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Effects of an Ignition Interlock Device Data-Enhanced Counseling Program on DUI Recidivism

Introduction

Alcohol impairment is a major factor in traffic crashes, contributing to 12,429 fatalities (30% of all crash fatalities) in 2023 (NCSA, 2025). Ignition interlock devices (IIDs) are a common alcohol-impaired driving (DUI) countermeasure and highly effective when they are installed on vehicles. However, recidivism rebounds after removal, becoming comparable to that of non-IID DUI offenders (Elder et al., 2011; Willis et al., 2004). To enhance the effect of IIDs, particularly once they are removed, ignition interlock data-enhanced counseling (IEC) programs—a type of alcohol use disorder counseling informed by offenders' IID performance data—have been developed to supplement the IID sanctions (Voas et al., 2013).

One unique approach to IEC programs is Colorado's "parallel" Ignition Interlock Data-Enhanced Counseling (IID+IEC) program, which involves initiating the IEC as soon as possible after IID installation and using the IID performance data to inform the counseling sessions (Timken & Marques, 2001a, 2001b; Timken et al., 2012). By structuring treatment in this way, the IID+IEC program uniquely provides close monitoring and feedback and addresses pre-existing and emerging risk factors for recidivism (Marques et al., 2001, 2003, 2010; Robertson et al., 2019; Zador et al., 2011). To date there has been little examination of the few U.S. IEC programs (Voas et al., 2016), and no formal examination of Colorado's specific approach. This study's purpose was to see if Colorado's IID+IEC program reduces recidivism significantly more than IIDs alone.

Methods

Retrospective administrative data was gathered from Colorado's Behavioral Health Administration (BHA) and Department of Motor Vehicles (DMV) to examine the effect of treatment on DUI recidivism. BHA data on IEC enrollment range from January 2017 to August 2022 while DMV DUI conviction data (i.e., recidivism) range from January 2017 to January 2024.

Participants. Participants were 11,205 DUI offenders sanctioned to IIDs in Colorado—10,632 on IIDs only (control group) and 573 in the IID+IEC program (treatment group). Overall, 76% were males with an average age of 42 (range=19.50-84.30; *SD*=11.85).

Independent variable. The treatment group were DUI offenders on IIDs who either voluntarily (those with 1 to 3 DUI convictions) or mandatorily entered the IID+IEC program (those with 4 or more DUI convictions). The IID+IEC program was 10 total hours of therapy spread over 5 months, including four 2-hour group sessions and four 30-minute individual sessions. The control group were DUI offenders on IIDs only (those with 1 to 3 DUI convictions who did not complete the IID+IEC program).

Control variables. To address potentially confounding variables in the analysis, several offender personal and situation variables were included as controls. Personal variables included sex and age at IID install. Situational variables, most of which reference the "benchmark" DUI conviction (i.e., the specific DUI conviction which necessitated the current IID sanction), included: number of DUI convictions prior to "benchmark" DUI conviction, test refusal at "benchmark" arrest, time (years) in the IID program (program start date to program completion date), and "benchmark" arrest blood alcohol concentration (BAC).

Dependent variables. Recidivism (yes/no) was based on whether the offender had a DUI conviction after the "benchmark" DUI conviction within the data collection window. To determine "time to first recidivism" after IID installation, the elapsed time in days was calculated from the start of the IID program—when the IID is installed (i.e., "sanction reinstatement")—and the next DUI conviction during the data collection window. For those who did not recidivate after IID install within the data collection window, the time elapsed is the full number of days remaining in the data collection period.

Results

Results showed that, controlling for all covariates, the treatment group (IID+IEC) had a 78% lower risk of recidivism (five times less likely) compared to the control group—a finding that was significant (HR=0.22, 95% CI: 0.08-0.60, $p<.01$). Several control variables were also significant, with a 50% increase in the risk of recidivism for every one standard deviation increase (.06 g/dL) in offenders' arrest BAC above the breath test mean of .19 g/dL (HR = 1.50; 95% CI, 1.28-1.76, $p<.001$); a 111% increase in the risk of recidivism among those who refused to take a breath test compared to those who agreed (HR = 2.11; 1.60-2.77, $p<.001$); and a 44% increase in the risk of recidivism for each prior DUI arrest, up to 2+ prior DUI arrests (HR = 1.44; 95% CI, 1.19-1.75, $p<.001$). There was also a 3% decrease in the risk for recidivism for each 1-year increase in age (relative to the mean age of 42) (HR=.97; 95% CI, .96-.99, $p<.001$). Offender sex and years in the IID program did not predict risk of recidivism.

