The 1990 Objectives for the Nation for Injury Prevention: A Progress Review

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SYNOPSIS

Unintentional injuries are the principal cause of preventable early death. Beyond terms of human suffering and death, injuries place enormous burdens on this country's economic and health care resources. Demographic, sociological, environmental, and behavioral factors that influence our society contribute to the complexity and scope of the injury problem.

Progress in injury prevention will be achieved only through the combined efforts of individuals, organizations, and government at every level of our society. The Federal Government is an important contributor to this process through its role of leading, catalyzing, and providing strategic support. Within the Department of Health and Human Services, numerous agencies have major injury prevention components with a broad range of responsibilities, including the direct delivery of services, establishment of safety standards, sponsorship of education and information efforts, building of the capacity of other sectors, basic and applied research, and surveillance. The Centers for Disease Control, as the lead agency, assists State and local health departments in their injury prevention efforts and coordinates activities undertaken jointly by Federal agencies, State and local governments, and private-sector organizations.

To meet the 1990 Objectives for the Nation with respect to injury prevention, both the public health and private-sector providers must recognize the injury problem of the 1980s. Without the support and involvement of the public health and provider communities and of the private sector, injuries and their costs will continue at their present alarming rates. The opportunity is great for promoting health, preventing injuries, and reducing associated costs to society. Making the best of this opportunity is our challenge during this decade.

THERE HAS BEEN A MAJOR SHIFT in the causes of death and disability in the United States. At the turn of the century, infectious diseases limited people's productivity and often took their toll in early death. Today noninfectious diseases are relatively more important causes of death and disability. More specifically, unintentional injuries are the leading cause of preventable early death.

Injuries constitute this country's leading cause of death for persons in the first four decades of life and are the fourth leading cause of death for persons of all ages (*1*). Of even greater significance, deaths caused by injuries rank number one in terms of years of life lost prematurely (*2*).

Magnitude of the Problem

In 1981, an estimated 87,000 Americans died after sustaining an unintentional injury outside the workplace. An estimated 57 million Americans were similarly injured and, as a result, 15 million were bedridden. In 1981, about 80,000 Americans were permanently disabled by injuries that occurred in the home (*1*).

In 1981, intentional and unintentional injuries, including occupational injuries, produced nearly 500 million days of restricted activity, representing nearly 23 percent of all days of restricted activity resulting from acute conditions. These injuries accounted for almost 144 million days of bed disability, or about 15 percent of all days of bed disability due to acute medical conditions. Americans 18 years and older lost more than 97 million days of work due to injuries, accounting for nearly one-third of all work days lost as a result of acute medical conditions. In 1980, injuries accounted for 8.9 percent of physician visits and 25.5 percent of hospital clinic or emergency room visits for all acute conditions (*3*).

Beyond terms of human suffering and death, injuries place enormous burdens on this country's economic resources. During 1981, the direct medical cost of nonoccupational injuries was estimated at $7.8 billion, and the total cost (including cost of wages and loss of productive life) was estimated at $54.9 billion (*1*).

The principal causes of disability and death from unintentional injury are those associated with motor vehicles, falls, drownings, burns, and poisonings. Although injuries are among those unique conditions that exact a substantial toll from persons at each life stage, certain population groups are at greater risk of being injured or receiving certain types of injuries than others. Complex interrelationships of such factors as age, sex, socioeconomic status, degree of exposure to environmental hazards and deficiencies, and behavioral characteristics account for these differences (*4*).

- Males account for about 52 to 87 percent of most injury fatalities, depending on the age group and injury type (*1*), primarily because of differences in the quality and quantity of exposure to hazards—for example, because of risk-taking behavior such as high-speed driving and participation in high-risk sports and recreational activities (*4*). Injury deaths among males are particularly prominent in the teenage and young adult age groups (*1*).
- Each year, about 800 children under age 5 die as motor vehicle occupants; nearly all these deaths could be prevented by the use of child automobile restraints. Another 800 children in this age group die each year as pedestrians, 800 in housefires, 700 by drowning, 200 as a result of falls, and 400 by suffocation or choking. The limited ability of young children to perceive or avoid hazards is a factor in most of these injuries (*4*).
- Among the working population between 25 and 64 years of age, motor vehicle crashes produce more than 50 percent of all injury fatalities (*1*).
- The elderly, particularly persons over age 75, have disproportionately high injury death rates, especially those associated with falls, motor vehicles, and fires and burns (*1*). Elderly persons' decreased resistance to injury and reduced likelihood of survival after injury are major contributors to these high rates (*5*).
- The poor and minorities, especially Native Americans, have higher injury death rates than the overall population because of such factors as greater exposure to hazards from inadequate housing stock or high-risk occupations (*5*).

Inextricably associated with risk factors are behavioral and lifestyle choices that influence the probability of injury. Alcohol use is associated with about 50 percent of deaths associated with motor vehicles, falls, fires and burns, and drownings. Several studies suggest that careless handling of smoking materials by intoxicated persons contributes to substantial numbers of burn injuries and deaths (*6*). Thus, a comprehensive approach to injury prevention must deal with factors that individuals can control, as well as those over which they have little or no control.

