IMPAIRED DRIVING TECHNOLOGIES & CRITICAL IMPLEMENTATION ISSUES

DWI System Improvements working group

Impaired driving has remained a road safety priority for more than three decades despite considerable progress achieved reducing deaths and injuries due to alcohol. Still, alcohol-impaired driving fatalities involving a driver with a blood alcohol concentration (BAC) of .08 or greater accounted for 28.8% of total motor vehicle crash (MVC) fatalities in 2018, or 10,511 lives lost (National Center for Statistics and Analysis 2019). Efforts are needed to accelerate progress reducing this unacceptable death toll. Technologies to detect and supervise impaired drivers can play an important role in deterring impaired drivers and preventing repeat offenses.

Some technologies designed to detect impaired drivers are utilized by a single agency, notably law enforcement, and in these instances the implementation of technology can be streamlined. However, many technologies used to supervise or treat impaired drivers may be led by a single agency but must be coordinated with several stakeholders with different roles and responsibilities within a broader program structure. As such, implementation strategies can significantly influence the level of effectiveness of programs and the outcomes achieved.

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 to reduce impaired driving, including law enforcement cameras, ignition interlocks, and various offender monitoring technologies. This fact sheet contains a brief description of how each technology works and highlights important implementation issues associated with each technology. Related fact sheets address more comprehensively the benefits of using the different technologies and how data generated can assist in the supervision and treatment of DWI[1] offenders.

What types of technologies are used to detect alcohol-impaired drivers?

Law enforcement agencies across the country are currently deploying or are considering the acquisition of dashcams, body-worn cameras, and other forms of video recorded evidence to document interactions with drivers, the public and to support criminal investigations. Recordings by law enforcement and civilians

[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.

have been used in both criminal and civil court cases. These technologies also have applicability to DWI investigations and there are several types of cameras available to, and used by, law enforcement, including:

- **Dashboard cameras.** A dashcam, car digital video recorder (DVR), driving recorder, or event data recorder (EDR) is an onboard camera capable of automatically switching on when officers turn on lights or sirens and continuously records the view through the front windshield of the patrol vehicle.
- **Body cameras.** Body-worn video (BWV), body-worn camera (BWC) is an audio, video, or photographic recording system used to record events involving law enforcement officers. They are typically worn on the torso of the uniform.

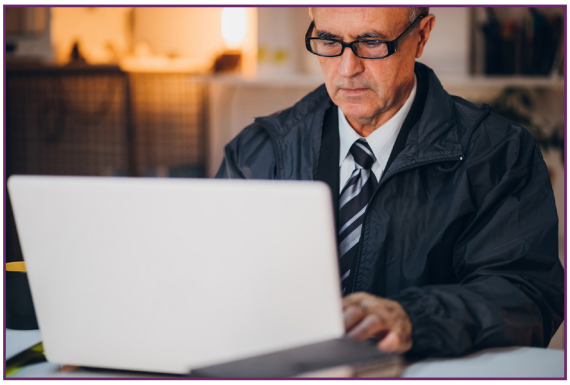
- **Flex glass cameras.** Like the functionality of a body camera, flex glass cameras are a small device which users can attach securely to sunglasses, a cap, a shirt collar, or a head mount.
- **Smartphones.** Work or personal use cell phones provide video and audio recorded interactions as well as still photos.
- **Security cameras.** Public and private security camera recordings can capture interactions from a fixed location. The quality of the camera can have an impact on the usefulness of these cameras.
- **Interrogation room cameras.** Many law enforcement departments require all interviews conducted by law enforcement at the police station to be recorded. These recordings are limited to interviews conducted in a controlled setting.

What priority implementation issues are associated with technologies to detect impaired drivers?

There are a variety of implementation issues associated with the different styles of video recording equipment used by law enforcement agencies. Some of the most important implementation issues are described below.

