

The Illinois .08 law: An evaluation.

Voas RB; Tippetts AS; Taylor EP. *Journal of Safety Research* 33(1): 73-80, 2002. (13 refs.)

Lowering state blood alcohol concentration (BAC) limits to 0.08, though controversial, has been supported by most evaluation studies to date. The Illinois .08 BAC law implemented in 1997 provided a unique opportunity to evaluate the effect of the law without the simultaneous passage of an administrative license revocation (ALR) law, which has clouded some previous evaluations of the .08 laws. The proportion of all drinking drivers in fatal crashes was compared before versus after implementing the .08 law using time-series analysis to evaluate 12 years of fatal crash data for Illinois and five bordering states. The results showed that the proportion of drinking drivers in fatal crashes decreased by 14% in Illinois and increased by 3% in bordering states. The proportion of drinking drivers in fatal crashes in Illinois, though increasing since 1995, was sharply reduced after passage of the .08 law in 1997, saving more than 100 lives in 1998 and 1999 than it would have without the .08 law.

Copyright 2002, National Safety Council and Pergamon Press.

Determination of ethanol in blood: Analytical aspects, quality control, and theoretical calculations for forensic applications.

Sutter K. *Chimia* 56(3): 59-62, 2002. (2 refs.)

According to current Swiss traffic law, a person with 0.8 g/kg or more of alcohol in the blood is not permitted to drive. Given special circumstances, driving under the influence of alcohol can be diagnosed even with less than 0.8 g/kg. The Federal Department of Justice and Police defines how the analysis of blood samples taken from road traffic participants has to take place. The Swiss Federal Roads Authority is responsible for the implementation of these regulations. Other measurements of blood alcohol with a forensic background are done in the same way. Each blood sample must be tested fourfold, twice with one method, twice with another. The enzymatic method (ADH) and gas chromatographic methods (GC) are currently certified for this. It is possible to adopt new methods once they receive scientific recognition. Procedures using GC columns with a clearly distinct separation behavior and distinct internal standards are considered as separate methods. As an injection procedure, the headspace technique has gained general acceptance, while the flame ionization detector (FID) is used for detection. With

respect to the homogeneity of the four measurements there are statistical specifications to be complied with. Furthermore there are concrete specifications on the calibration of the test systems and internal quality checks to be implemented. As far as external quality checks are concerned, each laboratory has to participate in four interlaboratory tests each year. These are organized by the Centre Suisse de Controle de Qualite (CSCQ) on behalf of the Swiss Federal Roads Authority. The laboratories which perform alcohol testing of blood samples from road traffic participants have to be accredited by the Swiss Federal Roads Authority. At present there are ten accredited laboratories in Switzerland.

Copyright 2002, New Swiss Chemical Society.

Gamma-hydroxybutyrate (GHB): A new generation of drugs from the chemical shelf.

Iten PX; Oestreich A. *Chimia* 56(3): 91-95, 2002. (42 refs.)

The drug gamma-hydroxybutyrate (GHB, 'liquid ecstasy') reached Switzerland in 1998. We describe the analyses of seized liquids and body fluids, legal aspects, forensic cases (overdosing and car driving), effects and adverse effects, pharmacology and toxicology of GHB.

Copyright 2002, New Swiss Chemical Society.

The population consumption model, alcohol control practices, and alcohol-related traffic fatalities.

Cohen DA; Mason K; Scribner R. *Preventive Medicine* 34(2): 187-197, 2002. (65 refs.)

Background. More than 40% of urban traffic fatalities are alcohol related and the rate of such fatalities varies more than 10-fold across U.S. cities. These variations might be explained by differences in local alcohol control policies and practices. Methods. We conducted a cross-sectional survey of state Alcohol Beverage Control agencies and local city police departments in 107 cities that participate in the National Highway and Traffic Safety Administration's Fatality Analysis Reporting System. We examined the association of alcohol control practices in 1997 and alcohol-related traffic fatalities per daily vehicle miles traveled, 1995-1997. Results. Ninety-seven (91%) cities participated. Regulations related to alcohol accessibility, licensure of alcohol outlets, disciplinary procedures of alcohol outlets, and enforcement of blood alcohol concentration laws were associated with lower rates of fatalities. Cities with 9 or fewer of the 20

regulations had 1.46-fold greater alcohol-related traffic fatality rates than cities with 15 or more of these regulations, representing 392 excess deaths annually. Beer consumption was found to be a potential mediator of the effect of regulations on traffic fatalities. Conclusions. Alcohol beverage regulations are associated with alcohol-related traffic fatalities. Localities should consider greater restrictions on alcohol accessibility, stricter disciplinary measures for violations, and stricter licensure requirements as a potential means to reduce alcohol-related traffic fatalities.

