

# Drowning and Near Drowning

On average, each month 6 people are seen in a hospital for a drowning or near drowning incident. Children and youth represent the majority of cases.

## Results

For the purposes of this report, drowning is any incident where a person is submerged in water and is unable to breathe. When a person survives the incident, but has a resulting injury, this is referred to as a near drowning incident.<sup>1</sup> This report includes cases whereby the individual is injured, but survives a near drowning incident as well as those cases where the individual drowns and dies after or on arrival at the primary care centre. The report does not include cases where the individual dies at the time of submersion.

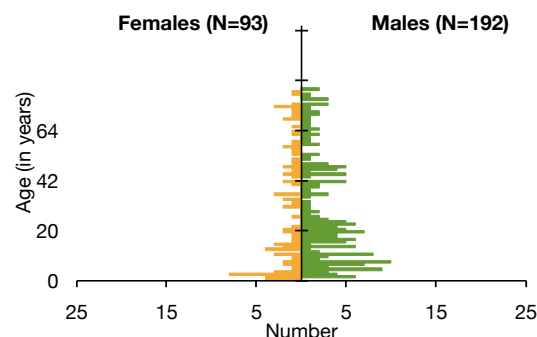
During the 2005/06 fiscal year, there were a total of 285 emergency department visits and 73 hospitalizations for drowning and near-drowning incidents (See Methods Section for Data Sources). These numbers translate into provincial rates of 2.4 per 100,000 population for emergency department visits and 0.6 per 100,000 for hospitalizations (Table 1).

For emergency department visits, peaks in the number of drowning and near drowning incidents were seen in males under 25 years of age. Toddlers and teenagers represented the majority of these incidents requiring a visit to the emergency department (Figure 1).

Drowning and near drowning while in a swimming pool or following a fall into a swimming pool were the most common type of drowning incident for both emergency department visits and hospitalization cases representing 28% and 40% of all emergency department visits and hospitalizations respectively. Drowning and near drowning while in natural water or following a fall into natural water were the next most common for both emergency department visits and hospitalizations followed by incidents while in a bathtub (Figure 2).

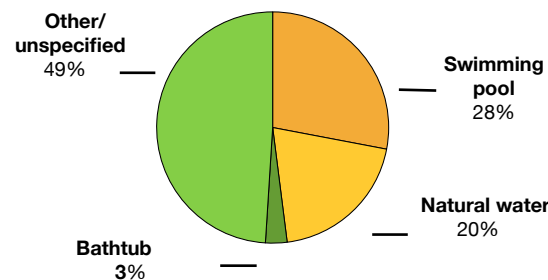
Injury rates varied by region, with the highest overall rate of emergency department visits for drowning and near drowning incidents reported in the north and central west and the highest rate of hospitalizations reported in the central south region of Ontario (Table 1).

**FIGURE 1. Emergency department visits for drowning and near drowning incidents by age and sex (Ontario, 2005/2006)**

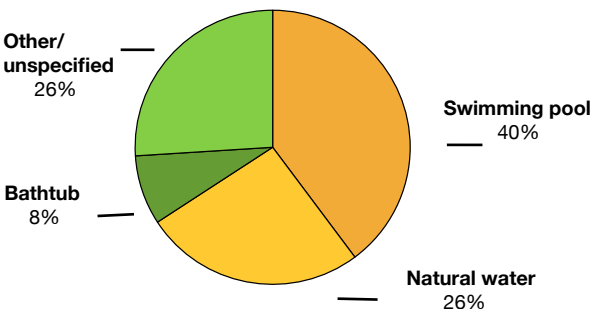


**FIGURE 2. Site of Drowning/Near Drowning Incident (Ontario, 2005/2006)**

### Emergency Department Visits



### Hospitalizations



**TABLE 1. Regional comparison of drowning and near drowning incidents (Ontario, 2005/06)**

	South West	Central South	Central West	Central East	Toronto	East	North	Ontario
<b>Emergency Department Visits</b>								
Number	28	31	55	54	36	36	25	285
Rate per 100,000 <sup>a</sup>	3.2	4.4	5.0	4.8	2.5	3.9	5.1	2.4
Average Age	20	26	34	35	27	19	32	28
% Male	61	71	60	72	69	67	72	67
<b>Hospitalizations</b>								
Number	6	10	13	10	16	12	<5	73
Rate per 100,000 <sup>a</sup>	0.5	0.9	0.6	0.4	0.7	0.8	0.5	0.6
Average Age	5	23	42	41	31	28	32	31
% Male	67	50	69	40	75	58	75	63

a. Age-standardized rate per 100,000 population. Note: Region of residence unknown/outside of Ontario for 20 emergency department visits and <5 hospitalizations.



