Safer Homes for Children

A Guide for Communities

Safe KIDS CANADA

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Safe Kids Canada is a leader working with community partners and national stakeholders across the country in the areas of research, education and advocacy to prevent unintentional injuries to children and youth. Our approach and programming is evidence-based - this means the strategies we recommend are proven to be effective in reducing injuries – like wearing bike helmets to prevent head injuries. We raise awareness and educate families with credible information and solutions to keep kids safe. In addition, Safe Kids Canada advocates for better laws and standards resulting in safer environments.

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Executive Summary

"A goal without a plan is just a wish."

Antoine de Saint-Exupery

Safe Kids Canada, with the support of Royal & SunAlliance, has developed this guide to assist you with the development, implementation and evaluation of best practice programs to reduce injuries for young children in the home.

Young children, from birth to age five, are particularly vulnerable to injuries in the home. According to the Canadian Hospitals Injury Reporting and Prevention Program (CHIRPP)[1], for children under five years, 66 per cent of all injuries occur in homes. More than 20,000 children each year are seen in emergency departments across Canada with injuries that occurred in the home.[2] This means that approximately 60 young children every day suffer injuries in the home serious enough to be taken to the hospital. The burden of home injuries is similar in the United States, with children birth to four having the highest rate of injuries occurring in the home.[3]

Injuries in the home are most often caused by falls, burns, poisoning, choking, strangulation and drowning.[4] Falls account for more than half of all the injuries and can occur from furniture, down stairs and through windows.[5] Burns are most often caused by hot liquids and tap water that is too hot. Scald burns can lead to longer hospitalizations and lifelong treatment.[6] Poisoning is most often from medication, household cleaning products and personal care products.[7] Choking is most often from food, while strangulation of toddlers and preschoolers is most often caused by entanglement in window blind cords.[8] Drowning most frequently occurs in bathtubs and home swimming pools.[9]

Infants are particularly vulnerable to serious injuries. They are more likely to be hospitalized – at a rate of eight to ten times more than any other age group.[10]

Falls are the most common cause of their injuries. Falls occur from beds, change tables, stairs, and car and infant seats seats placed on elevated surfaces such as tables and chairs. Such falls often result in head and neck injuries.[11] These falls can sometimes result in minor concussions that can have lifelong implications for the injured child.[12]

The injury risk for young children peaks between their first and second birthday.[13] Boys are more likely to be injured than girls.[14] Young children living in lower income neighbourhoods with poor-quality housing and with mothers who have lower levels of education may be at particular risk for injury.[15] [16]

In their own homes, young children are most likely to be injured in the living room, bedroom and kitchen. In other people's homes, children are most likely to be injured in the living room or yard.[17]

Children are vulnerable in homes because homes are designed for adults. Heights, space and structures are built for adult use and comfort, but these often present hazards to children. Stairs are a useful structure found in most homes, but small children must learn balance, depth perception and coordination to safely navigate up and down stairs.

Parents and caregivers often over or underestimate children's abilities. In addition, children's abilities can change rapidly. While general developmental guidelines show the progress children will make, they cannot predict when these changes will occur for each child. For example, one day an infant will lie still on the bed while the parent reaches for a diaper. The next day, that same child could roll right off the bed.[18]

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[1] The Canadian Hospitals Injury Reporting and Prevention Program (CHIRPP) collects data from the emergency departments of 10 pediatric hospitals and five general hospitals. CHIRPP data does not identify all injuries in Canada but does provide a picture of injury from across the country.
[2] Health Surveillance and Epidemiology Division (Public Health Agency of Canada), 2005
[3] Runyan, 2004, p. 61-64
[4] Health Surveillance and Epidemiology Division (Public Health Agency of Canada), 2005
[5] Health Canada, 1997, p. 139
[6] Ray, 1995, p. 463–466
[7] McGuigan, 1996, p. 121–127
[8] 1998 Vital Statistics
[9] Canadian Red Cross Society, 2003
[10] Canadian Institute of Child Health, 2000, p. 21–22
[11] Pickett, 2003, p. 365–370
[12] Health Canada, 1997, p. 141
[13] Health Surveillance and Epidemiology Division (Public Health Agency of Canada), 2005
[14] Health Surveillance and Epidemiology Division (Public Health Agency of Canada), 2005
[15] Ramsay, 2003, p. 404–411
[16] Hussey, 1997, p. 217–227
[17] Health Surveillance and Epidemiology Division (Public Health Agency of Canada), 2005
[18] Morrongiello, 2004, p. 433–446

Most parents know that children can be injured in the home, but they do not always take action to protect their children from injury. They often believe injuries are a normal part of childhood and that these injuries will not be serious. Parents may also believe that by teaching children safety rules, they are protecting them from injury. Parents may also believe children need less supervision if they know the safety rules. But very young children – especially toddlers – they do not necessarily follow the rules even if they know them.[19]

Parents and caregivers are often blamed for not providing enough supervision of their children, but it is difficult to categorize supervision in simple terms. Supervision is influenced by a large number of variables – within the caregiver, the child and the environment. These variables influence a caregiver's perception of the risk of injury for that child. All of these variables should be considered when deciding on the appropriate level of supervision to keep a child safe.[20]

Professionals across Canada have been developing, implementing and evaluating home injury prevention programs for more than 40 years. Very few programs have used the reduction of childhood injuries as their outcome measures. A literature review to find evidence of the effectiveness of environmental modifications to homes found only three studies. Of these three studies, none showed a decrease in injuries as a result of the intervention. One study showed a reduction in visits to the doctor. Eight other studies looked at the use of safety devices as the outcome measure. Seven showed an increase in the use of these devices. The devices that showed a statistically significant increase in use were more likely to be passive devices such as socket covers, locks on cupboards, window guards and lowering the hot water temperature.[21]

Injury prevention programs that focus on a single cause of injury have shown to be effective. For example, the Children Can't Fly program in New York City decreased window falls by 50 per cent and deaths by 35 per cent just two years after the program was initiated.[22] The Oklahoma City Smoke Alarm Project showed an 80 per cent reduction in the rate of homes that were at high risk of a fire.[23]

Programs that are linked to a healthcare setting may also be a more effective method to reduce injuries. One study found that a home visit after a child was injured was able to reduce the number of subsequent visits to the doctor.[24] Another study found that families who used a hospital-based resource centre to obtain safety devices, were more likely to use the devices.[25]

Also, programs that use a multi-strategy, community development approach have shown to be effective. The World Health Organization (WHO) Safe Communities model has shown positive results in reducing injuries to young children.[26]

Based on this research, when you are developing your programs, best practice home injury prevention should consider the following:

- Target groups at high risk:
  - Parents of infants
  - Parents of toddlers (one to two years old)
  - Parents of boys
  - Families from low socio-economic and low-income neighbourhoods with poor-quality housing
- Focus on a single cause of injury.
- Develop intervention strategies for different causes of injuries.
- Develop interventions targeted after an injury or in a healthcare setting. This may increase parents' receptiveness and program's credibility and thus may increase its effectiveness.
- Develop home assessments that capture parent, child and environmental factors that put the child at risk for injury.
- Provide injury prevention information to parents based on the age and stage of the child's development.
- Increase caregivers' beliefs that their own child is vulnerable to injuries and that those injuries can be serious.
- Plan evaluations that include injury outcome measures.

Homes should be safe places for children to learn and grow. Unfortunately, most injuries to young children occur in their homes. Using the best practices, tools and resources identified in this guide, homes can be made safer for young children and injuries can be reduced.

[19] Morrongiello, 1996, p. 383–388
[20] Saluja, 2004, p. 17–22
[21] Lyons, 2003, p. 1–41
[22] Spiegal, 1997, p. 1143
[23] Towner, 2001, p. 249–253
[24] King, 2001, p. 382–388
[25] Gielen, 2002, p. 33–39
[26] Coggan, 2000, p. 130–134

Introduction

"The essence of our effort to see that every child has a chance must be to assure each an equal opportunity, not to become equal, but to become different - to realize whatever unique potential of body, mind and spirit he or she possesses."

John Fischer

Unintentional injuries are the leading cause of death and disability for Canadian children. At least 900 children and youth die each year from avoidable injury.[27] That is 17 children per week, or the equivalent of 30 classrooms full of children each year. Every year 40,000 young Canadians are hospitalized due to injury, while many more visit emergency rooms, clinics and physicians.[28] Overall, unintentional injuries cost Canadians around $8.7 billion per year,[29] and injuries to children cost about $4 billion.[30]

Many of these injuries are predictable and preventable. Researchers estimate that 90 per cent of unintentional injuries could be prevented by implementing strategies that are known to be effective, such as using helmets and car seats.

The aim of this guide is to provide community professionals with current information on the scope of unintentional injuries in the home among young children, birth to five and provide proven prevention strategies to reduce these injuries. Evidence-based strategies and tools are intended to help guide practitioners through the steps to design home safety programs suited to their communities.

The guide is designed to help you:

- understand who, what, where and why home injuries occur
- examine your local home safety situation for children
- create a comprehensive action plan to improve home safety for children in your community

The terms "parent" and "caregiver" are used interchangeably. They both are meant to indicate all people who care for children. The terms "injury prevention" and "safety" are used interchangeably as well.

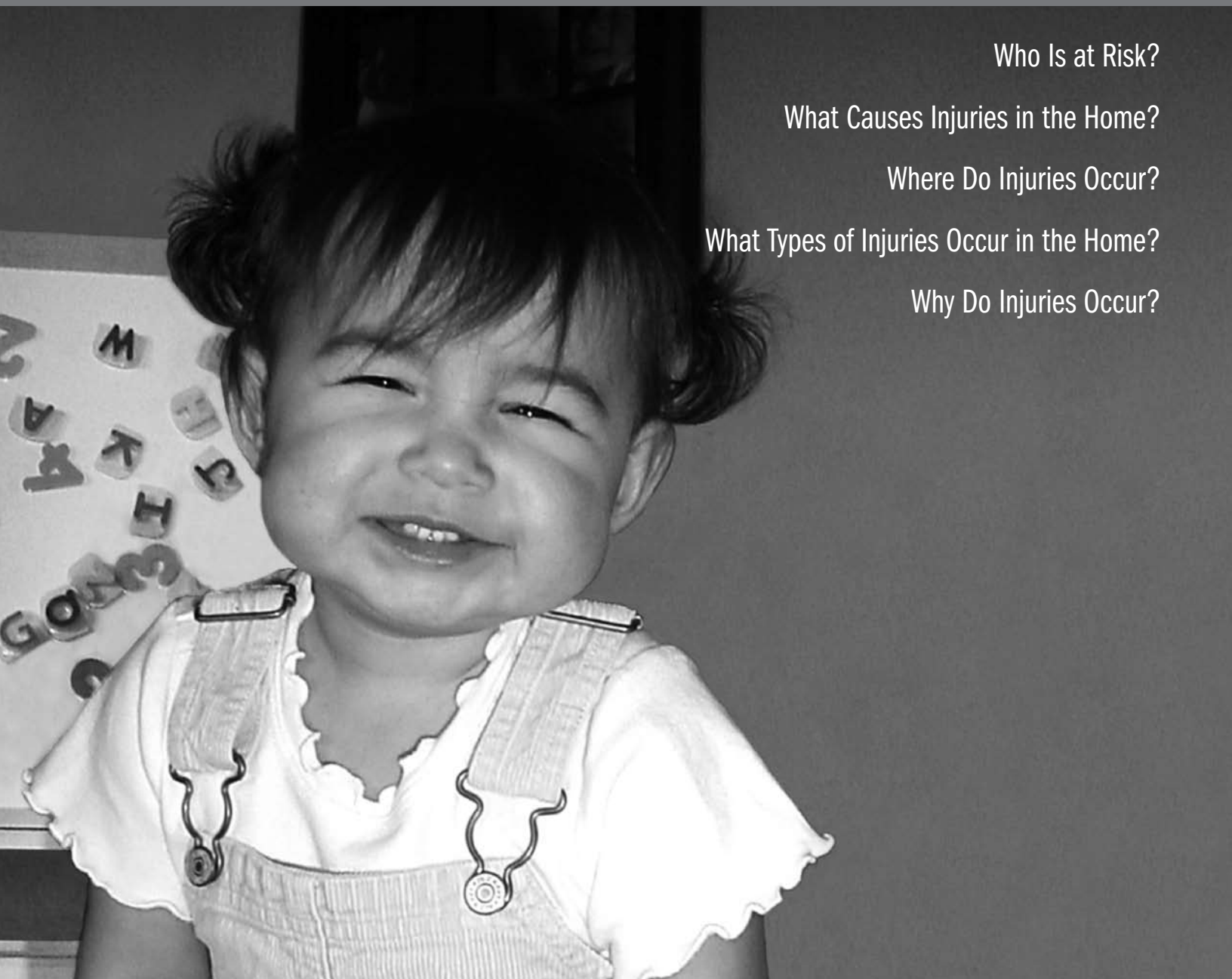
Change can take a long time. We encourage you to view home safety improvement as a work in progress. In fact, long-term attention to this issue will build sustainability, awareness and support. In addition, it will allow necessary resources to be allocated effectively as they become available. Review the whole guide, but use the part of the guide that is relevant and "do-able" for you. We hope that the commitment to improve home safety in your community will be sustainable and that this guide will help make your community safer for children in the home.

Children are among the most vulnerable to injuries in the home. Research shows that education, environment and enforcement all have a role to play in making homes safer for children. We believe that children, and indeed all people, have the right to safe homes.

[27] Health Canada data tables, Injury Surveillance On-Line, 2005
[28] Health Canada data tables, Injury Surveillance On-Line, 2005
[29] SMARTRISK, 1998
[30] Health Canada, Economic Burden of Illness On-Line, 1998

Section 1

Childhood Injuries in the Home



Who Is at Risk?

What Causes Injuries in the Home?

Where Do Injuries Occur?

What Types of Injuries Occur in the Home?

Why Do Injuries Occur?

Section 1
Childhood Injuries in the Home

"Knowledge is the distilled essence of our institutions, corroborated by experience."

Elbert Hubbard

Understanding the who, what, where, how and why of childhood home injuries is the first step to designing, implementing and evaluating effective initiatives to improve home safety for children. This section provides an introduction to the scope of childhood home injuries.

Who Is at Risk?

One source of data that may be used to identify the scope of childhood injuries in the home is the Canadian Hospitals Injury Reporting and Prevention Program (CHIRPP). CHIRPP collects data from the emergency departments of 10 pediatric hospitals and five general hospitals. CHIRPP data does not identify all injuries in Canada but does provide a picture of injury from across the country. In 2002, for children under five years, 68 per cent of emergency department visits resulted from injuries that occurred in the home.[31]

- Each year, more than 20,000 children visit emergency departments due to injuries sustained in the home. This is the equivalent of one hockey stadium filled with injured children.
- Each year almost 900 children have injuries that are severe enough to be hospitalized or the equivalent of 30 classrooms.
- Every day, at least 60 young children are injured in homes across the country. This is the equivalent of two school buses full of children.

The burden of home injuries is similar in the United States, with children birth to four having the highest rate of injuries occurring in the home.[32]

Infants are the most vulnerable of all age groups and most likely to be hospitalized, at a rate of eight to ten times higher than any other age group.[33]

Table 1. Injuries Occurring In and Around Private Homes, CHIRPP Database 1997–2003, Ages Birth to Four Years

Year	Number of cases	Per cent of total cases
1997	23,890	73.9%
1998	22,870	72.4%
1999	21,782	70.8%
2000	21,102	70.0%
2001	20,927	68.9%
2002	20,335	68.2%
2003[1]	17,862	66.0%
Total	**148,768**	**70.1% (average)**

[1] 85% of data collected for 2003

One study in Kingston, Ontario, of 990 injured infants, found that 21 per cent required significant medical intervention. Hospital admissions for this age group were mainly for fractures (58 per cent), head injuries (19 per cent) and burns (9.5 per cent). Falls were reported to be the most common cause of injury and most commonly resulted in head injuries (36 per cent), superficial injuries (26.3 per cent) and fractures/dislocations (12.2 per cent). Falls accounted for 95 per cent of skull fractures.[34] Head injuries for infants are of particular concern as they may have effects over the child's lifespan. Even with a minor head injury, problems with loss of memory, language and spatial orientation are present several months after the injury. Since falls occur so frequently, even a small percentage of serious cases represents a large burden.[35]

Boys are more likely to be injured than girls. With CHIRPP data showing, 56 per cent of injuries were to boys.[36]

For children birth to four years, more children are injured between the first and second year than any other year.[37] At this age, physical and motor development are developing faster than the cognitive ability to understand the hazards.