Injury Trends

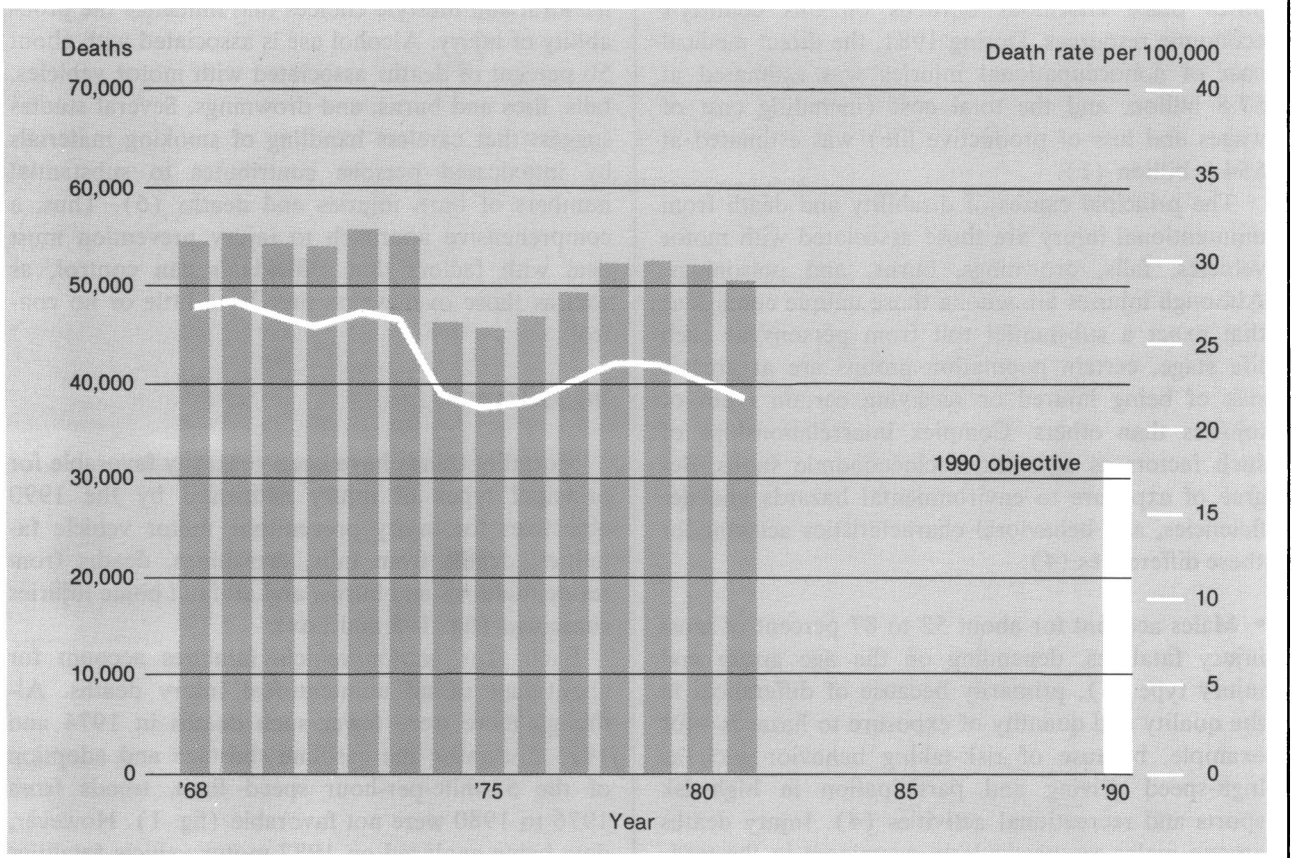
Mortality trends have been generally favorable for principal types of injury addressed by the 1990 objectives for injury prevention: motor vehicle fatalities, deaths from falls, drownings, deaths from residential fires and burns, and all fatal home injuries combined (fig. 1–5 and box).

Each year, motor vehicle fatalities account for about half of all unintentional injury deaths. Although there were fewer such deaths in 1974 and 1975, following the gasoline shortage and adoption of the 55-mile-per-hour speed limit, trends from 1976 to 1980 were not favorable (fig. 1). However, data being analyzed on 1982 motor vehicle fatalities are showing that such deaths declined from an estimated 51,500 in 1981 to 46,300 in 1982—a 10 percent reduction (*7*). Although the reasons for this significant decrease have not been identified, variables under investigation include changes in vehicle design, road conditions, miles driven, alcohol use, use of car restraints, economic conditions, type of driving, who drives, and medical care for crash victims.

The current lack of data subsequent to 1979 limits assessment of progress toward the achievement of the 1990 objective to reduce the motor vehicle fatality rate for children under 15 years of age. However, the rapid expansion of State child restraint legislation, child restraint loaner programs, and health promotion efforts designed to increase restraint use (most of which occurred after 1979), coupled with the apparent decrease in overall motor vehicle fatalities from 1981 to 1982, are positive suggestions of a favorable trend.

For reasons not yet fully understood, there was a persistent decrease in mortality related to falls from 1968 through 1980 (fig. 2). Despite this positive trend, deaths resulting from falls still constitute the second leading cause of unintentional injury deaths—

Figure 1. Motor vehicle fatalities and crude death rates, United States, 1968–81



NOTE: The solid line represents death rate. The 1990 objective is a death rate of 18 per 100,000 population.
SOURCE: National Safety Council.

exceeded only by motor vehicle-related deaths. According to unpublished data from the National Center for Health Statistics, more than 71 percent of the 13,216 persons who died from falls in 1979 were 65 years of age and older.

In this regard, initiatives of the Public Health Service (PHS) and the Administration on Aging (AoA), Office of Human Development Services, Department of Health and Human Services, deserve special mention. These two groups are working together to facilitate cooperative efforts to sponsor health promotion for the elderly. The PHS is providing scientific and technical background on health promotion topics and practices, and the AoA is providing access to its network of State and local agencies on aging for the purposes of reaching the elderly and practitioners who work with the elderly.

Major foci of this broad initiative are programs designed to promote safety among the elderly, including demonstration activities designed to reduce hip fractures. In addition to the PHS and AoA efforts, the collaborative resources of the U.S. Consumer Product Safety Commission, State and area agencies on aging, local health departments, and statewide professional societies will be brought to bear on these priority areas.

The mortality rate for drownings has remained generally constant from 1975 to 1980 (fig. 3), presumably because the longstanding and significant association of alcohol use with drownings has been only incompletely addressed. Persons aged 15 to 45 years constitute more than 55 percent of all victims of drowning. As previously noted, alcohol use is associated with about 50 percent of both young adult and older adult drownings.

Research and health promotion initiatives of the Alcohol, Drug Abuse and Mental Health Administration and the Centers for Disease Control's Center for Health Promotion and Education, and similar efforts initiated by States, communities, and private and voluntary sector organizations, will, it is hoped, show progress in reducing the incidence of alcohol abuse and associated health effects.

National Safety Council data indicate that there has been a consistent reduction in deaths from residential fires and burns since 1968. This downward

trend was more pronounced during the period 1979–81 when it reached a level below the 1990 objective of 4,500 deaths (fig. 4). Reasons for the decline are uncertain but may include increased use of residential smoke detectors, better emergency response, and changes in the use of fire-resistant materials.

Barriers to Success

Despite these facts and figures, there is still widespread misinformation about injuries as a major public health problem. Certain barriers have retarded the development of the injury prevention field, and these barriers must be removed for injury prevention to succeed.

First, and perhaps most important, there is widespread misunderstanding of injury causation that is characterized by use of the unscientific term "accident," with its connotations of chance, fate, and unexpectedness. Decision makers and those outside immediate injury prevention circles must be convinced that injury prevention employs the same scientific, epidemiologic approach that has described the etiology of disease and has led to disease prevention.

