Library Watch on driving

www.projectcork.org spring 2009

Alcohol and drugs in fatally and non-fatally injured motor vehicle drivers in northern Sweden. Ahlm K; Bjornstig U; Ostrom M. *Accident Analysis and Prevention* 41(1): 129-136, 2009. (65 refs.)

Alcohol and drugs are important risk factors for traffic injuries, a major health problem worldwide. This prospective study investigated the epidemiology and the presence of alcohol and drugs in fatally and hospitalized non-fatally injured drivers of motor vehicles in northern Sweden. During a 2-year study period, blood from fatally and hospitalized non-fatally injured drivers was tested for alcohol and drugs. The study subjects were recruited from well-defined geographical areas with known demographics. Autopsy reports, medical journals, police reports, and toxicological analyses were evaluated. Of the fatally injured, 38% tested positive for alcohol and of the non-fatally 21% tested positive; 7% and 13%, respectively, tested positive for pharmaceuticals with a warning for impaired driving; 9% and 4%, respectively, tested positive for illicit drugs. The most frequently detected pharmaceuticals were benzodiazepines. opiates, and antidepressants. Tetrahydrocannabiol was the most frequently detected illicit substance. No fatally injured women had illegal blood alcohol concentration. The relative proportion of positively tested drivers has increased and was higher than in a similar study 14 years earlier. This finding indicates that alcohol and drugs merit more attention in future traffic safety work.

Substance abuse problem severity among rural and urban female DUI offenders. Webster JM; Pimentel JH; Harp KLH; Clark DB; Staton-Tindall M. *American Journal of Drug and Alcohol Abuse* 35(1): 24-27, 2009. (25 refs.)

Objectives: Although there has been an overall decline in the rates of driving under the influence (DUI) over the past two decades, this decrease has not occurred uniformly across all groups of DUI offenders. For example, the proportion of female DUI offenders has significantly increased. Furthermore, DUI arrest rates remain higher in less populated areas of the country. The present study examines indicators of problem severity among female DUI offenders across graduated levels of rurality. Methods: A total of 19,094 substance abuse assessment records from females convicted of DUI between 2002 and 2006 in Kentucky were examined. Beale codes were used to define the extent to which the county of conviction was rural. Results: Rurality was significantly and positively associated with multiple DUI offenses, being underage, drug problems, prevalence of DSM-IV-TR substance dependence and abuse criteria, being referred to substance abuse treatment rather than an education only intervention, and referral noncompliance. Blood alcohol concentration and alcohol problems were inversely related to rurality. Conclusion: The study suggests that problem severity among female DUI offenders may be greater in rural areas and could produce challenges for practitioners who assess and treat rural female DUI offenders.

Methadone and impairment in apprehended drivers. Bernard JP; Morland J; Krogh M; Khiabani HZ. *Addiction* 104(3): 457-464, 2009. (34 refs.)

According to Norwegian guidelines, patients who are in opioid-assisted rehabilitation programmes are permitted to drive a motor vehicle provided that certain requirements are met. The purpose of this study was to investigate apprehended drivers who had methadone in their blood at the time of apprehension and, further, the relationship between blood methadone concentration and impairment as measured by the clinical test of

impairment (CTI). The division of Forensic Toxicology and Drug Abuse (DFTDA) at the Norwegian Institute of Public Heath analyses blood samples from all drivers suspected of driving under the influence of drugs nation-wide. Cases with positive results for methadone in blood were collected over the period 2001-2006. A total of 635 drivers with methadone found in their blood samples were identified. The majority of drivers were men (> 80%), aged between 30 and 40 years. Methadone was the only psychoactive drug detected in blood in only 10 cases. Benzodiazepines were a frequent finding (in approximately 90% of cases). A significant difference in blood methadone concentration was found between cases where only methadone was detected [median 0.46 mg/l (range 0.19-0.65)] and cases where methadone was detected in combination with other psychoactive drugs [median 0.28 mg/l (range 0.06-1.24)]. A CTI had been carried out, in conjunction with blood sampling, in 577 of the cases. A concentration-impairment relationship was not seen for methadone in these cases. Cases of driving impairment involving methadone alone were very rare, with combination use most frequent. No correlation between methadone concentration and impairment as judged by the CTI was seen either for these cases or for the material as a whole.

