

## PREVENTING INJURIES IN YOUNG CHILDREN

### BURDEN

Home injuries are a significant cause of death, hospitalization and emergency department visits for young children and are most often caused by falls, burns, poisoning, choking, strangulation and drowning in this age group. Falls are the most common cause of home injuries for older adults as well as fire and burn injuries. Poisoning is the leading cause of injury for middle-age adults.

### DEATH

The leading causes of injury death in the Winnipeg Health Region for children under 5 years of age are sudden infant death, suffocation, assault and drowning (WRHA, 2011).

Sudden Infant Death Syndrome (SIDS) is the cause of 108 sleep deaths in Manitoba (2000-2010). Each year 10-14 infants die suddenly from sleep related risks including over-heating, soft bedding and unsafe sleep surfaces such as sofas and chairs (College of Physicians and Surgeons of Manitoba).

Unintentional suffocation, which includes strangulation and choking on food and other objects, is the leading cause of injury death in the Winnipeg Health Region for children 0-4 years of age. From 2000-2012 there were 18 deaths caused by suffocation in children younger than five residing in the Winnipeg Health Region. Choking is typically caused when babies, toddlers and young children put things in their mouths such as coins, batteries, balloons, gel candies and certain types of foods like whole hot dogs and whole grapes. Among adults, the leading causes of injury death occurring in the home are falls, poisonings, and fire and burn injuries (Runyan et al., 2005). Combined, they accounted for 78.6% of all fatal unintentional home injuries.

### INJURY AND HOSPITALIZATION

Between 2000-2010, the leading causes of injury related hospitalization in the Winnipeg Health Region were for children under 1 year of age are falls (81 cases), assault (48 cases) and burns (26 cases). The leading causes of injury related hospitalization in the Winnipeg Health Region for children 1-4 year of age were falls (247 cases), burns (92 cases) and poisoning (85 cases).

Falls were the leading cause of injury among children younger than five for a total of 328 hospitalizations and account for more than half of all the injury hospitalization in this age group. Children most often fall from furniture and down stairs, in addition to falling through windows. Falls from one level to another are responsible for a large proportion of the observed injuries. Half of injuries are to the head and face because they have immature protective reflexes and have disproportionately large heads.

Burns are usually caused by hot liquids and tap water that is too hot. Scald burns can lead to lengthy hospital stays (average 13 days), recurrent hospitalizations and lifelong treatment. These individuals experience long term consequences such as intense pain and suffering, disfigurement, permanent physical disability, emotional adjustments and family disruption.

An analysis of Manitoba hospitalizations for poisoning shows that from 2004-2008 a high proportion of poison related injuries result in ICU admission (ie. 13%). Ingestion of a number of medications and household products can have serious or fatal outcomes with low dose exposures (1-2 pills or a teaspoon of liquid). These were responsible for 40% of toddler fatalities reported to the American Association of Poison Control Centers 1990-2000. The leading causes of toxic symptomatic ingestions implicated in poisoning hospitalization for Manitoba children less than 6 years of age include: Cardiovascular agents (e.g. clonidine), oral hypoglycemics (e.g. glyburide), sedative/hypnotics (e.g. benzodiazepines), hydrocarbons (e.g. paint thinner, lamp oil) and anticonvulsants (e.g. carbamazepine); (College of Physicians and Surgeons of Manitoba).

## **EMERGENCY DEPARTMENT**

From 2004-2008, injuries in preschool children and home injuries in this age group increased at the Children's Emergency Department (CHIRPP: Canadian Hospitals Injury Reporting and Prevention Program). In this time period, over 2200 children less than 5 years of age were seen in Children's Emergency due to injuries, with 80% of these occurring in the home. There were 2884 moderate and 241 severe injuries captured by the CHIRPP system, with the most severe causes being scalds, poisoning, animal bites, electrical burns and ingesting or choking on small objects.

## **EVIDENCE**

There is evidence that public health program interventions prevent injuries in the early years of life, ages 0-6. Home-based interventions and low cost/free safety devices can improve home safety and reduce injuries involving car seat use, infant sleep practices, home hazards, and lack of caregiver supervision. Ideally comprehensive injury prevention projects employ strategies that include the environment (approaches that involve making the environment or product safer), education (approaches that involve providing information to individuals), enforcement (approaches rely on requiring change through laws and standards) and economics (approaches that reduce the cost of injury).

Injury surveillance analysis provides a strong evidence-base to inform public health efforts aimed at the prevention of childhood injury during the early years. Evidence suggests that key safety issues can be identified using structured assessment tools such as the Safety Teleform which has been validated using CHIRPP data.

Over recent years a series of systematic reviews have been undertaken examining the effect of interventions to reduce unintentional injuries. A Cochrane Systematic Review (2012) involving 98 studies (2.6 million people) and 35 random controlled trials found that home safety interventions provided as one-to-one, and face-to-face education with safety equipment are effective in increasing a range of safety practices. Intervention practices include; safe hot tap water temperatures, functional smoke alarms, storing medicines and cleaning products out of reach, having syrup of ipecac or poison control centre numbers accessible, having fitted stair gates and having socket covers on unused sockets (Kendrick et al., 2012). Flavin et al. (2006) identify 4 effective prevention strategies that include: supervision (attention, proximity, continuity); access to hazards (permanent, passive, ongoing); falls from heights (stairs, windows, baby equipment) and anticipating risks (development and injury risk).

