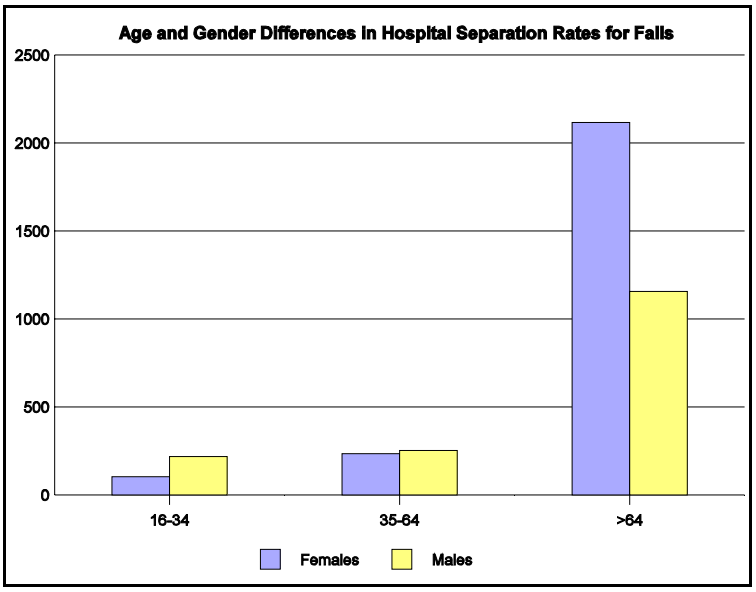


Figure 9.5

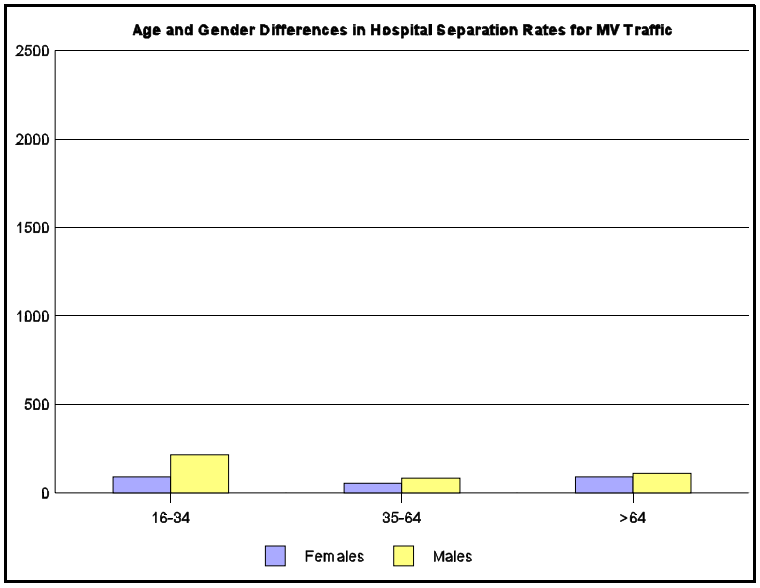


Figure 9.6

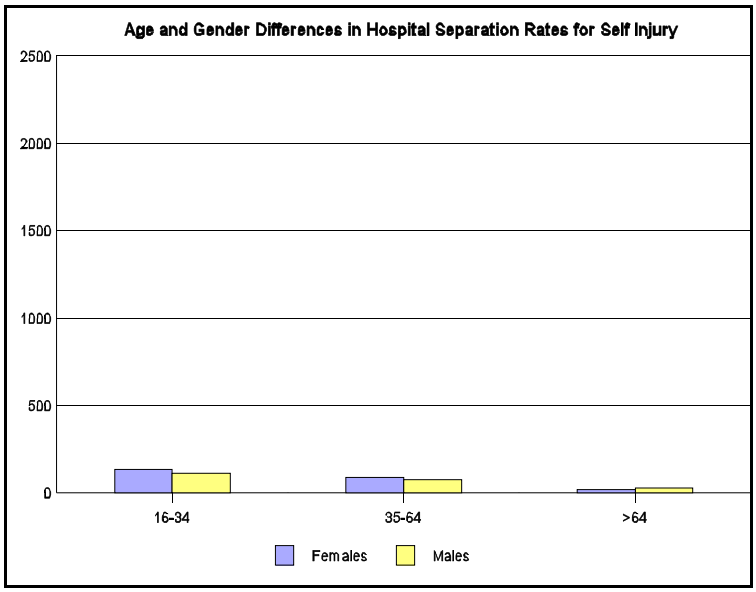


Table 9.6 Average Annual Age-Specific Hospital Separation Rates/100,000 and Number of Hospital Separations from Unintentional Falls by Gender for Persons ≥16 Years of Age in Nova Scotia 1990-1999

External Cause of Injury	Males						Females					
	16-34	Rate	35-64	Rate	≥65	Rate	16-34	Rate	35-64	Rate	≥65	Rate
Fall on or from stairs or steps	149	15.3	384	26.9	421	107.4	155	15.5	516	35	938	169
Fall on or from ladders or scaffolding	141	14.5	462	32.4	126	32.1	20	2	74	5	40	7.2
Fall from or out of building or other structure	146	15	173	12.1	28	7.1	17	1.7	9	0.6	8	1.4
Fall into hole or other opening in surface	52	5.4	51	3.6	6	1.5	8	0.8	11	0.7	14	2.5
Other fall from one level to another	228	23.5	432	30.3	576	146.9	83	8.3	289	19.6	1248	224.8
Fall on same level from slipping, tripping or stumbling	545	56.1	1210	84.8	1793	457.4	426	42.7	1692	115	5298	954.5
Fall on same level from collision, pushing, or shoving, by or with another person	246	25.3	73	5.1	17	4.3	62	6.2	34	2.3	49	8.8
Fracture, cause unspecified	268	27.6	144	10.1	96	24.5	71	7.1	89	6	263	47.4
Other & unspecified fall	339	34.9	677	47.4	1468	374.5	193	19.3	748	50.7	3884	699.7
Total	2114	218	3606	253	4531	1156	1035	104	3462	235	11742	2115

*** Cell contents <5**

HIGHLIGHTS

Leading External Causes of Unintentional Falls (Rate/100,000)

	Males	Females
16-34 years	Fall on same level (56.1)	Fall on same level (42.7)
35-64	Fall on same level (84.8)	Fall on same level (114.7)
≥65	Fall on same level (457.4)	Fall on same level (954.5)

