TIRF

IMPAIRED DRIVING TECHNOLOGIES TO GUIDE SUPERVISION & TREATMENT



According to the Bureau of Justice statistics, driving while impaired (DWI¹) offenders represented 14% (n= 521,589) of the 3,725,638 people on probation in the U.S. at year-end in 2016 (the most recent year statistics are available) (Kaeble 2018). In addition, DWI offenders represented 1.4% (n= 25,455) of the 1,414,162 in prison at year-end in 2018 (Bronson & Carson 2019). These numbers are likely an underestimate because the total offender population under some form of correctional supervision does not include persons supervised pre-trial or as a diversionary condition without conviction, and DWI offenders may often be included in these populations. Regardless, the large number of DWI offenders under some form of correctional supervision possess diverse characteristics in terms of sex, ethnicity and age. Furthermore, DWI offenders differ in their likelihood to re-offend based on a variety of psychological, sociological, educational, economic, and environmental factors. The heterogeneous nature of this population posses a variety of challenges to the efficient supervision of offenders based on risk.

Technologies play an important role to deter risky behavior by providing valuable information that enhances the supervision and treatment of DWI offenders. However, the selection of an appropriate technology should be based on the application of the risk-need-responsivity (RNR) model. RNR is used to develop recommendations and strategies based on a validated risk assessment. Such an assessment can determine the level of risk to re-offend, factors that can be realistically changed, and types of individualized interventions offenders should receive to reduce recidivism. Technological applications offer flexibility to deliver the appropriate level of supervision based on risk which can change over time. These technologies facilitate swift and customized responses to compliance and non-compliance with court-ordered conditions. Data from the technology helps determine the proper level of supervision and the efficacious use of resources. This can be accomplished by stepping up supervision conditions for non-compliance or stepping down with reduced supervision conditions for continued compliance.

The Working Group on DWI Systems Improvements met on September 16-18, 2019 in Orlando, Florida to learn about and discuss the benefits and implementation issues of technologies being adopted to reduce impaired driving, including law enforcement cameras, ignition interlocks, and various offender monitoring

¹ The abbreviation DWI (driving while impaired or intoxicated) is used throughout this report as a convenient descriptive label and to create consistency, even though some states use other terms such as OWI (operating while impaired or intoxicated) or DUI (driving under the influence), and in some states they refer to different levels of severity of the offense.

technologies. This fact sheet describes ways the data from some technologies can aid in the effective supervision and treatment of DWI offenders. Additional fact sheets in this series discuss *Impaired Driving Technologies & Benefits* and *Impaired Driving Technologies & Critical Implementation Issues*.

What technologies help support supervision and treatment of DWI offenders?

It is important to recognize technologies are not merely sanctions or stand-alone programs. Instead, technologies are tools that can support a comprehensive rehabilitation strategy by enhancing supervision and/or strengthening treatment protocols and objectives in accordance with the individual level of risk each offender poses. A brief overview of technological tools is provided below, and more information can be found in related fact sheets in this series.²

Impaired driving technologies can can support a comprehensive rehabilitation strategy by enhancing supervision and/or strengthening treatment protocols and objectives.

- Alcohol ignition interlock device (IID). A breath alcohol testing device interrupts the flow of electrical power to the starter of a vehicle and prevents it from being started by someone who has been drinking and does not pass a breath test.
- > Transdermal continuous monitoring. These bracelets measure (usually every 30 minutes) the concentration of alcohol present in the insensible perspiration constantly produced and excreted through the skin.
- Ethyl Glucuronide (EtG). EtG is a metabolite produced from drinking alcohol and is used to detect alcohol levels in urine. A positive EtG test usually confirms a person was exposed to ethanol within one to five days, depending on how much alcohol was consumed prior to the urinalysis. The EtG urine test is useful for determining abstinence among DWI offenders.
- > Alcohol breath testing devices. These devices estimate blood alcohol concentration (BAC) from a breath sample. Most breath testers use one of three technologies to measure BAC and there

are many breath testing devices on the market, including handheld, portable and desktop units.

Breath testing devices may be used as a standalone tool or in combination with location monitoring or tracking technology. Three of the most common applications are listed below.



