

Boating Related Injuries

Between June and September, there was an average of 28 hospitalizations per month associated with boating. Most injuries occurred on-board a watercraft.

Results

For the purposes of this analysis, boating related injuries include water transport incidents causing drowning or submersion, water transport incidents causing other injuries such as burns, falls, or crushing, as well as those injuries to non occupants of a watercraft such as water-skiers and tube riders.

During the 2005/06 fiscal year, there were a total of 1,866 emergency department visits and 130 hospitalizations due to boating related injuries (See Methods Section for Data Sources). These numbers translate into provincial rates of 15.3 per 100,000 population for emergency department visits and 1.0 per 100,000 for hospitalizations (Table 1).

Females and males 15-24 years of age had the highest numbers and rates of emergency department visits and hospitalizations. The most common type of injury for both emergency department visits and hospitalizations included watercraft-related injuries without drowning, such as a fall or being struck by an object while on a watercraft, damage to a watercraft causing injury, in addition to those injuries occurring while waterskiing.

Injury rates varied by region with the highest overall rates reported in the North region of Ontario (Table 1). Regional variations in injury patterns were observed by age. In the Central East region, the highest rate of boating related emergency visits were among youth aged 15-19. In the Central South, the highest rates were among 70 to 74 year olds. The highest rates of hospitalization in the Central South were found among 45-54 year olds and among 10-14 year olds in the South West region.

For both emergency department visits and hospitalizations, injuries to the lower limbs were most common, accounting for 27% and 38% of all injuries respectively (Figure 2). More specifically, an open wound of the lower leg and dislocation of the knee were the most common injury for emergency department visits, in addition to open wounds to the head.

FIGURE 1. Emergency department visits due to boating related injuries by age and sex (Ontario, 2005/2006)

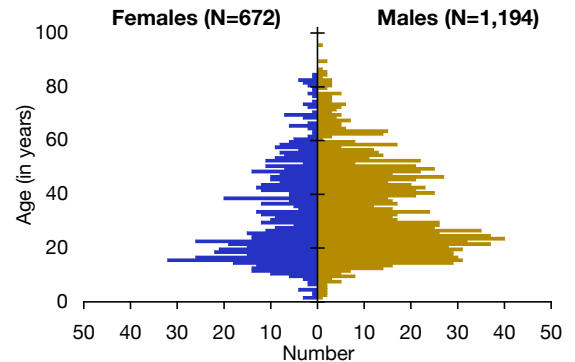
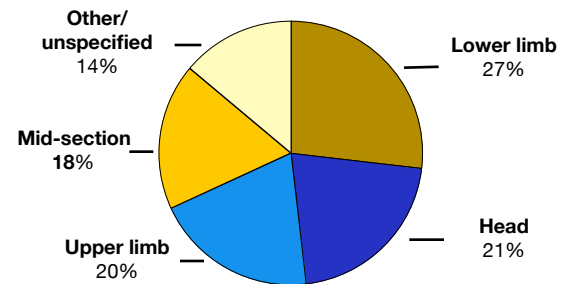


FIGURE 2. Nature of boating related injuries (Most responsible diagnosis, Ontario, 2005/2006)

Emergency Department Visits



Hospitalizations

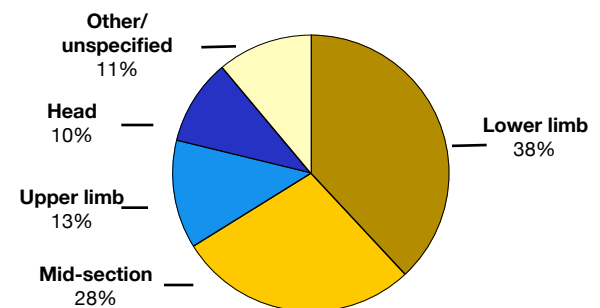


TABLE 1. Regional comparison of boating related injuries (Ontario, 2005/06)

	South West	Central South	Central West	Central East	Toronto	East	North	Ontario
Emergency Department Visits								
Number	195	162	218	465	178	263	181	1,866
Rate per 100,000 ^a	12.8	13.7	9.5	21.7	7.0	16.3	23.7	15.3
Average Age	34	35	32	33	36	35	35	34
% male	63	64	58	68	60	62	64	64
Hospitalizations								
Number	9	15	12	29	13	14	17	130
Rate per 100,000 ^a	0.6	1.2	0.5	1.3	0.4	0.9	2.1	1.0
Average Age	35	43	36	43	54	39	35	42
% male	55	80	58	66	54	50	76	64

a. Age-standardized rate per 100,000 population. Note: Region of residence unknown/outside of Ontario for 204 emergency department visits and 21 hospitalizations.



