# MICHIGAN DWI/SOBRIETY COURT IGNITION INTERLOCK EVALUATION

## 2016 REPORT

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# INTRODUCTION & BACKGROUND

## Purpose of the Report

This report was commissioned by the Michigan Association of Treatment Court Professionals (MATCP) and was produced in cooperation with the State Court Administrative Office (SCAO). Its purpose is to provide the legislature, the Secretary of State, and the Michigan Supreme Court, documentation related to the program participants‟ compliance with court ordered conditions, their progress through the program, and the outcome(s) of being placed on interlock restrictions. This document is the fifth annual report: it provides the reader with an overview of issues pertaining to ignition interlock programs in Michigan, nationally, and internationally. It also summarizes the study design, provides a description of the data, analyzes the operation and effectiveness of the DWI/Sobriety Court interlock program, and discusses innovative practices, obstacles, and lessons learned from the five year study.

## Use and Audience

This report is directed toward legislators, court administrators and other criminal justice practitioners who are interested in the use of ignition interlock devices as a means of controlling and reducing drunk driving recidivism in the state of Michigan. Section 1 provides the reader with supplemental information regarding the nature and extent of drunk driving, and the use of interlocks to monitor and control offenders beyond the issues discussed in previous reports. Following this review, Sections 2 and 3 provide the methods and findings of the 2016 Ignition Interlock Program in Michigan. Finally, Section 4 provides the reader with general conclusions, and a summary of the five year evaluation.

# TABLE OF CONTENTS

# EXECUTIVE SUMMARY

## Overview

This report was commissioned by the Michigan Association of Treatment Court Professionals (MATCP), in cooperation with the State Court Administrative Office (SCAO). Its purpose is to provide the legislature, the Secretary of State, and the Michigan Supreme Court documentation related to the operation of the Michigan DWI/Sobriety Court Ignition Interlock Program. This section represents a summary overview of the findings in the 2016 report.

## The Present Study

The primary goal of this study is to determine whether ignition interlock devices are an effective means to control drunk driving recidivism among chronic DWI offenders. More specifically, this study was guided by the following research objectives:

a) The percentage of program participants ordered to place interlock devices on their vehicles who actually complied with the order;
b) The percentage of program participants who removed court-ordered interlocks from their vehicle without court approval;
c) The percentage of program participants who consumed alcohol or controlled substances;
d) The percentage of program participants found to have tampered with court-ordered interlocks;
e) Relevant treatment information about program participants; and,
f) The percentage of program participants convicted of a new drunk driving offense.

To accomplish this goal, the present analysis compares: 1) subjects enrolled in the Ignition Interlock Program (the experimental group, total n=834), to 2) a DWI/Sobriety Court comparison sample drawn prior to the creation of the interlock program (first comparison group, total n=508), and also to a sample of standard probationers drawn from across the state of Michigan (second comparison group, total n=729). The data were obtained through the Michigan Drug Court Case Management Information System (DCCMIS) and the Michigan Judicial Data Warehouse (JDW).

This research is based on data drawn from five purposefully selected partner courts that are representative of the state of Michigan in the context of: 1) region 2) level of urbanization and 3) population:

- The 61st District Court (Grand Rapids; Kent County).
- The 86th District Court (Traverse City; Grand Traverse County).
- The 8th District Court (Kalamazoo; Kalamazoo County).
- The 96th District Court (Marquette; Marquette County).
- The 51st District Court (Waterford; Oakland County).

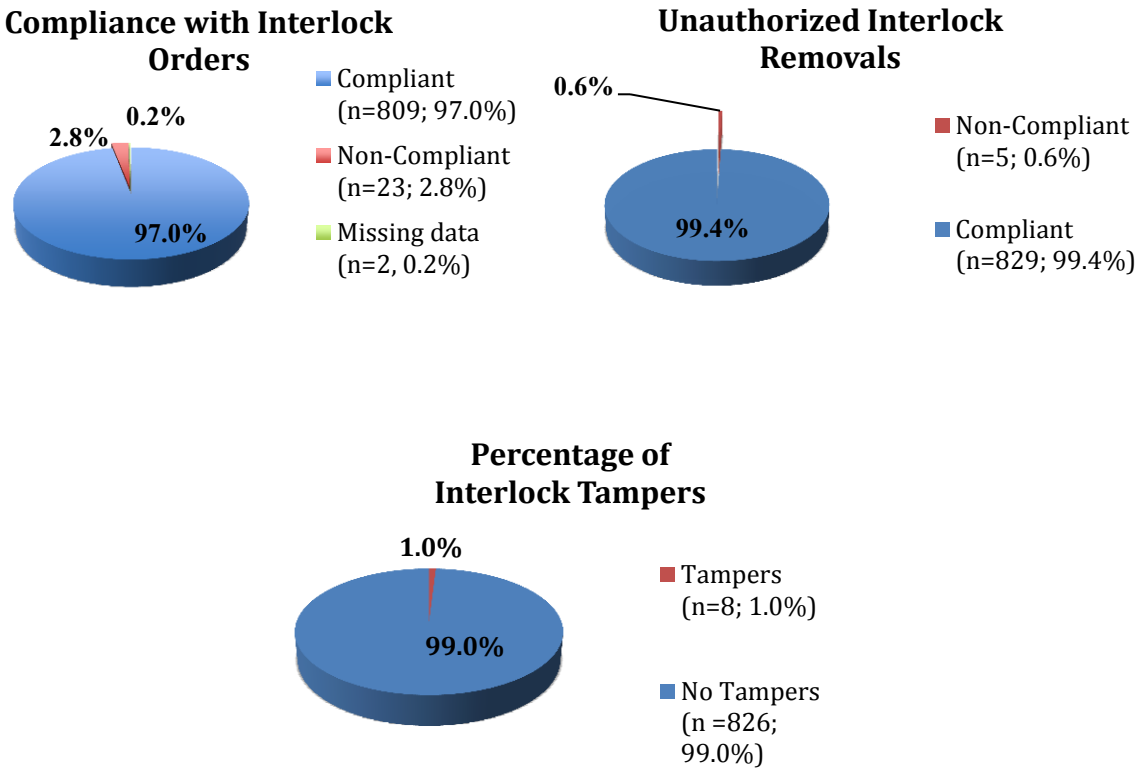
## Key Findings

Based on analysis of data from five years of this project, the ignition interlock program has been generally successful; it appears that ignition interlocks represent an evidence based method of reducing recidivism (particularly DWI recidivism), among repeat drunk drivers in the state of Michigan. Specifically:

- An estimated 97.0% of interlock program participants ordered to install interlock devices on their vehicles have complied with those orders;

- Approximately 0.6% of interlock program subjects removed the interlock devices without authorization; and
- Approximately 1.0% of the Interlock Program Participants tampered with a court ordered interlock;.

All of this data is graphically summarized below:



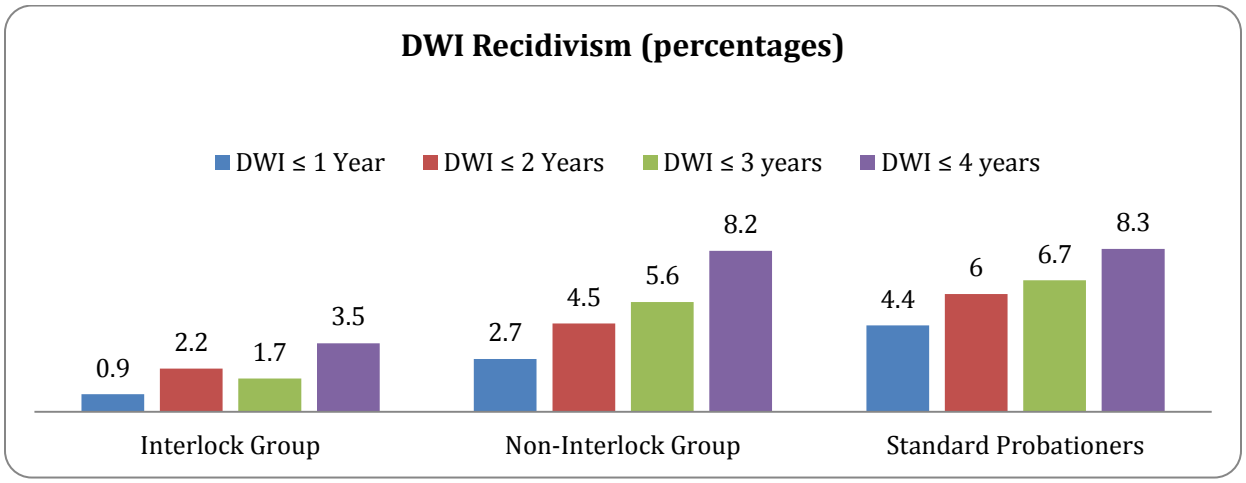

- Alcohol and drug use among Interlock Pilot Program Participants is substantially lower in comparison to similar offenders not under interlock supervision;
- Ignition interlock clients were more likely to improve their levels of education between the start and the completion of their programs. They also received significantly higher numbers of incentives/rewards from the courts, attended more 12-step meetings, were drug tested more often (but were less likely to test positive), spent less time in jail, had fewer warrants issued against them, had fewer treatment contact hours, and enjoyed a higher number of overall sobriety days.
- The "typical" Interlock Program Participant is Caucasian, male, single and is approximately 34 years old. The demographic characteristics of the Non-Interlock Group are relatively similar to those of the pilot program subjects.
- In comparison to the Interlock Program group, Non-Interlock comparison subjects are less likely to have full time employment and report lower levels of education. They are also less likely to have received previous treatment for substance abuse issues and have somewhat more "complex" drug abuse histories.
- With respect to overall program success, in the Interlock Program group, 591 clients successfully graduated from DWI/Sobriety Court by the end of 2015: only 76 failed (a failure rate of 11.4%).

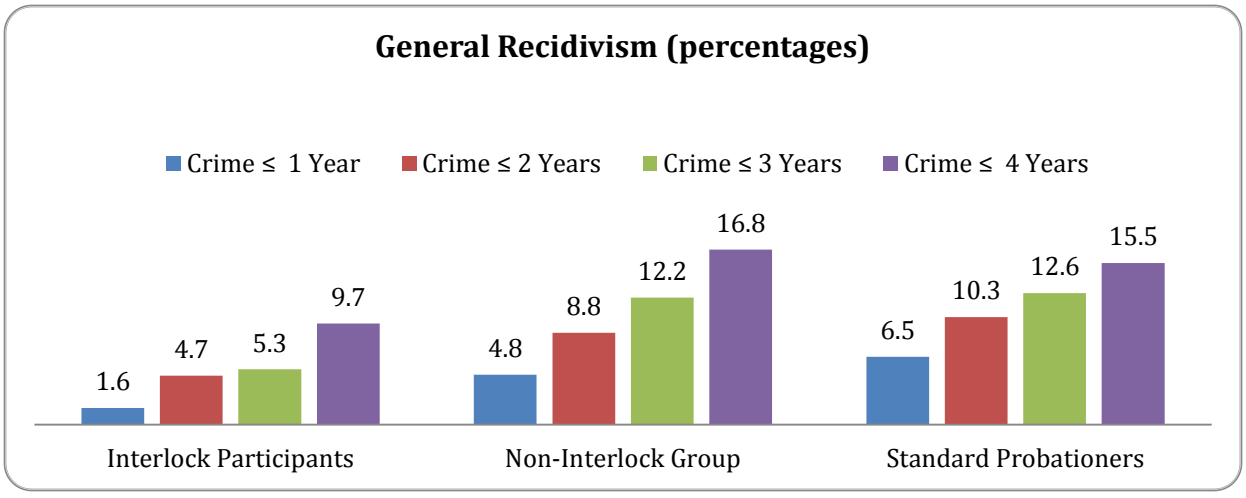
By way of contrast, in the DWI/Sobriety Court comparison group (absent of ignition interlocks), 137 out of 404 clients did not successfully complete their programs (a failure rate of 33.9%).

- Multivariate analysis controlling for demographic and background characteristics of offenders validated this finding: offenders not under interlock supervision have over 3.2x greater odds of "failing out" of DWI/Sobriety Court than offenders who are in the pilot program.

With respect to recidivism, this 2016 study found that:

- In comparison to the non-interlock offenders in DWI/Sobriety Court, and Standard Probationers, Interlock Program Participants have the lowest recidivism rates for operating under the influence after one, two, three and four years of follow up;
- Interlock Program Participants have the lowest recidivism rates for all criminal offenses after one to four years of follow up.



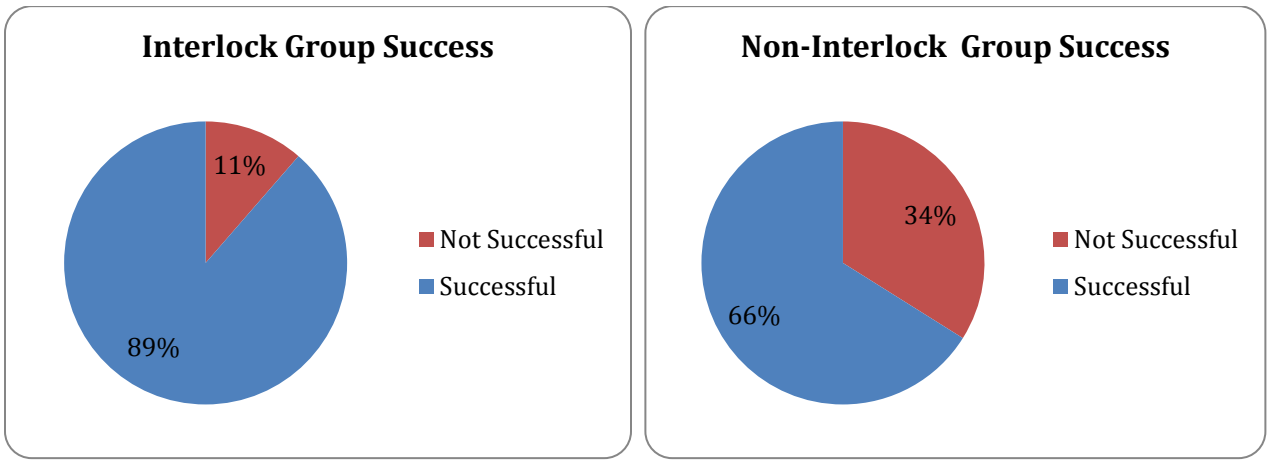
**Program Success Rates**

The data shows that Interlock Program Participants have a significantly better success rate compared to the Non-Interlock Group. In the Interlock Group, almost 89% successfully graduated, as compared to approximately 66% of the Non-Interlock Group.

