

The Economic Impact of Helmet Use on Motorcycle Accidents: A Systematic Review and Meta-analysis of the Literature from the Past 20 Years.

Abstract

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OBJECTIVE:

The incidence and cost of motorcycle accidents are projected to increase. Motorcycle helmets are accepted as an effective strategy for reducing the morbidity and therefore the cost of motorcycle accidents. Despite this, states have continued to repeal helmet laws in the past 20 years. In addition, variations in the methodologies and outcomes of published reports have contributed to uncertainty regarding the health care dollars saved due to motorcycle helmet use. The purpose of this systematic review and meta-analysis is to clarify the economic impact of motorcycle helmet use.

METHODS:

Our primary source was Medline. Search terms included "motorcycle," "motorbike," "motorcycle helmet," "head protective devices," and "cost and cost analysis." The review only included articles that were primary studies, written in English, evaluations of periods after 1994, and published in a peer-reviewed journal. Two independent authors extracted data using predefined data fields. Meta-analysis was done using the R-metafor package.

RESULTS:

Twelve papers met the criteria for inclusion. Meta-analysis demonstrated that nonhelmeted patients required \$12,239 more in hospital costs per patient. Nonhelmeted patients also required more postdischarge care and were more likely to use publicly funded insurance. Studies also found lower injury severity and better hospital course in the helmeted population. Study limitations included selection bias, unclear statistical assumptions, lack of precision measures, confounding variables, and lack of standardization to a common year. Meta-analysis demonstrated an I² of 67%, attributing a significant proportion of outcome variation to study differences.

CONCLUSIONS:

Motorcycle helmet use reduces morbidity and contributes to significant health care cost savings. Continuing antihelmet legislation will impose a substantial economic burden to the health care system, the government, and the public.