- Radio frequency (RF) monitoring. This wireless communication technology consists of at least two components: an ankle bracelet and a monitoring base station, each one capable of detecting the presence or absence of the other. The technology primarily provides alerts when offenders are not near the base as scheduled. The base station may include a breath testing device and video camera.
- Blobal Positioning System (GPS). This technology consists of a tracking unit navigation device in an ankle bracelet attached to or in a smartphone carried by offenders. GPS tracks the movements of the device to determine its location 24 hours a day, seven days a week. A breath testing device may be a component of or used in conjunction with tracking technology.
- » Kiosk monitor reporting. These devices are typically a computer or an ATMlike machine to which individuals under community supervision can report as an alternative or supplement to traditional faceto-face meetings with a probation officer. A kiosk may have a breath testing device as a component.

What types of data from technologies can inform supervision and treatment?

Preventing and controlling alcohol consumption among impaired drivers is an important priority for practitioners responsible for the supervision and treatment of DWI offenders. Each of the technologies highlighted provide either current or

² For more complete description of each technology, see Impaired Driving Technologies & Benefits.

recent indicators of any alcohol use which is an important risk factor in offending behavior. Simply being aware of levels of alcohol consumption or abstinence can provide evidence of adherence by DWI offenders to court orders, supervision rules and/or release conditions. This data informs the filing of violation or commendation reports with the court and guides adjustments in the level of supervision (e.g., reduced supervision for ongoing sobriety or, conversely, maintaining or tightening of supervision requirements for not remaining abstinent). Awareness of alcohol use among supervised offenders can create opportunities to discuss current beliefs or attitudes and apply behavior modification strategies. Knowledge gained from technologies further allows for documented successes or opportunities for corrective action. Further, sharing data from these devices with substance abuse treatment providers can contribute to progress in treatment by enabling providers to overcome denial and move DWI offenders towards readiness for change and detect risk of relapse. Some technologies also assist in monitoring the movements and schedules of offenders. Information from monitoring and tracking technologies can assist in determining if offenders are where they are supposed to be at different times during the day. This location data can also be used to exonerate offenders if they are wrongly accused.

Data collected or generated by specified technologies can provide helpful information for supervising or treating DWI offenders. Below are some descriptions of the types of data generated by alcohol monitoring technologies and potential uses of the data to enhance supervision and/or treatment.

Data collected or generated by specified technologies can provide helpful information for supervising or treating DWI offenders.

Alcohol ignition interlock devices. IIDs capture data related to the number of failed and successful starts of a vehicle, tampering attempts as well as the date and time of day these occurred. The BAC at the time of the attempted start and during retests after starting the vehicle is recorded and violations (as defined by a state agency) are also documented. Besides indicating attempts to drive after drinking or drive impaired, this information can assist in understanding drinking patterns of DWI offenders. For example, a high-BAC in early morning hours suggests either offenders were drinking early in the day or were significantly inebriated the night before. Either way, this would indicate a need to intervene both therapeutically and correctionally (Assailly and Cestac 2014). Another piece of data captured by IID service center staff is the total vehicle miles driven during the reporting period. Knowing how far someone drives each day can be illustrative of whether the vehicle with the IID installed is regularly driven. Reviewing the driving habits of offenders can also provide insight into levels of compliance or non-compliance. However, data from interlock devices is typically reported monthly at service center appointments unless it is scheduled earlier by a court. This means responses to violations or non-compliance may not occur immediately.



- Breath testing devices. Portable, stand-alone > devices provide an immediate determination of a person's current BAC at any location. They are commonly used by law enforcement during a traffic stop, probation officers doing home visits and correctional residential programs when residents return from time outside the facility. They are employed by 24-7 programs where DWI offenders are required to check-in at a local law enforcement center and provide a breath sample two times each day. They may also be employed by an out-patient treatment program if alcohol consumption by a client is suspected. Data from the breath testing device indicating alcohol use can be used to adjust supervision and treatment strategies accordingly.
- Continuous transdermal monitoring. These devices create a daily record of alcohol use as well as when and how much alcohol was consumed. Knowing the drinking patterns of when and how much alcohol someone consumed is helpful information for a treatment provider to determine whether specific triggers prompt drinking or if offenders are prone to

binge drinking. In addition, this data can inform supervision strategies that can interrupt when and where drinking occurs and demonstrate if there are increasingly longer gaps between drinking instances which may be indicative of efforts toward sobriety. Demonstrated abstinence could result in a series of graduated incentives from the supervising agency.

