vate practice as well as to inpatients in large hospitals.

The health practitioners who administer such a program could be physicians, registered nurses, physician's assistants, health educators, psychologists, social workers, or other allied health care providers. It is likely that different professions will have varying levels of credibility and influence. Although this question has not been examined conclusively in previous smoking cessation evaluations, one can assume that any group of health practitioners has the potential to influence the behavior of patients who smoke.

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A Proposed Campaign to Increase the Use of Restraint Systems for Young Children Who Ride in Cars

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For this proposal, the authors won second prize in the competition—sponsored by the Department of Health and Human Services—for the 1983 Secretary's Award for Innovations in Health Promotion and Disease Prevention. At the time their proposal was written, Ms. Shaw and Ms. Fluke were senior students at the University of Oklahoma College of Nursing.

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SYNOPSIS

In the United States, motor vehicle accidents are the number one killer of children under 5 years of age, according to the National Highway Traffic Safety Administration (NHTSA). Repeated studies show that correct, consistent use of child restraint systems is a proven method of preventing many unnecessary

deaths. Yet current data from NHTSA's National Accident Sampling Survey show that only 35 percent of infants under 1 year of age, and only 25 percent of toddlers between 1 and 4, are protected by child restraints when they ride in cars.

The authors believe that an innovative public awareness campaign, based on a Presidential proclamation giving national priority to encouraging correct use of child restraint systems, would serve both to increase the public's knowledge of car safety issues and to increase the number of parents who provide restraint protection for their children.

Our proposal is unique in that it is a multidimensional approach with its main focus on children under 5 as a target population. We advocate continued appeal to the adult consumer population but believe that long-term results will be more significant if children are addressed as well. The main emphasis of our proposal is on local community involvement, yet Federal acknowledgement of the problem of safety for small children in cars—and support of efforts to solve this problem—are necessary to reinforce the efforts of grassroots organizations.

A MAJOR FUNCTION OF THE FAMILY UNIT IS to provide for the physical survival of the young. This function has been determined by the values our society provides, and American society places much value on preserving life and improving its quality.

Physical safety is one aspect of survival, and motor vehicle accidents are the main threat to the physical safety of our young children. In 1980, according to the National Safety Council, 810 children under the age of 4 years were killed as occupants of motor vehicles, and another 59,000 were injured (*1*). In conversations with officials of the National Highway Traffic Safety Administration (NHTSA), Fort Worth, Tex., we learned that of all deaths of children under 5 years in 1981, 58 percent were directly related to motor vehicle accidents.

Infants and toddlers, because of their high center of gravity and delicate bone structure, are extremely susceptible to injury in automobile accidents. Their bodies are different from those of adults in many ways. Their skulls are softer and much larger in proportion to the rest of their bodies. Their rib cages are thinner and more elastic, and their internal organs do not receive much protection because of their prominent abdomens.

The small child's heavy head and fragile skull make him or her very likely to suffer serious head injuries even in low-speed accidents. Children are often allowed to ride in cars in certain positions that make them more likely to be injured. A child who is standing on the seat of a car in a traffic accident becomes a missile that may strike any part of the car's interior. An infant sitting in the mother's lap may be crushed between the adult and the dashboard. Data for 1981 from NHTSA's National Accident Sampling Survey indicate that children unrestrained by car seats or seatbelts are four to five times as likely to be injured as restrained children in the same vehicle. Seatbelts alone do not provide adequate protection for small children, although they are better than nothing.

Since 1972, manufacturers as well as other segments of society have addressed this problem. Many research reports verify the positive correlation between the use of child restraints and a decrease in infant mortality rates (*2–5*).

If child restraints are a proven method of prevention, why aren't they being used—and used correctly?

We have identified several of a multitude of factors that contribute to this lack of compliance and have used them as criteria for developing our public awareness campaign. These factors are negative parental attitudes based on lack of knowledge of the importance of restraints and of the correct methods for using them, cost of the restraints, and failure to target compliance as a community and national priority.

Negative parental attitudes that lead to noncompliance include the myth that restraining devices for children are not needed when the family car is being driven locally at moderate speeds. Since 75 percent of all motor vehicle accidents occur within 25 miles of the home and at speeds less than 30 mph, the need for using restraints for children during short trips—for example, to the day care center or for groceries—is obvious (*6*).

