

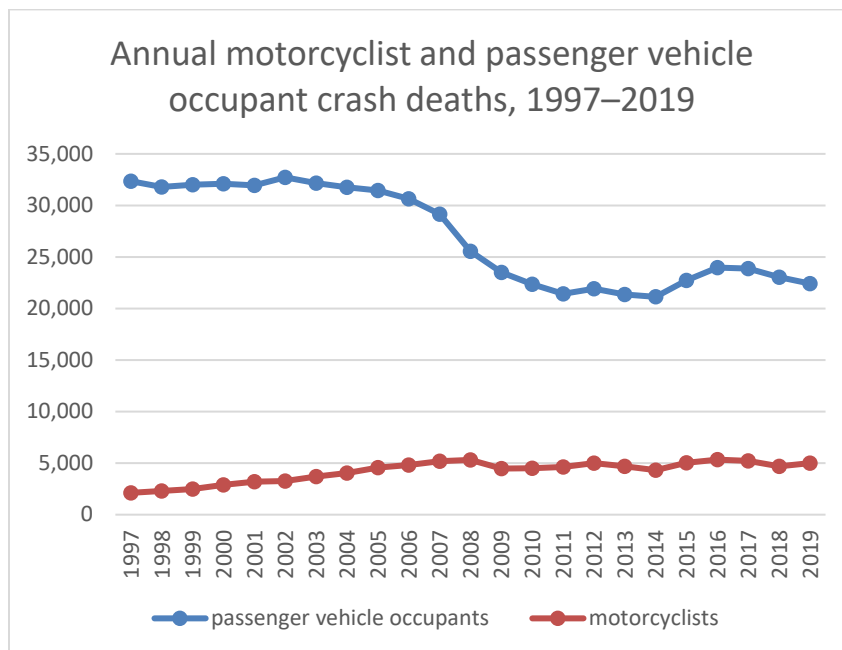
February 23, 2021

Statement before the Maryland Senate Judicial Proceedings Committee Motorcycle Helmet Laws

The Insurance Institute for Highway Safety is an independent, nonprofit scientific, and educational organization that identifies ways to reduce harm—deaths, injuries, and property damage—resulting from motor vehicle crashes on our nation’s roads. Our sister organization, the Highway Loss Data Institute, shares this mission through scientific studies of insurance data representing the human and economic costs of owning and operating different types of motor vehicles. Both organizations are wholly supported by the nation’s automobile insurers. The Institutes are submitting research results on trends in motorcyclist deaths and on the benefits of motorcycle helmet laws that cover all riders in reducing harm.

Trends in motorcyclist crash deaths

Motorcyclists are much more likely to be killed or seriously injured in crashes than occupants of passenger vehicles. Per mile traveled, the number of motorcyclist deaths is nearly 27 times the number of passenger vehicle occupant deaths.¹ Motorcyclist crash deaths increased dramatically between 1997 and 2008 (as shown in the following figure) and have remained persistently high since then. While much progress was made during that time in reducing the death rates of passenger vehicle occupants, more must be done for motorcyclists.



Helmets and helmet laws that cover all riders reduce the risk of death and head injuries

Helmets are designed to protect riders’ heads by absorbing crash energy. Of course, helmets cannot prevent all deaths or head injuries, but they are the only countermeasure that all motorcyclists can take advantage of immediately to reduce their risk substantially. Studies have found that helmets reduce the risk of death in motorcycle crashes by 37 to 42%^{2,3} and reduce the risk of traumatic brain injury by 67%⁴. Helmet use laws that cover all riders result in virtually all motorcyclists wearing helmets; helmet use is far higher in states with universal helmet laws than in states without such laws (99% vs. 71% in 2019)⁵. Interestingly, the use of helmets not compliant with federal safety standards was lower in states with helmet laws that cover all riders than in states without such laws (10% of helmets used vs. 21% in 2019)⁵.

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So helmet laws that cover all riders result in increased use of protective helmets, and thus reduce harm. The National Highway Traffic Safety Administration estimates that motorcycle helmets saved the lives of nearly 1,900 riders in 2017, and that an additional 749 lives could have been saved had all riders been helmeted⁶. About 95% of motorcyclists killed in crashes are at least 21 years old⁷, so helmet laws that cover only riders younger than 21 do not address most of the crash death problem and are virtually impossible to enforce.

