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SAVING CHILDREN’S LIVES IN SWEDEN THROUGH ACCIDENT PREVENTION

Ragnar Berfenstam†

SWEDEN HAS RECEIVED MUCH INSPIRATION and stimulation in the promotion of child accident prevention from the U.S. Therefore, my review of thirty to forty years of preventive work in Sweden will demonstrate many similarities between programs in the U.S. and Sweden.

Everyone will agree that accidents constitute a great child health problem. In all countries, accidents are responsible for a large percentage of deaths among children after the infancy period. They are the reason that the healthiest period of life does not show the dramatically decreasing mortality figures which should be expected after a century of tremendous medical progress. Of course, accident mortality differs among countries. A comparison of U.S. and European mortality figures demonstrates that “[e]xcess U.S. deaths are entirely attributable to injuries.”

2

This article begins with an overview of the history of Sweden’s preventive work and the principles which Sweden has followed in the creation of its preventive program. Then, this article reviews some of the research within this area that has been important to the design of the program. Finally, this article outlines some of my own ideas about why Sweden has experienced some success in its efforts to lower risks to children.

One day in 1953, when I was a young Associate Professor in Pediatrics in Uppsala, my boss returned from a meeting of

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the American Academy of Pediatrics and told me that accidents had been recognized and discussed as an important child health problem in the U.S. He said that he had been much inspired by the program for accident prevention presented at the meeting by Dr. George Wheatley, at that time Chairman of the Academy.

Inspired by the U.S.'s interest in this matter, we looked into our own morbidity and mortality figures. We found that accidents were the single greatest killer of children after the first year of life and, in some age groups, the killer of more boys than all diseases combined. We observed that in the small country of Sweden about 450 children a year (an average of nine children per week) were killed in accidents. Many of the hospital beds in the child surgery departments were occupied by injured children. We presented our findings to the Pediatric section of the Swedish Medical Society, which considered it a pertinent child health problem and they acted rapidly. The section succeeded in drawing together various organizations to form a committee having the responsibility of the prevention of accidents among children and having roots in the strong movements for health in Sweden, the Swedish Red Cross, the Save the Children Fund and Sweden in general.

Thus, the "Joint Committee for Prevention of Childhood Accidents" was formed in 1954 as a voluntary group with representatives from the boards of health and education, existing safety organizations, the Women's Political Federation, the Associations of Pediatricians, Child Nurses, Day Care and Kindergarten Teachers, the Parent-Teacher Organization and many others. The whole Joint Committee met once or twice each year. From the beginning, the executive group consisted of an administrator, a pediatric surgeon and me, the pediatric representative. This group met on a more frequent and consistent basis. The various member organizations were used as channels to the public.

4. Id.
5. The administrator was Ulla Bonde. Ms. Bonde was active in the Save the Children Fund.
6. The pediatric surgeon was Dr. Theodor Ehrenpreis, head of pediatric surgery at Karolinska Hospital.
The Joint Committee was an interesting and stimulating experience that continued for twenty-five years; it was stimulating for the Joint Committee members, because we were able to observe the increasing understanding of the importance of child safety in the society and, most essentially, because we could observe the decline of fatal accident statistics.

After some years' work, the Joint Committee received some subsidies from the State. The problem also quickly attracted the attention of members in the Swedish Parliament, which led to the child safety problem being considered in several State committees dealing with environmental, health and child care problems. Finally, in the late 1970's, when it seemed clear that the activities had grown to such an extent that they could not be managed by a voluntary group, a special State committee was appointed. It proposed that the State take over responsibility for childhood accident prevention. Subsequently, in 1980, the Child Environment Council was formed, with accident prevention as its primary task.7

Over the past fourteen years, the Council basically has continued the work of the voluntary committee and, with the help of their greater resources, has developed and become involved in many more areas in which child safety must be considered. During the forty years since the Joint Committee was first formed, the number of children killed in accidents has gone from 450 deaths per year to less than eighty per year.8 There are indications that the rate of morbidity has also dropped.9