[31] Health Surveillance and Epidemiology Division (Public Health Agency of Canada), 2005
[32] Runyan, 2004, p.61-64
[33] Canadian Institute of Child Health, 2000, p. 21–22
[34] Pickett, 2003, p. 365–370
[35] Health Canada, 1997, p. 141
[36] Health Surveillance and Epidemiology Division (Public Health Agency of Canada), 2005
[37] Health Surveillance and Epidemiology Division (Public Health Agency of Canada), 2005

Socio-economic status (SES) is believed to influence childhood injury, but the factors and their interaction with injury are still not clearly known. SES may be measured in several ways, including but not limited to education, marital status and income levels. Studies have suggested that parents with less formal education may have a poorer knowledge of child development and injury prevention and may be more likely to misjudge children's abilities, increasing the risk of injuries.[38]

One recent study did find that the parents' education level was the main variable for childhood injury risk. A lower level of education was more likely to be associated with single parenthood, income from government benefits and increased number of children in the home. These parents perceived their children to have fewer safe places to play and were less likely to take their child to the hospital if an injury occurred.[39]

Lower SES has been associated with single parenthood. Studies on single parenthood have found that single parents provide less supervision to their young children and have fewer resources to support their parenting.[40]

Table 2. Age and Sex Distribution of Injuries Occurring In and Around Private Homes, CHIRPP Database 1997–2003, Ages Birth to Four Years

Age group (years)	Number of cases[1]	Per cent of cases	Per cent male	Number /10,000 CHIRPP[2]
Infants (<1)	20,931	14.1%	53.8%	7,589.
1	41,823	28.1%	56.2%	7,425
2	37,079	24.9%	56.5%	7,040
3	27,678	18.6%	57.4%	6,611
4	21,255	14.3%	58.7%	5,982
Total	148,766	100.0%		

1 In two cases the age was unknown.

2 Using cases per 10,000 within an age group (instead of percentage by age group) adjusts for uneven age distributions in the database.

What Causes Injuries in the Home?

The causes of injury for young children are closely linked to the child's developmental stage.

Infants (birth to one year)

Infants are more "top-heavy," meaning that their heads are large compared to the rest of their body. This affects their balance and makes them more vulnerable to falls.[41] Also, as babies learn to roll over, they can fall from high surfaces, such as change tables, cribs, high chairs or counters, unless protected by a barrier or restraint. Infants fall off beds or cribs while playing, sleeping or trying to get out of them. Almost one-third of all falls are from an adult bed. Infants frequently slide out of car seats and infant seats while being carried.[42] Beginning at about six months of age, babies start to crawl. They become increasingly active, putting them at greater risk for falls. For infants, about 20 per cent of fall injuries occur on stairs.[43]

Infants are susceptible to serious burns because a baby's skin burns more deeply and quickly and at a lower temperature than an adult's thicker skin. Once babies start to pull themselves to standing, they can reach out and touch hot objects or surfaces, spill hot liquids or pull on electrical cords of kettles or irons. This can result in serious burns and scalds.[44]

Strangulation is often caused because infants' and young children's heads are relatively large compared to their bodies. The body can slip through spaces, like those between widely spaced crib bars, but the head may be too large to follow, leaving the child hanging by the neck. Suffocation of infants most often occurs in beds, cribs or cradles.[45]

By nine months of age, babies' natural tendency to put objects in their mouth increases the risk for poisoning and choking. Also, infants' and toddlers' airways are small and easily blocked, further increasing the choking risk.[46] Increased mobility through crawling and walking allows infants increased access to poisons.[47]

Infants lack the motor skills to keep their head above water or for getting out of water. An infant can drown in less than five centimetres (two inches) of water. For infants, drownings or near-drownings most often occur in bathtubs.[48]

[38] Morrongiello, 1996, p. 383–388
[39] Ramsay, 2003, p. 404–411
[40] Hussey, 1997, p. 217–227
[41] Sewell, 1993, p. 464–466
[42] Health Canada, 1997, p. 139
[43] Health Canada, 1997, p. 139
[44] Wilson, 1991, p. 86–87
[45] 1998 Vital Statistics
[46] Wilson, 1991, p. 86–87
[47] Wilson, 1991, p. 86–87
[48] Canadian Red Cross Society, 2003

Toddlers (one to two years)

Toddlers often suffer injuries in the home due to increasing curiosity, the need to be active and an interest in exploring their surroundings. As the children's mobility increases, their curiosity exceeds their ability to assess risks. Toddlers are particularly prone to falling from heights because their climbing ability is not matched by their balancing or reasoning ability. Toddlers may be able to climb up to a high surface such as a bookcase but have limited cognitive ability to judge that the bookcase is unsteady or that they must climb back down. Physically, their immature motor skills make it hard for them to hold on when climbing; they easily lose their grip and fall.[49]

Falls from windows, off high furniture such as bunk beds or down stairs often cause serious injury, particularly to the head.[50] For toddlers, about 10 per cent of injuries from falls occur on stairs.[51] In addition, a toddler just beginning to walk will fall often, so sharp, hard surfaces, such as the corner of a coffee table, can cause injury.

Because of their mobility and curiosity, toddlers are also susceptible to burn injuries. One study of children aged five and under from a pediatric burn unit found that 70 per cent of patients were younger than two years old. Two-thirds of these injuries occurred while preparing or eating food or hot liquids. The other injuries were caused by flame burns or bathtub scalds. Of those children burned while the family was preparing or eating food, 44 per cent were scalds from hot beverages at the table, 19 per cent were from electric kettles and about 19 per cent were from pots of tea or coffee sitting on the table.[52]

Toddlers' natural interest in exploration, combined with their often surprising ability to reach, climb and manipulate objects, gives them access to things that may cause choking or entice them into situations in which they can hang or become entrapped.[53] Drawstrings and window blind cords are most often the cause of these suffocation injuries.[54]

Toddlers' natural instinct to put objects in their mouth continues from infancy, putting them at risk of poisoning and choking. Toddlers' increasing dexterity may allow them to open drawers and bottles – even those with child-resistant caps. At this age, children do not understand poison prevention labelling or education.[55]

Toddlers are attracted to water but don't have the motor skills to lift their body above the surface of the water if they fall in. Toddler drownings happen in backyard pools (33 per cent), bathtubs (10 per cent) and large bodies of water such as rivers, ponds and beach areas (45 per cent). Most toddler drownings occur when the child is walking or playing near water, not intending to swim, and often without an adult knowing the child is near the water.[56]

Preschoolers (three to five years)

Preschool children continue to develop increased coordination and motor development. They can climb higher, run faster. Falls continue to cause injuries, but the falls now are as likely to be from deliberate climbing on playground structures as from stairs.

Young children are particularly at risk from window falls. Between 1991 and 1995, CHIRPP reported, 135 children between the ages of one to four were admitted to the hospital from fall from a window. Head, face and neck injuries accounted for 60 per cent of these injuries. Fractures were the most common type of injury.[57]

[49] American Academy of Pediatrics, 2003
[50] Wilson, 1991, p. 86–87
[51] Health Canada, 1997, p. 139
[52] Ray, 1995, p. 463–466
[52] Ray, 1995, p. 463–466
[53] American Academy of Pediatrics, 2003
[54] 1998 Vital Statistics
[55] American Academy of Pediatrics, 2003
[56] Canadian Red Cross Society, 2003
[57] Health Canada, 2000

Preschool children are at risk for burn injuries because of their interest in modelling parent behaviour. They see a parent using the stove, barbecue or curling iron and want to use it in the same way. Also, they are beginning to understand cause and effect. For example, they can push the starter of a cigarette lighter to see the flame, but they don't understand that the flame will burn.[58]

Preschoolers' use of imaginary play may lead to entrapment or strangulation. Injuries can occur in the imaginative use of objects. For example, a toy box may become a house. A small child climbs into his "house" but may have the heavy lid fall on him as he tries to leave. Preschoolers are still vulnerable to poisonings because of their continuing exploratory behaviour and play.[59]

Preschoolers are naturally egocentric. They do not understand that injuries can happen to them because they did not intend for that to happen. For example, they go into the lake not intending to go deep, but are suddenly swept in over their heads.

Table 3. Injuries Occurring In and Around Private Homes, CHIRPP Database 1997–2003, Ages Birth to Four Years

Type of Injury	Number of cases	Per cent of cases
Falls	86,528	58.2%
Burns	5,399	3.6%
Poisonings	5,105	3.4%
Dog bites[1]	1,546	1.0%
Asphyxia, threat to breathing	242	0.2%
Drowning/near-drowning	109	0.1%
Motor vehicle (driveway back over, run out)	92	0.1%
Other	49,747	33.4%
Total	**148,768**	**100%**

[1] Dog bites are not addressed in this guide because animal behaviour is outside of our realm of expertise. For further information on causes and strategies to reduce dog bites, consult animal behaviour specialists.

Where Do Injuries Occur?

According to CHIRPP, for children birth to four years, 88 per cent of home injuries occur in the children's own home. The other 12 per cent of injuries occur in and around private homes other than their own.[60]

Unfortunately, in most cases, the CHIRPP database did not identify the room where the child was injured. But when the room was identified, the living room was the most common place of injury. Twenty-one per cent of injuries occurred in the living room, 17 per cent in the bedroom, 10 per cent in the kitchen and eight per cent on the stairs. Interestingly, only four per cent of injuries occurred in the bathroom. In homes other than the child's, injuries occurred most often in the living room, in the yard and on the stairs.[61]

Table 4. Injuries Occurring In and Around the Child's Own Home, CHIRPP Database 1997–2003, Ages Birth to Four Years

Type of residence specific area	Number of cases	Per cent of cases
House, Not Further Specified	**130,062**	**99.7%**
living room	27,396	
bedroom	22,570	
kitchen	13,730	
stairs (interior and exterior)	11,007	
garden	9,546	
yard, field	5,330	
bathroom	3,719	
hall, foyer	2,880	
basement	1,748	
dining room	1,726	
driveway, sidewalk, road patch	1,219	
balcony, deck	496	
garage, carport	291	
laundry room, utility room	247	
closet den, office, library, craft room, other	141	
unknown	28,016	
Apartment	**248**	**0.2%**
hall, foyer	61	
stairs (interior and exterior)	37	
garden, yard, field (proximal exterior grounds)	22	
elevator	19	
parking area	9	
living room	9	
bedroom	8	
other	16	
unknown	67	
Cottage	**128**	**0.1%**
garden, yard, field	27	
living room	14	
bedroom	11	
in/near natural body of water	8	
stairs	8	
other	15	
unknown	45	
Farm House	**47**	**<0.1%**
garden, yard, field	16	
stable, barn	15	
other	10	
unknown	6	
Total	**130,485**	**100.0%**

[58] Zuckerman, 1985, p. 17–29
[59] American Academy of Pediatrics, 2003
[60] Health Surveillance and Epidemiology Division (Public Health Agency of Canada), 2005
[61] Health Surveillance and Epidemiology Division (Public Health Agency of Canada), 2005

What Types of Injuries Occur in the Home?

For children ages birth to four years, almost 20 per cent of injuries resulted in a fracture, sprain or dislocation. Injuries to the head were significant as well, with almost 14 per cent of all injuries involving a minor closed-head injury.[62]

Table 5. Nature of Injuries Occurring In and Around Private Homes, CHIRPP Database 1997–2003, Ages Birth to Four Years

Type of residence specific area	Number of cases	Per cent of cases
Lacerations	38,927	26.2%
Bruise, abrasion, soft tissue	21,247	14.3%
Minor closed-head injury	20,637	13.9%
Fracture	17,653	11.9%
Foreign body	8,118	5.5%
Dislocation	7,152	4.8%
Burn	5,401	3.6%
Poison	5,105	3.4%
Sprain/strain	4,629	3.1%
Pulled elbow	3,290	2.2%
Eye (globe)	2,331	1.6%
Dental	2,327	1.6%
Concussion	896	0.6%
Partial amputation	389	0.3%
Intracranial	213	0.1%
Drowning, near-drowning	109	<0.1%
Internal	60	<0.1%
No injury detected	4,062	2.7%
Other	6,222	4.2%
Unknown	2,384	1.6%
Total	**151,152**	**100.0%**

Why Do Injuries Occur?

Injuries to infants, toddlers and preschoolers in the home are influenced by the physical structure of the home, parental beliefs, attitudes and behaviours, the child's stage of development and supervision.

Physical Structure of the Home

Children are vulnerable in their homes because homes are designed for adults. Heights, space and structures are built for adult use and comfort, but these often present hazards to children. Stairs are a useful structure found in most homes but small children must learn balance, depth perception and coordination to safely navigate up and down stairs.

Parental Beliefs, Attitudes and Behaviours

Parents are knowledgeable about injury risks. In a 1996 survey, more than half of parents knew that injuries were the leading cause of death for children, and 70 per cent of parents believed that injuries were preventable. As parents' education level increased so did their belief that injuries could be prevented.[63] Despite this knowledge and belief, research shows that in day-to-day activities, parents do not often think about preventing injuries or take actions to reduce the risks. Some parents also believe that children learn from being injured, that injuries are natural consequences of play. Other parents do not discuss risky behaviour with their children, fearing this might cause the behaviour to occur.[64]

Recent surveys have shown that parents believe that boys are more likely to be injured than girls. They attribute boys' injuries to inborn characteristics and girls' behaviour to failing to think about the risks. Parents tolerate more risk taking with boys, while parents teach girls to avoid risks.[65] Mothers' safety practices do not change as boys get older, but they use fewer safety measures as girls get older. For example, mothers may still stand under the monkey bars while boys climbed, but for girls of the same age they may move to the park bench five feet away to watch. Mothers felt it took more effort to keep boys safe than girls.[66]

Table 6. Definitions of Parent-based, Child-based and Environmental Strategies

Type of strategy	Definition
Parent-based	supervising or changing parental behaviour
Child-based	teaching the child safety rules
Environmental	making modifications to physical space including adding safety devices

[62] Health Surveillance and Epidemiology Division (Public Health Agency of Canada), 2005
[63] Hu, 1996, p. 101–104
[64] Morrongiello, 1996, p. 383–388
[65] Morrongiello, 1998, p. 33–44
[66] Morrongiello, 2004, p. 285–297
[67] Morrongiello, 2004, p. 285–297

One study found that mothers engage in different safety practices depending on the cause of the potential injury. For burns, cuts and falls, mothers used safety practices motivated by the characteristics of the child and parent. For drowning, suffocation, strangulation and choking, mothers used safety practices based on the belief that the injuries could be severe and that their own child was vulnerable to that injury. For poisoning, safety practices implemented by mothers were based on the amount of effort needed to engage in that practice as well as the severity of the injury. There was no one safety practice used by all mothers all of the time in the study. Mothers took more safety precautions to prevent burns, drownings and poisoning than falls.[67]

The study also showed safety practices differed from room to room. There was no one strategy used in all the rooms. Mothers implemented strategies based on their goals and values, the room and their perception of need. For example, in the living room, mothers were reluctant to use environmental strategies because they did not want to change the look of the room. Therefore, parent- and child-based strategies were used more often. In the playroom, mothers were more likely to use environmental strategies because this was the child's space and could accommodate the child's needs.[68] When used alone, neither parent- nor child-based strategies were effective in protecting against injuries. When parent-based and environmental strategies were used in any room, there were fewer injuries for the child. There was no room in the house where child-based strategies alone were effective.[69]

Table 7. Summary of Strategies Used by Parents by the Room of the House[70]

Location	Strategies	Outcome
Bathroom	Environmental Parent-based	Environmental strategies led to fewer injuries.
Living room	Parent-based Child-based	Parent-based strategies led to fewer injuries.
Playroom	Environmental Child-based	Environmental strategies led to fewer injuries.
Bedroom	Child-based Environmental	Environmental strategies led to fewer injuries.
Kitchen	Environmental Parent-based Child-based	Environmental strategies led to fewer injuries.
Stairs	Parent-based Environmental	Environmental strategies led to fewer injuries.

Child Development

Child development is a significant factor in understanding childhood injuries. Children's abilities and skills are constantly changing. Research has found that parents often do not adjust their expectations of their child's abilities to the child's developmental level. Caregivers often underestimate or overestimate a child's abilities, resulting in exposure to risks the parent does not anticipate. Caregivers overestimate children's knowledge of safety and their ability to manage injury risk on their own. Teaching very young children safety rules may actually elevate their risk of injury. Knowing the rule, especially for a toddler, doesn't necessarily mean the rule will be followed.[71] Normal, healthy child development contributes to injury risk. Climbing, exploring, touching and tasting are all part of how children learn. Parents may often feel a conflict between letting children explore and trying to protect them from injury.

[68] Morrongiello, 2004, p. 433–446
[69] Morrongiello, 2004, p. 433–446
[70] Morrongiello, 2004, p. 433–446
[71] Morrongiello, 2004, p. 433–446
[72] Saluja, 2004, p. 17–22
[73] Saluja, 2004, p. 17–22

Supervision

Parents are often blamed for not providing enough supervision of their children, but it is difficult to categorize supervision in simple terms. Research has identified a number of ways to categorize supervision. Proximity, attention and continuity are one set of categories. Proximity refers to the closeness of the caregiver to the child at any given time. Attention refers to the observation or notice the caregiver is giving the child. Continuity can be described by the levels of supervision: constant, intermittent or absent. Examples of constant supervision include listening constantly from an out-of-view location, watching constantly from another location or watching constantly and within reach of the child. Examples of intermittent supervision include listening intermittently from an out-of-view location and checking in (going to see the child periodically). Absent supervision means there is no proximity or attention to the child.[72]

Other researchers have described three levels of supervision as direct, delegated and auditory. Direct supervision refers to watching the child. Delegated supervision refers to another person watching the child. Auditory supervision refers to listening from another room.[73] And yet, other researchers have categorized variables within the caregiver, the child and the environment. These variables influence a caregiver's perception of the risk of injury for that child and help the caregiver decide what action to take.[74]

How much or how often these factors are used is then influenced by the child's developmental stage, the hazards in the environment and the type of injury a child is more likely to sustain.[75] For example, while a young child in a bathtub needs to be within arm's reach at all times to prevent her from drowning, it may be acceptable to intermittently supervise a five-year-old playing in her bedroom.

