



**National
Transportation
Safety Board**

Safety Information

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NATIONAL TRANSPORTATION SAFETY BOARD

FOR THE

**TRANSPORTATION COMMITTEE
MICHIGAN HOUSE OF REPRESENTATIVES**

ON

**HOUSE BILL 4608 AND SENATE BILL 291 - REPEAL OF MICHIGAN'S
UNIVERSAL HELMET LAW**

**LANSING, MICHIGAN
OCTOBER 26, 2011**

The National Transportation Safety Board (NTSB) offers this statement regarding the NTSB's safety recommendation on universal motorcycle helmet laws. The NTSB is an independent Federal agency charged by Congress to investigate transportation accidents, determine their probable cause, and make recommendations to prevent their recurrence. The recommendations that arise from our investigations and safety studies are our most important tool for bringing about life-saving changes.

The NTSB is concerned about the growing number of motorcycle riders that have been killed or injured in motorcycle crashes. From 1997 through 2008, the number of motorcycle fatalities nationwide more than doubled from 2,116 to 5,290. Although fatalities among motorcyclists declined in 2009, to 4,462, that is still an average of 12 motorcyclists per day, and an additional 90,000 were injured. Here in Michigan, during the same 12-year period, there were 1,152 fatalities, an average of 96 deaths per year. Based upon experience in other states, the number of motorcyclist fatalities and injuries can be expected to substantially increase if Michigan enacts House Bill (HB) 4608 and/or Senate Bill (SB) 291.

Motorcycles represent only 3 percent of the 257 million vehicles on our roads, but they account for 13 percent of highways deaths. In 1997, the motorcycle fatality rate per 100,000 registered vehicles was 55.30. By 2007, the rate per 100,000 registered vehicles was 72.48, an increase of 31 percent, with the result that the number of fatalities grew faster than the number of registered motorcycles.

Recognizing the safety benefits of motorcycle helmets and the effectiveness of universal helmet laws in increasing helmet use, in October 2007, the NTSB recommended that the states lacking a universal helmet law enact legislation to require all motorcycle riders and passengers to use a helmet that complies with federal standards. In the case of Michigan, we asked that your current law be amended to specify that riders and passengers use a helmet meeting the most current Federal standards.

Helmets Are Effective

Head injury is a leading cause of death in motorcycle crashes. According to the National Highway Traffic Safety Administration (NHTSA), the use of a safety helmet that complies with U.S. Federal Motor Vehicle Safety Standard (FMVSS) 218 is the "single critical factor in the prevention [and] reduction of head injury." The main function of the helmet is to protect the rider's head, especially the brain, during a fall or crash. A helmet that meets the federal safety standard is designed

with a hard outer shell, an impact-attenuating liner, and a retention system to protect the structure and contents of the head in a wide variety of impact scenarios.

Helmets can be effective in both low- and high-speed crashes because crash speed is not directly related to head impact speed. In the definitive study on motorcycle cause factors (frequently referred to as the Hurt Report), the severity of head impacts was determined by examining crash-involved helmet damage. This study found that 90 percent of head impacts were less severe than the single test impact required in FMVSS 218. Thus, FMVSS 218-compliant helmets are well designed to protect the head for the vast majority of motorcycle crashes.

Experience has abundantly demonstrated the effectiveness of appropriately designed motorcycle helmets in preventing and mitigating head injury. The independent Cochrane Review of published studies found in 2003 that helmets substantially reduced the risk of head injury and fatality in motorcycle crashes, and found no evidence of an increased risk of any other types of injury. A 1996 U.S. Department of Transportation (DOT) report noted that riders not wearing helmets are three times more likely to suffer brain injury than those riders wearing helmets. According to another DOT report published in 2004, helmets are 37 percent effective in preventing all fatalities in motorcycle crashes.

David Thom, one of the lead researchers involved with the Hurt Report, spoke at the NTSB's Motorcycle Forum in September 2006, about the potential negative effects of helmets on safety. An active motorcyclist and researcher on motorcycle safety for three decades, Mr. Thom noted that helmets neither cause nor prevent neck injuries. A large number of scientific studies confirm Mr. Thom's observations. Similarly, helmets have not been shown to cause problems with vision or hearing.

Helmets Laws Do Increase Helmet Use

By 1976, following passage of the 1966 National Highway Safety Act, which withheld federal funding from states that had not enacted mandatory helmet laws, 47 states, including Michigan, had mandatory helmet laws that applied to all motorcycle riders. Since that time, motorcycle groups have argued extensively against such laws, and restrictions on federal funding contingent on such laws were removed (in 1976), partially re-enacted (in 1991), and then removed again (in 1995). Each removal of federal funding restrictions was followed by a wave of repeals of universal helmet laws. Currently, 20 states, including Michigan, have universal helmet laws (requiring all riders to wear a helmet), 27 states have partial

laws (requiring minors and/or passengers to wear such helmets), and 3 states have no helmet laws.

