CANADIAN DROWNING PREVENTION PLAN
7th Edition

CANADIAN DROWNING PREVENTION
PRÉVENTION DE LA NOYADE
COALITION
ACKNOWLEDGING THE LAND

The Coalition would like to begin by acknowledging that the land on which the Coalition office is located is the traditional unceded territory of the Wolastoqiyik (Maliseet), Mi’kmaq, and Passamaquoddy Peoples. This territory is covered by the “Treaties of Peace and Friendship” which Wolastoqiyik (Maliseet) and Mi’kmaq Peoples first signed with the British crown in 1725. The treaties did not deal with surrender of lands and resources but in fact recognized Wolastoqiyik (Maliseet), Mi’kmaq, and Passamaquoddy title and established the rules for what was to be an ongoing relationship between nations.¹

VICE-REGAL PATRONAGE

The Canadian Drowning Prevention Coalition is pleased that Her Excellency the Right Honorable Julie Payette Governor General and Commander-in-Chief of Canada has graciously accepted the Coalition’s request to be Patron of the Canadian Drowning Prevention Coalition.

Vice-regal Patronage

“The Governor General plays a key role in promoting national identity by supporting and promoting Canadian values, diversity, inclusion, culture and knowledge. As such, the Governor General supports associations and organizations for their outstanding contributions to society. Patronage is granted at the discretion of the Governor General to organizations that meet the following criteria:

• have objectives aligned with the role and responsibilities of the Governor General;
• are national in scope;
• are governed and managed responsibly and sustainably; and,
• have a solid record of achievement with programs implemented on an annual basis.”²

Biography³

Before becoming Governor General, Julie Payette was an astronaut, engineer, scientific broadcaster and corporate director. From 1992 to 2013, Ms. Payette worked as an astronaut and flew two missions in space. She also served many years as CAPCOM (Capsule Communicator) at NASA’s Mission Control Center in Houston, Texas, and was Chief Astronaut for the Canadian Space Agency.

From 2011 to 2013, she worked as a scholar at the Woodrow Wilson International Center for Scholars in Washington, D.C., and was appointed scientific authority for Quebec in the United States. Between July 2013 and October 2016, she served as Chief Operating Officer of the Montréal Science Centre. Ms. Payette is active in multiple facets of the community. She has received many distinctions and 28 honorary doctorates. She is an Officer of the Order of Canada and a Knight of the Ordre national du Québec.
FOREWORD

Canada continues to have fatal and non-fatal drowning events - these are preventable. Some communities have increased burden, including new Canadians, Indigenous peoples, young adult males, and children. The burden of drowning is magnified by its impact on family, friends, co-workers, and communities. Lapses of continuous, effective supervision is the greatest cause of child drowning. Alcohol use continues to be a significant contributor to adult drowning events. More PFD wearing would reduce drowning mortality.

The Canadian Drowning Prevention Coalition (Coalition) is facilitating and coordinating efforts to reduce eliminate drowning events as its single focus. Technical working groups focus on key targets. The volunteers who support the technical working groups have increased the intellectual capacity and diversity of skills within the drowning prevention effort. These participating stakeholders have contributed, learned, and shared in the collective effort to focus thinking and actions. We are grateful and respectful of this collaboration, giving of time, resources, and actions.

More work is needed to set achievable targets for drowning reduction with a goal of elimination. We must become more innovative and more effective to have greater impact. We cannot accept lapses in our multilayer prevention systems. Cultural change and focused prevention actions need more effort. We need more research to better understand who, when and how Canadians and Indigenous peoples are at risk, the interventions needed and understanding of how to target these interventions for greater success in eliminating the burden on individuals, families, economies, and communities.

The national drowning prevention effort needs more collaboration, additional intellectual and resource collaboration, and more targeted focusing of limited capacity which needs to expand to achieve the needed impacts. More learning is needed from drowning prevention efforts, actions, and research from the international community.

The Covid-19 pandemic had been a large social and health changing force. Nimble adjustments informed by learning are being applied. We need the same nimble and informed adjustments applied to drowning prevention in Canada. Drowning event incidences changed during this pandemic. We need to learn from this.

Thank you to all who have contributed thinking, time, and effort to assist the drowning prevention journey.

- Stephen B. Beerman, MD, Co-Chair, Canadian Drowning Prevention Coalition

EXECUTIVE SUMMARY

The mandate of the Canadian Drowning Prevention Coalition is to create recommendations for high impact actions for drowning reduction in eight (8) key focus target groups: children 1 to 4 years old; drownings in supervised settings; Indigenous peoples – First Nations, Inuit, and Métis; new Canadians; Northern Canada, rural areas, and cold water; water transport-related drownings; unintentional water entries; and, young adult males. These actions should be achievable, focused on impact, and measurable.

Recommendations for this 7th edition of the Canadian Drowning Prevention Plan include:

**Encouraging increased multisectoral collaboration in all areas of drowning prevention** - supporting the creation/expansion of community-based coalitions and projects focused on reducing drownings; the use of toolboxes; and, the establishment of protocols for drowning prevention and post-drowning incidents.

**Ensuring that data guides interventional efforts** - expanding data collection/research to include socioeconomic risk factors, non-fatal, and intentional drowning; encouraging research by Indigenous people to determine the extent to which current programs could be adapted prior to delivery within Indigenous communities to ensure cultural relevance; researching bystander/rescuer drowning in Canada; researching intentional drowning (i.e., homicides and suicides); undertaking retrospective and prospective studies on drowning among those living with neurodevelopmental disorders and medical conditions; and, conducting research on the effectiveness of in- and out-of-water technologies designed for drowning prevention.

**Securing federal funding** for - research on non-fatal drowning; the design/delivery of an interactive, online map to identify high-risk drowning areas to inform the public, policy and decision-makers; and, to increase the effectiveness of post-drowning initiatives linked to specific behaviors relevant to a location; and, the implementation framework for survival swimming programs for all new Canadians.

**Lobbying for Government of Canada facilitation, implementation, and support of** - amendments to Small Vessels Regulations15 (SOR/2010/91 – 204(a)/310((1)(a)(i))/302 for small vessels to require that a Transport Canada approved personal floatation device or lifejacket must be worn by each person on board; an implementation framework for mandatory cardiopulmonary resuscitation (CPR) training with driver’s license (new/renewal); a Drowning Review Board to review drowning incidents and make recommendations for intervention; an implementation framework for consistent pool fencing legislation across Canada; strategies and messaging to ensure supervised settings is a national priority and the first target to reach zero mortality; and, the UN Resolution on Drowning Prevention.
ACKNOWLEDGEMENTS

Coalition Steering Committee The Coalition would like to thank its steering committee for providing content and expert feedback: Sara Anghel, National Marine Manufacturers Association; Dr. Stephen B. Beer, University of British Columbia; Liane Boisvert, Children's Hospital of Eastern Ontario; Markus Brunner, Pool and Hot Tub Council of Canada; Barbara Byers, Drowning Prevention Research Centre Canada; Dr. Tessa Clemens, Drowning Prevention Research Centre Canada; Adrian Cosu, City of Mississauga; Dr. Audrey Giles, University of Ottawa; Michelle Hebein, Canadian Red Cross; Patricia Kitchen, Lifesaving Society Canada; Sasha Maleki; Cara McNulty, Life Jackets for Life John Morrison, F/P/T Sport Physical Activity and Recreation Committee; Kevin Paes, Canadian Red Cross; Dr. Ian Pike, BC Injury Research and Prevention Unit; Wendy Schultenkamper, Lifesaving Society Canada; Michael Shane, Lifesaving Society Ontario; and Chris Wagg, Ottawa Drowning Prevention Coalition.