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**TABLE 2. Regional comparison of drowning and near drowning incidents in children and youth, by age group (Ontario, 2005/06)**

	South West	Central South	Central West	Central East	Toronto	East	North	Ontario
<b>Emergency Department Visits- Rate per 100,000<sup>a</sup></b>								
0-4 years	15.6 (13)	9.9 (6)	4.8 (7)	4.2 (5)	/ (<5)	9.5 (8)	/ (<5)	6.6 (45)
5-9 years	/ (<5)	/ (<5)	/ (<5)	/ (<5)	6 (9)	7.1 (7)	/ (<5)	4.7 (37)
10-14 years	/ (<5)	/ (<5)	3.6 (6)	/ (<5)	/ (<5)	4.6 (5)	/ (<5)	3.2 (27)
15-19 years	/ (<5)	6.1 (5)	3.1 (5)	3.8 (6)	/ (<5)	4.6 (5)	8.1 (5)	3.9 (32)
<b>Hospitalizations- Rate per 100,000<sup>a</sup></b>								
0-4 years	/ (<5)	/ (<5)	/ (<5)	/ (<5)	/ (<5)	/ (<5)	/ (<5)	1.9 (13)
5-9 years	/ (<5)	/ (<5)	/ (<5)	/ (<5)	4.7 (7)	/ (<5)	/ (<5)	2.2 (17)
10-14 years	/ (<5)	/ (<5)	/ (<5)	/ (<5)	/ (<5)	/ (<5)	/ (<5)	/ (<5)
15-19 years	/ (<5)	/ (<5)	/ (<5)	/ (<5)	/ (<5)	/ (<5)	/ (<5)	/ (<5)

a. Age-specific rate per 100,000 population. Note: Region of residence unknown/outside of Ontario for 20 emergency department visits and <5 hospitalizations.

For each region, children under 5 years of age represented the highest rate of emergency department visits and hospitalizations, with the exception of the Northern region (Table 2).

Of the 285 individuals who visited an emergency department after a near drowning incident, 60% were discharged to their place of residence. Close to 12% were admitted as an inpatient to another unit of the hospital directly from ambulatory care. Approximately 8% were transferred to another acute care facility directly from ambulatory care, and finally, approximately 7% were admitted as an inpatient to the critical care unit or operating room directly from ambulatory care. For hospitalized cases, approximately 7% were transferred to another facility providing inpatient hospital care, which includes acute, sub acute, and rehabilitation care. Approximately 75% were discharged home. Over 8% of individuals died after arrival in the emergency department, close to 4% were dead on arrival (including in the ER), and approximately 12% died after hospital admission. The 285 hospitalized cases accounted for more than 339 days in acute care hospitals with an average length of stay of 4.64 days.

## Discussion

This Compass highlights patterns of emergency department visits and hospitalizations for drowning and near drowning incidents in Ontario and its regions.

Drowning is an important issue as its effects can be particularly devastating, as far too often, a child or teenager dies, often in a pool or natural water environment such as a lake. After car crashes, drowning is the most common cause of injury related death in Canadian children under 14 years of age. In addition, near drowning can result in impairment in learning, planning, attention, and memory.<sup>1</sup> All it takes is a second, and an unsupervised child can drown. It is therefore essential that parents and caregivers understand how to manage the risk.

Several studies on drowning, submersion, and other water related injury topics have been featured in journals and, in addition, numerous organizations throughout the country have devoted time and resources to this important topic.

## References

1. Safe Kids Canada. Drowning <http://www.safekidscanada.ca/SKCFForParents/section.asp?s=Safety%2BInformation%2Bby%2BTopic&slD=10774&ss=Drowning&slD=24455>
2. The U.S. Consumer Product Safety Commission Safety Barrier Guidelines for Home Pools. <http://www.cpsc.gov/CPSC/PUB/PUBS/Pool.pdf>

## Managing the risk

The following bullet points are suggestions for how public health can help reduce the risk of drowning and near drowning incidents in their community.

### ❖ Educate parents on the importance of active supervision of children<sup>1</sup>

- Stay within sight and reach of your child when he/she is in/near water.
- Stay within arms reach if child is < 5 years old or is a weak swimmer.
- Watch older children closely too, even if they can swim.
- Do not rely on an older sibling to supervise.

### ❖ Work with local boards of health & policy-makers to foster mandatory 4-sided pool fencing<sup>1</sup>

- Proper pool fencing could prevent 7 out of 10 drownings to children < 5.
- Pool fencing should be at least 4 feet (1.2 metres) and have a self-closing, self-latching gate.<sup>2</sup>
- Pool alarms, door alarms, pool covers, and door locks are not a safe substitute for a fence. No research shows that these devices will prevent drowning.<sup>1</sup>

### ❖ Promote the use of lifejackets<sup>1</sup>

- Put children < 5 years old and weak swimmers in properly fitting lifejackets when they are in or near the water or in a boat. Supervise!
- Check the label to make sure it has been approved by at least one of: Transport Canada, Canadian Coast Guard, Fisheries and Oceans Canada

### ❖ Encourage yearly training for adults<sup>1</sup>

- Get trained in CPR, first aid, water rescue, and swimming skills.

### ❖ Educate the public on the importance of swimming lessons<sup>1</sup>

- Enroll your child in lessons to help him/her become comfortable around water.
- Remember that swimming lessons alone cannot prevent your child from drowning. *Always supervise.*
- Teach your children about currents and water safety.

### ❖ Communicate safety tips to parents on how to reduce the risk of drowning while bathing children.

- Babies can drown in as little as one inch of water in seconds. *Always stay within sight and reach of your child.*
- Never use bath seats or bath rings.
- Never leave a baby alone in a bathtub with an older sibling or siblings.

### ❖ For Further Information:

Safe Kids Canada  
[www.safekidscanada.ca](http://www.safekidscanada.ca)  
Health Canada  
<http://www.hc-sc.gc.ca/cps-spc/index-eng.php>  
The Canadian Red Cross  
[www.redcross.ca](http://www.redcross.ca)  
Consumer Product Safety Commission  
<http://www.cpsc.gov/>

## 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 (W65-W74) was used to isolate all emergency department visits and hospitalizations for drowning incidents. 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.