

## Research - R169

Poster

### **Abstract Title:**

What differences exist in injury severity score for patients admitted to a Level I Trauma Center due to motor vehicle or motor cycle collision with blood alcohol content less than or equal to 0.08 mg/dl or greater than 0.08 mg/dl?

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### **Background & Purpose:**

The National Transportation Safety Board (NTSB) advised law makers in the United States to reduce "the allowable blood-alcohol content by more than a third, to 0.05% from 0.08% (Wald, 2013). There is support both for and against the NTSB's recommendations; therefore it is reasonable to explore the current evidence to evaluate the rationale to decrease the current legal limit of blood-alcohol content (BAC). Research has supported that 30% all traffic fatalities are related to drunk driving and every year alcohol has taken 10,000 lives. The purpose of this research is to evaluate the rationale for reducing the legal limit of BAC to 0.05% through analysis of the relationship between BAC and injury severity.

### **Study/Project Design:**

A correlational design was performed on admitted patients with positive alcohol screen and involved in a MVC.

### **Setting:**

The research was conducted at a community based state designated Level I Trauma Center located in an urban area.

### **Sample:**

This was a purposive sample of 338 trauma patients involved in motor vehicle collision or motor cycle collision who tested positive for alcohol on initial trauma resuscitation.

### **Procedures:**

With IRB approval we retrospectively reviewed the records of all Trauma Registry patients (ages 18 years to 80 years) injured in motor vehicle crashes between January 2011 and December 2012, inclusive. We compared the group of patients with a non-zero blood alcohol concentration (n=69) to the group composed of patients with zero blood alcohol (n=269) regarding serum ETOH concentration, Injury Severity Score and other demographic variables. Standard statistical tools (paired t test, chi square, pearson coefficient) were used in the analysis.

### **Findings/Results:**

338 patients were identified. Of these, 69, or 20% of the entire sample, had a detectable blood alcohol level on admission. Patients with detectable blood alcohol were younger (36.5+/-14 years vs 43.5+/-21.5 years; p=0.006) and slightly more severely injured (ISS 9.7 +/-6.5 vs 7.9+/-6.5; p=0.02) than those with no detectable blood alcohol. Men were more likely to have a detectable blood alcohol level than women (23.7% of males vs 14.4% of females; p=0.04). There was no statistically significant association between either ISS and EtOH levels or between ISS and age. Among patients with detectable blood alcohol concentrations, we compared the mean injury severity score of those with serum [EtOH] less than 0.08 mg/dl (n=10) to the ISS of those with serum [EtOH] of 0.08 mg/dl or greater (n=59). The result is depicted in the figure. While there was no statistically significant difference in injury severity between the two, the variance was far larger in those with higher blood alcohol levels.

### **Discussion/Conclusions/Implications:**

In our study we found no significant correlation between higher BAC levels and a more severe ISS. Suggestive to the current research available that it is not positive alcohol levels alone that affect ISS, but the potential for risk taking behaviors by drivers under the influence that increase the injury severity. Further research is needed to analyze the impact of BAC positive levels on patients involved in motor vehicle crashes and evaluation of alcohol screening and prevention programs aimed at continuing to increase public awareness.