Building Toward Breakthroughs in Injury Control:

A legislative perspective on the prevention of unintentional injuries among children and youth in Canada

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Building Toward Breakthroughs in Injury Control: A legislative perspective on the prevention of unintentional injuries among children and youth in Canada was prepared for the Family and Child Health Unit, Health Canada by the Injury Prevention Centre.

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Preface

Unintentional injury continues to be the greatest cause of mortality, morbidity and disability for children and youth in Canada. Injury rates have been decreasing, however, and this has generally been attributed to the efforts of injury prevention stakeholders involved in a broad range of injury control strategies. These include campaigns to increase public awareness, education programs, injury surveillance programs, research and the development of safety technologies, legislation and healthy public policies.

Under the Child Development Initiative, Health Canada has supported the development of resources to enhance the advancement of injury prevention programs and research. Readers interested in preventing childhood injuries might wish to refer to other resources developed by members of the Canadian Children's Safety Network (CCSN). These include: the Directory of Canadian Child/Youth Injury Prevention Programs and Researchers, the Compendium of Canadian Data Sources for Childhood Injury Prevention, The Health of Canada's Children: A CICH Profile (2nd ed.), the study entitled Parental Attitudes Toward Unintentional Childhood Injuries and the CCSN On-line communication network. Each of these resources fills a niche in the spectrum of needs for knowledge in this field. Building Toward Breakthroughs in Injury Control fills another gap in our resource requirements.

The Injury Prevention Centre (IPC) in Edmonton was asked to prepare this report. The IPC is a provincial resource which provides expert advice, leadership, educational and research services in the area of injury prevention. For this project, the Injury Prevention Centre was asked to conduct an environmental scan of the existing, and where possible, the emerging federal, provincial and territorial injury-related legislation addressing the safety of children and youth in Canada. As well, they have done a review of the published literature reporting on the effectiveness of these legislative interventions in Canada and abroad.

Rather than attempt to cover all existing injury prevention strategies, the Injury Prevention Centre has focused on legislation which encompasses a broad range of "passive measures". These laws are important because they reflect a different emphasis in injury control. Instead of focusing primarily on changing individual behaviors, legislative solutions tend to be directed toward consumer product and environmental risk factors. This is significant, particularly for young children, because promoting safer environments is believed to be easier than changing behavior and therefore will likely be more effective in further reducing the incidence of injuries.

In the course of this project, we were struck by two key observations:

1) **Legislation relating to major injury issues affecting children and youth is often under the administration of several jurisdictions, and**
2) **the published literature providing evidence of the effectiveness of these laws is relatively scarce, particularly in the Canadian context. The history of major injury control breakthroughs in North America, outlined in the introduction, gives readers an appreciation for the complexities and progress made in this field.**

We are challenged with the task to build toward further breakthroughs given the multi-disciplinary nature of injury control and the multi-jurisdictional nature of our legislation. We invite all injury prevention stakeholders to consider what action is required to meet this challenge. In particular, we invite those who believe that legislation can play a pivotal role in prevention, who endorse the position that legislation and enforcement are key to comprehensive and effective injury control and who wish to learn more about existing legislation to read this document and consider the following questions:

- **Should legislation be the priority strategy in injury control?**
- **What combination of legislation/enforcement, safety technologies and public awareness and educational programming is most effective?**
- **How do we continue to build toward further breakthroughs in injury control?**

Many people contributed to this project. Our thanks go to those across the country who generously participated in the development of this document, in the hopes that it will serve to enhance the prevention orientation of the programs and policies which impact on the incidence of unintentional injuries in Canada. Because, after all, injuries are preventable.

Key Contacts

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Section I. Building Toward Breakthroughs in Injury Control

1.0 INTRODUCTION

Unintentional injuries continue to be the leading cause of death for children and youth in Canada. In 1990 alone, the Canadian Institute of Child Health (CICH, 1994) reported 1,624 injury-related deaths in children 0 to 19 years of age and in 1989/90 approximately 82,453 injury-related hospitalizations. These numbers speak to the continuing need to build on our efforts in injury control.

This document represents an effort to nurture breakthroughs in this field. Section I outlines the project's research methodology and briefly reviews past breakthroughs in injury control to gain insight about the basis for recent injury control efforts and to consider what can be learned. This section discusses reported research as it relates to existing Canadian legislation. Section II identifies federal, provincial and territorial, and municipal legislation intended to eliminate unintentional childhood injuries in Canada. A desired outcome of this research is to create a starting place that will assist others in the field in understanding and accessing legislative information. We also hope to encourage readers to think about legislation and its role within comprehensive injury control efforts.

Our research focused on legislative strategies and stemmed from Dr. William Haddon's theory on the efficacy of passive interventions. Dr. Haddon, who initiated the distinction between active and passive interventions in the 1960s, helped create a scale for measuring the efficacy of public health strategies. Haddon (1980) used the *"term **active** to require much action on the part of individuals and the term **passive** to categorize those measures at the other extreme that require no individual action"* (p. 416). Haddon and Goddard (1962) noted that it was the *"consistent experience of public health agencies, concerned with the reduction of other causes of morbidity and mortality, that measures which do not require the continued and active cooperation of the public are much more efficacious than those that do"* (p. 8). These definitions placed passive interventions much higher on the scale of efficacy than active interventions. Recognizing that legislation can only be defined as passive in the broadest sense, we hoped to provide a perspective on the efficacy of passive interventions by exploring Canada's sources of childhood-related injury control legislation. In view of the magnitude of the injury problem, this document takes a step toward understanding how to maximize the effectiveness of injury control strategies through legislative measures.

2.0 PROJECT METHODOLOGY AND DELIMITATIONS

Established Injury Problems to be Researched - In order to establish the injury problems to be researched within the scope of the project, we relied on data published within The Health of Canada's Children (2nd ed.), a statistical profile, produced by the Canadian Institute of Child Health (CICH, 1994). This enabled us to identify injury priorities without engaging in a re-analysis of existing injury data. For the purpose of this project, three injury categories were excluded from consideration: intentional injuries (i.e. suicide, homicide, suicide and homicide attempts), injuries unrelated to an individual's own action (i.e. surgical misadventures), and injuries that lacked specificity in terms of mechanism of injury (i.e. cuts and being struck). Injury categories identified in the CICH document as the major causes of unintentional injury resulting in death or hospitalization were identified as: suffocation and strangulation, motor vehicle collisions, drownings, burns, poisonings, falls and cycling.

The identification process of relevant interventions and intervention strategies, focusing on legislation and technology, was based on information authored by Rivara (1995), and a report prepared by the Ontario Public Health Association for the Emergency Services Branch, Ontario Ministry of Health entitled, Priority Themes for Injury Prevention in Ontario (1992).

Conducted a Review of the Literature Reporting on the Efficacy of Childhood and Youth Injury Control Interventions - We completed a comprehensive search for published studies on the efficacy of childhood and youth (ages 0 to 19) injury control interventions. "Injury control interventions" were limited to technological and legislative measures whose purpose is to reduce the risk of injury and/or death. To identify articles we used several on-line databases, reviewed the bibliographies from articles and textbooks, searched conference abstracts, and asked researchers in this area to identify relevant studies.

English-language studies and critical articles documenting the efficacy of childhood and youth injury control interventions were identified. The studies retained for review met the following criteria:

1) written in the English language,
2) contained information on interventions that are relevant to Canada, and
3) focused on passive (by broad definition) injury control interventions.

Computerized searches for published English-language articles on the efficacy of these injury control interventions identified 1,417 abstracts. Searches were conducted using the following databases:

• MEDLINE	1984 to November 1995
• CINAHL	1982 to September 1995
• EMBASE	1988 to September 1995
• DHSS-DATA	1983 to January 1995
• MICROLOG	1979 to October 1995
• GPO MONTHLY CATALOG	July 1976 to February 1996
• CURRENT CONTENT SEARCH	May 1993 to November 1995
• COMBINED HEALTH INFORMATION	1985 to August 1995
• MDX HEALTH DIGEST	1988 to September 1995
• LEGAL TRAC	1980 to November 1995

(See *Appendix A* for database descriptions.)

A review of the abstracts found that the effectiveness of legislated interventions was being reported from either a cost-benefit or outcome perspective. Outcome measures dealt with either a reduction in injury rates or compliance pre- and post-enactment of the legislation. As such, 73 articles were retained for review.

Each article was then reviewed by project researchers and the following elements noted: a description of the study methodology, study results, and the strengths and limitations of the study.

Search terms used were accidents and accident-related phenomena; accident prevention; childhood injury; safety; legislation; jurisprudence; wounds and injuries; helmet; seatbelt; asphyxia; drowning; intoxication; evaluation and follow-up; cost-effectiveness; cost-benefit analysis; effective/evaluate/passive; major clinical study; controlled study.

Developed Key Information Elements Required with Respect to Legislation - Prior to initiating the search for relevant childhood-related injury control legislation the project team developed key information requirements. These requirements were developed from a non-legal perspective, focusing on developing information for those unfamiliar with the Canadian legal system. The outcome was the development of an information template for reporting the legislative findings provided in Section II. Within the template, information on the enforcement of legislation, how legislation is changed, and emerging concerns are provided, when available.

Conducted a Search of Legal Library Sources of the Relevant Legislation and Augmented Information through Key Informants - One of the challenges in learning about legislative intervention measures is knowing where to find the information. Legislation, in the form of statutes, is one area in which this information is recorded and the major written source of information provided in this document. Regulations to each statute provide detailed descriptions of how the aims of the related statutes will be carried out. For example, the Hazardous Products Act designates the authority for the inclusion of hazardous products in a Schedule which lists products banned in Canada or that must have authorization in order to be distributed. The regulations also include details of how products will be tested for safety.

Acts and Regulations are published periodically and are available for public or professional use through law libraries (located at universities with law schools) or in the libraries of community colleges offering criminal justice programs (these libraries may not have provincial statutes in their collections). Many cities in Canada also have Law Society Libraries (funded by lawyers for their own use) that provide services to the public. These may be found in Law Court Buildings.

Key informants included, among others, federal, provincial/territorial and municipal government employees. They were invaluable sources of information about what acts and regulations apply to the selected injury topic, how they are enforced and changed, and what issues are emerging in these areas. Many of these questions cannot be answered by reading acts and regulations. Therefore, key informants are a critical part of the clarification of the legislative process. All findings are provided in Section II.

Delimitations - Provincial and territorial amendments are not included as part of the report because they are published soon after passage and each province and territory uses a different format. There are annual publications of amendments and periodic indexes to amendments which provide direction to the available information.

The content of this report is also limited to information which identifies some (not all) examples available among provinces and territories that illustrate different legislative approaches and related enforcement. It is also limited to available information about legislation and amendments and does not include information from court cases involving challenges to acts nor the application of acts to the conduct of individuals and companies.

As we engaged in the project, our interest was to experience first-hand the intricacies and challenges associated with accessing information from within the Canadian legislative system. Consequently, we selected a public health researcher with basic knowledge in legal research rather than a researcher experienced in Canadian law. This choice provided exposure to the potential challenges that multi-disciplinary injury control practitioners, researchers, policy makers, advocates and stakeholders might face in understanding and accessing information.

3.0 INJURY CONTROL BREAKTHROUGHS REVISITED

In injury control, significant successes have been linked to multi-disciplinary contributions to the field. The most dramatic historical evidence of this is often detailed in association with efforts to reduce injury and death related to automobile use. Since its invention in the late 1800s, the automobile quickly became and continues to be one of the leading agents of unintentional death in modern society. Despite this dubious distinction, the invention of the automobile has provided the developmental cornerstone for knowledge in injury control. History reminds us that…

... in the 1920s injury control efforts were focused on victims and their individual shortcomings. Total responsibility was placed on the automobile driver for safe use and operation of the vehicle. Poor driving and human error were believed to be the key factors responsible for most, if not all, automobile collisions. Given this perspective, educational strategies were the focus of injury prevention efforts.

...in the 1940s the work of Hugh De Haven advanced the understanding of physiological thresholds in relation to biomechanical exchanges. De Haven's breakthrough research was fundamental in developing the concept that automobile drivers and passengers could be "crash packaged," thereby decreasing biomechanical exchanges that occur in crash situations (National Committee for Injury Prevention and Control (NCIPC), 1989). His work has provided the basis from which the structural design of automobiles, seat belts and air bags has emerged and continues to evolve to improve crash survivor rates.

During the latter part of the same decade, John Gordon, a physician, introduced the concept that injuries should be examined in the same manner as infectious diseases. Gordon (1949) suggested that injuries, like infectious diseases, can be monitored over time, exhibit seasonal variations and vary in their demographic distribution. The most important point made was that injury, like disease, was not an outcome of one cause. Gordon conceptualized that injury is the result of at least three sources, the host, the agent and the environment, and that not all factors can be controlled through individual behavior. These breakthroughs gave rise to intervention strategies that helped to focus attention on technological and environmental risk factors.

... in the 1960s the emergence of federal legislation in the U.S. automobile industry signified a new era. The regulation of vehicle safety standards joined scientific knowledge with individual and public concerns. Injury control knowledge developed from different disciplines (e.g., public health, engineering, medicine, biomechanics and epidemiology). This knowledge, in combination with public advocacy and pressure, helped to legislate the automobile industry (NCIPC, 1989). This experience served to highlight the potential of legislative interventions as a means to improve the adoption and effectiveness of injury control measures (NCIPC).

...in the 1970s another significant breakthrough is associated with William Haddon, a public health physician, epidemiologist and traffic safety administrator. Haddon (1972) developed a phase-factor matrix where host, agent and environment interact over time. The injury itself is divided into three phases of time: pre-event, event and post-event. This framework for analysis makes it possible to identify interventions aimed at preventing the injury pre-event (e.g., road and highway signage), interventions aimed at minimizing the biomechanical exchange of energy which results at the time of the injury event (e.g., air bag), and interventions aimed at minimizing the severity of injury outcomes (e.g., rapid emergency response).

Haddon (1972) also suggested that the most effective injury control was based on using multiple strategies within each phase of the injury occurrence. He also placed emphasis on the use of passive interventions and the implementation of strategies that most effectively reduce injury. A guiding injury control principle which emerged from Haddon's work was that effective injury control is based on a combination of intervention strategies.

... in the 1980s and 1990s a great deal of effort has been spent broadening Haddon's conceptual framework to examine other injury problems. Injury control efforts have concentrated on implementing Haddon's guiding principle of combining diverse intervention strategies.

One example of this multiple-intervention approach is demonstrated by strategies to reduce head injuries and death associated with motorcycle use (NCIPC, 1989). The proven efficacy of motorcycle helmets as a safety technology in combination with legislation mandating their use, enforcement practices, and public education campaigns is now a classic injury control example. This example provides clear encouragement for analyzing other injury problems in order to develop new and effective interventions.

These historical breakthroughs also help to explain the enthusiasm and confidence we have placed in passive interventions and their potential to reduce injury.

As we enter another millennium it seems appropriate to consider whether our interests and efforts are well placed. We chose to consider the issue by asking two questions:

- **What do we know about the effectiveness of legislated interventions?**
- **What do we have in place in terms of legislation related to childhood injury control in Canada?**

In the following discussion a narrative review is provided on the effectiveness of legislated interventions reported in the published literature.

