

Motorcycle Helmets and Rider Safety: A Legislative Crisis

Abstract

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Abstract

The authors examine state motorcycle helmet laws in the United States, demonstrate their effectiveness, and tell how opponents have challenged their implementation leading to weakening or frank repeal.

Over the past four decades, motorcycle helmet laws within the United States have been in a state of flux and have been shaped by the conflicting influences of the federal government's initiatives to shape state policies and motorcycle advocates' persistent lobbying efforts. Examination of individual state experiences with motorcycle helmet legislation demonstrates that universal motorcycle helmet laws effectively promote helmet use compliance, reduce morbidity and mortality in motorcycle crashes, and lower the health care costs and associated societal burdens of these crash victims. Motorcycle advocates have challenged the implementation of these laws and directly influenced the weakening or frank repeal of these laws to negative consequence. We offer this review as an educational resource to encourage and facilitate health care worker participation in legislative efforts to support implementation and maintenance of universal motorcycle helmet laws.

References

Shankar, U. and Varghese, C. (2006) Recent Trends in Fatal Motorcycle Crashes: An Update. National Center for Statistics and Analysis, p. 69 (updated 2006; cited 15 December 2007), Washington DC, <http://www-nrd.nhtsa.dot.gov/pdf/nrd-30/NCSA/Rpts/2006/810606.pdf>.Google Scholar

Hundley, J.C. et al (2004) Non-helmeted motorcyclists: A burden to society? A study using the national trauma data bank. *Journal of Trauma-Injury Infection And Critical Care* 57(5): 944–949.CrossRefGoogle Scholar

Mohan, D. (2002) Road safety in less-motorized environments: Future concerns. *International Journal of Experimental Pathology* 31(3): 527–532.Google Scholar

NHTSA. (2007) US Department of Transportation Action Plan to Reduce Motorcycle Fatalities. NHTSA, (updated 2007; cited 18 May 2008), Washington DC, <http://www.smsa.org/reports/4640-report4.pdf>.

Peden, M. et al (2004) Geneva, Switzerland: World Health Organization. World Report on Road Traffic Injury Prevention (cited) www.who.int/violence_injury_prevention/publications/road_traffic/world_report/summary_en_rev.pdf.

Peden, M. and Hyder, A. (2002) Road traffic injuries are a global public health problem. *British Medical Journal* 324(7346): 1153. [CrossRefPubMedPubMedCentralGoogle Scholar](#)

Conrad, P., Bradshaw, Y.S., Lamsudin, R., Kasniyah, N. and Costello, C. (1996) Helmets, injuries and cultural definitions: Motorcycle injury in urban Indonesia. *Accidental Analysis and Prevention* 28(2): 193–200. [CrossRefGoogle Scholar](#)

Ferrando, J., Plasencia, A., Oros, M., Borrell, C. and Kraus, J.F. (2000) Impact of a helmet law on two wheel motor vehicle crash mortality in a southern European urban area. *Injury Prevention* 6(3): 184–188. [CrossRefPubMedPubMedCentralGoogle Scholar](#)

Liu, B.C. et al (2008) Helmets for preventing injury in motorcycle riders. *Cochrane Database of Systematic Reviews* (1): CD004333.

Eastridge, B.J. et al (2006) Economic impact of motorcycle helmets: From impact to discharge. *Journal of Trauma-Injury Infection And Critical Care* 60(5): 978–983, discussion 983–984. [CrossRefGoogle Scholar](#)

Proscia, N. et al (2002) The effects of motorcycle helmet use between hospitals in states with and without a mandatory helmet law. *Connecticut Medicine* 66(4): 195–198. [PubMedGoogle Scholar](#)

Chiu, W.T., Kuo, C.Y., Hung, C.C. and Chen, M. (2000) The effect of the Taiwan motorcycle helmet use law on head injuries. *American Journal of Public Health* 90(5): 793–796. [CrossRefPubMedPubMedCentralGoogle Scholar](#)

Servadei, F., Begliomini, C., Gardini, E., Giustini, M., Taggi, F. and Kraus, J. (2003) Effect of Italy's motorcycle helmet law on traumatic brain injuries. *Injury Prevention* 9(3): 257–260. [CrossRefPubMedPubMedCentralGoogle Scholar](#)