Table 9.7 Average Annual Age-Specific Hospital Separation Rates/100,000 and Number of Hospital Separations from Motor Vehicle Traffic Collisions by Gender for Persons ≥ 16 Years of Age in Nova Scotia 1992-1999

External Cause of Injury	Males						Females					
	16-34	Rate	35-64	Rate	≥65	Rate	16-34	Rate	35-64	Rate	≥65	Rate
Involving collision with train	*	-	*	-	0	-	*	-	*	-	*	-
Involving re-entrant collision with another MV	*	-	*	-	0	-	5	0.5	6	0.4	*	-
Involving collision with MV	371	39.2	298	20.9	107	27.3	243	24.3	266	18	167	30.1
Involving collision with other vehicle	78	8	40	2.8	23	5.9	38	3.8	47	3.2	31	5.6
Involving collision with pedestrian	109	11.2	101	7.1	63	16.1	59	5.9	83	5.6	75	13.5
Involving collision on the highway	144	14.8	81	5.7	19	4.8	53	5.3	47	3.2	24	4.3
Due to loss of control, without collision on the highway	886	91.2	429	30.1	135	34.4	322	32.3	212	14.4	109	19.6
Non-collision while boarding or alighting	10	1	17	1.2	13	3.3	*	-	11	0.7	20	3.6
Other non-collision	104	10.7	60	4.2	24	6.1	20	2	19	1.3	11	2
Unspecified	378	38.9	187	13.1	52	13.3	168	16.8	113	7.7	54	9.7
Total	2086	215	1218	85.3	436	111.2	911	91.3	805	54.6	492	88.6

*Cell contents <5

HIGHLIGHTS

Leading External Causes of Hospital Separations from Motor Vehicle Traffic Collisions (Rate/100,000)

	Males	Females
16-34 years	Loss of control without collision (91.2)	Loss of control without collision (32.3)
35-64	Loss of control without collision (30.1)	Collision with MV (18.0)
≥ 65	Loss of control without collision (34.4)	Collision with MV (30.1)

Table 9.8 Average Annual Age-Specific Hospital Separation Rates/100,000 and Number of Hospital Separations from Self Injury by Gender for Persons ≥ 16 Years of Age in Nova Scotia 1992-1999

External Cause of Injury	Males						Females					
	16-34	Rate	35-64	Rate	≥65	Rate	16-34	Rate	35-64	Rate	≥65	Rate
Self inflicted poisoning by solid or liquid substances	800	82.3	847	59.3	67	17.1	1170	117	1156	78.4	89	16
Self inflicted poisoning by gases in domestic use	*	-	*	-	0	-	0	-	0	-	0	-
Self inflicted poisoning by other gases & vapours	*	-	18	1.3	5	1.3	*	-	*	-	0	-
Self inflicted injury by hanging, strangulation & suffocation	37	3.8	24	1.7	*	-	10	1	6	0.4	*	-
Self inflicted by submersion	*	-	7	0.5	*	-	*	-	*	-	0	-
Self inflicted by firearms & explosives	26	2.7	25	1.8	*	-	0	-	*	-	*	-
Self inflicted injury by cutting & piercing instrument	168	17.3	120	8.4	14	3.6	118	11.8	88	6	*	-
Self inflicted by jumping from high place	15	1.5	9	0.6	*	-	*	-	6	0.4	0	-
Self inflicted by other & unspecified means	42	4.3	25	1.8	8	2	17	1.7	21	1.4	6	1.1
Total	1096	113	1076	75.4	103	26.3	1323	133	1283	87	102	18.4

*Cell contents <5

HIGHLIGHTS

Leading External Causes of Hospital Separations from Self Injury (Rate/100,000)

	Males	Females
16-34 years	Poisoning (82.3)	Poisoning (117.2)
35-64	Poisoning (59.3)	Poisoning (78.4)
≥ 65	Poisoning (17.1)	Poisoning (16.0)

PLACE OF OCCURRENCE

PLACE OF OCCURRENCE

The place of occurrence (E-849) was reported in 40,888 hospital separation records. The place was not reported for the mortality data. The place of occurrence code is only used for certain external causes of injury (E-850 to E-869 and E-880 to E-928) and therefore, the results should be interpreted with caution. For example, the place of occurrence is not coded for motor vehicle traffic collisions. It may also be that the place is reported more frequently and consistently on the health records for some injuries or some places than for others. Fishing (as an occupation) related injuries could not be identified.

Place of Residence

Home

The home was most often recorded as the place of occurrence for males and females in all age categories (238.6/100,000 overall for males and 341.4 overall for females). The rates of injury that were reported to have occurred in the home were higher in males than in females under the age of 65, but higher in females over that age. Falls accounted for 75% of the injuries reported in the home. Of note, a foreign body was responsible for 3.3% of the hospital separations where it was reported that the injury occurred in the home. The category of foreign body included E-914 (foreign body accidentally entering eye and adnexa) and E-915 (foreign body accidentally entering other orifice) and *excludes* choking. The most common injuries reported in the home included fractures of the lower limb, upper limb, spine, open wounds and other.

Residential Institution

A residential institution was the second most frequently recorded place of occurrence for females (95.5/100,000). The rates of injury that were reported to have occurred in a residential institution were higher in males than in females under the age of 35, but higher in females over that age. Falls accounted for close to 90% of the injuries reported in a residential institution. Of note, suffocation was reported as the external cause for 2% of the hospital separations where it was reported that the injury occurred in a residential institution. The category of suffocation included E-911 (inhalation and ingestion of food causing obstruction of respiratory tract or suffocation), E-912 (inhalation of other object causing obstruction of respiratory tract or suffocation) and E-913 (accidental mechanical suffocation). The most common injuries reported in a residential institution included fractures of the lower limb, upper limb and spine.

Work Related

Farm

The rates of injury that were reported to have occurred on a farm were higher in males than in females for all age categories. Falls accounted for close to 35% of the injuries reported on a farm. Natural and environmental causes accounted for 12.3% of injuries.

This included such incidents as excessive heat or cold, exposure and poisoning by venomous animals or plants (E-900 to E-909). The most common injuries reported on a farm included fractures of the lower limb, spine and upper limb.

