



# Statement

## Accident Prevention in Canadian Children

*The C.P.S. Accident Prevention Committee has prepared a major and very comprehensive statement on childhood accidents in Canada. Because of its length this statement will be published in two parts. In this issue, Part I deals primarily with the major causes of accidents in Canadian Children and contains the bibliography for Parts I and II. Part II, to be published in the next issue, will deal primarily with methods of preventing, and in some cases treating, these accidents.*

The Committee on Accident Prevention of the Canadian Paediatric Society is pursuing its objectives of attempting to lower the accident mortality and injury rate among children aged one to fifteen in Canada.

It is difficult to convince people and our Federal and Provincial Governments that too many children are killed by accidents in Canada and that we must do something to reduce this slaughter. Canada ranked third last in 1974 amongst the western countries for the accident rate in the age group one to four years and the last for accidents for the age group five to fourteen years.<sup>1</sup>

Seven thousand and nine (7,009) aged zero to fifteen years were killed by accidents in Canada between 1975-1978 (average 1,500/year).<sup>2</sup> In the age group, 1 to 18 years, Statistics Canada estimates that an average of three thousand children are killed each year by accidents, in this country. This is more than all the deaths due to cancer, congenital malformations, pneumonia, heart disease, and meningitis combined.

In addition to postnatal causes of death or injury, children can also be damaged before birth. In the foetal alcohol syndrome, a child is born to an alcoholic mother who has been drinking three ounces of absolute alcohol per day. He presents with a thin upper lip and a long, flat philtrum, microcephaly, short palpebral fissures and may also have a cleft palate and renal anomalies. It is also considered that cigarettes may injure the foetus. Some consider that tobacco can produce foetal hypoxia by vasoconstrictive effect of carbon monoxide on the small arteries of the placenta.<sup>3</sup> Ac-

ording to Himmelberger,<sup>4</sup> a woman who smokes will have twice the chance of producing a foetus with congenital anomalies than the non-smoker. These are low birthweight infants and are at increased risk to suffer from hypoglycemia.

Although the loss of a child causes great pain and sacrifice to the family, there is also the impact on society. Assuming a life expectancy of 70 years, it can be estimated that in Canada, traffic accidents are responsible for 1.7 more times loss of life than is due to cancer and 1.2 more times loss of life than heart disease.<sup>5</sup>

Transform that picture into money; accidental injuries cost the American people, eighty-three billion dollars per year.<sup>6</sup> In Canada, 12.7 billion dollars are spent each year on accidents, directly and indirectly.<sup>7</sup> Consider the Iceberg drafted by All-State Insurance Company to illustrate the direct and indirect costs.<sup>8</sup>

Cyril Nair<sup>9</sup> reported that in Canada, in 1977, 110,000 persons under the age of 20 were victims of accidents and were hospitalized. This represents 640,000 days of hospitalization. These 1977 figures are still representative of the situation today.

The six most frequent causes of accidental death amongst children in Canada are:

1. traffic accidents
2. drowning
3. burns
4. asphyxia
5. falls
6. poisoning



### Traffic Accidents

These comprise 44% of accidental deaths among children. In British Columbia, in 1979, 53 children between the ages of 1 and 15 years were killed in traffic accidents and 3,636 children were injured. Manheimer<sup>10</sup> states that 6% of car accident victims require hospitalization of which 59% suffer skull fractures. Moamai<sup>11</sup> finds that 4.4% of head injuries will develop post-traumatic epilepsy and others will develop headaches, insomnia, and behaviour problems.

Among fatal accidents to children under five years who were passengers in vehicles, Karwacki<sup>12</sup> noted that 15% were less than a year old. The injured infant may have reached hospital alive only to die in the hours or days following the accident. In another study, Susan Baker<sup>13</sup> reported infants aged zero to six months were the most vulnerable to accidents with a mortality rate of 9.1/100,000 population. From 6 to 12 months of age, there is a mortality rate of 4.8 and toddlers from 6 to 12 years have a mortality rate that falls to only 3/100,000.

Among motorcycles, motor scooters, and mopeds in B.C. in 1979, 41 people were killed and 1,841 injured. Motorcycles and mopeds hold second place after passenger cars as a cause of death. A moped, even if it can reach 50 km/hr does not have enough speed to pass a car in an emergency situation.