4.0 LEGISLATION AND THE LITERATURE

Let's look at existing literature reporting on the effectiveness of legislation related to the key unintentional injuries affecting Canada's children and youth. For each injury topic, we discuss the children most at risk, passive interventions deemed most effective, the literature available, and aspects of this information in a Canadian context.

As previously mentioned, the literature is generally scarce and the Canadian material is limited. We cannot presume to transplant the experience of other countries to the Canadian context. However, recognizing that we are in an era of economic globalization is helpful. It makes the existing international experience reported more relevant and increasingly important to Canada. In the face of

international trade agreements, it has become essential to recognize the experience of other countries. Their experience may help guide our future legislative efforts and may also assist those involved in the field of injury control in Canada to be more proactive. Assessing new risks will also be our challenge as our borders open up to trade and commerce.

4.1 Suffocation and Strangulation

The natural course of growth and development places children at higher risk for certain types of injuries at different stages in their lives. As Rivara (1995) states, *"injuries do not occur homogeneously throughout childhood"* (p. 363). For example, infants are at greater risk for suffocation. Suffocation usually results from the aspiration of small objects that obstruct the infant's airway. These objects are often pieces of food, toys and/or household products. Limited strength, mobility, coordination and cognitive skills restrict infants' general ability to help themselves in a choking situation.

Strangulation is also a problem largely associated with infants and very young children. In Canada, there has been particular concern about strangulation risk with regards to children's clothing design, most notably focusing on drawstrings as a potential hazard. There is currently a request for voluntary changes to the design of children's clothing with respect to drawstrings. The American Society for Testing and Materials (ASTM) is developing a standard for children's clothing that is intended for voluntary adoption by the industry in North America. For these reasons legislation related to household products and toy safety were researched and are detailed in Section II, (8.1, 8.2).

Death and disability due to suffocation and strangulation continue to occur, yet there is no reported evidence in the literature that addresses the role legislation plays in reducing these injuries. Although this injury issue has received significant attention in Canada and the legislation is perceived to be effective, the question of how effective these strategies are remains to be researched.

4.2 Motor Vehicle Collisions

Motor vehicle collisions place all children at risk and the circumstances of this risk vary with age. Infants and small children are at greater risk in their capacity as passengers. As such, our interest with infants and young children has been focused on "crash packaging" them as effectively as we do adults and by ensuring that their risk is minimized while they are being transported in a motor vehicle. Our research was therefore directed to investigating legislation related to motor vehicles and road safety. Specific acts are

detailed in Section II, (9.1 - 9.3). As children move from a passenger to driver capacity, new and inexperienced drivers are at greater risk for trauma and death.

With respect to efficacy of child passenger restraint systems and the legislation mandating their usage, several studies are reported in the literature. In terms of technological efficacy, a study reported by Decker, Dewey, Hutcheson, and Schaffner (1984) demonstrates the dramatic risk reduction associated with the use of child passenger restraint systems. In this original study, researchers looked at both the use and efficacy of child restraint devices based on the experience of the state of Tennessee after passage of the Tennessee Child Passenger Protection Act in 1978. The first child restraint law in the USA was based on actual accident data, primarily provided by state police. The study reported a 50% reduction of fatalities in children under the age of four following enactment of the law. The study also reported significantly less severe injuries being sustained among restrained children than unrestrained children involved in collisions. An increase in the usage of child passenger restraint systems was also positively correlated to the passage of the legislation and the number of citations issued through enforcement for non-compliance.

A study conducted by Agran, Dunkle, and Winn (1987) during the pre- and post-enactment of a passenger restraint law was based on questionnaire data obtained from the emergency departments of nine hospitals and the coroner's office in the state of California. The study reports increased usage of passenger restraints after the law was enacted from 26 to 50% as well as a decrease of 13% in injuries sustained by children under the age of four. Another study conducted in the state of Michigan by Margolis, Wagenaar, and Liu (1988), reported similar findings indicating a 50.4% decrease in all injuries and a 40.2% decrease in head injuries.

There were no studies found in the literature regarding strategies that increase the effectiveness of, and compliance with, child passenger legislation. Currently, in Canada, mandatory usage is under provincial or territorial jurisdiction and enforcement is highly dependent on law enforcement officers. As well, any concerns related to the improper installation of these devices are rarely addressed within Canadian legislation.

Additionally, the question about the safety of a cargo area remains a concern as current truck designs are inadequate to ensure passenger safety. Legislation restricting passengers from riding in the back of pick-up trucks appears to be under provincial or territorial jurisdiction and varies among the provinces and territories.

Woodward and Bolte (1990), in conducting a retrospective review of medical records, found a large portion of patients had been injured as the direct result of being a passenger in the cargo area of a pick-up truck. Anecdotal evidence by clinicians in Canada suggests this is an emerging injury issue.

Among 15- to 19-year-olds in Canada, motor vehicle collisions remain the number one cause of unintentional death. In this age group, driving becomes a means of transportation as well as a recreational activity. Young drivers must develop a new set of motor skills and decision-making skills. Our legislative research was therefore guided toward identifying legislative strategies focused on protecting young drivers. Graduated licensing and driving instructor laws are detailed in Section II, (9.4, 9.5).

Only two American studies done in the 1980s dealt with the effectiveness of legislation associated with protecting young drivers. One study dealt with licensing ages while the other examined curfew laws. Both of these topics represent components of graduated licensing laws emerging in Canada. Williams, Karpf, and Zador (1983) looked at variations in minimum licensing age in relation to fatal motor vehicle crashes. The authors' hypothesis was that increasing licensing age will always decrease the number of collisions. However, the data from one state contradicted this hypothesis.

The second study (Preusser, Williams, Zador, & Blomberg, 1984) looked at the effect of curfew laws on motor vehicle crashes. Curfew laws at the time of the study prohibited driving during the late evening and/or early morning hours. The study utilized matched pairs comparison between states with and without curfew laws. In four curfew states there were reductions ranging from 25 to 69% in the number of crashes involving 16-year-old drivers. Ideally, given this degree of variance between states, it would seem important to have an understanding of the other factors which may have contributed to the reductions. This, however, was beyond the scope of the study. A third study, exclusive to young drivers, was conducted by Homel (1994). This study reported a statistically significant finding related to blood alcohol concentrations and the introduction of a law lowering the legal limit from 0.08 to 0.05. Specifically, the study showed that random breath testing and the lowered legal alcohol limit reduced crashes by 19.5% overall and 30% during holiday periods.

Given that several provinces in Canada are adopting graduated licensing as a fundamental legislative intervention, it will be particularly important to monitor its impact on injury rates. It will

also be important to understand the level of efficacy relative to each component contained within graduated licensing laws. This knowledge is critical if we are to understand which components constitute the most effective combinations and what other factors may contribute to reducing injury. The monitoring of injury rates, in those states in the USA which have recently revoked highway speed limits, will undoubtedly provide useful information on the effectiveness of such legislation. The challenge associated with this research will be in providing quality evidence. Current research on the effectiveness of legislation does not appear to capture information on these complex issues.

4.2.1 All-Terrain Vehicles

All-terrain vehicles (ATVs) appeared on the North American market in the early 1970s. According to Kitzes (1989), in his article entitled ATVs-The Hidden Danger, ATVs were developed as a product that would compete with the snowmobile. In Canada, snowmobiles and ATVs have gained popularity as both recreational and transport vehicles. Given Canada's vast land mass and seasonal extremes, it is not difficult to explain their popularity. These innovative motorized vehicles, however, have also created new risks for injury and death, particularly among children and youth. Our legislative focus related to ATVs was driven by an interest to clarify whether legislation has served to effectively ban three-wheeled ATVs. Early reports of death and disability associated with three-wheelers detailed vehicle roll-overs. The vehicles' high center of gravity apparently make them challenging to operate, especially when negotiating turns. Our research indicates that three-wheeled ATVs have not been banned through any legislated product standards, but rather that manufacturers have voluntarily stopped the manufacture of these vehicles. Unfortunately, in Canada, anecdotal evidence is emerging that four-wheel ATVs are safe at low speeds (walking speed) but can be more dangerous than three-wheelers at high speed. This concern appears to be echoed in a 1991 study by Stueland and Aldrich. A survey was conducted by the authors over a four-year period, during which time extensive educational and legislative activity had taken place. Two key observations were made: the number of three-wheeled injury incidents did not decrease significantly, while the number of four-wheeled incidents did increase.

Almost ten years ago, the Accident Prevention Committee of the Canadian Paediatric Society (1987) recognized the hazards that two-, three- and four-wheeled off-road vehicles pose in general for children. Postl, Moffatt, Black and Cameron (1987) stated that legislation is

necessary to prevent ATV-related deaths and should include, *"mandatory registration, licensing and enhanced safety regulations"* (p. 297). Kitzes indicates that injury problems related to ATVs in the United States are being captured through the National Electronic Injury Surveillance System (NEISS), which includes a coding classification for products. In Canada, the same level of product-related information is not available unless it is being captured through local studies and surveillance, and hospital-based surveillance systems such as the Canadian Hospitals Injury Reporting and Prevention Program (CHIRPP). A report on ATV injuries in children was prepared by CHIRPP in January 1996, and is available from CHIRPP on request. American injury data indicate that risk factors associated with children under the age of 16 and ATV use are: physical size, psycho-motor skills and decision-making skills.

Current legislation in Canada related to ATVs appears to consider these risk factors, as it generally includes the required use of helmets, parental or guardian responsibility for the operation by minors, and driver age restrictions. Legislation related to the use of ATVs is found in Section II, (9.6). Once again, although this injury issue has received attention in Canada and concerns have been addressed in part through legislative strategies, do we know how effective we have been? When changes are voluntary in nature, does the public know and understand why changes are made? Can the public fully appreciate the risks involved in the continued use of an unsafe product?

4.2.2 Cycling

In reporting deaths attributed to motor vehicles from 1986 to 1990, the CICH (1994) noted that a substantial proportion of deaths occurred as cycling incidents. Cycling-related causes of death accounted for 16% and 20% of all motor-vehicle-related deaths in those aged five to nine and ten to 14 years of age respectively. In terms of efficacy, a bicycle helmet is seen as the intervention of choice in reducing death and disability due to head injuries. A frequently cited study regarding the efficacy of bicycle helmets (Thompson, Rivara, & Thompson, 1988) reports that the risk of injury can be reduced by 78%.

A study conducted by Hatziandreu, Sacks, Brown, Taylor, Rosenberg, and Graham (1995) examined the cost-effectiveness of three programs to increase bicycle helmet use among children aged five to 16 years. As an outcome of their work, they hoped to guide the choice of intervention strategies to increase helmet use among children. Three prototypical programs in the study were identified

and either pre- and post-intervention observation surveys or pre- and post-telephone surveys of parents were used to monitor helmet usage rates. In identifying three types of programs, an attempt was made to distinguish differences in usage rates based on the types of interventions which formed the basis of the programs. Only one program of the three examined was described as having a legislative component augmented by enforcement and educational strategies. This type of program was reported to have the highest helmet usage rate increase post-program intervention, from four to 47%. Unfortunately, several methodological limitations, including non-comparable pre- and post-evaluation methods, weaken the strength of the study's results.

Graitcer, Kellerman, and Christoffel (1995) provided a review article on educational and legislative strategies to promote the use of bicycle helmets. They reported that no individual educational strategy was shown to have a significant impact on increasing helmet use. Community programs using multiple strategies tended to be the most successful in increasing bicycle helmet use. This review article identified only two studies which have reported on the evaluation of the enforcement of bicycle helmet laws. One was conducted in Victoria, Australia, and the other in Maryland, USA. The latter study by Dannenberg, Grelan, Berlenson, Wilson, and Joffe (1993) compared legislative and educational strategies and their relative effectiveness as measured by helmet use following the passage of a mandatory bicycle helmet law. Dannenberg et al. state that *"legislation in combination with education is more effective than education alone"* (p. 673). Graitcer et al. indicate that the success of mandatory laws seems to be mitigated by exemptions based on age and the difficulties which are associated with the ability to enforce the law and convict individuals for non-compliance.

The efficacy of bicycle helmet laws from a cost-benefit analysis perspective, reported by Ginsberg and Silverberg (1994), is also interesting. This analysis was conducted in Israel over a five-year period and was based on a formula that used a high compliance rate of 85%. In the study, a number of estimated parameters on which to calculate the cost-benefit were used. The authors suggest that the significant cost-benefit associated with bicycle helmet legislation warrants the government of Israel to consider subsidizing the cost of helmets. Those who would question the strength of estimated variables would question the final cost-saving estimated at $43.3 million. Hu, Wesson, Parkin, Chipman and Spence (1994) conducted a telephone survey in Metropolitan Toronto to examine the attitudes

toward the legislation of helmet use in children. Strong support was reported, except among parents of teenaged children (aged 15 to 17 years). In summary, the challenge appears to be how to increase utilization rates in light of the demonstrated technological efficacy of helmets. Relative to this issue, Hu et al. (1994) looked at bicycle helmet ownership, use and related factors among school-aged children in Metropolitan Toronto. They reported an association between parental income and education with the ownership and usage of bicycle helmets, suggesting that helmet promotion activities should be targeted at both parents and children.

In Canada, bicycle helmet laws are enacted under provincial or territorial jurisdiction, and law enforcement officers have the authority to enforce laws under Highway Traffic or Motor Vehicle Acts. Some new bicycle helmet legislation includes exemptions for age, and enforcement strategies are unclear and/or non-existent. It is questionable if legislation can be effective if enforcement strategies are unclear. In Canada, we have augmented our legislative efforts through educational strategies targeted at the municipal level while receiving national level support through initiatives such as the Canadian Bike Helmet Coalition Project. The purpose of this initiative is to aid communities in initiating and promoting bicycle helmet campaigns. Ideally, this project and others like it are intended to make bicycle helmet use in Canada the norm. Unfortunately, strategic enforcement and monitoring strategies that can potentiate educational and legislative strategies are not in place. Legislation related to bicycle helmet use is detailed in Section II, (9.7).

Other legislative strategies related to cycling include design and safety standards for bicycles detailed in Section II, (9.8). Our research indicates that there are no comprehensive standards, only a recognition that bicycles should meet minimal design and operational standards for safety. We had expected to find some standardization in terms of product requirements, however, this did not prove to be the case. It was, therefore, not surprising to find an absence of literature reporting on the efficacy of these legislative strategies.

4.3 Drowning

In a research report prepared and published by The Canadian Red Cross Society (1994), drowning is identified as the second most common cause of death among toddlers. Toddlers were also reported to represent the majority of hospitalizations for near drownings. The report indicates that, *"drowning hazards in and around the home account for 53% of all toddlers drownings"* while the remainder are reported as occurring *"in large bodies of water such as lakes and*

rivers" (p. 2). The report also highlights that most risks in the home environment can be eliminated through *"automatic protection"* (i.e. passive interventions) (p. 1). As noted previously, the natural course of growth and development places children at a higher risk for certain types of injuries. In the case of toddlers, developing walking abilities and a limited capability to assess danger make this age group particularly vulnerable to drowning.