Industrial Place & Premises
Overall, the highest rates of injury that were reported to have occurred in a place of work were in an industrial setting. The category included such places as: building under construction, factory, dockyard, industrial plant, shop, loading platform and warehouse. These premises ranked third as the most frequently recorded place of occurrence for males (71.2/100,000) when all other places were considered. The rates of injury that were reported to have occurred in an industrial setting were higher in males than in females for all age categories. Falls accounted for 27.8% of the injuries reported in an industrial setting. Of note, fire and flame (E890-899) and unintentional poisoning (E850.1, E854.1 and E860-869) were each responsible for 1.1% of the hospital separations where it was reported that the injury occurred in an industrial place or premise. The most common injuries reported in this setting included open wounds and fractures of the upper limb, lower limb, and dislocations.

Mine/Quarry
There were no reported cases of females being injured in a mine or quarry (included gravel or sand pits). The highest rates of injury in this setting were in males 35-64 years of age (2.0/100,000). The most common injuries reported in a mine or quarry were dislocations.

Public Place
Place for Recreation/Sports
Overall, a place for recreation or sports was the second most frequently recorded place of occurrence for males (72.9/100,000). The category included such places as: baseball field, skating rink, golf course, vacation resort and public swimming pool. The rates of injury that were reported to have occurred in a sports or recreational setting were higher in males than in females for all age categories, although the differences diminished with age. Falls accounted for 35.8% of the injuries reported in a sports or recreational setting. Of note, submersion (E830, E832, E910) was responsible for 0.5% of the hospital separations where it was reported that the injury occurred in a place for recreation/sports. The most common injuries reported in a sports or recreational setting included fractures of the lower limb, upper limb, skull and dislocations.

Street or Highway
The rates of injury that were reported to have occurred on a street or highway were higher in males than in females for those under the age of 65, but higher in females over that age. Falls accounted for 67.7% of the injuries reported to have occurred on a street or highway. Motor vehicle traffic collisions accounted for 15.9% of the injuries. However, these findings related to the external cause of injury may reflect coding

procedures rather than the true frequency of a particular external cause for this place of occurrence. The most common injuries reported in this setting included fractures of the lower limb, upper limb, skull and spine.

Public Building

A public building was the third most frequently recorded place of occurrence for females overall (26.2/100,000). The rates of injury that were reported to have occurred in a public building were higher in males than in females under the age of 65, but higher in females over that age. Falls accounted for more than 70% of the injuries reported to have occurred in a public building. Assaults accounted for 2.2% of the hospital separations related to injuries incurred in a public building. The most common injuries reported in this setting included fractures of the lower limb, upper limb, open wounds and fractures of the skull and spine.

Table 10.1 Average Annual Hospital Separation Rates/100,000 and Number of Hospital Separations by Place of Occurrence and Gender for Persons ≥16 Years of Age in Nova Scotia 1992-1999

Place	Male	Rate	Female	Rate
Home	6660	238.6	10338	341.4
Farm	196	7	40	1.3
Mine & quarry	29	1	0	-
Industrial place & premises	1988	71.2	176	5.8
Place for recreation & sport	2035	72.9	614	20.3
Street & highway	355	12.7	373	12.3
Public building	620	22.2	792	26.2
Residential institution	1449	51.9	2893	95.5
Other, specified	1182	42.3	504	16.6
Other, unspecified	6498	232.8	4146	136.9
Total	21012	752.8	19876	656.4

	Leading place of occurrence
	2nd leading place of occurrence
	3rd leading place of occurrence

HIGHLIGHTS

Males (Rate/100,000)
Home (238.6)
Place for recreation & sport (72.9)
Industrial place & premises (71.2)

Females (Rate/100,000)
Home (341.4)
Residential institution (95.5)
Public building (26.2)