Even if the accident and age patterns differ between Sweden and the U.S. according to different geographical circumstances and technical development, there are certainly great similarities in the types of accidents that occur.10 For example, falls frequently occur in all age groups as do injuries caused by motor vehicles, to toddlers on foot and schoolchildren on foot or

7. In 1992, the task of the Environmental Council was taken over by a new official body the Children's Ombudsman (Barnomdudsmännen).
8. SWEDISH OFFICIAL STATISTICS DÖDSORSAKER [CAUSES OF DEATH], (1990) [hereinafter SWEDISH OFFICIAL STATISTICS].
HEALTH MATRIX [Vol. 4:93

bicycles. Suffocations most often occur in the first year of life. Toddlers are usually the victims of poisoning and burns, primarily scalding injuries. Drownings claim the lives of preschoolers through adolescence. Finally, in all age groups, boys have a higher rate of injury than girls in both morbidity and mortality statistics, with the exception of horseback riding injuries which girls suffer at a greater rate. The only significant difference between childhood accidents in Sweden and the U.S. is the number of injuries caused by shooting; Sweden has close to zero.

It must be acknowledged that the risk level is always high for children. Our preventive program has had as its primary aim the minimization of the risk of accidents. In order to achieve that aim we have concentrated our efforts in three areas: increasing the ability of the child, increasing the level of understanding among adults, and attempting to reduce the environmental risk. Our ideas and strategies in the Swedish preventive program, in principle, have been the same through these four decades of work.

First, we have tried to apply a holistic view to the problem and have based the prevention on general knowledge of child development. There is a clear connection between the accident type and frequency and the development level of the child. Children constitute a risk group precisely because they are children, with their inherent curiosity, impulsiveness and inability to calculate risks. As a child’s risk level is always high, the type of accident that occurs is primarily dependent in which he/she happens to be at the time. Thus, the preventive program should be broad, and based partly on an understanding of the typical reactions and behaviors of children (child development) and partly on knowledge of what is likely to happen to them. Parents’ information about children’s risks and how to avoid them should be based on these same principles, and should be a natu-


12. Roberta K. Lee & Mary J. Harris, Unintentional Firearm Injuries: The Price of Protection, 9 AM. J. PREV. MED. 15, 17 (Supp. 1993). During 1989, in the U.S., unintentional firearm injuries caused 273 deaths among children 0-14 years old. Id. In 1989, in Sweden, there was only one case of death by an unintentional firearm in the same class of children. Id.
ral part of the child health information package that stresses the following guideline: provide supervision first, then encourage rigorous training and education while attempting not to be overprotective. We always emphasize that the best tool in safety work is the creation of a safer environment; it must, however, still be rich and stimulating.

Second, we have preferred to base our preventive program on current facts about accidents. Thus, one of the first things we initiated was a year-long morbidity study which surveyed all injuries and poisonings that had required medical treatment in the Stockholm area. The data collected gave us many ideas about how best to continue our work, and helped us to determine which issues should be given priority, which equipment most often caused injuries to children and where families most lacked recognition of nearby hazards.13

Much epidemiological research in the accident field, including register studies and investigations based on interview surveys, has followed. Some investigators have gone one step further and have attempted to analyze how particular accidents might have been prevented by, for example, better supervision, more education or perhaps changes in the local environment. In an extended interview study, one researcher found that thirty-seven percent of the accidents could have been avoided with relatively simple changes in the child’s environment, while twenty-three percent seemed impossible to prevent.14 Some of the epidemiological investigations have been complemented by intervention trials in local projects.15 Several studies have focused on how and why accidents happen, using methods from both the behavioral and technical sciences. For example, one study indicated that there was an increased risk for minimal brain dysfunction children.16 Another study of school children