Bicycles should never be given to the child as a toy. This first vehicle is subject to the same risks as any other vehicle. In British Columbia in 1979, 12 cyclists were killed in traffic accidents and 959 injured. According to the National Safety Council, 82% of victims of cycle accidents are children.<sup>14</sup> Ninety percent (90%) of cycle riders who are fatally injured, die as a result of collision with a motor vehicle and in 75% of the cases, it is the cyclist who is considered responsible for the accident.<sup>15</sup>

Skateboarding is a popular sport. Many of the fatalities occur as a result of a collision with a motor vehicle. In 1978, the U.S.A. recorded 375,000 skateboard accidents. In Quebec in one month, in 1978, the Montreal Children's Hospital had to treat one fracture per day due to skateboard accidents. Thirty percent (30%) of the skateboard victims were beginners and 30% of the accidents were due to a collision with an obstacle. Five percent (5%) of all the injured children had to be admitted to hospital.

**Snowmobiles:** These killed 104 people in Canada in 1976.<sup>16</sup> In B.C. in 1979, three people were killed and ten were injured in snowmobile accidents. Ejection from a snowmobile moving at high speed is the most frequent mechanism of trauma and accounts for 60% of accidents. The ejection of the snowmobiler is either spontaneous or due to collision with another vehicle or a stationary object such as a tree, rock, or fence. There

are also drownings in snowmobiles; 36 were reported in 1974.<sup>17</sup> These accidents were due to crossing a frozen lake or river with ice less than 20 cm (eight inches) thick using a snowmobile which weighs about 180 kg (400 pounds). Other snowmobile riders have suffered hearing loss due to engine noise in the range of 92-111 decibels.

Farm machinery was responsible for 176 deaths in Canada in 1978. This has resulted in 276 deaths in Ontario since 1975.<sup>18</sup> Among those killed, many were children and, in part, this is due to the custom of allowing a 10 to 12 year old child to drive a tractor. The most frequent causes of death and injury on a farm are the following:

1. The passenger is transported on a high load such as bales of hay.
2. Incorrect stump-pulling techniques using tractors with no weight over the front wheels.
3. Passengers mounting moving tractors.
4. Children playing with farm machinery.
5. Accelerating on a curve.
6. Machinery being repaired while it is moving or insecurely raised with a jack or lever.
7. Standing between two moving parts of equipment to be coupled.
8. Accelerating on a downgrade.
9. Driving over obstacles.

**Drowning** is the second leading cause of accidents or deaths among Canadian children. One thousand and two hundred (1,200) cases occurred in four years. It is relevant that 50% of the victims could not swim and 48% of the drowning deaths occurred in private pools. In a number of instances, babies and toddlers have been left alone in a bathtub in order to answer the door or a phone call. One inch of water in a bathtub has claimed more lives than an ocean.<sup>19</sup> Finally, some children who can swim, may drown because they hyperventilate before diving or swimming under water and blow off their CO<sub>2</sub> which is a potent respiratory stimulant when oxygen tension has fallen in the blood.<sup>20</sup> They may then develop sufficient anoxia to lose consciousness under water and then drown.

**Burns** are the third cause of accidental deaths among children in Canada and claimed 850 lives in four years. Fires kill about 900 people per year in Canada and injure 70,000 people a year in Quebec. Sixteen percent of the victims are children. Only 70% of houses are protected by smoke detectors.

The explanation that 16% of victims are children is due to the following:

1. Parents panic in the midst of a blaze and do not give the right advice to children who prefer to hide themselves in a closet or under the bed or blankets and forget to run outside.



2. People may return to their house to pick up something or something they have left behind. Ninety percent of these deaths are due to asphyxia from the toxic gases released by fire such as hydrogen-cyanide, acetic acid, nitrous oxide, and carbon monoxide. In 11% of fires, carbon monoxide is found at a lethal level of 4,800 parts/million (400 parts/million is compatible with survival).<sup>21</sup>

To ignore a smoke detector or alarm is to lose some of the four minute period in which one can leave a blaze before becoming asphyxiated. Fifty percent of fires are caused by burning cigarettes.

In addition to burns by fire, one can suffer from hot water. In 1977, the Consumer Product Safety Commission reported 112,530 cases of scalds treated in the emergency rooms of hospitals; of these, 2,615 were due to water. Seventy-five percent (75%) of the victims were children under five or elderly persons over 65 years.

