



Ontario Non-Fatal Drowning Report, 2021

Prepared for the Lifesaving Society Ontario by the Drowning Prevention Research Centre Canada

Drowning research and prevention activities have typically focused on fatal drowning; however, there are many more non-fatal drowning incidents than drowning deaths each year. For every **fatal drowning** in Ontario, there are nearly **four non-fatal drownings** that are serious enough to require an emergency department visit.

Drowning is the process of experiencing respiratory impairment from submersion/immersion in liquid.

*Drowning can be **fatal** or **non-fatal**. In **non-fatal drowning**, the respiratory impairment is stopped before death. Non-fatal drowning can result in a range of outcomes, from no injuries to serious injuries or permanent disability.*

152

Average number of fatal drowning deaths each year*

95

Average hospitalizations due to non-fatal drowning each year

543

Average emergency department visits due to non-fatal drowning each year

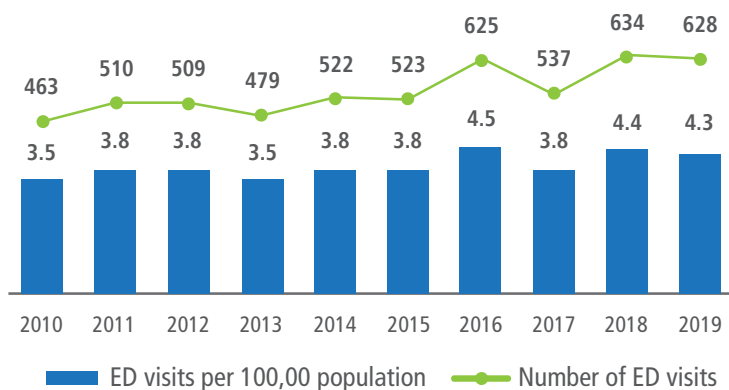
This report is a first step towards describing the true burden of drowning in Ontario by focusing on non-fatal drowning. The data were made available by Public Health Ontario, based on the Canadian Institute for Health Information (CIHI) National Ambulatory Care Reporting System (NACRS).^{1,2}

The full burden of non-fatal drowning is unknown. This report does not include non-fatal drowning incidents where the person was treated at the scene of the drowning and did not seek further medical attention, those who attended a family physician or clinic, and those who did not receive any treatment at all. If data from these sources were available, the number of non-fatal drownings included in this report would be even higher.

Emergency department visits and hospitalizations due to non-fatal drowning

During 2010–2019, there were 5,430 emergency department visits due to non-fatal drowning, an average of 543 per year. The rate† of visits increased 23% during the 10-year period from 3.5 per 100,000 in 2010 to 4.3 per 100,000 in 2019.

NUMBER AND RATE OF EMERGENCY DEPARTMENT (ED) VISITS DUE TO NON-FATAL DROWNING, ONTARIO, 2010–2019



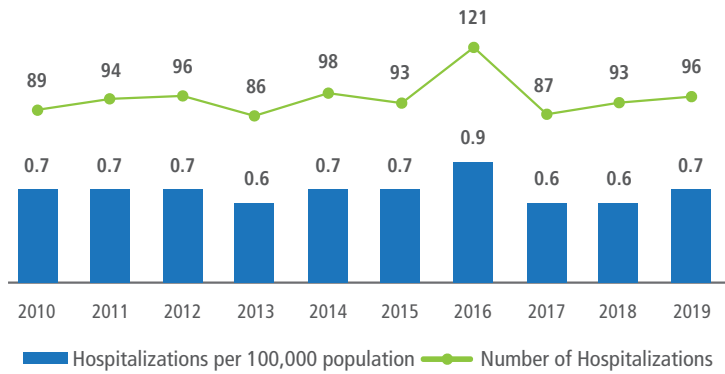
*Average number of water-related fatalities per year where drowning was a primary or contributory cause of death in Ontario, during the most recent 10 years for which data were available, 2008–2017.

† All rates in this report are crude annual rates per 100,000 population.

