

The Canadian Red Cross Society

DROWNING

DROWNINGS AMONG 1 TO 4 YEAR-OLD CHILDREN IN CANADA A HIGH RISK GROUP FOR WATER-RELATED FATALITIES

HIGHLIGHTS OF THE SPECIAL RESEARCH REPORT

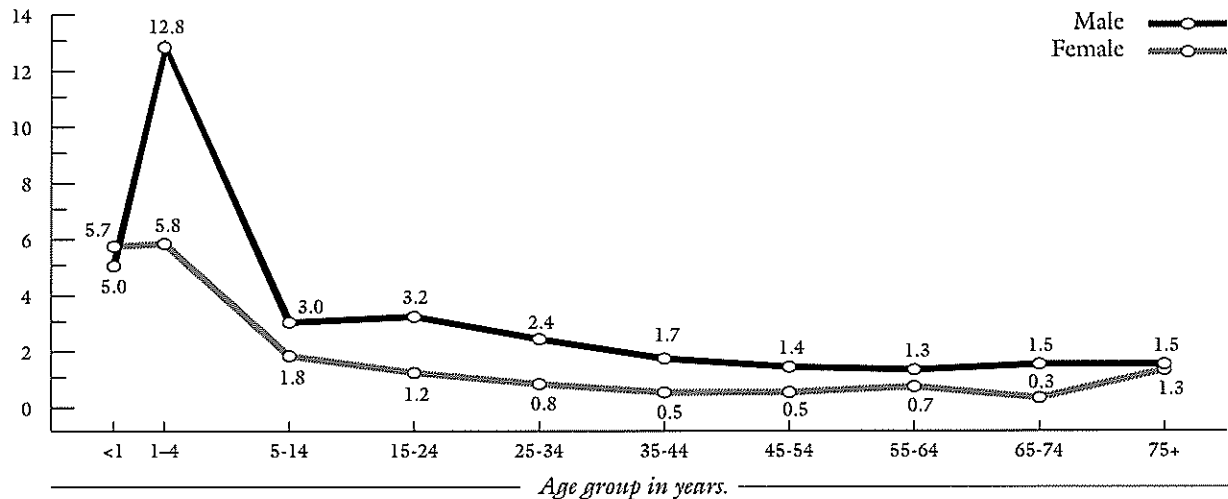
Prepared and published by THE CANADIAN RED CROSS SOCIETY

Drowning is the second most common cause of death from injury among toddlers in Canada, ranking second among girls and third among boys. Toddlers not only comprise one of the major risk groups for fatal drownings, but also represent the majority of hospitalizations for near drownings, some of which result in a permanent handicap from brain damage (see figure 1). The Canadian Red Cross Society's *Special Research Report on Drownings Among 1 to 4 Year Old Children in Canada* is based upon a 1994 analysis of the circumstances of drownings among toddlers during 1991 and 1992.

Figure 1

HOSPITALIZATIONS FOR NEAR-DROWNING BY AGE AND SEX: CANADA 1991

Rate per 100,000 population per year.



Includes WHO codes E830, E832, and E910.

Source: Statistics Canada.

Toddlers are at high risk of injury because, while they are able to walk, they are unstable and tend to be unaware of, or unable to assess, risks in their environment. They also lack the capacity for self rescue. Although toddlers are a high risk group for drowning, most of these deaths are preventable. This report emphasizes the identification of high-risk environments and activities, including household hazards that can be eliminated by built in automatic protection.

The home and its surroundings should be user-friendly and allow for occasional fatigue, inattention, and human error without the risk of serious injury or death. While bodies of water such as lakes, rivers, and the ocean create an element of danger for toddlers, special precautions can be taken to reduce the hazards they present during occasional exposure.

During 1991 and 1992, 96 Canadian toddlers died in water-related incidents. Detailed analyses were carried out on these circumstances, including the type of activity at the time of the incident, the purpose of the activity, age and sex of the victim, time and location of the death, and personal, environmental and equipment factors that may have contributed to the death. The major findings of the analysis are summarized below.