According to K. Feldman,<sup>22</sup> a child suffers a third-degree burn if the skin remains in contact for one second with hot water at 68°C (149°F) and five seconds if the hot water is at 55°C (133°F).

Lightning during an electrical storm presents danger Michael Moeil of the U.S. National Weather Service<sup>23</sup> reported that over 200 persons were killed each year by lightning in Canada and the U.S.A. Eighty percent of the victims were male.

**Asphyxia** is the fourth leading cause of accidental death in Canada. Eight hundred people have been killed in four years. Children under six years of age are mostly involved.<sup>24</sup> According to James Lyddy from the Mattel Toy Factory<sup>25</sup> the following, in order of frequency, are the most common foreign bodies found in the bronchial trees of children aged two to four years. Coins, paper, thumbtacks, nails, pins, food (peanuts and popcorn), deflated balloons, and crayons. Small toys account for only 4% of all foreign bodies inhaled. Children have been choked by a plastic bag or asphyxiated when left inside an old abandoned refrigerator. Babies have been asphyxiated during feeding because they were left alone with a bottle holder. They have also been strangled by a chain or cord placed around their neck or by slipping partly through the rails of a crib.

**Falls:** These are the fifteen leading cause of accidental deaths in Canada and have killed 250 children in Canada in four years. Each year in the U.S.A., doctors examine 1.75 million infants under 12 months of age, following a fall.

Among these infants of zero to six months who have fallen out of a high chair, 30% suffered skull fracture, subcutaneous haematomas, lacerations or abrasions, and 7% of children required hospital admission.

Trampolines have caused serious injuries. In 1977, NEISS reported that 18,200 persons were treated in emergency wards as a result of trampoline accidents. Most were children between 10 and 14 years. Next to football, the trampoline was responsible for the greatest number of quadriplegics between 1973 and 1975. Unfortunately, these accidents happen to athletes during momentary fatigue, poor coordination or inattention when they were executing somersaults and they would land in a forced position of anteflexion or on their head.

Playground falls have also led to injuries. In 1980 at Ste-Justine Hospital, in two months, 87 patients were treated in the emergency rooms; they were injured in a public playground.<sup>26</sup> In 1978, at the Hospital for Sick Children in Toronto, 365 children were examined in their emergency room as a result of a fall from playground equipment and 57 had to be admitted to hospital.

**Poisoning:** This has killed 120 children in Canada in four years. Ste-Justine Hospital received in 1979, 7,734 calls following product ingestion. 1,595 patients were treated during the same period of time at the emergency department of the hospital and 203 were admitted. Poisoning among children from zero to four years has been responsible for almost 30% of all hospital admissions due to accidents in Canada in 1974.

Facing this astounding reality of 3,000 children killed each year by accident in Canada, we must question what we are doing about it. Do we accept accidents as a way of living (or death), as essential to the equilibrium of society? Should we allow the strong to survive and the weakest to die? Do we accept accidents as an event related to chance, destiny, and the unexpected for which we can do nothing? Or should we, as did William Haddon<sup>27</sup> relate accidents in more scientific way to injury caused by an abnormal transfer of mechanical, chemical, thermal, or ionic energy or by interference in the normal exchange of energy?

If we consider an accident as an insult to the body by an abnormal transfer of energy, we can prevent these agents from reaching the body or at least alter their quantity to lessen the danger. If we arrive after the accident has occurred, the least that we can do is to diminish the consequences of the injury.





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- 19 - Press, E. et al, *An Interstate Drowning Study*. Am. J. Public Health 58: 2275, 1968.
- 20 - Craig, A. B., *Underwater swimming and loss of consciousness*. JAMA, 176: 255, 1961.
- 21 - Fireward Bulletin. National Fire Prevention and Control. Washington D.C. 20230, Aug. 1978.
- 22 - Feldman, K.; *Tap water Scald burn in children*. Ped. 62. No. 1, July 1978.
- 23 - Mogil, M.; Ignoring lightning can prove to be a fatal mistake. The Gazette newspaper, Montreal.
- 24 - Shirazy, N.; Lower airway foreign body aspiration in children. Clin. Ped. Jan. 1977.
- 25 - Study on Toy Safety for Mattel Toys. Unpublished.
- 26 - L'Archevêque, André. Personal investigation.
- 27 - Haddon W. Jr.; *Accident Research: Methods and approaches*. New York: Harper and Row. 1964.
- 28 - Haddon W. Jr.; *Advances in the epidemiology of injuries as a basis for public Safety*. Public Health Rep. 95: 411, 1980.
- 29 - Scherz, R.; *Fatal Motor vehicle accidents of child passengers from birth through 4 years of age in Washington State*. Ped. 68: 572, Oct. 1981.
- 30 - Bohlin, N. I.: *A statistical analysis of 28,000 accident cases*. Eleventh stapp conference proceedings, Society of automotive. Engineers, New York. N. Y. USA, 1967.
- 31 - Henderson, J. M.; *Performance of child restraints in crashes*. Dept. Motor Transport. New South Wales. Australia, 1976.
- 32 - Williams, A. F. and Zador, P.: *Injuries to children in automobiles in relation to seating location and restraint use*. *Accident Analysis and Prevention*. 9, 69-76. 1977.
- 33 - Hillman, Elizabeth. Personal communication.

