Chairman Wheatley: Our theme is a discussion of prevention. We want to discuss the question: How can we help prevent accidents in children? The meeting will be divided into 2 parts. Dr. Arena and I will outline the accident problem for the first part. For the second part, we will discuss the preventive aspects and what pediatricians can do about preventing accidents. We want you to do most of the talking in this part.

I would like to give you a brief picture of the dimensions of the accident problem.

1. It is the leading cause of deaths ages 1-14; kills about 14,000 at these ages annually—more than the next 6 combined (pneumonia, congenital anomalies, cancer, tuberculosis, leukemia, heart disease).

2. Every year between ages 1-5 kills twice as many children as rubeola, scarlet fever, pertussis, diphtheria, dysentery, tuberculosis and poliomyelitis combined.

3. For every fatal accident, it is estimated there are 90-150 severe injuries. No comprehensive studies are available to show the magnitude in terms of injury, cost of treatment, permanent disability in the United States child population. English hospital admission study showed 22% of the accidents requiring hospital treatment happened to children under the age of 5 years, though this age group constituted only 8% of the population.

4. About a third of all fatal accidents to children (1-14) occur in the home; for those under 5 years of age, nearly half the fatal accidents are home accidents. The home is a much more important site than this for injury to children, if we include nonfatal accidents because deaths caused by motor vehicles influences the fatal accident picture.

5. In children 1-14, motor vehicles cause about 35% of all accident deaths. Burns and fires account for 28%.

As one pediatrician has recently expressed it: "With one-third of all children who died dying in accidents, I have come to the conclusion that as long as I work only on the prevention of disease, I am only partly serving my patient's interest."

Why accident control program for children at this time?

There has been virtually no improvement in accident fatality rate in children for the past 10 years. Prior to the war, the trend was downward at a promising rate which hit the low point for all ages in 1940. The rate then began rising with the sharpest increase in the very young children, aged 1 to 4 years. It is believed that important factors were family dislocations and mothers working which resulted in lessened supervision of young children. Also the record birth rates during these years resulted in a high number of young children exposed to the risk of accidents. These killed and maimed children are the forgotten casualties of World War II.

Since we appear to be entering another era of great mobilization of man and woman power for industrial production and possibly higher birth rates, it is timely to recognize that these unusual conditions represent an increased accident hazard to children. We must plan now how to prevent the waste of young lives which occurred in the past 10 years.

The attack on the problem is a three-pronged one involving Education, Engineering and Enforcement, with the main effort on education. This involves education of the profession as well as the public. We find that most pediatricians are interested in accident prevention and incorporate it in health supervision. Many other physicians who see young children are not aware of the importance of...
advising parents about how they may prevent accidents. We want to encourage discussion of accident prevention at medical society meetings, by discussion of accident case histories in hospital history meetings and conferences, and by surveys and other technics which will arouse interest in the study of the frequency and the cause of accidents. The education of the public and of the channels of communication such as newspapers, radio, TV and group meetings, should be used. The most effective, however, is the person-to-person guidance which the physician can give in health supervision. Some physicians are giving safety check lists to parents and also booklets to read.

Engineering is being approached through the study of clothing, toys and other equipment for children which may be associated or involved in an accident to them. In a recent questionnaire sent, as you know, to members of the Academy to find out the frequency with which flammable clothing was associated with burns, poisonings occurred in practice, and strangulation or suffocation was due to faulty construction of harnesses and cribs, we received reports on 2,781 cases. Of these, half were due to poisonings; burns accounted for about one-third, of which flammable clothing was the contributing factor in about half of these cases, including 40 fatalities. There were 136 cases of strangulation or suffocation; 255 nonfatal and 23 fatal cases due to poisoning from toxic substances in paint; 357 nonfatal and 26 fatal cases due to accidental ingestion of medicine; 696 nonfatal and 19 fatal cases due to ingestion of disinfectants and other common household substances.

The most striking information from this survey of pediatric practice is the frequency with which poisoning occurs. I would like to ask Dr. Arena to discuss this.

Dr. Arena: Poisons contained in household agents are responsible for most of these unfortunate deaths due to accidental poisoning. If all drugs and household agents that contain poison were made inaccessible to children, such poisonings could be almost entirely prevented. The number of children who have been accidentally poisoned as a result of parental carelessness is truly tragic.