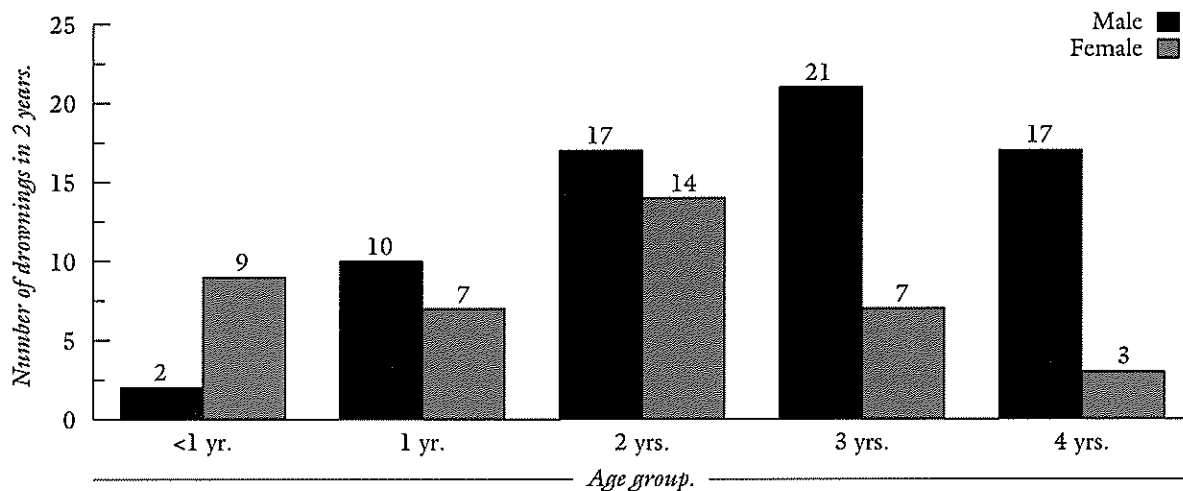
Highlights of the Findings:

There has been a considerable decrease in death rates of toddlers during the past half century. Part of the explanation may be reduced risk of exposure to open bodies of water with urbanization. Despite the improvement in death rates for toddler drownings, the rate of hospitalization for near-drownings among toddlers has increased during the past 20 years.

The number of male drownings increases with age until a peak is reached at the age of three years. The number of female drownings peaks at the age of two years and declines substantially in relation to the number of male drownings (see figure 2).

Figure 2

NUMBER OF INFANT AND TODDLER DROWNING DEATHS BY AGE AND SEX*: CANADA 1991 & 1992 (n=107)



* For one 3-year old the sex was unspecified – the child was computed to be male and counted as such.

Source: The Canadian Red Cross Society, Water-Related Fatalities Data Analysis System, 1994.

Boys are the most frequent victims in all locations other than bathtubs. However 41% of swimming pool victims are girls.

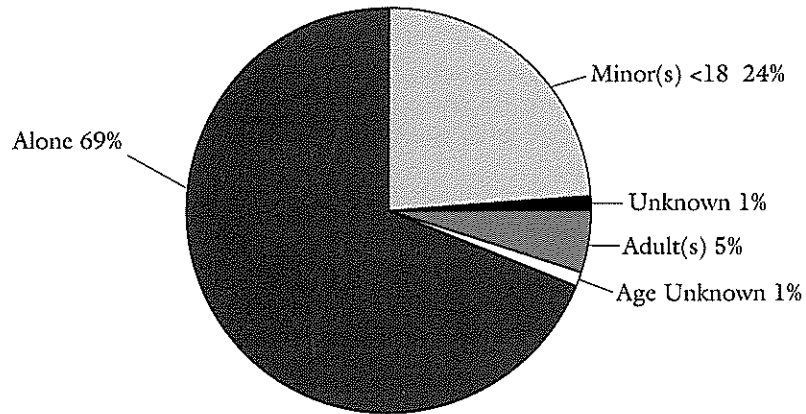
The most frequent activity of the victim at the time of the drowning incident is either playing or walking near the water.