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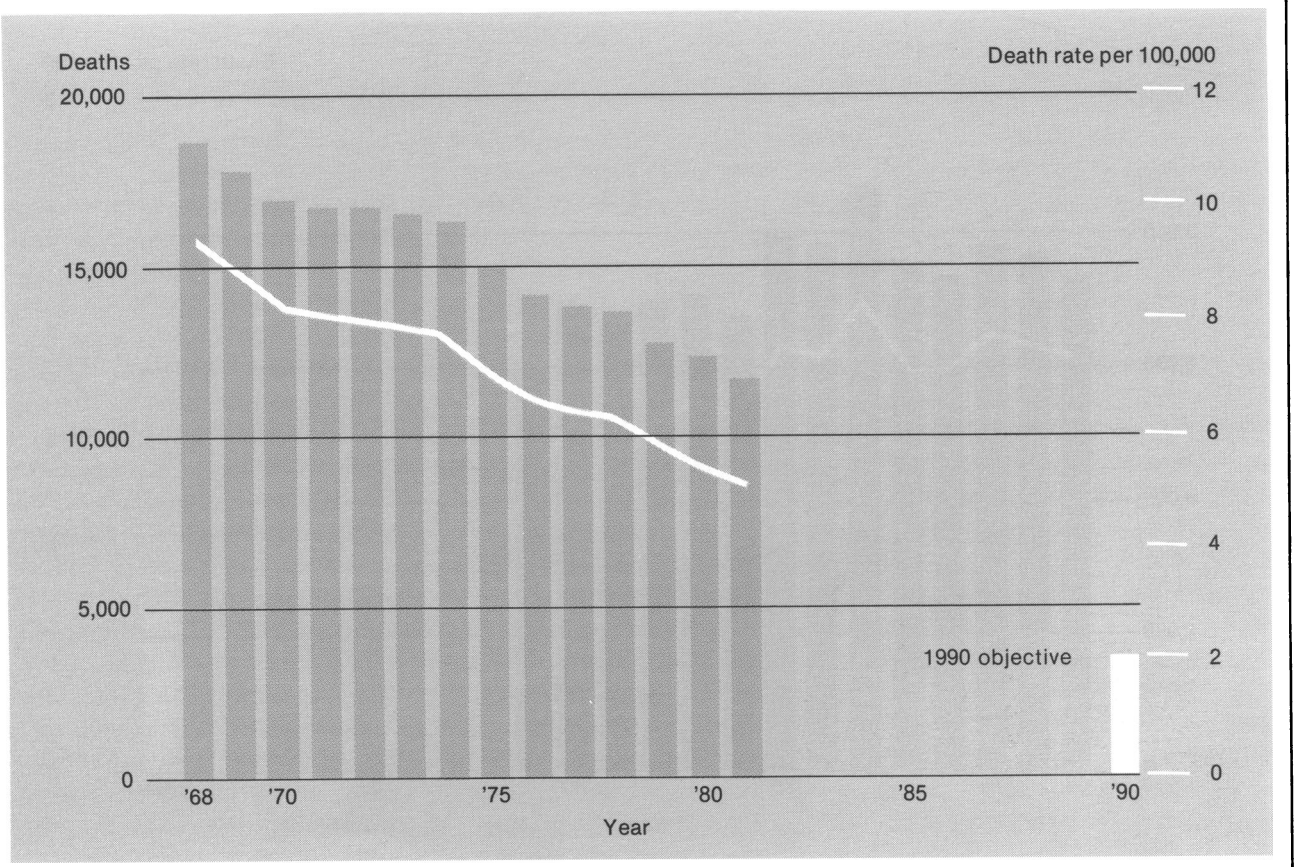
Second, too few injury prevention programs are in place at the State and local levels, particularly within State and community health departments. A 1981 survey of State and Territorial health departments, conducted by the National Environmental Health Association, identified only 12 State health departments that maintained injury prevention programs,

Figure 2. Deaths and crude death rates for falls, United States, 1968–81



NOTE: The solid line represents death rate. The 1990 objective is a death rate of 2 per 100,000 population.
SOURCE: National Safety Council.

'It should be understood that these Department of Health and Human Services priorities should not be equated with national priorities. . . . The objectives should be viewed as useful guideposts; those who decide to pursue them are encouraged to assign priorities as they see fit.'

and only 7 States had injury reporting systems in place.

Third and last, until recently there has been no unified national effort involving all health care providers and appropriate community groups. Injury prevention activities have been fragmented and have lacked continuity.

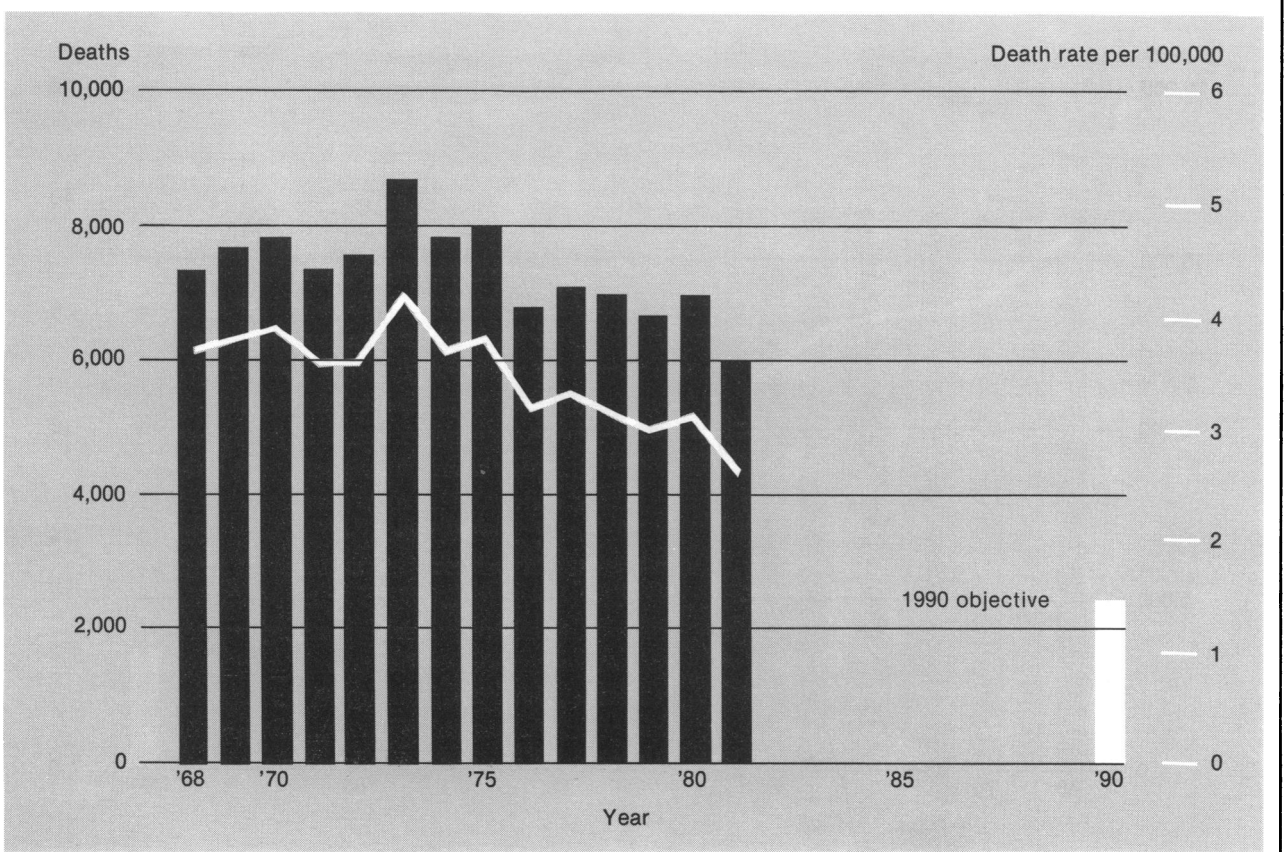
Injury prevention is "no accident," but results only after these common barriers have been eliminated and epidemiologically sound prevention techniques have been applied.

