

# A CASE FOR HELMET USE

Charles F. Livingston

The Highway Safety Act of 1966 authorized the federal government to set minimum standards for state highway-safety programs. The same act also authorized the government to withhold 10 percent of federal highway construction funds and all federal highway-safety funds from any state that failed to comply with these standards. In 1967 the Secretary of Commerce issued 13 highway-safety standards, one of which was for motorcycle safety. One part of the motorcycle standard required the states to enact mandatory motorcycle-helmet-use laws.

Although motorcycles have been in use in this country for more than 70 years, their popularity has grown dramatically since the early 1960s. With the growth in motorcycle use has come evidence that head injuries are the leading cause of death in motorcycle accidents. Evidence has also become available that shows motorcycle safety helmets to be an effective means of reducing the incidence and severity of head injuries in motorcycle accidents.

In 1966 Georgia became the first state to require helmet use by law. By the time the motorcycle safety standard was issued, 11 states had already passed helmet-use laws. By the close of 1969, 40 states had adopted legislation requiring helmet use. The number of states adopting helmet legislation continued to grow and, by 1975, helmet use was required of all motorcyclists in 47 states, the District of Columbia, and Puerto Rico. That year the Secretary of Transportation began proceedings against California, Illinois, and Utah to determine whether the highway-safety programs of those states should be disapproved because of the states' failure to require helmet use by all motorcyclists. Disapproval of the states' highway-safety programs could have led to the withholding of federal funds.

Before the Secretary of Transportation could act, however, Congress passed the Highway Safety Act of 1976. Section 208(a) of the act removed the Secretary's au-

thority to require the states to adopt helmet laws, thereby preventing the Secretary of Transportation from imposing financial sanctions on any state that repealed its law. To underline the point, this section also removed the Secretary's authority to withhold 10 percent of a state's highway construction funds for failing to implement any of the standards promulgated under the act.

State legislatures were pressed shortly thereafter to take advantage of the congressional action. By 1979, 27 states had either fully repealed their helmet laws or revised them so that only motorcyclists under 18 were required to wear helmets. During this same period, the number of deaths from motorcycle accidents jumped significantly—from 3312 in 1976 to 4850 in 1979. The 1979 figure represents an increase of 46 percent over 1976. But by 1978 some members of Congress were concerned about the 23 percent increase in motorcycle fatalities that occurred between 1976 and 1977. As a result, the Surface Transportation Assistance Act of 1978 contained a requirement that the U.S. Department of Transportation (DOT) study and report to Congress on the effect of helmet-law repeals on helmet use, head injuries, and fatalities.

To meet the congressional requirement several steps were taken. Three state studies initiated in 1976 to evaluate the effect of helmet-law repeals in Colorado, Kansas, and South Dakota were extended to obtain additional information required for the study; a notice soliciting data for the study was published in the *Federal Register*; and letters requesting comment and information were sent to more than 1400 individuals and organizations.

The following is a summary of the findings contained in DOT's report to Congress.

## Effect of Helmet Laws on Helmet Use

The purpose of mandatory helmet-use laws is to achieve a high wearing rate for motorcyclists in order to reduce severity of head injury in the case of motorcycle accidents. To determine the compliance level among the general riding population, observational studies were conducted at selected locations in four states between 1976 and 1978:

---

Charles F. Livingston is associate administrator for Traffic Safety Programs, National Highway Traffic Safety Administration (NHTSA).

Kansas, Oklahoma, Colorado, and South Dakota. In the case of Colorado and South Dakota, pre- and post-repeal observations were undertaken to measure the effect of helmet-law repeal on voluntary compliance.

The findings highlighted three important facts regarding helmet-use laws. First, the pre-repeal data for Colorado, South Dakota, and Kansas show a high level of compliance with the law: 99.7 percent of all riders in Colorado were wearing helmets prior to repeal. On the basis of analysis of accident reports, helmet wearing among crash-involved riders was only slightly less: 94 percent for nonfatal crashes and 90 percent for fatal accidents. These results are independently verified by the almost identical figures from South Dakota and Kansas. The compliance level indicated is well above that generally experienced in such driver-safety measures as maximum-speed-limit laws or seat-belt-use laws due to the relative ease of enforcement. These data suggest that the helmet law can be successfully enforced and will have the desired effect of obtaining a high use rate.

A second fact reported was that on repeal of the helmet law there was a dramatic reduction in the use of helmets. In Colorado, South Dakota, and Kansas the change was from close to 100 percent down to 60 percent for all riders and from 94 percent to 40-50 percent for crash-involved riders. In Utah it fell to 42 percent. In Oklahoma, where only post-repeal observations and crash data were available, the use rate was about the same as the post-repeal data in the other states.

The third important finding was that the wearing rates for crash-involved riders, particularly fatal crash-involved riders, are considerably lower than those for the general rider population. In addition, the percentage decrease in wearing rate following repeal is greater for the crash-involved riders, and much greater for those involved in fatal crashes.

In addition to these studies, data from independently conducted studies have verified the substantial reduction in helmet use resulting from helmet-law repeal.

### **Effectiveness of Motorcycle Safety Helmets**

The findings of the University of Southern California study, the four NHTSA-supported studies, the non-NHTSA-supported state studies, and other helmet-effectiveness research dating to the early 1940s are remarkably consistent. They have consistently shown that unhelmeted riders are from two to four times more likely to incur a head injury of any type than are helmet wearers. Unhelmeted riders are also from three to nine times more likely to receive fatal head injuries than are helmet wearers.

The helmet-law controversy has raged for more than a decade, with heated and strong opinions supporting either side. As in many heated debates, the arguments supporting each side were not always well considered or well founded. Among the approaches used to attack helmet laws have been attacks on the effectiveness and value of helmet use itself. These have included claims

that helmets cause head and neck injuries, and claims that helmets cause accidents by impairing hearing and vision, creating heat fatigue, or creating a false sense of security.