One study surveyed parents to determine the level of supervision for two- to six-year-old children. They found that the children were often out of sight of the parents, who were in a different room. Parents reported checking on the child periodically, with the length of time increasing as the child got older. Parents reported they supervised their children by being close at hand rather than directly involved with the activity. Nearly one half of all the children either always or often got out of bed before the parent.[76]

Another study examined the relationship between the type of parental supervision and the young child's risk of injury. The results showed that injury was most likely to occur when there was no supervision or intermittent supervision. The lowest rate of injury occurred when there was constant supervision for both boys and girls. With boys, intermittent supervision led to higher rates of injury. But for girls, intermittent supervision was associated with a lower rate of injury. The researcher suggested this may be because girls engage in risk behaviours where parents might have more time to react; whereas for boys, their behaviours led to injury more quickly.[77]

[74] Saluja, 2004, p. 17–22
[75] Saluja, 2004, p. 17–22
[76] Pollack-Nelson, 2002, p.121–126
[77] Morrongiello, 2004, p. 433–446

Section 2

Planning: Using Effective Strategies and Models

The Three E's – What Strategies Can Be Used?

Conceptual Models

Section 2
Planning: Using Effective Strategies and Models

"Planning is bringing the future into the present so that you can do something about it now."

Alan Lakein

Improving childhood home safety in your community is best achieved using a multi-dimensional approach. Education, environment and enforcement are modifiable factors known as the "three E's" of injury prevention.

The Three E's — What Strategies Can Be Used?

Educational strategies alone are often undertaken by injury prevention professionals. Although important in raising awareness about an issue or improving knowledge, education alone is not enough to achieve the prevention of injuries. Evaluation research shows that programs that apply a combination of the three strategies are more effective than programs that use any one strategy by itself.[78] By using all three strategies together, programs can achieve significant, long-term changes to decrease injury rate and/or severity.

Partnerships can be used to strengthen your program with any of the strategies you choose. Health and community organizations, police, product developers, manufacturers, designers, retailers, planners, media and politicians can provide skills and knowledge to move your programs forward. They can identify community hazards, develop and promote standards and help to advocate for environmental modifications and legislative changes. Product safety officers can provide invaluable contributions to community partnerships. They have knowledge and skills in education, public awareness, media and legislative changes. They can quickly alert professionals to hazardous products in your community.

Working with related programs may strengthen the outcome of your programs. For example, parenting programs that teach young high-risk parents how to play with their new babies can result in increased supervision. This supervision may lead to reduced chance of injuries.[79] The Safe Communities model is one example of how partnerships can increase the success of your programs. A list of resources to help you build coalitions is included in Section 7 - Resources.

Include media strategies to strengthen your programs. Provide the media with injury data that shows how injuries affect the daily lives in your community. Healthcare providers and injury survivors make excellent spokespeople in response to tragedies in your community. Use creative ideas to capture people's attention. For instance, Children Can't Fly, the name of the New York City program, is a great slogan for a window falls prevention program.

Education — Changing Parents' Knowledge, Attitudes and Behaviours

A large number of home safety programs aim to change parents' knowledge, attitudes and behaviours. Behaviour change theories provide insight into the causes of injury and the mechanisms of changing behaviour. Eight factors have been identified that influence these choices. Theories suggest that in order for a person to perform a given behaviour, he must:

- make a commitment or plan
- have no environmental barriers that make it impossible
- possess the necessary skills
- believe that the advantages outweigh the disadvantages
- perceive more pressure to perform the behaviour than not to perform it
- perceive that it is consistent with his values
- have a positive reaction to doing it
- perceive that he is capable of it in different circumstances

If the first three factors are present, the person is more likely to perform the behaviour. The remaining five variables would strengthen the behaviour. This approach can be applied to such behaviours as regular testing of a smoke detector.

[78] Speller, 1998

[79] Christoffel, 1999, p. 162–175

If a homeowner believes a fire in his house is possible and believes in regular testing of the smoke detector, has access to the smoke detector and knows how to test the detector, he is more likely to test it regularly. In addition, if a person believes that the testing is worth the time and effort, knows that his neighbours also test their detector, believes that testing is his responsibility, has no negative reaction to testing and can test the detector under different circumstances, the chances of the homeowner testing the detector will increase.[80] Planning interventions to address these different factors may strengthen the effectiveness of your program.

An initial home assessment assesses the characteristics of the caregiver, child and environment and is invaluable in program planning. This assessment should include the caregiver's knowledge, beliefs and behaviours, caregiver's perception of the child's knowledge and behaviour, home hazards, use of safety devices and environmental modifications made to the home. Research has shown that all these factors lead to a child's risk of injury in the home.[81] [82] A good example of this type of assessment tool was developed by B.C. Injury Research and Prevention Unit for the Chilliwack Safe Baby Program. This tool is included in Section 6 - Tools.

Information provided to caregivers should address child development. Children are often exposed to hazards because of behaviours particular to each stage of development. Each developmental stage places children at different levels of risks for different types of injuries. Young children are especially vulnerable to injury because of their exploratory behaviours, limited strength, mobility, coordination, cognitive skills and lack of experience.[83] Capital Health's A Million Messages program in Alberta is a good example of how to link developmental tasks with injury prevention messages. A sample of its tool is included in Section 6 - Tools.

Programs for young children should be targeted primarily to the parent or caregiver - not the child. Parents often overestimate children's knowledge of safety and their ability to manage injury risk on their own. Programs that teach very young children safety rules can give parents a false sense of security and the mistaken belief that children can manage on their own.[84]

Environment

"What humans create, we can recreate." [85] Places and products exist to make our lives easier or more enjoyable; however, potential hazards have often been overlooked. For example, cars were initially designed for speed and comfort. Little thought was given to driver, passenger or pedestrian safety. Increasingly, advances in road and vehicle design have made travel safer. Similarly, in the home environment, an open staircase is considered beautiful. But for a small child, that staircase can be a hazard.

When planning the environmental component of your programs, changes can be addressed in a variety of ways:

- minimizing or eliminating the need for a potential hazard (buying a bungalow with no stairs)
- making changes to the physical environment (putting railings on the stairs)
- adding specific products to the environment (baby gates)
- understanding how those products are used (different kinds of gates for the top of the stairs and between rooms)
- addressing the social environment (attitude toward keeping the gate closed)[86]

[80] Gielen, 2003, p. 65-76
[81] Morrongiello, 2004, p. 433–446
[82] Morrongiello, 2004, p. 285–297
[83] Health Canada, 1996
[84] Morrongiello, 2004, p. 433–446
[85] Christoffel, 1999, p. 163
[86] Christoffel, 1999, p. 162–175

Using Home Safety Products to Modify Home Environments

A large number of home safety programs provide education to help caregivers make environmental changes in their homes. These programs can also provide information or access to safety products that are free or available at a reduced cost. In some programs, safety products are installed for low-income or high-risk families. Providing safety products alone is not enough to ensure that by using the products, injuries will be reduced. Safety products may also give parents a false sense of security. They may provide less supervision or believe that older children can supervise younger children if a safety product is in place. Products must also be used consistently. Installing a gate will not prevent an injury if that gate is not closed.

When planning new home safety programs, assessment, of caregivers' beliefs and attitudes to home safety practices and their perception of their own child's risk of injury, may provide insights into how to use the safety devices to best prevent injuries.

A detailed description of frequently used home safety products is found in Section 6 - Tools. In that section, you will find information on carbon monoxide detectors, hot water temperature-testing cards, locks and latches, outlet covers, safety gates, smoke detectors, window blind cord wind-ups and window guards and stops. For each product, there is a description of the types of products available, research on the effectiveness of its use, installation instructions and costs. Where available, low-cost alternatives are provided.

Enforcement - Including Legislation in Your Planning

Enforcement strategies include the enactment of legislation and product standards that address injury hazards. Legislation can be at the municipal, provincial, territorial or federal level. Changes can occur in building codes, municipal by-laws or safety standards for products used at home. Determining the strengths, weaknesses and gaps by reviewing current legislation allows you to identify areas where change is needed. Once legislation is in place, enforcement of the legislation is crucial.

One example of an effective law was an amendment to the New York City Health Code, in 1976, that required all landlords to provide window guards in apartments where children under the age of 10 years lived. This law was developed in response to research showing that a community program had decreased window falls by 50 per cent (108 cases to 52) in the Bronx and deaths by 35 per cent (45 cases to 37) city-wide in two years. This program included community education, individual counselling for high-risk families, media promotion and distribution of window guards.[87] The trend in lower falls has continued. In 2002, New York City reported only 3 preventable falls.[88]

Product Safety

Advocating for safer products is a key strategy to making home environments safer. Learning the safety standards for home safety products will help identify hazardous products you may find in the home or identify hazardous new products as they come on the market. Some home safety products are regulated under the Hazardous Products Act. The purpose of this Act is to prohibit the advertising, sale and importation of hazardous products. For example, children's furniture with lead paint and toys with toxic materials or heavy metal are included in the Act.

If you have a concern about a product, Consumer Product Safety at Health Canada provides information about product recalls and advisories. Decisions about recalls and advisories are made by investigations of reported incidents in Canada and by reviewing recall information released by the U.S. Consumer Product Safety Commission to ascertain if the same and/or similar products have been sold in Canada. Information about injury, incidents and safety concerns related to the use of products is tracked. These reports are investigated. Contact information for product safety regional offices and the website for Consumer Product Safety are included in Section 7 - Resources.

Many home safety products have CSA or ULC stickers. These stickers indicate that a product meets a developed standard. The Canadian Standards Association (CSA) develops standards that address a variety of needs, including products and public safety. Standards are developed by a committee representing diverse interests. Recommended standards are then posted for public comment. CSA has standards on a variety of products, listed on its website, including helmets and smoke alarms. The Underwriters' Laboratories of Canada (ULC) provides safety testing and certification for a variety of products, including smoke alarms. More information on ULC is available on its website. Website addresses for CSA and ULC are provided in Section 7 - Resources.

If a product has serious safety concerns, Health Canada will investigate the product's safety. One example of how hazardous products can be removed from the marketplace is the ban in Canada on baby walkers.

[87] Spiegal, 1997, p.1143–1147

[88] Spiegal, 1997, p. 1143

Before 1989, baby walkers led to 1,000 injuries to young children every year in Canada. Walkers caused more serious injuries than any other children's product. In 1989, the Canadian Juvenile Products Association (CJPA) and the Government of Canada established a voluntary industry standard requiring that walkers be manufactured too wide to fit through doorways. This standard resulted in a de facto ban on the sale of baby walkers because no such product existed. When CJPA closed, the voluntary ban was not actively enforced. Major retailers in Canada continued to honour the voluntary ban, but walkers were still being sold through informal channels,such as garage sales, flea markets or vendors on street corners. Parents could also buy walkers sold in the United States or imports through the Internet. Baby walkers were also often handed down through families or friends.

A 1996 study in Canada reported that 70 per cent of walkers that led to injuries were second-hand and 30 per cent were purchased new in the United States.[89] The availability of walkers, in spite of the voluntary ban, led to more than 100 walker-related emergency room visits each year in Canada.[90] A survey released in the spring of 2003 by Safe Kids Canada and Johnson & Johnson showed that nearly one-third (32 per cent) of parents use or had recently used baby walkers with wheels for their young children. Based on survey findings, an estimated half a million baby walkers were still in Canadian homes. In 2003 Health Canada issued an advisory on the use of baby walkers and then contemplated a ban of the product. A review of the industry standard was initiated by Consumer Product Safety. This review included a review of previous regulatory proposals and extensive consultation with stakeholders. The recommendation from this review was that baby walkers should be banned from the Canadian marketplace. The proposed ban was pre-published in Canada Gazette, the official newspaper of the Government of Canada. It outlined how many days the regulation would be pre-published and where to send comments. Businesses, community organizations and individuals that would be affected by the ban were contacted to provide input into the process.

Safe Kids Canada and partners supported the recommendation of a ban, with more than 300 parents, doctors, public health professionals and community members writing to Health Canada. Ultimately, Health Canada banned the sale, importation and advertisement of baby walkers in Canada in April 2004 - a world first!

[89] Morrison. 1996, p. 180–182

[90] Health Surveillance and Epidemiology Division (Public Health Agency of Canada) 2005

Conceptual Models

Before planning your program, it is useful to apply a framework to injuries in the home to help understand the risk factors that influence home safety. Four models are discussed, each with its own unique features. The models can be used in conjunction with or separately from one another.

Haddon's Matrix

Haddon's Matrix outlines three categories of factors and three points in time to examine injury risks. The three factors are, host (who gets injured) agent (force or energy that causes the injury) and environment (physical and social). The three points in time are pre-event, event and post-event - with the event being the moment that injury occurs. Injury prevention programs focus on the pre-event phase. Table 8 may help you use Haddon's Matrix to plan programs to address education, environment and enforcement.

Table 8. Using Education, Environmental Change and Enforcement and Haddon's Matrix to plan programs

	Host (parent)	Agent (home hazards)	Physical Environment	Social Environment
Education	How can we educate parents to understand that injuries can be severe? How can we inform parents about which behaviours put children at risk? How can we teach parents that young children do not follow safety rules?	What can we do to teach parents about hazards in the home? How do we teach parents that their perception of risk should be based on the characteristics of the parent, child and the home environment?	How can education help to improve home safety conditions?	What can we do to educate and build awareness and support for valuing home safety?
Environmental change	What information can we give parents about choosing safe products for their homes?	What can we do to ensure that families have access to home safety products?	How can we change the physical environment?	What can we do to advocate for home safety?
Enforcement	How can we ensure that parents know how to choose safe products for their child?	What can we do about ensuring that products in the home are safe?	How can we advocate for parents who cannot afford home safety improvements?	What can we do to influence laws and policies that improve home safety?

Population Health Framework

The Population Health Framework provides another perspective for planning your program. It identifies the relationships among the many factors that influence health and the risk of disease or injury. It considers the complexity of health and offers a framework for individual counselling, community programs, policy, evaluation and research across the health continuum. This model is often presented as a diagram showing the interrelationships between individual response, environmental factors, genetic factors, well-being and prosperity, health and functioning and healthcare interventions all influencing a person with a disease or injury.[91] Table 9 applies the Population Health Framework to childhood home injury risk factors.

Table 9. Population Health Framework Applied to Injuries in the Home (Note: This list is not exhaustive.)