Injury Prevention Priorities and Objectives

Health improvements of the last decade for Americans, and prospects for further gains, have been reviewed in several recent publications. Prominent among these publications are "Healthy People: The Surgeon General's Report on Health Promotion and Disease Prevention" (*8*); "Promoting Health/Preventing Disease: Objectives for the Nation" (*9*); and "Health: United States, 1982" (*10*). "Prevention '82" (*11*) summarizes major developments now underway in health promotion and disease prevention and reviews the Federal contribution to achievement of national prevention objectives.

"Healthy People" identified 15 health priority areas in which further actions were required to improve the health of Americans. It established broad national goals, expressed as reductions in overall death rates or days of disability, for improvement of

Figure 3. Deaths and crude death rates for drowning, United States, 1968–81



NOTE: The solid line represents death rate. The 1990 objective is a death rate of 1.5 per 100,000 population.
SOURCE: National Safety Council.

the health of Americans at the five major life stages. Specific and measurable national objectives were systematically established for each of the 15 health priority areas, and these objectives were delineated in "Promoting Health/Preventing Disease: Objectives for the Nation." Injury prevention is one of the 15 health priority areas addressed in that report.

The injury prevention objectives were designed to improve health, reduce risk factors, increase awareness, and improve protection and surveillance. The 14 objectives identified as priorities for concerted Federal effort (see box) focus on reducing rates for motor vehicle fatalities, home injury fatalities, mortality from falls and drownings, residential fire deaths, and tap water scald injuries requiring hospital care. Other objectives focus on use of certified child passenger carriers for newborns; properly placed, functioning smoke detectors; and health care provider advice on car restraints. Objectives for improved services focus on timely ambulance response

The 1990 Objectives for the Nation for Injury Prevention

IMPROVED HEALTH STATUS

Objective (priority): By 1990, reduce motor vehicle fatality rate to 18.0 per 100,000 population. **Baseline data:** 1978 rate, 23.6 per 100,000. **Status:** 1981 rate, 22.8 (provisional data).

Objective (priority): By 1990, reduce motor vehicle fatality rate for children under age 15 to 5.5 per 100,000 children. **Baseline data:** 1978 rate, 9.0 per 100,000. **Status:** 1979 rate, 8.6.

Objective (priority): By 1990, reduce home injury fatality rate for children under age 15 to 5.0 per 100,000 children. **Baseline data:** 1978 rate, 6.0 per 100,000. **Status:** 1979 rate, 5.7.

Objective (priority): By 1990, reduce fatality rate for falls to 2.0 per 100,000 population. **Baseline data:** 1978 rate, 6.2 per 100,000. **Status:** 1979 rate, 5.9.

Objective (priority): By 1990, reduce fatality rate for drownings to 1.5 per 100,000 population. **Baseline data:** 1978 rate, 2.6 per 100,000. **Status:** 1979 rate, 2.5.

Objective (priority): By 1990, reduce tap water scald injuries requiring hospital care to 2,000 per year. **Baseline data:** 1978 estimate, 4,000 such injuries. **Status:** Tracking mechanisms under development.

Objective (priority): By 1990, reduce residential fire deaths to 4,500 per year. **Baseline data:** 1978 total, 5,401. **Status:** 1979 total, 5,299.

REDUCED RISK FACTORS

Objective (priority): By 1990, all birthing centers, physicians, and hospitals should ensure that at least 50 percent of newborns return home in certified child passenger carriers. **Baseline data:** Not available. **Status:** Tracking mechanisms under development.

Objective (priority): At least 75 percent of residential units should have a properly placed and functioning smoke detector. **Baseline data:** In 1980, 50 percent had at least 1 smoke detector; in 1982, 67 percent had at least 1. The extent to which they were properly placed and functioning is unknown. **Status:** To be tracked beginning with 1985 National Health Interview Survey.

INCREASED PUBLIC AND PROFESSIONAL AWARENESS

Objective (nonpriority): By 1990, the proportion of parents of children under age 10 who can identify appropriate measures to address the 3 major risks for serious injury to their children (motor vehicle injuries, burns, poisonings) should be greater than 80 percent. **Baseline data:** Not available. **Status:** To be tracked beginning with 1985 National Health Interview Survey.

Objective (priority): By 1990, virtually all primary health care providers should advise patients about the importance of safety belts and should include instruction about the use of child restraints to prevent motor vehicle related injuries as part of their routine interaction with parents. **Baseline data:** Not available. **Status:** To be tracked beginning with 1985 National Health Interview Survey.

IMPROVED SERVICES AND PROTECTION

Objective (priority): By 1990, at least 75 percent of communities with a population over 10,000 should have capability for ambulance response and transport within 20 minutes of a call. **Baseline data:** Not available. **Status:** Tracking mechanisms under development.

Objective (priority): By 1990, virtually all persons in need should have access to regionalized systems of trauma, burn, and spinal cord injury centers. **Baseline data:** Not available. **Status:** Tracking mechanisms under development.

Objective (priority): By 1990, at least 90 percent of the population should live in an area with access to regionalized or metropolitan area poison control centers certified by the American Association of Poison Control Centers. **Baseline data:** In 1979, about 30 percent lived in such areas. **Status:** In 1982, 40 percent lived in such areas.

IMPROVED SURVEILLANCE AND EVALUATION SYSTEMS

Objective (priority): By 1990, at least 75 percent of 59 State and Territorial health departments should have detailed plans for uniform reporting of injuries. **Baseline data:** In 1981, 7 of 59 departments (12 percent) had plans or had implemented systems. **Status:** In 1982, 9 of 59 departments (15 percent) had plans or had implemented systems.

and transport; access to regionalized systems of trauma, burn, and spinal cord injury centers; and access to certified poison control centers. One aspect of an objective to strengthen surveillance capacity is to encourage States to develop plans for uniform reporting of injuries.