13. Childhood Accidents, supra note 3 (providing the “Stockholm Study”).
14. L. Gustafsson, Barnolycksfall i Östersund [Childhood Accidents in Östersund], 38 Socialmedicinsk Tidskrifts Skriftserie [Social Medicine Newspaper Supplement] 96 (1972) (Swed.).
showed that unsatisfactory peer relationships were important
determinants of risk for injury at school, especially injury from
accidents that occur during school breaks.\textsuperscript{17}

Stina Sandels, a child psychologist, pointed to the difficul-
ties met by preschool children in trying to understand traffic
rules.\textsuperscript{18} With Piaget’s research as a starting point, Sandels was
able to show that preschool children can not be viewed as re-
sponsible individuals in traffic.\textsuperscript{19} Because of their height, they
are unable to see and unable to assess the different components
in a traffic situation. Because the stereoscopic vision and hear-
ing of children is not yet fully developed, they have difficulty
determining the distance of an approaching vehicle. Further-
more, they often interpret the signs, symbols and warnings in
the traffic system inaccurately.

Interest is currently being focused on research concerning
communication matters. The following questions have arisen:
how should information be parlayed in order to reach the tar-
get groups?; how should we train those who are going to teach
parents and children about safety?; how can we reach those in
our own environments, those who continually need to know
what happens most often and what, if any, new risks have
appeared?

Future preventive programs need to be based on facts de-
rived from good evaluative studies so that priority can be given
to the measures that are most effective and most economically
sound.

The child safety movement in Sweden has, from the begin-
nning, asserted the right of children to an environment as safe
and well-adapted as possible. We must realize that the world
around us is shaped by and for adults. Therefore, research and
information should aim to show planners, architects and inven-
tors where the risks to children are located as well as what can

\textsuperscript{17} S. Bremberg, \textit{Bullying and Mobbing as a Stress Factor Causing Accidents at
School}, in \textit{The Healthy Community Child Safety as Part of Health Promotion
Activities Proceedings of a Conference in Stockholm, April 1987} (Folksam Insurance
Group 1988).

\textsuperscript{18} See Stina Sandels, \textit{Children in Traffic} 184 (James Hartley ed. \& Hunter

\textsuperscript{19} \textit{Id.} at 56-71; see also Kwame Ampofo-Boateng \& James A. Thompson, \textit{Chi-
dren's Perception of Safety and Danger on the Road}, \textit{82 Brit J Psychol} 487 (1991)
(investigating the ability of children between the ages of 5 and 11 to select safe places to
cross the street).
happen when children from different age groups come in to contact with such dangerous things as household equipment, a steep staircase or even their own back yard.

Activity in the accident prevention movement in Sweden has included collaboration with people and organizations involved in various aspects of home safety. Schools of designers, architects and planners have been contacted and meetings with representatives from construction firms, retailers of household articles and producers of household materials and packaging for detergents and medicines, have been arranged. For the most part there is a willingness and an interest to collaborate for safer products.

We have worked hard to reach decision-makers on different levels with our message. Efforts to work with politicians have been rewarded by a new regulation requiring that new dwellings built with state loans be fitted with safety devices. In addition, the Swedish Building Code has been amended to include directives for the interior design of homes as well as day nurseries. Provisions dealing with such things as balcony doors, windows, electrical sockets, stoves and cupboards have been added to the code. Further regulations govern the covering and fencing of private pools, the fencing in of building sites and the boarding up of wells that are not in use.

During these decades of activity, there has been a steady decrease in fatal accidents involving children, from an average of nine to just two per week. What are the main reasons for this decline? What are the most effective methods in child accident prevention? Where should we invest our limited resources in the future? As usual in preventive work, we are hampered when we try to evaluate the effect of each individual factor in this process of change. There is no single factor to which the decline in deaths can be attributed; it is a combination of many things. The best we can do is evaluate, with some personal interpretation, how and why the process has developed positively.