Copyright 2002, Academic Press, Inc.

Incidence of alcohol dependence among drunken drivers.

Brinkmann B; Beike J; Kohler H; Heinecke A; Bajanowski T. *Drug and Alcohol Dependence* 66(1): 7-10, 2002. (17 refs.)

To discriminate 'alcoholics' and 'non-alcoholics'. individual Alc- Indices (determined by methanol, acetone. 2-propanol, gamma-GT and CDT-concentrations) were calculated in a collective of 327 alcohol-impaired drivers with regard to the blood alcohol concentration, the time or the event and the age of the drivers. Applying this defined Alc-Index, 48%, of the drivers investigated could be characterised as alcohol dependent. The prevalence of alcoholics among individuals with blood alcohol concentrations (BAC) higher than 1.9 parts per thousand, was more than 80%. The diagnostic value of alcohol concentrations for the recognition of 'alcoholics', considering the legal limit in Germany (1.1 parts per thousand) as well as statistically calculated limits were compared to the Alc-Index.

Copyright 2002, Elsevier Scientific Publishers Ireland, Ltd.

Rearrest rates among Norwegian drunken drugged drivers compared with drivers.

Christophersen AS; Skurtveit S; Grung M; Morland J. *Drug and Alcohol Dependence* 66(1): 85-92, 2002. (37 refs.)

The rearrest rates among Norwegian drugged (n = 1102) and a group of drunken drivers (n = 850) (BAC: 0.16-0.19%) apprehended during 1992, were 57%, (n = 629) and 28% (n = 238), respectively, when followed prospectively for 7 years. The most important risk factors for recidivism among drugged drivers were previous arrests for drugged or drunken driving (rearrest rate among previous arrests: 73%, no previous arrest: 42%), multi-drug detection at selection (multi-drug: 62%. single drug: 41%). sex (male: 61%, female: 35%) and age (below 36 years: 60%, 36 years and older: 44%). Most of the recidivist drugged drivers were rearrested during the year of selection (21 followed by 13, 7 and 6%, retrospectively,

during the following years. When followed both retrospectively and prospectively for a period extending from 1984 to 1998. 71% (n = 779) and 40% (n = 344) of the selected drugged and drunken drivers, respectively, were arrested two or more times.

Copyright 2002, Elsevier Scientific Publishers Ireland, Ltd.

Drinking-driving as a component of problem driving and problem behavior in young adults.

Shope JT; Bingham CR. *Journal of Studies on Alcohol* 63(1): 24-33, 2002. (30 refs.)

Objective: This study replicated and extended a conceptual model of drinking-driving and its relationship to other problem behavior to determine (1) if the model characterized the problem driving and problem behavior of young adults from the general population and (2) if the model applied to women as well as to men. Method: Telephone survey data (measures of drinking-driving, drug-driving, risky driving, problem drinking, drug use and delinquent behavior) collected from young adults (N = 4,230, 53% female) were used in structural equation modeling. Two models were developed-one for problem driving and one for problem behavior-each testing the structural associations among latent variables and testing them as latent indicators of common second-order latent variables. Results: The results supported the hypothesis that drinking-driving (along with problem drinking, drug use and delinquent behavior) is an indicator of problem behavior in the general population sample. Also, drinking-driving, drug-driving and risky driving were demonstrated to be indicators of a common construct: problem driving. The models fit the data equally well for both young men and young women. and a crossvalidation conducted on an independent sample confirmed the results. Conclusions: The results provide empirical support for the inclusion of drinking-driving and problem driving in an extended model of Problem Behavior Theory. Drinking-driving, drug-driving and risky driving all relate to a common construct: problem driving. These results have important implications for research and for interventions to treat or prevent drinking-driving, especially among young adults.