Since most infants and children are poisoned in or near the home of these agents, at least 2 preventive measures should be attempted. First: parents should be informed and educated to the dangers that lie ahead for their infant. As Dietrich so aptly puts it, they must be shown that pimples and pounds are relatively unimportant problems. Accidents present a greater hazard than the threats our too thoroughly propagandized society ordinarily fears for its children. This can be accomplished in part by offering an accident handbook at the first year check-up with a list of various household agents containing poisons. Another measure would be more stringent Federal or State laws. This is the third point in the three-pronged program of Education, Engineering and Enforcement, earlier mentioned by Dr. Wheatley.

The Federal Caustic Poison Act enforced by the Food and Drug Administration requires that the word "Poison" and an acceptable antidote be placed prominently on the label of a household package of a preparation which contains more than a specified amount of any one of the following ingredients: hydrochloric acid, sulfuric acid, nitric acid, carbolic acid, oxalic acid, any salt of oxalic acid, acetic acid, hypochlorous acid, potassium hydroxide, sodium hydroxide, silver nitrate and ammonia.

The Federal Food, Drug, and Cosmetic Act, also enforced by the Food and Drug Administration, does not require the use of the poison legend on any drug preparation.

The Federal Insecticide, Fungicide and Rodenticide Act of 1947, enforced by the Department of Agriculture, requires that certain white economic poisons be colored and requires that the labels of economic poisons toxic to man bear the skull and crossbones and the word "Poison" prominently in red on a background of contrasting color with a statement of the antidote for the economic poison.

Chairman Wheatley: A study of poisoning in children under 5 years of age admitted to the New Jersey Medical Center showed kerosene to be the most common cause of poisoning. The hospital is near a veterans' project where kerosene is used for household cooking and heating.

Dr. Arena: In our section, kerosene is the most common cause of poisoning. I thought we were the only ones to combat the kerosene poisoning problem.

Dr. J. K. Mack, Springfield, Ill.: We have kerosene poisoning in our section.

Dr. Edith M. Meyers, Oakland, Calif.: Because of the large number of ants in California, the various ant powders and pastes are our chief problem.

Dr. Arena: Lye is the most acute poisoning in North Carolina. A study of lye poisoning has been made in the large hospitals in our State. A social worker estimated that one case of lye poisoning cost the State of North Carolina $8,000. Most of these cases are among the indigent. No doubt other sections have their particular problems.

Dr. Hoyer: I would like to bring up a problem I ran into. It is a question of nomenclature. I
am interested in lead poisoning and had the need to request from the local health department the number of deaths from lead poisoning. The number reported to me was not as great as the number I knew existed. In investigating further, I found that the deaths from lead poisoning had been classified as encephalopathy.

Dr. Kotte: The Children's and Cincinnati General Hospitals, the Cincinnati Board of Health and the Kettering Laboratory are cooperating in a study of lead poisoning in children.

Question: How does a child get lead poisoning?

Dr. Kotte: Usually from chewing on painted surfaces such as window sills and repainted furniture, or from eating painted plaster. One must advise parents not to use paints for inside painting that contain more than 2% lead.

Dr. Montgomery Blair, Washington, D.C.: We have had 11 deaths from lead poisoning recently. There have been 6 deaths from potassium bromate poisoning from home permanent wave products.

Dr. Arena: Toni stopped using the bromates.

Chairman Wheatley: In getting back to Dr. Hoyer's point about nomenclature, we need more accurate diagnosis for proper classification. To study poisonings satisfactorily, a toxicologic laboratory should be available to all physicians. Even in a city as large as New York, I find that the only place a physician can get toxicologic services is in the Coroner's office.

Dr. Hoyer: How about deaths from aspirin poisoning? Are they classified under aspirin poisoning, or alkalosis or acidosis? The Academy could make such a study.

Chairman Wheatley: Chronic poisoning, due to lead, must also be thought of as well as the acute poisonings.