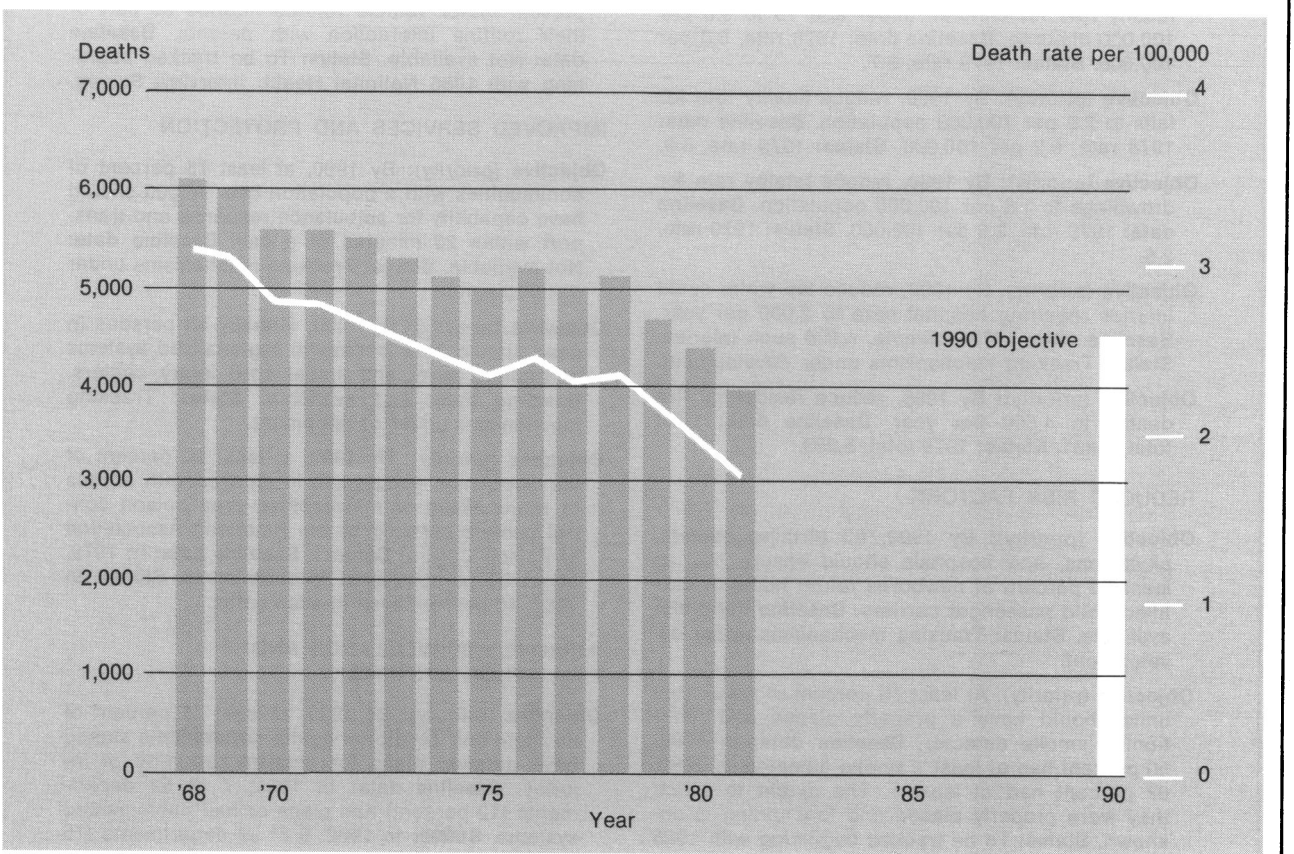
It should be underscored that these Department of Health and Human Services priorities should not be equated with national priorities. Attaining the 1990 objectives will require the energies and resources of other Federal agencies, State and community governments, and private and voluntary sector organizations. The objectives should be viewed as useful guideposts; those who decide to pursue them are encouraged to assign priorities as they see fit.

In preparing these objectives, the following assumptions were made: (*a*) public support of injury prevention programs will be expanded, (*b*) compatible State and local surveillance and reporting systems will be established, (*c*) product design will continue to be improved, (*d*) comprehensive and appropriate regulatory and safety standards will be implemented, and (*e*) economic and other incentives will be identified.

These objectives are statements that incorporate measurable targets against which progress can be evaluated. Progress toward the objectives will be monitored by measuring numerous health status indicators, many of which are tracked nationally. Within the Department of Health and Human Services, the National Center for Health Statistics (NCHS), in its role of collecting and analyzing the vital statistics of the nation and conducting national surveys of illness and disability, provides much of the data necessary for monitoring progress and tracking the 1990 injury prevention objectives.

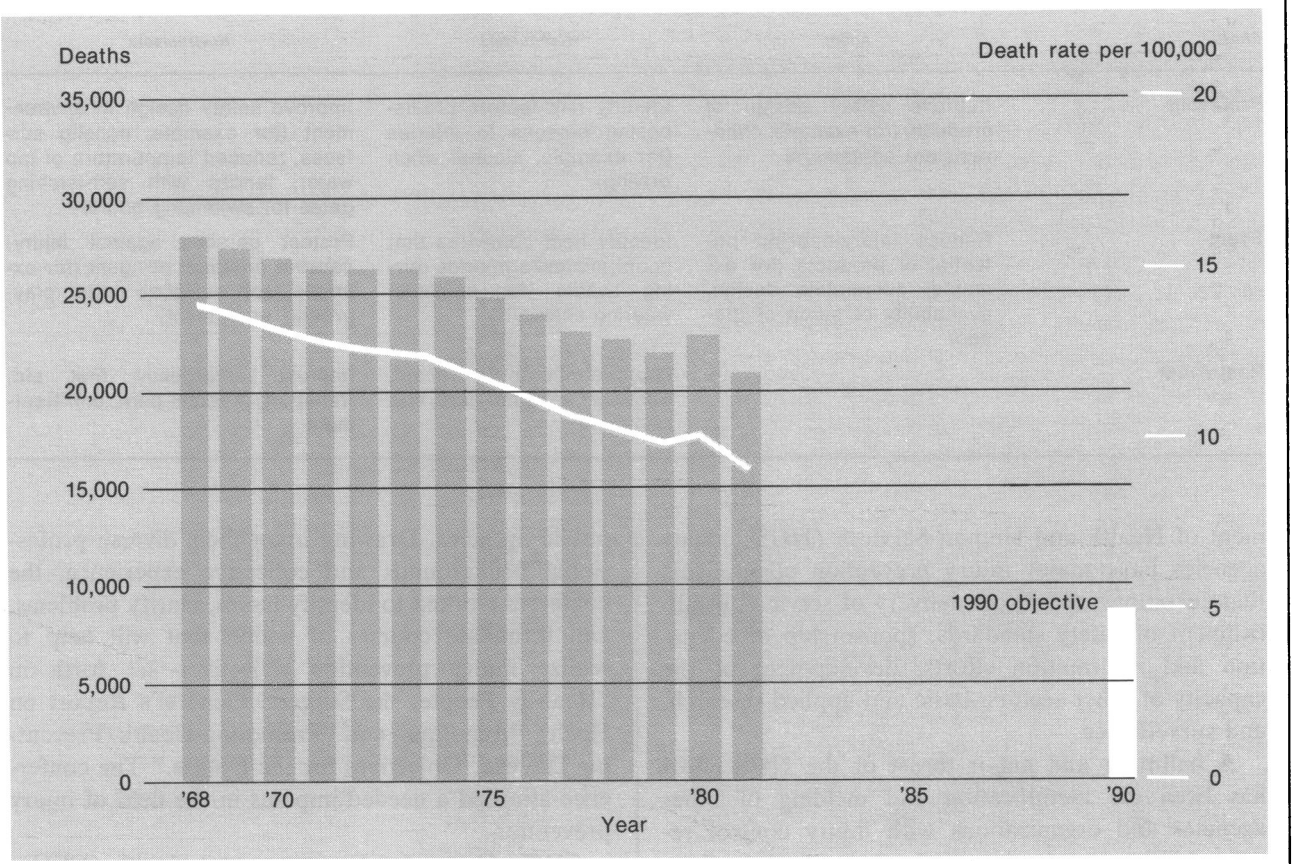
In 1980, the NCHS published a national health prevention profile, which includes a chapter devoted to trend data on selected prevention objectives (*12*). In the 1983 edition, priority 1990 prevention objectives will be tracked. The National Health Interview Survey, designed by NCHS to obtain information on chronic and acute illness, the impact of illness, the