Unfortunately, these repeals have amounted to a vast experiment affirming the effectiveness of helmet laws and regulations in reducing death and injury. A 1991 review of studies of helmet use found that helmet use under universal laws ranges from 92 to 100 percent, while without a law or under a partial law (requiring only some riders, such as teens or novice riders, to wear helmets), helmet use generally ranges from 42 to 59 percent. A 2009 NHTSA research note indicated that helmet use in states that require all motorcyclists to wear helmets is at 86 percent, while helmet use in a state without a law or under a partial law is about 55 percent.

A 1986 study concluded that the repeal of helmet use laws was associated with a 10.4 to 33.3 percent increase in the fatality rate when calculated per accident. The study also found that between 158 and 420 fewer motorcycle rider fatalities would have occurred in 1984 had the laws not been repealed. More recently, studies of states that have repealed their mandatory helmet laws within the last 10 years have shown similar patterns.

For example, Arkansas repealed its universal helmet law in 1997, and 18 months after repeal, helmet use dropped by two-thirds (from 97 to 30 percent). Arkansas also experienced more than double the number and rate of unhelmeted crash scene fatalities, and more than double the hospital admission rate for unhelmeted motorcycle crash survivors. Associated with this increase in death and injuries was a substantial increase in the amount of non-reimbursed charges for initial treatment.

After Texas repealed its universal helmet law in 1997, helmet use fell from 97 to 66 percent. More than 80 additional motorcyclists died in the 2 years following the law's repeal than in the 2 years preceding it. The number of unhelmeted riders with traumatic brain injuries increased by a factor of almost 10 in only 4 years, from 55 in 1997 to 511 in 2001, and the number of unhelmeted riders who were placed in rehabilitation facilities saw similar increases, from 9 in 1997 to 90 in 2001. A more recent study published in the January 2010 edition of the Southern Medical Journal indicates that in the 7 years since Texas repealed its mandatory motorcycle law in 1997, fatality rates per vehicle miles traveled increased by roughly 25 percent.

In Kentucky, helmet usage rates fell from 96 to 65 percent following repeal of the state's universal helmet law in 1998; motorcycle fatalities increased from 26 in the year prior to repeal to 42 in the year following repeal. Accident-involved motorcycle riders who did not wear helmets in Kentucky were 4 times more likely to suffer a traumatic brain injury and severe head injury. In addition, hospital charges alone averaged more than \$25,000 more for the unhelmeted motorcyclist than for the helmeted motorcyclist involved in an accident.

Louisiana saw its helmet usage rate drop from 100 to 52 percent after it amended its helmet law in 1999 to remove the universal requirement for helmet use. The motorcycle fatality rate increased by more than 25 percent following the repeal, with unhelmeted accident-involved riders experiencing head injuries at twice the rate of helmeted riders. Nearly 60 more motorcyclists died in the 2 years following the law's repeal than in the 2 years preceding it. In spite of their requirement for unhelmeted riders to carry health insurance, the insurance coverage for unhelmeted riders involved in accidents actually decreased by half following the change in the law. In 2004, in response to the continuing rise in deaths and injuries, Louisiana reenacted the universal helmet law and saw the total number of motorcyclist deaths decline in 2004 and 2005.

Florida repealed its universal helmet law in 2000. After the repeal, helmet wear decreased from 100 to 53 percent, motorcycle deaths increased by almost 50 percent, and the number of serious brain injuries doubled. An estimated 117 motorcycle deaths in Florida could have been avoided from 2001 to 2002 if the universal law had remained in place.

The most recent study examining the results of a helmet law repeal was completed in 2008 by the University of Pittsburgh. The study looked at motorcycle injuries and fatalities in Pennsylvania for the 2 years before and after Pennsylvania limited its motorcycle law to riders with limited experience and riders and passengers under age 21. In the 2 years after Pennsylvania changed its law, the number of non-head injury deaths increased 25 percent, but the number of head injury deaths increased by 66 percent. Motorcycle-related head injury hospitalizations increased an astounding 78 percent compared to 28 percent for non-head injury hospitalizations. The increase in the number of head injury deaths or hospitalizations significantly outpaced the increase in the number of motorcycle registrations. Acute care hospital charges for motor-cycle related head injuries increased 132 percent, and the number of head-injured hospitalized motorcyclists requiring additional care at other facilities, such as rehabilitation or long-term care,

increased 87 percent, compared with a 16 increase for non-head injured motorcyclists.

The results of this legislative “experiment” on motorcycle riders are the same in every state where it has been performed. When universal helmet laws are repealed, helmet usage rates decrease dramatically, and motorcycle deaths and injuries increase markedly, even when accounting for the changes in ridership that may be associated with the repeal of the universal law. It is likely that hundreds of deaths and thousands of serious injuries could have been avoided had the states that recently repealed their universal helmet laws not done so.

Most states that have repealed universal helmet laws recognize that younger riders may be unable to make a fully informed decision regarding helmet use. They have, therefore, required that riders under a certain age wear helmets. These younger riders are likely to be among the least experienced riders and are the most likely to engage in risky behaviors, often with an incomplete understanding of potential consequences. Unfortunately, it is difficult to ascertain the age of a motorcycle rider for the purposes of enforcing such a requirement without verifying the rider’s age during a traffic stop. As a result, the young motorcyclist helmet law becomes unenforceable and helmet usage rates for minors drop dramatically when universal helmet laws are repealed. Thus, the most vulnerable and least risk-averse segments of the motorcyclist population are more likely to be unprotected in the absence of universal laws. Moreover, motorcyclists under age 21 generally represent less than 10% of the national fatality total.