Phelan et al. (2011) determined that interventions to reduce exposure to hazards in the homes of young children led to a 70% reduction in modifiable medically-attended injury after conducting a randomized controlled trial of home injury hazard reduction called the Home Observation and Measures of the Environment (HOME).

## What we do

### RESEARCH AND SURVEILLANCE

- Safe sleep practices, smoking and breastfeeding study: infant safety knowledge and practices of postpartum mothers
- Evidence review of current literature compiled into a concise document for knowledge sharing and dissemination
- Three CHIRPP Reports on Injuries (injuries in children under 5, recreation and play injuries, concussion)

### POLICY AND ADVOCACY

- Report concerns regarding product safety to Health Canada and communicate using Injury Alerts to staff
- Advocate for increased newborn allowance for families on Income Assistance (for crib purchase)
- Advocate for evidence-based child safety information in publications provided to Winnipeg families
- Develop home safety service delivery standards for WRHA staff
- Ensure that priority injury prevention issues are reflected in public health clinical practice through the development of service delivery standards, care maps, staff resources, staff training and client resources
- Lead the development of strategies to assist regional programs and staff in meeting the Accreditation Canada Home Safety Organizational Practices

### SUPPORTING PUBLIC HEALTH PRACTICE

IMPACT supports the work of Public Health Nurses and Family First Home Visitors by providing information on safety for children under 5 years of age and developing guidelines for injury prevention in their practice. Accreditation Canada recently introduced Home Safety as a required organizational practice. IMPACT is developing resources and training opportunities so that Public Health has the supports in place to meet this requirement.

#### 1. Home Safety Client Resource

- IMPACT resources were developed to support the use of the Safety Assessment Form Tool –Hazard Identification (SAFT). Recently developed or updated resources include: *Keeping Safe, In and Around Your Home* (home safety checklist) to accompany the *Home Safety Services and Programs in Winnipeg* handout and *Home Safety & Falls Prevention* online checklist; for families with children can be provided the home safety illustrated handout called *Give Your Child a Safe Start* and the public health staff can use the *Quick Reference Guide* as it highlights injuries by age, key messages and core injury prevention resources.
- A Safety Teleform was updated for use by Public Health Nurses and Families First Home Visitors to screen clients' homes for injury hazards. All prenatal and postpartum clients and families with children under the age of five will receive *Give Your Child a Safe Start* booklet. Public health staff can consult the *Quick Reference Guide* for key age appropriate safety messages and recommended injury prevention resources. Public health staff will work with disadvantaged families (e.g., Families First Home Visitors' clients, and Public Health Nurse caseload) to complete the three shaded areas on the *Safety Teleform* (safe sleep, smoke alarm and car seat safety) as well as any other applicable topics. Risk reduction strategies will be reviewed (*Quick Reference Guide* can be used to guide these discussions) and each family will receive a copy of the *Give Your Child a Safe Start* booklet.

## 2. Staff Training

- IMPACT has conducted presentations on safe sleep and home safety at staff development workshops, Injury Prevention Champion sessions and community area visits. Additional teaching/training tools for PHNs are being developed.

## 3. Injury Alerts

- Emerging home safety issues and consumer product safety issues are shared with staff through Injury Alerts. The most recent alerts have covered laundry pods, e-cigarettes, magnets, child car seat safety, sleep positioners, stroller safety and product recalls.

## PARTNERSHIPS

### Swaddling Working Group

- IMPACT has worked in partnership to develop parent resources and staff training materials. Partners include Health Science Centre, WRHA Women's and Child Health Programs, Occupational Therapy, Midwifery, and Public Health staff. Materials developed include: *Soothing a Crying Baby*, *Staying Calm when Baby is Crying*, *Keeping Baby Comfortable* (temperature control), *Safe Swaddling*, and *Choosing Safer Sleep Sacks*

### Healthy Child Manitoba

- IMPACT continues to work with Healthy Child Manitoba to develop parent educational resources with the most recent being the Crying Kit. The Crying kit includes general information about why babies cry and how to respond and what parents can do to cope with crying.

### Occupational and Environmental Safety & Health (OESH)

- IMPACT has worked with OESH to develop client resources to use with the SAFT.

## ADDRESSING HEALTH EQUITY

IMPACT addresses health equity by advocating for:

- Increased newborn allowance for families on income assistance (for crib purchase)
- Ensuring that health information is accessible and easy-to-read for parents
- Working toward a service delivery standard that provides enhanced injury prevention efforts for disadvantaged families

## RESOURCES FOR THE PUBLIC, COMMUNITY, AND PROFESSIONALS

- Give Your Child a Safe Start (parent home safety illustrated handout and checklist)
- Quick Reference Guide (key injury messages by ages/stages for public health staff)
- Keeping You and Your Family Safe, In and Around the Home Checklist
- Home Safety Services and Programs
- Home Safety Teleform
- Soothing a Crying Baby
- Staying Calm when Baby is Crying
- Keeping Baby Comfortable (temperature control)
- Safe Swaddling
- Choosing Safer Sleep Sacks
- Home Safety and Falls Prevention Online Checklist ([www.preventfalls.ca](http://www.preventfalls.ca))
- Hot Water Burns like Fire pamphlet
- Hot Water test cards

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- Hot Water Burns Like Fire flipchart for group presentations
- How to Prevent Playground Injuries (Poster and Pamphlet)
- Safe Sleeping for Baby and A Baby's Safe Sleep Environment hang tags and brochure (Health Canada)
- Crying banner stand
- Safe Sleep banner stand
- Stay Water Safe
- Health Canada Safe Sleep DVD

## REFERENCES

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