

Home Accident Prevention Activities

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Much has been written and many discussions have been held on the problem of home accidents, their prevention, and their relationship to public health. The continuing high accidental injury and death rates represent to conscientious health workers a negation of many of the positive advances that have been made in the prevention of disease during the past several decades. Because of the growing awareness among health workers of the urgency of the problem, it seems appropriate to review past endeavors in home accident prevention, to reconsider present problems in the light of history, and to contemplate the future.

The Accident Problem

Mortality

Accidents, as a cause of death, were relatively less important in the early part of this century when communicable diseases were on the rampage. However, as the combined efforts of the public health and medical professions slowly, and in some instances dramatically, tamed these major killers, accidents rose in relative rank until now they stand among the leaders.

For many years the only figures available on accidents were those derived from analysis of death certificates. In view of the need for more specific reporting, a standard accident reporting system was developed in 1925 by the National Safety Council, as an approach to

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national uniformity in reporting of fatal accidents (1). The Census Bureau began publishing data on deaths from home accidents in 1935. None of these activities included the gathering of statistics on nonfatal accident.

With better reporting of figures on fatal home accidents, and realization of the magnitude of the problem by public health agencies, the next step was the standard epidemiological approach—what, how, why, where, and when—to form the basis for planning a practical home accident prevention program.

To define the accident problem more clearly, the National Office of Vital Statistics, Public Health Service, developed a general accident-fatality form in 1949 which included a part of the standard death certificate plus epidemiological information desired on all non-motor-vehicle accidents. Since motor vehicle accidents already were being investigated and reported, this additional type of information appeared necessary to focus the total accident problem more clearly. The form was offered to the States as an aid in studying their own accident problem, and 18 States used it during the 1½ years in which it was available. In 1950, the National Office of Vital Statistics, wishing to ally their efforts more closely to other special efforts then being made by the Division of Sanitation of the Public Health Service, replaced the general accident-fatality form with the more specific home accident fatality form now used in 10 States.

Morbidity

Although all of these studies and evaluations stressed the importance of accidents in public health work, it was appreciated that they by no means presented the total problem.

There was a need to supplement such information with more facts and figures on the extent and circumstances of nonfatal home accidents.

Probably the first study to obtain data on nonfatal accidents was the National Health Survey of 1935-36 (2). The survey's findings indicated the magnitude and public health importance of home accidents and suggested the need for more intensive studies of specific causes of accidents, particularly from the point of view of developing methods of prevention. (The oft-used ratio of 150 nonfatal home accidents to each fatal one was based on the data gathered in this survey.) The survey produced enlightening information not previously available, but the sample selected represented only 3.6 percent of the 1930 urban population of the United States. The information elicited on accidental injury concerned an even smaller percentage. Also, the survey did not include rural homes, thus omitting consideration of many conditions having an accident potential not ordinarily found in urban dwellings.

Since the collection of statistics is not an end in itself, the facts gathered from both morbidity and mortality studies are the stepping stones which categorical activities of the health department should use to plan and evaluate home accident prevention programs.

At the Local Level

The National Safety Council, the Subcommittee on Accident Prevention of the American Public Health Association, the American Red Cross, and the Public Health Service have all recognized that the prevention of home accidents is essentially a local problem.

State health departments in conducting studies of home accidents have found that the chief types, in relative importance, follow a common pattern. However, although falls, burns, and poisoning strike in similar ratios in most areas, the causative factors may vary significantly in different localities. Such differences require variation in methods of control for specific application to specific problems.

Experience has illustrated the advisability and practicability of using the "rifle" approach of hitting the major problems, rather than the "shot-gun" approach of scattering our efforts

in the hope that some of them may be productive. The home accident prevention program must be directed to those causes or to those age groups constituting the bulk of the home accident problem. Funds, personnel, and time are too scarce to be wasted on less significant aspects of the problem.

The statistical basis for such a "rifle" approach was first utilized by Dr. Earl G. Brown while he was commissioner of health for Kansas. He initiated the collection, tabulation, and analysis of statistics relating to fatal accidents, on a continuing basis, at the State level, thereby demonstrating the practical value of this philosophy.