Deaths go up when states abandon or roll back universal helmet laws

States that have repealed or weakened their helmet laws have seen use rates go down and motorcyclist crash deaths go up. In a national study, researchers modeled motorcyclist death rates by helmet law after controlling for various factors such as per capita income, population density, and annual precipitation. Death rates (per 10,000 registered motorcycles, per 100,000 population, and per 10 billion vehicle miles traveled) were lowest in states with universal helmet laws.⁸

Some specific findings from studies on crash deaths include:

- In 1997, Arkansas dropped the helmet requirement for riders 21 and older. In the same year, Texas dropped the requirement for people 21 and older who have medical insurance or have taken a motorcycle rider training course. Helmet use was 97% in both states before the laws changed, and helmet use dropped to 52% in Arkansas and 66% in Texas. Motorcyclist crash deaths increased by 21% in Arkansas and by 31% in Texas after the laws were weakened. In both states, head injuries among crash-involved motorcyclists increased, and in Texas the cost of treating these head injuries increased significantly.⁹
- Kentucky weakened its universal helmet law in 1998, followed by Louisiana in 1999. Motorcyclist deaths quickly increased in these states by 50% and 100%, respectively.¹⁰
- When Florida weakened its helmet law in 2000, the motorcyclist death rate increased by 25%.¹¹
- Pennsylvania saw motorcyclist head injury deaths increase by 66%, versus a 25% increase for non-head injury deaths, following the 2003 repeal of its universal helmet law.¹²
- Unusually, fatalities did not rise immediately in Michigan following the 2012 weakening of its universal helmet law, but head injuries from motorcycle crashes increased by 14%.¹³

Healthcare costs and unhelmeted motorcyclists injured in crashes

Unhelmeted riders injured in crashes have higher healthcare costs than helmeted riders, and many lack health insurance. In 2002, the National Highway Traffic Safety Administration released a report reviewing 25 studies on the costs of injuries resulting from motorcycle crashes. Authors reported that the reviewed studies “consistently found that helmet use reduced the fatality rate, probability and severity of head injuries, cost of medical treatment, length of hospital stay, the necessity for special medical treatments..., and probability of long-term disability.”¹⁴ The authors noted that a number of studies examined the question of who pays for the medical costs of motorcycle crash victims; only slightly more than half of crash victims had private health insurance coverage. For patients without private insurance, a majority of their medical costs were paid by the government.

Some specific findings from studies on the financial costs include:

- Average inpatient hospital charges in a study including seven states were 8% higher for unhelmeted motorcyclists than for helmeted riders overall.⁴ In these states, average inpatient charges for motorcyclists with traumatic brain injuries were more than twice the average charge for motorcyclists receiving inpatient care for other injuries.
- In Hawaii, which requires helmets only for riders under 18 years old, average medical charges for unhelmeted riders were almost 50% higher than those of helmeted riders (\$40,217 vs. \$27,176).¹⁵
- After California introduced a universal helmet law in 1992, the rate of motorcyclists hospitalized for head injuries decreased by 48%, and the total costs for patients with head injuries decreased by \$20.5 million.¹⁶

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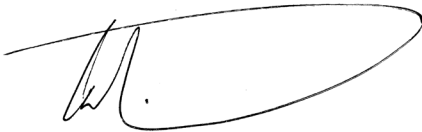
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- Total acute medical charges for motorcyclists injured in Nebraska declined 38% after a universal helmet law was implemented.¹⁷
- Following the 2000 weakening of Florida's universal helmet law, acute care costs for motorcyclists with head injuries rose from \$34,500 to nearly \$40,000—4 times the \$10,000 minimum medical insurance requirement for unhelmeted riding.¹⁸ Total gross costs for hospital-admitted motorcyclists with head injuries more than doubled, from \$21 million to \$50 million.
- The 2012 weakening of Michigan's helmet law was associated with a 22% increase in the average insurance payment for injuries to motorcyclists.¹⁹
- Collision claims are less likely to result in medical payment claims in states with universal helmet laws compared with states with other types of helmet laws.²⁰

Conclusion

Research consistently has shown that mandatory helmet use laws that apply to all riders increase helmet use and decrease fatalities, injuries, and medical costs among motorcyclists involved in crashes. States that have weakened their universal helmet laws have seen helmet use decrease and deaths and injuries increase. This straightforward rule of the road is a highly effective public health measure. Retaining the existing universal helmet law in Maryland is in the best interests of the motorcyclists in the state and of the state's finances.