Technical Working Groups The Coalition would like to thank its technical working group participants for undertaking this important work: Neil Arason, British Columbia Ministry of Health; Dr. Louis Francescutti, School of Public Health, University of Alberta; Emily Francis, Royal Roads University; Dr. Gordon Giesbrecht, Laboratory for Exercise and Environmental Medicine; Shawn Goldmantz, WaterBabies; Dr. Susan Glover Takahashi, PostMD Education, Faculty of Medicine, University of Toronto; Vienna Lam, Simon Fraser University; Rachel Lamont, Parachute Canada; Jay Lim, 25:8 Architecture + Urban Design; Craig Lingard, Kativik Regional Government, Quebec; Jamesie Mearns, Emergency Management, Nunavut; Michelle Kassis, PostMD Education, Faculty of Medicine, University of Toronto; Paige Lacroix, AquaTalk; Anne Morgan, Recreation and Parks Association of the Yukon; Dr. John Oliffe, University of British Columbia; Dr. Michael Patterson, Department of Health, Nunavut; Jake Quinton, University of Ottawa; Ted Rankine, Playsafe Productions; Kia Rassekh, Investment Funds Council of Quebec; Joey Rusnak, Lifeguard Authority; Karen Sampson, Entraîneure en plein air et piscine; Mike Scott, Emergency Services, Northwest Territories; Eric Shendelman, Canadian Camping Association; Roger Skinner, Office of the Chief Coroner for Ontario; Lisa St-Amant, PostMD Education, Faculty of Medicine, University of Toronto; Sandra Tirone, Mother of Raphaël; and, Kelli Toth, Independent Water Safety Advocate.

Executive Editor Lisa Hanson Ouellette Editorial Committee Tessa Clemens and Chris Wagg

Funding and Support Financial and in-kind support for the Coalition is provided by: Lifesaving Society Canada, Lifesaving Society British Columbia & Yukon, Lifesaving Society New Brunswick, and Shendy’s Swim School. Translation services are provided by the Coalition’s volunteer translation committee. Website design is provided by BHWorkz. The Coalition is grateful to the Assembly of First Nations and to the Métis National Council for meeting and talking with us about the drowning burden amongst First Nations and Métis peoples. Photo and infographic credits for this 6th edition: Shane Bernard, Jenny Booker, Emily Francis, Dr. Gordon Giesbrecht, Sharja Karim (cover), Lifesaving Society BC/YK, Lifesaving Society Canada, Lisa Hanson Ouellette, and Marta Sobral Garcia.

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INTRODUCTION

A coalition An “alliance of distinct parties, persons, or states for joint action.”

In 2014, the World Health Organization released the Global report on drowning: preventing a leading killer. The goal of that report was to galvanize attention for the drowning issue by highlighting how preventable drowning is, and how collaboration across sectors can save lives. In 2017, the World Health Organization released its second report on drowning, Preventing drowning: an implementation guide, to provide practical guidance for implementing 10 drowning prevention strategies outlined within its pages.

The Canadian Drowning Prevention Coalition (Coalition) was formed in response to the call to action from the World Health Organization’s 2014 report. Drowning is a multisectoral issue that requires partnership among all stakeholders. Drowning threatens all populations, but the risks parallel many social determinants of health, disproportionately affecting Indigenous peoples, new immigrants, the elderly, and rural populations. Fatal and non-fatal drowning incidents impact not only the individual, but families and entire communities.

This 7th edition of the Canadian Drowning Prevention Plan contains:

Symbols and graphics make identifying definitions and other key pieces of information easier. Look for these symbols:
SECTION 1
THE CANADIAN DROWNING PREVENTION COALITION

Purpose
To protect and maintain public health by conducting research into causes and possible solutions relating to the increase of fatal and non-fatal drowning, as well as collecting, organizing, delivering and disseminating the evidence-based resources to the general public; educating the general public through training, consultation services, and the promotion of exchange of knowledge and information respecting drowning prevention; and, contributing with other stakeholder groups to government policies in matters of drowning prevention, including through advocacy, community engagement and awareness activities.

The Canadian Drowning Prevention Coalition (Coalition) was formed in 2016. It is a charitable organization that provides national leadership, coordination and action planning to reduce drowning in Canada.

It brings together many multisectoral stakeholders in the Canadian drowning prevention effort - government agencies, non-governmental organizations (NGOs), academics, industry, citizen groups and media to provide broad multisectoral input and leadership to drowning prevention in Canada.

Its leadership, technical exchange, research interpretation, and prevention strategic planning ensures that the progress made to reduce drowning is evidence-based, effective and sustainable.

Its work/information/Plan supports academic discussions around drowning prevention and offers infrastructure for academic research.

The Coalition is led by a steering committee that appoints technical working group leaders for each key focus area for drowning prevention in Canada.

The technical working group leaders form multisectoral working groups to create recommendations for high impact actions to reduce drowning.

Goals and scope

- Long-term vision is zero mortality and morbidity from drowning.
- Policy and legislation are impactful drowning risk reduction interventions. Canadian legislation and enforcement exist for marine shipping, water transport, infrastructure, and others. Amendments to existing legislation is required. New legislation is needed in some areas.
- Government engagement in the drowning reduction effort has been helpful and impactful. These partnerships have been driven by civic engagement and NGO leadership. These efforts should be encouraged and continued.
- NGO leadership has been helpful in elevating the priority of the drowning burden to Canadians and the Government of Canada. The Coalition facilitates collaboration and brings a public health approach to this multisectoral challenge.
- Government of Canada department and agencies’ increased participation in the Coalition has been and will continue to be welcomed.

A public health approach to drowning requires an understanding of the burden, an understanding of the inequality of the burden, key focus targeting of interventions, and impact measurement. Designing interventions that engage the populations at-risk and have positive impact is essential. This approach requires careful planning based on existing evidence. Education, social innovations, persistence, resourcing, and effective implementation play key roles in successful drowning mortality and morbidity reduction.
SECTION 2
GAPS IN CANADIAN RESEARCH, REGULATIONS & LEGISLATION

Gaps in Canadian drowning research

If you are in a **sinking car** get out **immediately**!

Remember **S W O C**

**SEATBELTS** off

**WINDOWS** open

**OUT** now

**CHILDREN** first

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**Gaps**

- Non-fatal drowning data collection
- Research on the validity of “swim tests” used to determine if individuals are capable to swim in specific areas and water depths (pools and waterfronts)
- Research by Indigenous peoples about First Nations, Inuit, and Métis drownings (fatal and non-fatal)
- New Canadians fatal and nonfatal drowning data – include years since immigration
- Intentional drownings – homicides and suicides
- Impact of climate change on drowning risks
- Transportation-related fatal and nonfatal drowning events
- Canadian lifejacket/PFD wear-rate – willingness and impacts of legislation change
- Rural and northern drowning prevention interventions – feasibility and scale-up
- Impact of Coroners’ recommendations in fatal and non-fatal drownings
- Effective communication – infographics, signage, messaging, warning, risk reduction
- Bystander CPR in drowning
- Cost-effectiveness of interventions
- Alcohol-related drownings – need for cultural change
- Drownings of individuals with neurodevelopmental disorders & medical conditions
- Rescuer drownings – how to educate the public
- Comparative research on fatal drownings and road traffic fatalities
- Research on drowning prevention technologies

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**Research – Action – Highlights**

- A Letter of Interest was submitted to the Public Health Agency of Canada in September 2019 outlining a national project focusing on survival swimming skills training and water safety education for new Canadians. The pandemic has paused this process.
- A grant application to Transport Canada’s *Boating Safety Contribution Program (recreational boating)* was submitted in October. It focuses on an interactive, online map identifying high risk geographic areas where drownings have occurred during recreational boating activities. This map will later be expanded to include all fatal and non-fatal drownings and identify high risk areas in need of prevention initiatives.
- Swim tests are used as a risk-management tool but currently lack research to support their success in reducing drownings. Evidence collection and analysis is encouraged.
- Research is needed on the benefits of requiring all individuals, regardless of age/swimming ability, to wear lifejackets during group activities in supervised settings.
- Differences between drowning data collection and reporting by the Canadian Red Cross, Drowning Prevention Research Centre Canada, Lifesaving Society Canada, and Statistics Canada exist. For purposes of comparison, researchers, policy, and decision-makers alike need consistency.

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*Special thanks to thermophysiologist, Dr. Gordon Giesbrecht, Laboratory for Exercise and Environmental Medicine for researching and developing a system of escape for individuals trapped inside sinking vehicles.*
Research comparing drowning fatalities to road traffic fatalities

**Road traffic fatalities** include all those who died as a result of a reported traffic collision within 30 days of its occurrence, with the exception of Quebec (before 2007) whereby it occurs within eight days. Similarly, “fatal collisions” include all reported motor vehicle crashes that resulted in at least one death, where death occurred within 30 days of the collision, with the exception of Quebec (before 2007) whereby it occurs within eight days.

