

Analysis of Motor-Vehicle Accidents and Blood Alcohol Concentration (BAC)

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Purpose: To analyze the association of traffic accidents and fatalities with driver blood alcohol content (BAC) levels at or below legal limits in Texas (0.10 g/dl).

Methods: A retrospective study of motor-vehicle accidents (MVAs) reported to the Texas Department of Public Safety involving injury or property damage greater than [US]\$500 and occurring on a public roadway. Accidents and fatalities were categorized according to driver BAC level.

Results: The 6,788 MVAs involved 10,664 drivers with BACs ranging from 0.00 to 0.20 g/dl. In 7,136 (67%) cases, driver BAC was known. Of the 7,136 drivers, 6,400 (90%) had a positive BAC test result (BAC \geq 0.01). One-thousand-four (1,004) drivers (16%) had a BAC under the legal limit in Texas. Thirty percent (30%) of alcohol-related fatalities involved a driver BAC below 0.10 g/dl. Poisson regression was used to predict the mean number of accidents and fatalities based on driver BAC. A decrease in BAC from 0.10 to 0.08 g/dl represents a potential reduction in accidents by 23% and fatalities by 8%.

Conclusions: The incidence of traffic accidents and fatalities in Texas with driver BACs below 0.10 g/dl supports a reduction in current legal limits.

Information from Paramedic Injury Severity Assessment Can Aid Trauma Triage

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Objective: To compare information contained in standard out-of-hospital trauma triage criteria vs. standard criteria plus paramedic estimate of severity of injury for determination of patient need for a trauma center.

Methods: A prospective, observational cohort analysis of trauma triage was performed using a stratified statewide sample of injured patients. Standard triage data (physiological parameters, anatomic injury, mechanism of injury, and co-morbid factors) were collected from EMS providers. The providers also ranked their assessment of patient injury severity (1 = minor, 2 = acute; nonlife-threatening; 3 = life-threatening; or 4 = requiring CPR). A patient was considered to need a trauma center if requiring major surgery within six hours of arrival, needing ICU admission, dying in hospital, or having an ISS >16. The relative triage information of standard criteria versus standard criteria plus provider assessment of injury severity were determined using logistic regression and receiver operating characteristic (ROC) curves.

Results: Three-hundred-six/1,063 (28.8%) patients required a trauma center. Using a logistic regression model, the following standard triage parameters remained statistically associated ($p < 0.05$) with need for trauma center after inclusion of provider assessment of severity: 1) systolic blood pressure <90 torr; 2) respiratory rate (<10 or >29 /min), 3) Glasgow Coma Scale score <13; 4) penetrating injury (mid-thigh to head); 5) two or more obvious proximal long-bone fractures; 6) fall >20 feet). Severity ranks 3 and 4 had the greatest odds ratios (20:1 and 82:1, respectively). The model ROC areas were 0.88 with provider assessment of severity versus 0.83 without ($p < 0.0001$).

Conclusions: Standard triage criteria can benefit from inclusions of EMS provider clinical severity assessment.