Individual Response	Individual Response	Social Environment	Physical Environment	Genetic Endowment	Prosperity/ Well-being	Health and Function	Healthcare Interventions
Child	**Caregiver**			**Child**			
Developmental stage Child's age Child's gender	Parenting experience Beliefs Parenting style Knowledge of injury prevention Knowledge of safety equipment Ability to install safety equipment Perception of child's abilities and skills Supervision Education	Value placed on home safety Policy/ promotion of home safety measures Ethnicity Family size	Stairs Furniture Windows Decks Hot water Hot surfaces – stoves, gas fireplaces Hot drinks Electrical sockets Cigarette lighters/ matches Medicine Cleaning products Alcohol Cigarettes Bathtubs Pools Window blind cords Pillows/bumper pads Food Sharp objects Home's physical condition	Temperament Activity level Risk-taking behaviour Cognitive ability	Socio-economic conditions Caregiver's sense of well-being	Presence of disease	Education to influence Knowledge, attitudes and behaviour Change physical environment in the home Advocate for legislation and standards Advocate to ensure Enforcement of legislation and standards

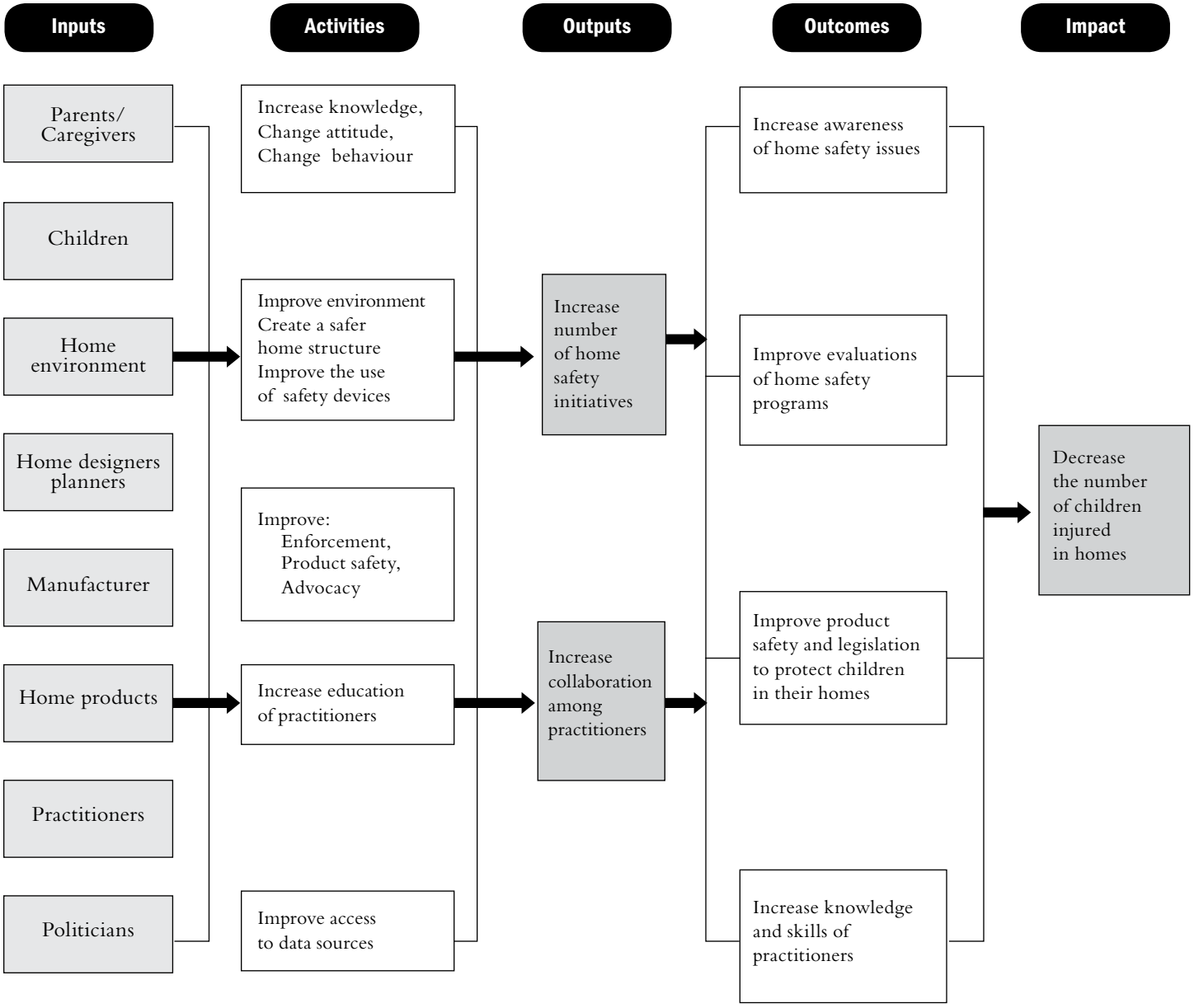
[91] Public Health Agency of Canada, 2005

Program Logic Model

The Program Logic Model is a systematic and visual way to plan, implement, evaluate and share the activities you plan and the results you hope to achieve. It uses a flow chart format to link program outcomes, activities, processes, assumptions and principles of your program.

Different formats have been used for the Program Logic Model. Most formats include components, activities, target groups, short- and long-term outcomes and goals.[92] A sample of a Program Logic Model for a home safety program can be found in Figure 1.

Figure 1. Program Logic Model Applied to Home Injury Prevention Program

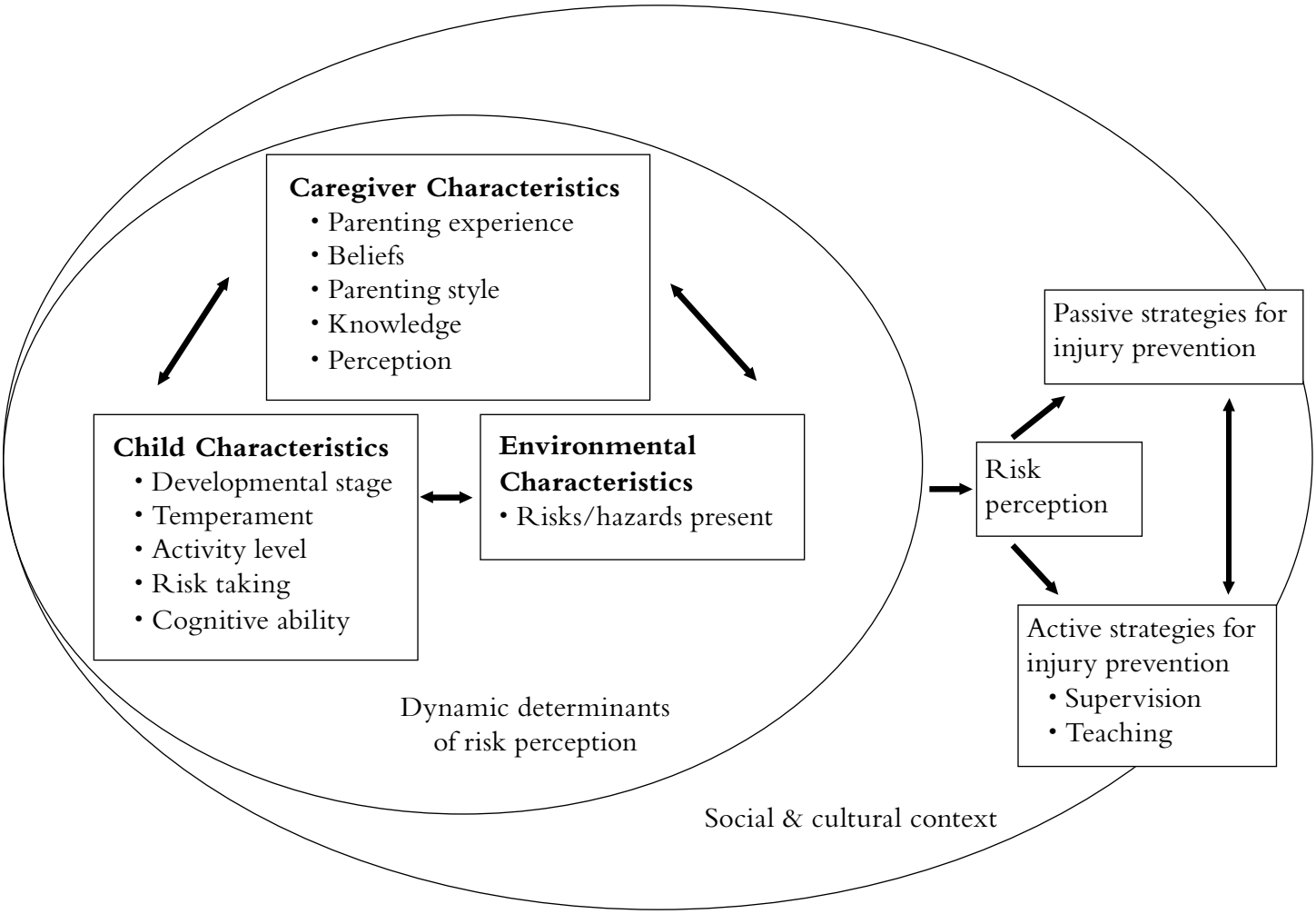


[92] W.K. Kellogg Foundation, 2004, p. 1–6

Ecological Theory of Risk Perception

A model that might help to plan individual interventions for families is the Ecological Theory of Risk Perception. This theory considers an individual's perception of risk within a social and cultural context. This model proposes that the characteristics of the caregiver, the child and the environment determine the caregiver's perception of risk. Based on this perception of risk, active or passive strategies are chosen to prevent an injury.

Figure 2. Ecological Theory applied to Decision Making about Injury Prevention Strategies [93]



For example, how a parent chooses to manage the stairs when their toddler is learning to walk will depend on:

- The parent's beliefs (caregiver characteristics)
- How dangerous are the stairs?
- What do they know about how many children are injured on stairs?
- What are their perceptions of their own child's risk at the stairs?
- The child's actions (child characteristics)
- How has the child responded to the stairs and other climbing situations?
- The stairs themselves (environmental characteristics)
- How steep are they? Is there a carpet? Are there other children?

Based on these answers, the parent decides on their individual child's level of risk and takes active or passive strategies to reduce that risk.[94]

[93] Saluja, 2004, p. 17–22

[94] Saluja, 2004, p. 17–22

Section 3

Designing Home Safety Interventions

Evidence of Effectiveness of Home Safety Interventions

Understanding Barriers to Effective Home Safety Interventions

Section 3
Designing Home Safety Interventions

"One generation plants the trees; another gets the shade."
Chinese Proverb

Evidence of Effectiveness of Home Safety Interventions

Environmental Modification

Programs to modify the home environment to reduce injuries for young children have included counselling by practitioners, education in a variety of community and healthcare settings and home visits to assess home environments, provide education and educational materials and information about home safety products. Some programs have provided home safety products to high-risk families. These products have included safety gates, smoke detectors, socket covers, hot water temperature-testing cards and locks and latches.

A review of literature that evaluated programs that modified the home environment to reduce injuries was undertaken by the Cochrane Review. Of the 11 studies found, three used reduction of injuries as an outcome measure. None of these studies found a reduction in injuries. In one study, there was a significant reduction in visits to the doctor after the intervention.[95] A summary of these studies is included in Section 8 – Appendix.

In this same literature review, eight studies reported home hazard reductions as the outcome measure. Seven of these studies reported some reduction in hazards. These studies showed that in the intervention groups, there was an increased use in socket covers, locks on cupboard and window guards. Two interventions showed significant results at lowering the hot water temperature.[96] For more details on these studies, refer to Section 8 - Appendix.

Individual Counselling in Healthcare Settings

Another systematic review looked for studies of the impact of individual counselling by healthcare providers in a variety of healthcare settings. Of the two randomized control studies found, they showed little or no effect on minor injuries, and the reduction in hospitalizations was not statistically significant.[97]

One study compared counselling by a pediatrician and referral to the hospital safety centre to receiving a home visit, in addition to counselling and referral. The results showed no difference in injuries between the two groups. However, parents who visited the safety centre, whether or not they received a home visit, were more likely to have lower hot water temperature, a working smoke detector, all stairs protected by gate or door and poisonous products locked.[98]

Community-Based Programs

One community-based intervention, based on the World Health Organization's Safe Communities model, showed a decrease in injury hospitalization rates for children over a two-year period. Hospitalization rates in a comparison community showed an increase over the same period. Data gathered from a telephone survey showed no reduction in overall reports of injuries to children; however, there was a reported reduction in injuries that required medical treatment. There was also a reported increase in the use of pool fencing and stair gates.[99]

Programs that Focus on a Single Cause of Injury

Home injury prevention programs that focus on a single cause have shown a reduction in injuries. The Oklahoma City Smoke Alarm Project showed an 80 per cent reduction in the number of homes at high risk of fire. The injury rates decreased by 74 per cent in the campaign's target area. Correspondingly, rates for the rest of the city increased slightly.[100] Education combined with legislation has been effective in preventing children falling from windows. In two years, the Children Can't Fly program in New York City decreased falls from windows by 50 per cent and deaths by 35 per cent.[101]

[95] Lyons, 2003, p. 1–41
[96] Lyons, 2003, p. 1–41
[97] DiGuisepi, 2000, p. 53–82
[98] Gielen, 2002, p. 33–40
[99] Coggan, 2000, p. 130–134
[100] Towner, 2001, p. 249–253
[101] Spiegal, 1997, p. 1143

Home Visits

Home visiting programs can be used to provide parent education and family support to improve the health and well-being of young children. They offer a range of services to caregivers, including prenatal and infant care training. Parenting training includes child development information, development of problem-solving and life skills, educational and work opportunities and links with community services. These sessions can provide an opportunity to address home safety.

Home visiting programs are most successful when they:

- start in the early childhood years
- provide individualized service based on a family's unique strengths, risk factors and needs
- include follow-up assessments completed at regular intervals to provide opportunities to recognize progress, revise plans based on family needs and prepare families to care for their children when their home visiting services come to an end
- allow home visitors to establish a rapport and trust with families
- focus on increasing the parents' knowledge about child development
- facilitate access to other services that may assist the family
- utilize home visitors that have skills and knowledge in child development, parenting and healthcare [102]

Understanding Barriers to Effective Home Safety Interventions

Knowledge and Skills of Practitioners

Practitioners may not always have the skills or knowledge they need to implement successful programs. One example of the need to provide knowledge is shown in a recent study that assessed advice given by healthcare professionals, including family physicians, pediatricians and home visitors. Healthcare professionals were presented with questions asking what age a child could safely engage in a number of common activities. For each scenario, the responses varied by up to nine years. In addition, more than 50 per cent of the responses deviated from evidence-based recommendations by two or more years.[103] Research has shown that by providing education and training in injury, knowledge and injury prevention practices have been improved.[104] Injury prevention education should be consistent and based on the best available evidence of effectiveness. Education and training resources are included in Section 7 - Resources.

High-Risk Families

Barriers that may prevent practitioners from incorporating injury prevention into their practice for high-risk families include time constraints and insufficient funding. Practitioners may also experience resistance from families who are under stressful conditions, making it difficult for parents to be receptive to education efforts. Some families may not recognize the benefits of home visiting services and/or may be distrustful of people offering assistance. Sometimes these families face a large number of issues that have a higher priority than injury prevention.[105]

To assist these families, practitioners need additional training in the needs of high-risk families. Services to these families should be coordinated. Programs that promote cohesion and community involvement for high-risk families may reduce the injury risk for young children. Programs that target both parenting skills and improving the family's socio-economic status may have an increased effect of reducing injuries than either of these factors alone.[106] Ontario's Healthy Babies, Healthy Children is an example of one program that provides an enhanced service to high-risk families.

Finding Data

Injury data can be hard to find. Data is not collected in a standard way across the country. The information that is collected can be fragmented, especially at the local level. Injury data allows practitioners to show the extent of injury in their community and measure the success of their programs. Surveillance data allows practitioners to show the who, when, how many and where of childhood injury. Links to organizations that provide injury data are provided in Section 7 - Resources.

[102] Olds, 1986, p. 65–78
[103] Tomlinson, 2004, p. 301–305
[104] Marsh, 1998, p. 47–56
[105] Carter, 1992, p. 115–117
[106] Soubhi, 2001, p. 47–51

Societal Beliefs about Injury

Even though parents believe that children are vulnerable to injury, they often do not take steps to reduce the risk of injury. This is influenced by a common belief in society that injuries are "accidents" and that there is often little anyone can do to prevent them. For childhood injury, there is also a belief that if only the parent was supervising more closely, they would have prevented the injury. Changing societal beliefs takes a multi-strategy approach, including social marketing, environmental changes, legislation and enforcement. The Safe Communities model, which involves a large number of partners across a community, has been shown to reduce injuries.

Advocating for Changes to Standards and Legislation

Injury prevention programs that involve changes to the environment, either through product redesign or legislative change, can be highly effective. For example, the use of child-resistant caps on medication reduced the number of poisonings treated in emergency departments by 35 per cent.[107] Advocates for these types of changes face their own set of challenges. There may be a reluctance to change the current status of a product, a product standard or the laws governing products. Products may be designed without consideration of child safety or they may not adhere to product standards. Even when product standards are developed, they still may not incorporate child safety. Manufacturers and legislators may be reluctant to make changes to their products or laws if changes would be expensive or cause the price of the product to rise. Lobby groups may work to convince the public and the government that changes to products are not necessary, even if health data supports the risks of a product.

Changing or setting new legislation involves similar constraints. Changing laws brings together a broad array of players, often with conflicting motives. Advocating and lobbying for safe products and standards requires unique skills. Finding a solution for all points of view is time consuming and requires negotiation skills. Developing partnerships with other organizations may strengthen your initiatives. If successful, legislative and product standard changes can have a long-lasting impact on injury reduction. Links to advocacy organizations that provide training and resources are included in Section 7 - Resources.

[107] Howes, 1978

Section 4

Developing Effective Evaluations

Effective Planning

Obtaining Expertise

Access to Injury Prevention Data

Sample Size

Funding

Section 4
Developing Effective Evaluations

"If you don't know where you are going, you will probably end up somewhere else"

Laurence J Peter

When planning your evaluation strategies, key questions to ask are:

- What have existing evaluations of similar programs found, and what methods were used?
- Are the injury prevention strategies that are being employed effective?
- Have organizational or behavioural goals for the program been reached?
- How will you gauge your progress and record your results?
- What can be done to increase program effectiveness? [108]

To answer these questions, formative, process and outcome evaluation strategies can be used. Table 10 is a summary of the types of evaluation and when to use each type.

Formative evaluations are used to design new programs. This type of evaluation can be used to generate initial program ideas with target groups, pilot test tools or survey target groups for their knowledge and beliefs. It answers the questions, What do participants already know or believe? and What does our survey say? Focus groups are often used to gather this information.

Process evaluation is quantitative and involves counting. It allows you to document the degree to which a prevention program is being implemented and how the program is being carried out. The questions include: What did we actually do? (How many brochures did we distribute? How many safety devices did we distribute or install?) When and where was it done? By whom, to whom and for whom? (How many people did we visit?) What were the consistency and the quality of the program across locations? Process evaluation can be used to understand how the program's design affects outcome data.[109]

Most home injury prevention programs have used formative or process evaluations to measure their results.

Very few programs have used outcome evaluation. Of the few outcome studies, they have shown that a large amount of current practice has little or no effect on reducing childhood injuries in the home. After all the good efforts of practitioners, why are so few home safety programs evaluated to measure injury reduction?