External Causes of Injury for Place of Occurrence

Place of Residence

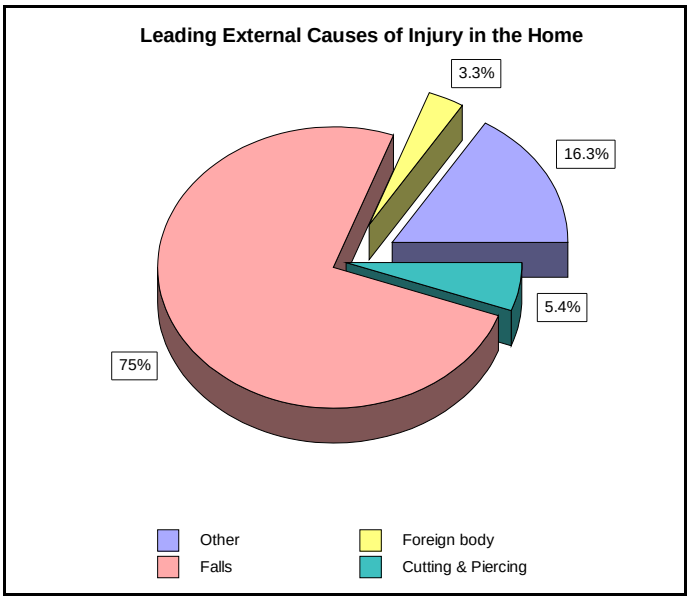


Figure 10.1

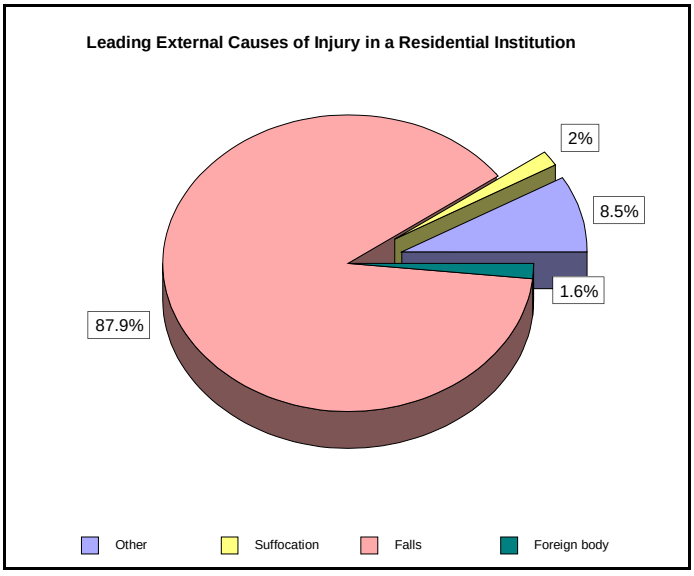
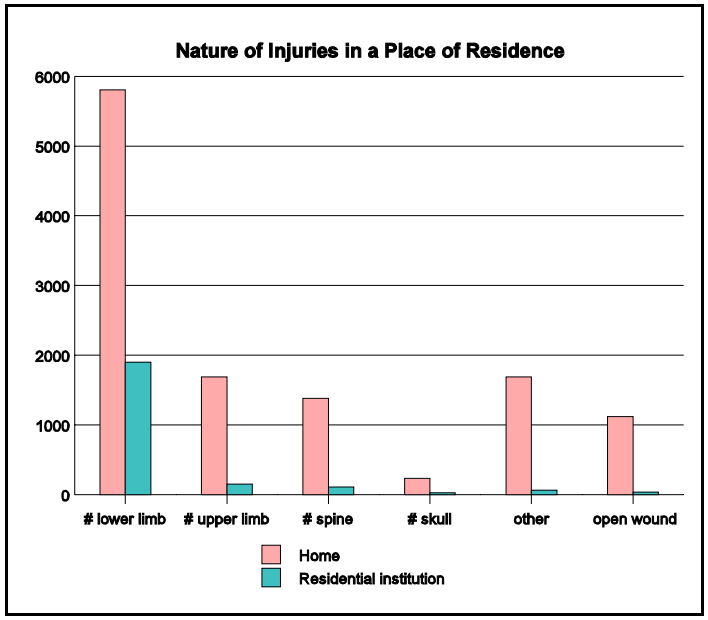


Figure 10.2

Table 10.2 Average Annual Age-Specific Hospital Separation Rates/100,000 and Number of Hospital Separations for Injury in a Place of Residence by Gender for Persons ≥ 16 Years of Age in Nova Scotia 1992-1999

Age Group	Home				Residential Institution			
	Male	Rate	Female	Rate	Male	Rate	Female	Rate
16-34	1170	120.4	707	70.8	86	8.9	77	7.7
35-64	2499	175.1	2230	151.2	237	16.6	275	18.6
≥ 65	2991	762.9	7401	1333.3	1126	287.2	2541	457.8
Total ≥ 16	6660	238.6	10338	341.4	1449	51.9	2893	95.5

Figure 10.3



HIGHLIGHTS

Home

The home was most often recorded as the place of occurrence. Rates of injury that were reported to have occurred in the home were higher in males than females under the age of 65, but higher in females over that age. The most common injuries reported in the home were fractures of the lower limb.

Residential Institution

The rates of injury that were reported to have occurred in a residential institution were higher in males than in females under the age of 35, but higher in females over that age. The most common injuries reported in residential institutions were fractures of the lower limb.

Work Related

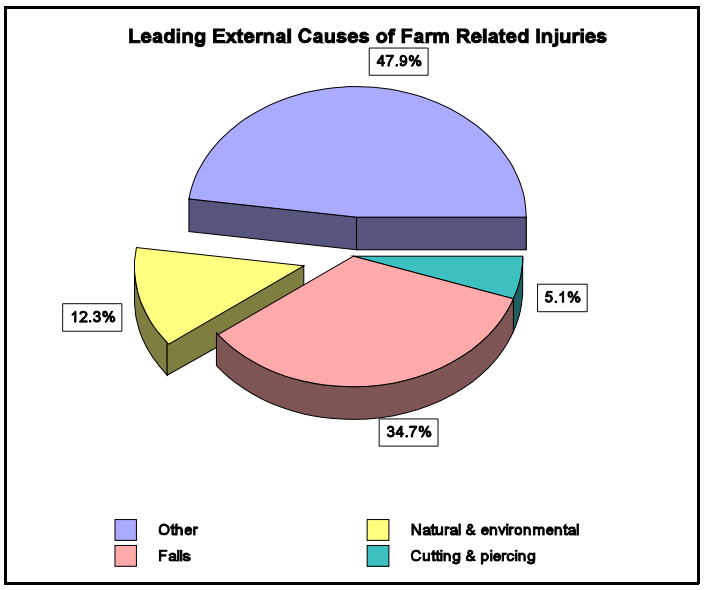


Figure 10.4

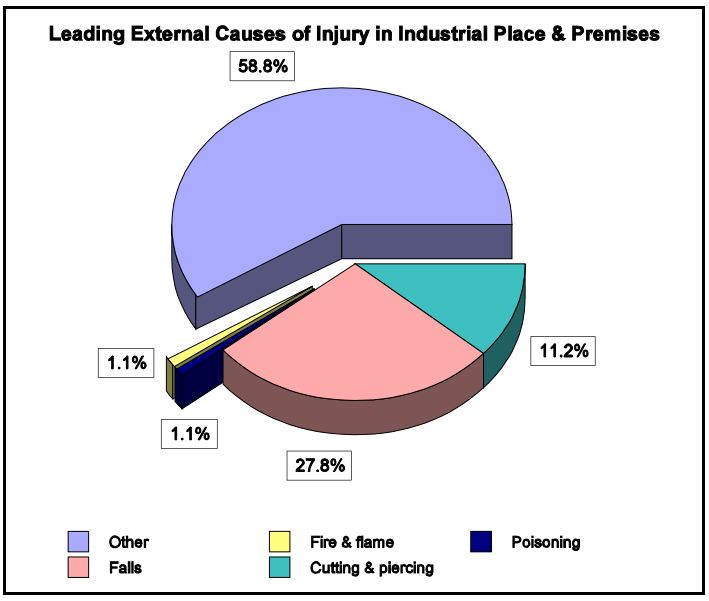
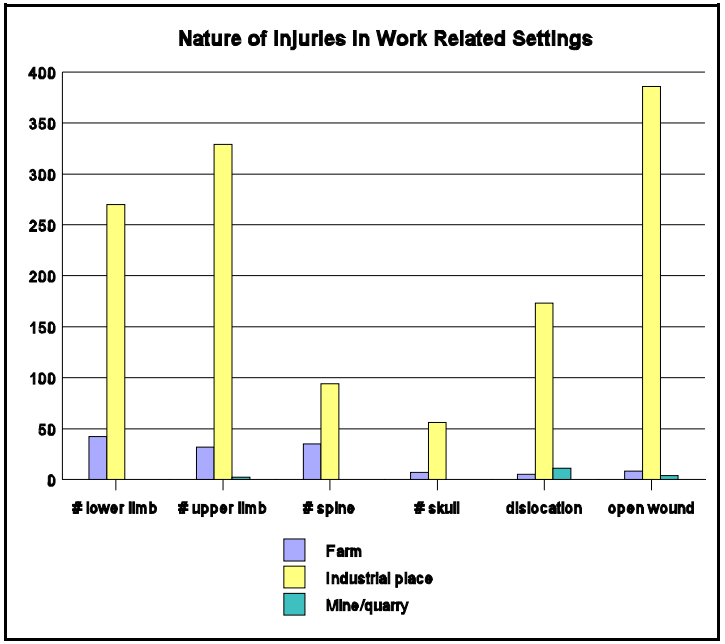