Pitt and Balanda (1991) conducted a study to focus on the epidemiology of drownings and near drownings in home swimming pools in Brisbane, Australia. Utilizing a hospital-based injury surveillance system and a community survey to describe pool fencing, they concluded that pool fences are an effective method to prevent drownings and near drownings in children. Of the study participants who gained unintended access to a pool, *"88.9% were less than three years of age and 52.8% were less than two years"* (p. 661). The risk of drowning was reported as being 3.76 times higher for those children gaining unintended access to an unfenced pool. Fencing, commonly referred to as an isolation barrier, was described as having two key components: a static fence and a dynamic gate. The study identified that pool fencing needed to isolate the pool rather than be the boundary of the property on which the pool was located. It also identified the gate as being the weak element of barrier fencing. Failure to keep the gate closed renders the technology ineffective. The authors encouraged further design work to develop automatic closure systems and/or child-resistant gate latches, a recommendation echoed in the Canadian Red Cross Society's report on drownings among toddlers in Canada (1994).

The efficacy of protective legislation (barrier fencing) reported in a study by Millner, Pearn, and Guard (1980), involved measuring the baseline child drowning rate pre- and post-introduction of the legislation passed in Mulgrave Shire, Australia. The authors reported that no child drowned in a fenced pool over the ten-year study period. Although the authors do not detail the enforcement strategies associated with the legislation, they do suggest that degrees of effectiveness are dependent upon the level with which non-compliance is pursued through by-law enforcement. Providing a strong position on this issue is Wintemute (1992) who states that *"a pool fencing statute will only be effective if it is enforced,"* once there are *"credible sanctions for non-compliance"* (p. 459).

In Canada, as detailed in Section II, (10.1) a great deal of variance exists with regards to municipal by-laws regarding barrier fencing and the enforcement of these by-laws. Clear standards for pool safety in Canada do not exist. This lack of clear standards obviously makes enforcement problematic.

The Canadian Red Cross Society's (1994) special research report on drownings among recreational boaters in Canada also identifies boating as *"an important cause of injury death for all males of 15 years and older"* (p. 2). A risk factor associated with these drownings is the *"low rate of wearing of a flotation device among victims"* (p. 1) even among non-swimmers. In light of this information, our research focused on identifying legislation related to boating practices and regulations in Canada detailed in Section II, (10.2). The standards of safety associated with larger vessels are under federal jurisdiction while the safety standards associated with smaller water vessels are under provincial and municipal jurisdiction. It was also interesting to note that although a life jacket (personal flotation device) is required for each passenger in smaller boats, the jackets are not required to be approved by the Department of Transport as they are for larger vessels. No literature was found on the effectiveness of legislation mandating the use of personal flotation devices (PFDs).

4.4 Burns

In Canada, during the five-year period 1986 to 1990, burns represented the third leading cause of injury death amongst children aged one to 14 years of age (CICH, 1994). The vulnerability of these age groups is related to such factors as: increasing mobility, independent play and exposure to risky activities that are beyond their skill levels. Older children are generally less vulnerable due to better developed hazard assessment skills and their ability to extricate themselves from or deal with dangerous situations.

We explored legislation associated with thermal or chemical burn prevention including flammability standards, building standards, product packaging, labelling of harmful substances, caustic products, caustic product combinations, and explosives control. Related legislation is detailed in Section II, (11.1 - 11.4). We were specifically looking to find whether safety technologies such as tap water temperature regulators, smoke detectors, automatic sprinklers, caustic product packaging and fabric treatment (which reduces flammability) were legislated in Canada. Generally, we found that rather than specifically incorporating the recommended safety technology, the relevant legislation focused on banning or controlling access and/or exposure to dangerous chemical and thermal agents likely to increase the risk of burns or other injuries such as poisonings. For example, age limits associated with the purchase and use of explosives represents a form of restriction affecting access to a dangerous agent. Also, substances that contain a poisonous, toxic, flammable, explosive or corrosive element can be added to a schedule of banned or controlled products.

In terms of legislative effectiveness related to restricting access to dangerous agents, only one study was found in the literature. Berger, Kalishman, and Rivara (1985) reported that the rate of injuries related to fireworks was seven times greater in those states in the USA that allowed a wide variety of fireworks compared to those with restricted product access.

The literature was equally sparse in reporting the efficacy of legislation related to the aforementioned safety technologies. Langley and McLoughlin (1988), evaluating the effectiveness of New Zealand's Children's Nightclothes Act which was enacted in 1977, studied whether the legislation had an effect on childhood injuries associated with nightwear. They could not conclude that the legislation had a significant impact on thermal injury rates. They were, however, able to report a downward trend in thermal injury rates for cases involving nightwear. Their evaluation was complicated by several unpredicted variables. They were confronted with misclassified data on the circumstances associated with burn injuries and data which failed to distinguish whether nightclothes had been commercially manufactured or home sewn. Despite the limitations of the evaluation, the researchers were clear in articulating the bonuses they perceived as outcomes of the evaluation process. For example, a survey of home sewing practices indicated that 44% of mothers surveyed had either sewn nightclothes for their children or had received nightclothes for their children made by others. The survey also showed that mothers had poor knowledge of the flammability characteristics of various fabrics. The evaluation process revealed that clothing experts themselves were generally unable to identify the composition of fabrics utilized in nightclothes and retail assistants had a poor knowledge of fabric flammability. Although Langley and McLoughlin do not address the issue of public interpretation of labels, they do note that this might also be an area for concern. These survey findings appear consistent with the flame retardant issues reported by Abraham, Mischutin, and Newman (1990) in the Trial Lawyers Quarterly. They indicate that within the textile industry there is inconsistency in what types of garments are defined as sleepwear and that existing regulations lack provisions that would ensure that all potentially hazardous goods are tested correctly. Langley and McLoughlin, in their conclusions, pointed out that the *"impact of legislation is likely to be reduced by the lack of knowledge of fabric flammability by the public and retail personnel"* (p. 439) as well as a lack of clarity associated with labelling, resulting in confusion.

In Canada, flammability standards for children's sleepwear covered under the Hazardous Products Act,, are generally thought to have significantly contributed to reducing burn-related deaths and injuries among children. Ironically, anecdotes provided by clinicians suggest that evidence supporting the relationship between legislated standards and a decrease in burn injury rates may be lost to us. Burn units previously would have treated approximately 20 severe burn cases per year. Subsequent to the introduction of flammability standards, they are treating on average only one severe burn case per year. Consequently, some burn units stopped collecting trend data on the issue.

With regards to legislation and its effectiveness in preventing tap water burns, Erdmann, Feldman, Rivara, Heimbach, and Wall (1991) examined pre- and post-law burn admissions in Seattle, Washington, USA. The legislation required that new water heaters be pre-set at 49 degrees Celsius. The authors reported that five years after the enactment of the law, burn victim admissions dropped from 5.5 to 2.4 per year. The authors also indicated that the implementation of the law served to increase the number of homes with pre-set hot water heaters beyond what educational strategies alone could have achieved. Once again, this conclusion supports a guiding principle of injury control that combined prevention strategies are likely to have more of an effect on decreasing unintentional injuries than individual strategies.

4.5 Poisonings

Recognizing that children do not have the judgment to know that medications can be harmful and that house plants can be poisonous, it is not difficult to understand their vulnerability to poisonings. Canadian hospitalization data for 1989 to 1990 for those less than one year of age indicate poisonings to be the second leading cause of injury-related hospitalizations. Among one to four-year-olds, 18% of all hospitalizations are accounted for by poisonings (CICH, 1994). Hu, Wesson, and Kenney (1993), in their analysis of home injuries to children in Toronto, also indicate poisonings to be most common among one to four-year-olds.

A recognized safety technology developed to prevent poisonings is child-resistant containers. Our legislative research therefore began with looking for information on product packaging which led us to examine the labelling of harmful products and pharmaceutical dispensing practices. Related findings are detailed in Section II, (12.1).

One of two American studies dealing with the effectiveness of legislation and child-resistant packaging is reported by Clarke and Walton (1979). They conducted a pre- and post-analysis of data, available through Poison Control Centers and the National Center for Health Statistics (NCHS), after safety closures were required with the passing of the Poison Prevention Packaging Act of 1970. They focused their study on the number of ingestions associated with baby and non-baby aspirin products. They estimate that safety packaging reduced ingestions of baby aspirin by 45 to 55%, and non-baby aspirin ingestions by 40 to 45%. The authors indicate that the introduction of limiting container size was also likely an influencing factor in reducing ingestion rates. The second of the two studies was reported by Walton (1982). Walton also investigated the effectiveness of the safety technology using a pre- and post-intervention analysis methodology. He examined ingestion rates associated with 15 regulated substances targeted for children less than five years of age. The study utilized data from the National Electronic Injury Surveillance System and the NCHS. As in the first study, a decline in ingestion rates was reported. Walton also estimated that 200,000 unintentional poisonings have been prevented over a five-year period in the USA.

An interesting study in terms of the safety technology itself, reported by Cudney and Hunter (1992), examined the issue of redesigning medicine packages, as child-resistant containers have proved to be difficult to open by older adults. This difficulty has created new risks, as older adults can request that child-resistant packaging not be used in filling their prescriptions. Anecdotal evidence is emerging in Canada which suggests that some poisonings are occurring in the homes of grandparents where medication bottles are being left open and within reach of visiting children. The objective of the Cudney and Hunter study was to look at the feasibility of improving the design to increase ease of accessibility to older adults while maintaining inaccessibility for children. The researchers looked at cognitive and physical skills as well as vision changes, and conducted testing of prototype child-resistant containers. Their evidence suggests that packaging should focus on cognitive rather than strength and manual dexterity differences between adults and children.

4.6 Falls

Exploring new territory and engaging in new activities comes naturally to children regardless of age. Unfortunately, falls are known to be the result of some of these explorations. Given that an estimated 30% of injuries in children and youth occur at their place of residence and approximately 20% on playgrounds, we focused our research attention on potential hazards associated with these environments (CICH, 1994). Recognizing that patterns for fall injuries are associated with age, a range of issues were explored. Infant mobility units (baby walkers), playground standards, building standards from the perspective of home design (e.g., stairways, surfaces, lighting) that may pose environmental risks, and legislation dealing with escalators were researched. These are detailed in Section II, (13.1 - 13.4).

Infant mobility units (baby walkers), as stated in the American Journal of Diseases of Children (Anonymous, 1991), *"are used by many parents because of the convenience they provide in keeping children occupied"* (p. 933). Unfortunately, according to the American Medical Association, baby walkers do not promote ambulation. Injuries associated with the use of baby walkers are often associated with a lack of parental attention, perhaps due to a false sense of security the product may promote. Falls have resulted with children in baby walkers tumbling over stair edges. In Canada, the manufacturing of baby walkers has been voluntarily abolished. This, however, does not protect the children of unsuspecting parents receiving or purchasing mobility units from outside of the country.

With regards to playground standards, Lesage, Robitaille, Dorval, and Beaulne (1993) indicate that *"falls accounted for 74% of all playground injuries"* (p. 4) in Montreal. As the authors point out, *"while playground equipment is designed to help the child's development, it can give rise to injuries"* (p.4). Playground standards are not legislated. Essentially, municipalities must interpret the Canadian Standards Association (CSA) standards and assume voluntary responsibility where interest and concern exists. As an outcome of the Study of the Conformity of Children's Playspaces and Equipment to Voluntary Canadian Standard CSA Z614-M90 (Lesage, Robitaille, Dorval, and Beulne) conducted in 1993, a tool has been developed to assist municipalities in implementing playground standards. Consumers of home playground equipment are encouraged to seek out manufactured materials which meet American Society for Testing and Materials (ASTM) standards.

Escalators are another source of emerging concern where, once again, anecdotal evidence suggests injuries are occurring. Injuries

have been associated with baby strollers being handled on escalators, children being caught within moving parts, and falls related to negotiating moving stairs. Although precise escalator requirements and national standards exist in Canada, escalator-related injuries continue to occur. Interesting to note is that these standards lack a "life span" limit for escalators.

Our literature search did not find any material reporting on the effectiveness of legislation related to these issues.

5.0 MOVING FORWARD

This research exercise provided an unusual opportunity to learn what exists in Canada regarding injury control legislation. It was interesting to discover how much is being done and to have some insight into the amount of effort being undertaken in this area. From the perspective of the researchers, however, finding and understanding the legislation and the legislative process requires time, patience and a willingness to travel a road full of twists and turns.

Injury control legislation appears to reside in many interesting jurisdictions. Despite the advantage of the researcher's basic legal research background, the identification of relevant legislation still proved challenging. As there is no comprehensive publication outlining current published legislation, the research process was dependent upon the systematic scanning of statutes as well as working with key informants who were versed in the legislation and its implications. Key informants not only helped identify and clarify information contained in the acts, they assisted in deciphering the information. The language of the law is simply not user-friendly. Anyone interested in injury control activities associated with legislation should not expect to find them reported and described in the legislation on a consistent basis.

Details on voluntary changes, which provide important information relative to emerging injury concerns, represent a valuable source of information. These changes, however, are not captured in the legislation. Voluntary changes precede the use of the legislative process in the development of public policy and therefore are not recorded in legislative publications. The term "voluntary change" does not necessarily mean change which occurs through quick and easy consensus in the system. Change, even when voluntary in nature, can require a significant amount of time and resources to achieve. Accessing information about voluntary changes is generally

dependent upon connecting with key informants. Unfortunately, without a network of contacts, this type of information becomes obscure within the system. This aspect of the research process reinforced the importance of building communication linkages among the disciplines involved in injury control. Without the benefit of communication linkages, informative perspectives regarding public policy and manufacturing are lost within a legislative maze.

Regulatory Impact Analysis Statements, described in Section II, (7.0), also provide a framework for information that can be used to understand how public policy can be influenced. These statements provide information on legislative strategies and provide insight as to the reasons for these strategies. It is interesting to note that information contained within Regulatory Impact Analysis Statements is based on a range of social, economic, political, legal and health variables. These have been identified within the governmental context as described by Doern and Phidd (1983). It would seem that those outside of government involved in injury control in Canada could further benefit from the systematic use of such frameworks.

Looking at international literature also proved to be very informative. As mentioned previously, relatively little was reported on the effectiveness of legislated interventions, especially in the Canadian context. Does this mean that we have relied exclusively on the research experience of others? Can we assume the same level of legislative efficacy in Canada as reported by researchers in other countries?

Although the literature was scarce, two themes were found in some studies. First, legislation with clear enforcement strategies is more likely to be effective than legislation without. Second, the effectiveness of legislated injury control strategies is increased when augmented by a combination of other strategies. These themes are consistent with the principles of injury control which emerged from knowledge breakthroughs in the field. It would seem that to date, they stand the test of time. How can we use lessons from the past to build toward further breakthroughs in injury control?