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Edited by

Philip Groff, PhD

Director,

Research and Evaluation

Ontario Injury Prevention Resource

Centre at SMARTRISK

(416) 596-2718

pgroff@smartrisk.ca

Principal Analyst

Pamela Farmer, MSc

Research Associate

Ontario Injury Prevention Resource

Centre at SMARTRISK

(416) 596-2707

pfarmer@smartrisk.ca



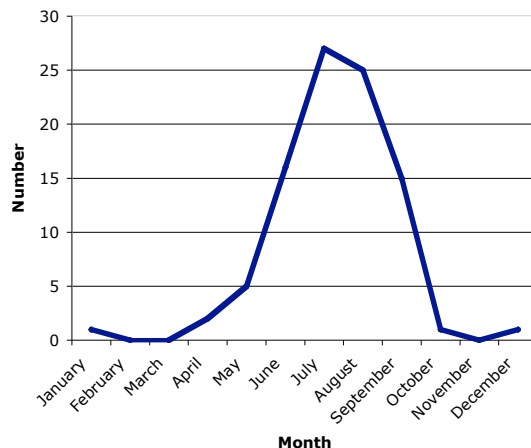
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1-888-537-7777

info@oninjuryresources.ca

www.OnInjuryResources.ca

FIGURE 3. Boating related injury emergency department visits by month (Ontario, 2005/06)



Fracture of the lower leg was the most frequent injury for hospitalizations. The greatest number of emergency department visits for boating related injuries occurred from June to September with the peak number taking place in July (Figure 3). A similar pattern was found for the highest number of hospitalizations (data not shown due to small sample size).

Over 90% of individuals who visited an emergency department due to a boating related injury were discharged to their place of residence. For hospitalized cases, approximately 90% of patients were discharged home. Fewer than 1% of individuals died after arrival in the emergency department and fewer than 1% died after hospital admission. The 130 hospitalized cases accounted for more than 470 days in acute care hospitals with an average length of stay of 3.6 days.

Discussion

This Compass highlights patterns of injury for emergency department visits and hospitalizations due to boating related injuries in individuals living in regions of Ontario. Many studies have been conducted on the general topic of water related injuries, which often include information and analysis on fatal injuries such as drowning.¹⁻⁸ These papers often include a distinct section devoted to discussion about boating related injuries, specifically.^{6,7}

References

1. Lifesaving Society. *The Drowning Report 2004 Edition*. Toronto: Lifesaving Society, 2004.
2. Weir E. Drowning in Canada. *CMAJ* 2000;162:1867
3. MacLachlan J. Drownings, other aquatic injuries and young Canadians. *Can J Public Health* 1984;75:218-22
4. Smith GS, Keyl PM, Hadley JA, Bartley CL, Foss RD, Tolbert WG, McKnight J. Drinking and Recreational Boating Fatalities. *JAMA* 2001 286;2974-2980.
5. Chochinov A. Alcohol "on board," man overboard - boating fatalities in Canada. *CMAJ* 1998;159(3).
6. Canadian Institute for Health Information. *National Trauma Registry Analytic Bulletin August 2003. Water-related Trauma Hospitalizations in Canada, 2001-2002*. Toronto, ON: CIHI, 2003.
7. Groff P, Ghadiali J. *Will it Float? Mandatory PFD Legislation in Canada: A Background Research Paper*. Toronto: SMARTRISK, 2003.
8. Cimek K, Groff P. Water Related Injuries. *Ontario Injury Compass*. 2006(3)5.

For example, The National Trauma Registry Analytic Bulletin on Water-related Trauma Hospitalizations in Canada, (2000-2001) reported that the majority of water related injury hospitalizations which occurred that year were due to water transport injuries.⁶

There were very few drowning-related boating injuries reported as the vast majority of drowning victims are dead on arrival and therefore not included in this injury data set. In 2001, there were 144 drowning and other preventable water-related deaths in Ontario.¹

According to the Canadian Medical Association, alcohol use and non-use of PFDs are the most common modifiable risks in boating related fatal injuries.⁵ In addition, lack of boating safety training increases the likelihood of a boating related collision.⁷ Poor environmental conditions is another risk factor associated with boating related injuries and fatalities.⁷

Managing the risk

To reduce the risk of becoming injured in a boating related incident, there are several preventive measures that can be followed.

- **Wear a PFD.**
- **Do not consume alcohol prior/during boating excursions. Even those who are not the operator of the boat should wear a life jacket and remain sober.⁴**
- **Get trained on boating and water safety.**
- **If waterskiing, make sure you have been trained appropriately and have a 'spotter' in the boat to ensure your safety while skiing.**
- **Check weather forecast prior to any excursion on the water. Plan accordingly.**

By following these guidelines, one can reduce risk while participating in boating related activities.

For Further Information

Lifesaving Society
www.lifesavingsociety.com
Canadian Safe Boating Council
www.csbc.ca
Health Canada
www.hc-sc.gc.ca
Public Safety Canada
www.publicsafety.gc.ca
SMARTRISK
www.smartrisk.ca
Canadian Red Cross
www.redcross.ca

Methods

Emergency department data were obtained from the National Ambulatory Care Reporting System and acute care hospitalization data were obtained from the Discharge Abstract Database at the Canadian Institute for Health Information for the 2005/06 fiscal year. ICD-10 coding (V90-V94) was used to isolate all boating related injuries resulting in emergency department visits or hospitalizations. Note that some persons were seen in an emergency department and then admitted to hospital; however, persons can be admitted to hospital without visiting an emergency department. Regions were defined according to place of residence using the Ontario Ministry of Health Region Codes. Deaths occurring outside of the hospital setting were not included in this analysis.

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