- **Selecting the most suitable technology.** Prior to choosing a video recording technology, the purpose or objective of the deployment must be clearly stated to ensure everyone involved in its implementation is working towards a common purpose. These decisions should guide the selection of the type of video application best-suited to tackle the identified issues. Objectives may not be self-evident, and stated objectives will influence the direction of implementation and the way it is utilized. This first step will likely require the consultation with and input from stakeholders both inside and outside the department (e.g., line officers, command staff, judges, prosecutors, community advocates). Someone should be assigned to research different options and become familiar with the technologies to serve as a subject matter expert who can both inform those involved in providing input and respond to any questions they raise. Additionally, consultation with departments who have already deployed different options help gain insight regarding practical, everyday use of the technology.
- **Procuring the technology.** Once the appropriate video equipment suiting the needs of the agency is selected, the next issue is procuring the equipment and service. This requires a clear understanding of the desired equipment capabilities and functionalities. The following are some considerations to address in any specifications for vendor bids.
  - **Data.** The data captured from the technology should integrate with the department's computer management systems and/or the department's computer-aided dispatch (CAD) system. This may allow public safety operations and communications to be augmented, assisted, or partially controlled by an automated system. A CAD system can include, among other capabilities, computer-controlled emergency vehicle dispatching, vehicle status, incident reporting, and management information.

» **Storage of video and audio recordings.** It is important the storage of video and audio recordings are secure and are FBI Criminal Justice Information Services (CJIS) compliant. This compliance keeps professionals in criminal justice and law enforcement (at local, state, and federal levels) in agreement about standards for data security and encryption. CJIS databases contain: all necessary information for detaining criminals, performing background checks, and tracking criminal activity. CJIS devised a set of standards for organizations, cloud vendors for software as a service, local agencies, and corporate networks alike. These standards must be adhered to by those parties to ensure best practices concerning wireless networks, remote access, data encryption, and multiple-step authentication.



» **Adaptability of technology.** The technology should be scalable so it can handle a growing workload. This means it should be capable of adapting easily to potential increases in workload. Also, it should have the capacity to adapt over time to changes or be capable of easy updates, expansion or upgrades as necessary.

» **Costs.** All costs related to deploying and maintaining the technology solution should be requested, which include equipment, data storage, maintenance, and staff training.

» **Technical support.** The bidding company should have a track record of working with law enforcement and can demonstrate an understanding of the goals, responsibilities and challenges of the department and their environment. The technical support the bidder will provide during the contract should also be described.

> **Developing policies and procedures.** Prior to implementing the use of any kind of cameras, there must be comprehensive policies to guide their use and avoid illegalities and inconsistencies in officer usage. The policies should clearly state the reason for utilizing the chosen camera application or why the policy exists. It is also important to consult with other agencies using the same type of camera to be implemented and accessing their policies and procedures as examples of practice.

Policies and procedures should clearly indicate how security protocols ensure data protection, integrity and availability and must comply with privacy and confidentiality laws. This will likely require consultation with government attorneys to assist in the writing of policies considering complex regulations, privacy laws, and civil rights issues. Organizations like the International Association of Chiefs of Police have developed policy guidance in this area.[2]

For any camera application requiring officers to control when the camera is on or off, policies must clearly establish when officers are to switch their cameras on or off. In some states it is illegal to secretly record someone, therefore officers may need to notify people when they are recording. As such, the policy should specify how and when this will occur.

Policies must clearly establish when officers are to switch their cameras on or off and in some states officers may need to notify people when they are recording.

The policies should designate specific individuals responsible for footage and how it is deemed relevant or irrelevant to investigations, as well as how determinations are reached. This includes a policy describing how officers can flag relevant footage. Policies need to include clear and concise chain of custody procedures including time, location, circumstance and who, beside the officer, had possession of the camera or its recordings. This would also include whether an officer can view recordings prior to completing an incident report or at any other time. The policies should indicate who has the authority to allow access and who (e.g., prosecutor, defense, public and press, courts) has access to

[2] https://www.theiacp.org/sites/default/files/all/b/BodyWornCamerasPolicy.pdf

footage and under what circumstances. This will require clear guidance related to how and when recordings can have redactions to protect people's identity. The policies and procedures should clarify the length of retention of footage and how to ensure the security of confidential and/or private data as well as the time, place, and circumstances of a recordings disposal or release.

Regular review and updating of policies and procedures with feedback and input from all levels of the command structure can be important to building and maintaining the trust essential for ongoing buy-in.

- **Training in the proper use of the technology.** All department personnel will require training on the policies and procedures as well as all aspects of camera functionality and use to ensure proper handling and appropriate operation of cameras. Achieving staff buy-in for the utilization of cameras can be a serious challenge to their implementation. Distributing policies and training staff on the policies and procedures are an essential step to getting initial buy-in. Also, vendors usually have training programs on the functionality, proper use, and care of their cameras.
- **Administrative support.** The implementation of cameras requires someone to handle and electronically file footage while maintaining chain of custody. Different cameras will likely require different procedures. Someone will also need to ensure cameras receive regular maintenance and coordinate with the camera vendor if their cloud data storage is utilized.

