

Library Watch on driving

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The effects of Ontario's administrative driver's licence suspension law on total driver fatalities: A multiple time series analysis.

Asbridge M; Mann RE; Smart RG; Stoduto G; Beirness D; Lamble R et al. *Drugs: Education, Prevention and Policy* 16(2): 140-151, 2009. (33 refs.)
Aims: On 29 November 1996, Ontario introduced an Administrative Driver's Licence Suspension (ADLS) law, which required that anyone charged with driving with a Blood Alcohol Concentration (BAC) over the legal limit of 80 mg% or failing to provide a breath sample would have their licence suspended for a period of 90 days at the time the charge was laid. This study evaluates the effects of Ontario's ADLS law on total driver fatalities over a 25-month period after the law was introduced, and compares Ontario's experience with that of two comparison provinces (Manitoba and New Brunswick) that did not introduce ADLS at that time. Methods: Interrupted time series analysis with ARIMA modeling was applied to the monthly number of drivers killed in Ontario and the control provinces for the period 1 January 1988 to 31 December 1998. Findings: A significant intervention effect was found in Ontario, with ADLS being associated with an estimated reduction of 14.5% in the numbers of fatally injured drivers. No corresponding effect was observed in the control provinces. Conclusions: These data provide evidence that the law produced a general deterrent effect resulting in a reduction in total driver fatalities. Copyright 2009, Taylor & Francis.

The relationship between impaired driving crashes and beliefs about impaired driving: Do residents in high crash rate counties have greater concerns about impaired driving?

Beck KH; Yan AF; Wang MQ; Kerns TJ; Burch CA. *Traffic Injury Prevention* 10(2): 127-133, 2009. (30 refs.)
Objectives: The purpose of this investigation was to examine the relationship between impaired driving crashes and public beliefs and concerns about impaired driving across each of Maryland's twenty-four counties (including Baltimore City). It was hypothesized that residents of counties that experience higher impaired driving crashes would express more concerns about impaired driving and perceive more risks about driving

impaired than residents of counties that have lower rates of impaired driving. Methods: Data for alcohol impaired driving crashes were obtained for the years 2004-2006. These data were compared to public opinion data that was obtained annually by random-digit-dial telephone surveys from 2004 to 2007. Results: Concerns about drunk driving as well as perceptions of the likelihood of being stopped by the police if one were to drive after having too much to drink were related to counties with higher serious impaired driving crash rates, as were perceptions that the police and the legal system were too lenient. Perceptions about the likelihood of being stopped by the police were higher in those counties with more impaired driving enforcement activity. Conclusion: Perceptions of concern appear to be shaped more by crash exposure than enforcement activity. Campaigns that address impaired driving prevention should substantially increase enforcement, strengthen the adjudication process of impaired drivers, and emphasize the potential seriousness of drinking-driving crashes in their promotional activities. Copyright 2009, Taylor & Francis.

Traffic risk behaviors at nightlife: Drinking, taking drugs, driving, and use of public transport by young people.

Calafat A; Blay N; Juan M; Adrover D; Bellis MA; Hughes K et al. *Traffic Injury and Prevention* 10(2): 162-169, 2009. (29 refs.)
Road traffic crashes associated with nightlife alcohol and recreational drug use are a major health problem for young people. Objectives: This study explores use of different forms of transport to and from nightlife environments and the relationships between traffic risk behaviors, drunkenness, and drug consumption. Methods: 1363 regular nightlife users from nine European cities in 2006 completed a self-administered and anonymous questionnaire. Sampling utilized a variation of respondent-driven sampling. Results: Private car was the most frequent form of transport used when going out, especially by males and older individuals. Drug use was related to crashes and traffic risk behaviors, including having a lift from someone drunk or driving drunk or driving having taken drugs; drunkenness was related to risk behaviors but not to crashes (possibly because drunk people tend to use the

private car less). Males showed higher levels of drunkenness and drug consumption, traffic risk behaviors, and traffic crashes. Age is not related to the traffic risk behaviors, but older individuals had less crashes. Conclusions: There are serious health problems related to transport and recreational nightlife activities. It is necessary to improve later public transport services, complemented by actions that deter the use of private cars. The relationships of both drunkenness and cannabis/cocaine use with traffic risk behaviors should be addressed and programs implemented to change risk perceptions on the effects of illegal drugs on driving. Copyright 2009, Taylor & Francis.

