



MOPEDS: Motorized Objects Propelling Ethanol Driving Subjects

As hospital trauma care continues to improve with increased survival rates and decreased morbidity, our scope has widened to include injury prevention as a priority for reducing trauma-related morbidity and mortality. An area of continued focus is alcohol related trauma injury and death. The Center for Disease Control (CDC) has recognized “Impaired Driving” as an area of injury prevention requiring attention. Alcohol has consistently been involved in 40-50% of motor vehicle collision deaths annually, and is involved in nearly 50% of trauma admissions annually. Driving while intoxicated (DWI) recidivism continues to be a challenge for both healthcare and legal systems. It has been shown that of those convicted of DWI, 33% will become recidivists in the following two years.

At Carolinas Medical Center, we have recently studied the moped operator population and have found them to have higher rates of intoxication and higher blood alcohol content (BAC) at the time of their injuries than automobile and motorcycle operators. Mopeds (Figure I) are a class of motorized vehicles with a defined engine capacity of less than 50 cc that may not exceed a speed of 30 miles per hour. We found that 39% of injured moped operators were found to be intoxicated, with an average BAC of 0.19 g/dL (legal limit 0.08g/dL).

Moped licensure laws tend to vary from state to state, and often do not consider the status of an individual’s driver’s license when determining moped license eligibility.

Considering the inconsistency and laxity in moped licensure laws, and the strong association identified between alcohol intoxication and moped operators, we also evaluated the rates of DWI recidivism in moped operators. Department of Motor Vehicles (DMV) records were reviewed on all moped operators evaluated at Carolinas Medical Center in a two year period. These records are summarized in Table I, and reveal a shocking number of moped operators are multi-repeat offenders with numerous traffic violations and DWI charges in the past.

Our studies have identified multiple issues and raised many questions related to DWI recidivism that have been overlooked in the past. First, the moped provides recidivists with an alternative method for repeat DWI, with 40-50% of moped operators found to be intoxicated at the time of injury. This represents a sustained public safety risk for all others on the road. Secondly, our current laws do not address this issue, and moped licensure laws are too lenient for DWI offenders. Lastly, we have identified a patient population that despite multiple charges continues to operate one form or another of motorized vehicle while intoxicated, and this population deserves further study.

Moped collisions tend to be lower speed and more often single vehicle collisions when compared to motorcycle or automobile collisions. Despite this, we have found that their injury severity scores, percent mortality, intensive care unit length of stay and hospital length of stay are all similar to those of injured motorcyclists and automobilists. Even though some have argued that moped operators “are only hurting themselves”, they still significantly impact the healthcare system with regards to resources and costs, which in turn affects all of us.

Multiple studies have shown that the most effective method to reduce DWI recidivism is a combination of alcohol treatment and legal sanctions. Unfortunately, it has additionally been shown that conviction rates of intoxicated drivers are generally low, ranging from 0-60%. Conviction rates are especially low when the intoxicated driver is injured and admitted to the hospital for treatment. Unfortunately, there are many barriers to accomplishing an alcohol intervention in hospitalized patients. These barriers include having appropriately trained healthcare workers to deliver the intervention, financial issues, and time constraints. Despite these barriers, Gentilello et al have shown a net cost savings of \$89 per patients screened, and an estimated potential net savings of \$1.82 billion annually. This analysis included costs of professional expenses, time, and materials. Additionally, it almost seems as if the hospital acts as a “safe haven” to these individuals, protecting them from the legal system. Reasons for this are multifactorial. Some suggestions include sympathy for the injured driver, logistical issues for law enforcement, unavailability of legally usable BAC determinations, insufficient number of prosecutors, and patient-doctor confidentiality.

Although it is obvious that DWI and licensure laws regarding moped operation need to be revisited, this study also raises a question- will that have a significant impact on this population? With 72% of repeat offenders having multiple DWI convictions, and 76% of those operating a moped with a revoked license having multiple revocations in the past, our current legal and healthcare systems have failed this group of patients. At which point does the system fail? Have there been attempts at alcohol intervention? How many attempts? What legal penalties- including financial penalties and incarceration have been sentenced? Were these sentences completed? There are multiple opportunities to

intervene and improve the system, but until we can identify the point where the system fails we cannot concentrate our efforts appropriately to solve this problem.

Figure I



Table I Criminal and Driving Records

	n=65
Prior Criminal Record	49 (75%)
Prior Traffic Offense	37 (57%)
Prior DWI	29 (45%)
Repeat Offender DWI	21 (72%)
Revoked License at Injury	25 (38%)
Repeat Offender Revoked License	19 (76%)
Prior DWLR	22 (34%)
Repeat Offender DWLR	15 (68%)

DWI- driving while intoxicated, DWLR- driving with license revoked

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