It is important that as essential as statistics and epidemiological investigations of fatal accidents are, they still must be supplemented with detailed information on the types and causes of the greater number of home accidents resulting in injury but not in death. This supplemental information has been, and is being, obtained in several ways. By no means do we have the perfect method yet, but each procedure, despite limitations, adds to our store of knowledge.

Among such supplemental sources of information are the hospitals in a community. Red Cross chapters in large cities like Washington, D. C., Atlanta, Ga., and Kansas City, Mo., have learned that hospitals will cooperate in conducting studies of nonfatal home accidents. Reports prepared by the hospital staff, using data collected from the out-patient and in-patient services and emergency rooms, are made available to control agencies. They represent one contribution which hospitals can make as members of the community team. While these statistics do not represent a cross section of the accident problem, they are indicative of areas in which activity is needed. It is well worth the health department's effort to obtain the cooperation of the planning and operating levels of a hospital in supplying such data.

Case Evaluation

It is obvious that analysis of records on fatalities and injuries will not present the whole problem. The goal should be the investigation of every accident, whether or not it results in injury. But although the desirability of studying each accident experience, regardless of its

end, cannot be questioned, we must realize the impracticability of this procedure.

Of four individuals who may experience the same accident, for example tripping on a torn stair carpet, one may fall and be killed; another may fall and fracture a leg or arm; the third person may not fall, but in twisting, may sprain an ankle; while the fourth may catch himself and go on his way without injury of any kind. Undoubtedly, the circumstances in the first case will be remembered by witnesses, in the second case by the individual himself for a long period of time; in the third case for a week or so; and in the last case no longer than a few minutes or hours.

Therefore, we must set a criterion, or definition, for "reportable" experiences that will be remembered and recounted on interview to give us a basis for comparing the findings of studies and for evaluating the effectiveness of programs. The National Safety Council and the Public Health Service recommended the criterion now used in demonstration projects and other programs in which nonfatal accidents are being studied: "A reportable home accident is one which causes an interruption of normal activity for a period of at least 24 hours beyond the time of injury." There are, of course, exceptions to the rule, but these are few in number and tend to strike a balance.

Community Demonstrations

In 1948, the W. K. Kellogg Foundation became interested in the home accident problem. Following discussions with the Public Health Service, the Foundation's division of public health recommended that its board of trustees appropriate funds for a demonstration program in home accident prevention by a local health department. Dr. Winston B. Prothro, health officer, Kalamazoo (Mich.) City-County Health Department expressed interest and submitted an application for a grant outlining a comprehensive program for investigating the home accident prevention problem and developing preventive measures. In September 1948, a grant was made to the Kalamazoo Health Department "to demonstrate the possibility of effecting a significant reduction of mortality and morbidity caused by home accidents" (3).

The demonstration program at Kalamazoo is

now in its fourth year. The results of the early period of this demonstration led to the Public Health Service recommendation that additional demonstrations be undertaken in different areas of the United States in health departments of varying size and composition. The Kellogg Foundation favored the proposal, and after reviewing applications from 41 local health departments, selected three to undertake demonstration programs for periods of 3 to 5 years. In August 1951, demonstrations were started by health departments in Cambridge, Mass., San Jose, Calif., and Mansfield-Richland County, Ohio.

Each of these four programs is developing its demonstration based on its individual philosophy and approach, and in accordance with its operational pattern and legislative responsibility. In each case, however, four basic objectives have been accepted as guiding principles: first, to determine inexpensive and practical methods for reporting nonfatal home accidents; second, to determine the methods and continuing need of in-service education for health department personnel; third, to include home accident prevention techniques and education in all regular health department activities, as an integral part of all functions and operations; and fourth, to evaluate all such activities in the light of their effectiveness, and then determine the relative place of home accident prevention activities in a local health department and the responsibility the health department should accept for home accident prevention. In these demonstrations, the recommended criterion for reportable home accidents is being used in the compilation of statistics on nonfatal home accidents to permit comparison of magnitude and detail of the accident problem as well as evaluation of program effectiveness among the four projects. This in no way precludes epidemiological investigation of any or all home accidents in these project areas.

Thus, four different methods of establishing a base line and compiling data on nonfatal home accidents are being tried. In Kalamazoo, a survey of the entire population, city and county, is conducted annually in conjunction with the school census wherein all homes are visited by enumerators. Home accident cases thus located are checked at a later date by health depart-

ment personnel and the circumstances of each accident are investigated.