Tsai, M.C. and Hemenway, D. (1999) Effect of the mandatory helmet law in Taiwan. *Injury Prevention* 5(4): 290–291. [CrossRefPubMedPubMedCentralGoogle Scholar](#)

Panichaphongse, V., Watanakajorn, T. and Kasantikul, V. (1995) Effects of law promulgation for compulsory use of protective helmets on death following motorcycle accidents. *Journal of the Medical Association of Thailand* 78(10): 521–525. [PubMedGoogle Scholar](#)

Jones, M.M. and Bayer, R. (2007) Paternalism and its discontents: Motorcycle helmet laws, libertarian values, and public health. *American Journal of Public Health* 97(2): 208–217. [CrossRefPubMedPubMedCentralGoogle Scholar](#)

Vaca, F., Berns, S.D., Harris, J.S., Jolly, B.T., Runge, J.W. and Todd, K.H. (2001) National Highway Traffic Safety Administration. Evaluation of the repeal of motorcycle helmet laws. *Annals of Emergency Medicine* 37(2): 229–230. [CrossRefPubMedGoogle Scholar](#)

Lawrence, B.A., Max, W. and Miller, T.R. (2003) Costs of Injuries Resulting from Motorcycle Crashes: A Literature Review. Pacific Institute for Research and Evaluation, NHTSA, p.106.

Fatality Analysis Reporting System (FARS) database. (2008) (database on the Internet) (cited 2008), <http://www-fars.nhtsa.dot.gov>.

NHTSA. (2006) Traffic Safety Facts 2006 Data: Motorcycles. National Center for Statistics and Analysis, (updated 2006; cited 14 December 2008), Washington DC, http://www.nhtsa.dot.gov/portal/nhtsa_static_file_downloader.jsp?file=/staticfiles/DOT/NHTSA/Traffic%20Injury%20Control/Articles/Associated%20Files/TSF2006_810806.pdf.

Rivara, F.P., Dicker, B.G. and Bergman, A.B., Dacey, R. and Herman, C. (1988) The public cost of motorcycle trauma. *JAMA-Journal of the American Medical Association* 260(2): 221–223. CrossRefGoogle Scholar

ABATE. (1972) Membership in 44 states have started working toward our freedom of the road. *Easyrider Magazine*, (updated 1972; cited 26 September 2008), http://www.highcountryabatesc.org/ABATE_easyrider.htm.

American Motorcycle Association. (2008) The History of the AMA. American Motorcycle Association, (updated 2008; cited 27 September 2008), Pickerington, OH, <http://www.amadirectlink.com/whatis/history.asp>.

IIHS. (2008) Insurance Institute for Highway Safety: History of US motorcycle laws and changes in coverage. Insurance Institute for Highway Safety, (updated 2008; cited 10 May 2008), Arlington, VA, http://www.iihs.org/laws/helmet_history.html.

Houston, D.J. and Richardson Jr., L.E. (2007) Motorcycle safety and the repeal of universal helmet laws. *American Journal of Public Health* 97(11): 2063–2069. CrossRefPubMedPubMedCentralGoogle Scholar

Ulmer, R.G. and Preusser, D.F. (2003) Evaluation of the Repeal of Motorcycle Helmet Laws in Kentucky and Louisiana: National Highway Traffic Safety Administration. Records OoRaT. Report No.: DOT HS 809 530.

US GAO. (1991) Motorcycle Helmet Laws Save Lives and Reduce Costs to Society. Washington DC: Government Accounting Office.

Branas, C.C. and Knudson, M.M. (2001) Helmet laws and motorcycle rider death rates. *Accidental Analysis and Prevention* 33(5): 641–648. CrossRefGoogle Scholar

Sosin, D.M. and Sacks, J.J. (1992) Motorcycle helmet-use laws and head injury prevention. *JAMA-Journal of the American Medical Association* 267(12): 1649–1651. CrossRefGoogle Scholar

NHTSA. (2008) Traffic Safety Facts-Motorcycle Helmet Use Laws. Washington, DC: NHTSA, (updated 2008; cited 10 May 2008),

<http://www.nhtsa.dot.gov/staticfiles/DOT/NHTSA/Communication%20&%20Consumer%20Information/Articles/Associated%20Files/810887.pdf>.

