

# Library Watch on driving

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## **Alcohol and drug use in fatal vehicle crashes -- West Virginia.**

Centers for Disease Control and Prevention; Kaplan J; Paulozzi L. *MMWR. Morbidity and Mortality Weekly Report* 55(48): 1293-1296, 2006. (10 refs.)

In 2005, approximately 39% of all traffic fatalities in the United States were alcohol related. Evidence of driver impairment from use of drugs other than alcohol is less definitive. In 2005, an estimated 4.3% of persons in the United States reported driving under the influence of a drug used recreationally during the preceding year, and an unknown percentage drove while impaired by drugs being used for medical reasons. To measure the prevalence of alcohol and drug use among persons killed in motor-vehicle crashes in West Virginia (where test results were available for >80% of fatalities), CDC analyzed 2004 and 2005 data reported by the West Virginia Office of the Chief Medical Examiner (OCME) to the Fatality Analysis Reporting System. This report summarizes the results of that analysis, which determined that the prevalence of drug use (25.8%) was similar to the prevalence of a blood alcohol concentration (BAC) >0.08 g/dL (27.7%) among persons killed in motor-vehicle crashes. These results suggest that drug use contributes substantially to driver impairment in West Virginia. In 2004 and 2005, a total of 784 motor-vehicle fatalities resulted from crashes on public roads in West Virginia. Of these, 663 (84.6%) had alcohol test results, 660 (84.2%) had drug test results, and 658 (83.9%) had both. Alcohol was detected in 32.5% of decedents tested for both alcohol and drugs. Illegal BACs (>0.08 g/dL) were detected in 27.7% of decedents, and BACs ranging from 0.01 to 0.07 g/dL were detected in 4.9%. The prevalence of detectable blood alcohol was higher in males and highest among persons aged 16--34 years. Drivers were more likely to have detectable blood alcohol levels than passengers. Detectable levels of at least one drug were reported for 170 (25.8%) decedents. The prevalence of detectable drug levels was higher in males and highest among persons aged 35--54 years. Drivers were more likely to have detectable drug levels than passengers. Among women and persons aged >55 years, drugs were more prevalent

than alcohol. Nearly half (47.3%) of all decedents had alcohol or drugs in their bodies; 11.1% had both. Among decedents with detectable blood alcohol levels, 34.1% tested positive for drugs. Among decedents with no detectable blood alcohol levels, 21.8% tested positive for drugs. Opioid analgesics and depressants were each found in 7.3% of tested decedents. The three most common opioid analgesics were hydrocodone, oxycodone, and methadone. The depressants reported were sedatives and muscle relaxants, of which benzodiazepines accounted for 83.3%. The most common benzodiazepines were diazepam and alprazolam. Methamphetamines were involved in four of the five amphetamine reports. Overall, 7.6% of decedents and 9.0% of drivers had two or more of the five different types of drugs in their bodies. Public Domain.

## **The economic costs of road traffic crashes: Australia, states and territories.**

Connelly LB; Supangan R. *Accident Analysis and Prevention* 38(6): 1087-1093, 2006. (28 refs.)

In this paper, we obtain detailed data on road traffic crash (RTC) casualties, by severity, for each of the eight state and territory jurisdictions for Australia and use these to estimate and compare the economic impact of RTCs across these regions. We show that the annual cost of RTCs in Australia, in 2003, was approximately \$17b, which is approximately 2.3% of the Gross Domestic Product (GDP). Importantly, though, there is remarkable intra-national variation in the incident rates of RTCs in Australia and costs range from approximately 0.62 to 3.63% of Gross State Product (GSP). The paper makes two fundamental contributions: (i) it provides a detailed breakdown of estimated RTC casualties, by state and territory regions in Australia, and (ii) it presents the first sub-national breakdown of RTC costs for Australia. We trust that these contributions will assist policy-makers to understand sub-national variations in the road toll better and will encourage further research on the causes of the marked differences between RTC outcomes across the states and territories of Australia. [Note: There is data related to alcohol use in the Northern Territory.] Copyright 2006, Elsevier Science.