**Fatal drowning** “The process of experiencing respiratory impairment from submersion / immersion in liquid; outcomes are classified as death, morbidity and no morbidity.”

**Gaps**
- A study comparing the number of fatal drownings to road traffic fatalities in Canada by Province/Territory/Region is needed.
- An examination of global rankings – road traffic fatalities vs drowning fatalities – is needed.

**Background**

In the early 1990s, multiple sectors shifted their focus on the common goal of reducing road traffic collisions. Working in collaboration, their joint actions resulted in a decrease of road traffic fatalities in the first decade (1992-2002) and a further decrease in 2003-2013 proving that government engagement and partnership with industry, non-governmental organizations, civic foundations, academics, and media/communications can successfully conduct research to support legislative change and public education to shift cultural perceptions and behaviors associated with road traffic.

**Research – Action – Highlights**

- Much can be learned from the multisectoral approach taken to achieve the positive outcomes we see today on the road. Applying a similar approach might reduce fatal and non-fatal drownings in Canada. A study comparing the number of fatal drownings to road traffic fatalities in Canada by Province/Territory/Region, 1992 to 2016 underway. This will include an examination of the public education, collaborative efforts, legislative and regulatory changes, as well as technological advancements that took place to improve road safety and reduce collisions and road traffic fatalities.

**Figure 1: Infographic depicting a sample of road traffic safety technology to drowning prevention technology**
Research on drowning prevention technologies

**Drowning prevention technologies** A spectrum of drowning prevention systems and devices for recreational and/or commercial use ranging from devices to enhance human supervision to products incorporating artificial intelligence that are created for in-water and out-of-water application used on their own or as part of a multi-layered system to support rescue.

**Gaps**

- Little to no evidence is available on the effectiveness of technology in preventing fatal drownings and non-fatal drownings. The following table lists a variety of technologies and the effectiveness of each based on available information. Additional research is needed.

**Table 1: Evidence on the effectiveness of drowning prevention technologies**

<table>
<thead>
<tr>
<th>Technology</th>
<th>Most evidence available</th>
<th>Promising</th>
<th>Insufficient evidence</th>
<th>Ineffective</th>
<th>Potentially harmful</th>
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<td><strong>In-water</strong></td>
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<td>Artificial intelligence (cameras to computer recognition software)</td>
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<td>Motion sensor – sound or lights only</td>
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<td>Positioning technology</td>
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<td>Sonar scanner</td>
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<td>Ultrasound – sound or lights only</td>
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<td>Video camera to live feed (lifeguards watching)</td>
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<td><strong>On-person/wearable</strong></td>
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<td>Approved Lifejacket/Personal floatation device</td>
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<td>On-site swimming tests/wearable color bands (colors represent swim skill level)</td>
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<td>Wearable electronic bands (Bluetooth) – alert sent to facility sensors</td>
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<td>Wearable electronic bands (Bluetooth) – alert sent to parent cell phone/band/tablet</td>
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<td>Wearable bands that self-inflate</td>
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<td>Wearable wrist band that inflates at a designated depth</td>
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<td><strong>Out-of-water</strong></td>
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<td>Alarm – sound or lights only</td>
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<td>Alarm – security alert system to lifeguards</td>
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<td>Alarm – security alert system to security guards/staff (not water-rescue certified)</td>
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<td>Cameras – recording only</td>
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<td>Cameras – live feed to lifeguards</td>
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<td>Cameras – live feed to security guards/staff (not water-rescue certified)</td>
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<td>Certified lifeguards</td>
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<td>Direct/vigilant/consistent/uninterrupted parental supervision</td>
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<td>Drones</td>
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<td>Facility audits</td>
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<td>Four-sided fencing with locked gates</td>
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<td>Public education / Public service announcements</td>
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<td>Rope/chain to enclose area</td>
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<td>Sensors with location activated voice/message system</td>
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<td>Signage</td>
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<td>Television monitor with poster/words safety rules</td>
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<td>Television monitor with video safety rules</td>
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<td><strong>Layers of protection</strong></td>
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**In-water and wearable on-person technology** tracks the movements and/or depth of in-water participants using recognition software and sounds an alarm in the event of a drowning incident. The purpose of the sound and/or strobe light alarm is to hasten and improve the rescue and reaction-time of lifeguards on duty and/or parent/guardian/supervisors.

**Out-of-water technology** relays a message, alarm or image to a central location in an effort to impair and/or track movement and/or locate an individual(s) to prevent water entry and/or improve the rescue and reaction-time of rescuers during a water-related incident.

**Combined in-water and out-of-water technology** sends images to recognition software which differentiate between normal and abnormal water movement and sounds an alarm to a lifeguard team/aquatic staff/supervisor/parent/guardian. The purpose of the combined system is to identify someone in distress that on duty lifeguards/staff/supervisor/parent/guardian have missed.

**Layers of protection** usage of in-water and out-of-water technology combined with in-person supervision (e.g., vigilant parents/guardians and a lifeguard team).

**Research – Action – Highlights**

- New drowning prevention technologies are being created with more on the horizon. Evidence-based research on the effectiveness of these systems and devices is needed.
- Collaboration with drowning prevention technology companies is being sought.
- A partnership between the Coalition, industry (e.g., Bell/Rogers) and a university for annual research scholarship for drowning prevention technology is desirable.

*Figure 2: Infographic depicting a sample of drowning prevention technology*
Gaps in Canadian regulations & legislation

Gaps

- Small vessel regulations need to be amended to require that all children (0-18 years of age) wear a properly fitting, approved, floatation device or lifejacket while on or in a boat of any size for any purpose.
- Small vessel regulations need to be amended to require that adults (19+ years of age) wear a properly fitting, approved, floatation device or lifejacket while on or in boat.
- Vessel regulations need to be amended to require crew members working on a deck of a commercial fishing vessel be required to wear a properly fitted, personal floatation device or lifejacket.
- Consistent federal legislation and regulations for public pools and public waterfronts are needed across Canada.
- Consistent pool fencing legislation is needed across Canada.

Research – Action – Highlights

- A letter outlining the need for an amendment to be made to the small vessel regulations requiring that children wear a properly fitting, approved, floatation device or lifejacket while on or in a boat was prepared and sent to the Minister of Transportation in March 2020.
- The Coalition met virtually with representatives from Transport Canada (TC) and the Transportation Safety Board (TSB) of Canada in May and June 2020. Connections with Coalition stakeholder, Drowning Prevention Research Centre Canada, has been made with an opportunity to share data to TC and the TSB for ongoing projects focusing on lifejackets and drowning prevention. Dialogue is ongoing.
- Research on a classification system outlining for whom, when, and under what circumstances adults should be required to wear a properly fitting, approved, floatation device or lifejacket is underway. A working group focusing on this task was created. Experts are crafting outcomes and recommendations on this topic.
- Experts are crafting recommendations and outcome statements regarding public and residential pool and waterfront legislation following a consultation process.
- The Coalition is seeking funding to collate fatality data for use in the design and creation of an online map made available to the public. This map would identify where multiple fatal and non-fatal drownings have occurred. The identification of high-risk areas will enable local communities and governments to take positive action to prevent further drownings. Positive action may include a focus on drowning prevention awareness initiatives and activities specific to a geographical area and/or a focus on enforcement (e.g., recreational boating activities).
SECTION 3
COMMUNITY AWARENESS, TOOLS & ACTIVITIES, AND COALITIONS

Community drowning prevention awareness

**Goal** To provide drowning prevention tools to support community-based drowning prevention activities.

The classic approach to injury prevention outlines a multilayered approach which starts with measures to prevent the injury event before it takes place. This primary stage is the most effective of the three responses in preventing drowning.

The Canadian Drowning Prevention Coalition recommends consistent, uninterrupted supervision of children by a designated, responsible adult, parent, guardian, or supervisor as an effective means to prevent drowning.

