

National Mandatory Motorcycle Helmet Laws May Save \$2.2 Billion Anually: An Inpatient and Value of Statistical Life Analysis

Abstract

Published in: J Trauma Acute Care Surg. 2015 Jun;78(6):1182-6. doi:
10.1097/TA.0000000000000601.

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BACKGROUND:

While statistics exist regarding the overall rate of fatalities in motorcyclists with and without helmets, a combined inpatient and value of statistical life (VSL) analysis has not previously been reported.

METHODS:

Statistical data of motorcycle collisions were obtained from the Centers for Disease Control, National Highway Transportation Safety Board, and Governors Highway Safety Association. The VSL estimate was obtained from the 2002 Department of Transportation calculation. Statistics on helmeted versus nonhelmeted motorcyclists, death at the scene, and inpatient death were obtained using the 2010 National Trauma Data Bank. Inpatient costs were obtained from the 2010 National Inpatient Sample. Population estimates were generated using weighted samples, and all costs are reported using 2010 US dollars using the Consumer Price Index.

RESULTS:

A total of 3,951 fatal motorcycle collisions were reported in 2010, of which 77% of patients died at the scene, 10% in the emergency department, and 13% as inpatients. Thirty-seven percent of all riders did not wear a helmet but accounted for 69% of all deaths. Of those motorcyclists who survived to the hospital, the odds ratio of surviving with a helmet was 1.51 compared with those without a helmet ($p < 0.001$). Total costs for nonhelmeted motorcyclists were 66% greater at \$5.5 billion, compared with \$3.3 billion for helmeted motorcyclists ($p < 0.001$). Direct inpatient costs were 16% greater for helmeted riders (\$203,248 vs. \$175,006) but led to more than 50% greater VSL generated (absolute benefit, \$602,519 per helmeted survivor).

CONCLUSION:

A cost analysis of inpatient care and indirect costs of motorcycle riders who do not wear helmets leads to nearly \$2.2 billion in losses per year, with almost 1.9 times as many deaths compared with helmeted motorcyclists. The per capita cost per fatality is more than \$800,000. Institution of a mandatory helmet law could lead to an annual cost savings of almost \$2.2 billion.