Figure 4. Deaths and crude death rates for burns and fire at home, United States, 1968-81



NOTE: The solid line represents death rate. The 1990 objective is 4,500 deaths.
SOURCE: National Safety Council.

Figure 5. Deaths and crude death rates for injuries at home, United States, 1968-81



NOTE: The solid line represents death rate. The deaths and death rates are for all injuries at home for *all ages.* The 1990 objective is a death rate of 5 per 100,000 for *children under age 15.*

SOURCE: National Safety Council.

use of health services, and other health topics, will include in its 1985 supplement questions devoted to health promotion and disease prevention, including those relating to selected 1990 injury prevention objectives. Public Health Service agencies, including the Centers for Disease Control, the Indian Health Service, and the Alcohol, Drug Abuse and Mental Health Administration, are also expected to provide monitoring and tracking data.

Injury Prevention Strategies

The purpose of prevention is to reduce the frequency and severity of health impairments of individuals and of the populations they compose. This is accomplished by measures that modify or completely block one or more of the three phases, leading to death and impairment, with which we are concerned: pre-event, event, and post-event phases (*13*).

It is useful to view injury prevention in terms of the classic host-agent-environment epidemiologic triad. The characteristics of the host, the agent, and the environment interact in the pre-event (prevention) phase to determine whether injury interactions are initiated; in the event phase, to determine injury type and severity; and in the post-event phase, to determine the extent to which the injury already produced is successfully treated or otherwise countered (table).

Progress in disease prevention must be measured in terms of reduction of preventable health problems and the absence of illnesses, injuries, and deaths that, on the basis of previous experience, might otherwise have been expected to occur.

What Should Be Done and Who Should Do It?

Progress toward achievement of the 1990 objectives for injury prevention will be made only through the combined efforts of individuals, organizations, and government at every level of our society. The Federal Government is an important contributor to this process through its role of leading, catalyzing, and providing strategic support. Within the Depart-

Injury prevention strategies

Phase	Agent	Host factors	Environment
Pre-event	Improve safety design of products (for example, child-resistant containers)	Identify risk factors predisposing persons to injuries (for example, alcohol when driving)	Improve safety design in environment (for example, nonslip surfaces, reduced temperature of tap water, fences with self-latching gates for swimming pools)
Event	Reduce injury-causing potential of products (for example, automobile design, availability of syrup of ipecac)	Identify host behaviors that could minimize injuries during events (for example, wearing seatbelts)	Protect persons against injury-causing potential of agent (for example, soft surfaces under playground equipment)
Post-event		Improve emergency first aid, transport, medical care, and treatment	Improve emergency first aid, transport, medical care, and treatment

ment of Health and Human Services (HHS), many agencies have major injury prevention components that encompass the direct delivery of services, establishment of safety standards, sponsorship of education and information efforts, development of the capacity of other sectors, basic and applied research, and surveillance.

A hallmark and major thrust of the HHS effort has been the identification and melding of other agencies and organizations with injury control responsibilities into a synergistic and targeted effort. Collaborative relationships have been established among numerous Federal and non-Federal groups outside HHS, including the U.S. Consumer Product Safety Commission, the Federal Emergency Management Agency, the Departments of Transportation and Housing and Urban Development, the American Medical Association, the American Academy of Pediatrics, schools of public health, and other health associations.

HHS Initiatives

Centers for Disease Control. Work of the Centers for Disease Control (CDC), the lead HHS agency in the Federal injury prevention effort, includes interagency coordination, surveillance and data-base establishment, technical and managerial training, public and professional education, health promotion and risk reduction, and research.

The May 1981 National Conference on Injury Control, cosponsored by CDC and the Johns Hopkins School of Hygiene and Public Health, brought together leaders in the field of injury prevention representing public health and medical schools, State and local health departments, and other private and public agencies. Drawing upon their diverse professional backgrounds and collective experience, the conferees worked to identify issues, clarify problems, and formulate courses of action that will help to realize injury prevention objectives set forth in "Healthy People: the Surgeon General's Report on Health Promotion" and "Promoting Health/Preventing Disease: Objectives for the Nation." The conference afforded a needed impetus in the field of injury prevention.

CDC's Center for Environmental Health (CEH), in fulfilling its mission to address significant environmental issues, has, over recent years, awarded contracts to States, schools of public health, and private contractors to determine the feasibility of pursuing broad-based intervention strategies aimed at reducing injury morbidity and mortality in the home and recreational environments. Data gathered in this manner confirmed that successful epidemiologic intervention, applied to injury events, can follow the same successful model established for disease prevention.

The CEH has established an Injury Prevention Initiative designed to reduce injury morbidity, mortality, and associated medical costs. Major elements of this initiative include mobilizing the resources of relevant national private sector organizations and Federal agencies and helping States and communities develop or upgrade injury prevention programs. These programs include the establishment of surveillance systems to identify appropriate environmental and educational interventions. Notable among CEH efforts has been the development of locally supported injury prevention demonstration programs established in cooperation with the Allegheny County, Pennsylvania, and Dade County, Florida,

Health Departments. These programs, unique in their comprehensive approach, include citizen participation; community information, education, and motivation; interagency coordination and resource mobilization; hazard identification and reduction; and the establishment of model surveillance systems. Activities and countermeasures are designed to reduce morbidity, mortality, and costs associated with motor vehicles, falls, burns, drownings, poisonings, and childhood suffocations.

Injury prevention principles used to guide the development of these programs have been formalized in CEH publications such as "Injury Prevention Implementation Plan for State and Local Governments" (*14*) and "Recommended Data Sets for Unintentional Injury Surveillance" (*15*). These publications have been widely disseminated to State and local health departments, voluntary and private sector organizations with injury control interests, and other relevant Federal agencies.

