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Analysis in Brief

Taking health information further

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National Trauma Registry 2005 Injury Hospitalizations Highlights Report

Introduction

The purpose of the *2005 National Trauma Registry Injury Hospitalizations Highlights Report* is to provide an overview of patients hospitalized due to trauma in all acute care facilities in Canada for the 2002–2004 fiscal years (April 1, 2002 to March 31, 2004). This report is intended to supplement the release of the electronic reporting application for the trauma registry.

The data source for this report is the National Trauma Registry Minimal Data Set (NTR MDS), which is managed by the Canadian Institute for Health Information (CIHI). NTR MDS data are a subset of the Hospital Morbidity Database (HMDb), which is also managed by CIHI. Data for this report are based on the fiscal year of discharge and reports are based on the patients' residence code where applicable in order to facilitate the development and implementation of appropriate injury prevention strategies.

Trauma or injury cases were included if their external cause of injury codes met the NTR definition of trauma; generally, these are injuries resulting from a transfer of energy applied clinically. Examples of cases that are *excluded* from this definition are poisonings by drugs or gases, adverse effects of drugs or medicine, and late effects of injury.

2002–2004 Highlights

In Canada, there were 194,133 and 194,771 acute care hospitalizations due to injury in 2002–2003 and 2003–2004, respectively. These hospitalizations accounted for 1,968,794 days in hospital in 2002–2003 and 1,918,860 days in hospital in 2003–2004. The national average (mean) hospital length of stay (LOS) was relatively consistent at 10 days. Males comprised 53% of all cases and the mean age of all hospitalized cases was consistent at 52 years for 2002–2003 and 2003–2004. In general, the mean LOS increased with age.

In 2002–2003 and 2003–2004, there were 6,905 and 6,857 injury cases that died in hospital,* representing 4% all injury hospitalizations in each year. These cases spent 146,410 and 131,463 days in hospital, representing 7% of all days in hospital due to injury each year. Of those who died, 82% in 2002–2003 and 83% in 2003–2004 were 65 years of age and over. The mean number of injuries per case for those who died in hospital was 8.28 and 7.85 injuries for 2002–2003 and 2003–2004, compared to 3.78 and 3.62 injuries for cases that survived. In general, the mean LOS for cases that died in hospital was more than double the mean LOS for those that survived.

Trend Analysis, 2001–2002 Through 2003–2004

Between 2001–2002 and 2003–2004, the number of injury hospitalizations increased slightly (194,133 to 197,241). The mean age varied only slightly at 51 years in 2001–2002 and 52 years in 2002–2003 and 2003–2004. The mean LOS differed slightly in the years 2001–2002, 2002–2003 and 2003–2004 (Table 1).

Table 1. Overview of Injury Hospitalizations by Fiscal Year

	Fiscal Year of Discharge Date		
	2001–2002	2002–2003	2003–2004
No. of Hospitalizations	197,241	194,133	194,771
Mean Age	51.42	51.92	52.37
No. of Patient Days	1,946,386	1,968,794	1,918,860
Mean Length Of Hospital Stay (days)	9.87	10.14	9.85
No. Injuries	783,683	764,821	734,867
Mean No. Injuries	3.97	3.94	3.77
No. Complications	54,112	53,243	42,855
No. Comorbidities	223,456	206,589	174,461

* In-hospital deaths do not include deaths occurring before admission to hospital, such as those occurring at the scene or upon immediate arrival at the hospital).

Provincial/Territorial Variation

In 2002–2003, the highest number of injury hospitalizations was reported in Ontario (34%, $n = 65,191$), followed by Quebec (21%, $n = 39,900$) and British Columbia (14%, $n = 27,813$), accounting for 68% of all injury hospitalizations in Canada. Mean age of injury hospitalizations also varied by province. Nova Scotia had the highest mean age (mean = 55 years) whereas Nunavut had the lowest (mean = 30 years).

Similarly in 2003–2004, the highest number of injury hospitalizations was seen in Ontario (32%, $n = 62,956$), followed by Quebec (21%, $n = 41,006$) and British Columbia (15%, $n = 29,170$), which when combined represent 68% of all injury hospitalizations in Canada for that year. Mean age of injury hospitalizations also varied by province. Once again, Nova Scotia had the highest mean age (mean = 55 years) whereas Nunavut had the lowest (mean = 30 years) in 2003–2004.