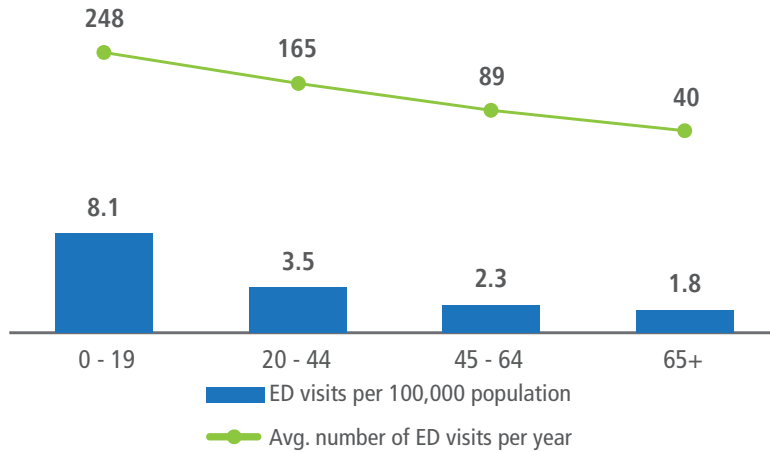
During 2010–2019, 953 patients were hospitalized after being transferred from an emergency department due to non-fatal drowning, an average of 95 per year.

*When compared to fatal drowning, there were **3.6 times the number of non-fatal drowning incidents** serious enough to require an emergency department visit.*

NUMBER AND RATE OF HOSPITALIZATIONS DUE TO NON-FATAL DROWNING, ONTARIO, 2010–2019



NUMBER AND RATE OF EMERGENCY DEPARTMENT (ED) VISITS DUE TO NON-FATAL DROWNING BY AGE GROUP, ONTARIO, 2010–2019



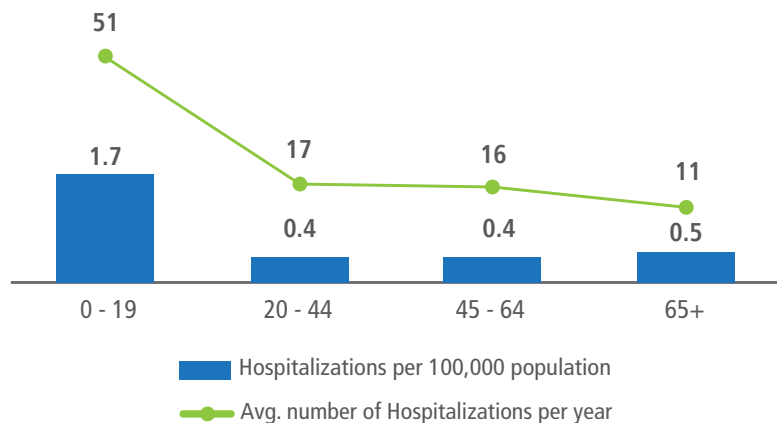
Age

Children and youth (aged less than 20 years) had the highest number and rate of emergency department visits for non-fatal drowning (8.1 per 100,000). During the 2010–2019 period, 2,479 0–19-year-olds attended an emergency department for non-fatal drowning, an average of 248 per year. Rates declined as age group increased, ranging from 3.5 per 100,000 among 20–44-year-olds to 1.8 per 100,000 for older adults aged 65+ years.

The number and rate of hospitalizations for non-fatal drowning were also highest among children and youth; 509 0–19-year-olds were hospitalized due to non-fatal drowning during 2010–2019, an average of 51 per year.

By comparison, the highest fatal drowning rates in Ontario occur among older adults 65+ (1.9 per 100,000 population) followed by 50–64-year-olds (1.3 per 100,000).

NUMBER AND RATE OF HOSPITALIZATIONS DUE TO NON-FATAL DROWNING BY AGE GROUP, ONTARIO, 2010–2019



Sex

The rate of emergency department visits and hospitalizations from non-fatal drowning was 1.7–1.8 times higher among males than females. Almost two thirds (63%) of emergency department visits due to non-fatal drowning occurred among males, accounting for an average of 343 visits per year (5.0 per 100,000 population). The rate of emergency department visits due to non-fatal drowning for females was 2.9 per 100,000, with an average of 200 visits per year.

