



## **Safe Kids Canada** **Position Statement**

### **Pool Drowning and the Need for Safer Pool Fencing**

Safe Kids Canada recognizes that safer pool fencing can prevent the disability and death of young children as a result of unintentional drowning. Researchers estimate that safer pool fencing could prevent 7 out of 10 pool drowning incidents for children under five.

Safer pool fencing works by completely separating the pool from the home – with a four-sided fence and self-closing, self latching gate(s). This prevents child drowning that can happen when a young child slips unnoticed into the backyard from the home – and into the pool.

Pool fencing laws should be established and enforced in municipalities across Canada to protect young children from drowning and near-drowning in home pools. Pool fencing by-laws should require *at minimum* 1.2 m (4 ft) high, four-sided fencing with self-closing, self-latching gates for homes with pools. Local by-laws should be supported with education and by minimum standards of provincial and territorial legislation.

Safer fencing should protect children from water hazards around the home. All home pools with a depth of over 0.6 m (2 ft) should be properly fenced. Safer fencing should be installed to protect children from accessing home swimming pools, including in-ground, above-ground, portable, inflatable and hydro-massage pools, hot tubs and spas as well as decorative ponds.



## Summary

### Drowning:

Unintentional injuries are the leading cause of death for young Canadians. Drowning is the second leading cause of injury-related death to Canadian children.<sup>1</sup> An estimated 58 children age 14 and under drown each year in Canada, while another 140 are hospitalized for near-drowning.<sup>2</sup> This is equal to about two elementary school classrooms of children dying *every year*. The annual economic cost for drowning in Canada has been estimated at over 250 million dollars.<sup>3</sup>

### Pool Drowning:

Safe Kids Canada supports healthy active and **safe** living. Since swimming pools are involved in nearly half of all drowning and near-drowning incidents for children under 14 years,<sup>4</sup> measures must be taken to reduce drowning in these environments. Both in-ground and above-ground pools are a potential hazard.<sup>5</sup> Many drowning deaths happen in private homes with unfenced or inadequately fenced swimming pools and spas.<sup>6</sup> In most drowning cases the pools (95%) have inadequate safety gates.<sup>7</sup>

Pools are a particular hazard for children under five years old because they are attracted to water but lack a clear sense of danger.<sup>8</sup> Drowning of young children often occurs when the child is walking or playing near water, not when they are swimming or intending to go in the water.<sup>9</sup> Most happen when the child gets near water during a momentary lapse in adult supervision.<sup>10</sup> The rate and number of young children who drowned in backyard pools varies across Canadian regions with higher incidence in Ontario and Quebec.<sup>11</sup> This is likely related to a higher number of pools in these provinces.

### Prevention:

Researchers estimate that proper fencing could prevent 7 out of 10 drowning incidents in home swimming pools for children under age five.<sup>12</sup> Safer pool fencing should be *at minimum* 1.2 m (4 ft) high, four-sided and with self-closing, self-latching gates. The fence should be constructed in a way that makes it difficult for young children to climb.<sup>13</sup> For example, vertical fence slats are preferable to horizontal designs. A four-sided fence should completely separate the pool from the home. This fencing is a passive or 'built-in' measure that helps to keep children away from the pool and can prevent unintentional drowning.

In most places in Canada, safer pool fencing is not yet required. Municipal residential pool fencing laws, where they exist, often require only three-sided fencing. While three-sided pool fencing has been shown to reduce drowning due to trespassing,<sup>14</sup> three-sided fencing does not protect the children who live in or are visiting the house since they may gain access to the pool directly from the house.

Safer pool fencing laws put in place in other jurisdictions has helped to prevent drowning.<sup>15</sup> For example, drowning has been reduced in *public* pools since fencing requirements have been put in place.<sup>16</sup> Other countries, including Australia, New Zealand and France have had success with legislation requiring safer fencing for home pools. If Canada had mandated four-sided pool fencing with self-closing, self-latching gates for home pools as many as 292 drowning and near-drowning incidents of children under the age of five could have been prevented during the 10 year period from 1994-2003.<sup>17</sup>



## **Background**

### **Who is at Risk and Why?**

Drowning is the second leading cause of injury-related death to young children.<sup>18</sup> A child drowns quickly and silently and children who survive a near-drowning (submersion injury) frequently suffer serious long-term effects from brain injury due to a period of time without breathing.<sup>19</sup> Surveys have shown that parents may underestimate children's vulnerability to water hazards and hence may not perceive drowning to be a risk.<sup>20</sup>