Support for claims such as these has generally been anecdotal in nature. The claims have never been supported by any sort of data that can withstand scientific or statistical scrutiny. In addition, none of the claims has been supported by any of the studies that have been conducted since scientific investigation of helmet use by motorcyclists became of interest in the early 1940s. All of the major organizations in the health, medical, and safety communities endorse helmet use as an effective head-injury countermeasure.

Helmet use is also endorsed and encouraged by all major organizations representing the motorcycle industry and riders. These include each of the major motorcycle manufacturers, the Motorcycle Industry Council, the Motorcycle Safety Foundation, and the American Motorcyclist Association (AMA). In fact, the AMA requires helmet use in all sanctioned racing events.

Thus, the issue is not whether helmets are effective and should be worn. Helmet effectiveness in preventing or reducing the severity of head injuries is a fact well accepted by both organizations that oppose and those that support helmet-use laws as the means of attaining high levels of helmet use.

### **Voluntary Helmet Use**

As discussed earlier, the rate of voluntary helmet use, without a law, was found in observation surveys to be 40-60 percent. This is, of course, a substantially higher rate of voluntary helmet use than might be expected based on observation of related programs, such as those promoting seat-belt use. However, it is substantially lower than the 95-100 percent helmet use observed in helmet-law states.

Currently 19 states, the District of Columbia, and Puerto Rico require all motorcyclists to wear helmets. In the absence of helmet laws, efforts are being made by both government and nongovernment agencies to develop programs to increase the voluntary use of helmets.

Several important efforts are being made at the national level. These include studies to pinpoint target groups, attitudes, and information deficiencies; research to use the information for development of effective approaches; and implementation of voluntary helmet-use programs based on current professional judgment about public information messages that might increase voluntary helmet use.

At this time it is not possible to estimate the effect that voluntary-helmet-use promotion programs will have on helmet use. It is extremely doubtful that the programs will achieve the level of helmet use observed in helmet-law states. However, data from recent studies also suggest that voluntary use could be increased somewhat by correcting misconceptions that some riders hold about helmets. They also suggest that creating a more positive image of helmet use and the helmet user might increase

the rate of voluntary use. Certainly the effect of peer pressure, within the motorcycling community, has the potential to increase voluntary helmet use.

### Comprehensive Motorcycle Safety Programs

As important as motorcycle helmet use is to motorcycle safety, it is only one part of a comprehensive motorcycle safety program. Other important elements include operator licensing, rider education, motorist awareness, conspicuity of motorcycles and their riders, and vehicle safety standards.

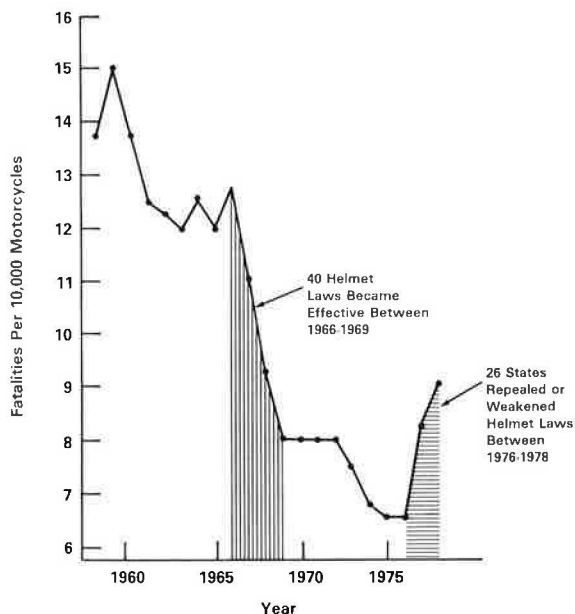
The heated debate over the helmet-law issue has tended to obscure the position of NHTSA on the need for each state to develop a comprehensive motorcycle safety program. For many motorcyclists, NHTSA is depicted as being interested only in helmet use. This is of course untrue. The agency has done very extensive work in motorcycle operator licensing and education.

While these programs offer a long-range potential for reducing motorcycle fatalities, the single most effective countermeasure available today is helmet use.

Because of its life-saving importance to motorcycle safety, NHTSA believes that promotion of helmet use and helmet-use legislation is an important and necessary activity at both the federal and state levels of government.



### The Effect of Motorcycle Helmet Use Law Repeal-- A Case For Helmet Use



### Status of Helmet Law Repeals - September 1979

#### No Requirement - 10

California  
Colorado  
Connecticut  
Illinois  
Indiana  
Iowa  
Maine  
Nebraska  
Rhode Island (1)  
Washington

#### Required Under 18 - 20

Alaska  
Arizona  
Delaware (2)  
Hawaii  
Idaho  
Kansas  
Louisiana  
Maryland  
Minnesota  
Montana  
New Hampshire  
New Mexico  
South Carolina  
New Mexico  
North Dakota  
Ohio (3)  
Oklahoma  
Oregon  
South Dakota  
Texas  
Utah  
Wisconsin

#### Required for All Riders - 21

Alabama  
Arkansas  
District of Columbia  
Florida  
Georgia  
Kentucky  
Massachusetts  
Michigan  
Mississippi  
Missouri  
Nevada  
New Jersey  
New York  
North Carolina  
Pennsylvania  
South Carolina  
Tennessee  
Vermont  
Virginia  
West Virginia  
Wyoming  
Puerto Rico

1. Passengers are Required to Wear Helmets.
2. Riders Under 18 Must Wear Helmets and Helmets Must be in the Possession of Other Riders, Even Though Use is not Required.
3. First Year Novices also Required to Wear Helmets.