In Cambridge, a sample survey is being conducted, in which 1,000 families are visited by health department nurses and sanitation personnel to determine the frequency of, and the various factors involved in, home accidents.

In San Jose, questions regarding home injuries are being incorporated into a morbidity research project conducted under the sponsorship of the California State Health Department. This study of a representative sample of the population will determine the amount of illness in San Jose during a specific period of time. The demonstration program is fortunate in being able to acquire its base line as a byproduct of such a research project.

In Mansfield, Ohio, a survey is planned which will include approximately 25 percent of the families residing in the Mansfield-Richland County area. The interviewing will be conducted by YWCA volunteers trained in interview techniques. The Ohio State Health Department will tabulate the final results.

There are still other methods of collecting data on nonfatal home accidents. A home accident survey made by the public health nurses in Lynn, Mass., was reported by Dr. Helen Roberts of Harvard University. The survey, conducted during 1949-50, was made a part of the nurses' regular duties, so that in the course of home visits, the families were routinely queried as to occurrence of home accidents. Though this study was small, the findings did indicate the kind of information determinable from this type of survey.

Scientifically designed sample surveys will provide representative results of the problems in an area within acceptable reliability. However, such surveys are expensive and ordinarily not undertaken without outside assistance, financial or otherwise, as in the case of the San Jose morbidity research project. However, all health departments can analyze home accident fatality report forms and supplement these findings with inexpensive studies of nonfatal home accidents and with hospital reporting to determine some of the major factors at which preventive measures must be aimed, even though incomplete and not a cross section of the community problem.

Research

The inauguration of demonstration projects and activities in the health departments drew attention to the need for extensive home accident research on problems of major importance to all future activities.

In 1950, the University of Michigan School of Public Health, recognizing the growing interest in home accident problems, the consistently high mortality, the impressive number of accidents attributed to environmental causes, and the insufficient studies of these elements, requested a research grant from the Public Health Service to study the incidence of home accidents, hazards existing in the home, and the accidents themselves. The project was begun in February 1951.

The findings from the study will be related to health department practices, including suggestions for accident investigation, family education in safety practices, and methods of eliminating structural and operational hazards associated with home accidents. An effort will be made to suggest a method for local health departments to design and conduct inexpensive surveys on small random samples that will provide statistically significant figures on incidence.

As studies of types and causes of home accidents and of age distribution were evaluated, it became apparent that further study was needed on specific problems related to accidents among children. The work of Dr. Flanders Dunbar provided initial guidance in reviewing certain aspects. Supplementary knowledge based on studies of injury-prone children was provided by Dr. Elizabeth Fuller of the University of Minnesota Institute of Child Welfare.

The Metropolitan Life Insurance Company made a grant to Dr. Rustin McIntosh to conduct at the Babies Hospital of the Columbia-Presbyterian Medical Center in New York a study of accident proneness in children. The study, now under way, will include a thorough analysis of the history and current status of a number of child accident repeaters and their families, in comparison with a control group relatively free of the accident habit.

Mechanical suffocation of infants is another indication of the need for special studies.

More than 50 percent of the accidental deaths occurring in infants under 1 year have been attributed to mechanical suffocation. Dr. Jacob Werne and Dr. Irene Garrow of New York City studied every infant death from mechanical suffocation reported over a 15-year period in Queens County, N. Y. Their findings indicated that in no instance was mechanical suffocation proved to be the cause of death in a healthy infant, whether by bedclothes or in an analogous manner, but resulted chiefly from pulmonary infections (4).

Dr. Katherine Bain of the Children's Bureau, Federal Security Agency, convened a group of pediatricians, pathologists, and others interested in the problem to discuss steps to be taken to resolve this controversial issue. The group recommended that research studies be undertaken by outstanding pathologists in several large cities to determine actual causes of sudden deaths in infants. Under a Public Health Service grant, Dr. Sidney Farber of Harvard University Medical School, as principal investigator, and Drs. Richard Ford, Jacob Werne, Alan Moritz, and Russell Fisher are working on a research project to "study in a systematic and coordinated fashion a sufficient number of cases of infants dying unexpectedly while in apparent good health, in order to determine the nature of this syndrome and its etiology. Four large cities will be selected initially. In each, all infants between 1 week and 1 year of age dying unexpectedly while apparently in good health will be studied. Each case will have complete pathological studies, including histological and bacteriological, viral studies, and environmental studies. Data will be collected in a similar manner in all centers and will be pooled and evaluated by a central committee."

