

Library Watch on driving

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Reducing cannabis-impaired driving: Is there sufficient evidence for drug testing of drivers?

Hall W; Homel R. *Addiction* 102(12): 1918-1919, 2007. (16 refs.)

There is increasing evidence that cannabis users who drive while intoxicated put themselves and others at increased risk of motor vehicle crashes. Cannabis produces dose-related cognitive and behavioural impairments in laboratory and simulator studies; cannabis users in surveys are more likely to report being involved in accidents than drivers who do not use the drug, and cannabis is the illicit drug detected most often in drivers who have been killed in motor vehicle crashes. Cannabis use appears to increase the risk of motor vehicle crashes by two to three times, a much lower risk than alcohol (from six to 15 times). Given the lower risk and lower prevalence of cannabis than alcohol use, the proportion of accidents attributable to cannabis is much lower than that for alcohol (an estimated 2.5% of fatal accidents in France compared to 29% for alcohol. Is there now sufficient evidence to discourage cannabis users from driving by conducting roadside drug testing? Any such policy requires specification of a level of THC in blood that provides per se evidence of impaired driving. Grotenhermen and colleagues, in this issue, have derived a provisional definition of a per se level using epidemiological evidence and a meta-analysis of laboratory and simulator studies. Given the limited scientific evidence for a per se level of THC the Australian drug testing regimens lack evidential support. The illegality of cannabis has prompted a 'zero tolerance' approach in Australia, with any detectable amount of the drug tested constituting an offence. On this policy, the definition of a per se level is irrelevant because road safety benefits are secondary to enforcement of drug laws. The success of Australian roadside drug testing, accordingly, needs to be evaluated thoroughly to see if it reduces drug driving at an acceptable social and economic cost. If evidence of an impact on drug driving is forthcoming, citizens should have the right to debate whether these public health benefits offset the threats to democratic freedoms. Copyright 2007, Society for the Study of Addiction to Alcohol and Other Drugs.

Developing limits for driving under cannabis.

Grotenhermen F; Leson G; Berghaus G; Drummer OH; Krueger HP; Longo M et al. *Addiction* 102(12): 1910-1917, 2007. (32 refs.)

Objective: Development of a rational and enforceable basis for controlling the impact of cannabis use on traffic safety. Methods: An international working group of experts on issues related to drug use and traffic safety evaluated evidence from experimental and epidemiological research and discussed potential approaches to developing per se limits for cannabis. Results: In analogy to alcohol, finite (non-zero) per se limits for delta-9-tetrahydrocannabinol (THC) in blood appear to be the most effective approach to separating drivers who are impaired by cannabis use from those who are no longer under the influence. Limited epidemiological studies indicate that serum concentrations of THC below 10 ng/ml are not associated with an elevated accident risk. A comparison of meta-analyses of experimental studies on the impairment of driving-relevant skills by alcohol or cannabis suggests that a THC concentration in the serum of 7-10 ng/ml is correlated with an impairment comparable to that caused by a blood alcohol concentration (BAC) of 0.05%. Thus, a suitable numerical limit for THC in serum may fall in that range. Conclusions: This analysis offers an empirical basis for a per se limit for THC that allows identification of drivers impaired by cannabis. The limited epidemiological data render this limit preliminary. Copyright 2007, Society for the Study of Addiction to Alcohol and Other Drugs.

High-risk behaviors and hospitalizations among gamma hydroxybutyrate (GHB) users.

Kim SY; Anderson IB; Dyer JE; Barker JC; Blanc PD. *American Journal of Drug and Alcohol Abuse* 33(3): 429-438, 2007. (21 refs.)

Introduction: Little is known about behaviors linked to gamma hydroxybutyrate (GHB) morbidity. Methods: We surveyed 131 GHB users, using logistic regression to test the associations between the high risk behaviors and hospital treatment for GHB (26 [20%] of subjects). Results: Increased risk of GHB hospital treatment was associated with: co-ingestion of ethanol (OR 5.2; 95% CI 1.7-16), driving under the influence

of GHB (OR 3.2; 95% CI 1.3-7.8), use of GHB to treat withdrawal symptoms (OR 2.9; 95% CI 1.1-7.9), and co-ingestion of ketamine (OR 2.7; 95% CI 1.1-6.7). Conclusion: Targeted prevention activities could focus on selected high-risk behaviors. Copyright 2007, Taylor & Francis.