In both fiscal years reported (2002–2003 and 2003–2004), the mean LOS among the provinces varied substantially. Manitoba had the longest mean LOS (15 days) among all injury hospitalizations and the Northwest Territories had the shortest (4 days), however the mean LOS for all injury hospitalizations in Canada was 10 days.

Causes of Injury

Overall

In 2002–2003 and 2003–2004, the leading cause of injury hospitalizations in Canada was unintentionally falling, which represented 57% ($n = 110,120$ and $n = 111,413$) of all injury hospitalizations. The second most common cause of injury in both years was motor vehicle collisions (14%, $n = 26,690$ and 13%, $n = 25,952$). Motor vehicle traffic collisions accounted for 72% and 74% ($n = 19,244$ and $n = 19,106$) of all motor vehicle injury hospitalizations.

Being struck by objects or colliding with another person was the third leading specific cause of injury (4%, $n = 8,645$ and $n = 8,586$), followed by injury purposely inflicted by another person (assault) (4%, $n = 7,937$ and $n = 8,364$), respectively in 2002–2003 and 2003–2004.

By Age Group

In 2002–2003 and 2003–2004, persons under the age of 20 years accounted for 17% and 16% of all injury hospitalizations ($n = 32,138$ and $n = 31,366$), respectively. The most common causes of injury hospitalizations in this age group were unintentional falls (40%, $n = 12,953$ and 39%, $n = 12,203$) and motor vehicle collisions (18%, $n = 5,741$ and 18%, $n = 5,688$).

Persons between the ages of 20 and 34 years accounted for 14% (n = 27,609 and n = 27,421) of all injury hospitalizations in 2002–2003 and 2003–2004. The most common specific causes of injury hospitalizations in this age group were motor vehicle collisions (27%, n = 7,415 and 26%, n = 7,133) and unintentional falls (24%, n = 6,546 and n = 6,545).

In 2002–2003 and 2003–2004, homicide and injury purposefully inflicted (excluding poisoning) accounted for 12% (n = 3,448) and 13% (n = 3,640) of all injury hospitalizations in the 20 to 34 year age group. This age group represented the highest number of injury hospitalizations due to homicide and injury purposefully inflicted (excluding poisoning).

Persons between the ages of 35 and 64 years accounted for 30% (n = 57,302 and n = 57,847) of all injury hospitalizations in 2002–2003 and 2003–2004. The most common specified causes of injury hospitalizations in this age group were unintentional falls (45%, n = 25,814 and 46%, n = 26,745) and motor vehicle collisions (17%, n = 9,935 and n = 9,595).

Persons aged 65 years and over accounted for 40% (n = 77,084 and n = 78,137) of all injury hospitalizations in 2002–2003 and 2003–2004. This represented the largest proportion of all injury hospitalizations. Unintentional falls accounted for 84% (n = 64,807 and 65,920) of injury hospitalizations in this age group, for both years. Persons in this age group accounted for 59% of all unintentional fall hospitalizations in the fiscal years 2002–2004.

Unintentional Falls

In 2002–2003 and 2003–2004, more than one-half (57%, n = 110,120 and 111,413) of all injury hospitalizations were due to unintentional falls. These injuries accounted for 1,369,131 days in hospital in 2002–2003 and 1,329,968 days in hospital in 2003–2004. This represented 70% and 68% of all patient days in hospital due to injury, in 2002–2003 and 2003–2004, respectively. There were 5,304 and 5,327 in-hospital deaths among cases hospitalized due to an unintentional fall in 2002–2003 and 2003–2004, respectively, representing over three-quarters of all injury in-hospital deaths. Fall-related injury cases stayed in hospital for an average of 12.4 and 11.9 days, however cases that died due to unintentional falls stayed 21.7 and 20.0 days in hospital.

The most common specified cause of unintentional falls among all cases was slipping, tripping and stumbling (n = 32,777 and n = 32,876) representing 30% of all causes of unintentional falls in both 2002–2003 and 2003–2004. This was the most common type of fall for all age groups, with the exception of children and youth. Among cases under 20 years of age, the most common type of fall was a fall from one level to another (n = 4,831 and n = 4,608) representing 37% and 38% of all unintentional falls in this age group for 2002–2003 and 2003–2004, respectively.