Outcome evaluation is not an easy task, but given the current lack of strong evidence of the effectiveness of home safety programs, it is important that more outcome evaluation is conducted. It takes effective planning, knowledge of how and where to access injury data, skills to complete complex statistical analysis, time to collect data and a larger sample size than may be available in your community. Measuring injury outcomes is a demonstration of the effect of your program on your community. Outcome evaluation is also an effective way to demonstrate the success of your program when competing for program funding.[110]

[108] Christoffel, 1999, p. 311
[109] Christoffel, 1999, p. 318–319
[110] Christoffel, 1999, p. 309–333

Table 10. Types of Evaluation [111]

Cost/Benefits Formative evaluation	Process evaluation	Impact evaluation	Outcome evaluation
This evaluation type tests program plans, messages and materials before they are put into place. Personal interviews and/or focus group testing may help to determine the approaches for addressing the issues below. • Perceptions of vulnerability to a child being injured in the home • Knowledge of safe home products • Knowledge of child development and injury risk **Questions to consider:** • Who are we trying to reach? • What do they know or believe now? • What do we want to change? • Are we communicating effectively?	This evaluation type is quantitative and involves actual counting. Below are some examples of variables that could be measured. • Number of caregivers informed • Number of presentations made and media hits • Number of safety products installed in the home • Number of materials distributed **Questions to consider:** • What, specifically, are we doing? • Who is doing it? • How is it getting done? • How does what we've done compare with what we intended to do? • What have we learned? • What would we change or not change?	This evaluation type uses a mix of quantitative and qualitative measures and incorporates tools such as surveys and observations. Below are some examples of factors that could be measured. • Changes in knowledge, attitudes and beliefs about child home safety (survey) • Actual increase in number of homes with home safety products in place (pre- and post-observation) **Questions to consider:** • What are the results of our program? • How do the results compare with what we expected?	This evaluation type indicates whether a project has reduced injuries and deaths. This data can help to measure post-intervention progress. **Questions to consider:** • What factors may have contributed to the reduction in child home injuries at the target locations or in the community as a whole? • What has been learned about which activities or factors were most effective in improving child home safety?

Effective Planning

When planning your evaluation, 15 steps have been identified to ensure effective evaluation are:

1. Develop specific, measurable and written goals and objectives for your home safety program.
2. Specify and define a set of activities that can be implemented to accomplish program goals and objectives.
3. List questions to be answered for formative, process and outcome evaluation.
4. Identify resources needed to carry out your evaluation and compare these with the available resources.
5. Set realistic priorities for the evaluation given the resources and time available.
6. Identify a specific individual responsible for overseeing the evaluation.
7. Select methods appropriate to the evaluation questions.
8. Identify potential data sources and develop specific data collection forms.
9. Develop an evaluation schedule.
10. Conduct formative evaluation of materials.
11. Collect baseline data.
12. Analyze and interpret the data.
13. Use the findings to provide feedback to improve the program.
14. Communicate the findings, both positive and negative, in a timely manner.
15. Review the evaluation process.[112]

[111] Adapted from U.S. Safe Kids Walk This Way 2003 Task Force Guide

[112] Christoffel, 1999, p. 312

Obtaining Expertise

Evaluation expertise may be available within your own local community or organization. Colleges, universities, social planning councils, health authorities and injury prevention resource centres have evaluation experts who may be interested in evaluating a community-based initiative. Web sites, annual reports and journal articles may help you to identify specific researchers in your area of interest. Think creatively about a facility that may be linked to your program. Professors from the faculties of psychology, health, social work, nursing or family studies may provide assistance. They may have a student willing to work on a project. Plan specifically how you would like them to assist you and present them with a detailed plan of your program, including objectives and timelines.

Planning councils are another resource. They may be able to link similar programs or areas of interest in your community. They may have data sources and expertise to help you access and analyze the data. Contact information for local planning councils, health authorities, provincial, territorial and national networks and injury prevention centres are provided in Section 7 - Resources.

Within your own organization, there may be a person or department with evaluation expertise. There may be competing interests for their time and resources, so you may have to provide clear reasons on the benefits of implementing an evaluation for your program. Epidemiologists may also be available in your organization. They are skilled at analyzing data and may be available to help write reports. They also know how to access health data from within your organization and from other data sources.

Gaining more skills in evaluation can help plan effective home injury prevention programs. Courses are offered at local colleges and universities, online or in conjunction with conferences. Information on courses is available in Section 7 - Resources.

Access to Injury Prevention Data

Injury rates for young children at home can be accessed through Canadian Hospitals Injury Reporting and Prevention Program (CHIRPP). Fifteen hospitals across the country track childhood injury rates within their hospital. Information for your area may be available through one of the CHIRPP sites. If your local hospital is not part of CHIRPP, it still may be able to provide you with childhood injury data. In addition, trauma registries, Health Canada and the Canadian Institute for Health Information are also sources of data. Contact information for organizations that provide injury data is provided in Section 7 - Resources.

Sample Size

The number of young children injured in their homes in your area may be small, even though the program you deliver may include a large number of families. If your sample size is too small, you will be unable to conclude whether the changes from your program are significant or were caused by other factors. Linking with other organizations that provide a similar program would give you a larger sample size and make the effort to measure outcomes more worthwhile. You may find similar programs through your regional health authority or injury prevention centre or by posting requests on injury prevention listservs. This may also allow you to pool resources, expertise and dollars to increase the extent of your evaluation.

Funding

For long-term outcome evaluations, external sources of funding are often helpful. If you have a solid program plan and especially if you have built partnerships to implement the program, government programs or foundations may provide you with the funding to hire an expert. A list of potential funding sources is provided in Section 7 - Resources.

Section 5

Recommendations for Best Practices for Safer Homes

Rationale for Best Practice Recommendations

Section 5
Recommendations for Best Practices for Safer Homes

"Vision without action is merely a dream. Action without vision just passes the time. Vision with action can change the world."
Joel A. Barker

To plan for best practice programs, there are a number of key components that make a home injury prevention intervention work. When planning a new initiative or continuing an existing program, some or all of the following can be incorporated.

Target groups at high risk:

- parents of infants (birth to one year)
- parents of one- to two-year-olds
- parents of boys
- families in low socio-economic and low-income neighbourhoods with poor-quality housing

Plan interventions that:

- occur after an injury or in a healthcare setting
- focus on a single cause of injury
- use home assessment tools that assess:
  - caregiver characteristics
  - child characteristics
  - environmental characteristics
- primarily target the caregiver, not the child
- increase caregivers' knowledge about the age and stage of the child and how this can lead to injury
- increase caregivers' beliefs that their own child is vulnerable to injuries and that those injuries can be serious
- are community-based, involving education, environment and enforcement

Plan evaluations that:

- are developed early in the planning stages
- are outcome-based
- use randomized and non-randomized control groups

Rationale for Best Practice Recommendations

Programs that target caregivers of infants (birth to one year):

- Infants are hospitalized at a rate of eight to ten times higher than any other age group.[113]
- Falls are the most common cause of injury.[114]
- Falls occur from furniture, car seats and stairs and as a result of being unintentionally dropped.[115]
- Falls most commonly result in head injuries (36 per cent), superficial injuries (26.3 per cent) and fractures/dislocations (12.2 per cent).[116]
- Falls cause 95.8 per cent of skull fractures.[117]

Programs that target caregivers of one-to two-year-olds:

- Injury risk reaches a peak between one and two years old.[118]
- Physical and motor development is developing faster than the cognitive ability to understand hazards.
- Parents overestimate the child's ability to follow safety rules.[119]
- Programs should be aimed at parents and caregivers, not the children.

Programs that target caregivers of boys:

- Boys are more likely to be injured than girls.[120]
- Parents tolerate more risk taking with boys.[121]

Programs that target families in low socio-economic and low-income neighbourhoods with poor-quality housing:

- Parents are more likely to have a lower level of education.
- These families are more likely to be led by a single parent receiving government benefits and with more children in the home.[122]
- Parents perceive their children have fewer safe places to play.[123]
- Parents are less likely to take their child to the hospital if an injury occurs.[124]
- Programs that target legislative and regulatory changes to address poor-quality housing and that promote safe play spaces may benefit these families.[125] [126]
- Programs that promote "cohesion and community involvement" for at-risk families may reduce the injury risk for young children. Programs that target both parenting skills and improving the family's socio-economic status may have an increased effect of reducing injuries than either of these factors alone.[127]

Planning interventions that occur after an injury or in a healthcare setting:

- Intervention that provided home visit and access to reduced-cost home safety devices after a child had been seen in the emergency department showed a significant reduction in subsequent visits to the doctor.[128]
- Parents who visited a safety centre in a hospital, whether or not they received a home visit, were more likely to use home safety products.[129]

[113] Canadian Institute of Child Health, 2000, p. 21–22
[114] Pickett, 2003, p. 365–370
[115] Pickett, 2003, p. 365–370
[116] Pickett, 2003, p. 365–370
[117] Pickett, 2003, p. 365–370
[118] Health Surveillance and Epidemiology Division (Public Health Agency of Canada), 2005
[119] Morrongiello, 2004, p. 433–446
[120] Health Surveillance and Epidemiology Division (Public Health Agency of Canada), 2005
[121] Morrongiello, 1998, p. 33–44
[122] Ramsay, 2003, p. 404–411
[123] Ramsay, 2003, p. 404–411
[124] Ramsay, 2003, p. 404–411
[125] Faelker, 2000, p. 203–208
[126] Shenassa, 2004, p. 633–638
[127] Soubhi, 2001, p. 47–51

Planning an intervention that focuses on a single cause of injury:

- The Oklahoma City Smoke Alarm Project showed an 80 per cent reduction in homes at high risk for a fire. The injury rates per 100 fires decreased by 74 per cent in the target area of the campaign. Correspondingly, rates for the rest of the city increased slightly.[130]
- In two years, the Children Can't Fly program in New York City decreased falls from windows by 50 per cent and deaths by 35 per cent.[131]

Planning interventions that use home assessment tools that assess caregiver, child and environmental characteristics:

- Mothers engage in different safety practices depending on the cause of the potential injury.[132]
- Safety practices differ from room to room.[133]

Planning interventions that increase caregivers' knowledge about the age and stage of the child and how this can lead to injury:

- Parents do not often adjust their expectations of their child's abilities to the child's developmental level.[134]
- Parents often underestimate or overestimate a child's abilities, resulting in exposure to risks the parent does not anticipate.[135]
- Parents overestimate children's knowledge of safety and their ability to manage injury risk on their own.[136]

Planning interventions that increase caregivers' beliefs that their own child is vulnerable to injuries and that those injuries can be serious:

- In day-to-day activities, parents often do not think about preventing injuries or take actions to reduce the risks.[137]
- Some parents also believe that children learn rom being injured, that injuries are natural consequences of play.[138]

Planning interventions that are community-based, involving education, environment and enforcement:

- Interventions using the World Health Organization's Safe Communities model showed a decrease in injury hospitalization rates for children.[139]

Plan evaluations that are outcome-based, using randomized and non-randomized control groups:

- Very few home injury prevention programs have used outcome evaluations.[140]
- Results of the few outcome evaluations have shown that a large amount of current practice has little or no effect on reducing childhood injuries in the home.[141]

[128] Lyons, 2003, p. 1–41
[129] Gielen, 2002, p. 33–40
[130] Towner, 2001, p. 249–253
[131] Spiegal, 1997, p. 1143
[132] Morrongiello, 2004, p. 285–297
[133] Morrongiello, 2004, p. 285–297
[134] Morrongiello, 2004, p. 433–446
[135] Morrongiello, 2004, p. 433–446
[136] Morrongiello, 2004, p. 433–446
[137] Morrongiello, 1996, p. 383–388
[138] Morrongiello, 1996, p. 383–388
[139] Coggan, 2000, p. 130–134
[140] Lyons, 2003, p. 1-41
[141] Lyons, 2003, p. 1-41

Section 6

Tools

Home Assessment Tool

Child Development and Injury Information

Home Safety Product Information

Key Home Safety Messages for Parents

"Have a bias toward action – let's see something happen now. You can break that big plan into small steps and take the first step right away."

Indira Gandhi

Home Assessment Tool

The B.C. Injury Research and Prevention Unit developed a home assessment tool to be used with families who were part of the Chilliwack Safe Baby Program. This tool was developed and modified from other published and unpublished tools. This questionnaire was completed at two months prior to the intervention and again at six and twelve months.

The questionnaire has three components – demographic information, risk assessment and self-reported injuries. In the risk assessment component, parents' attitudes and home hazards are assessed. The information from this tool can be used to form an evaluation of your program.

B.C. Injury Research and Prevention Unit
Chilliwack Safe Baby Program – Two-Month Questionnaire

A. DEMOGRAPHIC INFORMATION (Part 1):
This section allows the researchers for this study to gather background information on the families with new babies, which may influence the findings.

1. What is the your baby's current age?_____ months ☐ Boy ☐ Girl

2. Are you the baby's: ☐ Mother ☐ Father Other _____

3. Is this your first baby? ☐ Yes ☐ No

4. If no, what are the ages of the other children? _____

5. Please specify your age: _____ years old

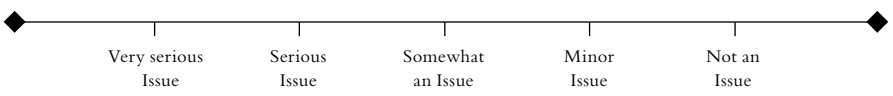
6. Marital status: ☐ single ☐ separated ☐ married ☐ widowed ☐ divorced

7. Are you a single parent? ☐ Yes ☐ No

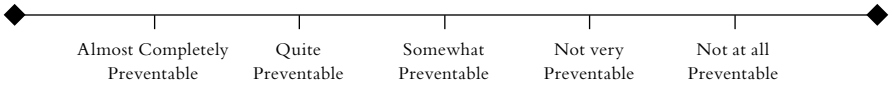
8. Do you currently: ☐ rent ☐ own ☐ other _____
(type of housing)

B. RISK ASSESSMENT:
This section allows the researchers in our study to obtain information, which may show baseline differences in the homes of the people in our different study groups.

9. How serious an issue do you consider baby home injuries (or accidents) to be, compared to other health issues that can affect babies?



10. Do you think that most babies' injuries (accidents) in the home could be prevented?



11. What do you think the chances are that a child under one year in Chilliwack will be injured at least once in the following ways? (Please circle one answer on the scale of 1 to 5, where 1 is the least likely to occur and 5 is the most likely to occur)

	Least Likely				Most Likely
Burns	1	2	3	4	5
Bruises	1	2	3	4	5
Gashes and cuts	1	2	3	4	5
Head injuries	1	2	3	4	5
Broken bones	1	2	3	4	5
Poisoning	1	2	3	4	5

Risks relating to falls in your home

12. Are hall and stairway lighting adequate (to prevent falls)? ❑ Yes ❑ No

13. Are halls and stairways cluttered? ❑ Yes ❑ No

14. Many injuries to babies have resulted from falls from high surfaces (for example, a changing table). Despite your best efforts, have you ever left your baby unattended for a split second: ❑ Never ❑ 1-2 times ❑ on occasion ❑ sometimes

15. Is your baby crawling? ❑ Yes ❑ No

16. How often, if ever, does your baby use a baby walker? ❑ often ❑ occasionally ❑ never

Risks relating to choking/strangulation in your home

17. Does the toy chest have a lightweight lid, no lid, or a safe closing mechanism? ❑ Yes ❑ No

18. Do you always keep small items and food that can choke your child out of his or her reach (e.g. items that can fit through a toilet paper roll are choking hazards)? ❑ Yes ❑ No

19. Do your blinds have long blind cords that are accessible to your child? ❑ Yes ❑ No

Risks relating to falls in your home

20. Are coffees, hot liquids, and hot foods placed out of your child's reach? ❑ Yes ❑ No

21. Do you have a working fire extinguisher (to put out a small fire or to clear an escape path)? ❑ Yes ❑ No

22. Is your home hot water adjusted to a safe temperature? The sanitary code allows a range of 43°-54°C (110°-120° F). We recommend 49°C (120°F) or less to prevent tap water scalds. ❑ Yes ❑ No ❑ Don't know

Risks relating to poisoning in your home

23. Are medicine and vitamins stored beyond your child's reach? ❑ Yes ❑ No

24. Are plants placed out of your child's reach? ❑ Yes ❑ No

Risks relating to drowning in your home

25. Is your child always watched by an adult while in the tub? ☐ Yes ☐ No

26. Are pools on your property or in your neighbourhood fully protected (i.e. fenced) from use by unsupervised children? ☐ Yes ☐ No

27. Are you currently using any of the following items in your home? (Please check all that apply)

	Yes	No	Not Applicable in my Home
Blind cord wind-up	☐	☐	☐
Drawer latches	☐	☐	☐
Corner cushions	☐	☐	☐
Door stops	☐	☐	☐
Outlet caps	☐	☐	☐
Water temperature test card	☐	☐	☐
Poison control/ emergency numbers near phone	☐	☐	☐
Smoke alarm	☐	☐	☐
Stair gates	☐	☐	☐

28. Are there any other safety items that you are currently using? _____

_____

_____

_____

_____

C. SELF-REPORTED INJURIES:

This section allows the researchers of the study to obtain information regarding injuries that have occurred to families with new babies in our study groups.