**Program Success Rate**

| | Interlock Program Participants (N=667) | | Non-Interlock Group (N=404) | |
|---|---|---|---|---|
| | n | % | n | % |
| **Program Success** | | | | |
| No | 76 | 11.4 | 137 | 33.9 |
| Yes | 591 | 88.6 | 267 | 66.1 |

**Interlock & Non-Interlock Group Success Rates**




Insight into the operation of the Ignition Interlock Program during its fifth year of operation was gained through a series of informal telephone conversations with partner courts conducted during the Fall, 2015. Generally, both court staff and clients are extremely pleased with the program. A few minor technological, legal and procedural difficulties were noted, but none had a significant impact on the effectiveness of the program

# SECTION 1: THE LITERATURE

## DRUNK DRIVING IN THE NEW MILLENNIUM

The issue of drunk driving is a world-wide problem. Research by the World Health Organization (2010) has determined that 20-50 million people are injured and 1.2 million are killed in road crashes annually: alcohol is estimated to be a factor in 33-69% of these fatal crashes. The World Health Organization (2015) has also concluded that one of the key risk factors for road traffic injuries is "drink driving" where the risk significantly increases at blood alcohol concentrations of .04 and higher. The WHO also estimates that 15% of all vehicular fatalities are attributed to drinking and driving. In the European Union, where many countries currently have lower BAC tolerance levels for drunk driving than the United States, approximately 25% of all traffic-related deaths are nevertheless attributed to drunk driving (International Transport forum, 2008).

Drunk driving is also an issue in the United States. Voluntary roadside surveys which have measured driver BAC levels since 1973 (and have been conducted a total of five times since then), show reductions in the number and percentages of drunk driving in the US. The latest 2013-2014 survey data found that drivers with a BAC of .08 or higher decreased from a high of 7.5% in 1973 to 1.5% of drivers in 2013-2104. Total alcohol positive drivers, meanwhile, decreased from a high of 35.9% in 1973 to a low of 8.3% in the 2013-2014 study (Berning, Compton & Wochinger, 2015). While these statistics suggest that public attitudes and behaviors are changing regarding drinking and driving, drunk driving remains a serious problem in the United States. For instance, arrest data from the FBI (2015) shows that in 2014, over 1.1 million individuals were arrested for drunk driving. Current estimates from the Center for Disease Control (CDC) (2015) and the National Highway Safety and Transportation Administration (NHSTA) show that 31% of all motor vehicle accidents are alcohol-related. It was also determined that drunk driving fatality trends remain "stubbornly constant" where approximately 1/3 of all fatal crashes are attributed to drunk driving (Lyles, 2015). Thus, although drunk driving deaths were reported to have decreased, 10,076 people nevertheless died in alcohol-related crashes in 2013; this translates to one drunk-driving related death every 52 minutes in the United States (Ucles, 2014). Additional estimates from NHSTA also show that in 69% of all vehicular crashes involving a fatality, at least one driver had a BAC of .15 or higher (Ucles, 2015). Of these fatalities, drivers involved in fatal crashes were six times as likely to have a prior conviction for DWI (CDC, 2015). Consequently, the chronic, repeat drunk driver remains an "elusive target" in the context of detection and treatment (Jones & Lacey, 2000).

Drunk driving is also an issue in the state of Michigan. According to the Michigan State Police 2014 Drunk Driving Audit (2015), 33,480 persons were arrested for drunk driving in 2014; 39% of those who submitted to a breath test had BAC levels of .17 or higher. Meanwhile, of the 947 traffic deaths in 2013, in 33% of the incidents, the driver of the vehicle had a BAC of .08 or higher (NHTSA, 2015).

### The 2016 Report

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## DRUNK DRIVING: A BRIEF HISTORY

The issue of drunk driving is basically as old as mechanized forms of transportation. One of the earliest recorded incidents of drunk-driving was in 1897 in London, England where George Smith, a cabdriver, plead guilty and was fined 25 shillings for crashing his vehicle into a building (This Day in History, 2016). In the United States, meanwhile, alcohol consumption is a cultural component of American society and was recognized as a social problem and a safety issue as early as the 1800s. As early as 1843, the New York Central Railroad prohibited on-duty alcohol consumption for its railroad employees. Later, in 1899, the American Railroad Association adopted rules that also prohibited alcohol consumption. Even employees recognized the dangers of operating while under the influence of alcohol. In 1902, railroad unions voted to ban the consumption of alcohol while working (Jacobs, 2013; Borkenstein, 1985). With the growth and use of the personal automobile as the preferred means of transportation, drunk driving became and has remained a persistent social problem. Some authors have even proposed that historically, drunk driving is "intimately integrated with the American life-style" (Ross, 1994; p. 6).

### Era 1: Early Efforts: Legislation & Definitional Issues

Some of the first drunk driving statutes in the United States can be traced to the states of New York and California which enacted drunk driving legislation in 1910 and 1911 respectively (Freeman, 2007). Following the repeal of Prohibition (1920-1933), the issues of drunk driving re-emerged in the United States. In 1934, the American Automobile Association raised the need for better laws, enforcement, and educating the public on the dangers of drunk driving (Marsh, et al. 1935). By the early 1950"s, all 48 states and the District of Columbia had passed drunk driving statutes (Boyd, 1954).

Following the creation of legislation, the need for effective detection methods to secure convictions based on proof that the suspect was indeed intoxicated or drunk emerged in the 1930"s. One of the first devices that measured blood alcohol concentrations in the breath was invented in 1938. Coined the „Drunkometer" by its inventor, Rolla N. Harger, a biochemist at the University of Indiana Medical Center, this device relied upon measuring blood alcohol concentrations in the person"s breath (Harger, 1949). Later, the state of Indiana passed the first law defining drunk driving on the basis of the suspect"s blood alcohol concentration. "Drunkometers" were located at each police post throughout the state to test suspects. Besides the drunkometer, other methods were explored in the 1930"s and 1940"s that included, blood, urine and saliva tests to accurately measure BACs. More advanced procedures and technologies, including the Breathalyzer (which was invented in 1955) were developed through the 1970"s (Forrester, 1979; Downey, 1949).

These chemical tests were accepted by the courts. As early as 1941, the state of New York allowed the admissibility of alcohol chemical tests in drunk driving cases (Sukloff, 1950). The State of New York, in 1953, is credited as the first state to have legislation requiring drivers to submit to a chemical test for drunk driving (Weinstein, 1955). By 1961, 34 states and the District of Columbia had specific legislation that allowed the admissibility of chemical tests in drunk driving cases. In some cases, however, issues related to the legality and reliability of the data generated from these instruments arose, raising admissibility issues, and discussions pertaining to the constitutionality of chemical tests. However, refinements of these devices later led to improved accuracy (Forrester, 1979; Mamet, 1945).

Besides technologies in measuring blood alcohol concentrations, another issue that existed during this era was related to a discussion of what BAC concentration actually rendered a person unable to safely operate a motor vehicle. To assist and clarify what actually constituted a "drunk driver," model statutes were created. In 1938, a joint committee of National Safety Council and the American Medical Association created a "Model Chemical Test Law" that was eventually adopted by the majority of states These statutes created three classes of drunk drivers: "1. If there was at that time 0.05 per cent or less by weight

of alcohol in the defendant's blood, it shall be presumed that the defendant was not under the influence of intoxicating liquor; 2. If there was at that time in excess of 0.05 per cent but less than 0.15 per cent by weight of alcohol in the defendant's blood, such fact shall not give rise to any presumption that the defendant was or was not under the influence of intoxicating liquor, but such fact may be considered with other competent evidence in determining the guilt or innocence of the defendant; 3. If there was at that time 0.15 per cent, or more by weight of alcohol in the defendant's blood, it shall be presumed that the defendant was under the influence of intoxicating liquor" (Campbell, 1960, p. 44).

Of interest is that during this time period the .15 BAC level was met with criticism by some scholars who argued that it was too lax a standard. Research in the 1950‟s suggested that a BAC of 0.05 would impair the driving ability the driving ability of *some* individuals, while a BAC of .10 would *definitely* impair the driving ability of all drivers (see Campbell, 1960). Nonetheless, the .15 BAC standard was used well into the 1970s and beyond in many states (Schlesinger & Zawtz, 1988). In fact, it was estimated that before 1980, only 15 states had drunk driving statutes that proscribed a certain blood alcohol concentration to be considered a "drunk driver" (Jacobs, 1989).

Definitional issues were also an issue during this era. One particular issue was the legal criteria of what constituted a drunk driver. In particular, the term "intoxicated" and "under the influence" had no accepted meaning or definition in many states the 1950s. For example, Bungee (1957) wrote that at this time there were three categories of conduct punishable by the courts: "those which prohibit impairment of the driver's ability in the slightest degree (so slight that it can go undetected by witnesses of his conduct); those which prohibit the appreciable impairment of the driver's normal control of his body and mental faculties (conduct that could probably be witnessed by others); and those which prohibit the impairment in an appreciable degree of the driver's ability to operate the motor vehicle in the manner that an ordinarily prudent and cautious man, in full possession of his faculties, using reasonable care, would use in driving a similar vehicle under similar conditions" (p. 56).

This era also saw the emergence of drunk driving research. The state of Indiana‟s 1941 State Police report, for example, raised some anecdotal concerns about traffic fatalities and drinking where it was stated: "we have reason to believe that more of our accidents are due to drunken driving that we can be sure about." (Stivers, 1941; p. 95). This report also categorized drunk drivers. The author of the report stated that it was not the "dead drunks" who were responsible for traffic deaths; instead, drivers who were "pleasantly aglow" were the most dangerous. One of the first studies on drunk driving was by Popham (1956) who determined that drunk driver arrests involved proportions of young drivers and alcoholics. Later Smart and Schmidt (1959, 1960) called for criminologists to study the social and personal characteristics of the alcoholic drunk driver, arguing that alcoholics represented a high risk group of offenders. They also were among the first researchers to propose that treatment could reduce recidivism among offenders (Schmidt & Smart, 1959).

### Era 2: Growing Federal Interest: the 1960s and 1970s

Beginning in the 1960‟s and 1970s, the US government and private sector organizations became involved in the issue of drunk driving and alcohol consumption in the United States, leading to policy changes that were directed toward alcohol (and drunk driving) as a public health issue (Pennock & Kerr, 2005). One of the first times the federal government became involved with the issue of drunk driving was with the passage of the Highway Safety Act of 1966. This Act created the National Highway Safety Bureau (now called the National Highway Traffic Safety Administration) which required states to have highway safety programs. Later, in 1968, the US Department of Transportation published the report "Alcohol and Highway Safety" where it concluded that drunk driving is a "major source of human morbidity" (p. xiv) and stated that effective countermeasures were necessary to address the issue (Jacobs, 1989). Then in 1970, the NHTSA created the Alcohol Safety Action Project (ASAP) which provided funding to select

communities in the United States to increase enforcement and treatment-related activities and programs related to drunk driving (Mookherjee, 2000).

### Era 3: Redefining & Reframing the Problem

The 1980s and beyond also experienced a growing interest in the problem of drunk driving, leading some individuals to state that the 1980s saw a "legislative explosion" and government interest in the issue (Laurence, 1988). One of the driving forces for the increased interest and concern over the problem of drunk driving was the emergence of advocacy groups including Remove Intoxicated Drivers (RID) and Mothers Against Drunk Driving (MADD); which was founded in 1980. Insurance companies and the federal government also began pressuring states to pass stricter drunk driving statutes (Freeman, 2007; Ross, 1985). Additional federal legislation was created to reduce the number of drunk driving incidents by raising age restrictions, and lowering BAC's. In 1984, Congress passed the Uniform Drinking Age Act (Public Law 98-363) which led to led to all 50 states increasing the minimum legal drinking to 21 by 1988 (Hedlund, Ulmer & Preusser, 2001). Also in 1988, Congress created the Section 410 program that provided increased road funding if states reduced their legal limit BACs to .10; to continue to receive funding under this program, states then had to eventually lower their BAC levels to .08.

In 1998, the Transportation Equity Act for the 21st Century ("TEA 21") also provided states incentive grants for highway-related funding if they set and enforced a .08 per se law; while in 2000, the US Department of Transportation's 2011 Appropriations Act (HR 4475) required that states must pass a .08 BAC law or face incremental losses in its highway funding. Since 2005, all 50 states and the District of Columbia now have implemented .08 BAC *per se* laws for drunk driving (GHSA, 2016). Of particular interest is that drunk driving was also redefined as a crime due to concerns over traffic and public safety (Schlesinger & Zawtz, 1988).

The 1980s and 1990's era also experienced a great deal of drunk driving research and identified the problem of the repeat drunk driver. As early as 1989, for example, research by the Bureau of Justice Statistics concluded that 68% of offenders convicted of DWI had prior DWI-related charges (Cohen, 1989). Generally, this early research identified that repeat drunk driving was a complex issue that also required a series of non-punitive interventions to prevent future offending. The literature also suggests that the issue of drunk driving was being reframed as a public health issue; where treatment and individual-level change strategies were proposed as one means to tackle the problem of drunk driving (O'Donnel, 1985). For example, as early as 1981, some research concluded that traditional penalties (i.e. fines; license suspensions) did not deter repeat drunk drivers (Homeal, 1981; Wheeler & Hissong, 1988) and that and new treatment alternatives were needed (Voas, 1986). Many of these studies also highlighted the positive outcomes that some of these treatment programs generated (McCarty & Argeriou, 1988; Siegal, 1985; Sadler & Perrine, 1984). This time period also saw the introduction of new technologies to monitor the repeat drunk driver. As early as 1981, for example, ignition interlocks were proposed as a means to monitor and control high risk repeat offenders from driving drunk (Homeal, 1981).

In the 1990's and beyond, with the emergence of drug courts and the growing interest in therapeutic jurisprudence, the idea of having specialized courts for repeat drunk drivers emerged. Like earlier studies, scholars argued that traditional forms of controlling drunk driving and recidivism (such as arrest and incarceration) did not work. Instead, a more comprehensive approach involving problem solving courts, treatment, and technologies, were better alternatives to address the problem of drunk driving and repeat offenders (Voas, 2011). To assist courts in designing effective programs, Voas constructed a *National Model for Managing Impaired Driving Offenders* which is shown in Box 1-1.

**Box 1-1: Special features of current emerging driving-while-impaired (DWI) offender management systems that can be incorporated in a national model.**

1. Emphasis is placed on replacement of jail with low-cost monitoring programs paid by the offender
2. Sanction alternatives are maximized to increase flexibility in meeting offender needs
3. Behavioral triage is used to create performance-based sanctions
4. Control of consumption is emphasized to impact all substance abuse problems (not just recidivism)
5. Treatment is focused on offender needs in meeting monitoring requirements
6. Monitoring data is available to enhance offender screening and assessment
7. Rapid development of new technologies will increase the requirement for program evaluation

From: Voas, et al. (2011), p. 1222.

## CONTROLLING REPEAT DRUNK DRIVERS

As identified in the 2014 report (Kierkus & Johnson, 2014), controlling and preventing drunk driving is complex, requiring a variety of interrelated alcohol control and therapeutic activities that are often directed toward the behavioral and cultural attributes of alcohol consumption. Of the different types or categories of drunk drivers, perhaps the most difficult to control and rehabilitate is the repeat or chronic drunk driver who is disproportionately responsible for a high number of accidents and fatalities (Hallstone, 2012). And (as explained in the 2014 report), these individuals are different from the "typical" drunk driver. They may have co-occurring substance abuse and psychiatric issues; including depression, Post-Traumatic Stress Disorder, as well as conduct and bipolar disorders, all of which may serve as trajectories to future drunk driving episodes (Lapham, Skipper & Russell, 2012). They are also more likely to be alcohol dependent, or have drug abuse and dependence disorders, other non-substance abuse disorders, antisocial personality disorders, and lifetime drug use and dependence as compared to those with no, or one DUI conviction (Lapham, et. al, 2006; Nelson, et. al, 2007; McCutcheon, et. al, 2009; Peller et. al, 2010).