Copyright 2002, Alcohol Research Documentation, Inc. Used with permission.

Drugs of abuse monitoring in blood for control of driving under the influence of drugs.

Moeller MR; Kraemer T. *Therapeutic Drug Monitoring* 24(2): 210-221, 2002. (81 refs.)

Driving under the influence of drugs is an issue of growing concern in the industrialized countries as a risk and a cause for road accidents. In forensic toxicology, the increasing number of samples for determination of drugs in blood is mainly due to zero-tolerance laws in several countries and

well-trained police officers who can better recognize drivers under the influence of drugs of abuse. This review describes procedures for detection of the following drugs of abuse in whole blood, plasma, and serum: amphetamine, methamphetamine, 3,4-methylenedioxy methamphetamine (MDMA), N-ethyl- 3, 4-methylenedioxyamphetamine (MDEA), 3,4-methyl-enedioxyamphet-amine (NIDA), cannabinoids (delta-9-tetrahydrocannab-inol [THC], 11-hydroxy- delta-9-THC, 11-nor-9-carboxy-delta-9-THC), cocaine, benzoylecgonine, ecgonine methyl ester, cocaethylene, the opiates (heroin, 6- monoacetyl-morphine, morphine, or codeine), and methadone as well as gamma-hydroxybutyric acid (GHB), lysergic acid diethylamide (LSD), phencyclidine (PCP), and psilocybin/psilocin. For many of the analytes, sensitive immunologic methods for screening are available. Gas chromatography-mass spectrometry (GC-MS) is still the state-of- the-art method for confirmatory analysis or for screening and confirmation in one step. Liquid chromatography-mass spectrometry (LC- MS) procedures for such purposes are also included in this review. Basic data about the biosample assayed, internal standard, workup, GC or LC Column and mobile phase, detection mode, reference data, and validation data of each procedure are summarized in two tables. Copyright 2002, Lippencott-Raven Publishers.

Sobriety tests for low blood alcohol concentrations.

McKnight AJ; Langston EA; McKnight AS; Lange JE. *Accident Analysis and Prevention* 34(3): 305-311, 2002. (19 refs.)

The legal limits of blood alcohol concentration (BAC) for operators of commercial vehicles throughout the United States, and underage drivers in most states, are approximately half the 0.08-0.10% imposed on other drivers. Easily administered measures involving performance and appearance are needed to establish probable cause for requesting breath tests. Several measures showing relationships to blood alcohol were examined for their ability to distinguish BACs under and over 0.04% within the 0.00-0.08% range. Measures of heat loss, pupillary response, balance, complex tasks, and accuracy under speed were studied in controlled experiments with alcohol-dosed subjects. The only reliable index of blood alcohol was horizontal gaze nystagmus (HGN) as administered in the standardized field sobriety test (SFST), using alternative scoring criteria. Although other measures evidenced intra-individual change at low BACs, the magnitude of change was greatly exceeded by inter-individual differences, thwarting their use in detecting drivers with BACs lower than HGN, however, proved as valid in detecting BACs in the 0.04-0.08% range as at the higher levels of the SFST. It is also as valid when administered to a seated subject as one standing, making it of particular benefit in enforce-

ment, where the behavior of low BAC drivers rarely provides probable cause to request that they leave a vehicle to be tested in a standing position.

Copyright 2002, Elsevier Science, Ltd.

The antilock braking system anomaly: A drinking driver problem?

Harless DW; Hoffer GE. *Accident Analysis and Prevention* 34(3): 333-341, 2002. (23 refs.)