What technologies prevent an alcohol-impaired driver from starting a vehicle?

Alcohol ignition interlock devices (IID) are used primarily to incapacitate convicted impaired driving offenders (i.e., prevent them from driving under the influence of alcohol). An IID is an alcohol breath testing device connected to the starter of a vehicle to prevent it from being driven by someone who has been drinking. The driver must provide an alcohol-free breath sample to start the vehicle. Many IIDs also have a camera attachment to identify the person providing the breath sample.

Implementation issues related to these technology options are described below.

- **Developing policies and procedures.** There are many policies and procedures needed to avoid gaps in program operations. The policy document should begin by clearly spelling

out the over-arching goal of the program and include the language from the enabling statutes and regulations.

  - **Responsibilities.** Perhaps the most important policies are those defining the responsibilities of different agencies and staff involved in the management or coordination of a statewide interlock program. Additionally, responsibilities should be defined for agencies and staff who have involvement with the program through contact with court-ordered IID drivers (e.g., law enforcement, probation). This should include clearly delineated lines of and requirements for necessary communication between all involved parties.
  - **Data collection.** Policies should indicate the type of data to be collected as well as the format and frequency with which it is reported. At a minimum, data captured should include:
    - vehicle information;
    - mileage at servicing;
    - servicing dates;
    - positive breath tests;
    - tampering/circumvention attempts;
    - lockouts; and,
    - emergency overrides.
  - **Data protection.** Policies and procedures should clearly indicate how security protocols will ensure data protection, integrity, and availability as well as compliance with privacy and confidentiality laws. This will likely require consultation with experts to assist in the writing of policies considering complex regulations, privacy laws and civil rights issues. Organizations like the National Highway Traffic Safety Administration (NHTSA) and the Association of Ignition Interlock Program Administrators (AIIPA) have developed guidance in this area.

- **Indigency and affordability.** A policy to establish and manage an indigent offender fund is needed in jurisdictions with this program feature. The policy should document how offenders unable to afford the fees associated with an IID will be handled by creating objective criteria to determine eligibility and allowable costs. It should also indicate what agency is responsible for the fund administration.

A policy must be established for indigent offenders who are unable to afford the fees assoication with an IID.

Other important policy areas to be addressed include but are not limited to:

- agency responsibility for one or more program features;
- program evaluation;
- service center licensing/certification requirements, installation, inspection procedures, and proximity;
- procedures for suspending the license/certification of vendors failing to comply with state requirements and regulations;
- eligibility requirements, enrollment procedures, and participation obligations;
- installation procedures and scheduled service center visits and monitoring;
- driver reporting requirements;
- violations and administrative sanctions (e.g., equipment circumventions or tampering) and how to handle non-compliance or failed starts (BAC lockouts); and,
- unique issues an offender may present (e.g., one vehicle with multiple drivers, multiple program participants with one vehicle, no vehicle owned).

> **Ensuring administrative support.** The presence of interlock enabling legislation allowing the courts, Department of Motor Vehicles (DMV), state patrol or highway safety offices to implement an interlock program is vital. However, this legislation alone is likely inadequate if there are not sufficient funds appropriated to develop and manage the program. Administrative costs, including increased workloads and operational systems established to manage a higher volume of cases, are usually absorbed by states. There are several administrative costs to be considered when developing and implementing an effective interlock program, such as staffing (e.g., program coordinator, service center inspectors). Additionally, multiple IID vendors will require vetting and coordination and must be able to deliver training to different groups of practitioners (e.g., law enforcement, courts, prosecutors, probation). In addition, service centers should be inspected and certified, and outcome data should be collected and presented.

> **Involving stakeholders.** Agencies responsible for putting into practice any of the tasks associated with the interlock program need to be part of the planning. The capacities, finances, and needs of these agencies should be considered in the development of operational plans to attain program goals, while also helping to identify potential problems to be addressed.

> **Implementing the program.** Individual states have refined operational and data requirements for interlock devices certified for use to meet state-specific program goals and objectives. Jurisdictions deciding to implement an IID program should consider conferring with one or more of these states to get their assistance with developing bid specifications of the technology and service provisions for the procurement process as well as getting their recommendations on companies providing services. Also, there are recommended performance standards and data-recording systems for the devices developed by NHTSA referred to as the Model Specifications for Breath Alcohol Ignition Interlock Devices. There are several reputable companies manufacturing and/or providing IIDs and related services. Many states have chosen to allow more than one interlock company to provide IID services.

