

INJURY WATCH

Volume 2, Issue 1.1
January/February 2004

Life-altering Outcomes Following Lower Extremity Injury

Lower extremity injuries (LEIs) sustained in high-energy vehicular crashes often result in physical problems and unexpected psychosocial consequences. The significance of LEIs is diminished by low Abbreviated Injury Scale scores, which were designed to reflect life-threatening injury. In a recent cohort study conducted at the NSC, drivers who sustained LEIs were identified as part of the Crash Injury Research and Engineering Network (CIREN) and interviewed during hospitalization, at 6 months and 1 year. Interview questions addressed physical, cognitive and psychosocial functioning. All were occupants of newer vehicles with seatbelts and airbags.

Sixty-five patients were followed for 1 year. Prior to the crash, 60% were employed full-time, 62% had a medical condition, and 40% had pre-injury depression. Injuries included mild brain injury (43%), ankle/foot fractures (55%), and bilateral injuries (37%). One year post-injury, 46% reported limitations in walking and 22% with ankle/foot fractures were unable to return to work compared with 3% without these injuries. Depression (39%), cognitive problems (32%) and posttraumatic stress disorder (18%) were significant in the mild brain injury group.

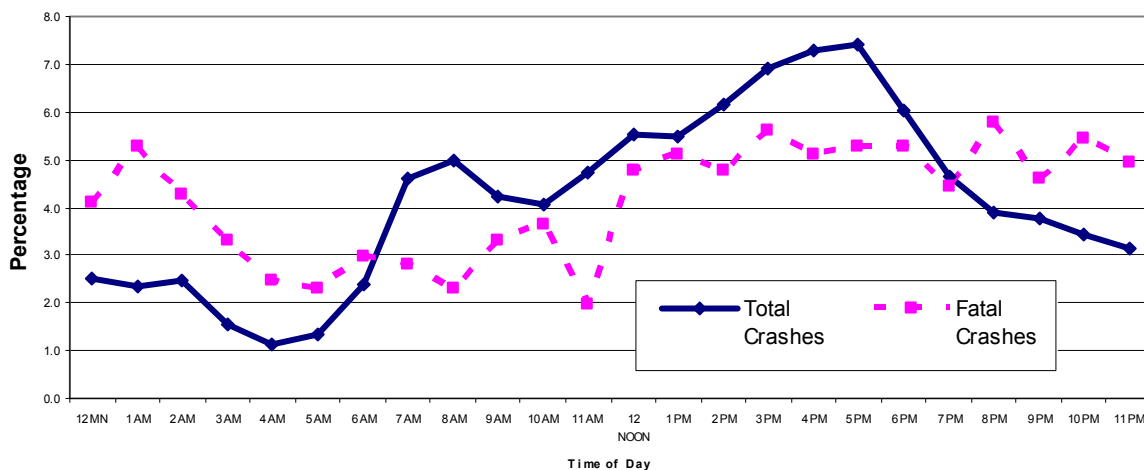
This study documented the long-lasting physical and psychological burdens that may impede recovery and alter the lifestyle of patients with LEI. Thus, it may be necessary to look beyond the orthopedic injury and provide patients and their families with counseling and education that may be helpful in mitigating these effects.

Results from this study, authored by Kathy Read, MSW have been submitted to the *Journal of Trauma* for publication.

Crashes and Time of Day

The overall number of crashes in Maryland during 2002 peaked during the afternoon hours (3pm-6pm). This coincided with the highest rate of fatal crashes. Proportionately, however, the rate of fatal crashes were more likely to occur between 8pm and 6am. (In 2002 there were 104,840 total crashes and 606 fatal crashes reported in MD)

Total and Fatal Motor Vehicle Crashes by Time of Day



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"To prevent death and disability from injury and sudden illness through interdisciplinary research..."

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Have a suggestion for future topics? Let us know.