The lack of comprehensive, compatible, and geographically distinct injury surveillance systems has impeded establishment of a data base, trend analyses, and development of a precise understanding of the complex host, agent, and environmental variables associated with injury causation. To remedy this deficiency, CEH developed and is distributing to States, communities, and other Federal agencies a "Training Resource Manual: Injury Control Surveys" (*16*), designed to identify and measure injury morbidity; mortality; associated costs; and environmental deficiencies, known to be associated with injury causation, that exist in and around residential dwellings (for example, poisons accessible to children, deteriorated stairways, unsafe electrical and heating systems, and lack of smoke detectors). The CEH, in cooperation with the National Institute for Occupational Safety and Health, is also developing a National Injury Atlas. The atlas, scheduled for completion in fiscal year 1985, will permit more precise targeting of injury prevention efforts by providing a comprehensive depiction of geographic and other demographic characteristics of injuries.

Workshops and training courses in injury surveillance, countermeasures, and injury program management have been presented to most States and communities that maintain injury prevention programs or have expressed interest in developing such programs. A recent workshop was presented to the staff associated with the Indian Health Service Community Injury Control Initiative. In addition to this programmatic link with the Indian Health Service, CEH has established links with numerous other organizations and agencies, including the National Center for Health Statistics, the U.S. Consumer Product Safety Commission and its injury surveillance and prevention components, the Insurance Institute for Highway Safety, and the National Society to Prevent Blindness.

CDC's Center for Health Promotion and Education (CHPE) is concerned with preventable diseases and conditions for which behavior is the cause and personal choice about behavior change is the soluion.

Significant CHPE injury prevention efforts include the development, under contract, of the Primary Grades Health Curriculum Project and the School Health Curriculum Project for kindergarten through grade 7. These model projects, the most widely used, broad-based health education programs in the country, include an emphasis at each grade level on leading causes of injuries as well as on alcohol abuse. Sixteen teenage health teaching modules have been developed and are being field tested; modules include injury prevention, alcohol problem prevention, and methods to create a healthy environment.

CHPE efforts have led to the formal creation of a "National School Health Education Coalition" comprising some 40 private sector organizations. Several coalition members, such as the American Red Cross, the American Academy of Pediatrics, and insurance groups, have major injury prevention interests. This coalition is expected to facilitate development and support of sound injury prevention measures in schools.

The CHPE provides technical assistance and guidance to State and local health departments in their injury prevention efforts through State health education/risk reduction projects and has worked closely with these departments to help acquire data on the prevalence of behavioral risk factors, including alcohol and seatbelt use. A methodology was developed for States to gather these data on an ongoing basis, so that decisionmakers can keep current on trends and projections of risk-factor levels. Since 1979, 33 State health departments have implemented this methodology.

Key model projects that have emerged through interaction with States include an infant-restraint education and loaner program in Vermont; a similiar program in Rhode Island and, additionally, a structured safety education program directed at students, physicians, and driver education teachers; a project to measure the effect of injury prevention intervention on injury morbidity among preschool children in Idaho; an injury prevention project targeted to the

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elderly and to young children in South Carolina; and a safe wood-burning heating project in Maine. Health care provider communities have been actively involved in State programs, and this factor has added special credibility to the programs and their messages.

CHPE's Health Risk Appraisal (HRA) is a computerized tool programmed to provide rapid or immediate feedback to individuals on their risk of premature death, based on an assessment of their lifestyles. The feedback includes recommendations for behavior changes that will lead to an improved lifestyle and reduced risk of premature death. Included on input forms are questions on subjects related to injury prevention such as seatbelt use, miles driven, and alcohol use. In conducting HRA studies, the CHPE has provided extensive assistance to State, local, and other public and private organizations as well as other Federal agencies.

Under a contract with the School of Public Health of the University of California at Los Angeles, a related activity, a Risk Factor Update Project, was launched to review and further develop methodologies for risk estimation and to apply updated methodologies to trauma. In March 1983, the CHPE published a report in CDC's Morbidity and Mortality Weekly Report (MMWR) on behavioral risk factor surveys in the United States. This report, based on behavioral risk factor prevalence data obtained from surveys conducted in and by five States, included assessments of such injury factors as seatbelt use and alcohol misuse (*17*). Findings from similar surveys conducted in and by additional States were reported by the CHPE in MMWR in July 1983 (*18*).

The CHPE also has major responsibility for addressing 1990 objectives specific to intentional injuries. Multidisciplinary research and surveillance measures have been implemented with respect to black male homicides, child homicides and child abuse, and suicides among adolescents and young adults.

Health Resources and Services Administration. HRSA's Indian Health Service (IHS), in response to the challenge of the 1990 objectives for injury prevention, has increased the number and quality of national Community Injury Control activities. As a result, there was a significant expansion in services and people reached during fiscal years 1981 and 1982.

Concomitant with this increase in services was a stabilization, then a decrease, in injuries to Indians and Alaska Natives during fiscal year 1982. The number of outpatient injuries reported by IHS clinics and hospitals dropped 5.6 percent from fiscal year 1981 to 1982, while the number of outpatient visits for all causes slightly increased. During this same period, the number of discharges from IHS hospitals for patients hospitalized because of injuries dropped 12.6 percent, while discharges for patients hospitalized for all causes dropped by only 6.3 percent.

Because of the rising cost of medical treatment, the total dollar cost to the Indian Health Service for treatment of all injury cases rose from fiscal year 1981 to fiscal year 1982 by an estimated $850,000. Had the injury trend continued as it had for the last decade, however, the cost for treatment of injuries would have been $1.7 million higher.

This apparent success in the reduction of injuries may be attributable to a unique "team" approach within IHS. At the area and service unit levels, interdisciplinary teams have been developed to plan, implement, and evaluate the total injury prevention effort. These teams consist of physicians, public health nurses, sanitarians, medical social workers, health educators, and psychologists, as well as tribal representatives and other health professionals.

The 35 Infant Restraint Programs currently operating in conjunction with Community Injury Control programs are examples of this team approach. Sanitarians, health educators, or nurses assist tribes with organizing, training for program management, and obtaining grants for the purchase of infant and toddler car seats. Tribes operate loaner or low rent infant restraint programs. Physicians and other direct health care providers counsel patients on the use of seatbelts and infant restraints and on other positive injury prevention behaviors. Health educators, maternal and child health specialists, and sanitarians teach courses that promote use of restraints.

Other activities associated with the Community Injury Control initiative include providing defensive driver training for tribal members; identifying and reducing community injury hazards; developing safety education programs and integrating them into

school curriculums; and providing first aid, cardiopulmonary resuscitation, and other emergency response training to both community members and lay field staff. These efforts are proceeding in close cooperation with such agencies and organizations as the Centers for Disease Control; the Bureau of Indian Affairs; the National Safety Council; the American Red Cross; and State, local, and tribal governments.

Through its Division of Maternal and Child Health (DMCH), HRSA has since 1979 given high priority and support to three demonstration projects, of regional and national significance, targeted to childhood injury prevention. These recently completed projects, conducted under the auspices of State health departments in California, Massachusetts, and Virginia, focused on developing childhood injury surveillance systems, analyzing data secured through these systems, and implementing and evaluating a broad array of childhood injury prevention strategies.