For example,
- Vigilant supervision
- Four-sided pool fencing
- Locks on pool fencing
- Out-of-water alarms
- Survival swimming skills training
- Lifejacket usage

For example,
- Lifeguard Rescue (training – various levels of risk)
- Bystander Rescue (high risk)

For example,
- Hospital administered CPR
- Draining the lungs of fluid using a suction catheter
- Short- and/or long-term hospital care
Community drowning prevention tools and activities

**Goal** To provide post-drowning tools to support community-based drowning prevention activities.

Communities use a variety of methods (e.g., storytelling, memorial stones/plaques, etc.) to retain information about drowning incidents and the bodies of water in which they occurred. These methods serve to educate community members and visitors/tourists on where it is safe to swim and where it is unsafe.

**Mapping** is a method utilized by nations around the world to identify areas at high-risk for drowning, in addition to highlighting key points linked to other public health issues (e.g., Covid-19). Communities across Canada are encouraged to identify key areas in which fatal drownings have occurred in their community and mark these high-risk areas on a map made available to community members and visitors.

**Community town hall meeting or “social or community autopsy”** after a drowning occurs offers an opportunity for details of the drowning incident to be shared, for support to be offered to friends and family of the victim, and for all community members to have a voice in sharing how they believe a future drowning incident can be avoided.

**A community examination** involves a complete review of the event – e.g., behavior, environmental conditions, health, and social issues, as well as “any drowning prevention procedures followed, the type and timing of the intervention, and any barriers encountered during the intervention” which can be used by community leaders and government representatives to create and implement policies and legislation related to drowning prevention.

**Household survey method** is a low to medium-cost method of identifying the ages and genders of individual household members who are presumed drowned following an event (e.g., flooding). For example, a mother may be asked how many children she had prior to the event. It involves data collectors who visit all households in given communities to collect the specific needed to assess the impact of the event.

**Community knowledge approach** is a low-cost option using a combination of collected stories, data, learning outcomes, themes and action recommendations and can be community, regional or national in focus to build knowledge and inform action. This approach can work with fatal and non-fatal drowning as community members know about these events. It is a slightly more efficient and focused method of social autopsy than a household survey method.

“Change in the world begins with change in your neighborhood. And change in your neighborhood begins with change in you…”

– Abhijit Naskar
To share details about your community’s drowning prevention initiatives with the Coalition email info@cdpcoalition.ca using the subject heading: Community Drowning Prevention Action.

**Community memorial projects** focus on preventing future drownings from occurring in a similar manner or in the same location (e.g., infographic signage). Some projects, like the Public Access Lifering\(^1\) (PAL) project that originated for a specific waterway in British Columbia, are now being implemented along waterways in other provinces.

**Online networks / communities** focus on information sharing – training tips, knowledge acquisition, etc. For example, *Lifeguard Authority\(^2\)*, is an international online community that was started in Mississauga, Ontario. It gathers and shares information within an interactive group of followers. As of October 2020, 3,000+ followers were engaged in dialogue about aquatic-related issues, including drowning prevention.

**Community foundations** focus on social improvement. Some foundations focus on public education and communication, while others may include lobbying activities such as letter writing, the creation of petitions, and meetings with government representatives to encourage legislative change. An example of a drowning prevention focused foundation is, *Life Jackets for Life\(^3\)* which focuses on mandatory lifejacket wear by children in watercraft. Visit the Coalition’s website www.cdpcoalition.ca for free lobbying materials focusing on drowning prevention.

**Community prevention projects** identify potential high-risk groups and/or behaviors/activities within the community and design and/or implement a project to negate these risks. For example, the *University of New Brunswick International Swim Program (UNBISP)\(^4\)* identified international students as a group at high risk of drowning and formed a voluntary group of certified swimming instructors to deliver an existing survival swim training program (i.e., Lifesaving Society Canada’s, *Swim to Survive\(^5\)* program).

**Authoring articles, Op-ed pieces, books, etc.** is another method of sharing evidence-based information and educating your community and the larger public about drowning prevention. Examples include: an Op-Ed piece written by Dr Kevin Patterson and Dr Stephen B. Beerman in the *Globe and Mail* (3 June 2018), titled “The danger of water is another hurdle for the poor to overcome\(^6\)”\(^7\); and Olympic Gold Medalist, Sylvie Bernier’s book, *Jour où je n’ai pas pu plonger* (Avril 2019) / *The Day I Couldn’t Dive* (2020) in which she reflects on the importance of learning survival swim skills following the drowning of her nephew.
Community-based drowning prevention coalitions

**Goal**

The aspirational long-term goal of community-based drowning prevention coalitions, the Canadian Drowning Prevention Coalition, and the Canadian Drowning Prevention Plan is for zero drowning deaths in Canada in 50 years (2066).

- Action and impact are best achieved by individuals in their own communities.
- Each community has unique key focus targets for drowning prevention.
- Stakeholder engagement needed for each community-based drowning prevention issue.
- Differences and biases need to be reduced, culture needs to be respected, and a commitment to learn from marginalized communities is crucial.

**How to create a community coalition:**

1. Find a leader and create a group with passionate people.
2. Review fatal drowning (mortality) in your community over the last 5-10 years.
3. Review non-fatal drowning (morbidity) in your community over the last 5-10 years.
4. Who is drowning (age, gender, Indigenous, new Canadian)?
5. How are people drowning in your community (what were they doing)?
6. Where are people drowning in your community?
7. What are the key areas in which you can easily make a difference?
8. What are the key areas that will be harder to impact?
9. Create a timeline.
10. Identify community stakeholders (e.g., schools, police, government, environment protection, etc.) that can contribute to developing, implementing, and sustaining goals and impacts for the community drowning prevention initiative.
11. Create an organizational framework to support this work.
12. Set goals for impact.
13. Measure the impact.

Goal  To illuminate key drowning prevention initiatives taking place across Canada in the areas of community action plans, effective policies & legislation, and research

Drowning prevention awards

Community action plan awards recognize:
- Community-based activities that are targeted, innovative and have evidence of impact.
- Displays or created best-practices
- Example to be shared and educationally exchanged
- Educational value in other settings
- Impact for Canadians

Effective policies and legislation awards recognize:
- Municipal, City, Regional, Provincial or National Policies and/or Legislation that will have a positive impact
- Sectoral (aquatic, transport, employment, business, social, sport, etc.) Policies and/or legislation that will have a positive impact
- Example of Best Practices
- Educational value in other settings
- Impact for Canadians

Research awards recognize:
- Addressing priority research questions with well-designed studies
  - Improving drowning data
  - Improving understanding of swim skills training as public health approach
  - Improving understanding of the contextual features that impact drowning program effectiveness
  - Improving understanding of effectiveness of several potential interventions
  - Demonstrate scalability and sustainability for effective drowning prevention measure
- Examples of best practices
- Educational value in other settings
- Impact for Canadians

2019 Recipient – Community Action, Nuu-chah-nulth First Nations, sharing traditional wisdom with Ms. Emily Francis resulting in greater cultural awareness and understanding needed in the design and delivery of water safety programs

2019 Recipient – Policy & Legislation, WorkSafeBC, legislative amendment requiring commercial fishermen to wear lifejackets

2019 Recipient – Research, Summer Locknick, University of Windsor, examining RIP currents for public safety

To nominate an individual, group, organization, or department; or, to apply for the Coalition’s Drowning Prevention Awards please complete the following application: https://cdpcoalition.ca/awards/

Email applications to info@cdpcoalition.ca using the subject heading Drowning Prevention Awards. Submissions for the Canadian Drowning Prevention Awards are due September 1st of each year.

2020 recipients will be announced at the Coalition’s Annual Update on October 19th.
The Barb McLintock Memorial communication award

Goal

To encourage the design of clear and effective messages using posters, artwork, signs or other communication tools to enhance the safety of the public swimming/bathing in supervised settings.

In recognition of her role as co-leader of the technical working group focused on drownings in supervised settings, her passion for drowning prevention, and her strong and steadfast desire to inform the public about important issues the Coalition is pleased to present the Barb McLintock Memorial Communication Award.

Criteria

- Messages are communicated clearly and effectively;
- Messages are designed to enhance the safety of bathers and the public in supervised swimming settings; and,
- Messages are communicated using posters, artwork, signs or other communication vehicles.

If your drowning prevention activity matches the criteria of this Award, complete an application form and include high resolution photo and/or link to any media coverage. Applications received by the deadline will be reviewed by a sub-committee of the Canadian Drowning Prevention Coalition steering committee. Recipients will be announced during the Coalition’s Annual Meeting via webinar in October with awards given to recipients in their own communities later. One champion may be named. A feature on their activity will be included in the Coalition’s Annual Report.