Figure 10.5

Table 10.3 Average Annual Age-Specific Hospital Separation Rates/100,000 and Number of Hospital Separations for Injury in a Work Related Setting by Gender for Persons ≥ 16 Years of Age in Nova Scotia 1992-1999

Age Group	Farm				Industrial Place & Premises				Mine/quarry			
	Male	Rate	Female	Rate	Male	Rate	Female	Rate	Male	Rate	Female	Rate
16-34	45	4.6	9	0.9	833	85.7	69	6.9	*	-	0	-
35-64	104	7.3	22	1.5	1137	79.6	101	6.8	28	2	0	-
≥ 65	27	6.9	9	1.6	18	4.6	6	1.1	0	-	0	-
Total ≥ 16	196	7	40	1.3	1988	71.2	176	5.8	29	1	0	-

Figure 10.6



HIGHLIGHTS

Farm

The rates of injury that were reported to have occurred on a farm were at least four times higher in males than in females for all age categories. The highest rates for males were in those 35-64 years of age (7.3) and in females 65 years of age or older (1.6). The most common injuries reported to have occurred on a farm were fractures of the lower limb.

Industrial Place & Premises

Overall, the highest rates of injury that were reported to have occurred in a place of work were in an industrial place or premises (71.2). The rates of injury reported in an industrial place or premises were at least ten times in males than in females for those under the age of 65 and four times higher in males than in females over that age. The most common injuries reported in an industrial place or premises open wounds.

Mine/Quarry

There were no reported cases of females being injured in a mine or quarry. The lowest overall rates of injury were reported to have occurred in this work environment (1.0). The highest rates of injury in this setting were in males 35-64 years of age. The most common injuries reported in a mine or quarry were dislocations.

Public Place

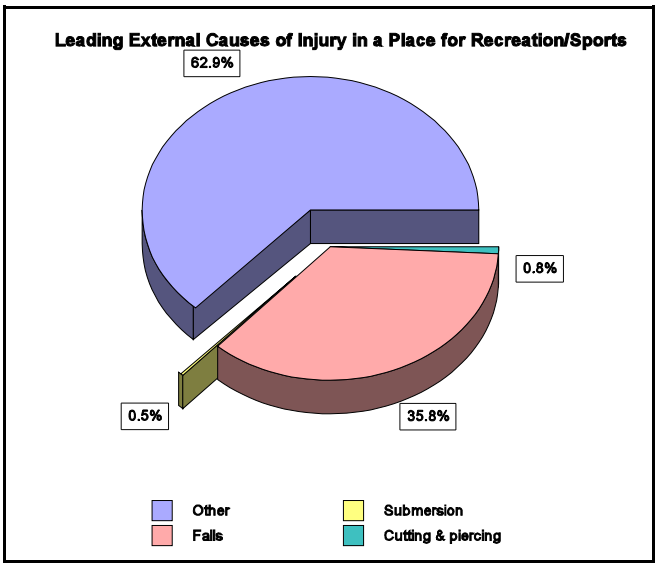


Figure 10.7

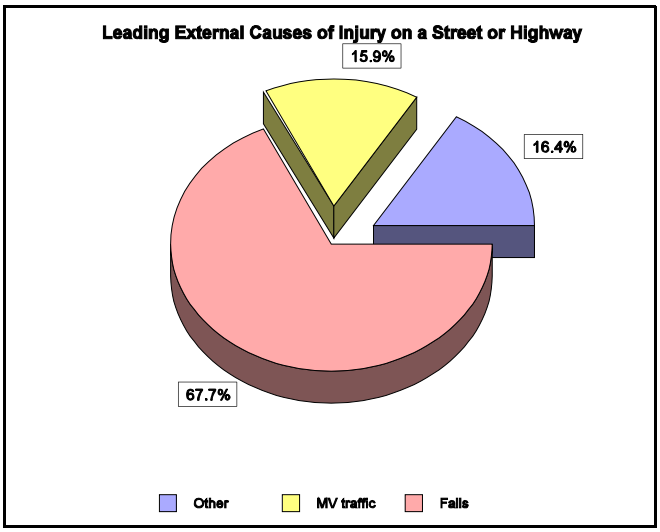


Figure 10.8

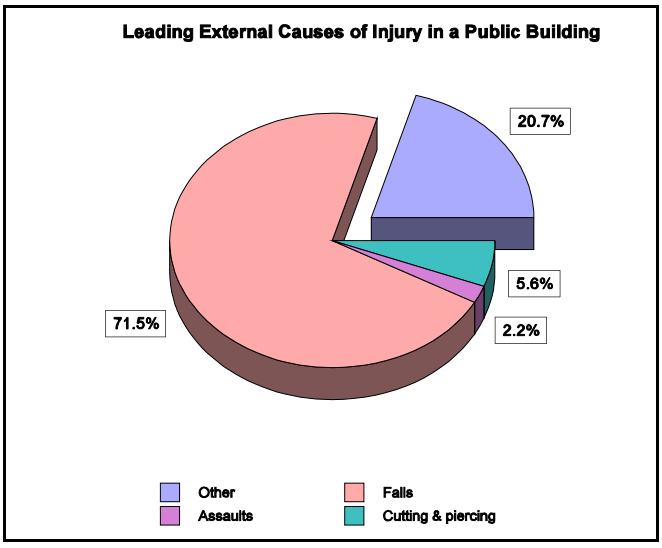
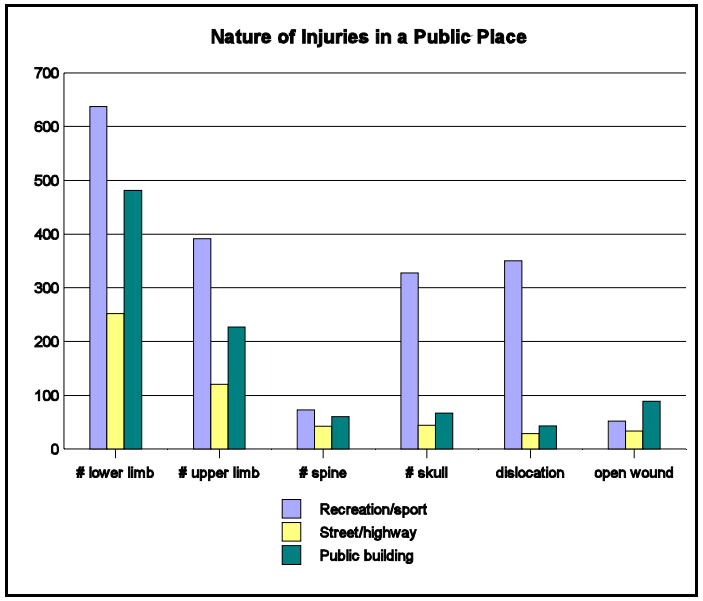