Because of the complex problems and needs of the repeat drunk driver, there is consensus in the academic literature that traditional sanctions are relatively ineffective in preventing recidivisms (Albanese & Shaffer, 2003; Lapham, Kapitula, Baca & McMillan, 2006; Freeman, et al., 2006). In fact, Hubicka, et al., (2010) write that "….Because drunk driving is not only a symptom of alcohol problems, but also of other covarying psychosocial problems … socioeconomic and mental health problems and criminality, rehabilitation programs ought to take into account the whole situation" (p. 729). Therefore, what is likely to reduce recidivism among these repeat drunk drivers are traditional sanctions (jail, fines, license suspensions and probation) combined with progressive treatment options, rewards, and incentives for compliance that are administered under the careful and continuous monitoring of the courts and social service providers (Kierkus & Johnson, 2012; see also Lapham & England-Kennedy, 2012; Dowling, MacDonald & Carpenter, 2011).

## DWI/SOBRIETY COURTS

One progressive and proven means to control and reduce recidivism among repeat drunk driving offenders is the DWI/Sobriety Court. DWI courts first emerged in 1999 (Freeman-Wilson, 1999), and since then they have grown in popularity and numbers. According to the National Center for DWI

Courts (2015), as of 2011, there were 192 DWI and 404 Hybrid Drug Courts in operation throughout the United States. Consistent with the philosophy of problem solving courts, DWI/Sobriety courts use a variety of therapeutic interventions that include behavioral monitoring of activities, accountability measures and substance abuse treatment initiatives that are beneficial in reducing recidivism (Nochajski & Stasiewicz, 2006). The core components of this DWI Courts are shown in Box 1-2.

**Box 1-2: Core Components of DWI Courts:**

- Continuous judicial supervision through regularly scheduled status hearings in court;
- Mandatory completion of substance abuse treatment and other indicated services;
- Continuous or random biological testing for alcohol and other drug ingestion;
- Imposition of a progressively escalating sequence of punitive sanctions for infractions and positive incentives for achievements;
- Satisfaction of applicable legal restrictions and obligations, such as installation of ignition interlock devices, sales of relevant vehicles, or payment of fines and fees

From Marlow (2009), p. 2

These courts also follow the National Center for DWI Courts" 10 Guiding Principles which can be found in Appendix A of this document.

While the actual structures of DWI/sobriety courts differ among jurisdictions there are nevertheless some common components. First, these courts are post-conviction-based programs where the offender has already been convicted of an eligible offense. The "client" is then invited to participate in a DWI / sobriety court as a condition of probation. Next, these programs use a problem solving approach that employs a team of professionals to address the fundamental causes of the offender"s actions, with the goal of diagnosing and treating the core alcohol-related problems and changing future behaviors. In this context, judges, probation officers, prosecutors, defense attorneys, and substance abuse practitioners work with the offender / client to ensure compliance with the court-ordered treatment plan. Finally, these treatment plans are progressive in nature; they often involve up to four stages (or "phases") that the offender progresses through over a two-year period (or more). Escalating sanctions for failing to comply with the treatment program designed by the court are also present (and used) during each phase. Conversely, there are many incentives that reward compliant behavior and progression through each phase, including the restoration of limited driving privileges, in conjunction with the installation of an ignition interlock.

## IGNITION INTERLOCKS: A REVIEW

Ignition interlocks are used as part of the supervision and behavioral modification approaches used by DWI/Sobriety courts throughout the United States. First used in 1986 in California, the use of Breath Alcohol Ignition Interlock Devices (BAIIDs) or "interlocks" to control and monitor drinking and driving has rapidly spread throughout the United States, growing at a rate of approximately 15% annually (Marques & Voas, 2013). It is reported that all states in the United States use interlocks in some manner as a means to control repeat drunk driving. Over the last decade, their use has increased throughout the United States. It is estimated that there are over 300,000 interlocks in use in the United States at present and interlock use has grown 183% from 2006-2011 (US Department of Transportation, 2015; Roth, 2013). In Michigan, it is estimated that there are over 7,000 interlocks in use (US Department of Transportation, 2015).

The use of Ignition Interlocks to control the repeat drunk driver is not limited to the United States. As part of its Global Strategy, the WHO (2010) identified that the existing research provides evidence that the ignition interlock is an important policy intervention for countries to control the behaviors of repeat drunk drivers and it is considered one of WHO"s five pillars of road safety (Bivens, 2014). The importance and use of interlocks has also been recognized by the automotive community. The Alliance of Automobile Manufacturers (the 12 largest automobile manufacturers in the world) supports the use of interlocks to control convicted drunk drivers and is working with the NHTSA on advanced technologies to eliminate drunk driving (Bainwol, 2013).

**How They Work**

As shown in the 2014 Report (Kierkus & Johnson, 2014), an ignition interlock is a mechanical alcohol sensor that is permanently affixed to the ignition system of a vehicle which verifies that the operator"s blood alcohol level is below a specified limit. If not, the vehicle cannot be started, and in the case of a rolling restart (a test to measure the driver"s blood alcohol level while in operation), the vehicle may not be able to re-started and subsequently driven. While there are a variety of interlock manufacturers and designs, they all share some common components that are shown in Box 1-3.

While there are functional and design differences among interlock manufacturers, a typical system consists of two main components: a handheld unit that is located in the vehicle, mounted in close proximity to the steering column, and a unit located under the vehicle"s hood that is attached to the vehicle"s starter system. In order to start the vehicle, an operator follows a series of audible and visual prompts on the handheld device, beginning with the subject blowing into a mouthpiece. The user is also required to provide a continuous and uninterrupted, flow of air (breath) for a certain period of time to ensure that a sample of "deep lung air" is measured. The component gasses in the sample are then measured and recorded. Depending upon how the interlock is programmed (set at the discretion of the court), these measurements are taken at the first start-up of the vehicle, and randomly during its operation (i.e. a "rolling re-test.") These retests must be completed within a certain time period after the vehicle has been stopped and parked in a safe location) (Kierkus & Johnson, 2013).

If the offender is compliant, then the interlock "unlocks" the vehicle ignition system, allowing the vehicle to be operated. If, however, the operator"s blood alcohol level exceeds a certain BAC set by the court, two basic options exist: 1) an audible alarm goes off until the vehicle is turned off, and a violation is reported to the court. Then, the interlock device must be reset by an interlock service technician within a set period of time; or, 2) the interlock "locks out" the ignition, not allowing the operation of the vehicle at all, where again, the violation is reported to the court. In "warn level" cases, where there is a blood alcohol level present, but not high enough to warrant a violation or lockout, the interlock records the alcohol violation, but it may still allow the vehicle to be driven.

The interlock also records a large amount of additional information that can be used by the court as part of the offender"s treatment plan. Besides its primary purpose of recording alcohol-related violations, interlocks record: the number of vehicle starts; the number of interlock attempts; warnings, and failures; start and end times of the vehicle"s operation; the number of miles travelled; visual images of the driver (and perhaps passenger); and (in some cases), GPS tracking data to ensure that the vehicle is used only for court-mandated activities. Generally, this information is downloaded on a monthly basis by interlock service technicians. In many cases, violations and other "flags" (as determined by the court) are immediately reported to court personnel by the interlock vendor. Or, increasingly, probation staff can immediately access the data through the interlock provider"s secure web site.

It should also be understood that a BAIID device is more than simply an incapacitation device, or specific deterrent to prevent a person from driving (Kierkus & Johnson, 2012). By its use, the interlock can also

serve as a behavioral reinforcement tool, "rewarding" offenders by allowing them to operate a motorized vehicle when no blood alcohol level is present, as well as making offenders answer for their actions to the court, if found to be in violation. By restricting the vehicle"s use, offenders may also be restrained from associating with other alcohol-dependent persons, subsequently modifying their lifestyles toward alcohol abstinence. The interlock can also be used to ensure sobriety compliance by randomly monitoring alcohol consumption even when offenders are not driving. Some courts, for instance, require offenders to also use the interlock as an in-home breath-alcohol monitor or breathalyzer to prove that they living an alcohol-free lifestyle.

There are presently a wide variety of interlock devices, manufactured by a variety of vendors, on the market. While their designs may differ to some degree, all modern interlocks use fuel cell technologies that have been proven to be valid and reliable in measuring blood alcohol levels in a variety of climatic and user-related conditions. Since 1992, the NHTSA has also provided periodically updated model specifications for interlock manufacturers and for the certification of BAIIDS by state organizations (*Model Specifications*, 2013).

## What Makes Interlocks Effective?

Research by the NHTSA (2015) on the existing literature and interlock programs in the United States concluded that there are 8 key elements that make interlocks an effective tool in the surveillance and behavioral modification of repeat drunk drivers. These elements are shown in Box 1-3.

**Box 1-3: Key Elements for an Effective Interlock Program**

**Program Design:**

1. Requirements: A requirement or strong incentive for all DWI offenders to install an interlock. Typical incentives include reduction of hard suspension periods, fines, or other penalties.
2. Penalties: Swift, certain, and appropriately severe penalties for offenders who are required or elect to install interlocks if they drive vehicles that do not have operating interlocks.

**Program Management:**

3. Monitoring: Careful monitoring after interlocks are ordered or required to assure that offenders install the interlocks and that they do not circumvent the requirement after interlocks are installed.
4. Uniformity: Uniform interlock program operations statewide.
5. Coordination: Close coordination and communication across all agencies involved in interlock program operations, including law enforcement, prosecutors, judges, probation, licensing, alcohol treatment, and interlock vendors.
6. Education: Thorough education on interlock program requirements and procedures for the public and for all program staff and management.
7. Resources: Adequate staff and funding resources to operate the program effectively and efficiently.
8. Data: Accurate, accessible, and up-to-date record systems to determine which offenders are required or eligible to install interlock, to monitor offenders and report violators, and to evaluate program effectiveness and suggest improvements.

## Types of Interlock Programs

The literature shows that there are three different models of interlock programs, based on the type of interlock statutes that exist in a given state. They include administrative, judicial, and hybrid forms (Ullman, 2016).

**Administrative Programs.** These programs are administered by the executive or legislative branches of government (Ahlin, 2015). They are administered by a state licensing authority such as the Department of Motor Vehicles or Secretary of State. While varying in design based on the enabling legislation, two of the common types of administrative programs include programs that 1) allow persons to drive with an interlock equipped vehicle during a certain time period of their license suspension, and 2) programs that require the installation of a interlock as part of the license reinstatement process (Rauch, et al, 2002). Some of benefits of administrative programs identified in the literature include:1) more consistency in interlock use and application; 2) a higher use and installation rates of interlocks; 3) fewer individuals involved in the administration of the program (oftentimes they are centrally managed); and, 4) making them being more cost effective and easier to manage (Fieldler, et al., 2014).

**Judicial Programs:** Judicial programs are administered by the judicial branch and the courts (Ahlin, 2015; Rauch, et al., 2002). In these court directed programs, judges can impose additional sanctions (such as electronic monitoring) for interlock non-compliance; 2) they have additional staff including probation officers to enhance monitoring; and, 3) they can also require interlock clients to seek other forms of treatment. Some of the drawbacks of these types of programs include the need for more coordination (e.g. educating and training members of court including judges, probation officers) and the fact that they are not centrally managed (Fieldler, et al., 2014). However, in some cases judges may also utilize their discretion and not fully enforce interlock laws(Rauch & Ahlin, 2005).

**Hybrid Programs:** These are a combination of administrative and judicial programs (Rauch et al, 2002). Under the hybrid model, the state's respective licensing authority is responsible for working with vendors and monitoring offender compliance while operating under the authority of the courts (Gross et al., 2011). An example of a hybrid program is where a probation officer supervises the offender while under court supervision, and the respective state administrative agency (such as a Department of Motor Vehicles) addresses reinstatement issues while supervising offenders who have revoked or suspended licenses (Fielder, et al., 2012; 2014).

The Government Accountability Office (2014) currently estimates that there are 20 administrative, 20 judicial and 10 hybrid models operating in the United States.

## MICHIGAN'S DWI/SOBRIETY COURT & IGNITION INTERLOCK PROGRAM

As shown in the prior Michigan DWI/Sobriety Court Ignition Interlock Evaluation reports (Kierkus & Johnson, 2012; 2013; 2014; 2015), the use of ignition interlocks to control the actions of convicted drunk drivers in Michigan is not a new strategy or practice. For years, many courts throughout the state have used ignition interlocks as a supplement to existing conditions of probation for offenders charged with Operating While Intoxicated (OWI) and/or Operating with the Presence of Drugs (OWPD).

What is new, however, is that they are now being used as a specific component of treating and monitoring repeat drunk driving offenders who are admitted to DWI/Sobriety Courts. After first being implemented in 2009 by the 56th District Court in Eaton County, Michigan, the Michigan Public Act 154 of 2010 was passed which initiated the DWI/Sobriety Court Interlock Pilot Project**.** This pilot legislation, which became effective January 1, 2011, set eligibility requirements for offenders. In order for offenders to be eligible for admission into one of these courts, they must have been arrested and convicted of a DWI-related offense after January 1, 2011, and have had a total of 2 or more DWI violations in the last 7 years,

or 3 or more DWI violations within the past 10 years. Additionally, this legislation created a three-year pilot research project to determine the effectiveness of ignition interlocks in treating and controlling repeat drunk drivers.

Because of the reported success of this pilot program in the context of preventing drunk driving, and reducing recidivism (see the earlier 2011-2013 reports), in 2013, HB 5021 eliminated the sunset provision of House Bill 5273 which had created the Interlock Project legislation. This made the DWI/Sobriety Court interlock program permanent as of 2014. A copy of HB 5021 can be found in Appendix B. Ignition interlocks are now an integral component of DWI/Sobriety Courts throughout the state. They are effective tools used in the treatment and monitoring of repeat drunk drivers and demonstrate empirical success in reducing drunk driving recidivism.

## UPDATED REVIEW OF THE LITERATURE & FUTURE DIRECTIONS

Previous editions of this report (see Kierkus & Johnson, 2012, 2013, 2014, & 2015) have provided a comprehensive review of the scholarly literature related to BAIID devices and their use within DWI/Sobriety Courts. While these prior reports substantiate that ignition interlocks are effective in reducing recidivism, especially while participants are enrolled in DWI/Sobriety Court, the following literature that has been published in 2015 and 2016 provides additional evidence and future avenues for research.

**Cost-Effectiveness:** Current research by the Rand Institute (see Ecola, et al, 2015) has determined that ignition interlocks have one of the highest cost-effectiveness ratios in the context of police and court resources, equipment and DMV-related matters. This can be attributed primarily to the fact that they impose little cost on the justice system because the offender is responsible for the costs related to the purchase and maintenance of interlocks.

**Gender & Interlock Use:** Research by Sawyer and Hancock (2014) found that women were less successful in providing an adequate breath sample than men while driving. Sawyer and Hancock concluded that while both genders required an elevated workload (e.g. more tasks while driving) to operate the interlock, women nevertheless "must interact with the device more often in order to provide a successful sample" (p. 2101). This study, however, had a limited sample size, raising some validity issues regarding the findings.