29. In the last two months, has the child in this survey had an accidental injury that was treated by a physician or at a hospital? ☐Yes ☐No

30. If yes, the number of accidental injuries that the child in this survey has had which were treated by a physician or at a hospital in the last 2 months is: _____ (please give a number)

31. If yes, how old was your baby at the time of the injury? _____ months

32. How many of these accidents/injuries in the last two months happened at home or in the garden?_____ (please give a number)

33. For the most serious injury, what type of injury did he/she have?

☐ Broken or fractured bones ☐ Burn or scald ☐ Dislocation

☐ Sprain or strain ☐ Cut, scrape or bruise ☐ Internal injury

☐ Poisoning by substance or liquid ☐ Dental injury ☐ Concussion

☐ Multiple injuries ☐ Don't know ☐ Other

34. What part of his/her body was injured?

☐ eyes ☐ head or neck ☐ face or scalp ☐ arms or hands

☐ legs or feet ☐ back or spine ☐ trunk ☐ shoulder

☐ hip ☐ multiple sites ☐ don't know

35. Please describe what happened (type of injury and how it occurred): _____

_____

_____

_____

_____

D. DEMOGRAPHIC INFORMATION (Part II):
This section allows the researchers for this study to gather background information on the groups, which may influence the findings.

36. Employment status:

☐ looking after the home full-time ☐ working in a paid job, full or part-time ☐ unemployed ☐ other_____

37. Level of education:

☐ high school ☐ college ☐ university ☐ trade school ☐ other _____

38. Can you estimate your total household income?

☐ Less than $20,000 ☐ $20,000 - $40,000 ☐ $40,000 - $60,000 ☐ $60,000 +

39. The total number of people living in your home is? _____ (please give a number)

Child Development and Injury Information

Capital Health's, A Million Messages program is used to help health professional provide consistent injury prevention information to parents.

The messages are based on the child's developmental stage. The home visitors tool, provided here, is one tool that was developed for this program.

STAFF EXPECTATIONS	KEY MESSAGES	RESOURCES
NEWBORN Discuss injury prevention issues relating to Shaken Baby Syndrome and falls.	**SHAKEN BABY SYNDROME** Parenting can be overwhelming and frustrating at times, particularly if parents are feeling stressed from lack of sleep, demands on their time and the various other stresses in life. If a parent feels this way, encourage them to put their baby in a safe place, usually a crib, put up the side rails and take 10-15 minutes for themselves to relax or reach out for support. Shaken Baby Syndrome only takes a moment. "Take a break — don't shake." **FALLS** • Falls are the leading cause of childhood injury in the home. • When changing a baby, secure the infant with your hand when turning to reach for something. Never leave a baby unattended.	• Shaken Baby Syndrome tri-fold (if not already received) • Shaken Baby Syndrome Video • All About Me: Birth to 2-Months.
Within the first month Walk through the home with parents to complete the Newborn Home Safety Checklist.	Parents can prevent most injuries to their children by paying attention to their surroundings. **FALLS** • Children are not mobile yet, therefore people have a false sense of security leaving a child alone on a couch or bed. • At this age falls occur when infants are positioned in an unsafe manner and/or left unattended.	• Newborn Home Safety Checklist • Safe and Secure (if appropriate)
2 months Remind parents that falls continue to be the biggest risk to their children.	Supervision prevents many injuries from occurring in the first place. **FALLS** • Never leave a child on top of anything above floor level, such as a change table, bed, couch, washing machine, table, or counter. • Always fasten safety straps between a child's legs and around their waist when putting them into chairs, swings, etc.	• All About Me: 2 to 4 Months • Shaken Baby Syndrome magnet (if not already received).

STAFF EXPECTATIONS	KEY MESSAGES	RESOURCES
4 months Remind parents that the risk of falls increases with mobility. Discuss with parents that the most common cause of burns in this age group is from scalds.	Supervision prevents many injuries from occurring in the first place. **FALLS** • Emphasize the importance of using safety gates at the top of stairs. • Do not use baby walkers for any reason. **SCALDS AND BURNS** • Adjust hot water temperature to 49°C (120°F). Test bath water with entire hand before putting a child in the bath tub. • Keep hot liquids and food away from children. Hot liquids can scald up to half an hour after boiling.	• All About Me: 4 to 6 Months • Get the Facts: Home Safety
6 months Remind parents that children are safest facing the rear of the vehicle as long as possible in a seat appropriate for their weight. Walk through the home with parents to complete the 6-month Home Safety Checklist.	Supervision prevents many injuries from occurring in the first place. **MOTOR VEHICLE COLLISIONS** • Children are safest facing the rear of the vehicle as long as possible and they are safest if they stay rear facing until their first birthday. • Forward facing child seats require a top tether strap in addition to a seat belt. These are often difficult to install properly so help is available in the community at free monthly inspection clinics. **FALLS** • Once children can stand, crib mattress should be lowered and kept away from windows. • Keep large toys and stuffed animals out of cribs or playpens, so a child can't use them to climb over the side.	• Child Safety Seats quad-fold • Car Safety Seat Inspection Clinic schedule • All About Me: 6 to 9 Months • 6-month Home Safety Checklist
8 months Discuss with parents the risk of choking once children can reach out and put things in their mouths.	Supervision prevents many injuries from occurring in the first place. **CHOKING** • Food is the most common object to choke on. Items such as hard candy, nuts, popcorn, grapes, gum and hot dogs should be avoided. • Hard fruits and vegetables, such as apples and carrots should be grated. • Keep all small objects out of a child's reach.	• All About Me: 9-12 Months • Get the Facts: Clothing Safety

STAFF EXPECTATIONS	KEY MESSAGES	RESOURCES
12 months Identify poisonous substances in the home and find a location where these can be stored. Walk through the home with parents to complete the 12-month Home Safety Checklist.	Supervision prevents many injuries from occurring in the first place. **POISONING** • The most common poisonous substances are cold and fever remedies. • Put locks on lower cupboards containing poisonous items such as cleansers, soaps, vitamins, and medications, or move them out of reach. • Purses, bags, and suitcases left on the floor may contain medications or poisonous items, therefore keep them out of reach. • Emphasize that most poisonings can be effectively dealt with at home. Call the Poison Information Centre before going to the Emergency Department. 1-800-332-1414	• All About Me: 12 to 18 Months • Poison Information Centre sticker • 12-month Home Safety Checklist
18 months Emphasize to parents that seat belts or booster seats cannot protect children until they weigh at least 40 pounds.	Supervision prevents many injuries from occurring in the first place. **MOTOR VEHICLE COLLISIONS** • Children are safest in child seats until 40 pounds of weight regardless of their height. A booster seat is the only way the seatbelt will properly fit a child-sized body. • Children may dart into traffic or play on driveways, therefore, ensure children are not behind vehicles when backing up. **FALLS** • Children are walking and climbing up to higher surfaces. They may pull furniture over to counters in order to reach higher places. • Swings and playground equipment require constant supervision.	• All About Me: 18 Months to 3 years • Get the Facts: Child Pedestrian • Get the Facts: Backyard Safety • Get the Facts: Playground Safety
24 months Identify locations in the home where children are most at risk for drowning.	Supervision prevents many injuries from occurring in the first place. **DROWNING** • Constant supervision is required during a bath. Children can drown in a bathtub in a matter of moments. • Any containers holding water such as diaper pails, toilets and buckets must be emptied or have the lid closed.	

STAFF EXPECTATIONS	KEY MESSAGES	RESOURCES
30 months Remind parents about the types of items children are most likely to choke on or could suffocate from.	Supervision prevents many injuries from occurring in the first place. **CHOKING** • Small toys and objects such as coins, pills, buttons, and popped/deflated balloons are dangerous. • Keep children away from blind and drapery cords. • Follow age recommendations for toys. These are based on safety, not intellectual level of the child.	
36 months Ensure that a functioning smoke detector is in place.	Supervision prevents many injuries from occurring in the first place. **SCALDS AND BURNS** • Smoke detectors should be in your home and tested every year. • Teach your child the dangers of matches and lighters. • Practise a fire escape route as a family.	• All About Me: 3 to 5 Years
42 months Encourage children to play but… "It shouldn't hurt to have fun."	Supervision prevents many injuries from occurring in the first place. **FALLS** • Teach your child to always wear an approved helmet when doing outdoor activities such a bicycling, in-line skating and sledding. • Playground equipment is fun but it can be dangerous, therefore constant supervision is important.	• Get the Facts: Bicycle Safety • Get the Facts: Sledding Safety • Get the Facts: Cold Weather/ Thin Ice Safety
Preschool (4-5 years) Address pedestrian safety and encourage the use of booster seats until 80 pounds of weight or age 8.	Supervision prevents many injuries from occurring in the first place. **MOTOR VEHICLE** • Booster seats allow seat belts to work much more effectively on small bodies. Seat belts do not properly protect children until around 80 pounds. • Children learn by example. Be consistent in your behaviors. • Children are not capable of safely crossing a street alone until they are about 9 years.	• All About Me: 5 Years and Beyond • "Boost Their Chances"

Home Safety Product Information

Many injury prevention programs provide information on products. In this section you will find information on some of the common home safety products.

Each product has a description of the types of product available, research on the effectiveness of its use, costs and installation. Where possible, low-cost alternatives are noted.

Product	Description	Importance	Effectiveness	Cost	Installation	Low-cost alternatives
Carbon monoxide detectors	Carbon monoxide detectors monitor the concentration levels of carbon monoxide (CO) and sound an alarm to give an early warning when CO accumulates in the home. CO is a colourless, odourless toxic gas, produced whenever fossil fuel is being burned. It affects the body's ability to use oxygen. Common sources of CO in the home: defective or improperly installed appliances (kitchen range or cook top vent), clogged or blocked chimney openings, disconnected water heater vent pipes, clothes dryers, barbecues operated in enclosed areas and auto exhaust fumes from attached garage.[142]	It is estimated that 1,000 people die each year as a result of carbon monoxide poisonings, and thousands of others end up in hospital emergency rooms.[143] Small children with heart or respiratory illness are at highest risk.	One study showed that homes with CO detectors had five times lower levels of CO than homes that did not have detectors.[144]	$18–$70	They should be installed according to the manufacturer's instructions. All CO detectors are approved by the Standards Council of Canada, with such markings as CSA, CGA, ULC or UL. In a home, the CO detectors should be placed near each sleeping area and the home's heating source. [145] To minimize the risk of CO poisoning as well as using the detectors, ensure annual maintenance on all fuel-burning appliances and furnaces, and be sure that wood-burning stoves and fireplace vents are clear.	No alternatives are available.

[142] Office of the Fire Marshal, Ontario, 2005
[143] Office of the Fire Marshal, Ontario, 2005
[144] Krenzelok, 1996, p. 484–486
[145] Office of the Fire Marshal, Ontario, 2005

Product	Description	Importance	Effectiveness	Cost	Installation	Low-cost alternatives
Hot Water Temperature cards	Hot water temperature-testing cards are used to measure the temperature of the household hot water. Hot water temperature cards are different from bath water thermometers. Bath water thermometers are used each time the child takes a bath to measure the water temperature for that particular bath. Bath pal thermometers, hot bath ducky/hippo or digital thermometers are some examples of bath water thermometers. Hot water temperature cards are not available in stores. Contact Safe Kids Canada for information on how to order the cards.	Hot water at 60°C can produce third-degree burns in 6 seconds. Hot water at 54°C can produce third-degree burns in 30 seconds. Turning down hot water to 49°C extends the time to burn to 5–10 minutes. Most water heaters in Canada are pre-set at 60°C.	Safe Kids Week 2001 focused on burn prevention, in particular tap water scalds prevention. An evaluation of the program showed that up to 42,000 parents tested the temperature of household tap water and up to 21,000 lowered the water heater temperature. In a comparison between parents who were exposed to the program and those who were not, exposed parents were 1.95 times more likely to test their hot water and 3.28 times more likely to lower their hot water temperature.[146] In 1992 to 1994, the New South Wales Scalds Prevention Campaign in Australia evaluation concluded that 67% of the people surveyed took action to prevent scalds at home (decreased their home water temperature or installed anti-scald products); nearly 1 in 5 (19.6%) of homes with children 0–4 years turned down the temperature of their hot water tank as a result of the campaign. Of the participants, 90% utilized the hot water temperature-testing card to measure their home water temperature. This campaign was associated with a marked decrease in severity of scald cases seen at New South Wales hospitals, although not a significant decrease in the actual number of scalds. There was a 30% decrease in the number of hospital stays from scalds lasting 10 days or more, and an 11% decline in stays of 5 to 9 days.[147]	$2–$7		Hot water alone is too hot for a bath, especially for a child. Always add cold water before putting the child in the bath. Test the water by placing your elbow or forearm in the water. Ideally it should feel "just warm." Be sure to mix the water to get rid of the hot spots.

[146] Macarthur, 2003, p. 112–116

[147] New South Wales Health Department, 1998, p. 1–71

Product	Description	Importance	Effectiveness	Cost	Installation	Low-cost alternatives
Locks and latches	Locks and latches are mechanisms to keep cupboards and drawers locked from small children.	Latches and locks keep poisonous products out of reach of young children. [148]	No evidence could be found to show the effectiveness of latches and locks. Devices may need to be changed as the child grows and develops greater dexterity and understanding. Latches should be checked periodically. Most latches are made of plastic, so the mechanism tends to break down with repeated use.	$3–$30	Not all locks fit on all doors, drawers or cabinets. It is easier to fit a lock or latch if there is a lip on the underside of the cabinets and drawers for the latches to hook on to. New or recently renovated homes tend to have newer melamine cupboards and countertops, which do not easily accommodate standard latches.[149]	Thick rubber bands or a hook-and-eye latch above the child's reach
Outlet covers	The most common type of this device is the plastic outlet protector, which plugs into standard wall outlets. Other types can be attached to the outlet plate with screws, joined together in the middle or in a shutter design.	Electrical outlet covers are designed to prevent electrical shock and burns. They hide electrical socket openings to prevent children from inserting metal objects such as keys and pins. Household electrical injuries are most frequently caused by oral contact with electrical cord sockets or wall sockets, either directly or via conductive metal objects. These injuries are most common among children under 6 years. They occur most often when meals are being prepared.[150]	One study looked at 2- to 4-year-old children's ability to remove the plastic outlet covers. All the children could remove the style with 1/16" thick oval face. About half of 4-year-olds and one-third of 2-year-olds could remove the device with a 3/16" thick oval face. [151]	50¢–$5	Single covers are inserted into the outlet. Some styles are attached with screws.	Duct tape may be used to cover electrical outlets. Also, heavy furniture may be placed in front of outlets; however, some space should be left between the furniture and outlet to decrease the risk of fire.

[148] Chien, 2000, p. 264–269
[149] Reynolds, 2000, p. 5–9
[150] Baker, 1989, p. 59–62
[151] Ridenour, 1997, p. 387–392

Product	Description	Importance	Effectiveness	Cost	Installation	Low-cost alternatives
Safety gates	There are two basic types of gates: Hardware-mounted gates are secured to door jambs or walls with screws and plates. Pressure-mounted gates are held in place by pressure applied to a door frame. There are many designs, heights and styles of gates. Some gates have plastic mesh holes and others have vertical rails or slats. Gate heights range from 60 cm to 78 cm. Gates can be purchased in interlocking sections to fit odd angles and spaces of a house.	Safety gates are used to prevent infants and toddlers from falling down stairs or as a barrier between rooms.	No evidence could be found on the effectiveness of safety gates to prevent falls, but injuries have been associated with the use or improper use of baby gates. In Canada, about 40% of the injuries that involved baby gates involve children younger than one year. Most injuries occurred in living and sleeping areas. The injuries resulted from improper use or installation of the gates in the living room areas (e.g., the gates were left open, not closed well by caregivers or children pushed/leaned on the gates).[152] Not all gates meet current standards. For example, accordion-style gates with wide V-shaped openings at the top or large diamond-shaped openings along the sides cannot be sold in Canada. These gates pose a strangulation risk because a child's head can become entrapped in the openings. In order to make gates safer, gates were regulated under the Hazardous Products Act in 1989. Between 1971 and 1990, there were 2 deaths and 15 injuries due to baby gates. After the new regulation, between 1990 and 2004, there were no deaths and only 3 injuries.[153] Gates are designed for use with children from age 6 to 24 months. Once a child is chin level with the top of the gate or is 2 years old, the gate is no longer effective. A child may attempt to jump or climb over the gate.	$35–$150	Gates should always be installed and used according to the manufacturer's directions. Hardware-mounted gates should be installed at the top and bottom of stairs. Gates should be installed with the locking mechanism on the side away from the child. Remind all members of family to consistently close the gate whenever it is used. Children are less likely to climb over a taller gate with vertical slats.	Doors can be closed with a latch and hook at stairways and between rooms.