An outcome evaluation of the New South Wales Sober Driver Programme: A remedial programme for recidivist drink drivers.

Mills KL; Hodge W; Johansson K; Conigrave KM. *Drug and Alcohol Review* 27(1): 65-74, 2008. (38 refs.)

Introduction and Aims. Recidivist drink drivers pose a considerable threat to public safety. The present study evaluates the effectiveness of a remedial programme for recidivist drink drivers, the New South Wales Sober Driver Programme (SDP). SDP combines educational components and elements of group cognitive behavioural therapy in relation to drink driving behaviour. It is delivered in conjunction with punitive sanctions. Design and Methods. The evaluation design included a comparison of recidivism rates over 2 years for SDP participants and a community control group of convicted drink drivers who received legal sanctions alone. Quantitative and qualitative surveys of SDP participants were also conducted before, immediately after and 4 months after the programme. Outcome measures included recidivism, change in participant knowledge and attitudes, self-reported behavioural intentions and skill development. Results. SDP participants were 43% less likely to re-offend over 2 years compared with community controls who had received sanctions alone. Survey respondents demonstrated improved knowledge, attitudes and skills regarding drink driving. Discussion and Conclusions. SDP appears to be an effective intervention, demonstrating greater reductions in recidivism when compared with legal sanctions alone. Copyright 2008, Taylor & Francis.

Influence of peak and trough levels of opioid maintenance therapy on driving aptitude.

Baewert A; Gombas W; Schindler SD; Peternell-Moelzer A; Eder H; Jagsch R et al. *European Addiction Research* 13(3): 127-135, 2007. (38 refs.)

To evaluate driving aptitude and traffic-relevant performance at peak and trough medication levels in opioid-dependent patients receiving maintenance therapy with either buprenorphine (mean: 13.4 mg) or methadone (52.7 mg) and a medication-free control group, the Addiction Clinic at Medical University Vienna conducted a prospective, open-label trial where 40 opioid-dependent patients maintained either on

buprenorphine or methadone were assessed regarding their traffic-relevant performance. Using the standardized Act and React Testsystem (ART) 2020 Standard test battery, traffic-relevant performance was analysed 1.5 h (peak level) and 20 h (trough level) after administration of opioid maintenance therapy. Results showed that patients at trough level had a significantly higher percentage of incorrect reactions ($p = 0.03$) and more simple errors ($p = 0.02$) than patients at peak level as well as methadone-maintained patients at peak level tended to perform less well than buprenorphine-maintained patients in some of the test items, e. g. methadone-maintained patients at trough level had a higher number of delayed reactions in the RST3 phase 2 test ($p = 0.09$) and answered fewer questions correctly in the visual structuring ability test ($p = 0.04$). This investigation indicates that opioid-maintained patients did not differ significantly at peak vs. trough level in the majority of the investigated items and that both substances do not appear to affect traffic-relevant performance dimensions when given as a maintenance therapy in a population where concomitant consumption would be excluded. Copyright 2007, Karger.

Drugs in oral fluid in randomly selected drivers.

Drummer OH; Gerostamoulos D; Chu M; Swann P; Boorman M; Cairns I. *Forensic Science International* 170(2/3): 105-110, 2007. (29 refs.)

There were 13,176 roadside drug tests performed in the first year of the random drug-testing program conducted in the state of Victoria. Drugs targeted in the testing were methamphetamines and Delta(9)-tetrahydrocannabinol (THC). On-site screening was conducted by the police using DrugWipe (R), while the driver was still in the vehicle and if positive, a second test on collected oral fluid, using the Rapiscan (R), was performed in a specially outfitted "drug bus" located adjacent to the testing area. Oral fluid on presumptive positive cases was sent to the laboratory for confirmation with limits of quantification of 5, 5, and 2 ng/mL for methamphetamine (MA), methylenedioxy-methamphetamine (MDMA), and THC, respectively. Recovery experiments conducted in the laboratory showed quantitative recovery of analytes from the collector. When oral fluid could not be collected, blood was taken from the driver and sent to the laboratory for confirmation. These roadside tests gave 313 positive cases following GC-MS confirmation. These comprised 269, 118, and 87 cases positive to MA, MDMA, and THC, respectively. The median oral concentrations (undiluted) of MA, MDMA, and THC was 1136, 2724, and 81 ng/mL. The overall drug positive rate was 2.4% of the

screened population. This rate was highest in drivers of cars (2.8%). The average age of drivers detected with a positive drug reading was 28 years. Large vehicle (trucks over 4.5 t) drivers were older; on average at 38 years. Females accounted for 19% of all positives, although none of the positive truck drivers were female. There was one false positive to cannabis when the results of both on-site devices were considered and four to methamphetamines. Copyright 2007, Elsevier Science.