To nominate an individual, group, organization, or department; or, to apply for the Barb McLintock Memorial communication award please complete the following application: https://cdpcoalition.ca/awards/

Email applications/nominations to info@cdpcoalition.ca using the subject heading: Barb McLintock Memorial communication award. Submissions for the Canadian Drowning Prevention Awards are due September 1st of each year.

2020 recipient will be announced at the Coalition’s Annual Update on October 19th.
SECTION 4
MULTISECTORAL PARTICIPATION & METHODOLOGY

*Mandate*  
To create recommendations for high impact actions for drowning reduction in one of the key focus targets. These actions should be achievable, focused on impact, and measurable.

- Multisectoral input and shared leadership is an essential component of the public health approach in the search for successful actions, impacts, and outcomes.
- Coalition participants, steering committee and technical working group leadership, participants, agencies, and organizations are varied and diverse in mandates, missions, and goals; represent many geographic areas, populations, and service providers; and, bring varying perspectives and experiences.
- The participation of at least one participant from each area – government, non-governmental organizations, academics, industry, citizen engagement groups, and media brings a wealth of knowledge about the issue of drowning in Canada.

**Methodology and process**

- Work within a *public health framework* - address disparities in health among different racial, ethnic and socioeconomic groups – i.e., reducing inequities when it comes to drowning morbidity and mortality, being culturally respectful in approaches and interventions, and making a commitment to learning from marginalized populations as opposed to prescribing solutions.
- Complete a *situational assessment*
  - Gather, analyze, synthesize, communicate and discuss data for the purpose of informing planning decisions.
  - Summarize all relevant data related to the key focus target to assist in formulating the goals and action steps. This situation assessment includes:
    - A summary of the existing evidence
    - The identification of key informants
    - A summary of the current work and references in Canada
    - The identification of best practice examples and or normative/expert standard guidelines for this issue from other nations or from other injury related issues, where and if they exist.
- Include *short-term and long-term goals* related to the key focus target (e.g., vision-zero).
- Identify *concrete and comprehensive action steps* linked to the specific efforts that are made to reach the ultimate and intermediary outcome goals related to the key focus target. These will include immediate actions, long-term actions, as well as the anticipated impact of these actions.
SECTION 5
KEY FOCUS TARGETS

Key focus targets  High risk age groups, marginalized populations that are disproportionately affected by drowning, and high-risk sectors or activities.

- To achieve the overall vision of zero drowning deaths in Canada, the Coalition identified key focus targets for drowning reduction. Key focus targets refer to areas for action and impact that have been identified by the steering committee, the Coalition, and Canadians.
- Multisectoral technical working groups are formed around each of the key focus targets and provide recommended actions for drowning reduction.

The Coalition is committed to its guiding principles which focus on the importance of being culturally respectful in approaches and interventions, reducing inequities, and learning from all communities.

Canada’s Key Focus Targets

Children 1 to 4 years of age
Drowning in supervised settings

Indigenous peoples: First Nations, Inuit, and Métis
New Canadians

Northern Canada, rural areas & cold-water immersion
Unintentional water entry
Water transport related drowning
Young adult males
Children 1 to 4 years of age

Zero drownings of children 1 to 4 year of age associated with bathtubs (includes distracted parenting; and, homicides).
Zero drownings of children 1 to 4 year of age associated with backyard/residential pools by 2030.
Zero drownings among children under 1 year of age.

Key Messages

- Drowning prevention in children 1 to 4 years of age is the responsibility of parents/guardians/caregivers in all settings.
- A focus on undistracted supervision is paramount to eliminate drownings among children 1 to 4 years of age in all settings.
- Legislation/regulations/standards/by-laws are needed at the federal, provincial/territorial, municipal levels to enforce a layered approach to prevent Children 1 to 4 years of age from accessing pools, lakes, ponds, and rivers.
- Lifejackets for individuals under 20lbs/9kg need to be approved by Transport Canada.

Background

In Canada, drowning is a leading cause of unintentional injury death among children 1 to 4 years of age.  

The burden of non-fatal drowning is among the highest in this age group: children under five are more likely to suffer a non-fatal drowning requiring an emergency department visit and/or hospitalization than a fatal drowning.  

Private backyard pools are the most common setting where children 1 to 4 years of age fatally drown in Canada.

Research – Action – Highlights

- Media presentation that will be available on the Coalition’s website on the impact that fatal and non-fatal drownings in children 0–4 years of age have on the healthcare system and the front-line health care workers.
- Exploring and collecting existing education materials that educate parents on the elements available to Canadians for creating a layered approach for access to bodies of water (physical barriers, warnings, safety equipment, signage, and caregiver education).
- E.g., Participation in an online presentation focusing on “Child drowning prevention – What you need to know,” with Beyond the Bump Education in October 2020. This presentation was one method of outreach used to share information on drowning prevention with parents.
- Seeking to collaborate with stakeholders in an educational campaign geared towards parent education on drowning prevention in supervised settings (prenatal, postnatal and early childhood)
- Seeking to make connections with the Canadian Nurses Association, Canadian Pediatric Society, The royal college of Physicians and Surgeons of Canada, the Ontario College of Nurses and Public Health Ontario, and others.
- Seeking participation from academia.
Drownings in supervised settings

To identify actions that will result in a significant reduction of drownings to zero within supervised settings by 2025

A designated area at, on or near the water where a supervised activity takes place. A safety plan is in place that directs the supervision of participants by trained personnel.

Key Messages

- A safety plan: shall set out the safety protocols for the facility or activity including applicable procedures and instructions on how to properly document health and safety incidents that occur. Its contents should include:
  - an identification of hazards;
  - location of rescue equipment (e.g., PFDs, reaching pole, first aid kit, AED);
  - how to contact assistance (e.g., EMS);
  - a list of all staff members who have First Aid training and/or appropriate certification(s) for the activity; and,
  - the minimum ratio or ratios of staff members to participants.
- Where a supervised activity is taking place, various forms of technology may be used to aid in safety supervision (e.g., underwater detection system, cameras and/or monitors). These technologies DO NOT replace the trained individual(s) responsible for supervision.
- Both occupational and lifeguard/instructor supervised settings represent seemingly safe environments where the number of drowning deaths should be zero. Protocols for critical incident debriefing and review to create recommendations for future prevention exist in some provinces but not all.

Research – Action – Highlights

- Based on this updated definition of a supervised setting, research will be conducted to assess what percentage of fatal and non-fatal drownings occur during group (i.e., school, daycare, camp group) outings on, in or near water.
- Technical working group projects for 2020/2021 include: producing a 1-minute video on drowning prevention in supervised settings to serve as an education piece to 1) help the public recognize bathers in trouble and, 2) instruct the public on what to do; and 3) how to maintain personal safety during a drowning emergency; and, 4) to share short stories on drowning incidents at supervised settings with recommendations from Coroners Inquests that operators can consider when examining their operating procedures.
- Symposium2020 was rethought in light of the current pandemic. It was one of many tools available to shine light and create action on drownings in supervised settings. Instead, several new tools, resources and videos have been/will be created in its place. These will focus on the integration of technology; legislation and regulation (e.g., lifejackets and pool/waterfront barriers); and, the need for cultural change - i.e., drowning as a public health issue (e.g., need for multi-layered supervision including parent engagement). Information will be available on the coalition’s website.
Jordan Neave’s Story

On May 20, 2006, eighty-year-old Jordan Neave and his nine-year-old brother (both non-swimmers), accompanied by their Grandpa, attended the Olds Aquatic Centre (OAC) family swim. The boys had their own lifejackets to wear when swimming in the pool. Grandpa did not accompany the boys into the pool, due to a medical condition, but remained in the public viewing area. Both boys had their lifejackets on when they entered the water. They also had their “Boogie Boards”, a small surfboard type flotation device. Jordan went to the waterslide, where batters were required to remove their lifejackets before going down the slide. After taking off his lifejacket and using the slide, Jordan entered the deep end of the pool without his lifejacket. He was playing with another child, perhaps using his “Boogie Board” or a floating mat. Jordan’s playmate notified an adult patron that Jordan was at the bottom of the deep end of the pool. The lifeguard was notified. She effected a rescue. CPR and emergency medical procedures were initiated. EMS and fire personnel attended. He could not be revived.