- EtG. This urinalysis test provides indication of whether someone has consumed alcohol during the past few days. It is primarily used to determine whether someone has been abstinent and may be used to confirm other indicators of drinking.
- Radio frequency with breathalyzer. These devices support home confinement which is commonly used to control and monitor the comings and goings of offenders while also monitoring any alcohol use. Missed curfews and/or a positive test for alcohol use can be an impetus for an arrest warrant, a violation hearing or an adjustment of supervision conditions.
- > GPS monitoring and tracking with a breath testing device. Due to the costs associated with its use these devices are not commonly used with DWI offenders unless the offenders are high-risk to re-offend and there are reasons to closely track their movements (e.g., domestic violence offender). Data from the GPS readout can verify the person's activities throughout the day (e.g., treatment attendance, visit to a drinking establishment). For those people deemed sufficiently high-risk to be tracked by GPS, it is likely any positive alcohol test would result in arrest and confinement.
- Kiosk monitor reporting. This technology is placed in the lobby of a probation office or some other public service location and usually used with low-risk offenders. Not all kiosks can test for alcohol. A kiosk used with DWI offenders should employ a breath testing function. Data from the kiosk is provided to the supervision agency and becomes part of the offender file. Besides the results from a breath test, data collected by the kiosk may include date of check-in, change of address or employment and record of payment towards fees and fines. The kiosk can provide reminders of conditions of supervision or upcoming appointments. It may also give notice of a need to meet with a probation officer.

How can impaired driving technologies increase the effectiveness and efficiency of the DWI system?

An effective and efficient DWI system requires timely and high-quality data to inform decisionmaking for individuals, caseloads, and agencies.

- > Technologies enhance deterrence and support long-term risk reduction. If offenders know that their behaviors are monitored and recorded by a chosen technology, they are more likely to be deterred from engaging in non-compliant behavior. Conversely, receiving incentives for compliant behavior reinforces prosocial behavior. Obtaining timely information about offenders' alcohol consumption allows the supervising agency or treatment program to respond with sanctions for use or incentives for non-use in a swift and certain manner (Lapham & Todd 2012). Behavioral science suggests that justice system responses to violations or accomplishments must be swift or timely to have the greatest impact on behaviors (Glenn & Raine 2014). These responses should be anticipated and understood (certainty principle) by probationers to achieve ideal outcomes. Technologies can help efficiently ensure every violation and success is met with a timely and anticipated result. This strategy strengthens and supports the ability to apply consistent responses to offenders' actions and help to reduce their short- and long-term risk of re-offending.
- Technologies can improve the allocation of resources and achieve a better balance between punishment and rehabilitation. Data produced by various technologies can help identify high-risk offenders and ensure limited resources are not wasted by over-servicing lower-risk offenders. Aggregated data from these technologies can provide epidemiological insight into the scope of the drinking and driving problem. Demographic data includes (e.g. age, sex, employment, residence, ethnicity) coupled with drinking behaviors (e.g., when, where, how much) may provide nuanced information to support the development of



effective individual interventions based on consideration of unique factors. These results can also assist in the development of customized public service campaigns. Understanding the unique characteristics of individual DWI offenders will help ensure a better balance between punishment and rehabilitation and utilize technologies to their full potential.

Technologies can increase understanding of effective countermeasures by aiding program evaluations and tracking program outcomes. Ultimately, the overall goal of DWI countermeasures is to reduce or eliminate impaired driving. All countermeasure strategies and programs should have a set of measurable objectives and outcomes to be achieved in the pursuit of the overall goal. Data from one or more of the technologies deployed can add valuable information to help determine the effectiveness of programs and policies (e.g., number of failed alcohol breath tests, number of failed ignition interlock starts, level of compliance with conditions). Data produced by monitoring technologies can also aid in pinpointing strategy or program areas to change, expand, or replicate somewhere else. The distillation of added data from one or more technologies may assist in targeting, reducing, or increasing funding and resource allocation.