Adults should be made aware of potential danger when they hold children on their laps while riding in a car. Generally, in the event of a crash, the child will be caught between the adult's body and the dashboard, and the weight of the adult will increase the extent of the child's injuries. Adults should also know that they cannot hold on to a baby in an acci-

dent—as a result of the force generated by a 20 mph crash, a 20-pound infant will actually weigh 400 pounds, and in simulated crashes no adult has ever been able to hold back that much weight (*7*). Many parents mistakenly believe that they will have enough time to grab a child they are holding and protect him or her if an accident occurs; however, most accidents occur without warning, allowing less than half a second for reaction (*6*).

Further reasons for advocating consistent use of restraints for children in cars include the fact that infants adjust more easily to toddler restraints if they have ridden in a restraint since infancy. A second major benefit of seeing that children are "buckled up" is their improved behavior as passengers. Restrained children cannot stand up or climb around, and a study by Edward Christopherson at Kansas University Medical Center showed that they fuss and cry less than unrestrained children (*8*). Upsetting behavior by children in cars can contribute to or even cause accidents, according to a study by William Hall, of the University of North Carolina (*8*). The child's crying may distract the driver or the child may interfere with the car's controls and a crash may occur. The use of car seats would reduce this behavior and in turn decrease the number of accidents due to these factors.

According to the American Academy of Pediatrics, 90 percent of the deaths and 70 percent of the injuries sustained by young children in 1981 in motor vehicle accidents could have been prevented by the use of approved child restraint devices (*9*). Yet May 1983 data (not yet published) from NHTSA's National Accident Sampling Survey studies show that only 35 percent of infants under 1 year of age, and only 25 percent of toddlers between 1 and 4, are protected by child restraints when they ride in cars. ("Child restraints" refers to seatbelts and unapproved as well as approved child restraint systems, so use of approved, effective devices is less than these percentages indicate.)

But providing protection for children in cars is not just a matter of using child restraints consistently: they must be used *correctly* as well. In order to obtain the maximum protection offered by a restraint system, it must be used exactly as recommended by the manufacturer. The amount of protection offered by any type of car seat diminishes if it is used incorrectly, and the child may actually be in more danger than if a seatbelt alone were being used. Yet child restraints are often used improperly and unsafely because parents misunderstand directions or lack knowledge about the dangers of improper use.

The cost of child restraint systems—which for an approved model may range from $30 to $60—is an excuse parents often give for not using them. However, the cost to our society for each death from a motor vehicle accident has been estimated at $135,000; for each incapacitating injury, $11,900 (*9*). These figures do not include expenses to the family for the injured child's medical care, which may amount to thousands of dollars. In comparison with these figures, the $30 to $60 that a car seat might cost seems well worth the investment.

Current Efforts to Promote Car Seat Safety

To help parents for whom car-seat cost is a serious problem, loan-a-seat programs (*10*) are being developed in some areas and are run by a variety of organizations—for example, service clubs, La Leche Leagues, hospitals, and childbirth education groups. The sponsoring group obtains infant restraints, publicizes their availability, and loans them out for a service charge or deposit. In about 9 months, when the infant has outgrown the seat, the parents return it and get their deposit back. The sponsoring organization then lends them a toddler restraint or gives them advice on where to buy a good one.

At the local level, grassroots networks to encourage use of child restraints are being formed. Nevertheless, although these groups are enthusiastic, well intentioned, and very often well organized, they do not have the prestige, authority, or economic resources to make a significant national impact.

The Federal Government could provide the needed impetus to make car seat safety a national priority. We acknowledge that seatbelt usage has been targeted as a national priority, as has combating drunk driving; however, child-restraint usage concerns a different population—a population whose members are virtually *helpless* as to their fate. While lobbying for passage of our State's legislation on mandatory car seat usage, we noted that the attitudes of adults toward their own safety were markedly different from their attitudes toward the safety of these helpless infants and toddlers. Many adults who do not use seatbelts for their own protection will buckle up their children, who cannot provide this protection for themselves.

Excellent training materials, pamphlets, films, and posters are available from a number of grassroots organizations; however, because car seat safety has not been recognized as a national priority, these groups and their cause are often not taken seriously. The efforts of these groups are held back by lack of

Federal acknowledgement and support, by their small numbers, and especially by lack of national media coverage. Lack of legislative support is reflected by the fact that only 23 States have passed laws requiring use of restraint devices for children who are passengers in cars. [Since this paper was written, the record has greatly improved. By July 1, 1983, 40 States had enacted such laws (*11*).—Ed.] Tennessee passed such legislation in 1978, and within the following 3-year period the State's motor vehicle accident mortality rate for children up to 4 years of age was cut in half (*12*).