**Interlock Success:** In their meta-analysis of the existing research on effective DUI interventions in reducing repeat drunk driving, Miller et al. (2015) concluded that there is some evidence that multi-component programs (including the use of interlocks) are more effective than programs that target only one aspect of the offender‟s needs. These scholars also called for more scientifically rigorous studies before a definitive conclusion can be reached regarding the effectiveness of these programs.

**Alcohol Control Policy Research:** Nelson et al.‟s (2015) longitudinal study of alcohol control policies from 1999-2011 concluded that there was a shift to new approaches to control drunk driving. Of those, the most widely adopted policies across the United States were ignition interlocks. In another study by Sylvester and Haider-Markel (2015), the authors concluded that interlock policy implementation at the state level was significantly influenced by the existence of interest groups, higher degrees of legislative professionalism, and an objective assessment of the issue of drunk driving.

The current literature also provides new research directions related to DWI/Sobriety Court and interlock programs:

**Full Service Abstinence Programs:** Voas (2015) writes that one of the gaps that exist in some state programs in monitoring drunk driving offenders who opt to drive. As such, these high-risk offenders‟

BACS are not subsequently monitored through an interlock. However, if states would incorporate a "full service" program," offenders, regardless of their driving status, would be monitored through interlock providers that could provide both vehicle and in-home monitoring services. This could be achieved by using advanced and existing interlock technologies to monitor repeat offenders in the home and the vehicle to ensure abstinence from alcohol use. According to Voas (2007): The full-service system should be welcomed by the courts facing a state requirement for mandating interlocks for all DUI offenders because it would deal with the no-vehicle problem. It would also avoid criticism that the courts were failing to carry out a legislative mandate. These types of programs would provide more robust data related to drinking that could be used to determine whether more intensive supervision or treatment of the offender was required.

**Secondary Benefits:** Another area of research is if interlock use serves secondary outcomes or benefits for the public. While the primary goal of interlock programs is related to abstinence and reductions in recidivism, the use of interlocks could also led to reductions in traffic accidents and crashes. The review of the literature shows only one study (to date) concluded examining this issue. The results suggest that the interlock did not reduce collision-related outcomes in comparison to license suspension, which did serve as a general deterrence to collisions (see Wu, et al. 2015). However, other anecdotal research suggests that the increased use of interlocks could serve to protect passengers, particular children, who could be passengers of drunk drivers (Quinlan, et al. 2014). Voas, et al. (2011) also propose that interlocks "offer the possibility of impacting non-driving alcohol-related injuries and fatalities, as well as family conflicts and unprotected sex" (p.1222). Intuitively; the use of interlocks should serve to improve the social and environmental conditions of offenders and the public. Future research should be designed to evaluate the spectrum of potential possible secondary effects from DWI/Sobriety court interlock programs. Although it is definitely accurate to state that ignition interlocks constitute evidence based practice with respect to reducing drunk driving recidivism, it is unlikely that their positive effects / benefits end there. Empirical documentation of secondary benefits may potentially save more lives, and lead to a greater degree of harm reduction in other financial and social contexts.

# SECTION 2: THE STUDY

## OVERVIEW OF THE STUDY DESIGN

The design of this study has been progressive in nature; as more data became available, additional research questions were addressed. This 2016 report focuses on comparing subjects enrolled in the ignition interlock program to a DWI/Sobriety Court comparison sample drawn prior to the creation of the interlock pilot program in 2011, and also to a sample of standard probationers drawn from across the state of Michigan. The primary goal of this study is to determine whether ignition interlock devices (in combination with substance abuse treatment court) can effectively control drunk driving recidivism among chronic DWI offenders. In short, it evaluates the proposition that the use of BAIIDs represents evidence based policy in the fight against drunk driving. More specifically, this report addresses the following issues:

- The percentage of program participants ordered to place interlock devices on their vehicles who actually complied with the order;
- The percentage of program participants who removed court-ordered interlocks from their vehicle without court approval;
- The percentage of program participants who consumed alcohol or controlled substances;
- The percentage of program participants found to have tampered with court-ordered interlocks;
- Relevant treatment information about program participants; and,
- The percentage of program participants convicted of a new offense under section 625(1) or (3) of the Michigan vehicle code, 1949 PA 300, MCL, 257.625 (i.e. convicted of a new driving under the influence offense).

## THE PARTNER COURTS

At the initiation of the study in 2011, five partner courts were selected that would contribute cases for analysis. Selected courts needed to be DWI or DWI/Sobriety Court programs that anticipated enrolling at least 50 participants in the interlock ignition program. In the selection of these courts, a purposeful sampling strategy was used to select five courts that would be broadly representative of the state of Michigan in the context of: 1) region, 2) level of urbanization, and 3) population. The final sample of participating courts included the:

- 61st District Court (Grand Rapids; Kent County).
- 86th District Court (Traverse City; Grand Traverse County).
- 8th District Court (Kalamazoo; Kalamazoo County).
- 96th District Court (Marquette; Marquette County).
- 51st District Court (Waterford; Oakland County).

A memorandum of understanding was drafted with each court, and the project investigators ensured that the research design met all federal and state human subject protection requirements.

## POPULATION & SAMPLE

The samples used in this study are subdivided into three main groups: the Interlock Program Participant Sample, the DWI/Sobriety Court Comparison Sample, and the Standard Probationer Sample.

### The Ignition Interlock Program Participants (Experimental Group)

The target population is repeat drunk driving offenders from the state of Michigan who have been convicted of a second or subsequent drunk driving offense, and who received a restricted driver's license from the Secretary of State after having completed at least a 45-day period of total ("hard") license suspension. These subjects must also have had an ignition interlock device installed on all vehicles registered to them, and have demonstrated adequate progress within an accredited DWI/Sobriety Court program. As of December 31st, 2015, a total of 834 subjects from the five partner courts met these criteria. However, depending upon the research question(s) under consideration, the total number of cases used in different statistical analyses varies. Please see Appendix C for a full explanation of the experimental group samples.

### The DWI/Sobriety Court Sample (First Comparison Group)

The first of two comparison groups used in this study consisted of all clients enrolled by the five partner DWI/Sobriety Courts in the year 2010, prior to the implementation of the ignition interlock program. A total of 508 individuals met these criteria. This sample is designed to be as similar as possible as the experimental group, differing only in the fact that comparison group subjects had not been placed under interlock supervision. Sub-samples from this comparison group were also drawn for various analyses. Because of the need to match the comparison group subjects to participants in the experimental group and standard probationers, the total number of subjects varies depending upon the specific analyses performed. See Appendix D for a full explanation of the samples.

### The Standard Probationer Sample (Second Comparison Group)

A second comparison group for this study was constructed by matching as many subjects as possible from the Ignition Interlock Program Participants to offenders from the state of Michigan who shared statistically similar demographic and offending characteristics. Unlike the interlock program group, and the DWI/Sobriety Court comparison group, these individuals had not been placed on ignition interlock restrictions; nor had they obtained a restricted license from the Secretary of State, or participated in a DWI/Sobriety Court. Instead, these subjects were given standard sentences (including periods of probation; and in some cases, incarceration) typical for chronic DWI offenders in the state of Michigan. The precise matching criteria were developed by, and are available from SCAO. Using these criteria, SCAO was able to match 729 of the 834 experimental group participants. Reduced samples were used to assess recidivism outcomes because not all cases had sufficient "time at risk" to be utilized for each analysis: see Appendix E for a full explanation.

## DATA

Participating courts submitted data through the Michigan Drug Court Case Management Information System (DCCMIS). To supplement the data available in DCCMIS, SCAO staff downloaded recidivism information from the Michigan Judicial Data Warehouse (JDW) for all of the courts in the state. Based on this information, SCAO provided the researchers with a dataset containing information on whether or not subjects in the study had been reconvicted of various criminal offenses since entering DWI/Sobriety Court. SCAO staff also used the JDW to create recidivism measures for the standard probationer comparison group.

In addition to the quantitative data obtained from SCAO, telephone discussions were initiated with each partner court in Fall, 2015. The purpose of these discussions was to obtain staff impressions of process

related issues pertaining to the interlock program. A summary of key comments and observations is presented in Section 4 of this report.

## VARIABLES

Appendix F provides a full description of each variable used for statistical analysis. Variables are classified as independent, control, process or outcome.

## DATA ANALYSIS

This 2016 interlock report presents four types of data analysis:

1) Descriptive data regarding the key interlock related outcomes, based on the 834 subjects of the experimental sample;
2) Comparative analysis of key demographic, process, and outcome-related variables. Descriptive statistics and basic bivariate inferential statistical analyses (e.g. Chi-square ($x^2$) and ANOVA) were used to compare the Interlock Program Participants to the DWI / Sobriety court comparison group.
3) Comparative analysis of recidivism data. Comparisons of the Interlock Program Participants, the DWI/Sobriety Court comparison group (the Non-Interlock Group), and the matched group of Standard Probationers were conducted using $x^2$ tests and the Kramer"s V coefficient and Z tests for equality of proportion (where appropriate).
4) Multivariate logistic regression analysis was used to explore the effect of being on interlock restrictions (successes and failures) in the DWI/Sobriety Court, while controlling for relevant demographic characteristics.

# SECTION 3: FINDINGS

The information presented in this section is focused on data from the first five years of the DWI/Sobriety Court Interlock Study. As such, it includes information from the 834 subjects (the "Interlock Program Participants") who were admitted to the interlock program in the five participating partner courts for the calendar years 2011 - 2015. It is divided into the following sections, which follow the research questions set forth in the original enabling legislation:

- Percentage of program participants: compliance levels;
- Percentage of program participants who removed court-ordered interlocks without court approval;
- Percentage of program participants who used alcohol & controlled substances;
- Interlock tampering episodes;
- Relevant treatment information; and,
- New offenses (i.e. recidivism).

This report also provides supplemental information related to the Interlock Program which includes:

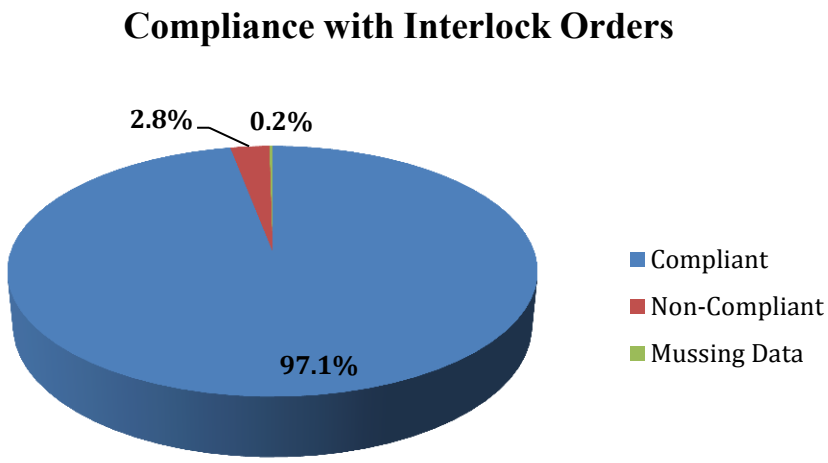
- Background & other demographic information;
- Education, employment outcomes and program failures; and,
- Multivariate analysis of program failure data.

Finally, in order to determine if the performance of the Interlock Program Participants was different from similar offenders, this study also compares these subjects to a comparison group of offenders (the Non-Interlock Group) who were admitted to the five partner groups" DWI/Sobriety Courts in 2010, prior to the implementation of the interlock program. It then compares recidivism data from both groups to a group of Standard Probationers drawn from across the state of Michigan.

## PERCENTAGE OF PROGRAM PARTICPANTS WHO COMPLIED WITH INTERLOCK ORDER

Figure 1 illustrates the compliance levels of program participants who were ordered to place interlock devices on their vehicles, including the proportion who complied with the order. Based on the population of 834 offenders in the five participating courts, 809 individuals (97.0%) complied; while 23 (2.8%) did not (missing data = 2 cases or 0.2%).

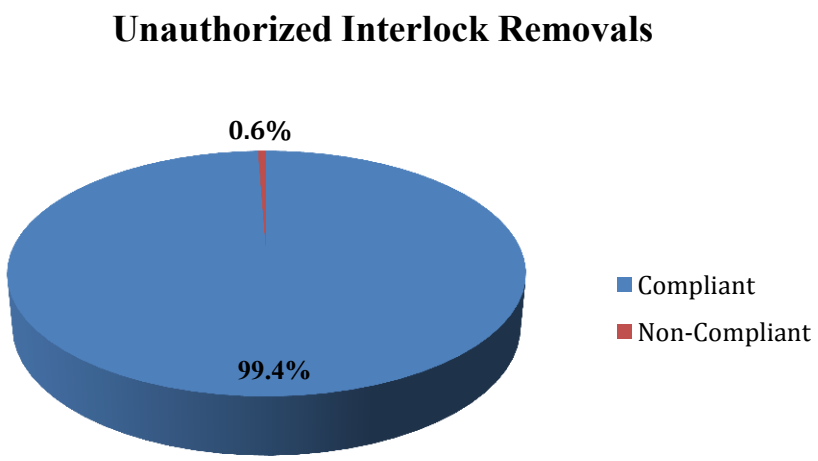
**Figure 1: Percentage of Program Participants Who Complied with Interlock Orders**



## PERCENTAGE OF PROGRAM PARTICIPANTS WHO REMOVED COURT-ORDERED INTERLOCKS WITHOUT COURT APPROVAL

Figure 2 shows the percentage of program participants who removed court-ordered interlocks from their vehicle(s) without court approval. The data show that the majority of program participants (n=829; 99.4%) did not remove their interlocks. Just over one-half a percent (n=5; 0.6%) of program participants removed their interlock without the permission of the court.[1]

**Figure 2: Percentage of Program Participants: Unauthorized Removals**

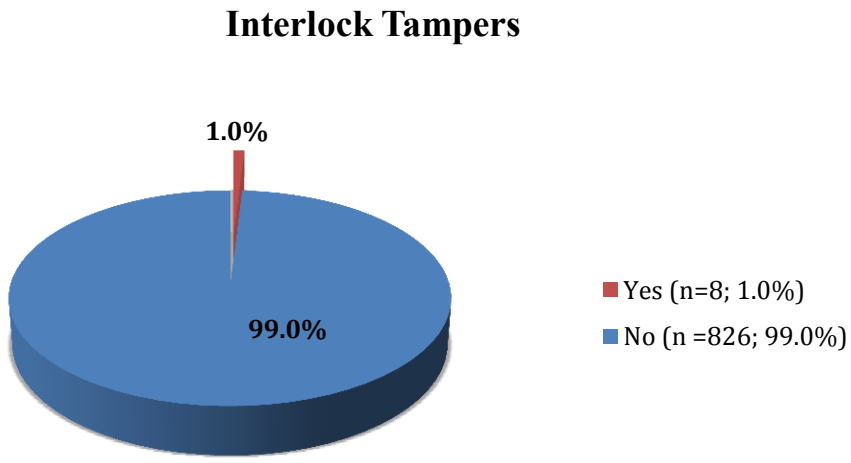



[1]A total of 296 cases in the DCCMIS dataset regarding interlock removals were reported as "missing." However, as in past years, the research team confirmed that the missing data simply reflected the fact that the event in question had not occurred; hence, this missing information was re-coded as a "no".