Antilock braking systems (ABS) have held promise for reducing the incidence of accidents because they reduce stopping times on slippery surfaces and allow drivers to maintain steering control during emergency braking. Farmer et al. (*Accident Anal, Prevent.* 29 (1997) 745) provide evidence that antilock brakes are beneficial to nonoccupants: a set of 1992 model General Motors vehicles equipped with antilock brakes were involved in significantly fewer fatal crashes in which occupants of other vehicles, pedestrians, or bicyclists were killed. But, perversely, the risk of death for occupants of vehicles equipped with antilock brakes increased significantly after adoption. Farmer (*Accident Anal. Prevent.* 33 (2001) 361) updates the analysis for 1996-1998 and finds a significant attenuation in the ABS anomaly. Researchers have put forward two hypotheses to explain this antilock brake anomaly: risk compensation and improper operation of antilock brake-equipped vehicles. We provide strong evidence for the improper operation hypothesis by showing that the antilock brake anomaly is confined largely to drinking drivers. Further, we show that the attenuation phenomenon occurs consistently after the first three to four years of vehicle service.

Copyright 2002, Elsevier Science, Ltd.

Vehicle action: Effective policy for controlling drunk and other high- risk drivers?

Voas RB; DeYoung DJ. *Accident Analysis and Prevention* 34(3): 263-270, 2002. (22 refs.)

License Suspension effectively reduces recidivism and crash involvement of those convicted of driving while impaired (DWI). The impact of this sanction, however, is being reduced by the large number of offenders (up to 75%) who drive even though suspended. To deal with this problem, several states have enacted laws providing for vehicle impoundment, immobilization, or forfeiture for repeat DWI offenders and for driving while suspended (DWS) offenders. Although a 1992 review of vehicle sanctions for DWI and DWS offenders showed 32 states with such laws, they were infrequently applied. Further, none of those laws in California, Minnesota, New laws had been adequately evaluated. This paper reviews the studies of vehicle action programs in California, Minnesota, New York, Ohio, Oregon, and Washington that have been

applied broadly enough to permit evaluation. Although none of the Studies has applied random assignment to ensure equal groups, several have applied sufficient statistical controls to provide reasonably, credible results. All the programs reviewed showed positive effects, including some relatively large recidivism reductions, from denying offenders the use of their vehicles for 1-6 months. Highlighted in this review are several issues that appear to be important to the effectiveness of vehicle sanctioning programs. Copyright 2002, Elsevier Science, Ltd.

Effects of alcohol on risk-taking during simulated driving.

Burian SE; Liguori A; Robinson JH. *Human Psychopharmacology: Clinical and Experimental* 17(3): 141-150, 2002. (43 refs.)

The effect of alcohol on judgement or conscious risk-taking may increase the likelihood of an automobile accident. This study examined the direct effects of penalty severity and alcohol on risk-taking in a novel simulated-driving lane-choice task. Thirteen male social drinkers received alcohol (0.3 g/kg, 0.5 g/kg, 0.8 g/kg) or placebo during each of four test sessions in a randomized, within subject design. In repeated trials, subjects selected, then drove through a cone-defined lane. Contingent upon performance, points were added (+5 for the narrower lane, +3 for the wider lane) and taken away (-1, -3, or -5 points per hit cone) after each trial. Risk-taking was defined as a selection of the narrower-width lane. The frequency of risk-taking decreased as the penalty increased. The 0.5

g/kg dose, compared to other alcohol doses or placebo, significantly increased risk-taking in the high-risk (5-point penalty) condition. This finding suggests that breath alcohol concentrations within current legal standards can alter a driver's decision-making such that the willingness to enter a high-risk situation is increased.

Copyright 2002, John Wiley & Sons, Ltd.

Parenting practices and adolescent risky driving: A three-month prospective study.

Hartos J; Eitel P; Simons-Morton B. *Health Education & Behavior* 29(2): 194-206, 2002. (43 refs.)

This study examined relations between risky driving, parenting, and deviance, and the stability of risky driving over time. Two hundred and sixty-one licensed adolescents completed telephone interviews about risky driving, parenting practices, and orientations toward deviance at baseline and about risky driving at follow-up 3 months later. The results indicated that risky driving at follow-up was predicted by risky driving at baseline, parental restrictions on driving, and sensation seeking. In addition, risky driving was stable within 80% of teens. When compared with adolescents with low risky driving over time (n = 129), adolescents with high risky driving over time (n = 79) were 3 times more likely to report low parental monitoring, 2 times more likely to report low parental restrictions, and almost 5 times more likely to report high deviance acceptance. The results suggest that high levels of risky driving are related to parenting.

Copyright 2002, Sage Publications Inc.