It must be remembered that Sweden is a small country with a fairly homogeneous population, a rather high average

22. See id.
23. See supra note 8.
standard of living and perhaps a relatively low level of opposition to the framework of rules and regulations. Thus, it is a relatively easy task to disseminate information to Sweden's people. These basic circumstances may have facilitated the progress of preventive measures.

The child health movement may have benefitted as well from a change in the attitudes of adults since adults as a whole have become more concerned with safety. This is evidenced by the fact that safety has become an important factor in choosing which particular car, household appliance or other potentially dangerous item to purchase. Over the last few decades, people have also begun to use seat belts and child safety seats in their automobiles at a steadily increasing rate. This increase began long before legislation demanded the use of these safety devices.

Another factor that has helped to lower the risk level in the community is the use of a modern social planning system, both for housing and for traffic patterns, which now features safety as its main objective. Effective health care planning has also improved, with the emphasis now on quality first aid and intensive care. It is common knowledge that victims with severe injuries have a much better chance if surviving today than some decades ago. The mortality figures reflect these things as well.

We strongly believe that the early establishment of an organization for child safety in Sweden has been of great importance. It has represented all the different agencies and organizations with an interest in safety equipment and safe surroundings. It is responsible for the stimulation of research on accidents, for the production of information material and for the coordination of safety efforts on the national, regional and local levels. It has an advisory function and has frequently worked as a pressure group to persuade politicians, decisionmakers and legislative authorities to make the changes necessary to lower the child accident risk level in the environment.

An essential factor has been the excellent collaboration with the mass media, which has been extremely open-minded. Their articles, radio and television programs have helped to educate families about possible risks and preventive measures. The general understanding of the child accident problem has certainly improved thanks to the media's attention to the issue, which in turn has influenced and encouraged decisionmakers to
view the problem as a viable health matter forcing them to become involved with the issue.

The importance of having effective channels to families through medical, public health and day nursery personnel cannot be stressed enough. This certainly has been the most effective method to reach families in Sweden. In principle, all Swedish families can be reached through the child health centres, as almost one-hundred percent of the families make use of that service. The Swedish pediatricians and nurses who work at the child health centres have indeed been key contact people. They have engaged themselves in many local safety drives; they have given talks and prompted decisionmakers to put resources into local safety programs. Often, they have taken essential initiatives to local community projects aimed at creating a safer environment for children.

There are three conditions necessary for having active and adequate information dissemination through the involvement of these medical and public health groups. First, the question of safety must be introduced into the training programs for all professionals and others concerned with child health, care and education. Currently this subject comprises only a limited part of the training of doctors, pediatric nurses and school teachers. Thus, it is necessary to assist the child care personnel in other ways such as the provision of current informational material containing detailed facts from the latest research. Also, as the process of informing families about safety can be difficult and frustrating, training programs must be produced to teach health education specialists and child psychologists how to effectively integrate safety information into the child health information package.

At this point, a bit more must be mentioned about the efforts to provide traffic safety in new housing areas. Separation of motor vehicle traffic from the areas designed for pedestrians and bicyclists has been an objective in Swedish modern town planning, as well as locating and designing leisure areas, schools and playgrounds so that the least possible number of individuals have to cross heavily trafficked streets.24 Traffic ed-

24. For example, the National Board for Housing Building and Plan (Boverket) specifies in its Building Regulations (Boverkets författningsamling, BFS) at BFS 1988:18 how playgrounds should be designed to prevent traffic accidents involving children.
ucation is compulsory in our schools, however, the content and quality of it varies widely. There is currently an ongoing debate about the method and validity of traffic education and training of preschool children, in conjunction with their households. It should be stressed that the responsibility for training must still lie with adults. It is dangerous to believe that children can cope better with traffic if they have received traditional training through the preschool or through membership in some traffic club. Perhaps children begin dealing alone with traffic too early, before they are able to understand their own limitations.