Drowning risks are closely tied to child development. Children under age five are attracted to water but lack a sense of danger. Also, children in this age range tend to be top heavy and vulnerable to falling into the water, increasing their susceptibility to unintentional drowning. Young children's lungs are also significantly smaller than adult lungs and, as a result, fill quickly with water. Consequently, young children can drown quickly in as little as five centimeters (two inches) of water. Toddler pool drowning tends to occur at their own home or at another pool lacking fencing, having inadequate fencing, or due to propping or leaving gates open.<sup>21</sup>

### **When and Where Does Drowning Occur?**

Swimming pools are the location of close to half of all drowning and near-drowning incidents for children age fourteen and under.<sup>22</sup> Pools are a particular hazard for children under five years of age. Many drownings happen in private homes with unfenced or inadequately fenced swimming pools and spas.<sup>23</sup> According to a recent Canadian Red Cross report, half of pool drowning incidents in single-unit homes involved children aged one to four years, making it the most frequent location for drowning of young children. Nearly all of these in pools (95%) had inadequate safety gates.<sup>24</sup> The Red Cross report also found that pool drownings of one to four year-olds occur in both in-ground and above-ground pools. Pools with easy access from the home are a particular concern.

Quebec, with approximately 24 per cent of Canada's population, accounted for 47 per cent of pool drownings of children aged 1 to 4 years.<sup>25</sup> In Quebec, pools are often joined to a living area like patio or deck, making them more accessible to young children.<sup>26</sup> The rate and number of young children who drowned in home pools varies across Canadian regions with higher incidence in Ontario as well as in Quebec.<sup>27</sup> This may be related to exposure to home pools.

As a cool relief during hot Canadian summers, home pools are attractive to many families. Whereas pools were once a significant financial investment there are now many types of low-cost 'temporary', inflatable, above-ground pools currently available on the market. There is concern among the injury prevention community that drowning risk for young children could increase across Canada due to increased exposure to home pools. Though these pools are not necessarily designed to be permanent fixtures, they are increasingly large in size and water capacity. Due to this large size they may be kept filled with water rather than emptied out after use. Since the pools are less expensive and may not be considered permanent. There is a concern that they will not be considered less of a hazard and not be adequately permanently fenced and gated. As such these pools present a significant drowning risk for young children.



### **The Burden of Drowning – Economic and Social costs**

Annual economic costs for drowning for all ages in Canada have been estimated at over 250 million dollars.<sup>28</sup> There are also significant indirect costs associated with both drowning and near-drowning. Children with severe neurological impairment following a near-drowning incident often require ongoing specialized care. This may result in serious financial hardship for the family.

Pain and suffering are also a serious consideration related to death and disability resulting from a preventable tragedy. Drowning injury can result in reduced healthy life years lived. Another way to consider burden from premature death is in terms of potential years of life lost (PYLL). When a child dies many anticipated years of living are cut short. For example, a child who dies at the age of four is missing over seven decades of potential life years due to premature, preventable death.<sup>29</sup>

### **The Solution – Safer Pool Fencing**

Safer pool fencing works by completely separating the pool from the home – with a four-sided fence and self-closing, self latching gate(s). This prevents child drowning that can happen when a young child slips unnoticed into the backyard from the home – and into the pool. This ‘safer’ fence affords a child a critical layer of protection against drowning related injury and death.

Since swimming pools are the site of nearly half of all drowning and near-drowning incidents, measures must be taken to reduce drowning in these environments. The most effective way of preventing unintentional injury is with a combination of the three ‘Es’ – public education, environmental changes, and enforcement of necessary legislation. Systematic reviews have concluded that safer pool fencing is the best strategy for reducing the drowning risk for young children in home swimming pools.<sup>30</sup> Safer pool fencing laws, in conjunction with enforcement and complementary public awareness campaigns can reduce drowning.

While parental supervision remains a vital means of preventing unintentional drowning while in water, it may be unrealistic to expect parents to be within arms’ reach of their children at all times when not swimming or intending to swim. Studies show that caregiver supervision alone is not enough to prevent drowning.<sup>31</sup> Therefore, drowning prevention is better facilitated through layers of protection including passive injury prevention measures.