Turner, P. and Hagelin, C. (2004) Florida Motorcycle Helmet Use Observational Survey and Trend Analysis Tampa, Florida: Center for Urban Transportation Research, University of South Florida, Report No.: BC 353 RPWO No. 36. Google Scholar

Vaca, F. (2006) National Highway Traffic Safety Administration (NHTSA) notes. Evaluation of the repeal of the all-rider motorcycle helmet law in Florida. *Annals of Emergency Medicine* 47(2): 203, discussion 04–06. CrossRef PubMed Google Scholar

NHTSA. (1998) Further Analysis of Motorcycle Helmet Effectiveness Using CODES Linked Data. Washington, DC: US Department of Transportation.

Bledsoe, G.H. and Li, G. (2005) Trends in Arkansas motorcycle trauma after helmet law repeal. *Southern Medical Journal* 98(4): 436–440. CrossRef PubMed Google Scholar

Preusser, D.F., Hedlund, J.H. and Ulmer, R.G (2000) Evaluation of motorcycle helmet law repeal in Arkansas and Texas (updated 2000; cited 15 December 2007), <http://www.nhtsa.dot.gov/people/injury/pedbimot/motorcycle/EvalofMotor.pdf>.

Christian, W.J., Carroll, M., Meyer, K., Vitaz, T.W. and Franklin, G.A. (2003) Motorcycle helmets and head injuries in Kentucky, 1995–2000. *The Journal of the Kentucky Medical Association* 101(1): 21–26. PubMed Google Scholar

Muller, A. (2004) Florida's motorcycle helmet law repeal and fatality rates. *American Journal of Public Health* 94(4): 556–558. CrossRef PubMed PubMed Central Google Scholar

Kyrychenko, S.Y. and McCartt, A.T. (2006) Florida's weakened motorcycle helmet law: Effects on death rates in motorcycle crashes. *Traffic Injury Prevention* 7(1): 55–60. CrossRef PubMed Google Scholar

Ulmer, R.G. and Northrup, V.S. (2005) Evaluation of the Repeal of the All-Rider Motorcycle Helmet Law in Florida. Final Report, p. 56.

Mertz, K.J. and 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. CrossRef PubMed PubMed Central Google Scholar

Kraus, J.F., Peek, C. and Williams, A. (1995) Compliance with the 1992 California motorcycle helmet use law. *American Journal of Public Health* 85(1): 96–99. CrossRef PubMed PubMed Central Google Scholar

Muelleman, R.L., Mlinek, E.J. and 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. [CrossRefPubMedGoogle Scholar](#)

Auman, K.M., Kufera, J.A. and Ballesteros, M.F., Smialek, J.E. and Dischinger, P. (2002) Autopsy study of motorcyclist fatalities: The effect of the 1992 Maryland motorcycle helmet use law. *American Journal of Public Health* 92(8): 1352–1355. [CrossRefPubMedPubMedCentralGoogle Scholar](#)

Rowland, J., Rivara, F., Salzberg, P., Soderberg, R., Maier, R. and Koepsell, T. (1996) Motorcycle helmet use and injury outcome and hospitalization costs from crashes in Washington State. *American Journal of Public Health* 86(1): 41–45. [CrossRefPubMedPubMedCentralGoogle Scholar](#)

NHTSA. (2008) Evaluation of the Reinstatement of the Motorcycle Helmet Law in Louisiana. NHTSA, (updated 2008; cited 29 December 2008), Washington DC, <http://www.nhtsa.dot.gov/staticfiles/DOT/NHTSA/Communication%20&%20Consumer%20Information/Traffic%20Tech%20Publications/Associated%20Files/tt346.pdf>.

