



Pathology & Biology Section – 2008

G26 Motorcycle Fatalities in the State of Vermont: 1995-2005

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The goals of this presentation are to: (1) investigate the etiology and demographics of motorcycle fatalities in the state of Vermont via review of Office of the Chief Medical Examiner (OCME) forensics reports and Fatality Analysis Reporting System (FARS) Web-Based Encyclopedia, (2) to provide recommendations on how to reduce motorcycle fatalities and/or serious motorcycle injuries in Vermont, and (3) to provide a model for similar analysis of motorcycle fatalities in other states.

This presentation will impact the forensic community by illustrating that nationwide motorcycle fatality trends are not necessarily the same as those seen at the state level. Analysis of motorcycle fatality data from the state of Vermont provides a practical example of how trends can be identified, and recommendations derived.

Motorcycle rider fatalities have been increasing nationwide since 1997, according to the National Highway Traffic Safety Administration reports. In the State of Vermont, the number of endorsed motorcycle operators increased by 7,550 from 1995-2005, and the number of motorcycle fatalities reported to the Office of the Chief Medical Examiner (OCME) doubled (8 vs. 16 cases). Through a combination of review of medical examiner reports, death certificates, hospital medical records, police reports, and Fatality Analysis Reporting System (FARS) Web-Based Encyclopedia, the OCME analyzed the 73 motorcycle fatalities who expired in Vermont from 1995-2005.

The majority of decedents (71%) held valid motorcycle licenses. None had completed the Vermont Rider Education Program (VREP)—a voluntary training program to improve motorcycle operator safety established in 1990—though one decedent had attempted, but failed the course. The state of Vermont has had a universal motorcycle helmet law since 1968, and the majority of decedents (89%) were wearing helmets. Three of these helmets, however, were not Department of Transportation (DOT) approved models. Of those with no helmets, drug and/or alcohol screens were positive forty percent of the time. Overall, thirty-eight percent of decedents had positive drug and/or alcohol screens. The average blood alcohol concentration (BAC) was 0.15%: in four cases, the BAC was less than the legal intoxication limit of 0.08%. Six decedents had a history of prior DWI convictions, and of these, five had elevated BACs at death. When examined in terms of decades, the largest group of fatalities occurred in the 20-29 year old population, though the 40-49 year olds represented the fastest growing group.

The majority of motorcycle fatalities were not attributable to poor visibility/weather, as most occurred during summer daylight hours on dry blacktop roads. Neither did traffic play a major role: in 86% of motorcycle fatalities, the roadways were classified as rural rather than urban, and in greater than two-thirds of cases, the rider was lone rather than in a group. In 51% of cases, the collision was with a stationary object (e.g. guardrail, tree, bridge). In 41% of cases, the primary impact was with other motor vehicles. In 3% of cases, an animal was involved (e.g., deer, moose), and in 6% of cases the primary impact site remains unknown. Excess speed and road curvature showed a positive correlation with fatalities: per police report, 52% of decedents were driving too fast for road conditions and/or legal limits, and greater than 70% of accidents occurred at road curves. In all cases, the cause of death was blunt impact injury—usually to the head—although concurrent spinal, thoracic, abdominal, and extremity injuries were often seen.

While many factors contribute to motorcycle fatalities, those which are most important in Vermont appear to be operator-dependant. Excess speed and drug/alcohol use are two major modifiable risk factors for motorcycle fatalities in Vermont. All operators should be strongly encouraged to enroll in rider safety courses where they can receive appropriate risk education. Public safety advertising should be targeted toward the 20-29 and 40-49 year old age groups.

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