Since the absence of adequate fencing surrounding home swimming pools is the main contributing factor in drowning,<sup>32</sup> awareness about the problem of child drowning in home pools should be raised along with knowledge about recommended fencing safety practices. ‘Built in’ safeguards which provide passive protection are necessary.<sup>33</sup> Research shows that risks to drowning in the home environment can be dramatically reduced through ‘built-in’ or passive protection. The **only** passive prevention strategy that has been shown to significantly reduce drowning in backyard pools is safer pool fencing.<sup>34</sup> Researchers estimate that proper fencing could prevent the majority of drowning incidents in home swimming pools for children under age five.<sup>35</sup>



In a smaller, illustrative study in Australia, drowning in two communities of similar size and composition were compared. In Mulgrave, the community had passed and enforced safer pool fencing by-laws. In the neighboring community, Cairns, swimming pool fencing was unregulated. Within the ten years studied, Cairns, without a fencing by-law, had ten drownings while Mulgrave had only three incidents. Just one of the Mulgrave drowning incidents resulted in a fatality. Interestingly, this death happened in a pool that had been exempted from the fencing regulations.<sup>36</sup>

### **Current Status of Pool Fencing Legislation for Home Pools**

Internationally, several countries have taken steps to protect children through safer pool fencing legislation. Jurisdictions in France, Australia and New Zealand have all put in place requirements for passive measures. Pool fencing laws have led to fewer fatalities and near-drowning injuries when compared to jurisdictions without legislation.<sup>37</sup> Installation of safer fencing that isolated the pool from the house and the yard has been shown to reduce the number of pool immersion injuries among young children by over half.<sup>38</sup> In New Zealand, unintentional child drowning incidents have continued to decline following the introduction of safer pool fencing legislation with approximately ten drowning deaths pre-legislation (1980-1987) to about six between 1987-1995, five between 1995-2000 and about four drowning incidents between 2000-2005.<sup>39</sup>

In most places in Canada, safer pool fencing is not yet required. If Canadian jurisdictions had mandated four-sided pool fencing for home pools similar to New Zealand and Australia, as many as 292 drowning and near-drowning incidents could have been prevented during the 10 year period 1994-2003 for children under five.<sup>40</sup>

Pool fencing by-laws are an example of a child injury prevention intervention that can be put in place by municipalities. Municipal authorities regulate private home pools and building permits. Local by-laws can be supported by education and by minimum standards established by provincial/territorial legislation. Pool fencing laws are enforced at the municipal level.

In Canada there is a patchwork of municipal legislation that relates to pool fencing. Municipal residential pool fencing laws, where they exist, often require only three-sided perimeter fencing. Three-sided fencing does not protect the children who live in or visit the house since they may gain access to the pool from the house.

Municipal pool fencing laws should require *at minimum* 1.2 m (4 ft) high, four-sided fence with self-closing, self-latching gates. All municipalities should enact and enforce safer fencing by-laws for homes with pools. Provinces and territories should work with municipalities to support minimum standards of legislation, education and enforcement.

At time of writing, there were no provincial or territorial laws in place requiring safer pool fencing in Canada. Building construction in each province is regulated by a provincial building code established by the Building Standards Act or provincial building code. Each province or territory either adopts the National Building Code of Canada by referring directly to it (e.g. Yukon) or adapts it into an Act based on the Building Code of Canada (e.g. Alberta).<sup>41</sup> The provincial building codes and standards are enforced through municipal permitting.



In Quebec, *Institut national de santé publique du Québec* has made detailed recommendations for mandatory four-sided fencing for all home pools.<sup>42</sup> Safe Kids Canada endorses these comprehensive recommendations for drowning prevention. Similarly, Safe Kids Canada supported the private members bill introduced in Ontario in 2006 that called for minimum pool fencing standards.<sup>43</sup>

**Table 1: Summary of characteristics of safer pool fencing laws: Canadian (proposed) and international (established) pool fencing legislation.**

Canada – Proposed legislation / recommendations							
Jurisdiction	Specifies 4-sided fencing	Specifies self-closing and self-latching gate	Specifies minimum height of 1.2m (4 ft)	Includes in-ground, above-ground and inflatable pools	Specifies fence construction that inhibits climbing	Requires retrofitting of 4-sided fencing for existing pools	
Municipal	Pool fencing by-laws vary across Canadian municipalities (Check your local pool fencing by-laws for more details)						
Provincial / Territorial Proposals (no provincial /territorial legislation is yet in place)	Ontario (Bill 74 proposed - Not passed)	✗	✗	✗	✗	✓	✗
	Quebec (Recommendations only – No proposed legislation to date)	✓	✓	✓	✓	✓	✓
International Laws							
Jurisdiction	Specifies 4-sided fencing	Specifies self-closing and self-latching gate	Specifies minimum height of 1.2m (4 ft)	Includes in-ground, above-ground and inflatable pools	Specifies fence construction that inhibits climbing	Requires retrofitting of 4-sided fencing for existing pools	
Queensland, Australia	✓	✓	✓	✓	✓	✓	
New Zealand	✓	✓	✓	✓	✓	✓	
France	✓	✓	✓	✗	✓	✗	