Effects of legal BAC limits on fatal crash involvement: Analyses of 28 states from 1976 through 2002.

Wagenaar AC; Maldonado-Molina MM; Ma L; Tobler AL; Komro KA. *Journal of Safety Research* 38(5): 493-499, 2007. (30 refs.)

Problem: Hundreds of laws have been implemented in the United States over the past few decades designed to reduce alcohol-impaired driving and the crashes that often result. One approach has been to lower the legally allowable alcohol concentration for drivers. We examined the effects of changes in legal BAC limit in 28 U.S. states from January, 1976 to December, 2002. Method: An interrupted time-series quasi-experimental design was used, incorporating non-alcohol-related crashes as comparisons. Four outcome measures of alcohol-related crash involvement were examined: single-vehicle nighttime, BAC=0.01-0.07, BAC=0.08-0.14, and BAC \geq 0.15. Missing BAC test result data were handled by using multiple imputations. Analyses involved estimation of state-specific ARIMA models, controlling for other factors affecting overall crash rates and other major DUI policy changes. Inverse variance weighting methods were used to pool results across states for the most precise underlying estimate of effect of legal BAC limits. Results: Considerable state by state variability in estimated effects was observed, but results from the pooled analyses were clear and consistent. Changes in legal BAC limits significantly affected alcohol-related fatal crash involvement for both the SVN and BAC test result measures, and the laws affected drivers at all drinking levels. Summary: An estimated 360 deaths are prevented each year in the United States as a result of the move from a 0.10 to 0.08 legal limit in recent years, and an additional 538 lives could be saved each year if the United States reduced the limit to 0.05, consistent with limits in most countries worldwide. Impact on Industry: Given the significant effects of lower legal BAC limits on fatal crash involvement, businesses should support implementation of laws that further reduce the legal BAC limit for all drivers. Furthermore, all companies should set higher

standards for employees, such as a zero allowable BAC limit for driving during work time. Copyright 2007, National Safety Council.

An exploration of the potential impact of the designated driver campaign on bartenders' willingness to over-serve.

Reiling DM; Nusbaumer MR. *International Journal of Drug Policy* 18(6): 458-463, 2007. (30 refs.)

Much has been written about the impact of the presence of a designated driver on patrons' consumption, but heretofore, its impact on the behaviour of the server has been virtually ignored. The goal of this paper, then, was to explore the potential impact of the presence of a designated driver on alcoholic beverage servers' self-reported willingness to knowingly serve an already intoxicated customer. chi(2) analysis of survey data collected from 938 licensed servers, in the state of Indiana, USA, was performed. Approximately 43% of the bartenders surveyed reported that they either would be or might be willing to over-serve an already intoxicated customer. Of those who answered the follow-up question as to under what conditions they would be willing to over-serve, almost 80% reported that they would do so if the patron were accompanied by a designated driver. The statistical significance of the relationship between these two variables (.000) raises the question of whether the Designated Driver Campaign has the latent function of enabling some servers to neutralize their responsibility for over-serving by disregarding other types of intoxication-related harm. Copyright 2007, Elsevier Science.

Cannabis use and self-reported collisions in a representative sample of adult drivers.

Mann RE; Adlaf E; Zhao JH; Stoduto G; Ialomiteanu A; Smart RG et al. *Journal of Safety Research* 38(6): 669-674, 2007. (37 refs.)

Problem: This study examines the relationships between collision involvement and several measures of cannabis use, including driving after using cannabis, among drivers, based on a population survey of Ontario adults in 2002 and 2003. Method: Logistic regression analyses examined self-reported collision involvement in the last 12 months by lifetime use of cannabis, past year use of cannabis, and past year driving after using cannabis, while controlling for demographic characteristics. Results: We found that the odds of reporting collision involvement was significantly higher among cannabis users, and among those who reported driving after cannabis use. Some evidence for a dose-response relationship was seen as well. Discussion: Cannabis users and people who

report driving after cannabis use are also more likely to report being involved in a collision in the past year. These observations suggest that collision prevention efforts could be aimed at these groups. Additional work to determine the causal pathways involved in the relationships observed here is needed. Copyright 2007, National Safety Council.