**REFERENCES**

- 1 - Saskatchewan Health, *Saskatchewan Health for Children and Youth*, Regina, 1980.
- 2 - *Accidental Deaths*. Canada, 1978, Canada Safety Council.
- 3 - Meyer M. B.; *Amer. J. Obstet, Gynecol.* 131: Aug. 1978.
- 4 - Himmelberger, D. U.; *Amer. J. Epidemiol* 108: Dec. 1978.
- 5 - Wilde G. J. S.: *Symposium. Gestion de la Sécurité routière du Québec*. Montréal, Novembre 1979.
- 6 - National Safety Council. *Accident Facts*, 1981 Edition.
- 7 - *Preliminary Proposal for Product Accident Alert Canada*. Consumer and Corporate Affairs Canada. March 1980.
- 8 - *The hidden costs of accidents*. Safety Department All-State Insur. Co. of Canada. Toronto, Ontario.
- 9 - Cyril Nair; *Proceedings of the 1st National Conference on childhood Accidents and Prevention*. Can. Inst. Child Health — p. 37, April 1981.
- 10 - Manheimer, D. J.: *50,000 child-years of accidental injuries*. Public Health Dept. 81: 519, 1966.
- 11 - Moamai, N.: *Aspects psychiatriques du traumatisme crânien*. *Vie Médicale Can. Fr.* 7: 458-460. 1978.
- 12 - Karwacki, J. J.: *Children in motor vehicles: never too young to die*. JAMA 242. Dec. 1979.
- 13 - Baker, S. P.; *Motor vehicle occupant deaths in young children*. *Pediatrics*. 64:860, Dec. 1979.
- 14 - National Safety Council. *Accident facts*, 1980 Ed.
- 15 - Gross, R. H.; *Bicycle Injury Report*, submitted to the committee on Accident Prevention. American Academy of Pediatrics, March 1981.
- 16 - *Statistique Canada*. Bulletin: 5-3509-544.
- 17 - *Guide de sécurité pour le motoneigiste*. Famille Avertie. 1:4, Hiver 1974. Ligue Sécurité du Québec.
- 18 - *Ontario Farm Tractor fatalities (1975-1980)*. *Farm Safe*, 6:7, March 1981.

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# Statement

## Accident Prevention in Canadian Children

### PART II

*Part I, published in Volume XV Number 1, dealt primarily with the major causes of accidents in Canadian Children. In this issue, Part II deals primarily with prevention and treatment.*

Haddon<sup>28</sup> has suggested ten different ways to control injuries. These are:

1. **Prevent the creation of the hazard in the first place** — no more swimming pools, fires, or alcohol.
2. **Reduce the amount of hazards** brought into being (fewer medicine tablets in the bottle, reducing speeds of vehicles).
3. **Prevent the release of the hazard** that already exists (mat in a bathtub).
4. **Modify the rate of distribution of release of the hazard** from its source (use flameproof clothes, safety car seats).
5. **Separate in time or space, the hazard and the potential victims.** (Isolation of persons with communicable diseases, walkways over or around hazards).
6. **Separate the hazard and that which is to be protected** by interposing a barrier (surgeons gloves, childproof poison containers).
7. **Modify relevant basic qualities of the hazard** (12 inches of sand on the playground equipment, making crib rails too narrow to allow child to be suspended through).
8. **Make what is to be protected, more resistant to damage** from the hazard (immunization).
9. **Counter the damage already done** by environmental hazards.
10. **Stabilize, repair, and rehabilitate the subject** of the damage.