[152] Health Surveillance and Epidemiology Division (Public Health Agency of Canada) 2005

[153] Health Canada, 2004

Product	Description	Importance	Effectiveness	Cost	Installation	Low-cost alternatives
Smoke detectors	There are two types of smoke detectors: Ionization is better at detecting fast, flaming fires. This type of fire accounts for 70% of home fires. Photoelectric is better at detecting slow-moving fires. Smoke detectors are regulated under the Hazardous Products Act. The performance requirements are set out by the Underwriters' Laboratories of Canada (ULC). It is up to manufacturers, importers and retailers to ensure that the smoke detectors comply with ULC standards.[154] When purchasing smoke detectors, look for the ULC sticker.	Smoke detectors sense the presence of smoke in a home to give a family warning of a fire to prevent fire-related injuries.	According to the Ontario Fire Marshall's Office, fewer people die who have active smoke alarms. Smoke alarms present and activated: 12 deaths /1,000 home fires. No device/not activated: 17 deaths/1,000 home fires.[155] Research on education, environmental changes and legislation have shown variable results in promoting the use and maintenance of smoke alarms.[156] In the Oklahoma City Smoke Alarm Project, there was an 80% reduction in fire risk and a 74% decrease in injury rates in the targeted area. At the same time, rates for the rest of the city slightly increased.[157] Maintenance is the main issue that affects the effectiveness of smoke detectors. A study in London, England, found that after a smoke alarm give away program in low income neighbourhood only a small number of alarms had been installed or maintained.[158] Another evaluation of three programs in three States found similar results. At three to four years follow-up, only 64% of participating homes had at least one working detector. The causes of these malfunctioning smoke detectors were missing batteries, non-functioning batteries and disconnected batteries.[159]	$16–$65	The National Building Code of Canada requires that smoke detectors be installed in all new homes and other new residential buildings. There must be at least one detector for each floor. In 1995, the code required one smoke alarm for each sleeping area and the alarms to be connected. These requirements are included in the building codes for most provinces and territories.[160] Health Canada suggests: Both types of detectors or both technologies are installed. Smoke detectors outside of each bedroom and sleeping area and on each level of your home. Follow the manufacturer's directions for installing, testing and cleaning the smoke detector. Smoke detectors may be battery operated or can be connected directly into the home's wiring.[161] Change the batteries as often as is recommended by the manufacturer. Fire authorites often recommend using the change of time as a reminder to change the batteries in the smoke alarm.	There are no alternatives.

[154] Health Canada, 2005
[155] Fire Marshal's Public Fire Safety Council , Ontario, 2005
[156] Warda, 1999, p. 217-225
[157] Mallonee, 2000, p. 164–173
[158] DiGuisepi, 2002, p. 995–999
[159] Shultz, 1998, p. 165–171
[160] Institute for Research in Construction, 2000
[161] Health Canada, 2005

Product	Description	Importance	Effectiveness	Cost	Installation	Low-cost alternatives
Window blind cord wind-ups	The wind-up devices tie up all loose cords and keep them away from children's reach.[162] Designs for devices range from cleats, cord tension devices, cord tie-downs, cord release devices, cord retraction devices, cord shrouds and safety tassels.	Blind cord wind-ups for the cords of window blinds and curtains are designed to prevent strangulation.[163] In Canada between 1989 and 2004, there were 23 deaths of young children from blind cord strangulation. In the United States from 1981 to 1995, 183 fatalities were reported. Children under age 3 accounted for 93% of the deaths.	No evidence of effectiveness could be found.	50¢–$6	These devices should be installed on the wall near the top of the blinds or curtains, so the cords are out of reach for the child. Cribs, beds, high chairs and playpens should not be placed near a window or patio door where the child could reach the window blind cord.	• Clips • Clothespins • Large and heavy-duty twist ties • Tie the cord in a knot away from a child's reach. • Cut the cords short. • Cut the cords in half and tie the ends with plastic tassels or a break-away device.[164] • Use window coverings that do not have cords, such as drapes or roller blinds.
Window guards/ window stops	Window guards are a barrier, like security bars, but are lighter weight, and the bars are spaced closer together. They have a quick-release mechanism that allows for an escape from fire. Window stops prevent a window from opening more than 10 cm.	Research shows that window falls occur in both large cities and smaller communities. Most serious injuries happen in apartment buildings, but second- or third-storey windows in homes are of concern as well.[165]	In New York City, the Children Can't Fly program, with community education individual counselling, media promotion and distribution of window guards, was able to decrease window falls from 108 to 52 (50%) in the Bronx and deaths from 45 to 37 (35%) city-wide in two years. This led to a law that required all landlords with multiple dwellings to provide window guards in apartments where children under 10 live.[166] This trend in lower falls has continued. In 2002, New York City reported only 3 preventable falls.[167]	Window guards $40–$100 Window stops $2–$10	Window guards are installed outside the window. Window stops are screwed into the window frame.	Keep all windows closed and locked when children are present. Use screws, L-stops or chains in the window frame to prevent the window from opening more than 10 cm. Furniture should be kept away from windows, especially in a child's bedroom. It is important to remind parents that window screens are not designed to prevent falls, but solely to keep out bugs. Window screens can easily give way under the weight of a child.

[162] Health Canada, 2003
[163] Health Canada, 2004
[164] Health Canada, 2003
[165] Lehman, 1993, p. 121
[166] Spiegal, 1997, p.1143–1147
[167] New York City Department of Health and Mental Hygiene, 2005

Key Home Safety Messages for Parents

For young children, from birth to age five, children are more likely to be injured in the home than anywhere else.

Infants, birth to one year, are the most likely age group to be injured.

Falls are the most likely cause of injuries in the home.

- Falls can cause serious injuries - broken bones and head injuries.
- Infants are particularly vulnerable. They fall off beds, tables and other furniture. They fall even out of car seats and infant seats. Injuries are more severe if these seats are placed on top of furniture.

Teaching toddlers safety rules can put children at increased risk of injury. Parents may supervise their children less if they think their children know the safety rules. Toddlers may know the rules but are unlikely to follow them. This may give parents a false sense of security. They are better protected from injury by parental supervision and making environmental changes.

For the use of home safety products:

- Window guards and stops are effective at preventing young children from window falls.
- Smoke detectors are effective at alerting a family to a fire. But the batteries must be checked twice per year.
- Carbon monoxide detectors are effective at alerting families to elevated levels of carbon monoxide.
- Hot water temperature-testing cards are effective at informing families of the temperature of hot water in their homes.

Keeping your child safe in your home is an ongoing process.Make changes to your home environment as your child grows and develops. Think about the next set of skills your child will learn., think about what it allows them to do and what they can reach or open. Make necessary changes to keep your child safe.

Section 7

Resources

Injury Data and Information

Evaluation

Funding for Evaluation

Advocacy

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Injury Prevention Training

Coalition Building

Section 7
Resources

"The courage to imagine the otherwise is our greatest resource, adding color and suspense to all our life."

Daniel Boorstin

Injury Data and Information

National Sources of Information

Canadian Institute for Health Information (CIHI)
www.cihi.ca

Health Canada Injury Surveillance On-Line
http://dsol-smed.phac-aspc.gc.ca/dsol-smed/is-sb/index_e.html

Inventory of Injury Surveillance Data Sources and Surveillance Activities developed by the Public Health Agency of Canada

http://www2.itssti.hc-sc.gc.ca/clf/clfinventory.nsf/Home?OpenForm&lang=E

This site provides a searchable database of organizations that provide injury data. The database is searchable by area, topic or organization.

Canadian Hospitals Injury Reporting and Prevention Program (CHIRPP)
http://www.phac-aspc.gc.ca/injury-bles/chirpp/index.html

CHIRPP collects injury data from 15 sites across Canada. You can contact the CHIRPP coordinator for your area to obtain local injury data. The sites are:

Janeway Children's Health and Rehabilitation Centre, St. John's
Tel: (709) 777-4550
hcc.galle@hccsj.nf.ca

IWK – Grace Health Centre for Children, Women and Families, Halifax
Tel: (902) 470-8054/8050
raelene.kennedy@iwk.nshealth.ca

Centre de santé publique de Québec
Tel: (418) 666-7000 ext. 305
monique.rainville@ssss.gouv.qc.ca

Hôpital Ste-Justine, Montreal
Tel: (514) 345-4931 ext. 2869
elizabeth_platonow@SSSS.gouv.qc.ca

Montreal Children's Hospital, Montreal
Tel: (514) 412-4400 ext. 23167
gl.keayes@sympatico.ca

Children's Hospital of Eastern Ontario, Ottawa
Tel: (613) 737-7600 ext. 4106
ehesson@cheo.on.ca

Kingston General Hospital, Kingston
Tel: (613) 549-6666 ext. 2738
bowesk@kgh.kari.net

The Hospital for Sick Children (SickKids), Toronto
Tel: (416) 813-7836
shirley.yee@sickkids.ca

Children's Hospital of Western Ontario, London
Tel: (519) 685-8300 ext. 57323
pmorriso@xcelco.on.ca

Sioux Lookout Zone Hospital, Sioux Lookout
(with additional information collected from five nursing stations)
Tel: (807) 737-5813
kristen_carroll@hc-sc.gc.ca

Children's Hospital, Winnipeg
Tel: (204) 787-2444
AKalynuk@exchange.hsc.mb.ca

Alberta Children's Hospital, Calgary
Tel: (403) 229-7069
trudi.senger@crha-health.ab.ca

British Columbia's Children's Hospital, Vancouver
Tel: (604) 875-3044/2422
mnolan@cw.bc.ca

Stanton Yellowknife Hospital, Yellowknife
(with additional information collected from six nursing stations)
Tel: (867) 669-4326
peggy_digeorgio@gov.nt.ca

Baffin Regional Health Board, Nunavut
Administrator: P. O. Bag 200, Iqaluit,
NU X0A 0H0

Provincial & Territorial Contact Information

British Columbia
B.C. Injury Research and Prevention Unit Centre
for Community Child Health Research
L408–4480 Oak Street
Vancouver, BC V6H 3V4
Tel: (604) 875-3776
http://www.injuryresearch.bc.ca

Alberta
Alberta Centre for Injury Control & Research
4075 RTF, 8308–114 Street
Edmonton, AB T6G 2E1
Tel: (780) 492-6019
http://www.med.ualberta.ca/acicr

Saskatchewan
Saskatchewan Prevention Institute
1319 Colony Street
Saskatoon, SK S7N 2Z1
Tel: (306) 655-2512
http://www.preventioninstitute.sk.ca

Manitoba
IMPACT - Injury Prevention Centre
of Children's Hospital
820 Sherbrook Street
Winnipeg, MB R3A 1R9
Tel: (204) 774-6511
http://www.hsc.mb.ca/impact

Ontario
Ontario Trauma Registry (CIHI)
90 Eglinton Avenue East, Suite 300
Toronto, ON M4P 2Y3
Tel: (416) 481-2002
http://secure.cihi.ca/cihiweb/dispPage.jsp?cw_page=statistics_results_source_otr_e&cw_topic=Ontario%20Trauma%20Registry%20(OTR)

Quebec
Unité connaissance-surveillance
Institut national de santé publique du Québec
945, avenue Wolfe, 3e étage
Sainte-Foy, QC G1V 5B3
Tél: (418)-650-5115 ext 5700

New Brunswick
Provincial Epidemiology Service
Department of Health and Wellness
PO Box 5100
Fredericton, NB E3B 5G8
Tel: (506) 453-2536

Nova Scotia
Child Safety Link
IWK Health Centre
5850/5980 University Avenue, PO Box 9700
Halifax, NS B3K 6R8
Tel: (902) 470-6496 or 1-866-288-1388
www.childsafetylink.ca

Newfoundland
Janeway Children's Health and Rehabilitation Centre
Newfoundland Drive
St. John's, NL A1A 1R8
Tel: (709) 777-4550
http://www.hccsj.nl.ca/about/facilities/janeway.html

Northwest Territories
Stanton Territorial Health Authority
550 Byrne Road, PO Box 10
Yellowknife, NT X1A 2N1
Tel: (867) 669-4111
www.srhb.org

Nunavut
Baffin Regional Hospital
PO Bag 200
Iqaluit, NU X0A 0H0
Tel: (867) 979-5231

Other Contact Information

Provincial/regional public health offices
Consult your public health office listing
Local/regional police offices
Consult your local police office listing
Local hospitals and trauma registries
Consult your local hospitals and/or trauma registries listing
Provincial/regional coroner and medical examiner offices
Consult your local coroner/medical examiner listing
Provincial social planning councils Social Planning Councils in Canada
www.ccsd.ca/subsites/spclist.htm

United States Contact Information

Safe Kids Worldwide
www.safekids.org

National Center for Injury Prevention and Control – Centers for Disease Control and Prevention
http://www.cdc.gov/ncipc/

Evaluation

Injury Prevention Program Evaluation Manual, 2001

Available on the Web site of the B.C. Injury Research and Prevention Unit (BCIRPU)
www.injuryresearch.bc.ca
Tel: (604) 875-3776 email: injury@cw.bc.ca

Evaluating Health Promotion Programs Workbook, 2002

Available on the Web site of the Health Communication Unit, Centre for Health Promotion, University of Toronto
www.thcu.ca Tel: (416) 978-0522
email: hc.unit@utoronto.ca

Canadian Evaluation Society/ Société canadienne d'évaluation

www.evaluationcanada.ca

SMARTRISK Program Evaluation Guide

www.smartrisk.ca

The Evaluation Center, Evaluation Checklists Project

www.wmich.edu/evalctr/checklists/

Funding for Evaluation

Canadian Institutes of Health Research (CIHR)

http://www.cihr-irsc.gc.ca/e/193.html

Community Foundations of Canada

www.community-fdn.ca/index.cfm

Population Health Fund - Northwest Territories Health and Social Services

www.hlthss.gov.nt.ca/Features/Programs_and_Services/comm_wellness/pop_fund/population_health_fund.asp

Ontario Neurotrauma Foundation

www.onf.org

Advocacy

Safe Kids Canada – Public Policy and Advocacy

www.safekidscanada.ca

Advocacy Institute

www.advocacy.org/

Consumer Product Safety, Health Canada

www.healthcanada.gc.ca/cps
Tel: 1-866-662-0666

Regional offices:

Vancouver, BC
Tel: (604) 666-5003
Bby_Prodsafe@hc-sc.gc.ca

Edmonton, AB
Tel: (780) 495-2626
Edm_Prodsafe@hc-sc.gc.ca

Calgary, AB
Tel: (403) 292-4677
Cal_Prodsafe@hc-sc.gc.ca

Saskatoon, SK
Tel: (306) 975-4502
Sk_Prodsafe@hc-sc.gc.ca

Winnipeg, MB
Tel: (204) 983-5490
Mb_ProdSafe@hc-sc.gc.ca

Hamilton, ON
Tel: (905) 572-2845
Tor_Prodsafe@hc-sc.gc.ca

Toronto, ON
Tel: (416) 973-4705
Tor_Prodsafe@hc-sc.gc.ca

Montreal, QC
Tel: (514) 283-5488
Quebec_Prod@hc-sc.gc.ca

Longueuil, QC
Tel: (450) 646-1353
Quebec_Prod@hc-sc.gc.ca

Quebec City, QC
Tel: (418) 648-4327
Quebec_Prod@hc-sc.gc.ca

Moncton, NB
Tel: (506) 851-6638
Atlantic_Prodsafe@hc-sc.gc.ca

Halifax, NS
Tel: (902) 426-8300
Atlantic_ProdSafe@hc-sc.gc.ca

St. John's, NL
Tel: (709) 772-5455
Atlantic_ProdSafe@hc-sc.gc.ca

Product Safety

Health Canada Consumer Product Safety Warnings and Advisories

www.healthcanada.gc.ca/cps/advisories

Canada Gazette

The official newspaper of the Government of Canada. You can also subscribe to it. http://canadagazette.gc.ca/index-e.html.