Dr. Arena: There are 1,000 deaths from poisonings each year. No doubt many are missed. I would like to tell about an experience we had recently. A little child of 4 years died as the result of ingesting camphorated oil. The mother had used the oil as a remedy for a respiratory infection. The child got hold of the bottle and drank some. The mother realized what had happened. She read the label. There was nothing on the label to indicate that it was poisonous. She was an intelligent individual and reasoned that if it were poisonous, surely there would be a law requiring a poison label, or something to indicate an antidote, or a warning. So she did nothing. About 3 hours later symptoms developed. The child was brought to our hospital. In spite of heroic measures, the child died. She was the only child. The mother kept repeating “If I only had known.” I investigated the Federal laws. There are 3 laws governing the sale of poisons: The Federal Caustic Poisons Act, the Federal Food, Drug and Cosmetics Act under the Federal Food and Drug Administration, and the Federal Insecticide and Fungus Act under the Department of Agriculture.

These Federal Acts are fine and useful as far as they go. However, they are far from adequate. When inquiring about more comprehensive Federal laws, the following reply was received from Dr. Erwin E. Nelson, Medical Director of the Federal Security Agency.

“We are aware of the needless tragedies caused by accidental poisonings in cases where the poisonous article is not packaged or labeled in such a manner as to call attention to its poisonous properties. When a bill was introduced into the Senate in 1949 (S. 2193, 81st Congress) to require distinctive containers for certain poisonous drugs, we expressed our support of the purpose of the bill. We suggested that the Federal Caustic Poison Act should be broadened to cover other poisonous substances than those now specified in it, including drugs, and that the Federal Security Administrator be empowered, after opportunity for hearing, to add poisonous substances to the list; that provision be made for distinctive safety containers, distinctive coloring of the article were required, and, in the case of poisonous liquids which might intrigue children, bottles with openings sufficiently constricted to make it unlikely that a child would ingest a lethal quantity.

“S. 2193 was not passed by the 81st Congress and, so far as we know, no similar bill has been introduced into the 82nd Congress.”

The medical profession should see to it that their elected representatives in Congress are made aware of the importance of more stringent Federal laws concerning the packaging and labeling of poisonous articles or agents.

Dr. Hoyer: Can the Academy get word to Washington on the bill?

Dr. Arena: Let's work on something better.

Dr. James H. Wallace, Oak Park, Ill.: Legislation should be more at the local level.

Chairman Wheatley: The answer is yes on both levels. For intelligent action we need more information about each poisoning and more study on type of law to be recommended.
In the case of aspirin, what would you put on the label? What dose would be put on? I believe the problem is one of educating the parents.

Chairman Wheatley: Most of the cases of poisoning occur in the 1 to 4 year old group. This group cannot read labels.

Dr. Arena: There are 2 methods of approaching the problem. One is through education of the parents, informing them of the dangers; and the other is in more stringent local, state and federal laws.

Dr. George F. Patterson, Cincinnati: I believe the bulletin board in the office is a visual means of education.

Dr. Arena: I have a bulletin board in my office which is used for other subjects as well as for poisons and accidents.

Dr. Mack: The question is what is the most practical way of teaching the parents?

Chairman Wheatley: Here are some ways of bringing the subject before the people. Dr. Bost sent to me these pamphlets which the Franklin Hospital of San Francisco developed. He has a leaflet for his private patients also. The Minnesota Department of Health has a pamphlet called "Protect Toddlers from Accidents." The Georgia Department of Public Health puts advice on accident prevention on the reverse side of the diet instruction cards which mothers receive in the well child conference.

Dr. A. T. Martin, New York City: What is the National Safety Council doing?

Chairman Wheatley: The Academy and the National Safety Council have been cooperating. I have been appointed to represent the Academy on the Council Board. The Home Safety Conference of the Council has developed pamphlets on Christmas safety and baby sitters which can be had for distribution.

Dr. Hoyser: One method is for the doctors to get together and discuss their experiences and from that information, formulate a report that can be given to physicians and parents.

Dr. Gerald M. Cline, Bloomington, Ill.: Have the PTA’s been consulted?