Figure 10.9

Table 10.4 Average Annual Age-Specific Hospital Separation Rates/100,000 and Number of Hospital Separations for Injury in a Public Place by Gender for Persons ≥ 16 Years of Age in Nova Scotia 1992-1999

Age Group	Place for Recreation or Sport				Street or Highway				In a Public Building			
	Male	Rate	Female	Rate	Male	Rate	Female	Rate	Male	Rate	Female	Rate
16-34	1444	148.6	341	34.2	131	13.5	57	5.7	268	27.6	124	12.4
35-64	541	37.9	209	14.2	150	10.5	147	10	214	15	215	14.6
≥ 65	50	12.8	64	11.5	74	18.9	169	30.4	138	35.2	453	81.6
Total ≥ 16	2035	72.9	614	20.3	355	12.7	373	12.3	620	22.2	792	26.2

Figure 10.10



HIGHLIGHTS

Place for Recreation/Sports

Overall, the highest rates of injury for males that were reported to have occurred in a public place were in a place for recreation/sports (72.9). The rates of injury that were reported to have occurred in a place for recreation/sports were higher in males than in females for all age categories. The most common injuries reported in this setting were fractures of the lower limb.

Street or Highway

The rates of injury that were reported to have occurred on the street or highway were higher in males than in females under the age of 65, but higher in females over that age. The most common injuries reported in this setting were fractures of the lower limb.

In a Public Building

Overall, the highest rates of injury for females that were reported to have occurred in a public place were in a public building (26.2). The rates of injury that were reported to have occurred in a public building were higher in males than in females under the age of 65, but higher in females over that age. The most common injuries reported in this setting were fractures of the lower limb.

CONCLUSIONS

CONCLUSIONS

This report has attempted to describe the significant public health problem that injury represents to Nova Scotians. Injury is the commonest cause of death in our society for those under the age of 40 and is the largest contributor to potential life years lost of all major contemporary western disease entities.[1] While other disease processes such as cancer and cardiovascular disease have a higher overall annual number of deaths, injury tends to strike the young and healthy, leading to an enormous loss of potential life at a time that is particularly tragic to individuals, families and communities. This, in turn, leads to tremendous economic loss, real and potential, to society. Measuring the overall magnitude of injury as a major public health problem is crucial to the development of a rational and evidence-based approach to resource allocation, for defining interventional strategies and for measuring and evaluating the outcome of those interventions.[2,3] It is the hope of the authors that the data presented herein will foster further research and program development to meet the needs of this pervasive disease process.

Despite these sobering statistics, injury remains relatively under-appreciated by health care providers, government and the general public.[4-5] This report and others like it across the country[6-8], attempt to change that perspective. Injuries are a major public health issue and one that can be addressed like any other disease process that can be studied, treated, and most importantly, prevented.

If, in some smaller community, several young individuals would succumb over a short period of time, to meningitis or E. coli, there would be an outpouring of money, resources and education to prevent such a re-occurrence and to prevent potential spread of such a disease. Yet, if that same community would suffer the tragic loss of several young people from a motor vehicle collision on a Saturday night, the same mobilization of resources, personnel and education with regards to prevention would not occur, Why? The most significant impediment to the scientific and societal response to the burden of injury is the prevailing perception that injuries are the consequence of `accidents' and are seen to be out of one's control. Injury is most often associated with the term "accident" in the lay press and even in the health care literature. This misperception, perhaps, is the greatest challenge facing injury prevention and control advocates.

The science of injury prevention and control has demonstrated that injuries are both predictable and preventable, like most other disease processes studied in public health. "While the exact moment of any injury event may not be predictable, injuries generally result from combinations of adverse environmental conditions, equipment, behaviour, and personal risk factors, any or all of which can be changed."[9] (p. 9) Injury prevention and control encompasses primary, secondary and tertiary prevention measures. Injury producing events (e.g., motor vehicle collisions) can be analysed in terms of the countermeasures that can be implemented at the pre-event, event and post-event stages. Table 11.1 provides examples.

Table 11.1 Injury Prevention & Control

Time	Type of Prevention	Examples	Counter-Measures	Stakeholders
Pre-event	**Primary**: prevent injury producing event from occurring	→MV collisions	→reduce & enforce speed limits	→legislators, law enforcement
		→scalding from hot water	→reduce temperature on water heaters, educate parents	→manufacturers, homeowners
		→falls on stairs in public place	→proper stair design & lighting	→engineers, city planners, building owners
		→impaired driving of any motor vehicle	→enforce laws, public education campaigns	→legislators, law enforcement educators
Event	**Secondary**: minimize effects of injury once event has occurred	→spinal cord injury	→pre-hospital care	→EMS personnel
		→fall from bicycle	→bicycle helmet	→consumers, parents
		→MVC collision	→air bag/seat belts in car	→manufacturers
		→severe burns	→burn unit	→hospital & medical personnel
Post-event	**Tertiary**: prevent further damage or disability.	→functional impairment	→rehabilitation	→rehabilitation programs & personnel
		→community re-integration	→post-discharge community care	→community-based rehabilitation & support services
		→return to work	→vocational counselling & re-training	→WCB, insurance providers