Recently the American Academy of Pediatrics requested the American Standards Association to set up, under their procedures, a project for the development of standards for equipment, clothing, and other materials which may present accident hazards to children—flammability of textiles, toxicity of paints and household chemicals among others. Plans have been formulated for such an undertaking.

National Programs

Although our present consideration is limited to public health agencies, the contributions of the National Safety Council, Metropolitan Life Insurance Company, and other vitally interested organizations in the field of home accident prevention are numerous and meritorious.

The Subcommittee on Accident Prevention was appointed by the American Public Health Association in 1942. In 1944, the scope of the subcommittee was narrowed to consideration of home accident prevention activities, and in the same year, the subcommittee prepared a paper on recommended activities for each professional discipline in a health department. Since then it has sponsored special home accident prevention sessions at the annual APHA meetings.

Its most recent endeavor was the investigation of the type and amount of home safety education included in the curriculums of schools of public health and public health nursing. The data so far collected indicate an interest in further development of home accident prevention philosophies and methods as an integral part of the over-all curriculum. The information gathered indicates also a wide variety of methods and frequency with which the problem of home accidents is included in a formal educational program. In no instance did a school cover the subject as completely as believed necessary to give the health worker adequate knowledge with which to meet the problem in his own work situation. Recently a task force of the subcommittee has been preparing material to use as curricular guides for schools of public health nursing.

The home accident prevention program of the Public Health Service was inaugurated in 1947 with the assignment of full-time personnel to this activity. Much ground work had been done before then by Public Health Service personnel who had studied the problem while assigned to other activities. Early in the inception of the home accident prevention program, an advisory committee composed of representatives of various Public Health Service functions adaptable to home safety work was appointed

by the chief of the Bureau of State Services to guide development of the objectives, philosophies, responsibilities, and operational activities of the home accident prevention unit in the Division of Sanitation.

The Public Health Service has stimulated interest and activity in home accident prevention among State and local health departments through consultation, public health meetings, guidance in research and demonstration projects, preparation of special survey and training materials, and distribution of packets and brochures. Public Health Service personnel in the Federal Security Agency regional offices, aware of the attitudes toward, and programs of, home accident prevention in the States within their regions, have been active in offering more specific contributions toward planning home accident prevention activities in health departments within their areas.

State and Local Activities and Needs

The home accident problem, although of national scope and importance, will be controlled in essence by the efforts expended at the local level. National or Federal organizations and agencies can correlate and disseminate the results of various undertakings and can suggest the broad but general framework for preventive programs. The State health agencies can make these suggestions more specific for their localities, but the pinpointing of effort must be done in and by the community.

According to current information on home accident prevention activities in health agencies throughout the Nation, 15 State and 13 local health departments have activities in progress. The activities range from the well-rounded program of demonstration projects to modest efforts limited to one professional group within the health department or to one specific activity.

Careful review and analysis of the reports of studies already described have provided information to formulate basic principles of accident prevention. These facts, plus the attitudes of individuals and health groups, and the programs already reported upon or in progress, have given the premise upon which the

philosophy of the Public Health Service in home accident prevention has been built. That philosophy includes the following precepts:

First, home accident prevention is a matter primarily for individuals, families, and community groups. The problem must be met chiefly by the person or group having direct contact with the potential accident victim or his home.

Second, home accident prevention, to be effective, must be a continuous program, aimed at elimination of hazards in the environment and correction of accident-potential characteristics within the individual.

Third, research and investigation into conditions and situations now known to have, or suspected of having, an accident potential should be continued.

Fourth, all home builders, manufacturers, and members of medical, educational, and allied professions should be encouraged to contribute their skills and knowledge to this problem.

The Public Health Service believes that professional public health workers, physicians, and the auxiliary professions must provide leadership and stimulation toward solution of the home accident problem.

Home accident prevention has come out of the laboratory and is now in the development stage. We may look to its integration in all health departments, into every program which seeks to protect the family and the individual in their home environment. In the meantime, there is ample room in the field now for health workers wanting to pioneer in a new territory and to contribute to a new concept of public health.

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