The scale of efficacy, developed as an outcome of Haddon's work on defining active and passive interventions, had an unintentional effect of setting people in the field off in different and sometimes isolated directions. As a result, one cannot help but wonder how much knowledge development associated with each type of intervention strategy has been inhibited. However, during the 1980s and 1990s, an appreciation has grown in the field for combining intervention strategies. This appreciation is a significant step on the

road to divesting the *"disagreement over the most effective solutions, or more precisely, the right blend of educational, legal and engineering interventions"* (Gielen, 1992, p. 204). To borrow the words of Wintemute (1992), *"the future holds important opportunities"* (p. 463) and we need to work and plan well for them. As indicated in the preface of this document, this project was intended to fill a niche in the spectrum of needs for knowledge in the field of injury control. As a result of this project, however, we identified significant gaps in the spectrum. It seems apparent that we need to:

- **know what injury control legislation exists in all provinces and territories;**
- **monitor legislation and its impact over time;**
- **develop knowledge about enforcement strategies and how they can be enhanced;**
- **record our legislative successes and failures if we are to understand how best to advocate and influence public policy;**
- **conduct systematic reviews of the literature to increase our knowledge about effective injury control strategies;**
- **examine whether we have a significant "desk drawer phenomenon" of unpublished efforts in Canada and why;**
- **establish viable mechanisms to support the dissemination of our research; and**
- **question whether we have an absence of standards in key areas of concern.**

Perhaps we can begin building toward breakthroughs in injury control by doing research that will help answer these fundamental questions:

- **How effective is our current legislation?**
- **What combination of intervention strategies is most effective?**
- **Do we know what educational and enforcement strategies will be most effective in sustaining compliance and high usage rates?**
- **Do we have the research base necessary to support the development of effective public policy?**

As Wintemute (1992) states, research *"serves as the substrate for informed public policy"* (p. 463). While the adoption of public policy helps to formalize a desired behavior and social norm (Sleet,

1987), it is also important not to lose sight of education which *"is important in influencing the development . . . and compliance"* with public policy (Towner, 1995, p. 56). Factors such as widespread enforcement and a strong motivation, moral or otherwise, to obey the law also affect compliance (Christoffel, 1989). These concepts help illustrate that injury control strategies are inextricably linked. As we move forward into a new millennium, our breakthroughs may be dependent upon our ability to combine intervention strategies and increase our knowledge about synergistic effects.

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Section II. Legislative Measures in Place to Prevent Unintentional Injuries in Children and Youth (0 to 19 years)

7.0 LEGAL TERMINOLOGY

There are eleven sovereign legislative bodies in Canada. One is the Parliament of Canada, and the others are the ten provincial legislatures. By the provisions of the Canadian Constitution Act, each is granted legislative authority to enact statutes, but the legislative competence of each is, however, specifically limited to certain classes of matters (Gall, 1983, p. 31).

These take the form of statutes or acts, and are known as 'primary' legislation. The territories of Canada also have primary legislation but the Canadian Constitution Act gives Parliamentary authority for these regions. The territories are subordinate to Parliament in the same way that municipalities are subordinate to provincial legislation. Territories have their own structure and legislation but it is ultimately subordinate to Parliament which is not the case with the provinces.

Subordinate legislation is legislation enacted by a person, body or tribunal, subordinate to a sovereign legislative body . . . in short, legislation passed by the sovereign legislative body enacts governing legislation, and pursuant to that governing legislation, authority is granted to a delegate or subordinate body to pass regulations, orders in council, by-laws, ordinances, rules, statutory instruments, and otherwise (Gall, 1983, p. 31).

For example, provincial legislation provides municipalities with the authority to enact by-laws in accordance with the limitations set out in the legislation.

This research project focused on three sources of legislation. These may be defined as follows:

- **Act** - A written law, formally passed by either the federal Parliament or a provincial legislature (Gibson & Murphy, 1984, p. 685).
- **Regulations** - Rules made under the authority of a statute by the department or ministry responsible for carrying out the statute. Although this legal process is frequently used, voluntary compliance is the preferred approach of government to the increased safety of products. In this way, manufacturers are generally supportive of the changes and no manufacturers gain economic advantages (Gibson & Murphy, 1984, p. 697).
- **By-laws** - Written laws formally passed by a municipality (Gibson & Murphy, 1984, p. 686).

Proposed acts and amendments to existing acts are introduced to Parliament and legislatures as bills which may be governmental or private in nature.

- **Bill** - Proposed legislation before Parliament or legislative assembly. When passed, it is known as an act (statute) (MacEllven, 1986, p. 393).
- **Private member's bill** - Legislation proposed by a person who is not a member of the cabinet [i.e. is a backbencher or member of the opposition party].

Legislation is dynamic and changes on a regular basis. For example, many provinces are currently passing, considering, proposing, or amending bicycle helmet legislation and will take action or choose not to act at any time during the sitting of their respective legislatures. To provide a list of current legislation would not be helpful as it may be changed by the time this document is published. As stated previously, the areas of authority of federal, provincial and territorial jurisdictions are fairly clearly laid out. (See Appendix C; Examples of Legislative Measures by Jurisdiction.) It is necessary, then, to review federal as well as provincial, territorial and municipal legislation. Each jurisdiction has statutes that have been passed and published in bound volumes called Revised Statutes. Regulations which include information about how the statutes, including standards and tests are carried out, are also published in bound volumes called Regulations.

Amendments to federal Statutes and regulations are made during parliamentary or legislative proceedings. A publication known as the Canada Gazette is used to publish proposed amendments to regulations and proposed regulations (found in Canada Gazette Part I), approved amendments and regulations (Canada Gazette Part II), and new and amended statutes (Canada Gazette Part III). Proposed amendments are published in order to provide the opportunity for the public or other interested parties to respond prior to changes being made. Canada Gazette Part I notices have been even more widely distributed since the passing of the General Agreement on Tariffs and Trade (GATT) and the North American Free Trade Agreement (NAFTA).

Proposed changes to regulations and approved regulations are accompanied by Regulatory Impact Analysis Statements. These include descriptions of proposed changes, analyses of benefit and cost, consultations undertaken in the process, and explanations of compliance and enforcement. Those studying the benefits and costs consider: a) the economic cost (to manufacturers, distributors, retailers and consumers with changes to design or packaging of products), b) the economic benefit (to manufacturers, distributors, retailers, and consumers and in the reduction of costs due to injuries), and c) the social benefits (e.g., decreased risk of injuries). The cost of recommended changes and the anticipated benefit to public safety must be weighed and compared before proposed amendments are considered for approval.

Legislative Measures in Place to Prevent Unintentional Injuries in Children and Youth

8.0 SUFFOCATION/ STRANGULATION

LEGISLATIVE STRATEGY

8.1 Household Product Safety

What legislation applies to the strategy?

Hazardous Products Act

Who is responsible?

Federal

- Health Canada

What is the purpose of the Act?

The purpose of this Act is to control the advertisement, sale, and importation of potentially hazardous products in Canada.

What does the Act cover?

According to the Hazardous Products Act (Canada) S.6(1)(b) *"any product designed for household, garden or personal use, for use in sports or recreational activities, as life-saving equipment or as a toy, plaything or equipment for use by children that the Governor in Council is satisfied is or is likely to be a danger to the health and safety of the public by reason of its design, construction or contents"* may be added to a Schedule of banned or controlled products.

The Act includes two Schedules. Schedule I is for consumer products and contains two parts. Products listed in Part I of the Schedule are products which cannot be advertised, sold, or imported into Canada while Part II products may be sold if they meet the specifications described under the Act. Any product may be added to these lists if it is determined that the product or substance is or is likely to be a danger to the health and safety of the public. The regulations under the Act cover the circumstances and conditions under which hazardous products may be advertised, sold, or imported into Canada, the powers and duties of inspectors and analysts, and the procedures to be used in conducting inquiries. Some products are banned completely while others are regulated. Household products,

such as plastic mini-blinds made with lead, may be banned (voluntarily by manufacturers or through the regulations), regulated, or used with specific recommendations for use. Health Canada determines if the potential risks relate to all users or to only a small group. In the case of the blinds, the risk is to small children, who may touch the blind and then put their hands in their mouths, and to unborn children whose mothers may be exposed to blinds. A recommendation to this group to remove blinds from their homes was made as manufacturers quickly replaced those made with lead with a product which was not made with lead. This voluntary action coupled with recommendations for use is used to reduce risks with household products. The terms or conditions required of regulated products are often communicated through health promotion activities. For example, Health Canada promotes this information to people planning to purchase such items as cribs and toys at garage sales.

How is the legislation enforced?

Health Canada employs inspectors who implement monitoring mechanisms which involve government inspections, as well as responding to feedback and complaints from consumers and the private sector. They work most closely, but not exclusively, with manufacturers and importers to prevent infractions of the Act from occurring.

How are changes recommended?

Health Canada responds to deaths and injuries associated with household products and to concerns raised by members of the public, agencies, and institutions. Many of these concerns are founded in product breakdown rather than inherent safety issues. When it is determined that the issues are based on the design of the product, recalls or modifications are required. Members of the industry are invited to voluntarily alter hazardous products or to remove them from the market. The process for determining voluntary action is variable and may take approximately one year. If voluntary action is not possible then a process may be followed to regulate the product. This includes completing a Regulatory Impact Analysis Statement* in which alternatives are identified through a consultation process with interested parties, completing a cost-benefit analysis, and writing

* For a sample of a Regulatory Impact Analysis Statement, see *Appendix B*.

the proposed regulations in appropriate legal terms. These changes are then published in the Canada Gazette Part II. Comments are also invited from key contacts as well as members of the General Agreement on Tariffs and Trade (GATT) and the North American Free Trade Agreement (NAFTA). Comments are invited for 75 days after which the proposal, if satisfactory, is approved by a special committee of Cabinet. When approved, the requirements are published in the Canada Gazette Part II.

What is being done now? (emerging concerns)

There is currently a strangulation prevention process to educate parents about keeping children's cribs away from windows with cords hanging from window coverings.

8.0 SUFFOCATION/ STRANGULATION

LEGISLATIVE STRATEGY

8.2 Juvenile Product Safety

What legislation applies to the strategy?

Hazardous Products Act

Who is responsible?

Federal

- Health Canada

What is the purpose of the Act?

The purpose of this Act is to control the advertisement, sale, and importation of potentially hazardous products (including toys) in Canada.

What does the Act cover?

See Suffocation/Strangulation: Household Product Safety, page 32.

How is the legislation enforced?

See Suffocation/Strangulation: Household Product Safety, page 32.

How are changes recommended?

See Suffocation/Strangulation: Household Product Safety, page 32.

What is being done now? (emerging concerns)

Examples of amendments currently being prepared are those affecting strollers, cribs and cradles, and crib toys.

9.0 MOTOR VEHICLE COLLISIONS

LEGISLATIVE STRATEGY

9.1 General Legislative Strategies

What legislation applies to the strategy?

Motor Vehicle Safety Act
Highway Traffic or Motor Vehicle Acts

Who is responsible?

Federal

- Transport Canada

Provincial/Territorial

- Ministries of Transportation/Motor Vehicles

What is the purpose of the Act?

The Motor Vehicle Safety Act (Federal) deals with the use of national safety marks on motor vehicles (including tires) and provides safety standards for certain motor vehicles imported into Canada, or sent or conveyed from one province to another.

Provincial/Territorial Highway Traffic Acts set out the laws with respect to the planning, development, and traffic control of all highways. Motor Vehicle Acts set out the law with respect to the condition and use of motor vehicles on the roads and the general rules of the road.

What does the Act cover?

The Federal Motor Vehicle Safety Act focuses on the manufactured safety quality of motor vehicles and tires that are sold in Canada. The use of "safety marks" indicate to consumers that legislated standards have been met. There are also procedures for manufacturers to notify owners of motor vehicles of potential vehicle and/or tire defects which may impact on the safety of the vehicle.

The regulations of this Act provide more specific requirements with regards to safety standards or refer to the Canadian Motor Vehicle Safety Standard (CMVSS) which must be met in order to receive a "safety mark". The design of "built-in booster cushions", "built-in child restraint systems" and "built-in dual-purpose restraint systems" are included in these regulations. The requirements for the use of child seat restraints and booster cushions for infants and children of prescribed weights are included in provincial and territorial legislation

(The Highway Traffic or Motor Vehicle Acts) and refer to the Motor Vehicle Safety Act (Canada) for the identification of prescribed systems and installation.

Provincial/territorial acts also prescribe such motor vehicle practices as licensing procedures, age of operators, helmet requirements, and prohibited areas of operation. Some provinces also include sections in this Act with respect to the operation of bicycles. Alberta, for example, identifies bicycles as motor vehicles and defines safe operation of the vehicle. For example, both hands and feet must be on the bicycle at all times and the number of passengers cannot exceed the capacity of the vehicle.

How is the legislation enforced?

Federal inspectors may inspect motor vehicles and motor vehicle tires to ensure that they meet the CMVSS. They may also undertake research and testing of motor vehicle and tire products in accordance with tests and procedures laid out in the regulations.

Law enforcement officers enforce the laws of Highway Traffic and Motor Vehicle Acts. Under conditions that do not violate the Charter of Rights and Freedoms, law enforcement agencies, such as the Royal Canadian Mounted Police (RCMP) and provincial and municipal police, may establish check stops for specific violations such as seat belt and child seat restraint usage.

How are changes recommended?

Recommendations may also be made by private citizens and agencies to Transport Canada with respect to changes to the regulations regarding the safety requirements of vehicles. Transport Canada, in turn, is a member of the Canadian Council of Motor Transport Administrators that meets annually to identify priorities for action.

A multi-step process is utilized through which potential safety related defects can be identified and acted upon. These include investigation and testing of component parts by Transport Canada staff as well as by manufacturers. If this process fails to achieve an appropriate resolution, a legal process may be used to ensure the safety standards of vehicle and tires.

As in other federal jurisdictions, the concern for public safety is implicit in recommendations for defect notification as well as in amendments to regulations.

Changes to provincial acts may be recommended through provincial government departments to the Ministers in charge of the

area. Ministers responsible for this area may amend regulations through the use of Orders in Council.

As in most provinces, the cost of recommended changes and the anticipated benefit to public safety must be weighed and compared before proposed amendments to provincial and territorial acts and regulations are considered for implementation.

What is being done now? (emerging concerns)

Regulations have been amended to include standards with respect to built-in booster cushions, built-in child restraint systems, and built-in dual-purpose restraint systems. This addresses the inclusion of these devices in newer models of motor vehicles (e.g., mini vans).

It should be noted that recent motor vehicle standards have also helped to reduce fatalities and injuries as the result of motor vehicle collisions. These standards include requirements for daytime running lights and rear window brake lights. The latter design change raises brake lights to eye level thereby decreasing the brake time required in regular and high risk driving situations. This in turn has helped to reduce rear end collisions.

In Lethbridge, AB, the growing popularity of inline skates and the increasing number of serious injuries have caused the law enforcement agency to take action against violators of the Highway Traffic Act and its regulations related to this activity. These operators are defined as pedestrians but frequently operate as if they are motor vehicles and are being injured through collisions with motor vehicles.

9.0 MOTOR VEHICLE COLLISIONS

LEGISLATIVE STRATEGY

9.2 Road Safety

What legislation applies to the strategy?

Highway Traffic or Motor Vehicle Acts
Municipal By-laws

Who is responsible?