The data from the technology should ideally integrate with the end-user department's computer management systems to eliminate double data entry. At a minimum, the electronic reports from the service provider should be easily converted to the end user's case management system.

> **Determining cost to the offender.** Offender costs associated with the interlock devices include device installation and maintenance costs, calibration, data collection services, device failed lockout reset fees, and removal fees.

Installation costs average about $70 to $90. Monthly fees associated with downloading and reporting data captured by the interlock are about $70 on average, equating to $3 to $4 per day. There are offenders who may be unable to afford the fees associated with an IID. Therefore, it is important to consider the development of an indigent offender fund based on objective criteria.

- **Communicating with other states.** It is not unusual for DWI offenders to be arrested and convicted in a state other than where they live while traveling for work or leisure. It is recommended prior to the implementation of an interlock program a plan be developed to establish reciprocity and provide interlock coordination with, at least, neighboring jurisdictions which can ensure offender accountability. Vendors located in neighboring states may be a consideration as part of vendor selection and oversight.

What technologies determine recent or past alcohol use?

There are numerous technologies available to determine whether impaired drivers are consuming alcohol when they are required to remain abstinent. These technologies can measure alcohol either as a sole purpose or as part of one or more functions provided by the technology.

- **Transdermal continuous monitoring bracelets.** These wearable monitoring bracelets measure the concentration of alcohol present in the insensible perspiration excreted through the skin approximately every 30 minutes. At least once a day the data from the bracelet is downloaded to a base and sent to the monitoring center.
- **Ethyl Glucuronide (EtG).** The biomarker known as 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 alcohol within one to five days, depending on how much alcohol is consumed, leading up to the urinalysis. EtG tests are extremely sensitive and detect low levels of alcohol ingestion making it a useful test to determine abstinence.

What technologies determine current alcohol use?

- **Breath testing devices.** This technology is used for estimating alcohol consumption using a breath sample. Most breath testing devices use one of three technologies to detect alcohol in breath. Some breath testing devices have wireless connectivity, facial recognition, tamper detection, and real-time reporting to a designated monitor. Some are desktop units and others are portable.

  Breath testing devices may be a component of or used in combination with tracking or monitoring technology, as described below.

  - **Radio frequency (RF) monitoring.** RF is a wireless communication technology consisting 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 RF tag in the bracelet transmits a signal to the monitoring base. The technology primarily provides alerts when offenders are not near the base as scheduled. The base station may include a breath testing capacity and video camera.
  - **Global Positioning System (GPS) tracking unit.** GPS is a navigation device in an ankle bracelet or included in a smartphone carried by offenders. GPS has the capacity to track the device's movements and determine its location. This makes it possible to track the person 24 hours a day, seven days a week. For instance, if a DWI offender goes to a bar or liquor store, the monitor can notify the supervising authority, or it will show up on a provided report from the monitoring center. If breath testing is a component of or used in conjunction with tracking technology, offenders could be contacted by the supervising authority and asked to provide a breath sample.

- **Kiosk monitor reporting.** This technology is typically a computer or an ATM-like machine to which individuals under community supervision can report as an alternative or supplement to traditional face-to-face meetings with a probation officer. Kiosks are often located in probation offices, courthouses, or police departments. A kiosk with a breath testing capability typically uses biometric fingerprint authentication to verify the identity of the individual, captures video as it administers the breathalyzer test, and automatically uploads the test results to offenders' files.

What are priority implementation issues associated with alcohol monitoring technologies?

- **Selecting the most suitable technology.** Prior to implementing any alcohol monitoring technology, it is important to first identify the goal of using alcohol monitoring. This first step likely requires consultation with and input from stakeholders (e.g., judges, prosecutors, probation, community advocates). Someone needs to be assigned to do research on different options and become familiar enough with the technologies to serve as a subject matter expert who can both inform those involved in decision-making and respond to any questions they raise. Consultation with departments who have deployed different options is helpful. As described above, there are several applications to consider. It is important, for example, to decide whether it is essential to have immediate knowledge of current alcohol use or, perhaps, the person's location during testing.
- **Procuring the technology.** Once a technology has been selected, it is important to have a clear understanding of the desired equipment capabilities and functionalities. Here are some considerations of which bid specifications should seek to clarify from vendors:
  - All costs related to deploying and maintaining the technology should be requested and include equipment, data storage, maintenance and staff training.
  - The bidding company should have a track record of working with DWI populations and can demonstrate an understanding of the goals, responsibilities and challenges. The technical support the bidder will provide through the length of contract should also be defined.
  - Data captured should be transmitted and stored by the vendor and be integrated with the automated case management system of the entity deploying the technology to eliminate the need to re-enter the data into a separate system.
- **Developing policies and procedures.** There are many policies and procedures needed to avoid implementation issues. The policy document should begin by clearly spelling out the over-arching goal of the program and include any language from enabling statutes and regulations.
  - **Data protection.** Policies and procedures should clearly indicate how security protocols will ensure data protection, integrity and availability, and comply with privacy and confidentiality laws. This will likely require consultation with experts to assist in the writing of policies considering complex regulations, privacy laws and civil rights issues. The policy should contain a template for the release of information in cases where testing results are to be shared with, for example, treatment providers.