To plan a task force on accident prevention requires the presence of dedicated persons; many disciplines should be represented including physicians, nurses, lawyers, engineers, architects, etc. Red Cross organizations, safety leagues, members of the media, and provincial and federal organizations are also obviously crucial.

In planning for a programme on accident prevention, it is necessary to carry the information to the parents through the media, community centres, maternity wards, physicians offices, etc. Every physician should always promote proper safety car seats. The Quebec Safety League has published a brochure on car seats sold in Canada which can be obtained free of charge from your local provincial safety league, and it is bilingual.

Your government should also be involved in accident prevention or stimulated to become involved. This may either be by supplying money or by modifying legislation. For instance, by legislating that a driver must use a safety belt on a child as a passenger as well as for his own personal protection. The current campaign in Nova Scotia is an example.

If you should decide to establish a programme on **pedestrian accident prevention**, it is suggested that you teach the parents a number of basic rules. These include: not allowing the children to play in the streets, especially after sunset, convincing them to wear bright coloured clothes with reflecting stripes on their windbreakers, to avoid jogging in the streets and to



set a speed limit of 20 m.p.h. in residential areas at the beginning and end of the school day. Numerous other recommendations along the same lines can be developed and are available.

**Car passenger accident prevention.** If a task force is planning a programme on accident prevention, it should see that all infants and toddlers are fastened in a safety car seat, well tethered in the car as recommended by the manufacturer. The first ride should be a safe ride. Robert Scherz<sup>29</sup> from Washington has reported that car seats can save up to 93% of lives and can prevent up to 70% of injuries. A child must be fastened in his seat wherever he is a passenger in the car. A low speed is no reason to leave him unprotected. In Sweden, a study of 28,000 car accidents has shown the driver or passenger not wearing a seat belt can be seriously injured or even killed at a speed of 12 m.p.h.<sup>30</sup>

Should there not be a car seat available, the adult belt should fasten your child even if he is only two years old but it should be tightly fastened.<sup>31</sup> Children should never be allowed to sit in the front seat without using a seat belt. The place for a child is in a safety seat tethered to the back seat for optimal protection.<sup>32</sup>

Associations are available that will lend a car seat to a new mother for a period of time. It is suggested that one arranges to have the seat sponsored by agencies or businesses as is done for the Montreal General Hospital. In this hospital, all newborns leaving the nursery, do so in an infant car seat and after a period of six months, the parents return the original seat to the hospital.

**Motorcycle Safety Programmes.** If one is planning a programme along these lines, it is vital to obtain the collaboration of local police departments to make sure all traffic regulations are observed for these vehicles. A driver should always have his red and white lights on and always wear a helmet.

**Bicycle Accident Prevention.** This requires that manufacturers supply the purchaser with a booklet printed by the Canadian Safety Council which is entitled "Safe Bicycling". One can organize a safety programme and generally get volunteers from the local police department to show children how to ride a cycle safely in the school yard. It is important that parents should not allow children under the age of five to ride in the street after sunset because 25% of accidental deaths on cycles occur at night. A cycle should always be purchased according to leg length and carry the label CSA.

The child should be able to touch the ground with his or her toes when sitting on a bicycle and there should be a space of three centimeters between the crossbar and the child's crotch when he is standing.

In Quebec, the Ministry of Transportation spent 1.297 million dollars (\$1,297,000) in 1974 to open bicycle pathways in 34 towns. In Montreal there are cycle pathways along the river.

It is wishful thinking to require police officers to arrest every cyclist who breaks the traffic rules in this day and age. It would be helpful however, depending on the seriousness of the offence, to impound the bicycle and only release it to the parents.

**Skateboards.** Skateboards and roller skates for accident prevention require that the child is taught to ride only in a safe place, and also to have the necessary protective equipment including helmets, gloves, rubber soled shoes, and elbow and knee pads. Aluminum skateboards are not recommended since their worn edges can be razor sharp. Skateboards should have a non-skid surface urethane wheels that are properly enclosed, and ball bearings that are not exposed to dirt or sand which can clog the wheels and throw the skateboarder.

In the 1980 modified Quebec Highway Code, the statement is made that nobody is allowed to use in the streets, a toy vehicle such as skateboard, roller skates, or skis and any police officer is authorized to confiscate these as they contravene the law.