Provincial/Territorial

- Ministry of Transportation
- Transportation Departments

Municipal

- Law Enforcement Agencies

What is the purpose of the Act?

Provincial and territorial Highway Traffic Acts set out the laws with respect to the planning, development, and traffic control of all highways. Motor Vehicle Acts set out the law with respect to the condition and use of motor vehicles on the roads and the general rules of the road. Municipalities are then given the authority to add controls to areas within the boundaries of individual municipalities.

What does the Act cover?

These Acts cover the construction of highways and the areas adjacent to them as well as speed limits, school zones, school bus turning and other laws intended to protect children and youth from injury. The use of seat belts and child restraint systems and the prohibited use of radar detectors and alcohol may also be found in these pieces of legislation. Provinces and territories use different ways of describing legislative requirements. In Saskatchewan, for example, the Act does not specifically require the use of child restraint systems, but instead requires that all passengers be restrained in the vehicle in accordance with manufacturers' instructions. In order to comply with the legislative requirement that all passengers be restrained, adults must ensure that infants and children are restrained using appropriate devices (i.e., child restraint systems).

It has been reported that laws governing passengers in the open area of trucks, such as in the back, is inconsistent among provinces

and territories. Provincial and territorial legislation varies from the prohibition of this practice (if the term "riding on the outside of vehicles" is interpreted to include the open back of trucks), to the transference of authority for this issue to municipalities for inclusion in by-laws, to the complete absence of any reference to this mode of transportation.

How is the legislation enforced?

Royal Canadian Mounted Police (RCMP), provincial, territorial, or municipal law enforcement officers enforce the laws respecting the use of public provincial or territorial roadways. These officers may also utilize check stops and technological means of identifying offenders of the Acts, provided it is carried out in accordance with the Charter of Rights and Freedoms. It has been suggested by some law enforcement officers that specific legislation would assist in action to reduce the practice of carrying passengers in the open back of vehicles.

How are changes recommended?

For the most part, municipalities have control over decisions to make changes to municipal road safety. They may use whatever process they choose to arrive at recommended changes but must justify these to Highway Traffic Boards in order to obtain provincial approval. The Traffic Injury Research Foundation (TIRF) carries out research in areas that are of interest to sponsoring agencies such as government departments and insurance companies. Key contacts noted these research findings to be informative when making decisions with respect to legislative changes.

What is being done now? (emerging concerns)

Road safety programs continue to focus on anti-drinking and driving campaigns that include public awareness, legislation enforcement and education strategies. Manitoba, for example, has, among other initiatives, reduced the allowable limit of blood alcohol in drivers to 0.05 BAC.

9.0 MOTOR VEHICLE COLLISIONS

LEGISLATIVE STRATEGY

9.3 Vehicle Inspections

What legislation applies to the strategy?

Highway Traffic or Motor Vehicle Acts

Who is responsible?

Provincial/Territorial

- Ministries of Transportation/Motor Vehicles

What is the purpose of the Act?

The purpose of this portion of the Acts and regulations is to ensure the safety of vehicles operating on public highways. See Motor Vehicle Collisions: General Legislative Strategies, page 36.

What does the Act cover?

These Acts and regulations, or portion thereof, require people wishing to operate passenger vehicles, recreational trailers and commercial trucks to first pass vehicle inspections (the requirements for different classes of vehicles may vary from province to province). Proof of inspections are required in order to transfer the ownership of vehicles through private transactions and in some provinces such as Ontario, pre-delivery inspections of new vehicles must be carried out and documented. There are some exceptions, such as in New Brunswick, where private sales of vehicles under $1000 do not require inspections.

How is the legislation enforced?

Law enforcement officers check for current inspection stickers on the licence plates of vehicles. They are also given the authority to stop vehicles with stickers which appear to have violations of inspection requirements. In some provinces, such as Prince Edward Island and Nova Scotia, check stops may be used to randomly inspect vehicles or Mobile Inspection Vehicles may be available for the implementation of thorough roadside inspections.

Private sector mechanics are licensed to provide inspection services and monitored by motor vehicle branches. Provincial inspectors are used to monitor the work of these mechanics and to respond to concerns raised by related agencies or the public. Penalties, including the suspension of licences, are in place for situations where inspection procedures are not being followed.

Vehicles are required to undergo annual inspections which include safety inspections of windshields, brakes, exhaust systems, safety belts, tires and wheels. Inspection of child restraint systems varies among provinces. In some cases, they are inspected if they are installed in the vehicle during inspection, while in others, they are included only in roadside vehicle inspections. Other provinces that do not require inspections of all vehicles, such as Alberta, often require annual inspections of commercial vehicles. Alberta also requires that any vehicle that has been "written-off" must be inspected and certified before it can be registered by operators.

How are changes recommended?

Changes may be recommended through provincial government departments to the Ministers in charge of the area. Ministers responsible for this area may amend regulations through the use of Orders in Council.

What is being done now? (emerging concerns)

Concerns were raised about the future and quality of the vehicle inspection process in light of provincial restructuring and prioritization. Some provinces, such as Newfoundland, have already revoked inspections programs. The program applied only to those vehicles that were four years old and older, which meant that owners had been maintaining them for four years and had demonstrated the ability to do this without legislation. Inspections continue to be required for commercial vehicles, vehicles used for public transportation (e.g., school buses), and when vehicle ownership is transferred. Provinces and territories that do not have legislation requiring vehicle inspections do not appear to share this level of concern.

9.0 MOTOR VEHICLE COLLISIONS

LEGISLATIVE STRATEGY

9.4 Graduated Licensing

What legislation applies to the strategy?

Highway Traffic or Motor Vehicle Acts

Who is responsible?

Provincial/Territorial

- Ministries of Transportation/Motor Vehiclesl

What is the purpose of the Act?

A descriptive example from the amended Highway Traffic Act of Ontario states that "the purpose of this part is to protect the public by ensuring that driving privileges are granted to novice and probationary drivers only after they acquire experience and develop or improve safe driving skills in controlled conditions."

What does the Act cover?

The elements found in the legislation, commonly referred to as "graduated licensing", are those that are felt to be actions which most often affect the safe driving practices of novice drivers. Each province and territory has chosen to create its own set of limitations and may or may not have passed legislation in this area. There are, however, elements that are consistent among the Acts that have been passed or which are being considered for passage. These include such things as level of alcohol allowed in the blood while driving (some provinces have zero tolerance levels while others have accepted levels that are less than 0.08 BAC), prohibited driving times (usually 12 a.m. to 5 a.m.), passenger allowances (zero to a number which reflects the number of seatbelts in the vehicle), and duration of probationary periods. These Acts, in some cases, provide credit to novice drivers who have completed accredited driver instruction courses.

Alberta, for example, recently approved graduated licensing which is expected to come into effect in 1997. According to this Act, all new drivers, whether teenagers or adults, will earn full driving privileges after a one-year learner's period and a two-year probation period. A midnight to 5:00 a.m. curfew will apply to learners. There will also be zero alcohol tolerance for learner and probationary drivers, and restrictions on the number of passengers to the number of

seatbelts. In this same Act, drivers with "Learners" permits for motorcycles cannot carry passengers during the probationary period. In Ontario, law enforcement officers have been given greater authority in testing new drivers for blood alcohol. It is stated in Ontario legislation that:

> *if a sample of breath provided registers "Pass", but the officer reasonably suspects that the novice driver has alcohol in his or her body, the law enforcement officer may, for the purposes of determining compliance with the regulations respecting novice drivers, demand that the novice driver provide within a reasonable time such sample of breath as, in the opinion of the police officer, is necessary to enable a proper analysis of the breath to be made by means of a provincially approved screening device. (Highway Traffic Act, R.S.O., 1993).*

How is the legislation enforced?

Law enforcement officers are given the responsibility for enforcing motor vehicle registration. In Quebec, the proposed legislation based on the graduated licensing model proposes that novice drivers would be required to have "new driver" stickers on their vehicles to make it easier for law enforcement officers to spot and monitor those drivers who fall under the legislation.

How are changes recommended?

The provinces and territories have used different approaches to recommending what graduated licensing acts would encompass. Some have established committees to review and recommend changes while in others, such as Alberta, individuals have proposed changes through private members' bills. Others, such as Newfoundland, have reviewed this approach to driver safety but have chosen not to implement such a program at this time.

British Columbia, as an example of an alternative approach, is recommending the passage of a driver improvement program rather than graduated licensing. This choice is based on the concerns in that province that there are few alternate means of transportation outside of major urban areas and that young people, especially in rural areas, go to work at young ages and could find job opportunities constrained by limited driving hours and limitations on passengers.

What is being done now? (emerging concerns)

This topic is itself an emerging issue. Arguments being used against graduated licensing are based on the perception that the approach is negative and punishes rather than motivates new drivers to learn more and better driving practices. As well, critics feel that it creates unnecessary marketing opportunities associated with the additional requirements of getting a driver's licence.

9.0 MOTOR VEHICLE COLLISIONS

LEGISLATIVE STRATEGY

9.5 Driving Instruction

What legislation applies to the strategy?

Highway Traffic or Motor Vehicle Acts

Who is responsible?

Provincial/Territorial

- Ministries of Transportation/Motor Vehicles

What is the purpose of the Act?

As described by provincial and territorial representatives, the inclusion of driving instruction in these Acts is intended to ensure that new drivers have a basic level of knowledge and experience when they obtain a driver's licence.

What does the Act cover?

Prince Edward Island and Quebec are reportedly the only provinces with mandatory driver training for those wishing to obtain a driver's licence. In Prince Edward Island, for example, new drivers may take a course, write exams, and take a road test from one of the eight existing training schools or from the government Department of Highways.

The Acts in most provinces and territories do not require driver training but provide incentives for taking driver training courses in other ways. In Nova Scotia driving instruction may be used to reduce driver penalty records by up to four points. Another example may be found in Alberta where there are insurance discounts for those taking such courses. In most jurisdictions that have passed or have considered graduated licensing programs, driver training has been an integral part of the process for achieving an unrestricted driver's licence.

How is the legislation enforced?

Some provinces and territories have privatized the driver instruction industry and must restructure the way in which the legislation is enforced and how course content is monitored. Prince Edward Island has already undergone this transition. In Nova Scotia, as an alternative example, a three-person safety team will be established in 1996 to monitor courses and to develop safe driving programs.

How are changes recommended?

Provinces and territories plan for changes to these structures in various ways. One approach has been to form committees that include representatives from the industry and road safety professionals. These committees then identify a process to make recommendations with respect to changes to regulations.

What is being done now? (emerging concerns)

There are two issues emerging in this area: 1) the tremendous variance among provinces and territories and within provincial and territorial programs with respect to the hours and content of instruction, and 2) the passage of graduated licensing legislation that now requires driver training.

Most of the proposed or adopted legislation related to graduated licensing includes incentives for, or the requirement of, driver training courses. Some provinces and territories are privatizing the driver training portion of what has traditionally been a ministry activity and the approaches being used by the different provinces and territories vary greatly. Graduated licensing programs require driver training, yet provinces and territories do not directly provide the service. Therefore, a means of control for quality and content must be developed to ensure that driver training is available to new drivers. For example, Nova Scotia requires completion of approved driver training courses in order to graduate from the system and Ontario reduces the duration of the first year (to eight months) of the graduated licensing program for those completing approved programs. Both Nova Scotia and Ontario are addressing these concerns by creating systems, such as safety teams, to monitor the industry.

9.0 MOTOR VEHICLE COLLISIONS

LEGISLATIVE STRATEGY

9.6 Off-Road Safety

What legislation applies to the strategy?

Off-Highway Vehicle Acts

Who is responsible?

Provincial/Territorial

- Ministries of Transportation/Motor Vehicles

What is the purpose of the Act?

Off-Highway Vehicle Acts are intended to control the use of off-highway vehicles when they are on Crown or other property.

What does the Act cover?

Off-Highway Vehicle Acts include identified vehicles such as snowmobiles, dune buggies, and all-terrain vehicles (ATV's). These Acts generally include required use of helmets, parental or guardian responsibility for the operation by minors, and driver age restrictions.

How is the legislation enforced?

Law enforcement officers (RCMP, provincial and municipal police) have the authority to enforce off-highway vehicle legislation. It has been suggested that the enforcement of "off-road legislation" is enhanced when law enforcement officers understand the operating rules of the vehicles. For example, some law enforcement officers with the Ontario Provincial Police, Manitoba RCMP, and the New Brunswick RCMP are also instructors of off-road vehicle operations and, therefore (it has been argued), have a better ability to enforce the law in this area. Some jurisdictions offer people who contravene the Act the option of paying a fine or taking a course in the safe operation of these vehicles.

How are changes recommended?

Ministers of Transportation may make changes to regulations through an "Order in Council". Ministers complete a regulatory impact process similar to that required in recommending change to federal regulations. Changes to the Act itself go through the regular legislative process.

What is being done now? (emerging concerns)

It is estimated that three-wheeled ATV's will be out of use in ten to 12 years due to the fact that they are no longer being manufactured and the vehicles currently in use will have reached the end of their estimated life span. There are anecdotal reports that four-wheel ATV's are safe at low speed (walking speed) but can be more dangerous than three-wheelers at high speed.

Recommendations have been made by private citizens to Transport Canada that a brake light on ATV's be required. Some, but not all, manufacturers have already responded to these suggestions.

Some provinces and territories have legislation in place or are proposing legislation that is intended to restrict the operation of off-road vehicles. It has not always been successful. For example, in Quebec, recommendations presented in a document were not adopted into the legislation. Saskatchewan, on the other hand, has legislation in place which allows people to ride off-road vehicles along the side of highways provided they have had an approved course in vehicle operation. All operators between the ages of 12 and 16 must be supervised by someone above the age of 16. Exceptions are made for those riding ATV's who have taken an approved operator's course. There are no exceptions, however, to the requirement of supervision in the case of snowmobile operation. In Newfoundland, legislation has been passed requiring operators to be at least 14 years of age.

9.0 MOTOR VEHICLE COLLISIONS

LEGISLATIVE STRATEGY

9.7 Bicycle Helmet Laws

What legislation applies to the strategy?

Highway Traffic or Motor Vehicle Acts

Who is responsible?

Provincial/Territorial

- Ministries of Transportation

What is the purpose of the Act?

As described in the amending statement of the Highway Traffic Act for Ontario, the purpose of the Act is to reduce injuries suffered by cyclists in Ontario by requiring them to wear helmets.

What does the Act cover?

Bicycle helmet legislation generally states that cyclists must wear helmets and that chin straps must be securely fastened under the chin. These also require parents and guardians to ensure that those under their care wear helmets. Regulations prescribe the standards and specifications of helmets, provide for the identification and marking of helmets, and identify any exceptions to this law.

How is the legislation enforced?

Current legislation varies widely among the provinces and territories. In some, only children riding in bicycle seats are required to wear helmets while in others, all bicycle users are required to wear helmets. Law enforcement officers enforce the Highway Traffic Act. Some provinces, such as British Columbia, have not yet begun to enforce the legislation although it has been passed. Others, such as Ontario, have amended the legislation to apply only to those under the age of 18 years. It has been suggested that this will be challenging to enforce because it will be difficult to determine the age of the child and because parents, as potential role models, are exempt.