Toluene-impaired drivers: Behavioral observations, impairment assessment, and toxicological findings.

Capron B; Logan BK. *Journal of Forensic Sciences* 54(2): 486-489, 2009. (14 refs.)

Toluene is an aromatic hydrocarbon solvent frequently abused for its euphoric and intoxicating properties. This report describes a series of six cases involving drivers arrested for driving under the influence who subsequently tested positive for toluene. Case data including driving behavior, physiological signs and symptoms, evidence of impairment, and toxicology findings were reviewed. Blood toluene concentrations in the drivers ranged from 12 to 45 mg/L (median 23 mg/L, mean 25 mg/L, SD 12.1 mg/L). All drivers were determined to be intoxicated, and displayed symptoms including balance problems, confusion and disorientation, loss of coordination, and inability to follow instructions. They also displayed horizontal but not vertical nystagmus, elevated pulse and blood pressure, and lower body temperature. These findings are consistent with prior reports that subjects with blood toluene concentrations above 10 mg/L are invariably under the influence and their driving skills are affected. Copyright 2009, Wiley-Blackwell Publishing.

The prevalence of drugs and alcohol found in road traffic fatalities: A comparative study of victims.

Elliott S; Woolacott H; Braithwaite R. *Science & Justice* 49(1): 19-23, 2009. (22 refs.)

Researchers have studied the involvement of drugs and alcohol in fatal road traffic incidents, but with particular emphasis on the possible impairment of the driver. This paper describes a comparative study of drug and alcohol findings in various victim groups (drivers of cars, vans or lorries, car passengers, motorcyclists, motorcycle passengers, cyclists and pedestrians) between 2000 and 2006. Post-mortem blood and urine specimens were analysed. The results of 1047 cases indicated 54% of all victims were

positive for drugs and/or alcohol, with the highest percentage of positive findings occurring in pedestrians (63%). Males between the ages of 17-24 were most likely to be involved in a road traffic accident, whether being in control of a vehicle (driver) or involved indirectly (car passenger, pedestrian, motorcycle passenger). A wide range of drugs were detected (e.g. drugs of abuse, anti-convulsants, anti-histamines, anti-inflammatories, anti-psychotics, cardiac drugs and over-the-counter products), but alcohol and cannabinoids were the most frequent Substances across the victim groups. When detected, alcohol was commonly above the legal driving limit in blood and urine (>63% in those in control and >60% not in control). Overall, the presence of drugs and/or alcohol was of similar frequency in those victims in control (55% of driver, 48% of motorcyclists, 33% of cyclists) and not in control of a vehicle (52% of car passengers, 63% of pedestrians). This degree of frequency strongly implicates the involvement of drugs and alcohol in road traffic incidents and infers an effect on driving ability and individual impairment. Copyright 2009, Elsevier Science.

Use of self-controlled analytical techniques to assess the association between use of prescription medications and the risk of motor vehicle crashes.

Gibson JE; Hubbard RB; Smith CJP; Tata LJ; Britton JR; Fogarty AW. *American Journal of Epidemiology* 169(6): 761-768, 2009. (22 refs.)

Case-crossover and case-series analyses are 2 epidemiologic approaches that can be used to evaluate the association of exposures with acute events. Using a primary care database from the United Kingdom and these 2 statistical approaches, the authors investigated the impact of using benzodiazepines, nonbenzodiazepine hypnotics, beta-blockers, selective serotonin reuptake inhibitors, tricyclic antidepressants, opioids, and antihistamines on the risk of motor vehicle crashes in 1986-2004. For 49,821 individuals aged 18-74 years, involvement in a motor vehicle crash was documented. The outcome of the case-crossover analyses varied according to the choice of control period, so the case-series approach was preferred. The first 4 weeks of treatment with a combined acetaminophen and opioid preparation was associated with an increased risk of motor vehicle crash (incidence rate ratio = 2.06, 99% confidence interval: 1.84, 2.32), as was use of an opioid alone (incidence rate ratio = 1.70, 99% confidence interval: 1.39, 2.08) and benzodiazepines (incidence rate ratio = 1.94, 99% confidence interval: 1.62, 2.32). Use of selective serotonin reuptake inhibitors, nonbenzodiazepine hypnotics, and antihistamines for more than 4 weeks

was associated with motor vehicle crash, but shorter term use was not. The results obtained are broadly consistent with those from well-designed case-control studies and demonstrate how case-only techniques optimize the use of routinely collected data for epidemiologic studies. Copyright 2009, Oxford University Press.