**Drowning Presentation.** This requires that the parents are taught never to leave the child alone in a bathtub, amongst other hazards. Fifty percent of drowning occurs between the ages of one and ten years. It is well-known that children between one and five years are attracted by water. Once in water, they lose their sense of direction and tend to wander away from the edge of a shore instead of staying near it. Swimming pools should be surrounded by high sturdy fences and their gates must be properly padlocked.

**Burn Prevention.** Important points include the following. Do not allow the teenager to smoke in the bedroom. Do not allow the filling of gas tanks inside a house or closed garage. Never check the level of a car battery with the face near it as the sulfuric acid may splash in the eyes. Do not overload electrical circuits like an octopus. These are responsible for 10% of fires. Install smoke detectors. Take notice of the alarm signals when a detector is triggered. Keep



matches out of the reach of children. Provide all fireplaces with a fire screen. Never throw inflammable liquid on a charcoal fire. Never leave fat cooking on a stove to answer the phone. Make sure that children in particular are dressed with fire resistant materials such as those made of modacrylic or saran.

It is noted that a campaign of information on fires in Nova Scotia succeeded in reducing the mortality rate by 11% in 1979.<sup>33</sup>

The prevention of asphyxiation requires common sense. One must make sure that parents do not give young children coins, popcorn, peanuts, or deflated balloons as a reward and it should be noted that alkaline or mercuric batteries if swallowed can cause serious injuries or death. Children should be trained to eat calmly and chew their food properly and they should not laugh or speak or run with their mouth full. Pliable plastic bags should be thrown away and infants should never be left alone in bed to prop feed without the parent being there. Old refrigerators not in use should have their doors removed. The bars in cribs should have spaces of under six centimeters between them and they should not be equipped with a narrow mattress that leaves a space between the side or in the panels of the mattress.

In the management of the child who has been asphyxiated, the Committee on Accident and Poison Prevention (COAPP) of the American Academy of Pediatrics recommended the following procedures.

If the choking victim is an infant, he should be placed face down over the rescuer's arm with the head lower than the trunk. The rescuer's arm can then be rested on his thigh for additional support. Four measured blows (less force is needed in infants than in children or adults) should be delivered rapidly with the heel of the hand to the area between the shoulder blades. If breathing is not started the infant is rolled over facing upward and placed on the thighs with the head lower than the trunk. Four chest thrusts are then delivered rapidly in the same manner as external cardiac compression would be performed in an infant. For a larger child, the rescuer should kneel on the floor and drape the victim across the thighs face down and head lower than the trunk. Four back blows should be delivered. If not successful, the child can be rolled over onto the floor face up, where he is now in a position for the four chest thrusts to be delivered with the same technique used for external cardiac compression in children.

If breathing has not been started by the above manoeuvres, the airway should be opened by placing the thumb in the victim's mouth over the tongue wrapping the other fingers around the lower jaw and lifting forward. If a foreign body is visualized, it can be removed with a finger. If the victim is still not breathing an attempt should be made to deliver four breaths through the mouth or mouth-nose. If the chest fails to rise, indicating that the obstruction persists, then the process described above of four back blows followed by four chest thrusts should be repeated.

If the victim can breathe, make sound and is coughing, the above procedures are not necessary.

It must be emphasized again that physicians should familiarize themselves with the recommended methods of cardiopulmonary resuscitation for the various age groups.

To reduce the hazard of accidental falls to a minimum requires the parents placing their infants in a large bed as soon as the drop side of a crib is less than 3/4 the height of the child. Sturdy gates at the top of the stairway should be installed. One should not polish the floor if children are likely to run in the house.

The prevention of accidental poisoning requires that responsible parents know the number of the poison centre nearest to them and that this is kept handy on the telephone at all times. Pharmacists must dispense prescription drugs in child resistant packaging. Syrup of Ipecac (30 ml) in case it is needed to cause vomiting in a child after intoxication is an important household item to be kept in the home. It is vital that safety latches or locks be used for the medicine cabinet and that outdated medicines be discarded. It is always wise to empty all glasses of alcohol after a party so it will not be accidentally taken by the child.

A good accident prevention programme to be effective needs to be based on the statistics from one's area, either the hospital or the police department. It is recommended that one concentrate one's energy and money on accidents that kill or seriously injure as being the ones most important to reduce.

The genesis of an accident should be studied scientifically to understand why such injuries occur. The help of an engineer or an architect may reduce the incidence. Legislation from one's municipal, provincial, or federal government to enact bills or regulations can be helpful. The collaboration of the local police department to have laws and regulations enforced is vital.