How are changes recommended?

Provinces and territories with bicycle helmet legislation in place and those proposing such legislation have used different arguments to achieve the passage of these laws.

The acceptance of legislation often depends on broad-based support, lobbying and public acceptance of the intervention. The passage of helmet legislation in British Columbia, for example, was attributed to the diversity of organizations lobbying for it and the desire of the Minister to pursue it as a part of the mandate of that Ministry to improve traffic safety.

In British Columbia, a rationale utilized to promote bicycle helmet legislation is that everyone pays into the medical system and has access to it, therefore, everyone has a responsibility to reduce the costs to the system. The legislation in British Columbia has been passed but will not be in force until the fall of 1996. Other provinces, including New Brunswick, have bicycle helmet legislation in place and are in the process of implemention and evaluation.

The legislation in Ontario which was originally passed stated that *"No person shall ride on or operate a bicycle on a highway unless the person is wearing a bicycle helmet..."*. With a change in government, this has been changed to apply only to those under the age of 18 years.

What is being done now? (emerging concerns)

The use of bicycle helmet legislation continues to be debated in Canada. Issues concerning exemptions to the use of helmets and difficulties with enforcement are emerging concerns.

9.0 MOTOR VEHICLE COLLISIONS

LEGISLATIVE STRATEGY

9.8 Bicycle Design/Safety Standards

What legislation applies to the strategy?

Highway Traffic or Motor Vehicle Acts

Who is responsible?

Provincial/Territorial

- Ministries of Transportation

What is the purpose of the Act?

A general description of this legislation is to control the use and quality of vehicles on highways. See Motor Vehicle Collisions: General Legislative Strategies, page 36.

What does the Act cover?

Provincial and territorial requirements with respect to safety standards for bicycles vary greatly. Some provinces and territories provide law enforcement officers with the authority to prevent unsafe vehicles from being ridden on public highways (e.g., Quebec). Some provinces, including Nova Scotia, require the use of bicycle lights and reflectors when traveling on highways. The Yukon, as another example, states that operators may be requested to submit bicycles for examination to ensure that they are fit and safe to be ridden. Alberta lists the safety equipment required for the operation of bicycles, such as horns and lights, and provides law enforcement officers with the authority to perform roadside tests to ensure that the brake mechanisms are adequate for safe usage.

How is the legislation enforced?

Enforcement of these Acts in most provinces and territories is carried out by law enforcement officers. There are, however, no actual standards for bicycles. The CSA had standards at one time but this was discontinued due to the low demand for such information.

How are changes recommended?

It would appear that the use of design standards is based on public demand. At present, sources such as the popular publication,

Consumer Reports, are the primary information sources for consumers. Product concerns are addressed when raised but if there does not appear to be consumer concern then the status quo is accepted.

What is being done now? (emerging concerns)

Consumer Reports continues to publish results of testing bicycles based on criteria such as brake response. They make information with respect to criteria available to manufacturers and publish results in their reports.

10.0 DROWNING

LEGISLATIVE STRATEGY

10.1 Barrier Fencing

What legislation applies to the strategy?

Building Standards Acts
Municipal By-laws

Who is responsible?

Provincial/Territorial

- Ministries of Labour

Municipal

- Departments of Planning and Development

What is the purpose of the Act?

Building Standards Acts establish the fact that there will be building codes for regulation of building construction in each governing province or territory. The building code is generally a separate document from the Building Standards Act. Each province or territory either adopts the National Building Code of Canada by referring directly to it (e.g., Yukon) or adapts it into an Act based on the Building Code of Canada (e.g., Alberta). The Building Standards Acts are then enforced through municipal by-laws.

What does the Act cover?

Building Standards Acts generally provide the basic requirements in building construction to ensure that buildings are healthy, safe and accessible. However, it does not deal with barrier fencing around swimming pools and barrier fencing is not generally regulated by provincial and territorial building codes. Many municipalities have passed by-laws which refer to barrier fencing requirements and standards.

How is the ILegislation enforced?

Building codes are enforced by municipalities through building inspectors. Building plans must be approved and inspectors sign off at the end of construction that the building meets all the applicable codes. Municipal inspectors do not generally have the authority to reinspect homes for any modifications made following construction. Municipalities also determine the requirements for pool

and hot tub safety. This varies greatly among communities as does the enforcement of existing by-laws. Municipalities, however, can provide authority to inspectors to inspect suspected hazards to the public and request they be corrected, but this is generally viewed as an extreme course of action.

How are changes recommended?

The National Building Code of Canada is a model code which exists to encourage uniformity across the country. It provides a higher level of technical defensibility of requirements due to the resources that the National Research Council can make available to the committees contributing to the development of the Code. It is published every five years to keep up with changing technology and societal needs. Changes are recommended by members of the public with concerns regarding safety issues to volunteer standing committees comprising appointed individuals from various segments of the construction industry. Recommendations may be made to these committees which then review them and prepare suggested changes to the Code. These recommendations are then distributed for public review and implemented unless reasons are identified in the public review that sufficiently oppose the recommendations for or methods of change.

Provincial and territorial governments determine to what extent the changes to the National Building Code of Canada will be included in their building standards. In Alberta, for example, changes to the provincial building code follow changes to the National Building Code of Canada by about one year. A general announcement is made to invite public comment with respect to changes recommended, and members of the public can provide feedback. A provincially organized Safety Codes Council then reviews the recommendations provided by this process and decides which changes will be included in the new code. The Safety Codes Council of Alberta is made up of volunteers from the industry resembling the approach of the Canadian Commission on Building and Fire Codes of the National Research Council. Municipalities control the process by which changes are made to by-laws. They do so through votes among council members, and changes may be made when a majority vote is received.

What is being done now? (emerging concerns)

Not all major cities or municipalities have by-laws, and existing by-laws vary greatly. The lack of strong enforcement strategies is

largely thought to be due to an absence of "pool safety standards". A Canadian Red Cross Society report on drowning among toddlers recommends the development, implementation, and enforcement of municipal by-laws which clearly identify standards for pool safety. In this report, it is suggested that standards include such things as self-latching or self-closing gates and child resistant doors (the latter is for homes that open directly into the pool area), complete enclosure of pools, minimum height restrictions on fences and gates, and cardio-pulmonary resuscitation (CPR) training for all pool purchasers and owners (The Canadian Red Cross Society, 1994).

A model code for swimming pools that is separate from the National Building Code of Canada is being considered in order to encourage uniformity in swimming pool safety. It would not be part of the National Building Code of Canada because provincial and territorial ministries governing swimming pools are not always the same ones governing building standards. A separate code for swimming pools could be adapted by the appropriate departments.

10.0 DROWNING

LEGISLATIVE STRATEGY

10.2 Boating Practices/Regulations

What legislation applies to the strategy?

Canada Shipping Act
Criminal Code of Canada

Who is responsible?

Federal

- Department of Fisheries and Oceans
- Transport Canada
- Justice Canada

What is the purpose of the Act?

The Canada Shipping Act is intended to enable legislative bodies to make regulations that ensure the safety of navigation and shipping in Canadian waterways. These define the construction, operation, and navigation in Canadian waterways and the certification of operators.

The Criminal Code of Canada is intended to identify and control activities that may cause injury or death to citizens. In the case of boating safety, it identifies the conditions under which the operation of boats may be deemed to be criminal actions.

What do the Acts cover?

The major focus of the Canada Shipping Act and its regulations is the safety of commercial vessels and the utilization of safety equipment on ships. Three regulations relate specifically to requirements intended to reduce injuries among recreational boaters. The Boating Restriction Regulation controls the operation of small boats including commercial whitewater rafting operations. The Small Vessel Regulation identifies vessel requirements with respect to the availability and use of lifejackets and personal flotation devices (PFDs). It also establishes regulations for licensing, equipment, construction, small passenger vessel equipment, commercial vessels under 15 gross tons, protection against fire, and powers of enforcement. The Collision Regulation identifies the rules of operation, many of which are in keeping with the international

conventions of use. Such things as signaling practices and use of navigation lights are included here.

The Criminal Code of Canada addresses the safe usage of water vessels in various sections. Water vessels have the same requirements as motor vehicles and aircraft with respect to dangerous operation causing bodily harm or death, operation of a vessel while under the influence of alcohol, and failure to stop at the scene of an accident. In addition, there are restrictions with respect to towing of objects in that it prohibits use in a dangerous manner, that they must keep watching those being towed and may not tow from one hour after sunset to sunrise, or they will be guilty of an offence.

How is the legislation enforced?

Responsibility for the enforcement of this Act and its regulations are divided between the Canadian Coast Guard Office of Boating Safety and Transport Canada. The Office of Boating Safety enforces regulations that affect recreational boating matters. Transport Canada is the regulatory authority for commercial vessels and small boats used by utility companies or contractors working on water. It requires the provision of lifejackets on these vessels and determines the standard quality of lifejackets that are acceptable for use.

Provincial and territorial enforcement of this legislation is carried out by the Royal Canadian Mounted Police (RCMP), and provincial, territorial and municipal police in some cases. The enforcement of the Criminal Code of Canada as it applies to water vessels is left to the RCMP or other provincial, territorial or municipal authorities, for example the Ontario Provincial Police in Ontario.

How are changes recommended?

Many proposals for restrictions are initiated by local cottage or property owner committees or municipal administrations and forwarded to the designated provincial authority for transmission to the Canadian Coast Guard to be enacted in the Boating Restriction Regulations. In addition, recommendations for change may be submitted to the Canadian Marine Advisory Council (CMAC). The CMAC may then recommend changes which are prepared by the appropriate department and published in Part I of the Canada Gazette and the additional consultation resulting from this process is undertaken. When approved, the requirements are published in Part II of the Canada Gazette.

What is being done now? (emerging concerns)

Research has indicated that although lifejackets designed for children are generally very effective they could be improved for very small children (i.e., those under 80 cm in height). Very small children have different fat distribution and centers of gravity from larger children and adults. Transport Canada distinguishes between personal flotation devices (PFDs) which are mandatory on recreational vehicles but are considered to be a less effective flotation aid and lifejackets which are required on larger vessels and provide superior flotation support. The research is seeking to validate a simulator that can accurately test the design of lifejackets. To address these issues, Transport Canada (in cooperation with the U.S. administration) has designed a Sea Water Instrument Mannequin (SWIM) as a testing module. This device will allow Transport Canada to predict how lifejackets will respond under different conditions and to make changes to provide optimal performance among users. Buoyancy is one area of concern but lifejackets should also provide protection from other environmental factors. For example, swells and water sprays may cause nausea and/or fears among people who are stranded in the water.

Transport Canada has also identified concerns with respect to physical injuries experienced by boaters. These include head injuries, mutilation, and burns from collisions. It is believed that some of these injuries result from problems in the construction of vessels but most result from operator error.

11.0 BURNS

LEGISLATIVE STRATEGY

11.1 Flammability Standards

What legislation applies to the strategy?

Hazardous Products Act

Who is responsible?

Federal

- Health Canada

What is the purpose of the Act?

See Suffocation/Strangulation: Household Product Safety, page 32.

What does the Act cover?

According to the Hazardous Products Act (Canada) S.6(1)(a) *"any product or substance that is or contains a poisonous, toxic, flammable, explosive or corrosive product or substance or other product or substance of a similar nature that the Governor in Council is satisfied is or is likely to be a danger to the health or safety of the public"* may be added to a Schedule of banned or controlled products. These include household products, toys, children's sleepwear, and any other flammable item.

How is the legislation enforced?

Health Canada Product Safety inspectors are located throughout the country and work with manufacturers and importers to ensure that the products meet regulation requirements. Inspectors also respond to consumer complaints by presenting the issue to manufacturers or importers of the products.

How are changes recommended?

See Suffocation/Strangulation: Household Product Safety, page 32.

What is being done now? (emerging concerns)

Recent regulation amendments have required that lighters be child-resistant.

11.0 BURNS

LEGISLATIVE STRATEGY

11.2 Building Standards

What legislation applies to the strategy?

Building Standards Act
Municipal By-laws

Who is responsible?

Provincial/Territorial

- Ministries of Labour

Municipal

- Departments of Planning and Development

What is the purpose of the Acts?

See Drowning: Barrier Fencing, page 54.

What do the Acts cover?

There are two approaches to this injury type within the National Building Code of Canada. The first is reducing the number and severity of burns experienced in or around homes. To achieve this, the National Building Code of Canada includes such requirements as limitation of the water temperature to which heaters could run to 60°C and limitations to the temperature of exposed piping (70°C).

The second focus are requirements intended to reduce the chances of fire spread and to increase the ability of occupants to escape burning buildings. For example, deadbolts on exterior doors to be opened without the use of special tools, such as keys. Another example — bedroom windows must have minimum size requirements and provide occupants with the ability to open them without the use of special tools or knowledge.

How is the legislation enforced?

Municipalities enforce this legislation through municipal inspectors who approve all plans for new buildings and ensure that they have been built to the proper specifications. See Drowning: Barrier Fencing, page 54.

How are changes recommended?

See Drowning: Barrier Fencing, page 55.

What is being done now? (emerging concerns)

There are few emerging concerns with respect to risk of burns from the building standards perspective. Fire prevention departments share authority in this area and promote burn awareness in homes. There is currently more widespread support for sprinkler systems around private dwellings and mandatory installation in and around specific buildings. The critical analysis of mandatory sprinkler systems for private dwellings is ongoing. This solution is being analyzed from a cost-effectiveness perspective (i.e., questioning whether any cost is worth a life saved or if this strategy is too expensive for the number of lives saved).

LEGISLATIVE STRATEGY

11.0 BURNS

11.3 Explosives Control

What legislation applies to the strategy?

Explosives Act
Criminal Code

Who is responsible?

Federal

- Natural Resources Canada
- Justice Canada

What is the purpose of the Act?

The Federal Explosives Act and Regulations control the manufacture, testing, sale, storage, possession, importation, transportation by road and use of all types of explosives. These include fireworks, blasting explosives, ammunition and propellants. The Explosives Act allows for the Minister to direct an inquiry into any unintentional explosion of an explosive or when any injury has been caused by an explosive.

The Criminal Code controls the sale of ammunition and currently allows charges to be laid where there is personal injury or death and/or property damage resulting from the actions of criminals or criminally negligent use of explosives.

What does the Act cover?

The Federal Explosives Act includes regulation of the age limit for the purchase and use of explosives. It also provides guidelines for the safe use of family and display fireworks and includes a list of authorized explosives for sale and importation into Canada. The Act prohibits the use of firecrackers for public use except for special culturally-oriented occasions and prohibits the importation of products from other countries that do not meet Canadian standards for the safe manufacturing of explosives.

How is the legislation enforced?

The Federal Explosives Branch of Natural Resources Canada employs inspectors who work from either regional offices or headquarters in Ottawa. It is the inspectors' job to ensure that retail,

import and special occasion licences are in compliance with the Explosives Act and regulations and to investigate any complaints received regarding misuse of explosives. Inspectors also provide guidance regarding the use of explosives. At present, inspectors do not have law enforcement status and thus are commonly required to liaise with local police forces when charges are recommended.

How are changes recommended?

