VOL. 33, NUMBER 1 | 2022 1ST QUARTER | ISSN 1016-0477

ICADTS REPORTER

The Newsletter of The International Council on Alcohol, Drugs & Traffic Safety

TABLE OF CONTENTS

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The International Council on Alcohol, Drugs & Traffic Safety (ICADTS) is an independent nonprofit body whose only goal is to reduce mortality and morbidity brought about by misuse of alcohol and drugs by operators of vehicles in all modes of transportation.

Message from the ICADTS President

To ICADTS Members, Future ICADTS Members and *ICADTS Reporter* Recipients:

I hope you and yours are all safe and healthy and ready to get back to some semblance of normalcy. I also hope you are making plans to attend T2022 – our 23rd International Council on Alcohol, Drugs and Traffic Safety Conference in Rotterdam, The Netherlands, on August 28-31, 2022. That conference will provide you with the latest research, the latest countermeasure evaluations, the latest technology and the latest policies in the alcohol, other drugs and traffic safety arena.

If you have not visited our website lately (www.icadtsinternational.com), I highly recommend that you do. Dr. Edward Ogden has managed to bring it up to 21st century standards. It has links to all of our ICADTS Proceedings, our past webinars, our special interest groups and bios of the ICADTS Board Members. It also has information on how to become a Member of ICADTS.

With alcohol and other drug involvement in fatal crashes increasing in some countries, we can help stem the tide. ICADTS Members have the expertise, the knowledge and the experience to communicate what works to reduce impaired driving around the world. We hope to communicate and disseminate the latest research after our T2022 Conference and reports from our Special Interest groups to officials in countries that could use it.

I also believe that the "Safe Systems" approach to traffic safety will help us reduce impaired driving in the future. The approach uses a data-driven multidisciplinary approach involving highway design, vehicle safety features and the integration of education, enforcement, engineering and emergency medical services (www.TowardZeroDeaths.org). The status quo will not get us to zero and this approach is already working in several countries. The Safe Systems approach expands our efforts to include not only representatives of road, behavioral and vehicle safety, but public health officials, technology companies, non-profit groups and others to develop a coordinated approach to highway safety. It deserves full implementation.

I hope to see many of you at T2022. Stay safe and healthy in the meantime.
Jim Fell

TRIBUTE TO ROBERT BORKENSTEIN

Prof. A.W. Jones of the University of Linköping, Sweden, and long-term member of ICADTS has prepared a booklet to commemorate the 20th anniversary of the death of Professor Robert Borkenstein as an appreciation of his many contributions to the field of traffic safety. Prof. Borkenstein was a driving force in creation of ICADTS. He also is renowned for his invention of the Breathalyzer® for use in law enforcement and his seminal research, including the Grand Rapids study that established the connection between blood alcohol content and crash risk. As stated in one of the many tributes written about him at the time of his death: *Few men have made such a significant and sustained contribution to their chosen field of endeavor as Robert (Bob) Frank Borkenstein. All who had the privilege to know Dr. Borkenstein held him in high esteem and greatly admired him for his personal qualities, sharp wit, and not least his scientific achievements. Bob's many outstanding accomplishments and lifelong dedication to the field of alcohol and traffic safety research made him an international celebrity among his peers. (Jones, et al., Accident Analysis and Prevention,* 35 (2003) 1–2)

The full tribute can be viewed on the ICADTS website at
https://www.icadtsinternational.com/resources/Documents/Robert%20Borkenstein%20-%20his%20life%20and%20work.pdf

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NEWS FROM THE ORGANIZERS OF T2022

Preliminary program is now available!

With the 23rd **International Council on Alcohol, Drugs and Traffic Safety (ICADTS) Conference** just over 6 months away, we are happy to share the Preliminary Program with you. Visit the ICADTS Website to view the exciting and stimulating 4-day Preliminary program from 29-31 August 2022.

The tri-annual conference of ICADTS is a major international stage for exchanging research and policy developments between experts in the field. ICADTS T2022 brings together delegates from the areas of public health and safety, traffic, and transport psychology, public health, law, medicine, economics, law enforcement, public policy, education, pharmacology, toxicology, forensic science, human factors, and alcohol intervention and rehabilitation.
ICADTS T2022 - Preliminary program

Are you a Young Scientist or Professional from a low- and middle-income country? Stipends applications due 1st of April

Thanks to the ICADTS Foundation and some recently received additional donations from Daryl and Debra Coffey (USA) and the Drugs and Driving Research Group Foundation from the Netherlands, stipends have been made available for 9 Young Scientists and 3 professionals from low- and middle-income countries (LMIC) to help them attend T2022.