Policies and procedures should clearly indicate how security protocols will ensure data protection, integrity and availability, and comply with privacy and confidentiality laws.

  - **Responsibility.** Depending on the technology employed, policies should describe who is responsible for one or more of the following functions:
    - installing/removing a monitoring or tracking ankle bracelet;
    - administering the test;
    - monitoring information from the technology and transmitting to the appropriate party;
    - responding to an alcohol positive test or monitoring/tracking alert;
    - coordination with the vendor and/or monitoring center or testing laboratory to ensure chain of custody is followed;
    - calibration of the alcohol detecting instruments; and,

- collecting aggregate data for outcome reports.

> **Determining the cost to the offender.** Offender costs associated with the use of any of the technologies need to be considered and determined. Costs may include daily use fees, device installation, specialized supplies, maintenance costs, calibration, data collection services, and supervision fees. Transdermal monitoring and GPS tracking are probably the costliest of the technologies listed and daily costs can be from $5 to $15 per day. They may have one-time installation fees as well. There are offenders who will be unable to afford the costs associated with a monitoring technology. Therefore, it is important to consider the development of an indigent offender fund based on objective criteria.

What are some of the unique implementation issues associated with specific technologies?

> The EtG urine test is useful for determining abstinence but can also lead to some false positives if the person was exposed to one of many products containing alcohol (e.g., mouthwash). This type of test measures previous alcohol consumption, so it is not considered a standard test for individuals suspected of impairment while driving or at work. The EtG test is based on a urine sample from the offender which requires a thoughtful collection protocol for males and females.

> Transdermal technology measures alcohol when it is metabolized and excreted as opposed to absorbed meaning there is a 30-minute delay between consumption and detection. There is some question about the reliability to detect anything other than heavy drinking levels of approximately four standard drinks for females and five for males when these are consumed in less than three hours. Also, remote alcohol monitoring requires user cooperation to download the data from the ankle bracelet.

> Technologies utilizing a breath test require servicing of the device to ensure calibration is accurate. Portable breath testers may require staff to administer the test, and devices including place-based monitoring or tracking applications require comprehensive offender instruction to ensure appropriate test procedures.

> The implementation of some of the monitoring options requires a landline telephone to download data from the ankle bracelet to the monitoring center. This can be an intrusive hardship for family members who rely on the landline.

Conclusions

The technologies highlighted in this fact sheet can increase the efficiency and effectiveness of criminal justice supervision and treatment of DWI offenders. Technologies designed to assist in the apprehension, prosecution, supervision, or treatment of DWI offenders pose a variety of implementation issues that must be considered in order to achieve intended goals. The lack of a well-planned implementation strategy of any technology ultimately undermines its usefulness, effectiveness, and desired outcomes. Moreover, the implementation of such technologies creates obligations and responsibilities for agencies to ensure appropriate use to mitigate liability. Finally, it is essential to recognize and appreciate technologies are tools and each technology in and of itself is not a solution.

Implementation of impaired driving technologies creates obligations and responsibilities for agencies to ensure appropriate use to mitigate liability.

About the Working Group

The 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

National Center for Statistics and Analysis. (2019, December). Alcohol-impaired driving: 2018 data (Traffic Safety Facts. Report No. DOT HS 812 864). Washington, DC: National Highway Traffic Safety Administration.

Traffic Injury Research Foundation

The mission of the Traffic Injury Research Foundation (TIRF) is to reduce traffic-related deaths and injuries. TIRF is a national, independent, charitable road safety research institute. Since its inception in 1964, TIRF has become internationally recognized for its accomplishments in a wide range of subject areas related to identifying the causes of road crashes and developing programs and policies to address them effectively.

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