

This was not an accident: An injury prevention primer for emergency and community nurses

By Shelley Reid, RN

Early one morning in February, Alison, 18 months old, is in the kitchen with her father and two older sisters. While her father is getting the two older children ready for school, Alison reaches up and pulls on the tablecloth. Her father had set his coffee down near the edge of the table; the cup is pulled off. The hot liquid lands on the toddler and scalds parts of her face, shoulder and arm. Alison is taken to the emergency room, where she is treated for second-degree burns.

Julian, aged three, is playing in his bedroom while his parents carry grocery bags from the car to the kitchen. After a few minutes, Julian doesn't answer their calls. He is no longer in his room. He has slipped through the patio door into the pool, to which he gained access via the elevated deck attached to the house. It is only the beginning of May and the water is freezing. Julian is resuscitated and rushed to the emergency department. He is admitted to the intensive care unit where his condition is listed as critical.

(Reprinted from CHIRPP, 1997).

Most nurses can relate to these stories; either we have dealt with these situations professionally or as members of the public. Injuries among children and youth are a major health problem. Fifty years ago, before the introduction of vaccines and antibiotics, childhood diseases claimed eight times as many lives as injuries. Now, injuries are the leading cause of death (Canadian Pediatric Society (CPS), 2001) and the second leading cause of hospitalization in children and youth (CHIRPP, 1997). This problem exists despite the fact that 90% of injuries are predictable and preventable through a combination of strategies using the three E's: enforcement (laws), environment (technology), and education (human behaviour).

This article will examine the burden of pediatric injuries in Canada and discuss various practical strategies that nurses can use on and off the job to help prevent injuries. Traditionally, the word "accident" has been used to describe how an injury occurs. Its use is intentionally avoided in this article as this word implies that injuries are unpredictable, acts of fate, something over which we have no control and not preventable. Yet, it is well-known that injury events are not accidents – they are predictable and, therefore, it follows that they are preventable.

An informal survey was developed to identify what nurses who work in an emergency department (ED) do to educate patients

and their families about preventing injuries. Through the survey, attitudes, knowledge and current practices with respect to educating families about injury prevention were identified. The survey was pre-tested in the Children's Hospital of Eastern Ontario (CHEO) ED and then conducted in several of the regional community hospitals. Interim survey results have identified that emergency RNs primarily get their injury prevention knowledge on the job, from their experience as parents, and from a variety of media sources. Most of the responses indicate that educating parents and children about strategies to prevent injuries is a high priority. Despite this, and while injury prevention has been part of the public health scene in Canada for a while, as a whole, the nursing profession has not championed the injury issue. Most nursing school programs do not address it as a major public health issue. Yet, nurses as trusted health care professionals have a unique opportunity to influence the public's behaviour. Following are specific strategies that nurses can employ to reduce the toll that injury takes on Canadian children and youth.

Child passenger restraints

When used properly, child passenger restraints have been shown to reduce injury by 70% and the chance of death by 90% (CPS, 2001). Seatbelts are designed for adults and can cause injury in four- to 10-year-olds, as they are not designed to fit children this size. They should be in booster seats. As well, air bags have been shown to reduce head and neck injuries in adult passengers, but pose risks of injury and even death to children who should be in the back seat - "the Kid Zone" - until 12 years old (Transport Canada, 2001).

It is well-known that car seats can be difficult to install! Legislation passed in September 2002 requires all new Canadian vehicles to come equipped with a universal child restraint attachment system. The system has lower anchorage bars and is designed to make installation of infant and child seats easier. A retrofit kit is available for cars manufactured without the system.

Additionally, The American Academy of Pediatrics (AAP) suggests that parents buy infant seats with higher weight limits (because infants grow out of infant seats before they grow into forward-facing child seats). Rear-facing infant seats are available that fit children up to 30 to 35 pounds. See Transport Canada's and the American Academy of Pediatrics' websites for more information: www.aap.org/family/carseatguide.htm; www.tc.gc.ca/roadsafety.

Drowning prevention

Drowning accounts for eight per cent of injury-related deaths among the zero to 20-year-old age group, but accounts for 20% of injury-related deaths among toddlers and, after MVCs, is the major cause of death due to injury for toddlers (CHIRPP, 1997).

As an intervention in pool safety, nurses can teach parents and caregivers that a toddler-proof enclosure surrounding the entire pool is required (municipal regulations vary). Although the Red Cross offers swimming lessons to infants and up, lessons cannot be seen as a preventive measure in children under the age of four (CHIRPP, 1997). Parents and caregivers also should be advised about the risk of toddlers drowning in bathtubs and toilets. The basic message is that around water, if a child is out of arm's reach they are too far away.

Scalds and burns

Children under age five are most impacted by fire and burn-related mortality and hospitalization. In this age group, about 17% of injury-related deaths were caused by fire and burns. Smoke inhalation is the main cause of death in residential fires; smoke alarms reduce the risk of death in fires by 86% and reduce severe injuries by 88% (Beaulne, 1997).