The media may help to promote the information although this needs to be repeated to have a long-lasting effect. Finally a group of dedicated persons whose job will be to supervise the effectiveness of the programme is the key to results.

It is hard to be born today. Let us do whatever is possible to allow the child to achieve his full potential in safe surroundings.

#### REFERENCES

- 1 - Saskatchewan Health, *Saskatchewan Health for Children and Youth*, Regina, 1980.
- 2 - Accidental Deaths. Canada, 1978, Canada Safety Council.
- 3 - Meyer M. B.; Amer. J. Obstet, Gynecol. 131: Aug. 1978.
- 4 - Himmelberger, D. U.; Amer. J. Epidemiol 108: Dec. 1978.
- 5 - Wilde G. J. S.: Symposium. Gestion de la Sécurité routière du Québec. Montréal, Novembre 1979.
- 6 - National Safety Council. Accident Facts, 1981 Edition.
- 7 - Preliminary Proposal for Product Accident Alert Canada. Consumer and Corporate Affairs Canada. March 1980.
- 8 - The hidden costs of accidents. Safety Department All-State Insur. Co. of Canada. Toronto, Ontario.
- 9 - Cyril Nair; Proceedings of the 1st National Conference on childhood Accidents and Prevention. Can. Inst. Child Health — p. 37, April 1981.
- 10 - Manheimer, D. J.: 50,000 child-years of accidental injuries. Public Health Dept. 81: 519, 1966.
- 11 - Moamai, N.: Aspects psychiatriques du traumatisme crânien. Vie Médicale Can. Fr. 7: 458-460. 1978.
- 12 - Karwacki, J. J.: Children in motor vehicles: never too young to die. JAMA 242. Dec. 1979.
- 13 - Baker, S. P.; Motor vehicle occupant deaths in young children. Pediatrics. 64:860, Dec. 1979.
- 14 - National Safety Council. Accident facts, 1980 Ed.
- 15 - Gross, R. H.; Bicycle Injury Report, submitted to the committee on Accident Prevention. American Academy of Pediatrics, March 1981.
- 16 - Statistique Canada. Bulletin: 5-3509-544.
- 17 - Guide de sécurité pour le motoneigiste. Famille Avertie. 1:4, Hiver 1974. Ligue Sécurité du Québec.
- 18 - Ontario Farm Tractor fatalities (1975-1980). *Farm Safe*, 6:7, March 1981.
- 19 - Press, E. et al, *An Interstate Drowning Study*. Am. J. Public Health 58: 2275, 1968.
- 20 - Craig, A. B., *Underwater swimming and loss of consciousness*. JAMA, 176: 255, 1961.
- 21 - Fireward Bulletin. National Fire Prevention and Control. Washington D.C. 20230, Aug. 1978.
- 22 - Feldman, K.; *Tap water Scald burn in children*. Ped. 62. No. 1, July 1978.
- 23 - Mogil, M.; Ignoring lightning can prove to be a fatal mistake. The Gazette newspaper, Montreal.
- 24 - Shirazy, N.; Lower airway foreign body aspiration in children. Clin. Ped. Jan. 1977.
- 25 - Study on Toy Safety for Mattel Toys. Unpublished.
- 26 - L'Archevêque, André. Personal investigation.
- 27 - Haddon W. Jr.; *Accident Research: Methods and approaches*. New York: Harper and Row. 1964.
- 28 - Haddon W. Jr.: Advances in the epidemiology of injuries as a basis for public Safety. Public Health Rep. 95: 411, 1980.
- 29 - Scherz, R.; Fatal Motor vehicle accidents of child passengers from birth through 4 years of age in Washington State. Ped. 68: 572, Oct. 1981.
- 30 - Bohlin, N. I.: A statistical analysis of 28,000 accident cases. Eleventh stapp conference proceedings, Society of automotive. Engineers, New York. N. Y. USA, 1967.
- 31 - Henderson, J. M.; Performance of child restraints in crashes. Dept. Motor Transport. New South Wales. Australia, 1976.
- 32 - Williams, A. F. and Zador, P.: Injuries to children in automobiles in relation to seating location and restraint use. *Accident Analysis and Prevention*. 9, 69-76. 1977.
- 33 - Hillman, Elizabeth. Personal communication.

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