The issue of helmet use also must be addressed. Sweden's promotion about the value of helmet use has been positively reinforced by the many adults who now use helmets for bicycle racing, downhill skiing, icehockey and skating. Helmet use has been stimulated in some Swedish provinces because the costs of the headgear have been subsidized by both private and official sources. Preschool children and children who are transported as passengers on bicycles use helmets very frequently. Unfortunately, school age children after the first grades rarely wear helmets, except on school-sponsored excursions. It is hoped that children will accept the extra trouble connected with wearing a helmet, and will not be ashamed to wear safety outfits, but will find them natural for use at play and sports. It is then that the goal of making safety behavior a natural part of children's lives will be achieved.

In Sweden, the risk of drowning closely follows traffic risks. Drowning accidents have always been common in Scandinavian countries because of vast numbers of lakes, the many rivers, long seasons with ice and the long coast line. Therefore, prevention of drownings has a long tradition in Sweden, and different strategies have been applied. Organizers of boat races have insisted that participants wear life jackets. Thus, due to the insistence as well as the amount of information put forth about the risk, it has been easier to convince families and children that life jackets are also necessary on holiday boat trips, and when children are playing on the banks of rivers and lakes. In fact, currently it is uncommon in Sweden to find children in such situations without life jackets. This, together with swimming education arranged by schools and municipal authorities,
has caused the number of child deaths by drowning to drop significantly over recent decades.\footnote{25}

Improvement in the children’s environment depends on new legislation, regulations and recommendations. Recommendations about playgrounds\footnote{26} and playground equipment\footnote{27} have been established, as have testing standards and legislative control of products according to principles which are similar to those in the Common Market countries.\footnote{28} In many such aspects, Sweden relies upon the investigations, testings and controls executed by the Swedish National Board for Consumer Policies (Konsumentverket, KOV). We have recently published a review covering all legislation in Sweden applicable to child safety and the right of children in this respect.\footnote{29}

It is, of course, not enough to have legislation and recommendations about equipment for child safety if the equipment is not available for purchase. Fortunately, a large portion of the equipment is available in regular stores. Additionally, Sweden has a specialty shop located in several of the largest cities and towns called “Akta”, which can be translated as “Be careful” or “Watch out.” Akta is a commercial enterprise that carries all sorts of safety material; it is also the largest producer of children’s helmets in Europe.

It is also important to mention that it is easy to rent safety equipment in Sweden. For example, in our vacation areas where many families spend their holidays, there are services, often in connection with gas stations, which will rent life jackets, infant car restraints and other safety devices. Most Swedish county councils, which are responsible for health and maternity care, provide families with a baby carrier at the time of discharge from the maternity ward at the hospital. One of Sweden’s insurance companies that has worked toward prevention

\footnote{25} According to Swedish Official Statistics, supra note 8, drowning in the 1960’s took the lives of 50 to 60 children every year. According to the same source, the figures in drowning for 1985-1990 in the same age group were under 20 per year. In 1990, there were 12 cases of drowning. \textit{Id.}

\footnote{26} See supra note 24.

\footnote{27} See Swedish Standards for Playgrounds, SS 99 10 10 to SS 99 10 17.


\footnote{29} \textsc{Ragnar Berfenstam} & \textsc{Ingallill Söderquist}. \textit{Barnmiljöradet [National Child Environmental Council] & Konsumentverket [National Board for Consumer Policies], The Rights of Children to a Safe Environment Swedish Laws and Regulations} (1992).
HEALTH MATRIX

of traffic accidents has developed a program whereby families can subscribe to appropriate automobile safety equipment for their children such as restraints for infants and safety seats for toddlers. It should also be mentioned that during one year in Sweden 75,000 children's car seats were purchased while during the same year, a little more than 100,000 children were born.