Stipends application

Before applying for a stipend, you are advised to review the application process. Please click on the link that is applicable to your situation. For questions you can contact the Conference Secretariat at t2022@congressbydesign.com.
Please note that applications must be forwarded to the ICADTS T2022 Organizers **before 1st of April 2022** at t2022@congressbydesign.com.

Stipends for Young Scientists

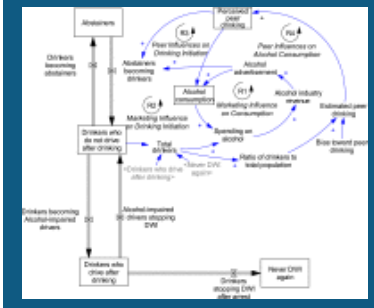
Stipends for LMIC

Submit your abstract today!

You still have until 4 April 2022 to submit an abstract and play an active role in ICADTS T2022.

Please click here for more information on Abstract Submission. If accepted, individual submissions will be clustered according to the major topics that are listed on the website.
If you would like to submit an abstract right away please click on the link below:
Abstract Submission (Deadline: 4 April)

MAPPING THE COMPLEX CAUSAL MECHANISMS OF DRINKING AND DRIVING BEHAVIORS AMONG ADOLESCENTS AND YOUNG ADULTS



The proportion of motor vehicle crash fatalities involving alcohol-impaired drivers declined substantially in the United States between 1982 and 1997, but progress stopped after 1997. The systemic complexity of alcohol-impaired driving contributes to the persistence of this problem. The study aimed to identify and map key feedback mechanisms that affect alcohol-impaired driving among adolescents and young adults in the U.S. The authors applied the system dynamics approach to the problem of alcohol-impaired driving and brought a feedback perspective for understanding drivers and inhibitors of the problem. A causal loop diagram (i.e., map of dynamic hypotheses about the structure of the system producing observed behaviors over time) developed in this study is based on the output of two group model building sessions conducted with multidisciplinary subject-matter experts bolstered with extensive literature review. The causal loop diagram developed depicts diverse influences on youth impaired driving including parents, peers, policies, law enforcement, and the alcohol industry. Embedded in these feedback loops are the physical flow of youth between the categories of abstainers, drinkers who do not drive after drinking, and drinkers who drive after drinking. The authors identify key inertial factors, discuss how delay and feedback processes affect observed behaviors over time, and suggest strategies to reduce youth impaired driving. This review presents the first causal loop diagram of alcohol-impaired driving among adolescents, and it is a first step toward quantitative simulation modeling of the problem. Through continued research, this model could provide a tool for understanding the systemic complexity of impaired driving among adolescents and identifying prevention practices and policies to reduce youth impaired driving.

Source: Hosseinichimeh et al., Social Science & Medicine, Volume 296,2022, 10.1016/j.socscimed.2022.114732

RECENT PAPER ON THE ALCOHOL INDUSTRY'S INVOLVEMENT WITH ROAD SAFETY NGOS

Road crashes are a major cause of death among all age groups and the leading cause of death among persons 5–29 years, according to the World Health Organization. One key risk factor is drink-driving. While the world's leading beer, wine, and spirit producers have pledged to combat drink-driving, there is increasing evidence showing the alcohol industry's promotion of solutions which minimally impact sales. One strategy is forming partnerships with road safety non-governmental organizations (NGOs). Given this, the primary objective of the study was to understand the extent to which the alcohol industry is involved with road safety NGOs around the world.

Geographic results of primary research on NGOs directly tied to alcohol industry

A desk review from July 2020 to March 2021 was conducted to assess the alcohol industry's involvement with various road safety NGOs ($n = 256$) in 92 countries. Financial documents press releases, annual reports, social media platforms, and other resources were analyzed to uncover relationships between the alcohol industry and NGOs. Out of 256 NGOs, $n = 11$ (4%) showed direct ties to the alcohol industry, and $n = 3$ (1%) showed indirect ties. NGOs involved with the alcohol industry were found in five continents and $n = 8$ of the 11 NGOs (73%) partnered with transnational alcohol manufacturers. Interventions supported by these partnerships were primarily mass media campaigns, free-ride and ride-sharing campaigns, and drink-driving educational events where alcoholic or zero-percent alcoholic beverages were sold or provided. According to the authors, these interventions were notconsistent with evidence-based best practice recommendations, although more research is needed. Relationships between the alcohol industry and road safety NGOs lacked public transparency the authors concluded.