Early-onset alcohol-use behaviors and subsequent alcohol related driving risks in young women: A twin study.

Lynskey MT; Bucholz KK; Madden PAE; Heath AC. *Journal of Studies on Alcohol and Drugs* 68(6): 798-804, 2007. (43 refs.)

Objective: The purpose of this study was to estimate associations between early-onset alcohol use/intoxication and subsequent risks of alcohol-related driving risks in young women after control for familial liability for these behaviors. Method: Self-reported data on alcohol use and associated risks were collected from a representative sample of 3,786 Missouri-born adolescent female twins. Results: After statistical control for familial liability to alcohol-related driving risks, alcohol dependence, and length of exposure to risk (i.e., time between the earlier of age at onset of drinking or age 16 [the minimum legal driving age in Missouri]), young women who reported early-onset alcohol use/intoxication had odds of alcohol-related driving risks that were from 1.6 to 2.2 times higher than those with a later onset of alcohol use or intoxication. Conclusions: Young women who commence drinking at an early age are at heightened risks for subsequent alcohol-related driving risks, and these associations cannot be explained entirely by familial liability for these behaviors. Copyright 2007, Alcohol Research Documentation Inc.

Drugs and driving by America high school seniors, 2001-2006.

O'Malley PM; Johnston LD. *Journal of Studies on Alcohol and Drugs* 68(6): 834-842, 2007. (22 refs.)

Objective: The aim of this study was to report trends from 2001 to 2006 in the percentage of all high school seniors who drive after using marijuana, other illicit drugs, or alcohol or who are exposed as passengers to such behaviors. A second objective is to examine demographic and psychosocial correlates of these behaviors. Method: The data were obtained from the Monitoring the Future study, in which nationally representative samples of high school seniors have been surveyed annually since 1975. Results: In 2006, 30% of high school seniors reported exposure to a drugged or drinking driver in the past 2 weeks, down from 35% in 2001. Exposure was demonstrated to be

widespread as defined by demographic characteristics (population density, region of the country, socioeconomic status, race/ethnicity, and family structure). Individual lifestyle factors (religiosity, grade point average, truancy, frequency of evenings out for fun, and hours of work) showed considerable association with the outcome behaviors. Conclusions: Impaired driving by youth remains a problem needing serious attention despite some progress in recent years. Copyright 2007, Alcohol Research Documentation Inc.

Characteristics of facilities with specialized programming for drinking drivers and for other criminal justice involved clients: Analysis of a national database.

Arfken CL; Kubiak SP. *Substance Abuse Treatment, Prevention, and Policy* Vol 2: article 26, 2007. (26 refs.)

Background: Offering specialized programming at substance abuse treatment facilities can help diversify clientele and funding sources, potentially enhancing the facilities' ability to survive and/or expand. Past research has shown that facilities only offering specialized programming for driving under the influence/driving while intoxicated offenders (DUI) are predominately private-for-profit owned. As criminal justice populations, both DUI and other criminal justice offenders, comprise a large proportion of those in community-based substance abuse treatment knowing facilities' characteristics would be important for administrators and policymakers to consider when updating programming, training staff or expanding capacity to ensure efficient use of scarce resources. However, while such characteristics are known for DUI programs, they are not known for facilities offering specialized programming for other criminal justice offenders. Methods: Analysis of the 2004 US National Survey of Substance Abuse Treatment Facilities. Results: Almost half the facilities (48.2%) offered either DUI or other criminal justice specialized programming. These facilities were divided between those offering DUI specialized programming (17.7%), other criminal justice specialized programming (16.6%) and both types of programming (13.9%). Certain characteristics were independently associated with offering DUI specialized programming (private ownership, rural location, for profit status) or other criminal justice specialized programming (receiving public funds, urban location, region of country). Conclusion: Offering specialized programming for DUI or other criminal justice offenders was common and associated with distinct characteristics. These observed associations may reflect the positioning of the facility

to increase visibility, or diversify clientele and possibly funding streams or the decision of policymakers. As the criminal justice populations show no sign of decreasing and resources are scarce, the efficient use of resources demands policymakers recognize the prevalence of these specialized

programming, join forces to examine them for efficacy, and explicitly incorporate these characteristics into strategies for workforce training and plans for treatment expansion. Copyright 2007, BioMed Central.
