

Water-Related Injuries

Each year, more than 300 Ontarians are hospitalized with a water-related injury. Watercraft-related injuries account for two-fifths of these hospitalizations.

Results

In Ontario, there were a total of 321 water-related injury hospitalizations during the 2002/03 fiscal year. Approximately 40% of the injury hospitalizations were water transport incidents. Watercraft-related injuries without drowning or near drowning, such as a fall or being struck by an object while on a watercraft and damage to a watercraft causing injury, were the most frequent types of water transport injury. Other common types of water-related injury included diving or jumping into water causing injury other than drowning or near drowning (29.0%), and drowning or near drowning in a swimming pool (11.5%) or in natural water (5.3%) (Table 1). Fewer than five injury hospitalizations occurred as a result of drowning or near drowning in a bathtub.

Males accounted for more than two-thirds of the water-related injury hospitalizations. These injury hospitalizations occurred across the age spectrum from infancy up to seniors over 80 years (Figure 1). The average age of persons hospitalized with a water-related injury was 32 years. The lowest average age was noted for persons hospitalized in a swimming pool-related drowning or near drowning at 19 years.

For water-related injuries, injuries to the head or neck, lower limb, and drowning or nonfatal submersion injuries were most common (Figure 2). In particular, some of the most common injuries included drowning or nonfatal submersion for all types of drowning and near drowning incidents, cervical spine fractures for persons injured after diving or jumping into water, and lower limb fractures for watercraft-related incidents.

The 321 cases accounted for more than 2,200 days in acute care hospitals, with an average length of stay of 6.9 days. Some of the longest lengths of hospital stay were observed for injuries caused by diving or jumping into water (average of 11.9 days). About 80% of cases were discharged home and 13% were transferred to another inpatient facility (e.g., rehabilitation centre). Nearly 4% of persons hospitalized with a water-related injury died during their hospital stay.

About one-third of the water-related injury hospitalizations occurred in July, followed by 13% in June. The lowest numbers of hospitalizations occurred from November through April.

TABLE 1. Type of water-related injury hospitalization (Ontario, 2002/03)

Type of water-related injury	Number	%
Water transport incident	129	40.2
Without drowning/near drowning	66	20.6
With drowning/near drowning	19	5.9
Other/unspecified	44	13.7
Other unintentional drowning/near drowning	99	30.8
In swimming pool	37	11.5
In natural water	17	5.3
Other/unspecified	45	14.0
Dive/jump into water (without drowning/near drowning)	93	29.0
Total	321	100

FIGURE 1. Water-related injury hospitalizations by age and sex (Ontario, 2002/2003)

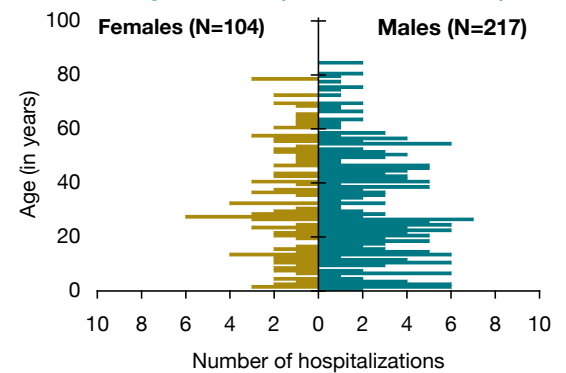


FIGURE 2. Site of injury for water-related injury hospitalizations (Most responsible diagnosis, Ontario, 2002/03)

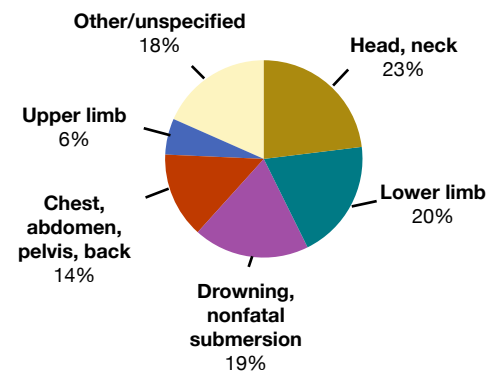


TABLE 2. Regional comparison of water-related injury hospitalizations (Ontario, 2002/03)

	South West	Central South	Central West	Central East	Toronto	East	North	Ontario
Number	37	34	52	64	44	41	23	321
Rate per 100,000 ^a	2.5	3.2	2.6	3.5	1.8	2.7	2.7	2.8
Average age (in years)	32	29	30	30	35	35	37	32
% male	84	68	79	66	61	59	57	68

a. Age-standardized rate per 100,000 population. Note: Region of residence unknown/outside of Ontario for 26 hospitalizations.

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Edited by

Philip Groff, PhD

Director,
Research and Evaluation
SMARTRISK
(416) 596-2718
pgroff@smartrisk.ca

Principal Analyst

Kelly Simpson, MSc

Research Associate
SMARTRISK
(416) 596-2720
ksimpson@smartrisk.ca

To subscribe to
Ontario Injury Compass
please email your request to:
compass@smartrisk.ca

SMARTRISK

790 Bay St.
Suite 401
Toronto, Ontario
M5G 1N8
(416) 977-7350
info@smartrisk.ca
www.smartrisk.ca

TABLE 3. Regional comparison of water-related injury hospitalizations by age (Ontario, 2002/03)