Age of drinking onset and injuries, motor vehicle crashes, and physical fights after drinking and when not drinking.

Hingson RW; Edwards EM; Heeren T; Rosenbloom D. *Alcoholism: Clinical and Experimental Research* 33(5): 783-790, 2009. (35 refs.)

Earlier age of drinking onset has been associated with greater odds of involvement in motor vehicle crashes, unintentional injuries, and physical fights after drinking. This study explores whether early drinkers take more risks even when sober by comparing potential associations between age of drinking onset and these outcomes after drinking relative to when respondents have not been drinking. From a national sample, 4,021 ever-drinkers ages 18 to 39 were asked age of drinking onset, not counting tastes or sips. They were also asked if they were ever in motor vehicle crashes, unintentionally injured, or in physical fights after drinking and when not drinking. GEE logistic regression models for repeated measures dichotomous outcomes compared whether odds ratios between age of onset and these adverse outcomes significantly differed when they occurred after drinking versus when not drinking, controlling for respondents' demographic characteristics, cigarette and marijuana use, family history of alcoholism, ever experiencing alcohol dependence, and frequency of binge drinking. Compared with persons who started drinking at age 21+, those who started at ages < 14, 14 to 15, 16 to 17, and 18 to 20 had, after drinking, respectively greater odds: 6.3 (2.6, 15.3), 5.2 (2.2, 12.3), 3.3 (1.5, 7.3), and 2.2 (0.9, 5.1) of having been in a motor vehicle crash; 6.0 (3.4, 10.5), 4.9 (3.0, 8.6), 3.7 (2.4, 5.6), and 1.9 (1.2, 2.9) of ever being in a fight; and 4.6 (2.4, 8.7), 4.7 (2.6, 8.6), 3.2 (1.9, 5.6), and 2.3 (1.3, 4.0) of ever being accidentally injured. The odds of experiencing motor vehicle accidents or injuries when not drinking were not significantly elevated among early onset drinkers. The odds of earlier onset drinkers being in fights were also significantly greater when respondents had been drinking than not drinking. Starting to drink at an earlier age is associated with greater odds of experiencing motor vehicle crash involvement, unintentional injuries, and physical fights when respondents were drinking, but less so when respondents had not been drinking. These findings

reinforce the need for programs and policies to delay drinking onset. Copyright 2009, Research Society on Alcoholism.

Alcohol-impaired driving and children in the household.

Boyd R; Kresnow MJ; Dellinger AM. *Family & Community Health* 33(2): 167-174, 2009. (22 refs.)

More children in the United States are killed in motor vehicle crashes annually than other causes; nearly a quarter of these deaths involve alcohol. This study examines the national prevalence of alcohol-impaired driving and riding with an alcohol-impaired driver and the association of these behaviors to having at least 1 child in the household. An estimated 2.5 million adult drivers with children living in their households reported that they had been a recent alcohol-impaired driver. Evidence-based approaches, including mass media campaigns and sobriety checkpoints, continue to be critically important public health activities. Copyright 2009, Lippincott, Williams & Wilkins.

Effects of a college community campaign on drinking and driving with a strong enforcement component.

Mccartt AT; Hellinga LA; Wells JK. *Traffic Injury Prevention* 10(2): 141-147, 2009. (22 refs.)

Objectives: A program of publicized intensive enforcement of minimum drinking age law and drinking and driving laws was implemented in a college community. The effects on driving at various blood alcohol concentrations (BACs) were evaluated, particularly for drivers ages 16-24 targeted by the program. Methods: Objective measures of driver BACs were collected through nighttime roadside surveys before and during the program in the experimental college community and a comparison college community. Logistic regression models estimated the program's effects on the likelihood of driving at various BAC thresholds in the program community, after accounting for BAC patterns in the comparison community. Results: Relative to the comparison community, consistent reductions in driving at various BAC levels (positive BAC and BAC at least 0.02, 0.05, or 0.08%) were achieved in the experimental community. Reductions were greatest for 16- to 20-year-olds (from 66% for positive BAC to 94% for BAC 0.05%), followed by 21- to 24-year-olds (from 32% for positive BAC to 71% for BAC 0.08%) and drivers 25 and older (from 23% for positive BAC to 53% for BAC 0.08%). All reductions for 16- to 20-year-olds were significant (p 0.05), and all except the reduction for BAC 0.08 percent were significantly greater than the corresponding reductions for drivers 25 and older. Reductions for 21- to 24-year-olds were