Nurses should remind families to replace smoke-alarm batteries every six months (Tip: change the batteries when changing the clocks spring and fall). Knowing that lower-income households have fewer smoke alarms than higher-income households, nurses should advocate for free smoke alarms in low-income areas. If auxiliary heaters are used, users should be encouraged to use cool-to-the-touch automatic shut-off models.

Most tap water scalds occur in the bathtub. Hot water heaters are typically set at 60°C, a temperature at which scalding is possible. Lowering the temperature to 49°C significantly decreases the likelihood of a serious scald. When it comes to preventing scalds, nurses should also recommend that parents avoid holding children while drinking hot liquids. Additionally, parents could use placemats instead of tablecloths and place hot liquids in insulated containers that allow a controlled release.

Fall-related injuries

Although falls account for a minor proportion of injury-related deaths, they are a leading cause of injury-related hospitalizations. For all ages, falls cause more deaths and hospitalizations in boys than girls. These deaths were mainly among boys under the age of one and also between 15 and 19 years of age (Beaulne, 1997). Nurses can help parents and kids prevent injuries related to falls by sharing the following recommendations:

- Advocating against the use of baby walkers; although they haven't been manufactured since 1989, they are still in use
- Educate families to use window guards which must be at least 90 cm high (National Building Code of Canada, 1995) to prevent children from slipping through windows and falling. Use of screens alone gives a false sense of protection and they do not support a lateral load. Guards on balconies are also useful.
- Safety gates should also be installed at the tops and bottoms

of all stairs with carpet covering the bottom of the staircase (energy absorbing surface!)

- We need to make new parents aware of the hazards related to falls and suggest ways to make the home a safer environment.

Unintentional poisonings

Although mortality from unintentional poisonings is low in all age groups, it tends to increase with age, starting at age five. Children aged one to four years old have the highest rate of hospitalization for unintentional poisoning mainly as a result of ingestion of medication and biological products. Poisoning is the second leading cause of injury-related hospitalization in this age group (after falls).

- Nurses can educate parents to keep medications and biological products out of reach and locked up (a tool box with a combination lock works well...the combination # can be written right on the lock until the kids learn to read!)
- Teach parents the importance of keeping pills in the original, labelled child-resistant bottle so that pill identity is not confused.
- Provide parents with the local Poison Control Centre toll-free phone number. It should be readily available to parents and caregivers.
- Epicac should also be kept in a secure place at home, but should only be used by a parent on the advice of a poison control specialist.

Playground-related injuries

Boys have a higher hospitalization rate than girls for injuries caused by playground equipment. Children in the five- to nine-year-old group are three times more likely to be hospitalized than their younger or older counterparts. There are national standards in Canada for playground equipment in public spaces, but there are no standards for designers and consumers of home playground equipment. As a result, Canadian families should use the American standards (Beaulne, 1997). Nurses can educate parents and children to prevent/reduce injuries caused by playground equipment by employing the following recommendations:

- Only allow children on age-appropriate structures
- Remove cords and drawstrings from clothing to prevent strangulation
- Remove bike helmets before using playground equipment - they can get trapped and also cause a strangulation
- Supervise children carefully
- For more information on playground safety: www.safekidscanada.ca.

Sports and recreational injuries

Sports and recreational activities result in a large number of injuries in children and youth; 19% of emergency department visits are attributed to sports and recreation injuries (CHIRPP, 1997). Boys account for about two-thirds of these injuries. The 10- to 14-year-old age group constitutes the group most affected by these injuries, leading the others, accounting for 57% of all injuries. Basketball, ice hockey and soccer have the highest number of reported injuries for both genders. Baseball


and football also generate many emergency visits for boys. The majority of injuries occur during informal sporting events (that is not a school, organized, or training event). Nurses can promote the use of safe, protective sports equipment both in informal and organized sport. We can also advocate for rule adaptation to control certain risks like:

- prohibiting body checking in younger children and youth hockey players
- zero tolerance for rear checking in hockey and
- no head-first hitting in football (Beaulne, 1997)

Injuries due to abuse/neglect

Pre-school children and adolescents (ages 15-19) are at greatest risk of harm from maltreatment. Assault is the leading cause of injury-related deaths among infants. Pre-school kids are at risk because of their physical vulnerability and dependence. Adolescents are at risk for many reasons, including that they may try to defend themselves, which could lead to escalating violence. The perpetrator is most often a direct relative, friend or acquaintance. Poverty is notable as a critical population-level determinant of abuse and neglect. Nurses can help by identifying risk factors in families and providing or directing them towards early intervention and parent support programs (Beaulne, 1997).

In conclusion, as nurses, we have been exposed to many patients and families who have suffered as a result of injury. Nursing is well-positioned to help families prevent this major public health problem. The point is not activity prevention, it's

injury prevention - encouraging people to consider the choices and take risks in the smartest way to enjoy life to the fullest. To make the discussed recommendations easier to remember and to implement, all of the above-discussed strategies can be grouped under the following themes as advised by Smartrisk (www.smartrisk.ca), a leading injury prevention group in Canada: *buckle up, drive sober, look first, wear the gear, and get trained.* 

About the author

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