Raina et al. have developed the `Injury Prevention and Evaluation Cycle' (IPEC), which is a useful tool to describe the process of identifying and reducing injuries as well as the data requirements to achieve each step in the cycle (Figure 11.1).[10] This report provides basic data on the epidemiology of injuries in persons 16 years or older in Nova Scotia--essential information to establish the burden of injury in the province. The report also identifies populations at risk. This is important in order to be able to determine priorities for the appropriate allocation of resources. The other steps in the cycle can be applied to specific injury prevention interventions. Data are a fundamental component of all stages in the cycle. Data must be considered in terms of their level of detail, quality and source.[10]

Once the burden of injury has been determined, communities and/or organizations can begin to establish priorities. Specific strategies can be developed that reflect not only the scientific evidence supporting what is effective, but also the resources available to implement and evaluate the intervention. It is not the intent of this report to describe the evidence supporting various injury prevention and control strategies (e.g., what are the best practices for falls prevention). Rather, the data are presented in order to help community members, health professionals, hospital and nursing home administrators, employers, researchers and other stakeholders to begin to identify priorities for action.

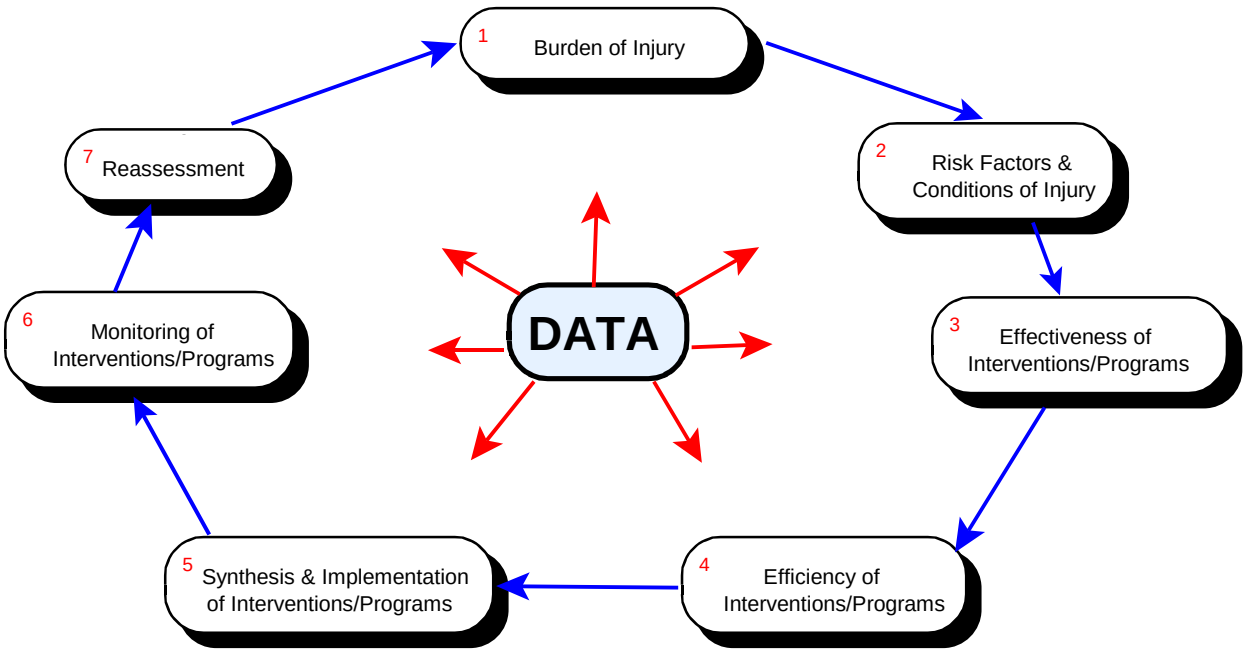


Figure 11.1 Injury Prevention & Evaluation Cycle

Bicycle helmets can prevent head injury. Seat belts can save lives. Alcohol and driving laws can prevent motor vehicle collisions. The public must be thoroughly educated in the potential for success through prevention initiatives in regard to injury just as much as they need to be aware of the excellent state of acute care medicine and prehospital systems that can take care of people once injury does occur. The potential for prevention, if utilized, can lead to enormous health care savings as has been demonstrated by SMARTRISK in their continuing national and provincial series on the economic burden of injury to Canadians.[9] The authors point out that "there is a stark contrast between the cost of preventing injuries and the cost of treating injuries". As an example, they suggest that a 20% reduction in falls in the elderly, using an evidence-based prevention program, will realize a savings in direct health care costs of literally tens of millions of dollars. At the time of writing this report, a study on the economic burden of unintentional injury in Atlantic Canada has been initiated by SMARTRISK in collaboration with the Hygeia Group and the Atlantic Network for Injury Prevention, with sponsorship from the Royal SunAlliance Insurance Company of Canada. The study will provide crucial economic data for provincial governments.

Areas of Opportunity in Injury Prevention

Falls are the leading cause of injury admissions to Nova Scotia's acute care hospitals and account for 43% of all injury hospitalizations and 18% of all injury-related deaths. Nationally, among persons over 65 years of age, falls account for 85% of the injuries requiring hospitalization and this trend is clearly reflected in the Nova Scotia data.[11] This unfortunate reality imposes huge economic costs to society as most of these falls

are preventable with measures that have been shown to be effective.[12] Ongoing research in Nova Scotia and elsewhere will further delineate effective fall prevention strategies in the elderly in order to alleviate the burden that these injuries place on the health care system and on individuals and families.

Next to falls, motor vehicle collisions (MVCs) and suicide are the commonest causes of injury requiring hospitalization amongst those 16 years or older. Suicide and MVCs are also the most common causes of injury-related deaths in Nova Scotia, with falls being the third leading cause. Despite gradually declining rates over the last decade, MVCs remain a significant cause of death and injury in Nova Scotia and Canada and an enormous economic burden on the health care system. Rates of death for MVCs have declined over time due to many preventative interventions including seat belts with legislation, air bags, improved roads, alcohol-driving legislation and enforcement and many others. As well, our system of care for acutely injured patients from MVCs has significantly improved over the last decade with comprehensive ground ambulance, air medical services and regionalization of advanced trauma care, which has been shown to decrease overall mortality from MVC-related injury when prevention fails.[1]

Suicide and self injury in Nova Scotia remains a very serious problem and this report identifies those populations at significant risk, and thus those groups where prevention programs would have the greatest potential effect. Mortality rates in Nova Scotian males were five times higher (or more) than females in all age categories. Females had the highest rate of hospitalization for injuries related to self harm.