## INTERLOCK TAMPERING EPISODES

Figure 3 shows the number of known interlock tampers between the start of the program in 2011 and the end of 2015. In total, 8 program participants were found to have tampered with an interlock device, comprising a "tamper-rate" of 1.0%. A total of 826 participants (99.0% of the participants), did not tamper with their interlocks[2].

**Figure 3: Interlock Tampers**




[2] DCCMIS data shows a total of 300 missing cases related to tampering. However, consistent with past practice, the assumption was made that the missing information represents "successful" cases (i.e. the participant did not tamper with the interlock).

## PERCENTAGE OF PROGRAM PARTICIPANTS: ALCOHOL & CONTROLLED SUBSTANCE USE

Table 1 shows the percentage and frequency of Interlock Program Participants who had tested positive for alcohol and/controlled substances while in the interlock program or in the DWI / Sobriety Court comparison group[3]. The data show statistically significant differences between the two groups: those in in the interlock group had fewer positive alcohol/drug incidents than their counterparts in the comparison group sample. More specifically, of the 667 program participants who have completed the program, 499 (or 74.5%) had reported drug and alcohol violations while progressing through their respective DWI/Sobriety Court. When subdivided by the number of violations, 79 (11.5%) reported 10 or more positive drug or alcohol tests. By way of comparison, in the Non-Interlock group, 309 (76.5%) had drug and alcohol violations, and 80 (19.1%) had 10 or more violations (with a high of 114 positive tests).

In short, while the data show that both groups struggled with coming to terms with their drug and alcohol issues during DWI/Sobriety Court, those under interlock restrictions appeared to have tested positive for drugs and/or alcohol slightly less often than those in the comparison sample[4].

**Table 1. Comparisons of Subjects: Interlock Program and Non-Interlock Subjects Who Consumed Alcohol and/or Controlled Substances**

**Percentage of Positive Drug/Alcohol Use: Interlock Participants & Non-Interlock Group**

| | Interlock Program Participants | | | Non-Interlock Group | | |
|---|---|---|---|---|---|---|
| # of Incidents | n | % | Cum. % | n | % | Cum % |
| None | 168 | 25.5 | 25.5 | 95 | 23.5 | 23.5 |
| One | 139 | 20.8 | 46.3 | 51 | 12.6 | 36.1 |
| Two | 84 | 12.6 | 58.9 | 46 | 11.4 | 47.5 |
| Three | 55 | 8.2 | 67.2 | 36 | 8.9 | 56.4 |
| Four | 56 | 8.4 | 75.6 | 17 | 4.2 | 60.6 |
| Five | 22 | 3.3 | 78.9 | 25 | 6.2 | 66.8 |
| Six | 25 | 3.7 | 82.6 | 20 | 5.0 | 71.8 |
| Seven | 17 | 2.5 | 85.2 | 13 | 3.2 | 75.0 |
| Eight | 14 | 2.1 | 87.3 | 15 | 3.7 | 78.7 |
| Nine | 8 | 1.2 | 88.5 | 9 | 2.2 | 80.9 |
| Ten or More | 79 | 11.5 | 100.0 | 80 | 19.1 | 100.0 |
| Total Cases | 667 | 100.0 | --- | 404 | 100.0 | --- |

[3] Due to limitations with the DCCMIS dataset, the researchers were unable to separate alcohol and drug incidents. Therefore, the information in this table provides aggregate statistics only regarding combined positive drug/alcohol incidents.

[4] The differences between the interlock program participants and the non-interlock comparison group are statistically significant via ANOVA ($p<.05$).

## RELEVANT TREATMENT INFORMATION

Table 2 shows treatment-related data for the Interlock Program Participant population and the Non-Interlock Group. At the end of calendar year 2015, 667 (or 80.0%) Interlock Program Participants were no longer enrolled in DWI/Sobriety Court.

Among those who have completed the Interlock Program, the average time spent in DWI / Sobriety court was approximately 451 days. The program participants attended an average of approximately 153 12-step meetings, received an average of 2.5 court-ordered sanctions, and earned 12.2 court ordered incentives (rewards for program compliance). They also spent approximately 4.3 days in jail, and had approximately 2 warrants issued per 100 clients. They also completed an average of 52 treatment-oriented contact hours; and the DWI/Sobriety Courts averaged approximately 311 drug tests per client. The typical Interlock Program Participant also spent approximately 263 consecutive days sober.

By way of comparison, 404 of the Non-Interlock comparison subjects completed DWI / Sobriety court prior to the implementation of the interlock program. Although the differences were generally not large, the two groups were statistically different from one another on all parameters with the exception of the number of incentives per month (mean = 2.5 for the experimental group, 2.3 for the comparison subjects). The differences appeared particularly substantial in that Interlock Group subjects averaged approximately 4 times fewer bench warrants and contact treatment hours, but also received 4 times as many incentives as the Non-Interlock comparison subjects. On average, the Interlock subjects also spent less than half as many days in jail as the Non-Interlock subjects.

Table 2 also provides information on these same parameters, expressed as a calculation per month (i.e. 30 days) spent in DWI/Sobriety Court. These analyses were based on all Interlock and Non-Interlock comparison group subjects (not just those who had completed the programs). The conclusions that can be drawn from these analyses are similar to those presented above; Interlock Program Participants have significantly fewer positive drug tests (approximately 1.5% vs. 6.4%); they spent less time in jail (0.32 days vs. 1.88 days / month); and, they received a higher proportion of incentives (over 0.9 incentives / month vs. less than 0.2 incentives / month) relative to the Non-Interlock Group.

**Table 2. Treatment / Intervention Information: Program Participants, Year End 2015**

**Sobriety Court Phase at end of Calendar Year 2015**

| | Interlock Participants (N=834) | | Non-Interlock Group (N=415) | |
|---|---|---|---|---|
| | n | % | n | % |
| **Sobriety Court Phase** | | | | |
| I | 8 | 1.0 | 0 | 0.0 |
| II | 34 | 4.1 | 0 | 0.0 |
| III | 71 | 8.5 | 0 | 0.0 |
| IV | 47 | 5.6 | 0 | 0.0 |
| Closed Case | 674 | 80.8 | 415 | 100.0 |
| Missing Data | 0 | 0.0 | 0 | 0.0 |

**Treatment/Intervention Data: Completed Interlock Program (n=667) and Non-Interlock Group (n=404)[5]**

| | Interlock Program Participants | | Non-Interlock Group | |
|---|---|---|---|---|
| | mean | sd | mean | sd |
| Number of Days of Court | 450.5 | 156.8 | 414.0 | 216.3 |
| Days in Jail | 4.3 | 18.9 | 9.2 | 21.6 |
| Number of Bench Warrants | 0.02 | 0.18 | 0.12 | 0.36 |
| 12-Step Program Meetings | 153.1 | 137.4 | 93.0 | 145.4 |
| Court Ordered Sanctions | 2.5 | 2.8 | 2.3 | 2.6 |
| Court Ordered Incentives | 12.2 | 7.1 | 3.0 | 3.7 |
| Treatment Contact Hours | 51.8 | 76.3 | 202.7 | 1306.2 |
| Total Number of Drug Tests | 310.8 | 190.7 | 218.5 | 137.5 |
| Sobriety Days | 263.2 | 197.6 | 224.9 | 220.3 |

**Treatment/Intervention Data: All Cases ( Interlock Subjects (n=834), Non-Interlock Subjects (n=415))**

| | Interlock Program Participants | | Non-Interlock Group | |
|---|---|---|---|---|
| | mean | sd | Mean | sd |
| Days in Jail / Month | 0.32 | 1.24 | 1.88 | 11.33 |
| Bench Warrants / Month | 0.0026 | 0.030 | 0.046 | 0.39 |
| 12-Step Meetings / Month | 8.82 | 8.60 | 5.57 | 8.52 |
| Sanctions / Month | .18 | .22 | .23 | .33 |
| Incentives / Month | .92 | .63 | .19 | .24 |
| Treatment Hours / Month | 3.53 | 5.34 | 32.13 | 311.05 |
| Number of Drug Tests / Month | 21.00 | 11.29 | 16.12 | 8.55 |
| Sobriety Days / Month | 17.39 | 11.23 | 18.38 | 29.88 |
| Percent of Positive Drug Tests | 1.47 | 3.35 | 6.41 | 16.00 |

[5] The number of completed cases in this, and subsequent, analyses (n=667 interlock group, n=404 comparison group) is slightly lower than the total number of closed cases shown in Table 2 (n=674, n=415 respectively) because cases where the final nature of the outcome (i.e. successfully completed or definitively failed DWI/Sobriety Court) was unclear, were dropped from the analysis. See Appendixes C-E for a complete summary of sampling issues.

## NEW OFFENSES

Tables 3 and 4 shows recidivism rates (for the period of 1 to 4 years) for Interlock Participants, the Non-Interlock Group, and Standard Probationers for drunk driving and any criminal offense. Data for these analyses were obtained from the Michigan Judicial Data Warehouse (JDW).

The percentage of Interlock Program Participants convicted of a new offense under section 257.625(1) or (3) of the Michigan vehicle code are shown in Table 3. Shown below are the major findings:

- Only 3.5% of the Interlock Program Participants were re-convicted of operating a vehicle while intoxicated within four years of follow up (anyone who has not yet been followed for at least that long was excluded from this analysis). By way of comparison, 8.2% from the Non-Interlock Comparison Group, and 8.3% of the Standard Probationers, were reconvicted of drunk driving offenses over the same time period.[6]
- At the three year point (as above, anyone who has not yet been followed for at least that long is excluded from the analysis), the data show that Interlock Program Participants are reconvicted at a statistically significantly lower rate (1.7%) than either Non-Interlock (DWI/Sobriety Court comparison) subjects (5.6%) or Standard Probationers (6.7%).[7]
- At the two year point, the data show that Interlock Program Participants are reconvicted at a statistically significantly lower rate (2.2%) than either Non-Interlock (DWI/Sobriety Court comparison) subjects (4.5%) or Standard Probationers (6.0%).[8]
- Finally, after one year of follow up, the data show that Interlock Program Participants are reconvicted at a significantly lower rate (0.9%) than either Non-Interlock (DWI/Sobriety Court comparison) subjects (2.7%) or Standard Probationers (4.4%).[9]

[6] These differences are not sufficiently large to be considered statistically significant at the conventional .05 level of probability.

[7] These differences are statistically significant (Kramer"s V = 0.089, $x^2 = 10.7$, d.f. = 2, $p < 0.005$).

[8] These differences are statistically significant (Kramer"s V = 0.078, $x^2 = 9.5$, d.f. = 2, $p < 0.009$).

[9] These differences are statistically significant (Kramer"s V = 0.078, $x^2 = 15.3$, d.f. = 2, $p < 0.0005$).

**Table 3: Re-Conviction Percentages for Operating Under the Influence**

| Re-Conviction for Operating Under the Influence Within Four Years of Initial Conviction | Interlock Participants | | Non-Interlock Group | | Standard Probationers | |
|---|---|---|---|---|---|---|
| | n | % | n | % | n | % |
| **Within 4 Years** | | | | | | |
| Yes | 4 | 3.5 | 31 | 8.2 | 56 | 8.3 |
| No | 109 | 96.5 | 345 | 91.8 | 616 | 91.7 |
| **Within 3 Years** | | | | | | |
| Yes | 5 | 1.7 | 21 | 5.6 | 46 | 6.7 |
| No | 297 | 98.3 | 355 | 94.4 | 643 | 93.3 |
| **Within 2 Years** | | | | | | |
| Yes | 11 | 2.2 | 17 | 4.5 | 42 | 6.0 |
| No | 483 | 97.8 | 359 | 95.5 | 663 | 94.0 |
| **Within 1 Year** | | | | | | |
| Yes | 6 | 0.9 | 10 | 2.7 | 32 | 4.4 |
| No | 632 | 99.1 | 366 | 97.3 | 694 | 95.6 |

**Figure 3: Re-Conviction Percentages for Operating Under the Influence**

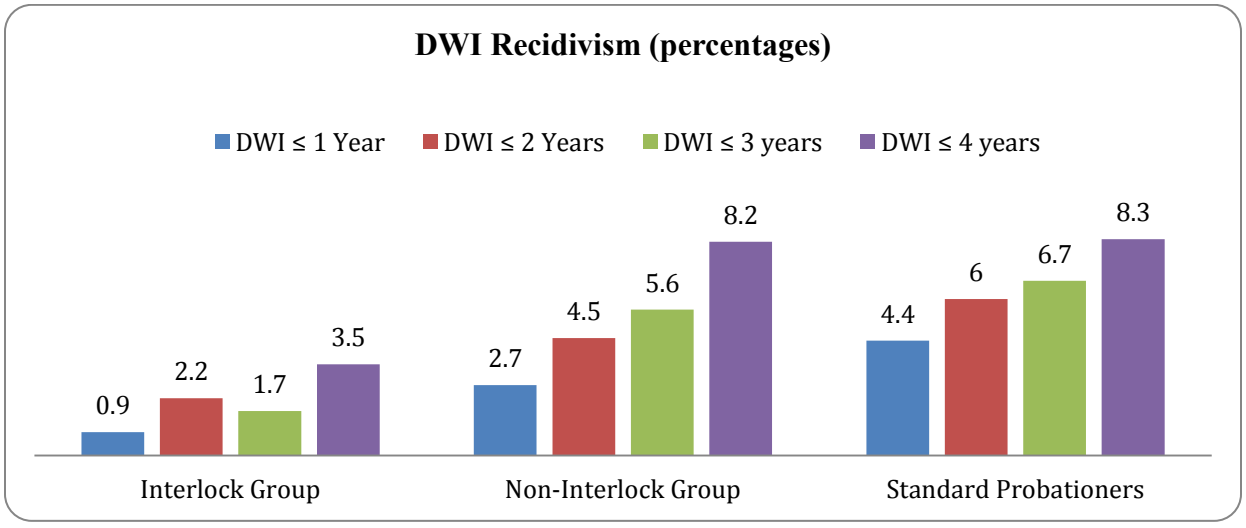


Table 4 shows all criminal recidivism (not just drunk driving reconvictions) as the outcome variable. Major findings include:

- Interlock participants continue to reoffend at lower rates (9.7%) after four years (for those who have accumulated sufficient follow-up time) than the Non-Interlock comparison group (16.8%), or Standard Probationers (15.5%).[10]
- At the three year point, the data show that Interlock Program Participants reoffend at statistically significantly lower rates (5.3%) than the Non-Interlock comparison group (12.2%) and Standard Probationers (12.6%).[11]
- At the two-year point, the data show that Interlock Program Participants reoffend at statistically significantly lower rates (4.7%) than the Non-Interlock comparison group (8.8%) and Standard Probationers (10.3%).[12]
- Finally, after one-year of follow up, data show that Interlock Program Participants are reconvicted at a statistically significantly lower rate (1.6%) than either Non-Interlock (DWI/Sobriety Court comparison) subjects (4.8%) or Standard Probationers (6.5%).[13]