Chairman Wheatley: Yes, we have offered our services, but we have no response as yet. In California, the Prudential Life Insurance Company has underwritten a very intense and successful community safety program to prevent accidents to children. This has been done in cooperation with local safety councils, medical schools and hospitals. Dr. Esther Clark and Dr. Harry Dietrich, members of our Committee, have taken an active part in this statewide campaign. There is a motion picture on child safety for school children produced by Sid Davis Productions, Los Angeles, which Dr. Dietrich helped to develop.

Dr. Cline: The Academy’s Committee on Camps is putting out a booklet and a film. Accident prevention is included in both.

Dr. Neil C. Stone, Poughkeepsie, N.Y.: I prefer slides such as Dr. Wheatley used to film.

Dr. Wallace: A fertile field for educating the public is to direct attention of the public health nurse to the accident prevention problem.

Dr. Park J. White, St. Louis: Dr. Wheatley, does your Committee feel that the Academy should prepare a booklet to be purchased and circulated by medical societies and health departments? Also, let me call your attention to a recent study we have made in St. Louis which indicates that Negro and white children have about the same accident rates, although kerosene poisoning, scalds and flame burns are definitely more frequent among the Negro children.

Chairman Wheatley: The Committee is preparing a booklet called "Are You Using the New Safety Vaccine?" This will be made available to pediatricians and other physicians who do health supervision. The booklet will relate safety education to the stages of growth and development in children from infancy up to 5 years. We hope the booklet will impress the practicing physician with his opportunity for safety education and encourage incorporation of safety education into health supervision as a new kind of immunization—an immunization of the parent rather than the child.

Dr. Arena: A large marble-sized vitamin pill as demonstrated at the booth is a potential source of choking. I told the salesman so. Someone else had just told him the same thing. He did not like our remarks.

Chairman Wheatley: One of the most serious accidents is due to burns. In the reports received from the members of the Academy, burns represented 30% of all reported cases. More than half of these were said to be associated with clothing which caught fire. Some of you may recall the tragic accidents that were reported from an extremely flammable type of clothing used on cowboy suits.
several years ago. This suit was quickly taken off the market, but there are other types of highly
flammable textiles that find their way into clothing for children. Our Committee is interested in
standards that have been developed to test the flammability of clothing. We believe that some acci-
dents could be prevented if parents knew what clothing is flame-resistant or less flammable. This
is an example of the engineering approach to accident prevention. Another example is the manufacture
of harnesses and restraints which are used on children. In the reports from members of the Academy
to our Committee, strangulation by harnesses or straps accounted for 18 fatalities and 34 nonfatal
accidents.

One pediatrician groups 7 nonfatal and 1 fatal case together as the circumstances were similar,
making a compositive picture more informative. All were sleeping in a bag tied down to the 4
corners of the crib. The bag had a zipper down the front ending in a neckband through which the
baby’s head protruded. All were at the toddling age (10 to 16 months). Apparently they all did the
same thing—turned on one side and “walked up” the rungs of the crib, thereby rotating their bodies
in the bed by means of the leverage of pushing a foot on one rung after another. When they got
a little beyond a cross-wise position, the neckband twisted tight around the neck, apparently quite
suddenly, so that they were garroted. The reason the doctor thought the twist was sudden was that
only one was heard to cry out, and he gave only a few squeaks. The others were discovered because
their thrashing about in the bed was heard. They all had scleral and facial petechiae for several
weeks and 3 of them were aphonic for about a week.

Earlier, lead poisoning was referred to. We are including this problem in our investigation
of the prevention of accidents through engineering. It may be possible to develop standards for the
labeling of paint so that it might indicate that a paint is safe to use on objects with which a small
child may come in contact.

These problems are going to be discussed at a meeting requested by our Academy Committee and
sponsored by the American Standards Association on December 5, 1951. Representatives from na-
tional, medical, public health, parent, governmental and trade associations are invited to this meeting
to determine if projects can be set up to create standards which might reduce the hazard to children
of certain manufactured articles.

Dr. Robinson, Hamilton, Ohio: I know of a baby who, while in a harness, vomited straight
up and almost strangled. The problem was getting the child loose quick enough to prevent aspiration.

Dr. Katherine D. Brownell, New York City: In our hospital we use a fish net. We have had no
bad experiences.

Question: What do you mean by a fish net?