Similarly, 66% of hospitalizations for non-fatal drowning were male, contributing to an average of 63 hospitalizations per year (0.9 per 100,000). The rate of hospitalizations due to non-fatal drowning among females was 0.5 per 100,000, with an average of 32 per year. By comparison, almost 8 out of 10 fatal drownings in Ontario occur among males.³



Males accounted for approximately two-thirds of non-fatal drownings: this differs from fatal drowning where males account for close to 80%.

More work is needed. This report provides a brief overview of non-fatal drowning in Ontario based on emergency department and hospitalization data. Further research is needed to estimate the full burden of non-fatal drowning, including incidents that are not captured in these sources; and to obtain more details about the circumstances of non-fatal drowning incidents and how and why these differ from fatal drowning. The Drowning Prevention Research Centre Canada acknowledges that fatal drowning is only one part of the problem and is committed to more accurate reporting of the full burden of drowning.

Did you know?

The Drowning Prevention Research Centre Canada is working with global experts on a categorization framework for non-fatal drowning. This will enable more comprehensive reporting on non-fatal drowning and contribute to a better understanding the full burden of drowning. With this framework, the severity of non-fatal drowning can be categorized based on the degree of respiratory impairment, and morbidity (decline from previous functional capacity) caused by the non-fatal drowning. The following draft framework is currently being tested and refined.

Draft Non-Fatal Drowning Categorization Framework (NDCF)⁴

Severity of respiratory impairment after the drowning process stopped.		
Mild impairment	Moderate impairment	Severe impairment
<ul style="list-style-type: none"> Involuntary distressed coughing AND Fully alert 	<ul style="list-style-type: none"> Sustained difficulty breathing AND/OR Disoriented but conscious 	<ul style="list-style-type: none"> Not breathing AND/OR Unconscious
Morbidity category (based upon any decline from previous functional capacity) at the time of measurement.		
No morbidity	Some morbidity	Severe morbidity
<ul style="list-style-type: none"> No decline 	<ul style="list-style-type: none"> Some decline 	<ul style="list-style-type: none"> Severe decline

Summary

- Drowning can be fatal or non-fatal; non-fatal drowning can result in serious lifelong disability.
- Between January 1, 2010 and December 31, 2019 there were 5,430 emergency department visits and 953 hospitalizations due to non-fatal drowning.
- Emergency department visits due to non-fatal drowning increased from 2010–2019.
- Non-fatal drowning rates are highest among children and youth, this differs from fatal drowning where rates are highest among older people.
- Males accounted for approximately two-thirds of non-fatal drownings, this differs from fatal drowning where males account for close to 80%.

For every one fatal drowning in Ontario, there are nearly four non-fatal drownings that require a visit to an emergency department. Non-fatal drowning is a serious problem that can have lifelong consequences for individuals and families.



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References

¹ Ontario Agency for Health Protection and Promotion (Public Health Ontario). Snapshots: Emergency Department Visits for injuries Snapshot: Emergency department visits for injuries due to near-drowning or submersion. Toronto, ON: Queen's Printer for Ontario; c2021 [updated 2021 Jan 29; cited 2021 Jun]. Available from: <https://www.publichealthontario.ca/en/data-and-analysis/injuries-data/injury-er-visits>

² Ontario Agency for Health Protection and Promotion (Public Health Ontario). Snapshots: Hospitalizations for injuries Snapshot: Hospitalizations for injuries due to near-drowning or submersion. Toronto, ON: Queen's Printer for Ontario; c2021 [updated 2021 Jan 29; cited 2021 Jun]. Available from: <https://www.publichealthontario.ca/en/data-and-analysis/injuries-data/injury-hospitalization>

³ Lifesaving Society. Ontario Drowning Report, 2020 Edition. Toronto, ON: Drowning Prevention Research Center Canada; c2020. Available from https://www.lifesavingsociety.com/media/327287/lifesaving_drowning-2020_on_en_2020-06-13.pdf

⁴ Beerman, S. Bierens, J.J.L.M., Clemens, T., Meddings, D., Rahman, A., Szpilman, D. Clarification and Categorization of Non-fatal Drowning: A draft Position Statement; c2019. Available from https://www.who.int/docs/default-source/documents/drowning/non-fatal-drowning-categorization.pdf?sfvrsn=44d18cc1_2&download=true