Jordan’s Parents’ Message

“We got the call on our cell phone while we were shopping. My father on the other end, all he could say was ‘the little one, he isn’t breathing’... our lives forever changed...[we were unsure how to parent our remaining son... we had to learn so much... what behavior is normal, what is repressed from his trauma of witnessing his best friend and brother die in front of him...[if] friends and families unsolicited advice on what they think we should do... Mental pain, something you can not see like a broken leg... but you can see in people’s eyes, in their face and their body language trying to hide everything inside... [it] doesn’t stay hidden. Stress leads to health problems... We had a lot of stress and unanswered questions... questions that led to frustration and anger about how this could have happened... how could a government facility fail us... how the pool was run... [how] minimum standards failed our son. We were devastated again...[we] started to get signatures to send to the provincial government to demand they look into this safety problem. We collected over 8,900 signatures over the course of a couple months... and sent them to the office of Parliament... They did look into it, but nothing happened... even with the recommendations from the public inquiry, not much seemed to change... I hope our story shows the gravity of the responsibility taken on by guarding someone’s life, a simple lapse of attention, a fraction of a second can affect so much for the rest of many people lives.

Drowning Impacts Responders

Lifeguards/responders complete training to initiate and follow through on lifesaving measures. Not all situations have a positive outcome. The impact a fatality has on responders and facility staff varies due to a variety of factors – e.g., the level of training, number of years on the job; personality/emotional, psychological, physical support (i.e., access to psychologists, physicians, etc.); support from certifying organizations; employer support, the communities and location of residence in relation to the incident, etc.

Lifesaving Society’s National Lifeguard training program provides candidates with information on critical incident stress, its causes, effects, post incident do’s and don’ts, and how to seek help/support. Following an incident the Lifesaving Society offers lifeguards and operators online resources; participates as an expert witness in inquests; and, after analysing the incident, offers recommendations aimed at enhancing safety. “The lifeguard on deck at the time of Jordan Neave’s drowning was given an impossible task” – Michael Shane, Safety Management Director, Lifesaving Society.

Post-drowning Summary

The pool had a written admission requirement - “children under nine years of age must be accompanied by a responsible person 13 years or older and always be within arms’ reach. Children could wear their own lifejackets and bring toys.” The boys were non-swimmers, needed lifejackets, could not be accompanied by a responsible person, and Jordan was under nine years of age – yet, the boys were given admission. There was no protocol or requirement, written or otherwise, used to screen batters for swimming ability or communicate the same to lifeguards(s). On the day Jordan drowned there were two lifeguards and a receptionist working – one lifeguard on patrol; the other engaged in cleaning duties throughout the facility. The facility’s operational procedures contained little or no attention to positioning of lifeguards or scanning zones (i.e., an area of the pool, both top and bottom, that can be viewed by a lifeguard from their position at a moment in time). With the amenities that were operating (i.e., 25-metre pool with diving board, wading pool, whirlpool and water slide), one lifeguard could not scan an area of use. The lifeguard on deck at the time of the drowning was given an impossible task. Estimates of the number of batters during the relevant time differed from 50 to 50 batters. The batter load was one lifeguard to 50 batters. There is no provincial standard in the province of Alberta and the policies vary from facility to facility. A minimum standard may be misleading and, in this case, does not address the issue. Batter safety depends on lifeguards being able to see all areas of their scanning zone from their scanning position, taking into account the use of the pool (i.e., type of swim, lesson, activity, etc.) and amenities in use (i.e., whirlpool, wading pool, shallow end, deep end, diving board, etc.).

Jordon was on the bottom at the deep end for 10 to 20 minutes before being removed.

Drowning Prevention Strategies

Establish a provincial admission standard and procedures.
To ensure the supervision of young children, public swimming pools should adopt an evidence-based provincial admission standard based on swimming ability and age. Signage indicating this admission standard should be posted in the pool reception area. All staff should be trained in the application of this standard. This standard should be communicated to the public through recreation brochures and public education information. An evidence-based testing standard and procedure should be created to ensure all aquatic facilities utilize the safest procedure and effective tracking system of their batters. All tests should be conducted in shallow water to ensure all batters are tested in a safe manner. An identification/tracking method should be used to identify a batter’s swimming ability.

Ensure lifeguard positions, scanning zones, and rotation charts are posted.
Supervisory staff should ensure that for each of the various aquatic activities (e.g., recreation swim periods), lifeguard placement and scanning zones are clearly defined. Lifeguards should be stationed to see all areas of the pool including the pool bottom from their station. Issues affecting the placement of lifeguarding personnel should be identified (e.g., surface water glare) and resolved. Lifeguard rotation schedules should then be created. All items need to be documented and incorporated into the staff handbook and operational procedures manual. Diagrams or charts illustrating these placements and procedures should be posted in the pool office.

Ensure Pool Supervisory staff receive training in aquatic safety management.
In many aquatic facilities there are management personnel responsible for the direction of aquatic staff. To ensure they are familiar with aquatic standards, all management personnel must receive training.
Indigenous peoples – First Nations, Inuit, and Métis

To support the creation of three technical working groups – First Nations, Inuit and Métis peoples – by 2022.

**Key Messages**

- Indigenous peoples have a preventable drowning rate that is substantially higher than that of non-Indigenous Canadians.
- First Nations, Inuit, and Métis leadership must be the leaders and be involved in the collection, analysis, and dissemination of data by and for their peoples.
- Genuine and respectful relationships with Indigenous leaders, elders, and community members must continue to develop and strengthen.
- There is much to learn from First Nations, Inuit, and Métis peoples on the drowning burden amongst each of these distinct groups.
- Funding support for research on drowning amongst First Nations, Inuit, and Métis is needed.

**Background**

Drowning in the Indigenous population has been reported to be 6 times higher than the Canadian average, and as much as **15 times higher** in children.\(^{26,27,28}\) Indigenous peoples comprise about 4% of the population in Canada, but account for approximately **26%** of drowning cases that involve a snowmobile, **16%** of drowning cases after a fall into water, **10%** of recreational drowning fatalities, and **9%** of boating related drowning deaths.\(^{27}\)

Increased risk of drowning in Indigenous populations has been linked to proximity to open water, low use of personal flotation devices, and alcohol use.\(^{27}\)

**Research – Action – Highlights**

- The Coalition and the Assembly of First Nations (AFN) continue to communicate, strengthen its relationship, and collaborate. The Coalition is grateful for these opportunities to share understanding and looks forward to the possibility of supporting a technical working group focusing on First Nations Peoples.
- The Coalition is grateful for the occasion to open dialogue with the Métis National Council (MNC) in June 2019. It looks forward to future interchanges in 2020.
- The Coalition continues to reach out to the Inuit Tapiriit Kanatami (ITK) in hopes of opening dialogue.
- The Coalition is seeking to better understand and improve health outcomes for Indigenous peoples through a reduction in drowning. Part of the solution is in learning from traditional and local knowledge.
  - To start the conversation, and begin to address and eliminate this disparity, the Coalition will be presenting a workshop at the Indigenous Health Conference 2020 (IHC2020), that will focus on providing space in which participants share traditional and local drowning-related stories, methods, strategies, and interventions; and, the Coalition listens to learn about and seek to comprehend traditional understandings of drowning (e.g., boating, ice, swimming, etc.) from Indigenous leaders, elders, and community members. Collected stories will be shared with IHC2020 planners (for distribution to delegates) and through Coalition publications.
  - The Coalition will remain open to listening and learning about traditional and local drowning-related stories, methods, strategies, and interventions after IHC2020. Indigenous leaders, elders, and community members may continue to share their knowledge with the Coalition via telephone, email or the website [www.cdpcoalition.ca](http://www.cdpcoalition.ca).
New Canadians

To encourage the implementation of survival swimming skills training to all new Canadians within the first three years of their arrival to Canada.