The Charles McC. Mathias, Jr., National Study Center for Trauma and Emergency Medical Systems (NSC) is an academic research organization dedicated to studying the causes, treatment, and outcomes of traumatic injury and sudden illness. The NSC is located on the campus of the University of Maryland, Baltimore. Since its creation in 1986, the NSC has earned an international reputation as a leader in trauma and emergency medicine research. The Center's strength resides in its teams of investigators and their expertise in study design, database linkages, interpretation of results, and application of findings. Results of NSC studies have been used to enhance patient care, to improve vehicular safety, to develop public education programs for the prevention of trauma, and to support state and federal legislation regarding injury prevention.

DID YOU KNOW???

In Howard County during 2002, nearly twenty-thousand citations were issued for speeding. The chart below lists the most common speed zones and the average/maximum speeds in those zones for drivers who were issued citations.

Speed Zone	Average Speed	Maximum cited speed
25 mph	42 mph	58 mph
30 mph	49 mph	70 mph
40 mph	59 mph	83 mph
50 mph	71 mph	102 mph
55 mph	75 mph	129 mph
65 mph	83 mph	126 mph

**EMERGENCY DEPARTMENT UTILIZATION
BY ASTHMATIC CHILDREN**

Asthma is a significant clinical and public health problem in the United States, especially for children. In 1999, asthma led to an estimated 478,000 hospitalizations for all ages and 1,997,000 emergency department (ED) visits nationwide. It has been estimated that the total direct and indirect monetary cost for asthma in 1998 was \$11.3 billion dollars. Regional variation has been noted on a national level for asthma, and at national and local levels for other respiratory diseases. In a recent study by ED physician Jon Mark Hirshon of the NSC, ED utilization data were examined to determine if geographic variability of pediatric asthma cases exists for smaller jurisdictions within a state. Records were collected for all non-neonatal, Maryland children <18 years old who were seen in Maryland EDs between April 1, 1997 and March 30, 2001 and for whom a valid discharge diagnosis code was available. Baltimore City was the site of more ED visits in this period for all causes (252,685) and for asthma (16,409), and had the greatest average annual utilization rate for asthma (254.4/10,000) compared to all other Maryland counties. Children in rural counties tended to have less ED utilization for asthma than did children in more urban counties, although this pattern was inconsistent. Unexpectedly, when controlled for age, gender, race and payor status, ED visits by children living in affluent suburban Howard County were more likely to be for asthma than were ED visits by children from Baltimore City. These results illustrate that geographic variability in ED utilization for asthma is not based solely on an urban environment. Further research is needed to better refine our understanding of environmental and socioeconomic factors associated with asthma exacerbations and ED utilization.

INJURY PATTERNS AND AIRBAGS

With increasing availability of airbags, there is an interest in the injury patterns resulting from motor vehicle crashes with and without these safety restraint systems in place. The objective of a recent NSC study by Patricia Dischinger, PhD was to compare injury patterns for belted drivers with and without airbags involved in frontal crashes and hospitalized in Maryland. An analysis of CODES data from 1997-1999 resulted in a database of 2,377 drivers hospitalized between 1997 and 1999, of whom 407 (17.1%) had reported airbag deployment. **RESULTS:** Drivers with airbags had significant decreases in injuries to the head/neck (p=.04) and thorax (p=.07). However, no significant differences in brain injury were ascertained. There was a marginal increase in upper extremity injuries, especially fractures of the radius and ulna, among drivers with airbags. Overall, there was no significant difference in the median ISS score, median length of stay (days), or median cost, comparing drivers with and without airbags. However, drivers in frontal crashes, in which airbags were deployed, were significantly more likely to incur lower extremity injuries (p<.001). Drivers with lower extremity injuries had significantly higher ISS scores, lengths of stay and hospital costs. Thus, since lower extremity injuries often occur in crashes with airbags, the differences in injury outcome between drivers with and without airbags were less than anticipated. **CONCLUSION:** There are three types of injuries related to airbag use: those prevented by airbags (e.g. thorax/abdomen) caused by airbags (e.g., radius/ulna fractures), and merely associated with airbag use (e.g. lower extremity injuries). However, inpatient data alone are not sufficient to study the effectiveness of airbags, as many drivers may have no injuries, or relatively minor injuries requiring treatment in an emergency department (ED). Linkage with ED data for Maryland, which is now available, may provide greater insights into the true effectiveness of airbag use.