Substance abuse problem severity among rural and urban female DUI offenders. Webster JM; Pimentel JH; Harp KLH; Clark DB; Staton-Tindall M. *American Journal of Drug and Alcohol Abuse* 35(1): 24-27, 2009. (25 refs.)

Objectives: Although there has been an overall decline in the rates of driving under the influence (DUI) over the past two decades, this decrease has not occurred uniformly across all groups of DUI offenders. For example, the proportion of female DUI offenders has significantly increased. Furthermore, DUI arrest rates remain higher in less populated areas of the country. The present study examines indicators of problem severity among female DUI offenders across graduated levels of rurality. Methods: A total of 19,094 substance abuse assessment records from females convicted of DUI between 2002 and 2006 in Kentucky were examined. Beale codes were used to define the extent to which the county of conviction was rural. Results: Rurality was significantly and positively associated with multiple DUI offenses, being underage, drug problems, prevalence of DSM-IV-TR substance dependence and abuse criteria, being referred to substance abuse treatment rather than an education only intervention, and referral noncompliance. Blood alcohol concentration and alcohol problems were inversely related to rurality. Conclusion: The study suggests that problem severity among female DUI offenders may be greater in rural areas and could produce challenges for practitioners who assess and treat rural female DUI offenders.

Screening, brief intervention, and referral to treatment for adolescents: Companion clinical case. Levy S; Williams JF; Knight JR. *Journal of Addiction Medicine* 2(4): 222-226, 2008. (17 refs.)

This clinical case presentation which is synthesized from the authors' clinical experiences discusses a health maintenance visit for a 16-year-old boy. On routine screening, his pediatrician identifies that he is using marijuana and at times driving after smoking. Two expert clinicians discuss the challenges of managing adolescents and when and how to risk the therapeutic relationship by breaking confidentiality.

The impact of benzodiazepines on safe driving. Dubois S; Bedard M; Weaver B. *Traffic Injury Prevention* 9(5): 404-413, 2008. (48 refs.)

Objective. Benzodiazepines are prescribed to relieve anxiety and aid sleep. Studies demonstrate that benzodiazepines increase odds of crash involvement, but little evidence exists regarding their impact on crash responsibility. We examined the impact of benzodiazepines on crash responsibility by drug half-life and driver age, using a case-control design with drivers aged 20 and over involved in fatal crashes in the United States from 1993-2006. Methods. Drivers (all with BAC = 0) were classified as having no benzodiazepines detected versus short, intermediate, or long half-life benzodiazepines.

Cases were drivers with at least one potentially unsafe driving action (UDA) in relation to the crash (e.g., speeding), a proxy measure for crash responsibility; controls had no UDAs recorded. Odds ratios (ORs) of any UDA by benzodiazepines half-life exposure were calculated, with adjustment for age, sex, other medication usage, and prior driving record. Results. Compared with drivers not using benzodiazepines, drivers taking intermediate or long half-life benzodiazepines demonstrated increased odds of an UDA from ages 25 (intermediate OR: 1.59; 95% CI = 1.08, 2.33; long OR: 1.68; 95% CI = 1.34, 2.12) to 55 (intermediate OR: 1.50; 95% CI = 1.09, 2.06; long OR: 1.33; 95% CI = 1.12, 1.57). Drivers taking short half-life benzodiazepines did not demonstrate increased odds compared to drivers not using benzodiazepines. Conclusions. Given the potential impact of benzodiazepines on driver safety, further experimental research is needed to better understand the effect of benzodiazepines on crash responsibility.

Driving behavior under the influence of cannabis or cocaine. MacDonald S; Mann R; Chipman M; Pakula B; Erickson P; Hathaway A et al. *Traffic Injury Prevention* 9(3): 190-194, 2008. (23 refs.)

