

Injuries in Ontario

The Issue

Injuries represent a significant health problem. In Canada, they are the leading cause of death among young people and a major cause of disability. In the US, unintentional injuries are the leading cause of death among young people aged 1 to 35 years, and the fourth leading cause of death overall (National Center for Health Statistics 2001). Injuries can be devastating to victims and their families, while also placing a heavy burden on the healthcare system.

Acute injuries are the single most common reason for visiting an emergency department (ED) in Ontario and are a common cause of hospitalization. Many of these are not only predictable, but also preventable.

Injury prevention organizations often have difficulty determining the number of people injured each year and the factors associated with increased risk. In an effort to better understand the problem, ICES examined some key questions.

1. How many Ontarians go to an ED for an injury; how many are admitted to hospital and how many are discharged from the ED?
2. What are the most common types of injuries?
3. Do injuries vary by age, gender, socioeconomic status or geography?

How the Study Was Done

Records of all ED visits and in-patient admissions to Ontario acute care hospitals were reviewed, for the period from April 1, 2002, to March 31, 2003, to identify all interactions related to injury. All patients seen in Ontario EDs for an injury, as well as those admitted to hospital due to an injury, were included in the study. Data sources included the National Ambulatory Care Reporting System and the hospital Discharge Abstract Database.

Key Findings

Injuries place a heavy burden on the health system. Every 30 seconds, an injury causes someone to visit an ED, and every 10 minutes, someone is admitted to hospital as a result of

EXHIBIT 1

Rate of injury-related emergency department visits, hospitalizations, and in-hospital deaths per 100,000 population, by common causes of injury, in Ontario, 2002/03

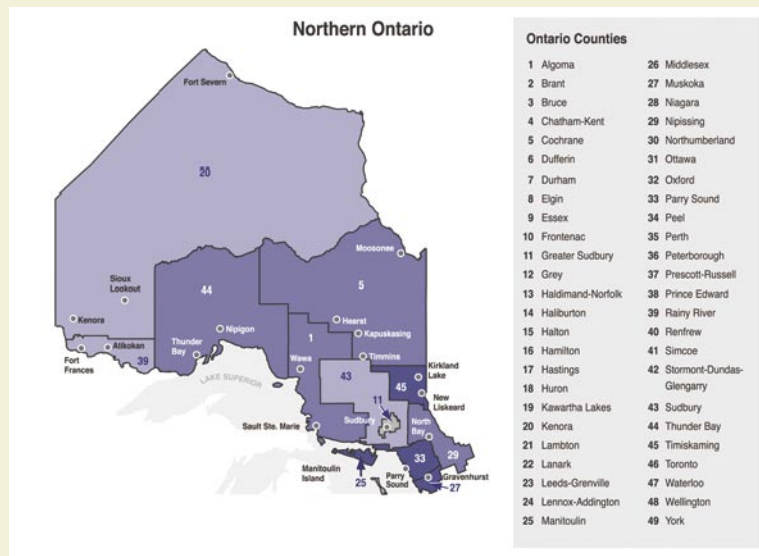
Common Causes of Injury	Rate of Injury-Related ED* Visits per 100,000 Population	Rate of Injury-Related Hospitalizations per 100,000 Population	Rate of Injury-Related In-Hospital Deaths per 100,000 Population	Ratio of ED Visits: Hospitalizations: In-Hospital Deaths
Fall	2,765	247.6	13.98	198:18:1
Struck by/against	1,821	29.7	0.32	5,691:93:1
Cut/pierce	980	18.9	0.24	4,083:79:1
Overexertion	890	13.6	0.22	4,045:62:1
Motor vehicle traffic	523	38.9	2.30	227:17:1
Natural/environmental	360	6.2	0.16	2,250:39:1
Poisoning	284	78.7	1.02	278:77:1
Other bicycle (non motor vehicle collision)	165	7.3	0.03	5,500:243:1
Other land transport	158	14.9	0.47	336:32:1
Hot object/scald	115	3.2	0.07	1,642:46:1
Machinery	104	3.5	0.07	1,486:50:1
Fire/flame	42	2.5	0.26	162:10:1
Other pedestrian (non motor vehicle collision)	16	1.6	0.14	114:11:1
Suffocation	13	2.1	0.08	163:26:1
Firearm	10	1.3	0.75	13:2:1
Drowning	5	0.6	0.25	20:2:1
Other or not specified	1,786	45.4	1.82	980:25:1

*ED = Emergency Department

Data sources: Canadian Institute for Health Information – National Ambulatory Care Reporting System and Discharge Abstract Database

EXHIBIT 2

Rate of injury-related emergency department visits per 100,000 population, by county, in Ontario 2002/03 (Part 1)



Data sources: Canadian Institute for Health Information – National Ambulatory Care Reporting System and Discharge Abstract Database