	South West	Central South	Central West	Central East	Toronto	East	North	Ontario
Rate per 100,000 population^a (Number)								
<10 years	4.1 (8)	3.4 (5)	1.7 (5)	4.3 (11)	1.9 (6)	2.1 (<5)	1.8 (<5)	3.1 (46)
10-19 years	2.4 (5)	3.9 (6)	4.3 (12)	5.6 (15)	1.1 (<5)	3.4 (7)	1.6 (<5)	3.5 (53)
20-29 years	3.0 (6)	5.4 (8)	4.9 (14)	4.5 (10)	3.3 (13)	3.9 (8)	4.4 (5)	4.3 (67)
30-49 years	2.2 (10)	3.1 (11)	1.6 (11)	2.2 (14)	1.3 (11)	1.8 (9)	2.9 (8)	2.2 (81)
50+ years	1.8 (8)	1.1 (<5)	2.1 (10)	2.8 (14)	1.6 (11)	2.9 (13)	2.2 (6)	2.3 (74)

a. Age-specific rate per 100,000 population. Note: Region of residence unknown/outside of Ontario for 26 hospitalizations.

In Ontario, the age-standardized hospitalization rate for water-related injuries was 2.8 per 100,000 population (Table 2). By region, the highest number and rate of injury was observed in the Central East region. The lowest number of water-related injuries was seen in the North region and the lowest hospitalization rate was observed in Toronto.

The highest rate of water-related injury hospitalization was observed among Ontarians 20-29 years (Table 3). Regional variations in injury patterns were observed by age. For example, in the South West region the highest rate was observed among those under 10 years of age and in the Central East region the highest rate was seen among those 10-19 years.

Discussion

This Compass highlights patterns of water-related injury hospitalizations in Ontario. Watercraft-related incidents, drowning or near drowning incidents, and diving or jumping into water are common types of water-related injury hospitalization. Similar patterns of injury have been reported in other provincial and national analyses.¹⁻¹⁰

It is important to note that hospitalizations represent only one aspect of the issue. For example, many people are treated in the emergency department or die at the scene before they reach a hospital. According to the Lifesaving Society, there were 144 drowning and other preventable water-related deaths in Ontario in 2001.¹ Compared to the other provinces and territories, Ontario has the highest number of drowning-related deaths.^{2,3}

Various factors are associated with increased risks for water-related injuries. Some examples include alcohol use, low use of personal flotation devices (PFDs), swimming or boating inexperience, and poor environmental conditions.¹⁻¹⁰

References

1. Lifesaving Society. *The Drowning Report 2004 Edition*. Toronto: Lifesaving Society, 2004.
2. Canadian Surveillance System for Water-Related Fatalities. *An Analysis of Drownings and Other Water-Related Injury Fatalities in Canada for 1999. Visual Surveillance Report: 2001 Edition*. Montreal: Canadian Red Cross, 2001.
3. Canadian Red Cross. *The Facts About Drowning in Canada. 2005 Edition*. Ottawa: Canadian Red Cross, 2006.
4. Canadian Red Cross. Drownings and other water-related injuries in Canada 1991-2000. Ottawa: Canadian Red Cross, 2003.
5. Canadian Institute for Health Information (CIHI). *National Trauma Registry Analytic Bulletin: Water-Related Trauma Hospitalizations in Canada, 2000-2001*. Toronto: CIHI, 2003.
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Managing the risk

In Ontario, boating and swimming are common pastimes. Here are some tips that can be used to help reduce the risk for injury:

- ❖ **Wear the Gear.** Always wear your lifejacket or Personal Flotation Device (PFD). Don't just have it in the boat. Also, remember other gear for boating, such as paddles and a whistle.
- ❖ **Get trained.** Take swimming and water safety lessons. Be aware of boating rules and regulations. Learn proper boating techniques and get your Pleasure Craft Operator Card, if you operate a boat.
- ❖ **Swim and boat sober.** Alcohol can impair your balance, judgment, and reaction time more severely on water than on land.
- ❖ **Swim or boat with a buddy.** Know your limits. Supervision of children is important, while at home or on vacation. Supervision is key even if children can swim. Ensure someone on land knows where you plan to go and when you plan to return.
- ❖ **Ensure pools, including inflatable pools, are fenced and the access is fitted with a self-closing and self-latching gate.** Make sure other ways to access the pool, such as patio doors, are locked.
- ❖ **Be courteous and aware of other boaters or swimmers.** Check the weather conditions and be aware of your surroundings. Know the water depth before diving and check for water hazards.

For Further Information

Canadian Red Cross
www.redcross.ca
Lifesaving Society
www.lifesavingsociety.com
Water Incident Research Alliance
www.waterincident.ca
Canadian Safe Boating Council
www.csbcc.ca
Cochrane Injuries Group
www.cochrane-injuries.lshmt.ac.uk
Health Canada-Consumer Product Safety Warnings & Advisories
www.hc-sc.gc.ca/cps-spc/advisories-avis/aw-am/index_e.html
SMARTRISK Catalogue of Best Practices
www.smartrisk.ca/ListingSections.aspx?dd=4&sd=207

Methods

Hospitalization data included acute care hospitalizations for unintentional water-related injuries in Ontario from the 2002/03 fiscal year. Data were obtained from the Discharge Abstract Database at the Canadian Institute for Health Information (CIHI). Water-related injuries were classified according to the International Classification of Diseases, 10th revision (ICD-10) using codes V90-V94 (water transport incidents including drowning or near drowning), W16 (diving or jumping into water), and W65-W74 (drowning or near drowning not water transport-related). About 4% of cases resulted in an in-hospital death. Regions were defined according to place of residence using the Ontario Ministry of Health Region Codes.