Dr. Arena: It is a thin net that fits over the crib. It allows the baby to stand but not to fall out.

Dr. Ferris, Chicopee, Mass.: That does not solve the problem of keeping the baby warm.

Dr. King G. Woodward, Rockford, Ill.: Has anyone ever heard of a child frozen to death in
his crib? I have not. I believe the fear of a child getting a cold from lack of covering is over-
emphasized.

Comment: I have used the same system with success.

Dr. Kotte, Cincinnati: A bulletin given us stated that the Gift Fair at the Hospital for Sick
Children in Toronto has a harness for sale. Has anyone here seen it?

Dr. Bernard I. Michaels, Pittsburgh: I have. One side was loose, the child was held up by the
crotch. I believe one could strangle.

Dr. Kotte, Cincinnati: The day on which I left for the Chicago meeting last year one of my
patients was strangled in a blanket type that tied to the sides.

Chairman Wheatley: I believe some of the suffocation deaths may occur when a baby is at that
stage of development when he can turn partly over but hasn’t full control to turn freely from his
back onto his face and to his back again.

Dr. Hoyer: One must not forget that there can be dangers from the bumper guard.

Dr. H. H. Shuman, Springfield, Mass.: When babies slept on the floor, there were no such acci-
dents. The mattress must be firm. All creases must be eliminated. Babies should not sleep with
parents.

Dr. Hoyer: The mattress must fit the bed.

Dr. H. B. Mark, Riverton, N.J.: Is it true that not all deaths are due to suffocation?

Chairman Wheatley: Yes. Probably most are not due to suffocation. There is good evidence that
many are due to acute infections which are unrecognized. It is a subject for further investigation. The
Children's Bureau is aiding a study under the direction of Dr. Sidney Farber of Boston to clarify this situation. Research on accidents is greatly needed. A pilot study of Babies Hospital, Presbyterian Medical Center, financed by the Metropolitan Life Insurance Company is being undertaken to determine how to investigate the accident prone child. The project is under the direction of Dr. William Langford.

Dr. E. O. Jodar, Detroit: My pet peeve is accidents from wringers on washing machines. I have had 76 such cases, 2 of which were serious. I wrote to 2 companies; one company did not answer my letter, the other said it would investigate the subject.

Chairman Wheatley: We must not put too much faith in legislation or engineering to control accidents. Education of parents and children is more important. For example, it is doubtful if we can make a cook stove "foolproof" so as not to be dangerous for a child. A stove is essential in the home. The child must be taught how to live safely in the kitchen.

Dr. Kotte: It is my first duty to acknowledge the indebtedness and to express the gratitude of the Cincinnati Pediatric Society to Dr. Wheatley and his associates in the Metropolitan Life Insurance Company. We have called on Dr. Wheatley for advice and for material help in the form of literature. He has always responded. In trying to develop a program of accident prevention for the children of Cincinnati, we found that the support of other organizations both medical and lay were needed. When a full time Executive Director was appointed for the Greater Cincinnati Safety Council, there was a marked increase in accomplishment in all forms of childhood safety.

Dr. Martin: Was he a paid executive?

Dr. Kotte: Yes.

Chairman Wheatley: In summary, I hope our discussion has made it clear that accident prevention is an important part of pediatric practice. We have discussed the magnitude of the problem, emphasizing the frequency of poisonings. We have discussed ways of educating families to avoid accidents. We have also suggested some of the opportunities for professional education and participation in community safety activities. There are, of course, many gaps in our knowledge and important areas for further study and emphasis. Some of these are: (1) the need for better diagnostic work-up of many of these, particularly poisonings. Here physicians will be helped if they have toxicologic laboratory facilities in their communities; (2) there needs to be an evaluation of the educational methods used for parent-and-patient education; (3) there should be more thorough investigation of the circumstances leading up to accidents. The whole area of child behavior and emotional health is involved here.

To be effective, accident prevention has to be incorporated into everyday living.
Round Table Discussion: PREVENTION OF ACCIDENTS IN CHILDHOOD
GEORGE M. WHEATLEY, JAY M. ARENA, ROBERT H. KOTTE and BENJAMIN J. HOYER
Pediatrics 1952;9:237

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