**Table 4: Re-Conviction Percentages for General Crime: Years 1 through 4**

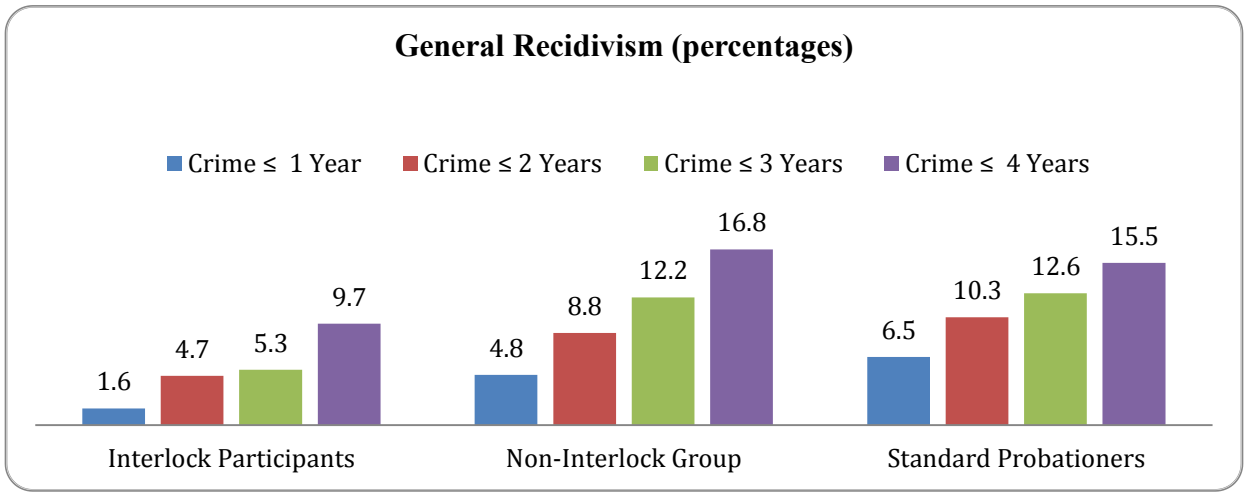
**Re-Conviction for General Crime Within Four Years of Initial Conviction**

| | Interlock Participants | | Non-Interlock Group | | Standard Probationers | |
|---|---|---|---|---|---|---|
| | n | % | n | % | n | % |
| **Within 4 Years** | | | | | | |
| Yes | 11 | 9.7 | 63 | 16.8 | 104 | 15.5 |
| No | 102 | 90.3 | 313 | 83.2 | 568 | 84.5 |
| **Within 3 Years** | | | | | | |
| Yes | 16 | 5.3 | 46 | 12.2 | 87 | 12.6 |
| No | 286 | 94.7 | 330 | 87.8 | 602 | 87.4 |
| **Within 2 Years** | | | | | | |
| Yes | 23 | 4.7 | 33 | 8.8 | 71 | 10.3 |
| No | 471 | 95.3 | 343 | 91.2 | 634 | 89.7 |
| **Within 1 Year** | | | | | | |
| Yes | 10 | 1.6 | 18 | 4.8 | 47 | 6.5 |
| No | 628 | 98.4 | 358 | 95.2 | 679 | 93.5 |

[10] These differences are not sufficiently large to be considered statistically significant at the conventional .05 level of probability.
[11] These differences are statistically significant (Kramer"s V = 0.096, $x^2 = 12.6$, d.f. = 2, $p < 0.002$).
[12] These differences are statistically significant (Kramer"s V = 0.087, $x^2 = 11.8$, d.f. = 2, $p < 0.003$).
[13] These differences are also statistically significant (Kramer"s V = 0.11, $x^2 = 20.1$, d.f. = 2, $p < 0.0001$).

A visual representation of the data is shown in Figures 3 and 4. While the number of re-convictions in all three groups is generally quite low, it is visually evident Interlock Program Participants are performing better than both comparison groups with respect to both general and drunk driving recidivism.

**Figure 4: Re-Conviction Percentages for General Crime**




Generally, the results are consistent regardless of the time period, or type of re-offending under analysis: the Interlock Program Participant group exhibits lower rates of recidivism than either the Non-Interlock Group or Standard Probationers Or in plain language: the data suggest that the presence of a BAIID device, in conjunction with a DWI / Sobriety court program, reduces drunk driving, as well as general criminal re-offending.

## BACKGROUND AND OTHER DEMOGRAPHIC INFORMATION

Key demographic variables related to the Interlock Program Participants and the Non-Interlock Comparison Group are reported in this section.

### Participating Court Data

Table 5 reports the key demographic information and changes in the number of Interlock Program Participants for the period, 2011 to 2015 from the five partner courts used in this study. A review of the data shows that 834 individuals have been admitted into the Interlock Program since its inception in 2011. In 2015 (relative to 2014); three courts saw declines in the number of clients admitted to the program while two showed modest increases. Overall, there was a 13.6% decline in interlock program admissions from the previous year (which also showed a slight decline relative to 2013). This may suggest that the interlock program has "matured" and there is no longer such a great demand for interlock services. Nonetheless, the program remains "healthy," enrolling nearly 200 new clients among the five partner courts, in the calendar year 2015.

**Table 5. Interlock Program Subjects by Participating Partner Courts, 2011-2015**

| | | Participating Courts – Interlock Program Participants | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **District Court** | **Location** | **Offenders Enrolled (2011)** | **Offenders Enrolled (2012)** | **Offenders Enrolled (2013)** | **Offenders Enrolled (2014)** | **Offenders Enrolled (2015)** | **Percent Change 2014-2015** | **Total Number of Program Participants** |
| 8th | Kalamazoo | 21 | 24 | 62 | 80 | 59 | -26.3% | 246 |
| 61st | Grand Rapids | 22 | 82 | 89 | 78 | 69 | -11.5% | 340 |
| 51st | Waterford | 21 | 18 | 12 | 13 | 10 | -23.1% | 74 |
| 86th | Traverse City | 10 | 20 | 22 | 18 | 22 | +22.2% | 92 |
| 96th | Marquette | 10 | 11 | 26 | 17 | 18 | +5.9% | 82 |
| **Total** | | **84** | **155** | **211** | **206** | **178** | **-13.6%** | **834** |

## Offender Demographic Information

Table 6 shows the demographic characteristics of Interlock Program Participants and offenders in the Non-Interlock Group. The "typical" Interlock Program Participant is Caucasian (87.4%), male (74.0%), single (65.7%) and is approximately 34 years old. The demographic characteristics of the Non-Interlock Group are statistically similar to that of the Interlock Program subjects,[14] with the exception of ethnicity, where Interlock Program Participants are less diverse than individuals in the Non-Interlock Group.

**Table 6. Offender Demographic Characteristics: Interlock Program & Non-Interlock Groups**

| Offender Profile: Demographic Variables | Interlock Program Participants | | Non-Interlock Group | |
|---|---|---|---|---|
| | **n** | **%** | **n** | **%** |
| **Ethnicity** | | | | |
| Caucasian | 729 | 87.4 | 349 | 84.1 |
| Hispanic/Latino | 34 | 4.1 | 30 | 7.2 |
| African American | 53 | 6.4 | 25 | 6.0 |
| Native American | 4 | 0.5 | 4 | 1.0 |
| Asian/Pacific Islander | 4 | 0.5 | 2 | 0.5 |
| Other | 10 | 1.2 | 5 | 1.2 |
| **Gender** | | | | |
| Male | 617 | 74.0 | 307 | 74.0 |
| Female | 217 | 26.0 | 108 | 26.0 |
| **Marital Status** | | | | |
| Single | 548 | 65.7 | 272 | 65.5 |
| Divorced | 130 | 15.6 | 65 | 15.7 |
| Married | 126 | 15.1 | 62 | 14.9 |
| Widowed | 8 | 1.0 | 4 | 1.0 |
| Separated | 22 | 2.6 | 12 | 2.9 |
| | **mean** | **Stand. Dev** | **Mean** | **Stand. Dev** |
| **Age** | | | | |
| Years (at screening) | 34.2 | 11.2 | 33.3 | 11.3 |

[14] ANOVA and $x^2$ tests for significance indicate that age, gender and marital status did not reach statistical significance at the traditional $p<.05$ level, while the ethnicity of the interlock and non-interlock groups are significantly different ($p < .05$).

## Education & Employment Status: Interlock Program Participants & Non-Interlock Groups

Table 7 shows the educational levels and employment status of the Interlock Program Participants and Non-Interlock Groups at intake or conviction. Overall, the data continue to suggest that Interlock subjects appear to be slightly better educated than the comparison group. With respect to employment, Interlock Program Participants have higher rates of full time employment. These findings are consistent with what was reported in previous years[15].

**Table 7. Offender Profiles: Education & Employment, Interlock Program Participants and Non-Interlock Groups**

| | Program Participants | | Non-Interlock Groups | |
|---|---|---|---|---|
| **Educational Levels at Intake** | | | | |
| | **n** | **%** | **n** | **%** |
| **College** | | | | |
| Post Baccalaureate | 26 | 3.1 | 3 | 0.7 |
| 4 Year (Bachelors) | 117 | 14.0 | 26 | 6.3 |
| 2 year (Associates) | 49 | 5.9 | 22 | 5.3 |
| Some College (no degree) | 301 | 36.1 | 126 | 30.4 |
| **Trade School** | | | | |
| Trade School Graduate | 40 | 4.8 | 18 | 4.3 |
| Some Trade School | 15 | 1.8 | 7 | 1.7 |
| **High School Graduate** | 213 | 25.5 | 119 | 28.7 |
| **GED** | 37 | 4.4 | 39 | 9.4 |
| **No High School Degree** | 36 | 4.3 | 55 | 13.3 |
| **Employment Status at Intake** | | | | |
| **Full Time Employment** | 585 | 70.1 | 233 | 56.1 |
| **Part Time Employment** | 107 | 12.8 | 65 | 15.7 |
| **Unemployed** | 122 | 14.6 | 102 | 24.6 |
| **Not in Labor Force / Other** | 20 | 2.3 | 15 | 3.7 |

[15] The differences in both employment and educational levels at intake are statistically significant via $x^2$ test ($p < .05$).

## Abuse Histories

Table 8 shows the substance abuse history of Interlock Program Participants and the Non-Interlock Group at intake. The majority of both groups (more than 92% of the Interlock Group and 93.5% of the Non-Interlock Comparison Group) reported past substance abuse issues at intake. Most of these issues were related to the use and abuse of alcohol (as opposed to other kinds of drugs). As such, the majority of Interlock Program Participants (more than 95%) were assigned alcohol dependence, abuse or intoxication as their primary DSM-IV (Diagnostic and Statistical Manual of the American Psychiatric Association, Fourth Edition) diagnoses. Similar issues also existed with the Non-Interlock Group; although the number reporting alcohol related Primary DSM-IV diagnoses was slightly lower (92%). The most important difference observed between the Interlock Program Participant group, and the Non-Interlock comparison group was that the Interlock Group had significantly higher rates of prior substance abuse; almost three-quarters (73%) of the Interlock Program Participants reported prior substance abuse treatment, as compared to less than two-thirds (approximately 62%) of the Non-Interlock group.[16]

[16] This difference is statistically significant via $x^2$ test ($p < .05$).

**Table 8. Offender Substance Abuse and Substance Abuse Treatment Histories**

| Substance Abuse History at Intake | Interlock Program Participants | | Non-Interlock Group | |
|---|---|---|---|---|
| | **n** | **%** | **n** | **%** |
| **Prior Substance Abuse** | | | | |
| Yes | 771 | 92.4 | 388 | 93.5 |
| No | 63 | 7.6 | 27 | 6.5 |
| **Prior Substance Abuse Treatment** | | | | |
| Yes | 607 | 72.8 | 257 | 61.9 |
| No | 227 | 27.2 | 158 | 38.1 |
| **DSM-IV Diagnosis at Intake** | | | | |
| **Primary DSM-IV** | | | | |
| Alcohol Dependence | 675 | 80.9 | 256 | 61.7 |
| Alcohol Abuse | 117 | 14.0 | 106 | 25.5 |
| Alcohol Intoxication | 5 | 0.6 | 20 | 4.8 |
| Cannabis Dependence | 7 | 0.8 | 15 | 3.6 |
| Poly. Dependence | 16 | 1.9 | 5 | 1.2 |
| Opioid Dependence | 3 | 0.4 | 4 | 1.0 |
| Cannabis Abuse | 6 | 0.7 | | |
| Other | 5 | 0.6 | 9 | 2.2 |
| **Secondary DSM-IV** | | | | |
| None | 680 | 81.5 | 329 | 79.3 |
| Alcohol Dependence | 16 | 1.9 | 16 | 3.9 |
| Cannabis Dependence | 18 | 2.2 | 16 | 3.9 |
| Cannabis Abuse | 22 | 2.6 | 18 | 4.3 |
| Alcohol Abuse | 6 | 0.7 | 6 | 1.4 |
| Depressive Disorder | 12 | 1.4 | 2 | 0.5 |
| Other | 80 | 9.6 | 27 | 6.5 |

## EDUCATION, EMPLOYMENT OUTCOMES AND PROGRAM FAILURES

Table 9 shows the educational and employment improvements among Interlock Program Participants and the Non-Interlock Group. The data suggest that 16.9% of Interlock Program Participants improved their educational levels between the start and the completion of their court programs, compared to 15.1% in the Non-Interlock group. When considering employment, 33.6% of the interlock group reported improvements, compared to 37.6% of the non-interlock group.[17]

**Table 9. Educational and Employment Improvement: Interlock Program Participants Who Completed the Program**

**Education and Employment Data**

| | Interlock Program Participants (n=667) | | Non-Interlock Group (n=404) | |
|---|---|---|---|---|
| | **n** | **%** | **n** | **%** |
| **Educational Improvement at Completion of Program** | | | | |
| Yes | 113 | 16.9 | 61 | 15.1 |
| No | 554 | 83.1 | 335 | 82.9 |
| Missing | 0 | 0.0 | 8 | 2.0 |
| **Employment Improvement at Completion of Program** | | | | |
| Yes | 224 | 33.6 | 152 | 37.6 |
| No | 443 | 66.4 | 244 | 60.4 |
| Missing | 0 | 0.0 | 8 | 2.0 |

[17] Because Interlock Program Participants began the program with higher educational levels, and had a higher full-time employment rate than the Non-Interlock Group, these findings should be interpreted with caution.