Only 5% of toddlers who drowned are in the company of an adult when the incident occurs (see figure 3).

Most toddler drownings occur in the afternoon or early evening. The largest number occur on Friday and Thursday, followed by Saturday and Sunday. May to August are the most frequent months for toddler drownings. However 7% of toddler drownings occur in the spring or autumn and involve activities on ice.

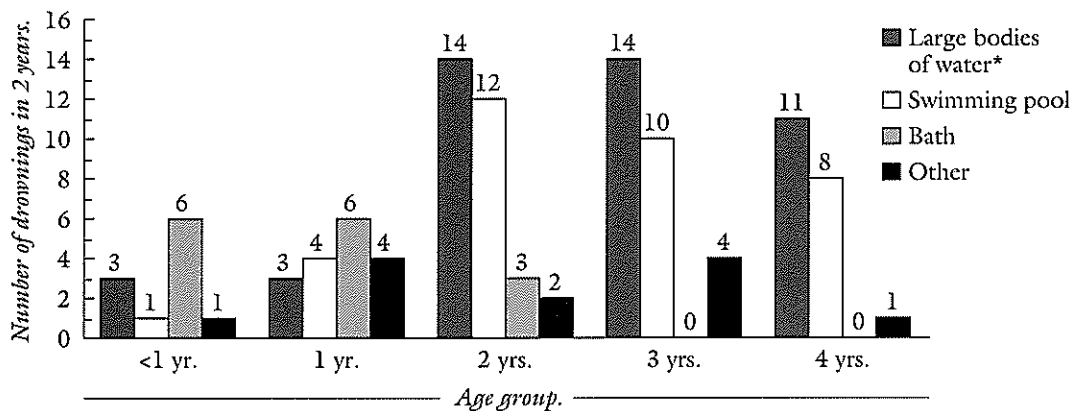
Drowning hazards in and around the home account for 53% of all toddler drownings and the remaining incidents occur in large bodies of water such as lakes and rivers.

Figure 3
TODDLER (1 - 4 YRS) DROWNINGS BY ACCOMPANYING PERSON(S): CANADA 1991 & 1992
 (n=96)



Source: The Canadian Red Cross Society, Water-Related Fatalities Data Analysis System, 1994.

Figure 4
INFANT AND TODDLER DROWNINGS BY LOCATION AND AGE: CANADA 1991 & 1992
 (n=107)



* Lakes/pond, river, ocean, reservoir.

Source: The Canadian Red Cross Society, Water-Related Fatalities Data Analysis System, 1994.

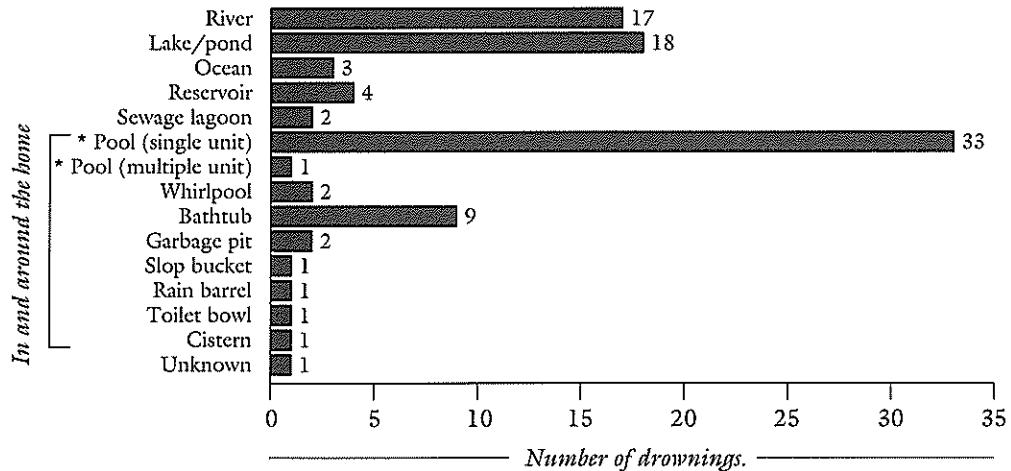
The location of drownings among children under 5 years varies according to age. Bathtubs account for 55% of all infant drownings. For 1 year olds, bathtubs account for 35% of drownings and swimming pools, another 24%. Among 2, 3, and 4 year-olds, swimming pools and large bodies of water, such as lakes and oceans, are the locations of most drownings (see figure 4).