Findings underscore the need for the road safety community to generate consensus on involvement of the alcohol industry and suggest the need for more transparency on details of partnerships involving road safety. Findings also highlight the importance of local and national government support of road safety initiatives and road safety NGOs to avoid dependence on controversial funding from the alcohol industry.

Source: Stein, I., Bachani, A.M. & Hoe, C. The alcohol industry's involvement with road safety NGOs. *Global Health* **18,** 18 (2022). https://doi.org/10.1186/s12992-022-00813-9
The alcohol industry's involvement with road safety NGOs | Globalization and Health | Full Text (biomedcentral.com)

REVIEW OF FACTORS ASSOCIATED WITH DRUGGED DRIVING

A recent systematic literature review carried out by Queensland University of Technology (QUT), Centre for Accident Research and Road Safety– Queensland (CARRS-Q), seeks to identify factors associated with drug driving (i.e., driving after consuming drugs other than alcohol) to highlight gaps in existing knowledge and inform the design of more effective countermeasures. A search of the literature was conducted for the period January 1, 2005 to July 31, 2021 using six different databases. The search protocol followed PRISMA guidelines and was registered in PROSPERO (#CRD42021234616). Studies that met inclusion criteria compared drug drivers with either non-drug drivers, alcohol-only drivers or drug drivers from an earlier time period, to identify factors specifically associated with drug driving, rather than common to all drivers. Two hundred and nineteen publications met the inclusion criteria and were included within the review. Based on the findings, a logic model was developed that presents the factors associated with drug driving. Various sociodemographic, psychosocial and legal factors emerged as the main factors associated with illegal drug driving. At the sociodemographic and psychological levels, drug drivers were more likely to be single, young males who often drive after using cannabis and who score high on sensation-seeking and impulsivity scales. The key social factor found to be associated with drug driving was peer acceptance/disapproval of the behaviour. At the legal level, the review suggested that the effectiveness of current enforcement approaches to drug driving vary among jurisdictions around the world due to differences in the level of perceived certainty of apprehension and the chances of punishment avoidance. Future research into the anticipated and actual rewards for drug driving is needed to inform the development of more effective countermeasures.

Source: Razi Hasan, Barry Watson, Narelle Haworth, Oscar Oviedo-Trespalacios, A systematic review of factors associated with illegal drug driving*, Accident Analysis & Prevention*, Volume 168, 2022 https://doi.org/10.1016/j.aap.2022.106574

EEG BIOMARKERS DURING DRIVING SIMULATION UNDER THE INFLUENCE OF CANNABIS

As cannabis use becomes more widely accepted, there is growing interest in its effects on brain function, specifically how it may impact daily functional activities such as driving, operating machinery, and other safety-related tasks. There are currently no validated methods for quantifying impairment from acute cannabis intoxication. The objective of this study was to identify neurophysiological correlates associated with driving simulator performance in subjects who were acutely intoxicated with cannabis.

Each subject completed a three-visit study protocol. Subjects were consented and screened on the first visit. On the second and third visits, subjects were administered either 500 mg of cannabis with 6.7% delta-9-tetrahydrocannabinol (THC) or placebo. EEG was acquired from subjects as they performed a series of neurocognitive tasks and an approximately 45-minute simulated drive that included a rural straight-away absent of any other cars or obstacles during the final 10 minutes.

A within-subjects analysis showed that the standard deviation of lane position (SDLP) was significantly worse and heart rate was elevated during the dosed visit compared to the placebo visit. Consistent with prior findings, EEG power in the Theta frequency band (4–7 Hz) in the dosed condition was significantly decreased from the placebo condition. Theta power was negatively correlated with the SDLP driving performance metric, while there were no significant correlations between any EEG measure and SDLP in the placebo condition.

These results, in combination with prior work on the effect of cannabis intoxication during neurocognitive tasks, suggest that neurophysiological signatures associated with acute cannabis intoxication are robust and consistent across tasks, and that these signatures are significantly correlated with impaired performance in a driving simulator. Taken together, EEG data acquired during a short neurocognitive testbed and during a simulated drive may provide specific profiles of impairment associated with acute cannabis intoxication. Further research is needed to establish the impaired cognitive processes associated with these EEG biomarkers.