Key Messages

- Newcomers to Canada have different knowledge and/or experiences around issues of water safety/drowning prevention. New Canadians tend to be more afraid of water than those born in Canada making them more vulnerable to drowning.
- Most new Canadians have had a lack of or limited exposure to water for recreation. For many, learning to swim and water safety is not part of their experience in their home country.
- It is important to reach new Canadians with water safety/drowning prevention information and provide opportunities for them to learn survival swimming skills.
- Findings from a pilot study (Thorncliffe, Ontario) support the scaling up and expansion of the project to reach new Canadian communities across Canada.
- Boating and swimming are two important areas where new Canadians need more information and education to reduce their risk of drowning when it comes to being in, on or around water.

Background

A study that examined the association between duration of residence in Canada and risk of unintentional injury among children and youth found that risk of drowning was highest in recent immigrants who had lived in Canada for fewer than five years.²⁹ People who are new to Canada are four times more likely to be unable to swim than those who were born in Canada.³⁰

Research – Action – Highlights

- A Geospatial analysis of Canadian Drowning Locations was conducted by Vienna C. Lam, Barbara Byers, J. Bryan Kinney, and Gail S. Anderson³² and presented at the 72nd American Academy of Forensic Sciences (2020) Annual Meeting in Anaheim, California, United States.
- A pilot program was introduced in the Thorncliffe, Ontario community area (Toronto) during Summer 2019. It is a community with a high number of new Canadians. The program included research evaluation components with the New Canadians after water safety presentations, survival swimming skills instruction for the children, and Family Swim to Survive lessons.
  - Research findings were consistent with the large national quantitative studies conducted by the Lifesaving Society in 2010 and 2016.
  - The results point to a need for water safety education targeted to reach new Canadians, especially those who have been living in Canada for less than 5 years.
  - The overwhelming majority of the children who took the Swim to Survive lessons agreed that the program was fun, that they learned new skills, that learning to swim is important, and they would like to take more lessons.
  - The majority of those surveyed agree that swimming is a life skill and that all should learn to swim in Canada.
  - Overwhelming agreement that the presentation was extremely useful an informative especially to their demographic.

5x

Youth aged 11 to 14 who were new to Canada were five times more likely to be unable to swim than their Canadian-born classmates. 93% of new Canadians of this age indicated that they participate in activities in, on, or around water.³¹
Northern Canada, rural areas, and cold-water immersion

To respect and learn from traditional Northern and rural practices and ensure that recommended drowning prevention strategies are appropriate to ensure a reduction in drownings in Northern Canada and rural areas.

Key Messages

- Rural residence has been associated with higher risk of drowning.\(^{26}\)
- More drowning fatalities have been occurring in rural areas in recent years than in the past.\(^{27}\)
- Climate change (e.g., thinning ice) in the North increases risk (e.g., snowmobile usage).
- Teaching methods or information that may have originated from the South is inappropriate for the North.
- Accessibility to relevant affordable lifejackets and other safety equipment is limited or unavailable.

Background

Canada has an abundance of natural bodies of water, many of which sustain very cold temperatures year-round. Immersion death in cold water is frequent in northern countries such as Canada. On average, \(200\) people die as a result of cold-water immersion each year.\(^{33}\)

Drowning rates are highest in the Yukon, Northwest Territories, and Nunavut.\(^{15}\) Drowning risk in Northern Canada is increased by proximity to water and lower water temperatures.\(^{34}\)

Research – Action – Highlights

- Summarize initiatives already in place and compare these projects to determine gaps (e.g., determine if there are any data gaps within the National Drowning Report tied to Northern Canada, rural areas and cold water).
- Identify and describe disparities that exist (e.g., lack of access to ‘learn to swim’ programs).
Unintentional water entry

To identify and encourage the implementation of actions that will result in a significant reduction of drownings due to unintentional water entries by 50% in ten years (2030).

Unintentional water entry  The person/people never intended to be in the water. There was no on or off-road motor vehicle, snowmobile, or aircraft involved, and the drowning was not boating-related.

Key Messages

- Drowning prevention in children is the responsibility of parents, guardians, and caregivers in all settings.
- The education of individuals on the safe rescue of others is becoming increasingly important.
- Further research is needed on incidents that are fatal or non-fatal involving persons with neurodevelopmental disabilities and/or medical conditions.
- Unintentional water entry includes those who are unexpectedly pushed into water (i.e., the timing and/or method of entry is not planned when pushed, resulting in injury and possible fatality).
- Research is needed on drownings resulting from climate-related emergencies (e.g., flooding).

Background

From 2005-2014 (10-years), 759 people drowned in Canada as the result of an unexpected fall into water. The largest frequency of death in Canada for non-aquatic activities occurred among children 1 to 4 years of age accounting for approximately 21% of fatalities related to unexpected falls into water. Those at risk of fatal drowning from unintentional water entry are clothed, lack the skills to get out safely, and are most likely to be falling into moving water or dockside/poolside areas. Risk of falling into water due to flooding is another area in need of more research.

Research — Action — Highlights

- Engagement of multisectoral experts is scheduled to take place at the International Red Cross’ Survival2020 conference (virtual) in October 2020. Feedback will guide the creation of a template for the development of programs and tools used to promote the importance of undistracted supervision for children 1 to 4 years of age. This will offer guidance at the Federal/Provincial/Territorial and municipal levels to support rescuers in scenarios involving unintentional water entry.
- Research into fatal and non-fatal incidents involving persons with neurodevelopmental disorders and/or medical conditions will begin in Spring 2021, including a national and global situational assessment and data collection (where available). Next steps include the creation of initiatives focused on engaging the public to develop interventions focused on reducing drownings from unintentional water entries, and the creation of a pre- and post-measurement community awareness tool to evaluate the effectiveness of these interventions.
- Data on non-fatal drowning incidents caused by a push into water will be gathered and examined. Initial communications have begun with the Canadian Camping Association membership. The No Push Movement, developed by Eric Shendelman, will be further developed and made available to the public sector through symposium presentations, social media, and through a website. Pledge packages are designed to engage Canadians in pledging to not push anyone into the water and to stop pushing when they see it.
Water transport-related drowning

To identify and encourage the implementation of high impact strategies, as well as recommendations previously made by Coroners, Medical Examiners and the Transportation Safety Board that will result in a significant reduction of water transport-related drownings by 75% in ten years (2030).

Key Messages

- Wear a properly fitting lifejacket or personal floatation device (PFD)
- Boat sober
- Take a boating course
- Prepare your vessel
- Be cold water safe

Background

Water-related deaths in Canada are more frequently associated with boating than any other activity.\(^{38}\)

The most common factor associated with boating deaths in the last two decades has been the non-wearing of personal flotation devices.\(^{38}\)

The vast majority of boating related drowning deaths occur among males between 15–74 years of age.\(^{38}\)

Research – Action – Highlights

- The technical working group for Water transport-related drowning is performing a scoping review to identify key issues, trends, and gaps.
- Following the scoping review, this group will make recommendations on priority high impact implementation strategies.
Young adult males

To change Canadian males’ attitudes toward high-risk behaviors in, on and around water.

Key Messages

- 80% of all drownings are male. Male drowning rates are not unique to Canada.
- Indigenous men are over-represented in this group.
- More initiatives focused on reducing drowning rates among males are needed.
- Prevention initiatives targeting behavior changes are needed as they relate to prevention, knowledge, and intention.
- Targeted efforts in a variety of venues and using multiple channels is needed to reduce the high-risk behaviors of males.
- Reinforced messaging over the long-term is recommended due to the complex nature of changing behaviors and attitudes.
- Modification of existing programs to accommodate differences between males (boys and men) and females (girls and women) are needed to transform societal norms about gender-relations.

Background

In Canada, young adults 20 to 34 years of age consistently have high unintentional water-related fatality rates relative to other age groups. Within this age group 20-24-year-olds have the highest death rate (1.6 per 100,000). Approximately 1 of every 2 young adults who fatally drowned had consumed alcohol. 79% of drowning fatalities occur among men and the greatest proportion of male drowning deaths occurs among young adults 20 to 34 years of age (9 out of 10 drowning victims are male in this age group).

Research – Action – Highlights

- Changing Canadian males’ attitudes toward high-risk behaviors in, on and around water is a long-term goal. It will be supported by consistent evidence-based messaging, delivered in a variety of ways, which appeals to diverse males’ values and needs that reinforce safe behavior in, on, and around water while transforming social norms about water safety practices.
- New technical working group leadership was ratified in July 2020.
- Seeking stakeholder participation from industry, government, non-governmental organization, media, and civic foundation.
SECTION 6
RECOMMENDATIONS & NEXT STEPS

Community-based engagement

**Goal**  To encourage Canadians to seek, identify, and share drowning prevention initiatives which focus on best practices and impacts.