To ensure the transfer and application of these project findings, the DMCH has worked with the American Academy of Pediatrics (AAP) to develop a nationwide program aimed at reducing childhood injuries. The resulting AAP Injury Prevention Program (TIPP), initiated in early 1983, is designed to help pediatricians identify families whose children are at greatest risk of injury and to systematize the injury prevention counseling process. The AAP has distributed TIPP informational and educational packets to its membership and to a multitude of domestic and international organizations and agencies. The DMCH is also helping State Title V, Maternal and Child Health (MCH) agencies adopt the AAP approach in their State and local programs.

Under an HRSA contract, an administrative guide, "Developing Childhood Injury Prevention Programs" (*19*), was also prepared to help State Title V, MCH agencies develop targeted injury prevention programs in State and local health agencies. This guide has been distributed to the States and to a variety of professional organizations and other Federal agencies.

Injury prevention initiatives of HRSA's Division of Primary Care Services include those designed to stimulate the development of injury prevention programs through a priority-setting process carried out in conjunction with community health centers (CHCs). Injury prevention is among 12 priority areas for CHCs to consider for development into communitywide health promotion and disease prevention programs.

To date, injury prevention has been selected as a priority activity by 125 of 528 CHCs. Prevention efforts have focused primarily on the development of child car restraint education and loaner programs, and these efforts have proceeded in cooperation with such groups as the National Highway Traffic Safety Administration, State departments of transportation, the American Automobile Association, hospitals, medical associations, and health departments. CHCs also support a variety of other community-based injury prevention programs that deal with playground and toy safety and poisoning and burn prevention.

To assist in the implementation of the health promotion and disease prevention initiative, HRSA's Bureau of Health Care Delivery and Assistance awarded a grant to the National Association of Community Health Centers (NACHC) in September 1982. One of NACHC's roles is to foster development of community networks and to identify appropriate materials and exemplary programs for sharing with community health centers, State primary care associations, and State health departments. In early 1983, the NACHC distributed information on the National Highway Traffic Safety Administration's "Early Rider" infant and child safety programs and the American Academy of Pediatrics' "The First Ride, A Safe Ride" program. Staffers are reviewing a "Learn Not To Burn" program being carried out by the Children's Clinics of Chester, Pa., along with the police and fire departments, and an inservice education and public information program on the prevention of burns, falls, and poisonings developed by the Migrant Childhood Accident Program in San Diego.

Alcohol, Drug Abuse and Mental Health Administration. Because of the relationship between alcohol misuse and morbidity and mortality from motor vehicle injuries and other unintentional injuries, the activities of ADAMHA's National Institute on Alcohol Abuse and Alcoholism (NIAAA) have special significance. The NIAAA is conducting a public education campaign, through States and voluntary organizations, to prevent drinking and driving among youth. Campaign materials and messages have also been incorporated in school curriculums, peer leader programs, "driving while under the influence" programs, and training programs such as those for YWCA chapters and driver education teachers. States with Native American populations have targeted these groups to receive special attention for activities concerning drinking and driving.

As part of the HHS Secretary's Initiative on Teenage Alcohol Abuse, the NIAAA held 10 regional prevention conferences that focused on automobile injury prevention and a national conference with the Departments of Transportation and Education that dealt exclusively with automobile injury prevention among youth.

The NIAAA has an interagency agreement with the National Highway Traffic Safety Administration under which the two agencies have agreed to conduct and apply research to alcohol-related traffic injuries, with a major focus on youth. Other research initiatives include promoting studies to examine the impact of changes in alcohol-related legislation implemented by States and local communities, in order to determine the ways in which these policies have influenced consumption patterns and motor vehicle injury rates. To delineate further the association of alcohol with injuries, the NIAAA intends to survey hospital emergency room admissions to determine the number and type of alcohol-related admissions.

Parallel activities specific to marijuana and other drugs and their association with injuries are carried out by ADAMHA's National Institute on Drug Abuse.

National Institutes of Health. NIH's National Institute of Neurological and Communicative Disorders and Stroke, National Eye Institute, and National Institute of Child Health and Human Development are conducting a variety of injury studies. The studies include those that seek to determine ways to minimize, prevent, or arrest the sequelae of external trauma to the central nervous system; identify and evaluate individual factors that contribute to the acquisition and maintenance of behavior that optimizes health development; further the understanding of behaviors harmful to health; and improve the understanding of the physiological variables associated with trauma-induced corneal burns and retinal detachment.

Food and Drug Administration. Through its various operating components, FDA is involved in several poisoning prevention activities that include ongoing evaluation of the adequacy of labeling and packaging of marketed medications and promoting the development of new antidotes to hazardous substances. Additionally, FDA, in cooperation with the American Association of Poison Control Centers, has completed pilot testing of a new system to monitor the nature and extent of exposures to biologicals, as reported to poison control centers.

Summary

Until recently, concern for injury prevention was limited to relatively few scientists, organizations, and agencies. Despite the fact that there remains a significant imbalance between the economic and public health implications of injuries and resources that are being directed to their prevention, a growing recognition of injuries as a serious and preventable health problem is prompting a rapid increase in the scope of commitment to injury prevention. Taken as a whole, HHS efforts described in this progress review—particularly the forged linkages that have been established with other Federal agencies, private organizations, and other public sector agencies—represent substantial growth toward the establishment of measures needed to meet the 1990 Objectives for the Nation for injury prevention.

These combined efforts underscore the recognition that, while the Federal Government must continue to bear responsibility for leading, catalyzing, and providing strategic support, meeting the 1990 Objectives for the Nation for injury prevention will require commitment and collective efforts involving diverse participation from many sectors of our society.

The tools are available for achieving the 1990 objectives for injury prevention; however, achieving these objectives will require increased community action, a unified national effort, a heightened role for the provider community, effective injury surveillance and reporting systems at the State and local levels, and a proper perception of injury causation and prevention.

The scientific and epidemiologic bases for injury prevention have been established; mortality trends for selected major injury categories have been favorable; successful injury prevention efforts point to progress on a broader front. Making the most of our opportunities to reduce the toll of injuries on our society is our public health challenge of this decade.

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Preventing Substance Abuse: The State of the Art

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SYNOPSIS

While drug abuse among adolescents and young adults has begun to decline from the epidemic levels of the late 1970s, it remains a serious national health problem.

Much information from research suggests that young people at the junior and senior high school levels are the most vulnerable to the social pressures that lead to experimental and then regular use of psychoactive substances. Well-designed prevention programs for youngsters in these age groups have the potential to prevent the onset and development of regular drug use.

Primary prevention strategies developed over the past two decades—media campaigns, school drug education programs, and "generic" programs—are reviewed, and evaluative research is discussed. The authors describe two additional prevention approaches—the "macro" approach (creating a climate of nondrug use) and positive peer pressure strategies—for which early data suggest genuine promise for the future.

DRUG ABUSE, particularly among adolescents and young adults—though beginning to recede from the epidemic levels observed in the late 1970s—remains a serious national health problem (*1, 2*). This con-