The first decades of Sweden's involvement in child safety improvement were characterized by the formation of a strong well-planned central organization which tried to promote and steer the nation's preventative activities by using pre-existing channels to disseminate information to the public. For continued progress, additional methods that involve real community participation are necessary. In several local communities, devoted people have come together to form study groups to gather information and begin looking at their own block or neighborhood with children's safety in mind. They are asking such questions as how is the environment?; what risks exist on the playgrounds, in the yards and on the roads leading to school? Some of the risks could be, and were, eliminated by the groups themselves. To eliminate other dangers, it has been necessary to involve local authorities, who at times here needed to be forced into action. Sometimes it has been difficult to fight against bureaucracy. However, in some communities and municipalities, real support has been given through the appointment of a special person who acts as the local child safety consultant. This person assists with the establishment of local programs and serves as a liaison between voluntary groups and the different authorities within the municipalities.

The interest for this community work can indeed be increased if the accidents that happen in the area are monitored. A study by Dr. Lothar Shelp found that the child injury rate in the Swedish municipality of Falkoping decreased considerably after a year of multifaceted intensive safety campaigning. Safety information was brought to the population through the media and through devoted work by voluntary organizations. A "control" community in which no safety program was intro-

31. Id.
duced served as a comparison. Similarly, Dr. Anne Hammarström studied the effect of a one-year safety campaign in Lulea, Sweden, and found a considerable decrease in the child injury rate, as compared to the previous year.

After reading this description of what has been done and what has been achieved, one might get the impression that I personally believe that the child safety problem has reached its ultimate goal in Sweden. This of course is by no means true. Interviews with Swedish families show that they often have a limited understanding of the problem as safety regulations are not always followed and as potentially harmful toys and household equipment are still purchased. As long as each year approximately one-hundred healthy children continue to die from injuries, many thousands more are requiring some sort of medical help and large numbers are still becoming permanently disabled, we must continue the work and, if possible, sharpen the tools in our struggle to limit risks to children. It is unrealistic to believe that we can totally eradicate deaths from fatal accidents. One need not be a fatalist to see that our technologically advanced society, with the freedom and the stimulating environment which are necessary for the sound development of children, will take a toll of human lives. Unfortunately children will continue to be killed in traffic, drown in lakes and perish for other untold reasons. It is our hope, however, that the number of deaths of Swedish children shall not exceed one-hundred cases per year. A simple calculation shows that if the accident fatality rate of boys could come near to that of girls, we would save twenty lives per year. I consider that a realistic goal. But it requires harder work and more brilliant ideas for more effective preventive work.

Today in the U.S. as well as in Sweden, the age group that is at the greatest risk for severe accidents is the fifteen to


34. Calculations made based upon the Swedish Official Statistics, *supra* note 8, showing through many years that one-third to two-fifths of the fatal accident cases are girls and also based on the fatality number of 100 deaths per year.
twenty-four year olds. How shall we reach them? Can intensive safety work during childhood pave the way for a better attitude toward safety among those who have just grown up? These young lives should be saved. They have the potential to be one of the healthiest groups of all ages, but yet this tremendous danger to their health and life continues.

Children in the developing world also face the threat of accidents. They should, of course, also have the right to a safe environment and to a safer life. They still face most of the traditional threats to their health — disease, burns, scalds, falls, drownings and poisonings. Now, in addition, they meet new risks, which increase every year as a result of the new technology that is invading their world. Not only are they faced with increasing traffic, but also they are facing new machines for households and farming, and new chemicals in the form of medicines, pesticides and detergents. Technology always comes first — preventive measures and regulations have traditionally come afterwards and often too late.

Without any doubt, there is a long way to go to get due priority for accident prevention in the new world where diseases and illnesses still take so many lives. But remember what has been learned about accident prevention in both the U.S. and Sweden and, if possible, include at least some aspects of it in the general preventive work which our countries sponsor for child health in developing countries. All the world’s children have the right to a safer existence!

36. See id. at tbl. 127.