Sincerely,



Eric Teoh
Director of Statistical Services

References

- 1 National Highway Traffic Safety Administration. (2020). *Traffic safety facts, 2018: motorcycles* (Report no. DOT HS-812-979). Washington, DC: U.S. Department of Transportation.
- 2 National Highway Traffic Safety Administration. (2008). *Traffic safety facts: Motorcycle helmet use laws* (Report no. DOT HS-810-887W). Washington, DC: U.S. Department of Transportation.
- 3 Norvell, D. C., & Cummings, P. (2002). Association of helmet use with death in motorcycle crashes: a matched-pair cohort study. *American Journal of Epidemiology*, 156(1), 483–487.
- 4 National Highway Traffic Safety Administration. (1996). *Report to Congress: Benefits of safety belts and motorcycle helmets* (Report no. DOT HS-808-347). Washington, DC: U.S. Department of Transportation.
- 5 National Highway Traffic Safety Administration. (2020). *Motorcycle helmet use in 2019—overall results* (Report no. DOT HS-812-936). Washington, DC: US Department of Transportation.
- 6 National Highway Traffic Safety Administration. (2019). *Lives and costs saved by motorcycle helmets, 2017* (Report no. DOT HS-812-867). Washington, DC: US Department of Transportation.
- 7 Insurance Institute for Highway Safety. (2021). *IHS analysis of Fatality Analysis Reporting System data on fatal crashes in 2019 from the National Highway Traffic Safety Administration*. Arlington, VA.
- 8 Houston, D. J., Richardson, Jr., L. E. (2007). Motorcycle safety and the repeal of universal helmet laws. *American Journal of Public Health*, 97(11), 2063–2069.

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References (continued)

- 9 Preusser, D. F., Hedlund, J. H., & Ulmer, R. G. (2000). *Evaluation of motorcycle helmet law repeal in Arkansas and Texas* (Report no. DOT HS-809-131). Washington, DC: National Highway Traffic Safety Administration.
- 10 Ulmer, R. G., & Preusser, D. F. (2003). *Evaluation of the repeal of motorcycle helmet laws in Kentucky and Louisiana* (Report no. DOT HS-809-530). Washington, DC: National Highway Traffic Safety Administration.
- 11 Kyrychenko, S. Y., & McCartt, A. T. (2006). Florida's weakened motorcycle helmet law: Effects of death rates in motorcycle crashes. *Traffic Injury Prevention, 7*(1), 55–60.
- 12 Mertz, K. J., & Weiss, H. B. (2008). Changes in motorcycle-related head injury deaths, hospitalizations, and hospital charges following repeal of Pennsylvania's mandatory motorcycle helmet law. *American Journal of Public Health, 98*(8), 1464–1467.
- 13 Carter, P. M., Buckley, L., Flannagan, C. A. C., Cicchino, J. B., Hemmila, M., Bowman, P. J., Almani, F., & Bingham, R. C. (2017). The impact of Michigan's partial repeal of the universal motorcycle helmet law on helmet use, fatalities, and head injuries. *American Journal of Public Health, 107*(1), 166-172.
- 14 Lawrence, B. A., Max, W., & Miller, T. R. (2002). *Costs of injuries resulting from motorcycle crashes: A literature review* (Report no. DOT HS-809-242). Washington, DC: National Highway Traffic Safety Administration.
- 15 Galanis, D. J., Castel, N. A., Wong, L.L., & Steinemann, S. (2016). Impact of helmet use on injury and financial burden of motorcycle and moped crashes in Hawaii: Analysis of a linked statewide database. *Hawaii Journal of Medicine and Public Health, 75*(12), 379–385.
- 16 Max, W., Stark, B., & Root, S. (1998). Putting a lid on injury costs: The economic impact of the California motorcycle helmet law. *Journal of Trauma, 45*(3), 550–556.
- 17 Muelleman, R.L., Mlinek, E.J., & Collicott, P.E. (1992). Motorcycle crash injuries and costs: Effect of a reenacted comprehensive helmet use law. *Annals of Emergency Medicine, 21*(3), 266–272.
- 18 Ulmer, R.G., & Northrup, V.S. (2005). *Evaluation of the repeal of the all-rider motorcycle helmet law in Florida* (Report no. DOT HS-809-849). Washington, DC: National Highway Traffic Safety Administration.
- 19 Highway Loss Data Institute. (2013). The effects of Michigan's weakened motorcycle helmet use law on insurance losses. *HLDI Bulletin, 30*(9), 1–16.
- 20 Highway Loss Data Institute. (2009). Helmet use laws and medical payment injury risk for motorcyclists with collision claims. *HLDI Bulletin, 26*(13), 1–6.