Natural Resources Canada responds to all complaints and concerns with respect to explosive products. When injuries are reported, the products associated with the injury are tested at the Canadian Explosives Research Laboratory to determine if the product is unsafe or if the injury appeared to have been caused by user error or misuse. When products are determined to be inherently unsafe (i.e., causes injuries due to the product rather than to human error), they are removed from the authorized list until the problem is corrected.

What is being done now? (emerging concerns)

Inspectors would like to be given law enforcement status in order to make their work more efficient. It has been suggested that law enforcement status would provide inspectors with the powers to protect and preserve the peace of the general public if and when law enforcement action is necessary.

To make the law easier to understand and more accessible, the Explosive Regulations are being redrafted using a plain language approach. It is believed that if the public is better informed, a higher degree of compliance should result and thereby reduce injury incidents.

LEGISLATIVE STRATEGY

11.0 BURNS

11.4 Burns and Poisonings

PRODUCT PACKAGING
LABELLING OF HARMFUL SUBSTANCES
CAUSTIC PRODUCTS AND PRODUCT COMBINATIONS

What legislation applies to the strategy?

Pest Control Products Act
Hazardous Products Act
Food and Drugs Act
National Trademark and True Labelling Act
Consumer Packaging and Labelling Act

Who is responsible?

Federal

- Agriculture and Agrifood Canada
- Health Canada
- Industry Canada

What is the purpose of the Acts?

The Pest Control Products Act regulates *"products used for the control of pests and the organic functions of plants and animals."* In comparison, the Hazardous Products Act is concerned with household products and the labelling associated with them. The Hazardous Products Act also controls the advertising and sale of harmful products for home use (see Suffocation/Strangulation: Household Product Safety, page 32). The Food and Drugs Act controls the advertising and sale of foods, drugs, and cosmetic products which have the potential for being harmful. The labelling acts describe the information which is required on product labels.

What does the Act cover?

The first three Acts include a list of products which are either not to be used in Canada or that are controlled items which must include various types of information for consumers. All five Acts focus on the labelling of these products as to what harm they may cause and the recommended treatment if harmful effects have been realized through the use or misuse of products.

How is the legislation enforced?

Federal inspectors work in each of these areas and focus their attention on the advertising, sale, and importation of products to ensure that they meet the standards identified in the Acts. One distinction among them is that the Hazardous Products Act focuses on the final product whereas the Food and Drug Act has authority over the manufacturing process. All of the Acts have very specific requirements with respect to labelling.

How are changes recommended?

Changes are generally based on recommendations but a committee was formed by the federal department of Consumer and Corporate Affairs (now part of Health Canada) in 1992 to carry out a consumer chemicals and container regulation review. The committee is made up of key informants and interested parties from industry and injury prevention agencies.

What is being done now? (emerging concerns)

Legislative changes have been considered that would standardize labels on all types of products (i.e., consumer, workplace, and transportation products). Research undertaken to determine the current level of recognition by consumers indicates that there is a higher level of recognition of symbols on consumer products than was anticipated. Therefore, legislators have chosen not to standardize all consumer, workplace and transportation product labels. Instead, they rely on improving the quality, size, readability and understandability of consumer labels and building on public recognition of symbols on consumer products. This is intended to provide the same measure of protection for the public as the Workplace Hazardous Materials Information System did for workers when using related products.

12.0 POISONINGS

LEGISLATIVE STRATEGY

12.1 Pharmaceutical Dispensing Practices

What legislation applies to the strategy?

Food and Drug Act

Pharmaceutical Profession Acts and Regulations

Who is responsible?

Federal

- Health Canada

Provincial/Territorial

- Ministries of Health

What is the purpose of the Act?

The Food and Drug Act is intended to control prescription and non-prescription drugs through the standardization of labels, packages, sales and advertising.

Examples of the provincial legislation may be found in Alberta and Nova Scotia where the purpose of the Acts is to give control of the profession to the professional regulatory body or society and to regulate the sale of drugs. Each province and territory has a similar Act and professional association or society.

What does the Act cover?

The Food and Drug Act, through its regulations, describes the features required to define a container as child resistant. The regulations state that child resistant packages must comply with one or more of three accepted standards: Canadian Standard Association standard, British Standard Specifications (now the European Standard), and/or the Federal Regulations of the United States.

The provincial Acts, through their regulations, are the same in both provinces mentioned above. They state that child-resistant packaging must be used for all prescription drugs with four exceptions. These include:

1. where the person presenting the prescription or the prescribing physician directs otherwise (these must be documented);
2. where in the professional judgment of the pharmacist it is advisable not to use child-resistant packaging;

3. where the physical form of the drug makes it unsuitable for child-resistant packaging (such as in the case of inhalers); and
4. where the pharmacist has not been able to obtain a supply of child-resistant packages.

How is the legislation enforced?

Different provinces and territories may utilize different methods for the review and control of pharmaceutical practices. The Pharmaceutical Association of Alberta and the Nova Scotia Pharmaceutical Society utilize processes by which complaints and concerns may be raised. Inspectors are also employed to visit pharmacies and randomly test prescriptions that have been filled to ensure that they are in compliance with the Act and regulations. Disciplinary action and fines are possible where practices have violated their regulations. Pharmacists may use any "child-resistant containers" (CRCs) that have obtained Canadian Standards Association (CSA) approval.

How are changes recommended?

Ministers responsible for this area (usually Ministers of Health) may make changes to regulations through the use of a process called an "Order in Council". The Pharmaceutical Association or Society must complete a Regulatory Impact Analysis Statement similar to that required in recommending change to federal regulations. The Regulatory Impact Analysis Statement should contain information regarding the issues surrounding the recommended changes to allow the Minister to make change with full knowledge of the reasoning and opposing arguments.

What is being done now? (emerging concerns)

Pharmacists are attempting to harmonize provincial and territorial drug licensing and dispensing requirements to reduce variance. There are also efforts being made to urge all health professionals who dispense drugs to include safety closure regulations in the Acts and regulations governing their professional activities. The danger of the availability and packaging of drug samples are also a concern as there are no requirements with respect to dispensing practices and there have been reports of children consuming the contents of drug sample packages.

There is also a need for child resistant containers to accommodate liquid dosage and many other potentially toxic over-the-counter medications. A presentation to the federal government to this effect is in the process of being made by the Canadian Association of Poison

Control Centres. This is based on a national survey of Canadian Poison Centres conducted by the Quebec Poison Control Centre (Sanfaçon and Bouchard, 1995).

13.0 FALLS

LEGISLATIVE STRATEGY

13.1 Playgrounds Standards

What legislation applies to the strategy?

Municipal By-laws

Who is responsible?

Municipal

- Departments of Planning and Development

What is the purpose of municipal by-laws/policies?

Municipal by-laws determine the services that the municipality will provide to members of the community. Policy, or some other form of governance, is then used to determine the manner in which these services will be carried out.

What do the municipal by-laws/policies cover?

These by-laws, or policies, where they exist, adopt one of the guidelines for planning and maintaining play spaces. For example, the Town of Coalhurst, Alberta, has adopted one of the national guidelines as policy for the play spaces in the municipality. The CSA guidelines include information about the placement of equipment, maintenance, and adequate base material and apply to public playground equipment and facilities, (for example, the swing sets and the grounds on which they are being used). The safety of private playground equipment, such as the swings in the back yards of homes, is guided by the American Society for Testing and Materials (ASTM). Toys used in or around private homes, such as infant pools, are included in the listings of the Hazardous Products Act. The Direction de la santé publique de Montréal Centre, formerly the Public Health Unit of the Montreal General Hospital, is one among other agencies which has published a guide that is intended to make it easier to interpret and implement these guidelines (Lesage, 1994).

How is the Legislation enforced?

For the enforcement of private playground equipment; see Suffocation/Strangulation: Household Product Safety, page 33.

Where municipal by-laws require the implementation of standards, it is up to the municipality to enforce them. In the Coalhurst example, this includes play space inspections conducted every three months by town staff. Many other communities have

participated in workshops intended to increase awareness and implementation of guidelines. There may be more municipalities utilizing these guidelines.

Although there is no federal legislation in place that requires manufacturers to adopt the standards set out in the current guidelines, most manufacturers have adopted elements of these standards in their production as a means of marketing safer equipment, thus potentially gaining an economic advantage.

How are changes recommended?

Municipalities control decisions to make changes to address the safety of play spaces for which they have responsibility. In making any recommended changes they are encouraged to adopt guidelines developed for this purpose.

What is being done now? (emerging concerns)

The topic of playground safety is an emerging concern. Some agencies are supporting the passage of legislation and regulations while others are forming coalitions to take community action. The CSA and other participants in the promotion of playground standards are currently working with partners in the United States to harmonize playground standards into North American standards. It has been suggested that this will improve Canadian standards as well as create a consistent approach to safety throughout the continent.

Manufacturers are currently believed to be following the guidelines for playground equipment safety. Since they do not always install or maintain their equipment, they cannot confirm the ongoing safety of their products.

Other approaches to implementing playground standards have been taken. A request was made to the Provincial and Territorial Committee on Building Standards (a national committee made up of provincial and territorial ministers responsible for building standards). This request asked that playground standards be included in the National Building Code of Canada but the request was denied. There are also questions arising with respect to the certification of playground inspectors to ensure their knowledge and understanding in the provision of this service.

Advocates of playground safety (such as the CSA, the Direction de la santé publique de Montréal Centre and SAFE KIDS Canada) continue to promote the inclusion of current standards into municipal by-laws. A training program developed by the CSA is being considered to assist municipalities in the implementation of standards.

13.0 FALLS

LEGISLATIVE STRATEGY

13.2 Building Codes

What legislation applies to the strategy?

Building Standards Act

Who is responsible?

Provincial/Territorial

- Ministries of Labour

Municipal

- Departments of Planning and Development

What is the purpose of the Act?

The description of these provincial Acts includes requirements as to the factors which may result in falls among children.

See Drowning: Barrier Fencing, page 54.

What does the Act cover?

The National Building Code of Canada includes requirements for guards and hand rails on any area where there is a concern about elevation and a prohibition of guards that are climbable. This applies to both outdoor and indoor guards. Guards should be designed so that 100mm (4 inch) spheres do not fit through (thus preventing a child's head from fitting through). Where guards are constructed, but not required, any spaces in the guard (such as spindles) must be less than 100mm (4 inch) or greater than 200mm (8 inch). A requirement has also been added to enable parents to restrict the opening of apartment windows to prevent children from climbing or falling out.

How is the legislation enforced?

Municipal inspectors are responsible for enforcing the legislation although their participation is usually limited to the construction stage of buildings. See Drowning: Barrier Fencing, page 54.

How are changes recommended?

See Drowning: Barrier Fencing, page 55.

What is being done now? (emerging concerns)

There is a concern that some safety measures (e.g. guardrails) are being removed for esthetic reasons after the construction site inspection has been completed, making enforcement difficult.

LEGISLATIVE STRATEGY

13.0 FALLS

13.3 Juvenile Product Safety

What legislation applies to the strategy?

Hazardous Products Act

Who is responsible?

Federal

- Health Canada

What is the purpose of the Act?

See Suffocation/Strangulation: Household Product Safety, page 32.

What does the Act cover?

The Act also addresses the use of cribs, strollers and baby gates. See Suffocation/Strangulation: Household Product Safety, page 32.

How is the legislation enforced?

Health Canada has succeeded in obtaining a voluntary ban of the sale of baby walkers. Since it was a voluntary action between the Canadian Juvenile Products Association and Health Canada, there is no record of this in the legislative materials used in this report. Education and time are factors that have been identified as important in the ultimate removal of these products from use in Canada. Health Canada inspectors monitor the supply of non-complying products in flea markets, second-hand stores, and garage sales (when possible).

How are changes recommended?

See Suffocation/Strangulation: Household Product Safety, page 33.

What is being done now? (emerging concerns)

New products are constantly being introduced in the marketplace. The challenge for parents is selecting developmentally appropriate and safe products for use by their children. Infant exercisers (for example Jolly Jumpers™) have not had the same injury rate as baby walkers and problems have been based more on the appropriate size and

strength of children using them. Inspectors may refer consumers to paediatricians to determine whether specific children are physically prepared for play in these products (e.g., having sufficient neck strength and the ability to hold themselves upright).

As described above, there has been a voluntary ban on the sale of baby walkers in Canada, but there remain some products without wheels that are not subject to the ban.

Injuries resulting from the use of bunk beds fall into two categories that are being addressed accordingly. Injuries associated with sleeping on the top bunk have been addressed by including a requirement for the use of guard rails in the ASTM Standard. Injuries associated with horseplay on the beds have been addressed through warning labels.

LEGISLATIVE STRATEGY

13.0 FALLS

13.4 Escalators and Other Elevating Devices

What legislation applies to the strategy?

Elevators and Fixed Conveyances or Safety Codes Acts

Who is responsible?

Provincial/Territorial

- Ministries of Labour

What is the purpose of the Act?

A general description of these Acts is to ensure the safety of users of elevators and fixed conveyances. Many of these now include escalators, along with speedwalks and other products, as a form of fixed conveyance. These Acts and related regulations are also intended to ensure that those who create risk through the design and use of these devices also utilize measures to mitigate the risk of using them.

What does the Act cover?

These Acts provide standards with respect to the design, construction, installation, operation, maintenance and inspection of elevating devices. National standards exist which are called the National Safety Codes for Elevators, Escalators and other Elevating Devices and may be adopted, such as is the case in Alberta, or adapted. These standards are developed and revised by the Canadian Standards Association.

The Act provides inspectors with powers to issue orders to correct deficiencies and, in cases of immediate hazard, remove equipment from service. An appeal process is also available to those affected by the orders issued by inspectors.

How is the legislation enforced?

Provincial or territorial inspectors are responsible for the enforcement of the Acts and carry out their duties in various ways. In Alberta, for example, Alberta Labour and Elevator Safety works with private firms in carrying out yearly inspections of escalators.

How are changes recommended?

Changes are made nationally through the National Safety Codes Committee on which most provinces and territories have memberships. Changes to provincial practices may be recommended through the ministry governing this area. Where safety code committees agree that there is a demonstrated need along with a demonstrated effectiveness of the recommendation, changes are made.

What is being done now? (emerging concerns)

Recent changes have been made to address the problems of injury due to escalators. These have included the addition of passenger stop switches that are accessible and visible with flip-away guards intended to minimize the number of unintentional stops and falls. Changes have also been made that require combplates to move horizontally. Escalators must also have a switch which will trip in response to a horizontal force on the combplate, causing the escalator to stop.

It was suggested that falls are often due to unstable individuals using escalators, unnecessary stoppages, and individuals sitting or lying on the steps.

Although most standards set out precise requirements that are intended to provide safety to users there is no definite "life span" for escalators. It has been suggested that despite these efforts to ensure safety, children continue to be injured while using escalators.

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APPENDIX A DESCRIPTION OF DATABASES

1) MEDLINE

Database covers clinical medical information and allied health fields; biology and physical sciences, humanities and information science as they relate to medicine and health care.

2) CINAHL

The Nursing and Allied Health database provides coverage of the literature related to nursing and allied health.