### **Reducing alcohol-impaired driving crashes through the use of social marketing.**

Rothschild ML; Mastin B; Miller TW. *Accident Analysis and Prevention* 38(6): 1218-1230, 2006. (20 refs.)

Over the past decade there has been little decrease in the number of alcohol-related driving fatalities. During this time most interventions have been educational or legal. This paper presents the results of a field experiment that used social marketing to introduce a new ride program into three rural communities. Almost all people in the 21-34-year-old target know that they should not drive while impaired, and most agree it is not a good thing to do, but for many the opportunity to behave properly does not exist. The Road Crew program was developed using new product development techniques and implemented by developing broad coalitions within the communities. A key feature of the program included rides to, between, and home from bars in older luxury vehicles. Results showed a significant shift in riding/driving behavior, especially among 21-34-year olds, a projected 17% decline in alcohol-related crashes in the first year, no increase in drinking behavior, and large savings between the reactive cost of cleaning up after a crash and the proactive cost of avoiding a crash. Programs have become self-sustaining based on fares and tavern contributions, and have become part of the life style in the treatment communities. Copyright 2006, Elsevier Science.

### **Alcohol addiction and perceived sanction risks: Detering drinking drivers.**

Yu J; Evans PC; Clark LP. *Journal of Criminal Justice* 34(2): 165-174, 2006

This study argued that while sanctions deter offenders from being involved in future drinking-driving offenses, alcohol addiction prevents individuals from making rational choices, &, thus, increases offenders' chances of being involved in drinking driving regardless of the certain, severe, & swift punishments they had experienced. Results indicated that, individuals with more severe alcohol addiction problems had increased chances of committing multiple offenses regardless of the sanctions that they had experienced relative to those with less severe alcohol-related problems. Findings seemed to suggest that criminal justice sanctions alone might not obtain expected deterrent impacts on individuals with alcohol & other addiction problems. Drinking drivers & other drug & alcohol offenders should be screened for substance abuse problems, &

if necessary, provided with treatment. Copyright 2006, Elsevier Science.

### **Drinking, drugs and driving in Ireland: More evidence for action.**

Fitzpatrick P; Daly L; Leavy CP; Cusack DA. *Injury Prevention* 12(6): 404-408, 2006. (21 refs.)

Objective: To examine the prevalence of drug positivity among drivers suspected of driving under the influence of an intoxicant, and consequently apprehended by the police in Ireland. Design: 2000 specimens were selected for drug analysis, 1000 with results under the limit for alcohol and 1000 over the limit. The limit for alcohol is 80 mg/100 ml in blood and 107 mg/100 ml in urine. Seven drugs/drug classes were examined; amphetamines, methamphetamines, benzodiazapines, cannabinoids, cocaine, opiates and methadone. Results: 331 (33.1%) of the drivers under the legal limit for alcohol tested positive for one or more of the relevant drugs, and the corresponding figures of drivers over the limit was 142 (14.2%;  $p < 0.001$ ). Using weighted analysis, this corresponds to 15.7% (95% confidence interval (CI) 13.5% to 18.1%) of all tested drivers (15.8% in men and 14.5% in women). Among drivers who had minimal blood alcohol levels, 67.9% (95% CI 61.2% to 74.1%) were taking at least one type of drug. The prevalence of taking drugs reduced steadily as alcohol concentrations increased, but still remained as high as 11.1% (95% CI 8.3% to 14.6%) for drivers with blood alcohol concentrations  $> 200$  mg/100 ml. Being under the limit for alcohol, stopped in a city area, stopped between 6 am and 4 pm, or 4 pm and 9 pm, and being of a younger age were each independently associated with drug positivity. Conclusions: There are immediate implications for the evidential breath alcohol program and for checkpoints; in the event of a nil or low alcohol reading being obtained, a separate blood or urine specimen should be sought for analysis, which is currently non-routine. Copyright 2006, BMJ Publishing Group.

### **Underage alcohol use, delinquency, and criminal activity.**

French MT; Maclean JC. *Health Economics* 15(12): 1261-1281, 2006. (75 refs.)