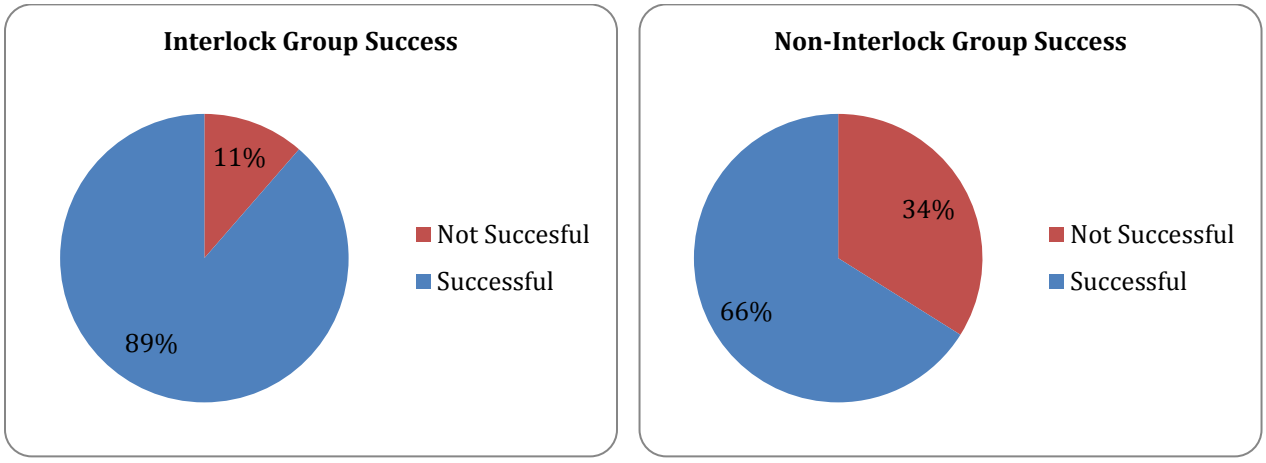
## Program Success

Table 10 and Figure 6 show DWI/Sobriety Court success and failures for the Interlock Program Participants and the Non-Interlock Comparison Group. Chi-square analysis confirms that the Interlock Program Participants have a significantly better success rate as compared to the Non-Interlock Group.[18] In the Interlock Group, almost 89% successfully graduated, as compared to approximately 66% of the Non-Interlock Group.

**Table 10. Program Success: Interlock Program Participants & Non-Interlock Group**

| Program Success Rate | | | | |
|---|---|---|---|---|
| | **Interlock Program Participants (N=667)** | | **Non-Interlock Group (N=404)** | |
| | **n** | **%** | **n** | **%** |
| **Program Success** | | | | |
| No | 76 | 11.4 | 137 | 33.9 |
| Yes | 591 | 88.6 | 267 | 66.1 |

**Figure 6: Success Rates: Interlock & Non-Interlock Groups**




[18] $x^2$ tests indicate that the difference between the Interlock Program Participants and Non-Interlock subjects on this variable is statistically significant ($p < .05$).

## MULTIVARIATE ANALYSIS

Multivariate analysis was performed to estimate the impact of interlock program participation on success versus failure in the DWI/Sobriety Court program while controlling for key demographic characteristics (age, gender, ethnicity, education level at intake, and employment status at intake). These results are presented in Table 11.

The analysis reveals that, after statistically controlling for age, gender, ethnicity, initial employment status, and educational attainment, subjects in the Non-Interlock Group have over 3 times greater odds of failing the DWI / Sobriety Court than Interlock Program Participants. As such, the "benefit" from being under interlock supervision, in terms of program success, appears similar when subjected to more advanced statistical methods (as opposed to the bivariate comparisons presented earlier). The data in Table 11 also shows older subjects, and those with a trade school education, are less likely to fail sobriety court. However, participants who are unemployed, or are not in the labor force at all, have substantially greater odds of failing (relative to those who are employed). The other variables in the analysis were not statistically significant.

**Table 11. Multivariate Logistic Regression Analysis: The Effect of Interlock Program Participation on DWI/Sobriety Court Failure, Controlling for Selected Demographic Characteristics**

| | Odds Ratios of Failing Out of Drug Court | |
|---|---|---|
| **Variable** | **Odds Ratio** | **Statistical Significance** |
| Comparison Group Subject | 3.22 | <.0001 |
| Age | .966 | <.0001 |
| Gender (Female) | 1.17 | ns |
| Ethnicity (Black) | 1.32 | ns |
| Ethnicity (Hispanic) | 1.31 | ns |
| Ethnicity (Other) | 1.33 | ns |
| Employment (Unemployed) | 4.13 | .003 |
| Employment (Not in L.Force) | 2.89 | <.0001 |
| Education (Trade School) | 0.48 | <.0001 |
| Education (College) | 0.76 | ns |
| Regression $x^2$ = 149.11 (df = 10) | p < .0001 | |
| n = 1,071 | | |

Notes: ns = not significant

## PROCESS-RELATED INFORMATION

A series of telephone conversations with each of the partner courts took place in the Fall of 2015. During these conversations, additional insight into process and operational issues associated with the interlock program were gained. Generally, court personnel continue to report overwhelmingly positive impressions of the program.

Some of the major findings are highlighted below:

**Secretary of State Issues**

- Several courts reported frustration that there is no procedure to differentiate people who voluntarily leave the interlock program and those who are dismissed for cause. People typically voluntarily withdraw for financial reasons / or because of automotive mechanical failures / crashes.
- One court reported that SOS administrative law judges may be too harsh on clients who had violations within the sobriety court program but nonetheless successfully graduated. This can be an impediment when clients are trying to get their full licenses reinstated.
- One court reported that key SOS employees are still inadequately trained regarding the interlock / restricted license program. Court personnel frequently have to call and intercede on behalf of clients.

**Technological Issues**

- One court would like to see an automatic interface developed for entering interlock data into DCCMIS. However, several other courts saw this as impractical.

**Issues with Interlock Devices**

- One court reported that calibration issues with American Interlock BAIIDs were creating false positive readings.
- One court reported that the market for interlock providers has become very competitive within their jurisdiction. Providers are now offering financial incentives to enroll clients, and are rolling out new technology (GPS) that the court is presently pilot testing.

**Access Issues Pertaining to the Interlock Program**

- Some courts are still reporting that the interlock program is cost prohibitive for certain clients.

**DWI/Sobriety Court Issues Associated with the Interlock Program**

- Certain clients are unclear about the role of interlock once a person graduates sobriety court (they believe that the interlock program automatically ends once they graduate, which is not the case).
- One court felt that the restricted license should be expanded to allow clients to take children to school / daycare, to drive to health care appointments, and / or to seek employment.
- One court would like to see a study of interlock tampering episodes.
- One court has created an interlock program "graduate group" that serves as a support group. They suggested that this might be a good program to initiate throughout the state. It might also be a good source of qualitative data for future research in desistence from drinking and driving.

# SECTION 4: SUMMARY AND CONCLUSION

## SUMMARY OF KEY FINDINGS FROM THE 2016 REPORT

Generally, most indicators continue to suggest that the interlock program is running smoothly and is yielding many encouraging process and outcome related results. For instance:

- A total of 591 clients have successfully graduated from the interlock program: only 76 have failed; this continues to represent a significantly better success rate than the five partner courts were experiencing prior to the implementation of the interlock program.
- 97% of Interlock Program Participants ordered by the court to install interlock devices on their vehicles have complied with the orders;
- Only 0.6% of Interlock Program Participants pilot removed the interlock devices without court authorization;
- Alcohol and drug use among Interlock Program Participants is lower in comparison to similar offenders not under interlock supervision;
- Just over 1% of the Interlock Program Participants tampered with a court ordered interlock;
- To date, approximately 3.5% of interlock program offenders have been reconvicted for drunk driving offenses.

Moreover:

- In comparison to non-interlock offenders in DWI/Sobriety Court, and to standard probationers, Interlock Program Participants have the lowest recidivism rates after one, two, three and four years of follow up. This is true for both drunk driving related re-offending and for general criminal re-offending.
- Interlock Program Participants have substantially higher rates of educational improvement in comparison to DWI offenders who did not participate in the pilot interlock program.
- Multivariate analysis, which controls for standard demographic characteristics, suggests that offenders in DWI/Sobriety Court, who are not under interlock supervision, have well over 3 times the odds of failing out of their therapeutic court program relative to those participants in a DWI/Sobriety Court that is using ignition interlocks.

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# APPENDIX A

## National Center of DWI Courts
## 10 Guiding Principles

**GUIDING PRINCIPLE #1: Determine the Population**

Targeting is the process of identifying a subset of the DWI offender population for inclusion in the DWI Court program. This is a complex task given that DWI Courts, in comparison to traditional Drug Court programs, accept only one type of offender: the hardcore impaired driver. The DWI court target population, therefore, must be clearly defined, with eligibility criteria clearly documented.

**GUIDING PRINCIPLE #2: Perform a Clinical Assessment**

A clinically competent and objective assessment of the impaired-driving offender must address a number of bio-psychosocial domains including alcohol use severity and drug involvement, the level of needed care, medical and mental health status, extent of social support systems, and individual motivation to change. Without clearly identifying a client's needs, strengths, and resources along each of these important bio-psychosocial domains, the clinician will have considerable difficulty in developing a clinically sound treatment plan.

**GUIDING PRINCIPLE #3: Develop the Treatment Plan**

Substance dependence is a chronic, relapsing condition that can be effectively treated with the right type and length of treatment regimen. In addition to having a substance abuse problem, a significant proportion of the DWI population also suffers from a variety of co-occurring mental health disorders. Therefore, DWI Courts must carefully select and implement treatment strategies demonstrated through research to be effective with the hardcore impaired driver to ensure long-term success.

**GUIDING PRINCIPLE #4: Supervise the Offender**

Driving while impaired presents a significant danger to the public. Increased supervision and monitoring by the court, probation department, and treatment provider must occur as part of a coordinated strategy to intervene with hardcore DWI offenders and to protect against future impaired driving.

**GUIDING PRINCIPLE #5: Forge Agency, Organization, and Community Partnerships**

Partnerships are an essential component of the DWI Court model as they enhance credibility, bolster support, and broaden available resources. Because the DWI Court model is built on and dependent upon a strong team approach, both within the court and beyond, the court should solicit the cooperation of other agencies, as well as community organizations to form a partnership in support of the goals of the DWI Court program.

**GUIDING PRINCIPLE #6: Take a Judicial Leadership Role**

Judges are a vital part of the DWI Court team. As leader of this team, the judge's role is paramount to the success of the DWI Court program. The judge must be committed to the sobriety of program participants, possess exceptional knowledge and skill in behavioral science, own recognizable leadership skills as well as the capability to motivate team members and elicit buy-in from various stakeholders. The selection of the judge to lead the DWI Court team, therefore, is of utmost importance.

**GUIDING PRINCIPLE #7: Develop Case Management Strategies**

Case management, the series of inter-related functions that provides for a coordinated team strategy and seamless collaboration across the treatment and justice systems, is essential for an integrated and effective DWI Court program.

**GUIDING PRINCIPLE #8: Address Transportation Issues**

Though nearly every state revokes or suspends a person's driving license upon conviction for an impaired driving offense, the loss of driving privileges poses a significant issue for those individuals involved in a DWI Court program. In many cases, the participant solves the transportation problem created by the loss of their driver's license by driving anyway and taking a chance that he or she will not be caught. With this knowledge, the court must caution the participant against taking such chances in the future and to alter their attitude about driving without a license.

**GUIDING PRINCIPLE #9: Evaluate the Program**

To convince stakeholders about the power and efficacy of DWI Court, program planners must design a DWI Court evaluation model capable of documenting behavioral change and linking that change to the program's existence. A credible evaluation is the only mechanism for mapping the road to program success or failure. To prove whether a program is efficient and effective requires the assistance of a competent evaluator, an understanding of and control over all relevant variables that can systematically contribute to behavioral change, and a commitment from the DWI Court team to rigorously abide by the rules of the evaluation design.

**GUIDING PRINCIPLE #10: Ensure a Sustainable Program**

The foundation for sustainability is laid, to a considerable degree, by careful and strategic planning. Such planning includes considerations of structure and scale, organization and participation and, of course, funding. Becoming an integral and proven approach to the DWI problem in the community however is the ultimate key to sustainability.

# APPENDIX B

Act No. 227
Public Acts of 2013
Approved by the Governor
December 21, 2013

Filed with the Secretary of State
December 26, 2013

EFFECTIVE DATE: December 26, 2013

**STATE OF MICHIGAN**
**97TH LEGISLATURE**
**REGULAR SESSION OF 2013**

**Introduced by Rep. Lauwers**

# ENROLLED HOUSE BILL No. 5021

AN ACT to amend 1961 PA 236, entitled "An act to revise and consolidate the statutes relating to the organization and jurisdiction of the courts of this state; the powers and duties of the courts, and of the judges and other officers of the courts; the forms and attributes of civil claims and actions; the time within which civil actions and proceedings may be brought in the courts; pleading, evidence, practice, and procedure in civil and criminal actions and proceedings in the courts; to provide for the powers and duties of certain state governmental officers and entities; to provide remedies and penalties for the violation of certain provisions of this act; to repeal all acts and parts of acts inconsistent with or contravening any of the provisions of this act; and to repeal acts and parts of acts," by amending section 1084 (MCL 600.1084), as added by 2010 PA 154.

*The People of the State of Michigan enact:*

Sec. 1084. (1) A DWI/Sobriety Court interlock pilot project is created utilizing the DWI/Sobriety Courts in this state and in accordance with the provisions of this chapter. The DWI/Sobriety Court interlock pilot project shall begin on January 1, 2011 and shall continue for a period of 4 years after that date. Beginning January 1, 2015, the DWI/Sobriety Court interlock program shall be created and shall continue with the same requirements, eligibility criteria, authority, and limitations as those prescribed in this section for the DWI/Sobriety Court interlock pilot project. An individual who is a participant in a DWI/Sobriety Court interlock pilot project on December 31, 2014 shall become, automatically, a participant in a DWI/Sobriety Court interlock program on January 1, 2015, unless the individual"s participation in the pilot project ceased by its own terms before January 1, 2015.

(2) All DWI/Sobriety Courts that participate in the pilot project or program shall comply with the 10 guiding principles of DWI courts as promulgated by the national center for DWI courts.

(3) In order to be considered for placement in the pilot project or program, an individual must have been convicted of either of the following:

(a) Two or more convictions for violating section 625(1) or (3) of the Michigan vehicle code, 1949 PA 300, MCL 257.625, or a local ordinance of this state substantially corresponding to section 625(1) or (3) of the Michigan vehicle code, 1949 PA 300, MCL 257.625.

(b) One conviction for violating section 625(1) or (3) of the Michigan vehicle code, 1949 PA 300, MCL 257.625, or a local ordinance of this state substantially corresponding to section 625(1) or (3) of the Michigan vehicle code, 1949 PA 300, MCL 257.625, preceded by 1 or more convictions for violating a local ordinance or law of another state substantially corresponding to section 625(1), (3), or (6) of the Michigan vehicle code, 1949 PA 300, MCL 257.625, or a law of the United States substantially corresponding to section 625(1), (3), or (6) of the Michigan vehicle code, 1949 PA 300, MCL 257.625.

(4) Each year, all DWI/Sobriety Courts that participate in the pilot project or program, in cooperation with the state court administrative office, shall provide to the legislature, the secretary of state, and the supreme court documentation as to participants" compliance with court ordered conditions. Best practices available shall be used in the research in question, as resources allow, so as to provide statistically reliable data as to the impact of the pilot project or program on public safety and the improvement of life conditions for participants. The topics documented shall include, but not be limited to, all of the following:

(a) The percentage of those participants ordered to place interlock devices on their vehicles who actually comply with the order.

(b) The percentage of participants who remove court-ordered interlocks from their vehicles without court approval.

(c) The percentage of participants who consume alcohol or controlled substances.

(d) The percentage of participants found to have tampered with court-ordered interlocks.