3) EMBASE

The Excerpta Medica database is a major biomedical and pharmaceutical database indexing international journals from such fields as drug research, public health and environmental health.

4) DHSS-DATA

Database is based on abstracts and current awareness bulletins from the library of the Department of Health and Social Security in London, England. Core subjects are health service and hospital administration.

5) MICROLOG

Database provides access to research literature and reports from all levels of Canadian government as well as universities, research institutions, laboratories, professional societies, corporations, consultants, associations and special interest groups.

6) GPO MONTHLY CATALOG

Government Printing Office Monthly Catalog indexes the public documents generated by the legislative and executive branches of the United States federal government.

7) CURRENT CONTENT SEARCH

Database provides access to the table of contents and bibliographic data from current issues of leading scholarly research journals in the sciences, social sciences, and arts and humanities.

8) COMBINED HEALTH INFORMATION

Database provides on-line access to hard-to-find materials for health professionals, health educators and patients such as brochures, review papers, fact sheets and audiovisual materials.

9) MDX HEALTH DIGEST

A bibliographic database created by health professionals for public use to increase access to needed information on which to base medical decisions.

10) LEGAL TRAC

Database provides access to citations from law reviews, bar journals, legal newspapers and other legal publications. Four areas (subject, titles and authors, cases, and statutes) of the Legal Resource Index are interfiled into one alphabetical listing for easy access.

APPENDIX B REGULATORY IMPACT ANALYSIS STATEMENTS

Regulatory Impact Analysis Statements (RIAS) are used by the federal government in the process of recommending changes to Acts and regulations. Similar processes are used by most provincial and territorial governments although they may not be as formalized as that used at the federal level. According to the RIAS Writer's Guide (1992) RIASs are used *"by the government to complete the public consultation process, and by ministers to approve regulations. It provides a description of what the government is going to deliver, how Canadians have been consulted, and what they have said. It then offers a final chance for Canadians to have input to the regulation-making process."*

The RIAS has five sections:

a) Description outlines the regulations; defines the problem and explains why action is necessary;

b) Alternatives includes the examination of alternatives to the recommended regulation as well as less stringent forms of regulation;

c) Consultation identifies who was consulted and the results;

d) Compliance and Enforcement explains the procedures and resources that will be used to ensure the regulation is respected;

e) Contact Person is the individual best able to answer questions from RIAS readers.

SAMPLE: REGULATORY IMPACT ANALYSIS STATEMENT

19/8/87 *Canada Gazette Part II, Vol. 121, No. 17* *Gazette du Canada Partie II, Vol. 121, N° 17* SOR/DORS/87-443

REGULATORY IMPACT ANALYSIS STATEMENT

(This statement is not part of the Regulations.)

Description

The *Hazardous Products Act* is an act which can be used to prohibit or regulate the advertising, sale or importation of products which are or are likely to be a danger to the health or safety of the public. The flammability of children's sleepwear up to size 6X has been regulated under this Act since 1971. Despite this regulation, a minimum of 21 children under the age of 9 are severely burned and one or two die each year due to sleepwear fires. More stringent flammability regulations for children's sleepwear are being introduced in order to reduce the incidence and severity of such burn injuries. The new regulations will affect nightgowns, robes, tailored pyjamas and baby-doll pyjamas which are implicated in the most severe injuries and are to take effect September 1987. Less harzardous styles of sleepwear (i.e. polopyjamas and sleepers) will remain subject to the existing regulations. Two complementary amendments to Item 4 and Item 5 of Part I are introduced in order to exclude those products which will be subject to the new Regulations, from existing regulations.

Alternatives Considered

The following alternatives were considered:

1. Maintain status quo: This option was rejected because the current level of burn injuries is considered unacceptable.
2. Consumer information program: Analysis indicated that an information campaign would not by itself achieve a significant reduction in burn injuries but would complement any regulatory initiative chosen.
3. More stringent flammability regulations based on the existing U.S. test procedure for children's sleepwear. This option had three possible sub-options depending on the styles of garments to be covered by the regulation:

   (i) Nightgowns and robes only;

   (ii) Nightgowns, robes, tailored pyjamas and baby-doll pyjamas only; or

   (iii) All styles of children's sleepwear.

   Alternative 3(ii) was selected since it most effectively achieved the desired objective while minimizing costs. Alternative 2 was also retained as a complement to alternative 3(ii).

Three implementation dates for the Regulations were considered. September 1987 was selected since it provided industry sufficient time to adapt to the Regulations, closely matched the children's sleepwear production cycle and caused the least financial impact.

RÉSUMÉ DE L'ÉTUDE D'IMPACT DE LA RÉGLEMENTATION

(Ce résumé ne fait pas partie du règlement.)

Description

La *Loi sur les produits dangereux* est une loi qui peut être utilisée pour interdire ou réglementer la publicité, la vente ou l'importation de produits qui sont ou peuvent être un danger pour la santé ou la sécurité du public. L'inflammabilité des vêtements de nuit pour enfants jusqu'à la taille 6X a été réglementée en vertu de cette loi depuis 1971. Malgré cette réglementation, au moins 21 enfants de moins de 9 ans sont gravement brûlés chaque année lorsque leurs vêtements prennent feu, et un ou deux d'entre eux en meurent. Une réglementation plus sévère sur l'inflammabilité des vêtements de nuit pour enfants est actuellement proposée en vue de diminuer la fréquence et la gravité de ces blessures. La nouvelle réglementation touchera les chemises de nuit, les robes de chambre, les pyjamas tailleurs et les nuisettes, vêtements auxquels sont attribuables les blessures les plus graves, et elle doit entrer en vigueur en septembre 1987. Les moins dangereux des vêtements de nuit pour enfants (c'est-à-dire, les polopyjamas et les dormeuses) resteront assujettis à la réglementation actuelle. Deux modifications complémentaires à l'article 4 et l'article 5 de la partie I sont proposées pour exclure du règlement existant, les produits qui seront assujettis au nouveau règlement.

Options examinées

Les options suivantes ont été examinées :

1. Maintenir le statu quo : Cette option a été rejetée parce que le niveau actuel de brûlures est considéré inacceptable.
2. Un programme d'information pour les consommateurs : L'analyse a indiqué qu'une campagne d'information ne pourrait en elle-même produire une diminution sensible des brûlures, mais qu'elle compléterait toute réglementation choisie.
3. Rendre plus sévère la réglementation sur l'inflammabilité en fonction des essais pratiqués aux É.-U. sur les vêtements de nuit pour enfants. Cette option comprend trois sous-options selon les vêtements visés par la réglementation :

   (i) Chemises de nuit et robes de chambre seulement.

   (ii) Chemises de nuit, robes de nuit, pyjamas tailleurs et nuisettes seulement.

   (iii) Tous les vêtements de nuit pour enfants.

   L'option 3(ii) a été choisie car elle atteignait le plus efficacement l'objectif souhaité tout en réduisant les coûts au minimum. L'option 2 a également été retenue à titre de complément à l'option 3(ii).

Trois dates ont été examinées pour la mise en vigueur du règlement. Septembre 1987 a été choisi, étant donné que cette date accordait à l'industrie assez de temps pour s'adapter aux règlements, qu'elle cadrait bien avec le cycle de production des vêtements de nuit pour enfants et qu'elle entraînait moins de répercussions financières.

Consistency with Regulatory Policy and Citizens' Code

This Regulation enhances the protection of young children in the most cost-effective manner. The Regulation has been developed with the cooperation of all interested parties.

Anticipated Impact

A complete cost-effectiveness study was carried out (copies are available on request) and the highlights are as follows:

Major Costs:

1. Allocative Costs: Recurring allocative costs of $20 million annually and one time costs of $8 million have been estimated. It is expected that these costs will be reflected in price increases of 15-20% for affected garments. The affected garments constitute approximately 40% of the sleepwear market.
2. Impact on employment: Loss, if any, of fewer than 40 jobs.

Major Benefits:

1. Experts estimate the saving of two lives annually.
2. Estimated 73% reduction in severe burn injuries (3rd degree burns to greater than 15% of the body area).
3. Prevention of 11 fire incidents per annum involving children's sleepwear.
4. Major reduction of pain and suffering by victims and their families.
5. Allows for continued consumer choice of fabrics in safer styles of children's sleepwear.
6. Savings of $1.1 million annually in health care costs.

Other Effects:

1. Regional economic impact: The analysis indicated few if any jobs would be lost and thus no significant regional impacts were anticipated.
2. The Regulations will have only small to negligible impact on domestic output, importation, market structure, competition, income redistribution, technology and the environment.
3. The regulatory change may reduce the number of domestic manufacturers, as a number of manufacturers for whom children's sleepwear is not particularly important may decide to exit from the market.

Consultation

Over the past three years extensive consultations were held with industry, retailers, organized labour, the medical profession, consumer interest groups and the Canadian fire services. The draft regulations were prepared in consultation with all affected parties including the textile and clothing industry. On April 25, 1987, the draft regulations were published in Part I

Compatibilité avec la Politique réglementaire et avec le Code du citoyen en matière d'équité de la réglementation

Le règlement augmente la protection des jeunes enfants de la façon la plus rentable possible. La modification a été élaborée avec la collaboration de tous les intéressés.

Incidences prévues

Une étude de rentabilité complète a été effectuée (une copie est disponible sur demande) et les points saillants sont les suivants :

Principaux coûts

1. Coûts d'affectation : Des coûts d'affectation susceptibles de se répéter s'élevant à 20 millions de dollars par an et des coûts non répétitifs de 8 millions de dollars ont été estimés. On s'attend à ce que ces coûts se traduisent par des augmentations de prix variant de 15 à 20% pour les vêtements touchés. Les vêtements touchés constituent environ 40% du marché des vêtements de nuit.
2. Incidence sur l'emploi : Perte, s'il en est, de moins de 40 emplois.

Principaux avantages :

1. Les spécialistes estiment que deux vies seront sauvées tous les ans.
2. Il est estimé que les brûlures graves seront réduites de 73% (brûlures au 3e degré sur plus de 15% de la surface du corps).
3. Chaque année 11 accidents dus à l'inflammation de vêtements de nuit pour enfants seront empêchés.
4. Diminuer fortement les souffrances des victimes et de leur famille.
5. Faire en sorte que les consommateurs continuent d'avoir un choix de tissu dans des styles plus sécuritaires de vêtements de nuit pour enfants.
6. Économie de 1,1 million de dollars en frais médicaux chaque année.

Autres effets :

1. Répercussions économiques dans les régions : l'analyse a indiqué que la perte d'emploi serait négligeable, voire nulle, et qu'aucune répercussion sensible n'était donc prévue pour les régions.
2. La modification n'aurait qu'une incidence faible et négligeable sur : la production nationale, les importations, la structure du marché, la concurrence, la redistribution des revenus, la technologie et l'environnement.
3. La modification de la réglementation peut diminuer le nombre de fabricants canadiens, car un certain nombre de fabricants pour qui les vêtements de nuit pour enfants ne sont pas particulièrement importants peuvent décider de se retirer du marché.

Consultations

Au cours des trois dernières années, des consultations intenses ont été tenues avec les entreprises, les détaillants, les syndicats, la profession médicale, les groupes de défense des consommateurs et les services d'incendie canadiens. Le projet de réglementation a été préparé de concert avec toutes les parties touchées, dont les secteurs des textiles et des vêtements. Le 25

of the *Canada Gazette*. No substantive comments were received during the sixty day comment period which followed.

Compliance Mechanism

Enforcement strategies that will be employed by the Department to ensure compliance with the Regulations range from the statutory actions allowed for in the *Hazardous Products Act* to the negotiation of voluntary agreements with traders for the withdrawal of non-complying products. Monitoring mechanisms include routine government inspections, feedback and complaints from consumers and the private sector.

avril 1987, le projet de règlement a été publié dans la Partie I de la *Gazette du Canada*. Aucun commentaire substantif n'a été reçu pendant la période de commentaire de soixante jours qui a suivi.

Mécanisme d'observance à prévoir

Les stratégies que le ministère emploiera pour faire respecter la modification varient des mesures prévues par la *Loi sur les produits dangereux* à la négociation d'accords volontaires avec les commerçants pour le retrait des produits non conformes. Les mécanismes de surveillance comprennent les inspections gouvernementales courantes ainsi que les commentaires et les plaintes des consommateurs et du secteur privé.

QUEEN'S PRINTER FOR CANADA, OTTAWA, 1987 IMPRIMEUR DE LA REINE POUR LE CANADA, OTTAWA, 1987

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APPENDIX C EXAMPLES OF LEGISLATIVE MEASURES BY JURISDICTION

	Suffocation/ Strangulation	Motor Vehicle Collisions	All-Terrain Vehicles	Cycling
Federal	**Hazardous Products Act**	**Motor Vehicle Safety Act**		
	8.1 - household product safety	9.1 - manufacturing		
		9.1 - recalls		
	8.2 - juvenile product safety	9.1 - car seat design		
Provincial/ Territorial		**Highway Traffic or Motor Vehicle Acts**	**Off-Highway Vehicle Acts**	**Highway Traffic or Motor Vehicle Acts**
		9.1 - motor vehicle practices	9.6 - age of operation	9.7 - helmet use
		9.2 - road safety	9.6 - supervision	9.8 - bicycle design/safety standards
		9.3 - vehicle inspections	9.6 - helmet use	
		9.4 - graduated licensing		
		9.5 - driving instruction		
Municipal		**Licensing By-law**	**Road Safety By-law**	
		9.2 - use of roadways	9.2 - speed limits	

Drowning	Burns	Poisonings	Falls	
Canada Shipping Act	**Hazardous Products Act**	**Hazardous Products Act**	**Hazardous Products Act**	Federal
10.2 - life jackets (PFDs)	11.1 - child resistant lighters	11.4 - household products	13.3 - juvenile product safety	
	11.1 - children's sleepwear			
	11.4 - household products			
Criminal Code of Canada	**Explosives Act**	**Food and Drugs Act**		
10.2 - safe usage of vehicle	11.3 - fireworks, ammunition	11.4 - product sales		
		12.1 - child resistant containers		
National Building Code of Canada	**Criminal Code**	**Pest Control Products Act**		
10.1 - barrier fencing (not legislated)	11.3 - safe usage of explosives	11.4 - organic/pest control substances		
	National Trademark and True Labelling Act	**National Trademark and True Labelling Act**		
	11.4 - product labels	11.4 - product labels		
	Consumer Packaging and Labelling Act	**Consumer Packaging and Labelling Act**		
	11.4 - product labels	11.4 - product labels		
Building Standards Act	**Building Standards Act**	**Pharmaceutical Profession Acts and Regulations**	**Building Standards Act**	Provincial/ Territorial
10.1 - adopt or adapt NBCC	11.2 - water heater temperature		13.2 - adapt or adopt NBCC	
		12.1 - dispensing practices	**Elevator and Fixed Conveyances or Safety Codes Acts**	
			13.4 - maintenance	
			13.4 - safe operation of equipment	
Building Code By-law	**Building Code By-law**		**Playgrounds Standards**	Municipal
10.1 - barrier fencing	11.2 - building inspection		13.1 - equipment and play spaces	
10.1 - pools/hot tubs				