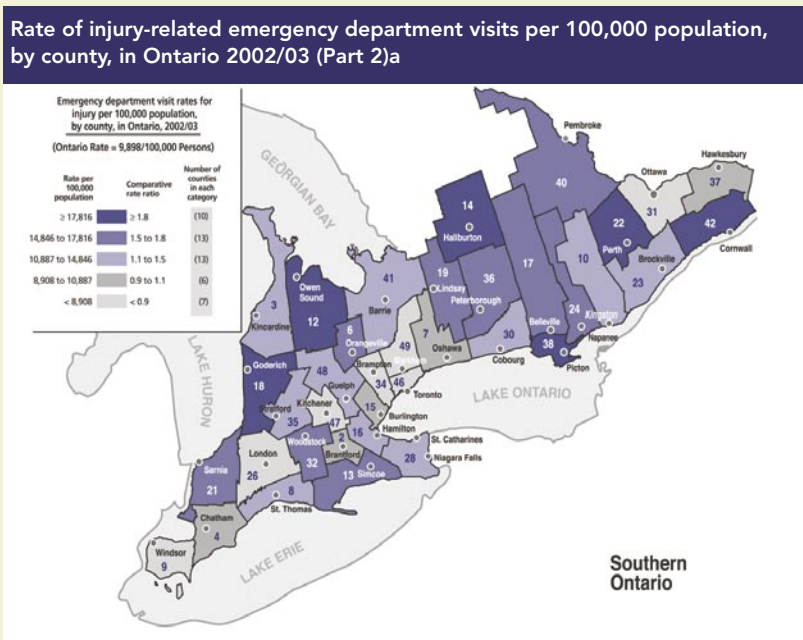
an injury. In 2002/03, 1.2 million patients were treated in Ontario EDs for injuries, resulting in an injury rate of nearly 1 in 10 people. Of those that visited an ED with an injury, 5% or 62,379 people required admission to hospital. About one in four ED visits is due to injuries; increasing to almost 1 in 2 ED visits among children aged 10–14 years. For all ages, about 1 in 17 hospitalizations result from injuries. Injury rates vary substantially by age, gender, socioeconomic status and geographic location. Younger (15–24 years) and older (65+ years) people have higher injury rates than other age groups (14,623 per 100,000 and 8,191 per 100,000 for youth and older people, respectively). Men have higher injury rates than women (injury rates 11,981 and 8,146 per 100,000 for men and women, respectively). Both children and young adults in the lowest income areas are 40% more likely to be injured than those in the highest income areas are. Rates for injury-related ED visits and hospitalizations are higher in rural and remote areas compared to urban and suburban areas. Falls are the most common cause of injury regardless of age, and result in more than one-quarter of all injury-related ED visits (333,667 ED visits in 2002/03). Other types of injuries (e.g., motor vehicle accidents, poisoning) are somewhat less common (63,133 and 34,288 ED visits for motor vehicle accidents and poisoning, respectively), but often have a higher percentage of hospitalization and in-hospital deaths.

Discussion

Significant barriers to implementing effective injury prevention strategies remain. The first is society’s continued willingness to accept injuries as random accidents, rather than events that are both predictable and preventable. Second is the complexity of implementing prevention strategies, which often require properly enforced legislation. The greatest potential for injury prevention appears to lie largely outside of the healthcare system. For example, bicycle helmets can prevent head injuries (Thompson et al. 1999), pool fencing can reduce drowning (Thompson and Rivara 1998) and graduated licensing can reduce motor vehicle related injuries (Hartling et al. 2004).

While a comprehensive population-based approach is required to address a public health issue of this magnitude, prevention programs and policies tailored to meet local needs should be implemented and evaluated. As Ontario moves forward with the establishment of local health integration networks, there may be opportunities to address local differences in injury patterns and severity. ICES’s findings indicate

EXHIBIT 3



that the risk of injury is not evenly spread through the population, as some ages, genders and socio-economic groups are at greater risk of injury. Prevention strategies designed to target specific at-risk groups could reduce injuries, and subsequently, healthcare costs.

References

Hartling, L., N. Wiebe, K. Russell, J. Petruk, C. Spinola and T.P. Klassen. 2004. "Graduated Driver Licensing for Reducing Motor Vehicle Crashes among Young Drivers." *The Cochrane Database of Systematic Reviews*. Issue 2. Art. No.: CD003300.pub2. DOI: 10.1002/14651858.CD003300.pub2.

National Center for Health Statistics (NCHS). 2001. Retrieved September 30, 2005. <www.cdc.gov/ncipc>.

Thompson, D.C. and F.P. Rivara. 1998. "Pool Fencing for Preventing Drowning in Children." *The Cochrane Database of Systematic Reviews*. Issue 1. Art. No.: CD001047. DOI: 10.1002/14651858.CD001047.

Thompson, D.C., F.P. Rivara and R. Thompson. 1999. "Helmets for Preventing Head and Facial Injuries in Bicyclists." *The Cochrane Database of Systematic Reviews* Issue 4. Art. No.: CD001855. DOI: 10.1002/14651858.CD001855.

About the Authors

Alison K. Macpherson, PhD, School of Kinesiology and Health Science, York University, and The Institute for Clinical Evaluative Sciences.

Geta Cernat, MD, The Institute for Clinical Evaluative Sciences.

Michael J. Schull, MD, MSc, The Institute for Clinical Evaluative Sciences; Division of Emergency Medicine, Department of Medicine, Sunnybrook and Women’s College Health Science Centre; and University of Toronto, Faculty of Medicine.