Source: Timothy L. Brown, Christian Richard, Amir Meghdadi, Jared Poole, Abigail Fink, Marija Stevanović Karić, Marissa McConnell, Greg Rupp, Rose Schmitt, Gary G. Gaffney, Gary Milavetz & Chris Berka (2020) **EEG Biomarkers Acquired During a Short, Straight-Line Simulated Drive to Predict Impairment from Cannabis Intoxication**, Traffic Injury Prevention, 21:sup1, S130 S134, DOI: 10.1080/15389588.2020.1814957

Upcoming Events

Lifesavers Conference
13-15 March 2022
Chicago, Illinois USA
https://lifesaversconference.org

Alcohol Policy 19
Evidence to Action: Building a Framework for Change
September 14-16, 2022
Arlington, Virginia USA
www.alcoholpolicy.org

Research Society on Alcoholism
45th Annual Scientific Meeting
June 25-29, 2022
Orlando, Florida USA
www.rsoa.org

T2022
28-31 August 2022
Rotterdam, The Netherlands
www.t2022.org

Association for the Advancement of Automotive Medicine
66th Annual Conference
October 11-14, 2022
Portland, Oregon USA
www.aaam.org

To view past issues of the Reporter, go to http://www.icadtsinternational.com/pages/icadts-reporter.php

DRIVING PERFORMANCE AND CANNABIS USERS' PERCEPTION OF SAFETY

In a placebo-controlled parallel study of regular cannabis users smoking cannabis with different THC content, there was statistically significant worsening on driving simulator performance in the THC group compared with the placebo group. The THC content of the cannabis and intensity of prior cannabis use were not associated with driving outcomes; participants self-titrated in a manner that yielded similar reductions in driving performance, despite achieving different THC blood concentrations. Participants lacked insight regarding driving impairments, particularly at 90 minutes, which is of concern, given that users will likely self-evaluate when they feel safe to drive. Although performance was improving at 3.5 hours, recovery was not fully seen until 4.5 hours post-smoking. The fact that not all participants consuming THC met the criteria for impairment underscores the interindividual variability seen with the impairing effects of cannabis. The lack of relationship between blood THC concentration and driving performance raises questions about the validity of per se laws. When users control their own intake, one cannot infer the level of impairment based on the THC content of the product, the level of behavioral tolerance in the individual, or the blood THC concentration.

The authors concluded that future research should address factors such as individual biologic differences, personal experience with cannabis, and cannabis administration methods in relation to driving impairment.

Source: Marcotte, T. et al., JAMA Psychiatry. doi:10.1001/jamapsychiatry.2021.4037 Published online January 26, 2022.

RISK OF CULPABILITY IN CRASHES AFTER CANNABIS USE

The authors carried out a systematic search of electronic databases and identified 13 culpability studies and 4 case–control studies from which cannabis-crash odds ratios could be extracted. Random-effects meta-analyses gave summary odds ratios of 1.37 (1.10–1.69) for the culpability studies and 1.45 (0.94–2.25) for the case–control studies. A tool was designed to identify and score biases arising from: confounding by uncontrolled covariates; inappropriate selection of cases and controls; and the inappropriate measurement of the exposure and outcome variables. Each study was scrutinised for the presence of those biases and given a total 'directional bias score'. Most of the biases were inflationary. A meta-regression against the total directional bias scores was performed for the culpability studies, giving a bias-adjusted summary odds ratio of 0.68 (0.45–1.05). The same analysis could not be performed for the case–control studies because there were only four such studies. A monotonic relationship was found between the total bias scores and the cannabis-crash odds ratios, with Spearman's rho = 0.95, $p = 0.05$, indicating that the summary odds ratio of 1.45 is an overestimate.

The authors conclude that the risks from driving after using cannabis are much lower than from other behaviours such as drink-driving, speeding or using mobile phones while driving. With the medical and recreational use of cannabis becoming more prevalent, the removal of cannabis-presence driving offences should be considered (while impairment-based offences would remain).

Source: Michael A. White and Nicholas R. Burns, *Drug Science, Policy and Law* Volume 7: 1–20

UPDATES FROM THE ALCOHOL POLICY INFORMATION SYSTEM

The Alcohol Policy Information System (APIS), a project of the U.S. National Institute on Alcohol Abuse and Alcoholism (NIAAA), announces its latest **annual update** of State-by-State alcohol policies and recreational cannabis policies. This update reports on substantive changes in State statutes and regulations that occurred through **January 1, 2021,** for alcohol and cannabis policies.

Highlights relating to the annual update of APIS policy topics include information on recent changes in U.S. state laws and policies related to underage drinking and retail sales of alcohol. In addition, the updates include those related to cannabis, including recreational use and retail availability.

APIS information can be found at https://alcoholpolicy.niaaa.nih.gov/