Motor Vehicle Collisions

In 2002–2003 and 2003–2004, motor vehicle collisions accounted for 14% (n = 26,690) and 13% (n = 25,952) of all injury hospitalizations and were responsible for over 232,724 and 222,596 days in hospital (12% of all days in hospital due to injury in each year). There were 635 in-hospital deaths in 2002–2003 and 603 in-hospital deaths in 2003–2004 among those hospitalized due to motor vehicle collisions, representing 9% of all injury in-hospital deaths in each year.

In 2002–2003 and 2003–2004, 72% and 74% of all motor vehicle collision related hospitalizations were due to motor vehicle traffic collisions (n = 19,244 and n = 19,106). Of all motor vehicle traffic related collisions in 2002–2003 and 2003–2004, 3% died in hospital (n = 555 and n = 531), however of all motor vehicle non-traffic collisions in 2002–2003 and 2003–2004, 1% died in hospital (n = 80 and n = 72).

In 2002–2003 and 2003–2004, over one-half (54%, n = 14,475 and 55%, n = 14,276) of the injured persons hospitalized due to a motor vehicle collision were drivers. Of all motor vehicle traffic related hospitalizations in 2002–2003, 42% of injured persons were drivers (n = 8,141), 23% were passengers (n = 4,436), 14% were pedestrians (n = 2,653), and 4% (n = 687) were cyclists. Similarly, in 2003–2004, 42% of injured persons were drivers (n = 8,000), 22% were passengers (n = 4,277), 13% were pedestrians (n = 2,470), and 4% (n = 693) were cyclists.

Motorcycles accounted for a total of 2,627 hospitalizations due to motor vehicle collisions (traffic and non traffic) in 2002–2003 and 2,788 hospitalizations due to motor vehicle collisions (traffic and non traffic) in 2003–2004. Of those, 2,449 were drivers and 178 were passengers in 2002–2003 and 2,572 were drivers and 216 were passengers in 2003–2004.

Injury Purposely Inflicted by Another Person

In 2002–2003 and 2003–2004, there were 7,937 and 8,364 injury hospitalizations due to injury purposely inflicted by another person (assault), accounting for 4% of all injury hospitalizations each year, resulting in 39,746 and 43,068 patient days. This represented 2% of all days in hospital due to injury in 2002–2003 and 2003–2004. The mean LOS in hospital was 5 days in both years. Of these cases, 103 died while in hospital in 2002–2003 and 98 died while in hospital in 2003–2004, representing 1–1.5% of all injury in-hospital deaths.

Persons aged 20 to 34 years comprised the greatest proportion of all assault-related injury hospitalizations (43%, n = 3,448 and 44%, n = 3,640). Within this age group, there was a 5% increase in the number of cases of injury purposely inflicted by another person (assault) from 2002–2003 to 2003–2004.

Conclusion

Injuries have a major impact on the health and wellbeing of Canadians, representing a significant burden in terms of mortality, morbidity and economic cost. Injury is the leading cause of death in Canada among those under the age of 45 years and is a serious cause of disability.

Injuries, intentional and unintentional, are a large and neglected health problem in all regions of the world, accounting for 16% of the global burden of disease in 1998.¹ In Canada and the United States, injuries are the leading cause of death among those between the ages of 1 and 44 years, as they are in many other countries including Taiwan, Thailand, Latin America and China.^{2, 3, 4, 5} Trauma is increasingly recognized as a global public health concern. At the same time, injuries are also considered one of the most preventable of major health problems; it has been estimated that 90% of injuries are preventable.⁶

Trauma registries play an important role in decreasing morbidity and mortality by providing accurate and comprehensive information on injury. Trauma care can be improved through the accumulation and assessment of local, regional, provincial and national trauma statistics.⁷ The prime objectives of registries are to collate information collected from defined groups over time that may be used toward:

- The prevention or treatment of disease or injury;
- The provision of care;
- The monitoring of changing patterns of disease or treatments; and
- The evaluation and planning of services provided.

To this end, the National Trauma Registry has developed an on line electronic reporting application, to provide improved access to national hospitalized injury statistics. The use of this tool will enable a greater understanding of the problem of injury in Canada. If you would like access to the electronic reporting application please go to www.cihi.ca/ntr.

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