

# Motorcycle Helmet Laws Prevent Injury and Save Lives: Recommendation of the Community Preventive Services Task Force



Community Preventive Services Task Force

In the U.S., motorcycles account for about 3% of registered vehicles, 0.6% of traveled vehicle miles, and a disproportionate 14% of all road traffic fatalities.<sup>1</sup>

## TASK FORCE FINDING

The Community Preventive Services Task Force recommends universal motorcycle helmet laws (laws that apply to all motorcycle operators and passengers) based on strong evidence of effectiveness. Evidence indicates that universal helmet laws increase helmet use; decrease motorcycle-related fatal and non-fatal injuries; and are substantially more effective than no law or partial motorcycle helmet laws, which apply only to riders who are young, novices, or have medical insurance coverage below certain thresholds.

The U.S. states that repealed universal helmet laws and replaced them with partial laws or no law consistently experienced substantial decreases in helmet use and increases in fatal and non-fatal injuries. States that implemented universal helmet laws in place of partial laws or no law consistently experienced substantial increases in helmet use and decreases in fatal and non-fatal injuries. These beneficial effects of universal helmet laws extended to riders of all ages, including younger operators and passengers who would have been covered by partial helmet laws.

Economic evidence shows that universal motorcycle helmet laws produce substantial economic benefits that greatly exceed costs. Most benefits come from averted healthcare and productivity losses.

## DEFINITION

Motorcycle helmet laws require motorcycle riders to wear a helmet while riding on public roads. In the U.S., these laws are implemented at the state level, with varying provisions, in two categories:

- **Universal helmet laws** apply to all motorcycle operators and passengers.

- **Partial helmet laws** apply only to certain motorcycle operators such as those under a certain age (usually 18 years), novices (most often defined as having <1 year of experience), or those who do not meet the state's requirement for medical insurance coverage. Passengers on motorcycles are not consistently covered under partial helmet laws.

Universal or partial motorcycle helmet laws may contain provisions that:

- require use of helmets approved by regulatory agencies (e.g., U.S. Department of Transportation);
- cover all motorized cycles (including motorcycles and low-powered cycles such as mopeds or scooters), or cover only those meeting specific criteria (most often defined by engine capacity, horsepower, or ability to exceed certain speeds); and
- specify penalties for violators (usually monetary fines).

## BASIS OF FINDING

The Task Force recommendation is based on strong evidence of effectiveness from 71 studies; 60 studies evaluated motorcycle helmet laws in the U.S., and the effectiveness review article,<sup>2</sup> which appears elsewhere in this issue, focuses on these studies (search period through August 2012). Comparison of universal and partial helmet law effectiveness came from 43 studies. Evidence from included studies indicated that universal motorcycle helmet laws resulted in more helmet use and fewer fatal and non-fatal injuries than either partial laws or no law.

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Thirteen U.S. studies examined helmet law impact on youth and found that although partial helmet laws did offer some protection compared with no law, universal helmet laws were much more effective than partial laws in increasing helmet use and reducing fatalities and head injuries among youth.

States with universal helmet laws showed substantial reductions in fatal and non-fatal injuries compared with states with partial laws or no law, even when outcome measures accounted for potential differences in motorcycle registration or use (i.e., injuries per registered motorcycle, per traveled vehicle miles, or per crash). Reductions in fatal and non-fatal head injuries were greater than reductions in overall fatal and non-fatal injuries because motorcycle helmets protect the head area.

## APPLICABILITY

The findings of the systematic review on which this recommendation is based<sup>2</sup> are applicable to all motorcycle riders and passengers in the U.S. Each of the three evaluated measures (implementing universal helmet laws from no law or partial laws, repealing universal helmet laws to partial or no law, and impact of universal helmet laws versus partial or no helmet laws) were examined in roughly the same number of studies.

About one third of studies provided demographic information on motorcyclists who were involved in fatal or non-fatal crashes or observed during a helmet use observational study. In the U.S., motorcyclists had a mean age of 36.5 years and were predominantly male (median, 91%).

Studies examined the impact of universal helmet laws in different settings and on different population groups. These laws were equally effective in the U.S. for male and female riders. Universal helmet laws were also shown to be effective across all age groups. Studies specifically examined the effect of helmet laws on young motorcycle operators and passengers and found universal helmet laws were more effective than partial helmet laws in increasing helmet use and decreasing fatalities among youth. Comparison of law effectiveness in rural versus urban areas was inconclusive. Compared with motorcycle operators, passengers usually had a lower prevalence of helmet use under both universal and partial helmet laws, though universal laws increased helmet use for both operators and passengers.

## CONSIDERATIONS FOR IMPLEMENTATION

In the U.S., the trend over the past few decades has been to repeal universal helmet laws. Opponents of those laws

have questioned the effectiveness of helmets and helmet laws. A Cochrane systematic review assessed motorcycle helmet effectiveness and found helmet use led to a 42% reduction in risk for fatal injuries and a 69% reduction in risk for head injuries.<sup>3</sup> Evidence from the review on which this recommendation is based<sup>2</sup> addresses the second argument by demonstrating the effectiveness of universal helmet laws when compared with no law or partial laws.

Universal helmet laws, in addition to being more effective than partial laws, are easier to enforce. The characteristics specified in partial helmet laws (e.g., age, experience, level of medical insurance) are not visible to police officers monitoring traffic, making it difficult to identify violators. By contrast, universal helmet laws apply to all motorcycle operators and passengers, so anyone riding without a helmet is identified easily. Evidence from the review on which this recommendation is based<sup>2</sup> shows that when states transition from partial to universal helmet laws, substantial increases in helmet use and reductions in fatal and non-fatal injuries occur, not only for motorcyclists in general but also for motorcyclists previously covered by partial helmet laws, such as young people.

Some states require the use of helmets approved by the U.S. Department of Transportation; these helmets must cover the head, contain impact-absorbing materials, and stay on during a crash. In 2012, nearly one in ten U.S. motorcyclists wore unapproved helmets.<sup>4</sup> Laboratory testing has shown that these helmets do not protect motorcyclists effectively from head injuries. Training traffic law enforcement officers in these states to recognize unapproved helmets, and thereby enforce existing laws, may improve helmet law effectiveness.

## EVIDENCE GAPS

Nearly 6 decades of research on this topic have answered primary research questions and demonstrated the effectiveness of universal helmet laws across population groups in various settings. Additional research could answer some lingering questions.

No included study assessed the role of enforcement on helmet law effectiveness, and very few reported on use of unapproved helmets. More studies are needed on the impact of helmet law enforcement, especially in connection with use of unapproved helmets. More studies also are needed to examine the impact of universal helmet laws in rural areas.

More research is needed to better understand the impact of helmet laws on riders of low-powered motorized cycles (e.g., scooters, mopeds), which have been gaining popularity, especially in urban settings. In 2016, all types of low-powered cycles were covered in 12 of 19

states with universal helmet laws and 12 of 28 states with partial helmet laws; the remaining states with helmet laws covered motorized cycles above certain thresholds, such as engine displacement greater than 50 cc or those designed to go faster than 30 mph.<sup>5</sup>

## REFERENCES

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