**Recommendations – Call to action**

- Data should guide interventional efforts.
- Uninterrupted, consistent, responsible adult supervision of children is needed.
- A focus on multilayered approaches to drowning prevention should be encouraged.
- Action and culture change to reduce drowning in supervised and unsupervised settings, including lifesaving information, equipment, and plans/protocols could be made available to users on site to decrease fatal drownings should a situation arise.
- Encourage the increase of multisectoral collaboration in all areas of drowning prevention.
- The most vulnerable Canadians need to be engaged in solution finding and leadership to find interventional strategies for drowning risk reduced.
- Continue to build relationships with stakeholders within the Government of Canada ministries, departments and agencies; the Assembly of First Nations, Inuit Tapiriit Kanatami, and the Métis National Council; as well as multicultural associations, and communities across Canada.
- Encourage and support the creation and expansion of community-based coalitions and drowning reduction projects to increase community-based actions and to include both fatal and non-fatal drowning.
- Encourage Canadians and community groups to utilize toolboxes provided and establishing a list of protocols to be followed for drowning prevention and post-drowning incidents activities/initiatives.

**Next steps**

- Include unintentional and intentional drownings in the scope of community-based research, activities, strategies, etc.
- Engage the most vulnerable Canadians in solution finding and leadership to find interventional strategies for drowning risk reduction.
- Create additional tools to support communities in mapping high-risk areas.
- Create work with multisectoral stakeholders to develop a list of protocols to be followed for drowning prevention and post-drowning incidents.
Policy and legislation

Goal To ensure evidence-based data guides interventional drowning prevention efforts.

Recommendations – Call to action

- The Government of Canada can assist the Canadian Drowning Prevention Coalition by:
  - Supporting the UN Declaration on Drowning Prevention.
  - Funding research on non-fatal drowning.
  - Facilitating and supporting the implementation framework for survival swimming programs for all new Canadians within three (3) years of arrival.
  - Funding for the design and creation of an online map identifying 1) areas in which drownings incidents/events (fatal and non-fatal) have occurred, where more than one drowning has occurred in a single sight or where multiple drownings have occurred during a single situation; and, 2) high-risk areas where local communities and governments can take positive action to prevent further drownings.
  - Facilitating and supporting an implementation framework for consistent pool fencing legislation across Canada.
  - Amending Small Vessels Regulations15 (SOR/2010/91 – 204(a)/310(1)(a)(i)/302 for small vessels to require that a Transport Canada approved personal floatation device or lifejacket must be worn by each person on board.
  - Facilitating and supporting an implementation framework for mandatory cardiopulmonary resuscitation (CPR) training with driver’s license (new or renewal).
  - Implementing a Drowning Review Board to review drowning incidents and make recommendations for implementation.

Next steps

- Engage the Government of Canada, provincial/territorial governments and local governments across Canada in the drowning prevention effort.
- Review evidence to more clearly identify the length and/or type of “small vessels” that must have statutory requirements for wearing a personal floatation device or lifejacket.
- Creation of lobbying materials and resources to be made available via www.cdpccoalition.ca.
Research and Development

Goal To ensure evidence-based data is available to guide interventional drowning prevention efforts.

Recommendations – Call to action

- The design/delivery of an interactive online map identifying all drowning locations across Canada.
- Utilize learning from road traffic fatality reduction in Canada.
- Collaborate with drowning prevention technology industry to determine the effectiveness of technology in preventing drowning incidents.
- Seek a partnership with technology and academic sectors to create a scholarship for drowning prevention technology development.
- Research by and for Indigenous people – First Nations, Inuit, and Métis.
- Research on and benefits of survival swimming programs for new Canadians.
- Create and evaluate programs that teach basic drowning recognition and rescue skills to the public with specific focus given to groups at highest risk.
- Expand Canadian drowning data collection and research should expand to include a more in-depth understanding of socioeconomic risk factors and should progress to the inclusion of non-fatal and intentional drowning. Normative/expert guidance on an unintentional water entry definition and classification system would be helpful.
- Make drownings in supervised settings a national priority and the first target to reach zero mortality.
- Conduct retrospective and prospective studies on drownings amongst children and adults living with neurodevelopmental disorders and medical conditions.
- Research bystander/rescuer drownings in Canada to learn the circumstances under which each such drowning occurred to better understand how these drownings may be prevented in the future.

Next steps

- Research on and benefits of survival swimming programs for new Canadians.
- A study on drowning among children and adults living with neurodevelopmental disorders is being undertaken by the technical working group focusing on unintentional water entries.
- Seek funding for the design/delivery of an interactive online map highlighting fatal and non-fatal drowning locations across Canada to be made available to Canadians/public to increase awareness of the danger of high-risk areas among the public, as well as policy and decision-makers.
- Seek a partnership with technology and academic sectors to create a scholarship for drowning prevention technology development.
REFERENCES

24. Drowning Prevention Research Centre Canada. Special query on variables related to the Coalition’s definition of supervised settings.
25. Drowning Prevention Research Centre Canada. Special query on variables related to the Coalition’s definition of supervised settings.
Appendices

The drowning issue in Canada

Fatal drowning

“The process of experiencing respiratory impairment from submersion / immersion in liquid; outcomes are classified as death, morbidity and no morbidity.”

- The number of drowning deaths reported over 25 years has declined, yet hundreds of fatal drowning incidents still occur in Canada each year.
- During 2012-2016 (most current five-year period), approximately 444 people fatally drowned in Canada which corresponds to 1.3 deaths per 100,000 population each year.22
- More than 30 years of national research and reports are available through Lifesaving Society Canada. A 2-page at-a-glance version with infographics is published annually complimenting the annual Canadian drowning report.22

Additional Resources

At-A-Glance

Analysis of the most recent available water-related fatality data reveals the current profile of drowning mortality in Canada:

- The highest water-related fatality rates (2012-2016) are found in seniors 65+ and young adults 20 to 34 years of age.
- Most victims are male (80%).
- The largest number of drownings occur in summer - May through September.
- The majority of water-related fatalities in Canada occur in natural bodies of water (69%) like lakes, ponds, and rivers. Water-related fatalities in man-made settings were less common than in natural bodies of water in 2012-2016. Bathtubs were the most common man-made setting where drowning deaths occurred.
- Almost two-thirds of all fatal unintentional drowning occurs during a recreational activity. Another quarter occur during daily living activities.
- Boating and aquatic activities such as swimming and wading are the most common.

The long-term progress that has been made in reducing death by drowning in Canada is encouraging, but on average there are still approximately 450 preventable, unintentional water-related fatalities occurring each year. This reinforces the need for continued drowning prevention efforts.
THE DROWNING ISSUE IN CANADA

Non-fatal drowning

**Non-fatal drowning** “Outcomes are fatal or non-fatal. In non-fatal drowning, the process of respiratory impairment is stopped before death.”

**Involuntary distressed coughing** The coughing up of liquid, moving liquid out of the airway, and/or sustained coughing. This offers all observers a reliable and suitable means of establishing that the process of drowning had begun.

**Previous functional capacity** The individual’s cognitive, motor, and psychological capacity before the drowning incident. It is used to measure the degree of morbidity which occurred as a result of drowning.

Non-fatal Drowning Categorization Framework (NDCF)

The NDCF offers clarity of understanding, as well as consistency and reliability for assessment, evaluation, conversation and debate. It also serves as a means for dialogue and communication about non-fatal drownings in all settings, including the media and community surveys.

The NDCF could impact the quality of pre-hospital or in-facility care and treatment, thus, resulting in a decline in the number of individuals living with severe morbidity/injury (meaning that there may be an increase in number of individuals living with some or no morbidity/injury) from a drowning event.

### Limitations

1. The reporting of a description of respiratory impairment immediately following the drowning incident can be ambiguous.
2. The cross-sectional measurement of an individual’s capacity is done at the time the information is gathered. As time progresses so too may the symptoms and may, therefore, change.

It should be noted that where more detailed clinical data is available, the NDCF may be used alongside other scoring systems to provide additional detail.