Since 1988, the minimum legal drinking age (MLDA) has been 21 years for all 50 US states. The increasing prevalence of teenagers driving under the influence (DUI) of alcohol and the resulting traffic accidents were two main reasons for raising the MLDA to 21 years. Following the passage of this

legislation, several published studies have found that the higher MLDA is associated with a significant reduction in both fatal and non-fatal accidents. While the relationship between MLDA and DUI events among young adults has been extensively studied, less information is available on other potential consequences of underage drinking. The present study uses data from the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC), a recent nationally representative survey, to investigate the effects of underage drinking on a variety of delinquency and criminal activity consequences. After controlling for the endogeneity of alcohol use where appropriate, we find strong evidence that various measures of alcohol consumption are related both to delinquency and to criminal activity. However, the findings are not uniform across gender as we find striking differences between males and females. These results have interesting policy and public health implications regarding underage drinking. Copyright 2006, John Wiley & Sons.

#### **A cohort study of 20,822 young drivers: The DRIVE study methods and population.**

Ivers RQ; Blows SJ; Stevenson MR; Norton RN; Williamson A; Eisenbruch M et al. *Injury Prevention* 12(6): 385-389, 2006. (30 refs.)

Background and objective: Research on young drivers directly linking risk factors to serious injury and death outcomes is required. The DRIVE Study was established to facilitate this aim. This paper outlines the study methods and describes the population that has been recruited, in order to demonstrate that the necessary heterogeneity in risk factors has been attained. Design, setting and participants: Drivers aged 17-24 years holding their first-stage provisional driver's licence from New South Wales, Australia, were recruited into a prospective cohort study. The participants were contacted by mail and asked to complete the study questionnaire at an online site or via a mailed questionnaire. Baseline data collection involved a questionnaire with questions to drivers about their training, risk perception, driver behavior, sensation-seeking behavior and mental health. Participants gave consent for prospective data linkage to their data on licensing, crashes and injuries, held in routinely collected databases. Results: 20 822 drivers completed the baseline questionnaire, of whom 45.4% were men, 74.3% resided in capital cities and 25.7% in regional or remote areas. The recruited study population showed a wide variation in the risk factors under examination. For example,

almost 40% of drivers reported drinking alcohol at hazardous levels and about 32% of participants seemed to be at a high or very high risk of psychological distress. Participants reported a mean of 67.3 h (median 60 h) of supervised driver training while holding their learner's permit. Conclusions: The DRIVE Study has a robust study design aimed at minimizing bias in the collection of outcome data. Analyses of baseline data showed substantial heterogeneity of risk factors in the study population. Subsequent prospective linkages comparing relative differences in exposures at baseline with the outcomes of interest have the potential to provide important new information needed to develop targeted interventions aimed at young drivers. Copyright 2006, BMJ Publishing Group.

#### **Adolescent passengers of drunk drivers: A multi-level exploration into the inequities of risk and safety.**

Poulin C; Boudreau B; Asbridge M. *Addiction* 102(1): 51-61, 2007. (43 refs.)

This study determined the individual-, neighbourhood- and provincial-level effects of rural residence, socio-economic status (SES), substance use and driving behaviours on adolescents' riding with a drunk driver (RDD). Multi-level study based on cross-sectional self-reported anonymous data from the Student Drug Use Survey in the Atlantic Provinces (SDUSAP) and Census Canada data, merged on the postal code of participating schools. The sample design of the SDUSAP was a single-stage cluster sample of randomly selected classes stratified by grade and region. The Atlantic provinces of Canada. A total of 12 990 students in junior and senior high schools, with an average age of 15 years, participated in the 2002 SDUSAP. The outcome variable was past-year RDD. The main individual-level independent variables were SES, rural residence, substance use and driving behaviours. The school-neighbourhood independent variables were the prevalence of heavy episodic drinking, driving under the influence of alcohol, driver's licence, highest level of educational attainment and low income. The prevalence of RDD was 23.3% in 2002. Among students in grades 9-12, lower family SES, rural residence, substance use and driving under the influence were found to be independent individual-level risk factors for RDD; having a driver's licence was found to be protective. At the provincial and school-neighbourhood levels, a high prevalence of driving under the influence of alcohol and low educational attainment were found to be independent risk factors for RDD after taking

into account individual characteristics. This study provides evidence that inequities exist in the options for adolescents to be ensured of passenger safety, and that interventions aimed at decreasing the extent to which adolescents engage in riding with a drunk driver should be based on conceptual approaches that recognize ecological factors as well as individual-level susceptibility. Copyright 2007, Society for the Study of Addiction to Alcohol and Other Drugs.