In summary, the triad of self injury, motor vehicle collisions and falls contribute the greatest overall burden of injury to the health care system in Nova Scotia. These findings are consistent with national data, patterns and priorities identified at a federal level, but also reflect the immediate nature of these issues from a provincial viewpoint.[13] Thus, public health policy bodies, health care professionals, community members and researchers can use these data to better target groups amenable to injury prevention initiatives and allocate resources most effectively. A reduction in the burden of injury requires a coordinated, integrated and multi-sectoral approach. Several provinces in Canada have achieved this through the establishment of provincial Injury Prevention and Control Research Centres. The centres are responsible for the collection, analysis and dissemination of data. They serve as a provincial resource to facilitate the identification, dissemination and uptake of evidence-based initiatives. Furthermore, they have the task of developing and implementing a coordinated, strategic research plan and fostering inter-sectoral collaboration throughout the province.[14,15]

Injury is a recognizable, measurable, and common disease entity that contributes significantly to the compromise of individual and public health. It is a disease process that can be considerably ameliorated with the utilization of focused, evidence-based injury prevention and control initiatives. Injury prevention is one of the health care initiatives that can be truly community-based in many ways and driven by all citizens in regard to prioritization and implementation.

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RESOURCES

INJURY PREVENTION & CONTROL RESOURCES

The intent of this section is to give some examples of existing resources in the province. The list is not exhaustive, nor is it intended to be. More detailed information has been provided about the Atlantic Network for Injury Prevention as it has a complete inventory of resources in Atlantic Canada.

National Organizations

SMARTRISK
790 Bay Street, Suite 401
Toronto, Ontario
M5G 1N8

Safe Communities Foundation
64 Charles Street East, Suite 201
Toronto, Ontario
M4Y 1T1

Safe Kids Canada
2105-180 Dundas Street West
Toronto, Ontario
M5G 1Z8

Regional

Atlantic Network for Injury Prevention (see page 96)

Provincial

Examples of organizations have been included from a broad range of interests. Several of the organizations work across the province, however, their main office is located in Halifax.

Child & Youth Safety
Nova Scotia Child Safety & Injury Prevention Program
IWK Health Centre
5850/5980 University Avenue
Box 3070
Halifax, N.S.
B3J 3G9

Brain Injury
Brain Injury Association of Nova Scotia
Box 8804
Halifax, N.S.
B3K 5M4

Emergency Health Services
Nova Scotia Trauma Program
Room 002, 13 Floor, Victoria Building
1278 Tower Road
Halifax, N.S.
B3H 2Y9

Falls Prevention
Falls Prevention Initiative, Community Links
200A Albro Lake Road
Dartmouth, N.S.
B3A 3Z2

Farm Safety
N.S. Farm Health & Safety Committee
Box 550
Truro, N.S.
B2N 5E3

General
Nova Scotia Department of Health
Public Health & Health Promotion
P.O. Box 488
1690 Hollis Street
Halifax, N.S.
B3J 2R8

Nova Scotia Safety Council
2786 Agricola Street
Halifax, N.S.
B3K 4E1

Road & Motor Vehicle Safety
Department of Transportation
Highway Safety & Field Programs
1505 Barrington Street
9 North
Halifax, N.S.
B3J 3K5

Mother's Against Drunk Driving (MADD)
P.O. Box 21124
Halifax, N.S.
B3R 2K9

Seniors
Senior Citizens Secretariat
P.O. Box 2065
Halifax, N.S.
B3J 2Z1

Suicide Prevention
Help Line
5670 Spring Garden Road, Suite 601
Halifax, N.S.
B3J 1H6

Water Safety
Canadian Red Cross
1940 Gottingen Street
Halifax, N.S.
B3J 3Y2

Canadian Coast Guard - Maritimes Region
Office of Boating Safety
P.O. Box 1000
Dartmouth, N.S.
B2Y 3Z8

The Atlantic Network for Injury Prevention (ANIP)

What is ANIP?

The Atlantic Network on Injury Prevention is a network of approximately 80 individuals/organizations working for injury prevention or control.

The *purpose* of ANIP is to provide opportunities to facilitate coordination in injury prevention activities within Atlantic Canada in the following areas:

Policy Development & Advocacy
Surveillance
Program Development, Evaluation & Resources
Research
Awareness & Education

The ultimate *goal* is to reduce the burden of injury in Atlantic Canada.

History:
ANIP was created at a meeting hosted by the IWKGrace Health Centre in Halifax, in December 2000. In attendance were approximately 60 people involved in some aspect of injury prevention and control, from the pre-event to reintegration into the community, including prevention, pre-hospital care and the treatment and rehabilitation of injuries. The initial meeting was made possible through the support of SMARTRISK, Safe Kids Canada and the Safe Communities Foundation.

What has the network done to date?

Provincial meetings: PEI and NB held provincial meetings to investigate setting up provincial networks. NB has had a strategic planning meeting Nov. 29, 2001 and PEI is planning one for March 6, 2002. Nfld/Lab has expanded its provincial coalition and NS has begun discussing how best to proceed.

Conference: The Atlantic Conference on Injury Prevention took place in Hfx. Oct. 14 – 16, 2001

Economic Burden Report: The development of An *Economic Burden of Unintentional Injury in Atlantic Canada* is underway.

Inventories:

Programs, researchers and stakeholders – available now
Routinely collected injury data sources – in process
Calendar of events – in process
Resource guide for policy/legislation – no action to date

Communications Strategy: for each province and ANIP – no global action to date but specific issue areas have started to connect, e.g. child occupant restraint programs

How does it communicate?

ANIP listserv: Members of ANIP can use the listserv to update others on activities within their province, share information potentially of use to others in the region and pose questions to gain knowledge useful to your work, etc. To join the listserv email requests@lists.smartrisk.ca, leave the subject line blank and in the message space type "subscribe atlantic". To join the NB or PEI listserv, substitute "newbrunswick" or "pei" for "atlantic".

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