Managing Acute Injuries Resulting From Motorcycle Accidents: Emergency Department and Inpatient Hospital Resource Use and Costs
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Objective: To examine resource use and cost of Emergency Department (ED) and hospital care for acute injuries resulting from motorcycle accidents.

Background

- In the US in 2003, 67,103 persons were injured in motorcycle accidents, with 3,661 fatalities.¹
- Although mandatory use of helmets for all ages has been required in MA since 1967, the majority of states have either no (8%), or age-restricted (51%) helmet requirements.²

Results:

- Transportation to ED
  Transport by ambulance was used for 32% of those injured. Less than 1% were taken to the ED via helicopter.

- Case Characteristics
  Males comprised 87% of all motorcycle-related injuries brought to the ED. The driver was the injured party in 95% of the cases. The mean age was 32 years (median: 30; range: 1-93). Almost half (49%) of the motorcycle-related injury cases were younger than 30 years old. Those under 18 years comprised 12% of the injury cases.

- Month of ED Visit
  The majority (76%) of ED visits for motorcycle-related injuries occurred from May-September. The highest visit rates were in July (18%) and August (17%). The fewest motorcycle injury related visits (3%) occurred in the winter months (December-February).

- Day of ED Visit
  Slightly more than half (52%) visited the ED on a weekend (Friday-Sunday). The highest rate of treated injuries (22%) within a 24-hour period was noted from midnight on Saturday to 11:59 PM on Sunday.

- Time of ED Visit
  The majority (54%) of patients arrived at the ED between 4:00 pm and midnight.

- Case Identification
  Mostly all cases for patients visiting a MA ED with an injury suffered as a result of a motorcycle accident fit codes E1802-E1825. ED released after ED treatment, or was admitted to inpatient care from ED admission source (ED), ICD-9-CM diagnosis code was used to identify injury type.

- Type of Injury
  Almost half (44%) of the patients injured in a motorcycle accident sustained multiple injuries. Skull fractures and other head injuries accounted for 8% of the injuries. Almost one-quarter (22%) had some type of other fracture. Contusions, sprains and dislocations were the most common type of injury (48%).

- Cost of Acute Injury Care
  The average cost of a hospital stay for an injury resulting from a motorcycle accident when the patient was not hospitalized was $846 (median: $454, ± $1,221). The cost of pre-admission ED care was included (mean=$600).

Conclusions:

- Injuries resulting from motorcycle accidents occurred most often in young adults.
- Though substantial, these are conservative estimates of the injury-related health care costs, as they do not include physician-related or post-acute care costs.
- Most injuries in this analysis could be managed successfully in the ED; however, this level of injury may not be representative of motorcycle accident related injuries in general. The type of injury and low case fatality rate observed in this analysis may reflect the enforcement of the mandatory helmet law for all motorcycle riders that has been in effect in Massachusetts for decades. To understand the impact of such a law on the number, type, severity and cost of treating motorcycle-related injuries, additional analyses should be carried out using data from other states and countries where universal helmet use is not required.

References:

² Insurance Institute for Highway Safety: Highway Loss Data Institute [http://www.iihs.org/iihs/topics/loss_history.html]