Standards Council of Canada

www.scc.ca

Canadian Standards Association (CSA)

www.csa.ca

Underwriters Laboratories Inc. (ULC)

http://www.ul.com

U.S. Consumer Product Safety Commission (CPSC) www.cpsc.gov

Injury Prevention Training

Canadian Injury Prevention and Control Curriculum

www.canadianinjurycurriculum.ca/

National Training Initiative for Injury and Violence Prevention - University of North Carolina

http://www.injuryed.org/training.htm

The Center for Injury Research and Control - Johns Hopkins Bloomberg School of Public Health

www.jhsph.edu/InjuryCenter/index.html

The Department of Public Health Sciences at the Karolinska Institute

www.phs.ki.se/csp/who_education_en.htm

Coalition Building

The Safe Communities Capacity Building Handbook: Planning for Self-Sustaining Coalitions [2004]

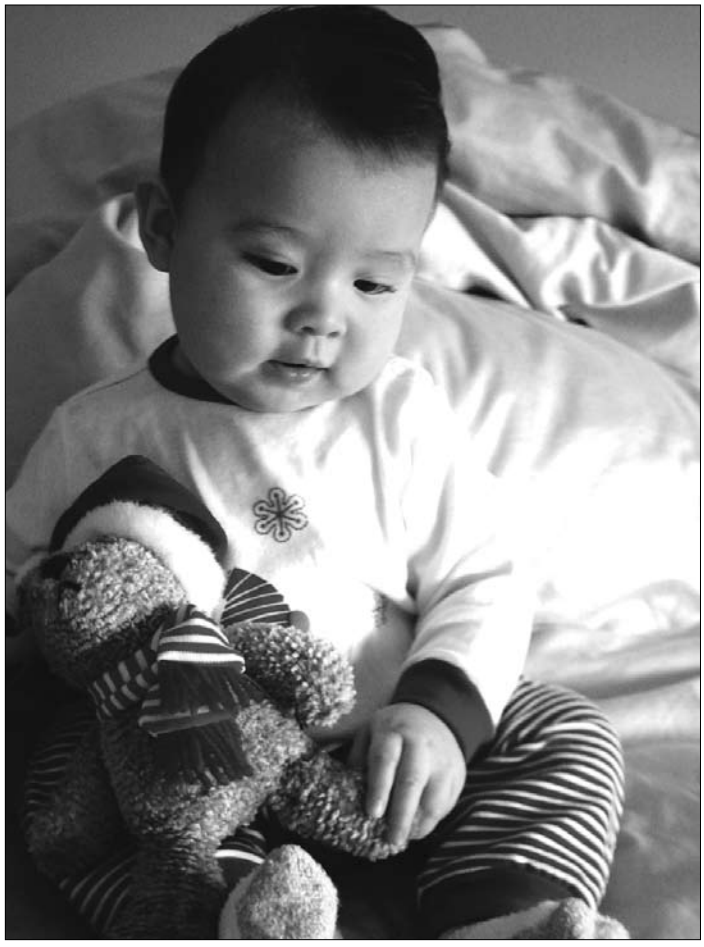
Safe Communities Foundation
64 Charles Street East, Suite 201
Toronto, ON M4Y 1T1
Tel: (416) 964-0008
www.safecommunities.ca

Developing Effective Coalitions - An Eight Step Guide

The Prevention Institute Oakland, California
www.preventioninstitute.org

Tamarack - An Institute for Community Engagement

www.tamarackcommunity.ca



Section 8

Appendix

Examples of Best Practice Programs

Examples of Best Practice Evaluations

Section 8
Appendix

"Man's mind stretched to a new idea never goes back to its original dimensions."
Oliver Wendell Holmes

Examples of Best Practice Programs

Programs that Target Infants

The Chilliwack Safe Baby Program - B.C. Injury Research and Prevention Unit

The Chilliwack Safe Baby Program helps parents identify risks in the home, plan actions to reduce those risks and take action to create safer home environments, including the use of safety devices. This program was designed to reduce the occurrence of home injuries to infants. An evaluation was designed to determine the effectiveness of this program. Babies who came to their two-month immunization clinic visit from April 2001 to August 2003 were randomly assigned to one of three groups. Group 1 received a free home safety guide and a home assessment guide. In the Home Safety Kit, parents were provided with corner cushions, a poison control/emergency number card, cabinet locks, blind cord wind-ups, water temperature testing cards, a smoke alarm, door stoppers, electrical outlet covers and a discount coupon to purchase a gate. Group 2 received the free home safety information and devices kit, home assessment and a home visit with a public health nurse. Group 3 received the standard services and education provided by the nurses at the two-month clinic visit. There were approximately 200 families in each group. At two, six - and twelve -month clinic visits, all parents completed a questionnaire that assessed parental risk assessments, parental safety practices and injuries.

Preliminary results showed that there was no difference in the injury rates between the three groups. However, parents who received the Home Safety Kit in addition to a visit by a community health nurse were more likely to use electrical outlet covers, the poison control sticker, hot water temperature-testing cards and latches and locks.

For more information on this program, contact
B.C. Injury Research and Prevention Unit,
L408–4480 Oak Street, Vancouver, BC V6H 3V4;
Tel: (604) 875-3776;
www.injuryresearch.bc.ca

Programs that Target Families in Low Socio-Economic Neighbourhoods

Creating Safer Homes - Algoma Health Unit

The Algoma Health Unit has developed an injury prevention program as part of its Healthy Babies, Healthy Children program. The Creating Safer Homes Project starts with an initial home assessment completed by the home visitor and the family to determine the family's safety needs. This assessment includes an assessment of previous injuries that have occurred in the home, caregiver beliefs about child home injuries, safety practices and if caregivers have first aid training. Caregivers are provided with safety devices and installations of safety devices are arranged as needed. The program evaluation will include caregivers' attitudes and beliefs, number of safety devices used and number of injuries. The final evaluation is set to conclude in fall 2006.

For more information on this program, contact
Health Promotion, Algoma Health Unit,
126 Queen Street E., Sault Ste. Marie, ON
Tel: (705) 942-3103;
www.ahu.on.ca

Programs in Healthcare Setting

Safety Resource Center - Johns Hopkins Hospital

The Safety Resource Center's goals are to increase accessibility and affordability of home safety supplies to low-income families, provide personalized education and increase the awareness of injury prevention in the hospital. The center sells safety products 10 to 15 per cent below the costs of products in the stores and is open to anyone within the hospital or community. Physicians are encouraged to make referrals through a prescription form. Evaluations were undertaken to enhance parents' home safety practices through physician counselling, visits to the Safety Resource Center and home visits.

The results showed that there were no significant differences in safety practices of families who received physician counselling and a referral to the Safety Resource Center and those families who received counselling, referral to the Safety Resource Center and a home visit. Families that attended the centre did use a significantly greater number of safety products.[169] For families who not did visit the Safety Resource Center, they were more likely to have more than five members in their households, lower household incomes and less education. When this group was asked why they did not go to the Center, the two main reasons offered were the hours of operation and that they had no need for the services. Once the services were discussed, most of the parents were interested in visiting.[170]

The Safety Station - British Columbia's Children's Hospital

The Safety Station is a hospital-based home safety center and baby-proofing store. The Safety Station provides information on all areas of safety for children from birth to five years. The store carries a broad range of home safety products. Products can be purchased in the hospital or online. Profits from the Safety Station support the work of Safe Start, the injury prevention program of British Columbia's Children Hospital.

For more information on this program, contact
British Columbia's Children's Hospital,
4480 Oak Street – D612, Vancouver, BC V6H 3V4;
Tel: (604) 875-3273;
Toll-free in BC: 1-888-331-8100;
http://www.cw.bc.ca/safetystation

Single-Focus Interventions

S.A.F.E. (Smoke Alarms for Every) Baby Program - Rural Manitoba

The Rural Manitoba S.A.F.E. Baby Program's goal was to reduce the number of lives lost due to residential fires and to reduce the high injury rates and property losses associated with these fires by providing a smoke alarm to the family of every baby born outside of Winnipeg. Safety kits were distributed through the hospitals to all families of new babies born in rural Manitoba between July 1999 and July 2001. The safety kit contained a smoke alarm, bath water thermometer, electrical outlet covers and home safety information.

A three-stage evaluation was undertaken by IMPACT, the Injury Prevention Centre of Children's Hospital. Parents completed a survey with the public health nurse at the postpartum visit one week after the birth of the baby. Consenting parents received a telephone survey. Fire, death and injury data collected from multiple sources were compared before and during the study.

The results showed that 97 per cent of the eligible families received a kit. By the time of the telephone interview, 69 per cent of the parents had installed the smoke alarm, and 96 per cent of these smoke alarms sounded when tested. Over the study period, there was no significant change in residential fire rates, death rates for children or adults or injury rates for adults. The injury rate for children did decline but was not statistically significant.[171]

For more information, contact IMPACT,
Injury Prevention Centre of Children's Hospital,
NA 335 – 700 McDermot Avenue, Winnipeg, MB
R3E 0T2; Tel: (204) 787-1873;
www.hsc.mb.ca/impact

Washington State Water Heater Legislation and Education

In 1983, Washington State law required that all new water heaters be pre-set at 49°C. An educational program was also in existence to promote burn prevention and energy conservation. In 1988, an evaluation was completed to determine the effects of this legislation on burn rates and hot tap water temperatures. The results showed that the hospital admission rate for burns from hot tap water for children dropped from 5.5 per year in the 1970s to 2.4 per year. Total body surface area burned, mortality, grafting, scarring and length of hospital stay were all reduced. To test for the temperature of the hot tap water, 50 homes were selected that had water heaters installed since the law was passed and another 50 homes with water heaters existing before the law came into effect. Of the 100 homes, an average of 77 per cent had tap water less than 54°C - 84 per cent post-legislation and 70 per cent pre-legislation.[172]

[169] McDonald, 2003, p. 129–137
[170] McDonald, 2003, p. 129–137
[171] IMPACT
[172] Erdman, 1991, p. 572–577

Programs that Provide Home Safety Information Based on the Age and Stage of the Child

A Million Messages - Capital Health

A Million Messages is designed to standardize injury prevention messages given to parents by community health nurses during child health clinic visits. The messages are linked to childhood developmental milestones. A Million Messages is delivered through immunization clinics and healthy beginnings - home visits, follow-ups for healthy beginnings and prenatal classes in four regions in Alberta.

The evaluation of the program found that the model provided messages that are simple and reach their targeted audiences. Ninety-four per cent of caregivers surveyed reported that they received injury prevention messages at their visit to the child health clinic. Home safety information that constituted new learning for caregivers included information about keeping things out of reach, poisoning and falls. Of those surveyed, 46 per cent reported that the information led to behaviour change. Community health nurses reported that they found the model helpful and easy to use in delivering safety messages.[173]

In 2002, the A Million Messages program was integrated into a home visiting program for high-risk families. Working with children's services and local regional health authorities, training was provided to staff at nine organizations. The tools were modified for more frequent contact over a longer period of time.

For more information on this program, contact Community Health Services, Capital Health, #300 – 10216 -124 Street, Edmonton, AB T5N 4A3; Tel: (780) 413-7900
www.capitalhealth.ca

Programs that Provide Multi-Strategy Approach

The Waitakere Safe Community Injury Prevention Project

The Waitakere Safe Community Injury Prevention Project is a community-based injury prevention program for all ages and all injuries. It is based on the World Health Organization's Safe Communities model. Elements of a Safe Communities program include all age groups and environments and having a long-term planning perspective. Also, Safe Communities programs rely on input from local politicians, representatives of non-government organizations and public healthcare workers to identify problems and implement actions. This model recognizes that the people who live in a particular community are the ones who are most able to solve their community's injury problems. The Waitakere Safe Community Injury Prevention Project established working groups in different priority areas that included representatives of community agencies as well as individuals.

The focus of the Waitakere Safe Community Injury Prevention Project was on three broad areas of injury prevention: education of caregivers, promotion of safety device use in the home and advocacy by community members for hazard reduction and environmental change. Education of caregivers includes promoting correct child restraint use, burn and scald prevention, the use of smoke detectors and fall prevention.
A three-year evaluation of this project showed a decrease in injury hospitalization rates. The program resulted in increased awareness of injury prevention and increasing safety-related behaviour, including the installation of smoke alarms, covering of drains and use of stair gates. [174]

[173] Capital Health, 2003

[174] Coggan, 2000, p. 130–134

Examples of Best Practice Evaluations[175]

Clamp M, Kendrick D. A
Randomized Controlled Trial of General Safety Advice for Families with Children Under 5 Years.
British Medical Journal 1998; 316:1576-1579.

Participants

Families with children under five registered in a general practice. The intervention group has 83 participants while the control group had 82.

Intervention

Intervention group families received safety advice and leaflets to promote the use of smoke alarms, stair gates, fireguards, cupboard locks, covers for electric sockets and door slam devices. Access to low-cost safety equipment was made available for families receiving means-tested state benefits. Control group families received usual care.

Results

Intervention families showed safe practice for windows, fireplace guards, socket covers, smoke alarms and door slam devices.

Outcomes

Increase use of safety devices.

Kelly B, Sein C, McCarthy P.
Safety Education in Pediatric Primary Care Setting.
Pediatrics 1987; 79(5):818-824.

Participants

Parents of six-month-old children who were followed at a primary care center for their well child care. There were 85 participants in the intervention group and 86 in the control group.

Intervention

Intervention group participants received routine but variable safety education at their well child care visits provided by their primary caretaker plus a three-part child safety educational intervention. A community worker assessed nine physical home hazards and calculated a hazards score at one and twelve months. The physical hazards measured included access to dangerous objects (knives, matches and medicines); furniture with sharp corners; uncovered electrical outlets; absence of a smoke detector and hot water greater than 52°C. Parent reported and hospital-recorded accidents were collected. The control group received routine but variable safety education only.

Results

Mean physical hazards score was 2.4 in the intervention group and 3.0 in the control group. No specific hazard results were reported.

Outcome

There was no difference in injury occurrence between intervention and control participants.

[175] Summaries of these research articles was obtained from the Cochrane Review, Modification of the Home Environmonment for the Reduction of Injuries, 2003.

Gielen, A, McDonald E, Wilson M, Hwang W, Serwint J, Andrews J, Wang M.
Effects of Improved Access to Safety Counseling, Products, and Home Visits on Parents' Safety Practices: Results of a Randomized Control Trial. Pediatric Adolescent Medicine 2002; 156:33–40.

Participants

Pediatric residents in a large urban teaching hospital. Parents and guardians of infants six months of age. The intervention group had 113 participants and the control group had 103.

Intervention

Residents received two-part training program on home safety. Intervention group parents received safety counselling and referral to the children's safety centre from pediatric residents plus a home safety visit by community health workers between the parent's six and nine month well infant clinic visits. The safety centre provides information and access to home safety products including safety gates, smoke alarms and hot water thermometers. Control group families received the same as above without the home visit.

Results

No significant differences in safety practices were found between study groups. Participants who visited the safety centre, whether or not they received a home visit, were more likely to have lower hot water temperature, a working smoke detector, all stairs protected by gate or door and poisonous products locked or removed.

Outcome

No increased use of home safety products between study groups, but if participants visited safety centre, their was an increase use of home safety products.

Knatcher M, Laundry G, Sharpiro M.
Liquid – Crystal thermometer use in Pediatric Office Counselling about Tap Water Burn Prevention.
Pediatrics 1989; 83 (5):766-771.

Participants

Parents attending the ambulatory division and pediatric outpatient department of a large urban hospital with a household member younger than 18. The intervention group had 263 participants. The control group had 240 participants.

Intervention

Both the intervention and control group received an information pamphlet, a one-minute discussion on hot tap water danger, instructions for temperature testing and thermostat lowering and a post-waiting room baseline questionnaire. Intervention group participants also received a free liquid crystal thermometer for testing the maximum water temperature at the tap. One month later a follow-up telephone interview was conducted.

Results

Hot water temperature was checked by 46.4 per cent of the intervention group but only 23.0 per cent of the control group.

In those households reporting water temperatures exceeding 54.4°C and where water heater was accessible, 77.3 per cent reported lowering the setting, independent of receiving the thermometer.

Outcome

Hot water temperature was lower in intervention group.

[175] Summaries of these research articles was obtained from the Cochrane Review, Modification of the Home Environmonment for the Reduction of Injuries, 2003.

Kendrick D, Marsh P, Fielding K, Miller P. Preventing Injuries in Children: Cluster Randomized Controlled Trial in Primary Care. British Medical Journal 1999; 318: 980-983.

Participants

All children aged three to twelve months registered with 36 participating general practices. The intervention group was 1,100 children and the control group was 1,019 children.

Methods

Intervention group participants received age-specific safety advice at child health surveillance consultant at 6–9, 12–15 and 18–24 months. Provision of low-cost safety equipment (stair gates, fireguards, cupboard locks and smoke alarms) to families on means tested state benefits. Home safety checks were provided by a health visitor. Physical hazards checked during home visit were not specified. Control group participants received usual care.

Results

No significant difference was found between the groups in frequency of:

- at least one medically attended injury
- at least one attendance at an accident and emergency department for injury
- at least one primary care attendance for injury
- or at least one hospital admission for injury

Outcomes

No reduction in injury rates.

King W, Klassen T, LeBlanc J, Bernard-Bonnin A, Robitalle Y, Pham B, Coyle D, Tenenbein M, Pless B. The Effectiveness of a Home Visit to Prevent Childhood Injury. Pediatrics 2001; 108(2):382–388.

Participants

Participants under eight years presented to the emergency department at five hospitals in four urban centres in Canada. The intervention group was 601 participants and the control group had 571.

Methods

Study research assistant conducted home visits to observe home safety hazards for both control and intervention groups. Intervention group participants received an information package on injury prevention, discount coupons for safety devices, specific instruction regarding home safety measures and a letter from site project directors on the need to maintain preventative behaviours. Hazards measured were access to small and dangerous objects, absence of child-resistant medicine containers, tap water greater than 54°C, non-functioning smoke detectors, absence of fire extinguishers, absence of stair gates, infant walkers, ease of opening of basement door, absence of bicycle helmets and car restraints. Control group participants received a general pamphlet on safety and notification if a non-functioning smoke detector was found. All participants were contacted at four and eight months.

Results

At eight months, the rate of injury visits per patient year was 0.23 in the intervention group and 0.31 in the control group. There was a statistically significant reduction in the observed prevalence of homes without hot water greater than 54°C and presence of a fire extinguisher. Other changes were small and not significant. Self-reported home safety modifications were reported in 62 per cent of the intervention and 23 per cent of the control homes.

Outcomes

Intervention group has statistically significant fewer visits to the doctor's office. Intervention group has statistically significant lower hot water temperature and more fire extinguishers.

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"Somewhere, something incredible is waiting to be known."

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