Conclusion

Monitoring technologies help guide supervision and treatment strategies and are valuable tools in the overall effort to reduce and eliminate impaired driving when well-implemented. The technologies presented in this document are not stand-alone programs. They are, to varying degrees, intrusive and pose a cost but provide important benefits. Thus, each provides some measure of punishment. However, that must not be their primary purpose because punishment alone has not been found to be an effective deterrent or behavior modifier (Glenn & Raine 2014). Therefore, any technological tool that enhances supervision and treatment should be properly deployed considering the unique

Technological tools should be used to effectively deter re-offending behavior and further the goal of rehabilitation.

circumstances and characteristics of the individual offender to effectively deter re-offending behavior and further the goal of rehabilitation. Additionally, each monitoring technology can provide data that helps support, measure, and/or elucidate effective countermeasure strategies and programs.

About the Working Group

TThe Working Group on DWI System Improvements is a prestigious coalition of senior leaders of organizations representing frontline professionals in all segments of the criminal DWI system (law enforcement, prosecution, judiciary, supervision, and treatment). During its 15-year tenure, this distinguished consortium has shaped the focus on and development of drunk driving initiatives in the United States with its unique perspective on knowledge transfer of critical research findings, as well as the translation of legislation, policies, and programs into operational practices. The efforts of the Working Group have served to identify critical system needs, to make needed educational materials available, to articulate the complex issues associated with program and policy implementation embedded within broader systems, and to give voice to the concerns of practitioners in the DWI system and identify achievable solutions. Since 2004, the Working Group has met annually to produce much-needed educational primers, policy documents and guides for justice professionals to help strengthen the efficiency and effectiveness of the DWI system for dealing with persistent impaired driving offenders. These documents can be accessed at www.dwiwg.tirf.ca.

- > 2004 Working Group on DWI System Improvements: Proceedings of the Inaugural Meeting
- > 2006 A Criminal Justice Perspective on Ignition Interlocks

10 Steps to a Strategic Review of the DWI System: A Guidebook for Policymakers

> 2007 – Screening, Assessment, and Treatment: A Primer for Criminal Justice Practitioners

Improving Communication and Cooperation

- > 2008 Impaired Driving Priorities: A Criminal Justice Perspective
- > 2009 Impaired Driving Data: A Key to Solving the Problem

Funding Impaired Driving Initiatives

Understanding Drunk Driving

- > 2010 Effective Strategies to Reduce Drunk Driving
- > 2011 Performance Measures in the DWI System
- 2012 Impaired Driving in Rural Jurisdictions: Problems and Solutions

- > 2013 DWI Dashboard Report: A Tool to Monitor Impaired Driving Progress
- > 2014 DWI Dashboard Strategic Guide: Addressing Gaps in the DWI System
- > 2015 Post-Conviction Services for DWI Offenders: Building Community Partnerships
- > 2017 The Persistent DWI Offender Policy & Practice Considerations
- > 2017 Navigating the DWI System Perspectives of Public Defenders
- > 2017 Key Questions that Help Motivate DWI Probationers
- > 2018 Impaired Driving & Road Safety Campaigns
- > 2018 Preventing Alcohol-Impaired Driving What the Public Needs to Know
- > 2019 Impaired Driving Technologies to Guide Supervision & Treatment
- > 2019 Impaired Driving Technologies & Critical Implementation Issues
- > 2019 Impaired Driving Technologies & Benefits

References

Assailly, J.-P., Cestac, J. (2014). Alcohol interlocks and prevention of drunk-driving recidivism. Revue européenne de psychologie appliqueé, 64: 141-149.

Bronson, J., & Carson, E. A. (2019). Prisoners in 2018. Office of Justice Programs, Bureau of Justice Statistics.

Glenn, A. L., & Raine, A. (2014). Neurocriminology: implications for the punishment, prediction and prevention of criminal behaviour. Nature Reviews Neuroscience, 15(1), 54-63.

Kaeble, D. (2018). Probation and Parole in the United States, 2016. Office of Justice Programs, Bureau of Justice Statistics.

Lapham, S. C., & Todd, M. (2012). Do deterrence and social-control theories predict driving after drinking 15 years after a DWI conviction?. Accident analysis & prevention, 45, 142-151.

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