## **Pool Fencing Standards**

Safer fencing saves lives and should be mandated. According to the Canadian Red Cross report (1991 to 2000) in only 5 per cent of swimming pool drownings, involving children aged 1 to 4 years, was the pool reported to be equipped with a safer fencing with a self-closing and self-latching gate.<sup>44</sup>

In order to prevent access by young children, four-sided isolation fencing should be at a minimum height of 1.2 m (4 ft) and completely separate the pool from the house, preventing direct access of a child. The pool enclosure should also be constructed of material and design that inhibits climbing. A self-closing and self-latching gate should regulate all access points through the four-sided pool fence. When installed correctly, a self-closing and self-latching gate will prevent unintended access of young children into the pool area by automatically closing and latching every time the gate is opened.

Guidelines developed for safer pool fencing include New Zealand's pool fencing standards entitled *Safety barriers for young children around swimming pools spas and hot tubs*. This standard is referenced in New Zealand's pool fencing legislation, *Fencing of Swimming Pools Act 1987*.<sup>45</sup>

Safe Kids Canada has drafted model safer fencing legislation based on an Oakville, Ontario by-law. This model can be used as a reference for local communities seeking to improve the safety of their municipalities for young children. Complementary tools developed include sample diagrams and brochures. These resources can be found at [safekidscanada.ca](http://safekidscanada.ca).

The Consumer Product Safety Commission (CPSC) in the United States is working with American Society for Testing and Materials (ASTM) to develop a standard for portable pools that would cover the increasingly popular inflatable pools available in the market. Inflatable pools pose the same drowning risks as other pools and must be properly fenced with a self-closing and self-latching gate. Standards for these pools would mitigate risks related to health and safety including sanitation/bacteria, and hair and clothing entrapment as well as product reliability concerns such as liner bursting. Standards should also require warnings that would warn parents about drowning risks in these pools. Warning labels should encourage best practices including strong recommendations about installing safer fencing.

## **Safer fencing - Costs and Other Concerns**

With pool ownership comes many related expenses. For example, additional expenses can include chemical and heating costs. Safer fencing should be considered as part of the cost of owning a pool.

Costs for fencing and gates naturally vary according to the construction and material selected. Fencing costs start at approximately five dollars per linear foot for a 'do it yourself' fence. There are many variables that can affect the total installation cost of a four-sided pool fence including total footage, the number of gates, corners and end posts required, as well as site conditions. Therefore, many fencing companies require an on-site visit to determine an accurate quote. Total installation for a four-sided fence can range between five hundred to several thousand



dollars depending on the above variables. This price is a fraction of the cost of building an in-ground pool.

Retrofitting an existing perimeter fence, by adding a fourth side and appropriate gate(s), is also an option to consider. Retrofitting a backyard fence to add a fourth side and appropriate gates may be a feasible solution for existing pools. The retrofit option may also be much less expensive than new construction.

A concern that may be raised related to fencing is aesthetic considerations. Pool owners may be reluctant to obscure the view of their pool. However, the pool area can be designed to be both visually appealing and safe. There are many options for pool fencing currently on the market that are aesthetically pleasing. Newer types of fencing may also be available in transparent materials.

Another concern that may be raised is that not all pool owners have small children living in the home. However, few could guarantee that a small child would never visit. Victims of backyard drownings include the young children of pool owners or of people visiting a relative or friend with a pool.<sup>46</sup> Home owners are subject to many safety requirements. Pool fencing is similar to installing railing on decks and balconies in that it is 'built-in' protection designed to prevent unintended falls and potentially life-threatening injury. Just as we manage other risks, such as adding secure railings to decks and stairs, water risks need to be managed.

Contrasted to the burden of installing safer fencing, or making existing fencing safer, is the cost of doing nothing. As stated above, drowning costs Canadians millions of dollars every year. It is Safe Kids Canada's position that the value of children's lives saved is greater than the cost of fencing.