The rate of swimming pool drownings among toddlers is many times higher than other age groups. Overall, home swimming pools are the most common location of toddler drownings. In or near the home, the bathtub is the second most frequent site. However, aboriginal toddlers drown in natural bodies of water and open holes near the home where water collected (see figure 5).

Only 3% of swimming pool drownings in Canada are known to have occurred in a pool equipped with a self-latching, and self-closing gate and a fence that met by-law standards.

Most rescues and initiation of rescue breathing for incidents and drownings around the home involved family or friends.

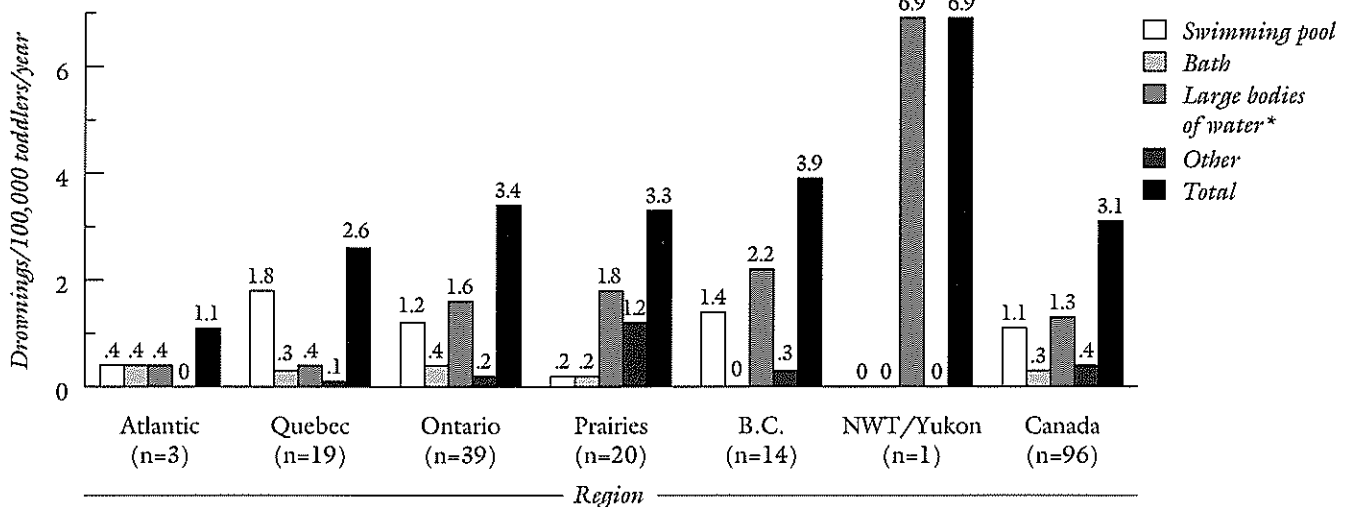
Figure 5
LOCATION OF FATAL TODDLER (1-4 YRS) DROWNINGS: CANADA 1991 & 1992 (n=96)



* Single and multiple home swimming pools.

Source: The Canadian Red Cross Society, Water-Related Fatalities Data Analysis System, 1994.

Figure 6
TODDLER DROWNING (1-4 YRS) RATES BY REGION AND LOCATION AND AGE: CANADA 1991 & 1992 (n=96)



* Lakes/pond, river, ocean, reservoir.

Source: The Canadian Red Cross Society, Water-Related Fatalities Data Analysis System, 1994.