Health professionals should support car seat safety bills in their own legislatures and should also be involved in other aspects of child-passenger protection. In October 1977, the American Academy of Pediatrics passed a resolution "declaring the need for, and working to establish a major initiative for child transportation safety." Health professionals should view use of child restraint systems in the same manner that immunizations are regarded: as essential to health promotion. Parents need to receive positive encouragement—especially from pediatricians and post partum nurses—to use these protective devices for their small children.

Parents who *do* use car seats for their children need to get positive feedback from health professionals. These parents are good role models for others: their behavior is indicative of good parenting skills, and in a sense they are experts who need to share their information with other parents. Positive reinforcement will strengthen their self-image, strengthen their conviction that child restraints are an essential part of child care, and help convince them to continue using the restraint devices.

Needed: A National Awareness Campaign

We propose that an innovative public awareness campaign—launched at the national level, coordinated at the State level, but implemented by local community organizations—be undertaken by the Department of Health and Human Services. Key steps for carrying out this proposal are outlined in the box beginning on the next page.

The campaign we propose would focus on two distinct populations: parents, who are the prospective buyers of car seats, and children under 5, who are potential victims without this protection. The keystone of the campaign would be a "National Car Seat Safety Day," established by Presidential proclamation. The campaign would have the following goals:

- Long-term: Decreased mortality from motor vehicle accidents for children under 5 years of age.
- Short-term: (*a*) Establishment of child restraint systems as a national priority; (*b*) increased awareness among parents of the importance of child restraint systems, and knowledge of how to use them correctly; and (*c*) increased awareness among children under 5 of the importance of using car seats.
- Intermediate: (*a*) Increased support for legislation by individual States, mandating use of approved restraint systems for children under 5; and (*b*) increased usage and availability of loan-a-seat programs.

We believe that no single approach to increasing parental use of child restraint systems will work. A multidimensional approach, at various organizational levels, will be required to overcome negative attitudes, the problem of the cost of the devices, and lack of public awareness of their importance.

While we firmly believe that community involvement should be the primary thrust of the campaign, without some Federal involvement the success of community initiatives would be severely hampered. The Federal acknowledgement and national media support that we propose would give credence to local efforts without changing the locus of control.

Our proposal is innovative because of its appeal to the children. While the plan does not neglect parents as a target population, it recognizes that children are able to influence the behavior of their parents in various ways. It approaches children at a time when they are ready and eager to learn—a time when habits, attitudes, and conduct in relation to health promotion and accident prevention can be influenced.

The proposed campaign provides an opportunity for lay people to work with health professionals in effecting a change in public attitudes and behavior with respect to the protection of small children riding in motor vehicles—a change that could significantly reduce the mortality rate for children under 5 years of age, eliminate many unnecessary injuries, lessen human suffering, and reduce the costs to society that deaths and injuries entail.

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Key Steps Before National Car Seat Safety Day

One year before:

- The Department of Health and Human Services writes to the Governor's Highway Safety Program (GHSP) of each State, asking the program to name a coordinator for National Car Seat Safety Day observances in the State. The Department suggests activities to be carried out in local communities on the appointed day and provides a packet of materials for the coordinator, dealing with organization of observances at the State level.
- The Department of Health and Human Services develops educational materials about car seat safety (for example, coloring books) for children under the age of 5 years and provides these materials to State GHSPs for distribution.

Nine months before:

- Each State coordinator selects appropriate cities and towns within the State as locations for car seat safety fairs—the major activity of National Car Seat Safety Day.

Eight months before:

- For use by national television networks, the Department of Health and Human Services develops and produces public service announcements about National Car Seat Safety Day and the importance of child restraint systems. These announcements feature prominent entertainers, athletes, and political figures.
- Each State coordinator contacts potential local sponsors for car seat safety fairs in the cities and towns selected for the State and obtains sponsors' pledges of participation. Possible sponsors include Jaycettes, Knights of Columbus, Red Cross chapters, chapters of the American Academy of Pediatrics, district nurses' associations, student nurses' associations, and so on.

Seven months before:

- For every participating local sponsor, each State coordinator provides a packet describing sponsors' responsibilities and listing pamphlets, films, posters, and other educational aids about car seat safety available from the State GHSP. For each sponsor within a given city or town, the packet includes a list of all other participating sponsors in the same city or town, in order to facilitate communication and cooperation.