(e) The percentage of participants who operated a motor vehicle not equipped with an interlock.

(f) Relevant treatment information as to participants.

(g) The percentage of participants convicted of a new offense under section 625(1) or (3) of the Michigan vehicle code, 1949 PA 300, MCL 257.625.

(h) Any other information found to be relevant.

(5) Before the secretary of state issues a restricted license to a pilot project or program participant under section 304 of the Michigan vehicle code, 1949 PA 300, MCL 257.304, the DWI/Sobriety Court judge shall certify to the secretary of state that the individual seeking the restricted license has been admitted into the pilot project or program and that an interlock device has been placed on each motor vehicle owned or operated, or both, by the individual.

(6) If any of the following occur, the DWI/Sobriety Court judge shall immediately inform the secretary of state of that occurrence:

(a) The court orders that a pilot project or program participant be removed from the DWI/Sobriety Court pilot project or program before he or she successfully completes it.

(b) The court becomes aware that a participant operates a motor vehicle that is not equipped with an interlock device or that a participant tampers with, circumvents, or removes a court-ordered interlock device without prior court approval.

(c) A participant is charged with a new violation of section 625 of the Michigan vehicle code, 1949 PA 300, MCL 257.625.

(7) The receipt of notification by the secretary of state under subsection (6) shall result in summary revocation or suspension of the restricted license under section 304 of the Michigan vehicle code, 1949 PA 300, MCL 257.304.

(8) As used in this section:

(a) "DWI/Sobriety Courts" means the specialized court docket and programs established within judicial circuits and districts throughout this state that are designed to reduce recidivism among alcohol offenders and that comply with the 10 guiding principles of DWI courts as promulgated by the national center for DWI courts.

(b) "Ignition interlock device" means that term as defined in section 20d of the Michigan vehicle code, 1949 PA 300, MCL 257.20d.

(c) "Pilot project" means the DWI/Sobriety Court interlock pilot project created under subsection (1) on September 2, 2010 and authorized to operate for 4 years beginning January 1, 2011.

(d) "Program" means the DWI/Sobriety Court interlock program created on the effective date of the amendatory act that added this subdivision and authorized to operate beginning January 1, 2015.

Enacting section 1. This amendatory act does not take effect unless House Bill No. 5020 of the 97th Legislature is enacted into law.

This act is ordered to take immediate effect.

Clerk of the House of Representatives
Secretary of the Senate

Approved

# APPENDIX C

## Ignition Interlock Program (Experimental Group)

### Descriptions of Samples

| Sample | n | Description |
|---|---|---|
| Full Interlock Program Sample | 834 | All participants who met inclusion criteria and were enrolled by partner courts between January 1st, 2011 and December 31st, 2015. |
| Matched Cases From Interlock Program Sample (Recidivism Analysis Sample) | 729 | Participants from the full sample who could be matched to standard probationers from the state of Michigan with similar geographic, demographic and offender characteristics. |
| Matched Cases from Interlock Program Sample with at least One Year "At Risk" | 636 | Participants from the full sample who could be matched to standard probationers and who had been followed for at least one year after the conviction that put them into DWI/Sobriety Court. |
| Matched Cases from Interlock Program Sample with at least Two Years "At Risk" | 594 | Participants from the full sample who could be matched to standard probationers and who had been followed for at least two years after the conviction that put them into DWI/Sobriety Court. |
| Matched Cases from Interlock Program Sample with at least Three Years "At Risk" | 302 | Participants from the full sample who could be matched to standard probationers and who had been followed for at least three years after the conviction that put them into DWI/Sobriety Court. |
| Matched Cases from Interlock Program Sample with at least Four Years "At Risk" | 113 | Participants from the full sample who could be matched to standard probationers and who had been followed for at least four years after the conviction that put them into DWI/Sobriety Court. |
| Completed Cases from Interlock Program Sample | 667 | Subjects who had either successfully completed DWI/Sobriety Court by December 31st, 2015, had voluntarily withdrawn from the program, or had been discharged from the program "for cause" (i.e. a new criminal offense, failure to abide by DWI/Sobriety Court restrictions, or absconding from court supervision.) |

# APPENDIX E

## DWI/Sobriety Court (Non-Interlock) First Comparison Group

### Descriptions of Samples

| Sample | n | Description |
|---|---|---|
| Full Non-Interlock Comparison Group | 508 | All participants enrolled by partner courts between January 1st, 2010 and December 31st, 2010. |
| Non-Interlock Comparison Subjects Similar to Interlock Program Subjects | 415 | Participants from the full DWI/Sobriety Court comparison sample with similar current offense and previous criminal history characteristics as interlock program participants. |
| Matched Cases From Non-Interlock Comparison Group who are Similar to Interlock Program Subjects (Recidivism Analysis Sample) | 376 | Participants from the full sample who could be matched to standard probationers from the state of Michigan with similar geographic, demographic and offender characteristics and who were initially convicted of drunk driving offenses. |
| Completed Cases from Comparison Sample | 404 | Subjects who had either successfully completed DWI/Sobriety Court by December 31st, 2015, had voluntarily withdrawn from the program, or had been discharged from the program "for cause" (i.e. a new criminal offense, failure to abide by DWI/Sobriety Court restrictions, or absconding from court supervision.) |

# APPENDIX F

## Standard Probationer Second Comparison Group

### Descriptions of Samples

| Sample | n | Description |
|---|---|---|
| Standard Probationer Cases Matched to Interlock Program Sample | 729 | Subjects drawn from standard (i.e. non DWI/Sobriety) courts from across the state of Michigan who are similar to the Interlock Program participants in terms of geographic, demographic and offender characteristics. |
| Standard Probationer Cases: 1 Year Sample | 726 | Standard probationer comparison subjects with at least 1 year of at risk time. |
| Standard Probationer Cases: 2 Year Sample | 705 | Standard probationer comparison subjects with at least 2 years of at risk time. |
| Standard Probationer Cases: 3 Year Sample | 689 | Standard probationer comparison subjects with at least 3 years of at risk time. |
| Standard Probationer Cases: 4 Year Sample | 672 | Standard probationer comparison subjects with at least 4 years of at risk time. |

# APPENDIX G

## Independent and Control Variables

### Independent Variable

| Variable | Source | Description |
|---|---|---|
| Interlock Program Member | DCCMIS | A binary variable, 0 if the subject is a member of the DWI/Sobriety Court comparison group, 1 if he or she is a member of the experimental group (i.e. was placed on interlock restriction). |

### Control Variables

| | | |
|---|---|---|
| Gender | DCCMIS | A binary variable, 0 if the subject is female,1 if he is male. |
| Race | DCCMIS | A nominal level variable with 4 possible categories, White, Black, Hispanic and other. |
| Marital Status | DCCMIS | A nominal level variable with 5 possible categories, married, single, separated, divorced and widowed. |
| Age | DCCMIS | A continuous measure: chronological age in years at intake to DWI/Sobriety Court. |
| Educational Level at Intake | DCCMIS | An ordinal level variable with 10 possible categories ranging from post-baccalaureate college to no high school degree (and including a distinction between college education and trade school). |
| Employment Level at Intake | DCCMIS | An ordinal level variable with 4 possible categories, full time employment, part time employment, unemployed and not in the labor force. |
| Prior Substance Abuse | DCCMIS | A binary variable, indicating whether the subject had been diagnosed as a substance abuser prior to entering DWI/Sobriety Court: 0 if no, 1 if yes. |
| Prior Substance Abuse Treatment | DCCMIS | A binary variable, indicating whether the subject had been treated for substance abuse issues prior to entering DWI/Sobriety Court: 0 if no, 1 if yes. |
| Primary DSM-IV Diagnosis at Intake | DCCMIS | A multi-level nominal variable with various possible diagnoses from the DSM-IV. |
| Secondary DSM-IV Diagnosis at Intake | DCCMIS | A multi-level nominal variable with various possible diagnoses from the DSM-IV. |
| Court | DCCMIS | A nominal level variable describing the court the case was drawn from. It can take on the 5 values described earlier. |

## Process Variables

| Variable | Source | Description |
|---|---|---|
| Number of Days in Drug Court | DCCMIS | A continuous variable representing the total number of days the subject had spent in DWI/Sobriety Court as of December 31, 2015. |
| Total Number of Drug / Alcohol Tests* | DCCMIS | A continuous variable representing the total number of drug and alcohol tests while in DWI / Sobriety court. |
| Failed Drug / Alcohol Tests* | DCCMIS | A continuous variable representing the total number of failed drug and alcohol tests while in DWI / Sobriety court. |
| Sobriety Court Phase* | DCCMIS | The phase of DWI / Sobriety court the subject was in as of December 31, 2015. A 5 category ordinal variable including the values I – IV and "Closed Case" (i.e. no longer in the program). |
| Number of Bench Warrants* | DCCMIS | A continuous variable representing the number of bench warrants issued against the subject by the DWI / Sobriety court judge. |
| 12-Step Program Meetings* | DCCMIS | A continuous variable representing the total number of 12-step program meetings the subjected attended while in DWI / Sobriety court. |
| Court Ordered Sanctions* | DCCMIS | A continuous variable representing the total number of sanctions received by the subject while in DWI / Sobriety Court. |
| Court Ordered Incentives* | DCCMIS | A continuous variable representing the total number of incentives received by the subject while in DWI/Sobriety Court. |
| Treatment Contact Hours* | DCCMIS | A continuous variable representing the total treatment contact hours (of any kind) while in DWI/Sobriety Court. |
| Sobriety Days* | DCCMIS | A continuous variable representing the total number days the subject was sober while under the supervision of the DWI/Sobriety Court. |

* The reader should note that each of these process variables were also transformed into rate per month by taking the appropriate statistic, dividing by the total number of days in Drug Court and multiplying by thirty. This yield variables such as "The rate of failed drug / alcohol tests per month spent in DWI/Sobriety Court" etc.

## Outcome Variables

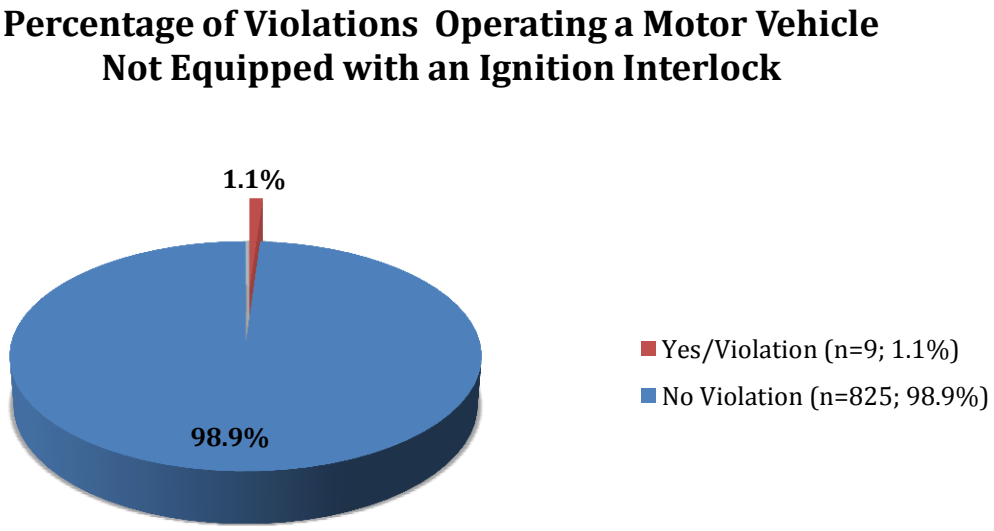
| Variable | Source | Description |
|---|---|---|
| Compliance With Interlock Order | DCCMIS | A binary variable, 1 if the subject failed to install an interlock device as ordered by the court, 0 the subject complied. |
| Removed Interlock | DCCMIS | A binary variable, 1 if the subject removed the interlock device without permission from the court, 0 if he or she did not. |
| Interlock Tampering | DCCMIS | A binary variable, 1 if the subject is tampered with the interlock device, 0 if the he or she did not. |
| Operating Vehicle without Interlock | DCCMIS | A binary variable, 1 if the subject is was caught operating a vehicle not equipped with an interlock device, 0 if he or she was not. |
| Improvement in Educational Attainment | DCCMIS | A binary variable, 1 if the subject improved his or her educational attainment between the time he/she entered DWI/Sobriety Court and his/her completion of the program (either successfully or not); 0 otherwise. |
| Improvement in Employment Status | DCCMIS | A binary variable, 1 if the subject improved his or her employment status between the time he/she entered DWI/Sobriety Court and completion of the program (either successfully or not); 0 otherwise. |
| Failure / Success in DWI/Sobriety Court | DCCMIS | A binary variable, 1 if the subject successfully completed DWI/Sobriety Court, a 0 if he or she "failed out" because of non-compliance, a new conviction, absconding or if he/she voluntarily withdrew from the program. |
| Reconviction for Operating While Impaired within 1 Year for Subjects with at Least 1 Year "at risk" ** | JDW | A binary variable indicating if the subject had been reconvicted of a DWI within 1 year after being admitted to DWI/Sobriety Court (or the date that a court case file was opened for Standard Probationers). For this variable, if a year had not yet passed since these dates, he or she was excluded from the sample. |
| Reconviction for Operating While Impaired within 2 Years for Subjects with at Least 2 Years "at risk" | JDW | As above, except with a 2 year time frame. |
| Reconviction for Operating While Impaired within 3 Years for Subjects with at Least 3 Years "at risk" | JDW | As above, except with a 3 year time frame. |
| Reconviction for Operating While Impaired within 4 Years for Subjects with at Least 4 Years "at risk" | JDW | As above, except with a 4 year time frame. |

| | | |
|---|---|---|
| Reconviction for any Criminal Offense within 1 Year for Subjects with at Least 1 Year "at risk" | JDW | A binary variable indicating if the subject had been reconvicted of any criminal offense within 1 year after being admitted to DWI/Sobriety Court (or the date that a court case file was opened for Standard Probationers). For this variable, if a year had not yet passed since these dates, he or she was excluded from the sample. |
| Reconviction for any Criminal Offense within 2 Years for Subjects with at Least 2 Years "at risk" | JDW | As above, except with a 2 year time frame. |
| Reconviction for any Criminal Offense within 3 Years for Subjects with at Least 3 Years "at risk" | JDW | As above, except with a 3 year time frame. |
| Reconviction for any Criminal Offense within 4 Years for Subjects with at Least 4 Years "at risk" | JDW | As above, except with a 4 year time frame. |

# APPENDIX H

## PERCENTAGE OF PARTICIPANTS WHO OPERATED A MOTOR VEHICLE NOT EQUIPPED WITH AN INTERLOCK

Figure 7 shows the number of known cases where Interlock Program Participants were found to be operating a motor vehicle not equipped with an interlock. For the period under analysis (2011-2015), only 9 known incidents occurred, comprising a violation rate of 1.1%. Therefore, the majority of program participants (n=825; 98.9%) complied with DWI/Sobriety Court orders, only operating vehicles equipped with interlock devices[19].




[19]A total of 298 cases in the DCCMIS dataset were reported as "missing." However, consistent with past practice, this missing data was re-coded as a non-violation (i.e. the participant did not operate a non-interlock equipped vehicle).

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