### **Support for Safer Fencing Laws**

Supporters of the call for safer pool fencing legislation include many national organizations (please see the growing list below). Safe Kids Canada worked with Decima Research to understand how Canadian parents feel about mandatory safer pool fencing. Participants were asked: "Would you approve changing laws to make four-sided fencing around swimming pools mandatory?". **The national survey results show that a resounding 81 per cent would approve changing laws to make four-sided fencing around home swimming pools mandatory.** Nearly half (48 per cent) of Canadian parents polled have a pool, a spa, or a hot tub.<sup>47</sup>

### **Supporters of Safer Pool Fencing Laws**

- Safe Kids Canada
- Safe Kids Worldwide
- The World Health Organization<sup>48</sup>
- Canadian Red Cross
- Life Saving Society
- Pool And Hot Tub Council of Canada
- Safe Communities Canada
- SMARTRISK
- ThinkFirst Canada



- Institut national de santé publique du Québec
- MPP Lou Rinaldi, Northumberland, Ontario
- AHSC Trauma Program
- Alberta Centre for Injury Prevention and Control
- Atlantic Network for Injury Prevention
- IMPACT, Manitoba
- BC Injury Research and Prevention Unit
- Plan-it-Safe, Children's Hospital of Eastern Ontario
- Child Safety Link, Nova Scotia
- Canadian Parents (81% majority of those polled)

### **Recommendations**

Based on current research available for drowning prevention and safer pool fencing, Safe Kids Canada makes the following recommendations.

#### **Recommendations for municipal governments:**

- Municipal governments review and amend existing or enact safer pool fencing by-laws within their jurisdictions.
- Safer pool fencing is four-sided with a minimum height of 1.2 m (4 ft) and completely separates the pool from the house, preventing direct access of a child. The pool enclosure should also be constructed of material and design that inhibits climbing. A self-closing and self-latching gate should regulate all access points through the four-sided pool fence.
- Safer pool fencing legislation should cover all artificial bodies of water with a depth of over 0.6 m (2 ft/24 in) including in-ground pools, above-ground pools, portable pools, inflatable pools, hydro-massage pools, spa, hot tubs and decorative ponds
- By-laws should be complemented by education and enforcement.

#### **Recommendations for provincial and territorial governments:**

- Provincial and territorial government should work with municipalities to ensure that there is a minimum standard of pool safety legislation. Provincial and territorial governments enact province-wide minimum pool safety legislation, including the requirement of four-sided pool fencing with self-closing and self-latching gates, within their jurisdictions.
- Complementary education and enforcement should also be supported.

#### **Recommendations for pool owners:**

- Four-sided pool fencing should be installed to protect children from accessing private residential swimming pools, including in-ground, above-ground, portable, inflatable and hydro-massage pools, hot tubs, spas and decorative ponds.
- Self-closing, self-latching gate(s) should regulate all access points through the four-sided pool fence. Gates should be installed so that the latch cannot be easily accessed by young children. Gates should be installed to open in the direction away from the pool area. Four-sided pool fencing should be constructed of materials that inhibit climbing by young children.



- Owners of private residential swimming pools may opt to use door locks, pool covers, pool alarms, etc. however, they should never be relied on as the primary means of preventing unintentional child drowning.
- All pool owners should be trained in swimming, first-aid and CPR as these skills can bridge the gap of time between the rescue and the arrival of paramedics on the scene.

#### **Recommendations to parents, caregivers:**

- Supervise young children within sight and reach for any child under age five – or any older child who does not know how to swim well – when he or she is in the water or playing close to the water. Older swimmers still need to be watched carefully.
- Supervisors of children in pools should be familiar with local emergency response contact information. Supervisors should also be trained in swimming, first-aid and CPR as these skills can bridge the gap of time between the rescue and the arrival of paramedics on the scene.
- Choose a lifejacket or personal floatation device (PFD) approved by Transport Canada and that fits your child’s weight and chest size. Buckle it up every time, and use all of the required safety straps and buckles on the lifejacket. A child can slip out of a lifejacket or PFD that does not fit properly or is not buckled up properly.

#### **Recommendations for the pool and spa industry, fence and pool retailers and product standards:**

- Encourage consumers to install safer pool fencing.
- Advocate for drowning prevention measures including safer pool fencing.

#### ***For more background information on drowning prevention and safer pool fencing***

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[http://www.who.int/violence\\_injury\\_prevention/publications/other\\_injury/en/drowning\\_factsheet.pdf](http://www.who.int/violence_injury_prevention/publications/other_injury/en/drowning_factsheet.pdf)

Cost are for all ages. Updated to 2007 dollars via bank of Canada inflation index

[http://www.bankofcanada.ca/en/rates/inflation\\_calc.html](http://www.bankofcanada.ca/en/rates/inflation_calc.html).

<sup>4</sup> Safe Kids Canada. Child & Youth Unintentional Injury: 1994–2003 10 Years in Review. 2006. p. 12

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