A number of motorcycle-related groups, including the National Association of State Motorcycle Safety Administrators, the Motorcycle Safety Foundation, and the American Motorcyclist Association, encourage riders to wear motorcycle helmets, and most do not oppose laws mandating such use by minors. The National Agenda for Motorcycle Safety (NAMS) report, which was supported by NHTSA, the Motorcycle Safety Foundation, and motorcycle manufacturers such as BMW, Ducati, Harley-Davidson, American Honda Motor Company, Kawasaki, Suzuki, and Yamaha, included an urgent recommendation to increase the use of FMVSS 218-compliant helmets. A national survey performed in 2006 by the Scripps Survey Research Center at Ohio University noted that, even of those individuals who had previously ridden a motorcycle without a helmet, 61 percent favored state legislation requiring motorcycle helmet use.

The NTSB recognizes, however, that some motorcyclists and many motorcycling organizations oppose mandating the use of motorcycle helmets by all

riders. Most do not argue against the safety benefits of such helmets; instead, they contend that the government has no role in protecting the individual from foreseeable adverse outcomes if the individual chooses not to be so protected.

In the 1980s, opponents of seat belt use laws similarly asserted their personal freedom to drive without wearing seat belts. However, in 1985, the Motor Vehicle Manufacturers Association stated, “the evidence is clear and dramatic . . . safety belt users . . . experienced 80 percent fewer deaths from head injuries.” NHTSA estimates that from 1975 through 2005, seat belts saved more than 211,000 lives nationwide. During that same period, all states, except New Hampshire, enacted mandatory seat belt use laws; and usage rates have increased nationwide from about 12 percent in the early 1970s to 84 percent today. The NTSB is confident that there is ample evidence that similar life saving results can be achieved through motorcycle helmet laws that apply to all riders and passengers.

The argument regarding helmet laws is often framed in terms of personal choice (for example, “it’s my head”). Such an argument typically invokes the idea that motorcyclists are only hurting themselves by deciding to ride unprotected. For more than 14 years, the NTSB has been responsible for assisting families of those killed and injured in transportation accidents. We do not accept the notion that surviving friends and family are not affected when riders decide not to wear a helmet and are killed or injured.

Societal Costs

In addition to family and friends, society as a whole pays the well-documented excess costs for unhelmeted riders: medical care costs and the potentially even greater costs from productivity losses of individuals injured, disabled, or killed. Especially tragic are the fatalities and injuries involving unhelmeted riders in accidents that would have required only a new helmet and cosmetic repairs to the motorcycle, had the rider been wearing a protective helmet.

The costs of motorcycle crashes and the effect of helmets on these costs were presented at the NTSB’s 2006 forum by Dr. Ted Miller, Director of the Public Services Research Institute at the Pacific Institute for Research and Evaluation. According to Dr. Miller, in 2005, 110,000 motorcyclists were involved in police reported motorcycle crashes, and the motorcycle crash injuries cost \$17.5 billion, including the costs of medical treatment, lost work, and quality of life. Although unhelmeted motorcyclists accounted for 36 percent of all motorcycle crashes, they represented 70 percent of the total cost of those crashes or

\$12.2 billion. Dr. Miller also estimated the 2005 average cost per crash-involved motorcyclist as \$71,000 for helmeted and \$310,000 for unhelmeted motorcyclists. Thus, in a time of tight public budgets, it would not be fiscally prudent to create a situation that will foreseeably increase the need for resources, mostly public resources, to care for injured motorcyclists and their families.

Just this past June, the University of Michigan Traffic Research Institute released a report, in which researchers calculated that in Michigan in 2009, crash-involved motorcyclists accounted for \$400,000,000 in monetary costs. Monetary costs include medical care, future earnings, public services, and property damage and loss in crashes. Based on Dr. Miller's national data, it is likely that Michigan's costs for crash-involved motorcyclists would substantially rise if its helmet law was repealed.

It is because of the costs to society and survivors that personal freedoms must be balanced with the need to protect individuals from preventable illness, injuries, and fatalities. The Committee is likely to hear passionate debate today about the personal freedom of motorcycle riders to not wear helmets. However, the remarkable effectiveness of universal helmet laws in preventing death and disability among motorcyclists operating on public roads, particularly in light of rising rates and total numbers of individuals killed and injured in motorcycle crashes across our country, is a powerful argument for the adoption and maintenance of such laws.

Conclusion

HB 4608 and SB 291 are not good public safety policy. The NTSB opposes the enactment of these bills. We ask the Committee to table these bills, which would reduce the safety benefits that are now provided by Michigan's very sound universal helmet law. Experience has shown that when universal helmet laws are weakened, motorcyclist deaths and injuries rise. The NTSB does not want to see deaths and injuries rising in Michigan, as we have seen in every state that has taken a repeal action.