Karlson, T.A. and Quade, C.A. (1994) Head injuries associated with motorcycle use – Wisconsin, 1991. *MMWR Morbidity and Mortality Weekly Report* 43(23): 29–31, 423. [Google Scholar](#)

Shankar, B.S., Ramzy, A.I., Soderstrom, C.A., Dischinger, P.C. and Clark, C. (1992) Helmet use, patterns of injury, medical outcome, and costs among motorcycle drivers in Maryland. *Accidental Analysis and Prevention* 24(4): 385–396. [CrossRefGoogle Scholar](#)

Orsay, E., Holden, J.A., Williams, J. and Lumpkin, J.R. (1995) Motorcycle trauma in the state of Illinois: Analysis of the Illinois Department of Public Health Trauma Registry. *Annals of Emergency Medicine* 26(4): 455–460. [CrossRefPubMedGoogle Scholar](#)

Offner, P.J., Rivara, F.P. and Maier, R.V. (1992) The impact of motorcycle helmet use. *Journal of Trauma-Injury Infection And Critical Care* 32(5): 636–641, discussion 41–42. [CrossRefGoogle Scholar](#)

Max, W., Stark, B. and Root, S. (1998) Putting a lid on injury costs: The economic impact of the California motorcycle helmet law. *Journal of Trauma-Injury Infection And Critical Care* 45(3): 550–556. [CrossRefGoogle Scholar](#)

Kelly, P., Sanson, T., Strange, G. and Orsay, E. (1991) A prospective study of the impact of helmet usage on motorcycle trauma. *Annals of Emergency Medicine* 20(8): 852–856. [CrossRefPubMedGoogle Scholar](#)

Knudson, M.M., Schermer, C. and Speetzen, L. (2004) Motorcycle helmet laws: Every surgeon's responsibility. *Journal of the American College of Surgeons* 199(2): 261–264. [CrossRefPubMedGoogle Scholar](#)

Brandt, M.M., Ahrns, K.S., Corpron, C.A., Franklin, G.A. and Wahl, W.L. (2002) Hospital cost is reduced by motorcycle helmet use. *Journal of Trauma-Injury Infection And Critical Care* 53(3): 469–471.CrossRefGoogle Scholar

O'Keeffe, T., Dearwater, S.R., Gentilello, L.M., Cohen, T.M., Wilkinson, J.D. and McKenney, M.M. (2007) Increased fatalities after motorcycle helmet law repeal: Is it all because of lack of helmets? *Journal of Trauma-Injury Infection And Critical Care* 63(5): 1006–1009.CrossRefGoogle Scholar

McKnight, A.J. and McKnight, A.S. (1995) The effects of motorcycle helmets upon seeing and hearing. *Accidental Analysis and Prevention* 27(4): 493–501.CrossRefGoogle Scholar

Orsay, E.M., et al (1994) Motorcycle helmets and spinal injuries: Dispelling the myth. *Annals of Emergency Medicine* 23(4): 802–806.CrossRefPubMedGoogle Scholar

Wilker, B. and Bailey, K. (2008) *Dying for Coverage in Wisconsin*. Washington DC: Families USA.Google Scholar

Welch, W. (2006) Cycle sales powered by pricey gas. (updated 6 May 2006; cited 19 May 2008), http://www.usatoday.com/news/nation/2006-06-05-cycle-gas_x.htm.

Petridou, E., Skalkidou, A., Ioannou, N. and Trichopoulos, D. (1998) Fatalities from non-use of seat belts and helmets in Greece: A nationwide appraisal. *Hellenic Road Traffic Police. Accidental Analysis and Prevention* 30(1): 87–91.CrossRefGoogle Scholar

Bishai, D.M. and Hyder, A. (2006) Modeling the cost effectiveness of injury interventions in lower and middle income countries: Opportunities and challenges. *Cost Effectiveness and Resource Allocation* 4(1): 2.CrossRefPubMedPubMedCentralGoogle Scholar

Hyder, A.A., Waters, H., Phillips, T. and Rehwinkel, J. (2007) Exploring the economics of motorcycle helmet laws – Implications for low and middle-income countries. *Asia Pacific Journal of Public Health* 19(2): 16–22.CrossRefPubMedGoogle Scholar

Mayhew, D.R. and Simpson, H.M. (2002) The safety value of driver education and training. *Injury Prevention* 8(Supp 2): ii3–ii8.