significant for BACs at least 0.02, 0.05, and 0.08 percent, but they were not significantly greater than the corresponding reductions for drivers 25 and older. Although large, reductions for drivers 25 and older were not significant, based on 95 percent confidence intervals. Conclusions: A college community program with a strong enforcement component produced substantial reductions in drinking and driving among teenagers and young adults and smaller reductions among older adults. It is hoped that this will encourage colleges and communities to incorporate enforcement into interventions directed at alcohol use among young people. Copyright 2009, Taylor & Francis.

Driving under the influence of cannabis: Links with dangerous driving, psychological predictors, and accident involvement.

Richer I; Bergeron J. *Accident Analysis and Prevention* 41(2): 299-307, 2009. (72 refs.)

Driving under the influence of cannabis (DUIC) is a growing concern. Studies have shown that, during the acute period of cannabis intoxication, cannabis diminishes driving faculties and is associated with an elevated risk of collision. However, DUIC drivers seem to exhibit a general reckless driving style that may contribute to an over-estimation of DUIC-related collisions among this group. In this study, we investigated DUIC drivers with respect to self-reported dangerous driving habits (e.g., risky driving, aggressive driving and negative emotional driving), behaviours observed in a driving simulator, psychological predictors and crash involvement. Results suggest that DUIC is associated with self-reported and observed risky driving and negative emotional driving. Sensation seeking and impulsivity are independent predictors of DUIC. Finally, a trend suggests that self-reported DUIC is associated with an increased risk of being involved in a car accident, after controlling for dangerous driving and demographic variables. Copyright 2009, Elsevier Science.

The effect of cannabis compared with alcohol on driving. (review).

Sewell RA; Poling J; Sofuoglu M. *American Journal on Addictions* 18(3): 185-193, 2009. (105 refs.)

The prevalence of both alcohol and cannabis use and the high morbidity associated with motor vehicle crashes has led to a plethora of research on the link between the two. Drunk drivers are involved in 25% of motor vehicle fatalities, and many accidents involve drivers who test positive for cannabis. Cannabis and alcohol acutely impair several driving-related skills in a dose-related fashion, but the effects of cannabis vary

more between individuals than they do with alcohol because of tolerance, differences in smoking technique, and different absorptions of 9-tetrahydrocannabinol (THC), the active ingredient in marijuana. Detrimental effects of cannabis use vary in a dose-related fashion, and are more pronounced with highly automatic driving functions than with more complex tasks that require conscious control, whereas alcohol produces an opposite pattern of impairment. Because of both this and an increased awareness that they are impaired, marijuana smokers tend to compensate effectively while driving by utilizing a variety of behavioral strategies. Combining marijuana with alcohol eliminates the ability to use such strategies effectively, however, and results in impairment even at doses which would be insignificant were they of either drug alone. Epidemiological studies have been inconclusive regarding whether cannabis use causes an increased risk of accidents; in contrast, unanimity exists that alcohol use increases crash risk. Furthermore, the risk from driving under the influence of both alcohol and cannabis is greater than the risk of driving under the influence of either alone. Patients who smoke cannabis should be counseled to wait several hours before driving, and avoid combining the two drugs. Copyright 2009, Taylor & Francis.

Street racing: A neglected research area?

Vingilis E; Smart RG. *Traffic Injury Prevention* 10(2): 148-156, 2009. (74 refs.)

Objective: To review: (1) the extent and frequency of street racing and its consequences; (2) the characteristics of street racers; (3) explanatory theories for street racing; (4) the legal issues; and (5) the best methods of preventing street racing. Methods: Review of academic and other literature. Results: Very limited official statistics are available on street racing offenses and related collisions, in part because of the different jurisdictional operational definitions of street racing and the ability of police to determine whether street racing was a contributing factor. Data on prevalence of street racing have been captured through social surveys indicating that between 18.8 and 69.0 percent of young male drivers from various international jurisdictions report street racing. Also it is found to be associated with other risky behaviors, substance abuse, and delinquent activities. The limited evidence available on street racing suggests that it has increased in the last decade. Conclusions: Street racing is a neglected research area and the time has come to examine the prevalence and causes of street racing and the effectiveness of various street racing countermeasures. Copyright 2009, Taylor & Francis