The most important hazardous location other than the home is private waterfront cottages or other residences, rather than public places.

The vast majority (94%) of swimming pool drownings occur in Quebec, Ontario, and British Columbia.

Overall, the highest provincial rate of toddler drownings is in British Columbia followed by Ontario and the Prairies. The Atlantic region has the lowest toddler drowning rate in Canada. The highest rate of swimming pool drownings occurs in Quebec followed by B.C. and Ontario (see figure 6).

IMPLICATIONS AND RECOMMENDATIONS

The Canadian Red Cross Society's Special Research Report on drownings among toddlers and the annual national surveillance activities provide the basis for a comprehensive approach to prevention of drownings amongst toddlers. Recommendations fall into five health promotion categories and can be summarized as follows:

1. Healthy Public Policy:

Advocacy for healthy public policies can be used to ensure that legislation and regulations at various levels serve to eliminate hazards such as unprotected bodies of water in homes and residential areas. A critical issue that should be addressed in public policy is the **development, implementation and enforcement of municipal by-law standards for pool gates and fences.**

The standards should include:

- gates that are self-latching, self-closing.
- the complete enclosure of outdoor pools on all sides.
- a mandatory pool side telephone, and rescue aids.
- a fence and gate with a minimum height of 1.2 meters with the latch located on the inside of the gate. The gate should not have gaps greater than 10 centimetres.
- mandatory CPR training for pool purchasers and owners.
- for homes that open into a pool enclosure, a self-latching and self-closing, toddler-proof door.

2. Supportive/User-Friendly Environment:

Cottages near lakes and rivers should be separated from open water by fences with self-closing, self-latching toddler-proof gates. Parents with small toddlers should consider renting cottages at some distance from open bodies of water and visit the waterfront under controlled conditions when constant adult supervision is feasible.

Toddlers who travel in boats or play near the water should be fitted with the appropriate sized lifejacket.

The bathtub and any other containers, such as buckets, should be emptied immediately after use.

Pool blankets appear to be hazardous, and children have been drowned in or under them. Pool covers and pool alarms are reported to be unreliable (Wintemute, 1992; Kemp and Sibert, 1992).

3. Community Action:

An annual spring community "safety check" in each town or municipality by the Red Cross and service clubs could serve to verify that all bodies of water in or adjacent to residential areas with children, are appropriately fenced and fitted with self-latching and self-closing gates.

A well-publicized municipal or provincial hot line each spring and summer would be helpful so that concerned parents and caregivers could report any unenclosed bodies of water, including unfenced or ungated pools.

4. Personal Skills and Education:

Caregivers need to be well informed about potential water hazards for toddlers and the most effective methods of eliminating them in and around their neighbourhoods and home.

Caregivers need to plan ahead to eliminate any unsupervised exposures to unprotected bodies of water during vacations.

Constant adult supervision during baths is necessary for both infants and toddlers.

Organized water safety/swimming program for toddlers and caregivers should focus on targeting the caregiver with the information and skills needed to eliminate water hazards and create a supportive environment.

Media campaigns and educational resources should be aimed at increasing the awareness of community decision makers, new parents, pool owners and caregivers of the importance of pool gate and fence standards, adult supervision, infant and child cardiopulmonary resuscitation (CPR), and water rescue skills.

5. Health Services:

Health services need to be reoriented from providing treatment of near drowning to collaborating and participating in prevention activities such as community surveillance for environmental hazards and education of new parents and other caregivers.

For more information, including a copy of *The Special Research Report on Drownings Among 1 to 4 Year Old Children in Canada* contact a local Red Cross Branch in your province.

The Canadian Red Cross Society acknowledges assistance from the following in preparing the Special Research Report:

- Offices of the Chief Coroners and Medical Examiners in each province
- The Royal Life Saving Society Canada
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- Injury Prevention Program, Public Health Unit and Institute of Medical Research, Montreal General Hospital, Régie régionale de la santé de Montréal-Centre, and McGill University Dept. of Epidemiology and Biostatistics.
- Statistics Canada

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