Six months before:

- The Department of Health and Human Services arranges for a Presidential proclamation declaring car-seat protection for small children to be a national priority and designating the first day of spring as National Car Seat Safety Day. Through press releases and other initiatives, the Department stimulates national print media and television coverage of the President's signing of the proclamation.
- State coordinators begin meeting with local sponsors in the cities and towns where car seat safety fairs are to be held, in order to clarify sponsors' roles, answer questions, and solve problems. By the time of these meetings, local sponsors have identified potential sites (first choices and alternates) for the fairs. Final selection of sites—which should offer the maximum possible public exposure (shopping malls, for example)—are made at the meetings.
- Soon after meeting with their State coordinators, local sponsors contact responsible officials at the sites selected and obtain permissions and space allocations for the fairs.

Five months before:

- Local sponsors determine what pamphlets, films, and other educational aids they will need in connection with the fairs and order these materials—as well as such "gimmick" items as balloons, bumper stickers, and buttons—from their State coordinators.
- State coordinators place orders for educational aids and gimmick items with appropriate suppliers and distribute these items to local sponsors on receipt.
- Sponsors begin local publicity efforts by contacting newspapers and television and radio stations in their cities and towns, briefly describing plans for the fairs and asking advice on the best format for supplying information as newsworthy events occur.

Four months before:

- State coordinators contact a commercial artist for design of a large poster on car-seat safety that chil-

dren can color with crayons. When printed, the poster is supplied in quantity for booths at each fair site in the State. Small children can color posters at booths while their parents examine displayed car seats and discuss safety issues with volunteers manning the booths.

- Local sponsors contact theater groups in their cities and towns for help in developing puppet skits on car-seat safety to be presented at the fairs.
- Local sponsors contact store managers, asking them to provide car seats for demonstrations at fair sites; to discount their prices for car seats, over a specified period, in observance of National Car Seat Safety Day; and to donate car seats to be given to the winners of random drawings at the fairs.

Three months before:

- Local sponsors continue their publicity efforts, developing posters and flyers and displaying and distributing them. An option sponsors might want to consider is involving the art departments of local schools and running poster contests among school children.
- Entry blanks for the drawings for free car seats are designed by local sponsors and printed in appropriate quantities.

Two months before:

- Local sponsors compile lists of loan-a-seat programs in their communities and reproduce the lists in quantity for distribution at fair sites. If no loan-a-seat program is available locally, sponsors distribute information on the National Highway Traffic Safety Administration's "Early Rider" booklet (see reference *10*, page 506), which describes how to set up such a program.
- Local sponsors plan and practice activities and demonstrations for the day of the fair. An activity planned for a shopping mall fair site might feature volunteers in character costumes (for example, E.T., Papa Smurf, a clown, the Easter bunny, or Annie) who would talk with children and their parents about car seats and safety facts. Demonstrations are devised to include small children's participation. A simple demonstration using an egg, elastic bands, and a wooden car and ramp could make a graphic point about the need for restraint systems. (With a crayon, print on the egg the name of a child from the audience. Use elastic bands to restrain the egg in the car, then slide the car down the ramp. The egg should remain intact. Repeat the process, but leave the egg unrestrained so that it shatters.)
- Volunteer workers are trained to encourage small children, on the day of the fair, to try out the various demonstrator car seats on display. Volunteers should thoroughly understand the devices they will be demonstrating. In demonstrations, they will strap the child in properly, explaining how the seats provide protection and demonstrating to parents each step in "buckling up." Volunteers will ask the parents for a repeat demonstration to confirm that they have correctly understood the procedure.

A New Curriculum for Fitness Education

JEFFREY L. BOONE, MD

The third prize winner in the Secretary's Award for Innovations in Health Promotion and Disease Prevention is the work of Dr. Boone when he was at the University of Iowa College of Medicine. Tearsheet requests to Jeffrey L. Boone, MD, Good Samaritan Hospital and Medical Center, 1015 Northwest 22nd Ave., Portland, Oreg. 97210.

SYNOPSIS

Regular exercise is important in a preventive approach to health care because it exerts a beneficial effect on many risk factors in the development of coronary heart disease. However, many Americans lack the skills required to devise and carry out a safe and effective exercise program appropriate for a lifetime of fitness. This inability is partly due to the lack of fitness education during their school years.

School programs in physical education tend to neglect training in the health-related aspects of fitness. Therefore, a new curriculum for fitness education is proposed that would provide seventh, eighth, and ninth grade students with (a) *a basic knowledge of their physiological response to exercise,* (b) *the means to develop their own safe and effective physical fitness program, and* (c) *the motivation to incorporate regular exercise into their lifestyle.*

This special 4-week segment of primarily academic study is designed to be inserted into the physical education curriculum. Daily lessons cover health-related fitness, cardiovascular fitness, body fitness, and care of the back. A final written examination covering major areas of information is given to emphasize this academic approach to exercise. Compe-