**Effects of motivational interviewing for incarcerated adolescents on driving under the influence after release.**

Stein LAR; Colby SM; Barnett NP; Monti PM; Golembeske C; Lebeau-Craven R. *American Journal on Addictions* 15(Supplement 1): 50-57, 2006. (42 refs.)

Motivational Interviewing (MI) to reduce alcohol and marijuana-related driving events among incarcerated adolescents was evaluated. Adolescents were randomly assigned to receive MI or Relaxation Training. Follow-up assessment showed that, as compared to RT, adolescents who received MI had lower rates of drinking and driving, and being a passenger in a car with someone who had been drinking. Effects were moderated by levels of depression. At low levels of depression, MI evidenced lower rates of these behaviors; at high levels of depression, effects for MI and RT were equivalent. Similar patterns were found for marijuana-related risky driving, but effects were nonsignificant. Copyright 2006, American Academy of Psychiatrists in Alcoholism and Addictions.

**Longitudinal examination of underage drinking and subsequent drinking and risky driving.**

Zakrajsek JS; Shope JT. *Journal of Safety Research* 37(5): 443-451, 2006. (35 refs.)

Introduction: Alcohol use, alcohol misuse, and risky driving from adolescence into young adulthood were compared by drinking onset age. Methods: Surveys were administered in Grades 5/6, 6/7, 7/8, 10, 12, and at approximately age 23. Participants were placed into Drinking Onset groups based on self-reported alcohol use frequency on the adolescent surveys. Driving records were examined in three age

periods: under 21, 21-25, and 26+. Results: The earliest drinking initiators reported higher alcohol use and misuse on each survey, and were more likely to have risky driving offenses before age 21 and to have alcohol driving offenses in all three age periods. Discussion: The earliest drinking initiators engaged in risky drinking behavior and risky driving behavior that was consistently higher than those with later drinking initiation, beginning in adolescence and persisting well into young adulthood. Copyright 2006, Elsevier Science.

**Is it safe to walk in the Sunbelt? Geographic variation among pedestrian fatalities in the United States, 1999-2003.**

Paulozzi LJ. *Journal of Safety Research* 37(5): 453-459, 2006. (34 refs.)

Introduction: Previous work using data from the 1980s showed higher rates of pedestrian mortality in the southern United States. Methods: This study was a descriptive analysis of state-specific mortality information from the National Center for Health Statistics for 1999-2002 and the National Highway Traffic Safety Administration for 2003. Results: Highest rates were in the southern rim ("Sunbelt") states for the U.S. population and for the non-Hispanic white population. Rural rates in the highest quartile were 2.1 (95% CI 1.8 to 2.6) times those in the lowest quartile. Urban rates in the highest quartile were 2.2 (95% CI 1.9 to 2.5) times those in the lowest quartile. Posted speed limits at crash sites were 2.6 (95% CI 2.0 to 3.4) times more likely to be  $\geq 35$  mph (48.3 km/h) in the highest quartile than in the lowest quartile. Pedestrians killed in the highest quartile were 1.9 (95% CI 1.2 to 3.1) times more likely to have blood alcohol concentrations  $\geq 0.25$  g/dL than pedestrians in the lowest quartile. Conclusions: The highest pedestrian fatality rates concentrate in Sunbelt states experiencing rapid population growth in the past 50 years. This pattern may result from at least three features of these states: (a) a high percentage of urban vehicle miles traveled; (b) urban sprawl; and (c) a high prevalence of alcohol use - especially heavy use - among Sunbelt pedestrians. Copyright 2006, Elsevier Science.