Objective. The purpose of this study is first to describe perceptions of driving under the influence of cannabis or cocaine among clients in treatment and, second, to assess whether these perceptions are related to the frequency of driving under the influence of cannabis or cocaine. Methods. A questionnaire was administered to clients in treatment for abuse of either cocaine or cannabis, many of whom also had a problem with alcohol; additional groups of clients consisted of those in smoking cessation and gambling programs (N = 1021). Open-ended and close-ended questions were used to assess self-reported effects of cannabis or cocaine on driving and frequency of driving under the influence of cannabis, cocaine, or alcohol. Results. Two dimensions of driving behavior under the influence of cocaine or cannabis were found in both qualitative and quantitative analyses: 1) physical effects and 2) reckless styles of driving. Common physical effects for both drugs were heightened nervousness, greater alertness, and poorer concentration. In terms of driving behavior, cautious or normal driving was commonly reported for cannabis, whereas reckless or reduced driving ability was frequently reported for cocaine. When comparing negative physical effects and reckless style of driving with frequency of driving under the influence of cannabis or cocaine, increased negative physical effects from cannabis were inversely related to frequency of driving under the influence of cannabis ($p = .001$), but other relationships were not significant. Conclusions. The findings indicate that both cannabis and cocaine have detrimental but different effects on driving. The negative physical effects of cannabis may reduce the likelihood of driving under the influence of cannabis.

Blood alcohol concentrations in apprehended drivers of cars and boats suspected to be impaired by the police. Khiabani HZ; Opdal MS; Morland J. *Traffic Injury Prevention* 9(1): 31-36, 2008. (24 refs.)

Objective. According to the Norwegian Road Traffic Act, car drivers are not allowed to operate a vehicle with a blood alcohol concentration (BAC) above 0.2 g/kg. Depending on the size of the boat or ship, boat drivers/captains/first mates are not allowed to conduct the boat with a BAC above 0.8 g/kg when driving small boats (length less than 15 m) and above 1.5 g/kg when running larger vessels/ ships. The new Sea Act of June 2005 states that captains/first mates cannot conduct a ship if he/she has a BAC above 0.2 g/kg. Our aim was to determine the current median BAC in a large population of car and boat drivers in Norway. Our other aim was to study if median BAC was higher in boat drivers than in car drivers who were suspected by the police to be impaired. Furthermore, we wanted to investigate if the BAC levels were differently distributed by gender or age within and between these two groups. Methods. The Norwegian Institute of Public Health analyzes blood samples from all car/boat drivers suspected of driving under the influence of alcohol and non-alcoholic drugs. In the present study, samples submitted between

01.05 and 01.09 in 2002-2004 were included. Drivers, who in addition tested positive for drugs or abuse substances other than ethanol were excluded. Results. There were 321 boat drivers and 3,061 car drivers who were suspected to be under the influence of ethanol only. The median BAC in boat drivers (1.76 g/kg [range 0.02-3.54]) was significantly higher compared to that in car drivers (1.54 g/kg [range 0.00-4.27]). In the car driver group, the mean BAC did not differ significantly between men and women. The median level of BAC was significantly higher in men than in women in the boat driver group (1.77 g/kg with CI 1.69-1.85 vs. 1.27 g/kg with CI 0.78-1.76). Conclusions. Alcohol impairment of car drivers is known to be considered the most important contributing cause of car crash injuries. Driving a boat may demand the same degree of performance skills as driving a car. The median BAC in apprehended boat drivers was considerably high in the present study. The median BAC was also high in car drivers despite strict legislation. The population of drivers of cars in our study, however, is from previous studies known to contain a large proportion of heavy drinkers. Less is known about the drinking habits in boat drivers, and caution is needed in generalizing from our results. However, our results indicate the possible need for stricter legislation and more frequent police control that will hopefully prevent serious accidents caused by ethanol drinking at sea.