Discussion

Overall, this study showed strong support for the "parallel" IID+IEC program as an effective countermeasure for recidivism reduction among DUI offenders on IIDs. This is particularly important after the IID has been removed, when recidivism typically rebounds. These findings highlight the importance of the IID+IEC program as a supplementary evidence-based therapeutic countermeasure to IIDs and of proactively offering IEC at the time of IID install rather than basing it on IID performance. Future research would benefit from addressing the quasi-experimental nature of this study to fully understand the effect of IID+IEC on DUI recidivism without potential confounds. Given the unique nature of this program as the only one of its kind in the United States, an examination of the implementation and effectiveness of this program in reducing DUI recidivism among IID offenders in other States is warranted.

Full Report

The full report is available to the public from the DOT, BTS, National Transportation Library, Repository & Open Science Access Portal. https://rosap.ntl.bts.gov.

References

Elder, R. W., Voas, R., Bierness, D., Shults, R. A., Sleet, D. A., Nichols, J. L., Compton, R., & Task Force on Community Preventive Services. (2011). Effectiveness of ignition interlocks for preventing alcohol-impaired driving and alcohol-related crashes: a Community Guide systemic review. *American Journal of Preventive Medicine, 40*(3), 362-376.

Marques, P. R., Tippetts, A. S., Voas, R. B., & Beirness, D. J. (2001). Predicting repeat DUI offenses with the alcohol interlock recorder. *Accident Analysis & Prevention, 33*(5), 609-619.

Marques, P. R., Voas, R. B., Roth, R., & Tippetts, A. S. (2010). *Evaluation of the New Mexico ignition interlock program* (Report No. DOT HS 811 410). National Highway Traffic Safety Administration. https://rosap.ntl.bts.gov/view/dot/1909

Marques, P. R., Voas, R. B., & Tippetts, A. S. (2003). Behavioral measures of drinking: Patterns from the alcohol interlock record. *Addiction, 98*, 13-19.

Robertson, A. A., Zhou, Q. M., Tatch, A., & Walsh, M. (2019). Gender-specific predictors of recidivism among DUI offenders. *Journal of Studies on Alcohol and Drugs, 80*(6), 641-650.

Timken, D., & Marques, P. (2001a). *Support for interlock planning (SIP): Participant workbook.* Pacific Institute for Research and Evaluation.

Timken, D., & Marques, P. (2001b). *Support for interlock planning (SIP): Providers manual*. Pacific Institute for Research and Evaluation.

Timken, D., Nandi, A., & Marques, P. (2012). *Interlock enhancement counseling: Enhancing motivation for responsible driving - A participant's workbook*. Center for Impaired Driving Research and Evaluation.

Willis, C., Lybrand, S., & Bellamy, N. (2004, July 19). Alcohol ignition interlock programmes for reducing drink driving recidivism (Article CD004168). *Cochrane Database of Systematic Reviews*. https://doi.org/10.1002/14651858.CD004168.pub2

Voas, R., Kelley-Baker, T., & Taylor, E. (2013, August 28-30). *Five levels of interlock program monitoring.* Australasian Road Safety Research Policing Education Conference, Brisbane, Queensland, Australia.

Voas, R. B., Tippetts, A. S., Bergen, G., Grosz, M., & Marques, P. (2016). Mandating treatment based on interlock performance: Evidence for effectiveness. *Alcoholism: Clinical and Experimental Research, 40*(9), 1953-1960.

Zador, P. L., Ahlin, E. M., Rauch, W. J., Howard, J. M., & Duncan, G. D. (2011). The effects of closer monitoring on driver compliance with interlock restrictions. *Accident Analysis & Prevention, 43*(6), 1960-1967.

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