TRAFFIC INJURY RESEARCH FOUNDATION

BEHAVIORAL PATTERNS OF INTERLOCKED OFFENDERS: PHASE II

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THE TRAFFIC INJURY RESEARCH FOUNDATION

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Traffic Injury Research Foundation
171 Nepean Street, Suite 200
Ottawa, Ontario K2P 0B4
Ph: (613) 238-5235
Fax: (613) 238-5292
Email: tirf@tirf.ca
Website: www.tirf.ca

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BEHAVIORAL PATTERNS OF INTERLOCKED OFFENDERS: PHASE II

Prepared by:

Ward Vanlaar, Anna McKiernan, Robyn Robertson

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EXECUTIVE SUMMARY

In jurisdictions around the world there is an increasing demand for the use of alcohol ignition interlocks to reduce impaired driving. It is crucial that program administrators and practitioners understand behavioral patterns of offenders on an interlock to inform decision-making regarding the use of interlocks. This insight can guide administrators with regard to program development, implementation, and the use of program features.

Previous research has focused on the behavior of offenders on an interlock, specifically with respect to compliance with device requirements and program rules. In particular, offenders tend to blow fails or violate the conditions of the interlock program at a relatively high rate at the beginning of their participation and this behavior quickly diminishes after offenders have been on the device for some time.

The purpose of this current study is to further investigate behavioral patterns of offenders using interlock data organized by jurisdiction and sex for several violation types (e.g., restart violations and running retest violations). As such, the current study aims to extend and bolster previous findings from an earlier study as well as uncover new patterns using data collected from three states: Texas, California and Florida.

Using interlock data provided by LifeSafer which were drawn from the period between 1999 and 2012, events such as breath samples when trying to start the car, breath samples after having started the car, also known as a running retest, and attempts to skip the running retest were analyzed in order to uncover relevant behavioral patterns.

The results from this current study corroborate the findings from previous research, i.e., many offenders on an interlock are not compliant at the beginning of their program participation, but the majority of them soon become more compliant. It was found that such patterns were most pronounced in two states with stronger and more consistent monitoring practices (Texas and Florida) whereas these patterns were less pronounced in the state with less consistent monitoring practices (California). In terms of sex, no substantial differences between males and females were found. With respect to length of participation, it became clear that participants who are only in the program for a maximum of one year become compliant much faster than participants who are in the program for at least one year.

These findings speak to the need for consistent monitoring of offenders as well as coupling interlock programs with other interventions like treatment for higher risk offenders. The findings further suggest that using not only negative reinforcements for bad behavior but also using positive reinforcements for good behavior may be beneficial.

1. INTRODUCTION

1.1 Background

In jurisdictions around the world there is an increasing demand for the use of alcohol interlocks to reduce impaired driving. Hence, it is crucial that program administrators and practitioners understand behavioral patterns of offenders on an interlock to inform decision-making regarding the use of interlocks in programs. Insight into compliance rates of interlocked offenders throughout their time on the interlock can guide administrators with regard to program development, implementation, and the use of program features, particularly in relation to logistical aspects of a program and the requisite resources to support it.

With the aim of evaluating these patterns, TIRF conducted a study in 2010 with funding from the Dutch Ministry of Transportation (Vanlaar et al. 2010) to shed light on the behavior of offenders on the interlock, specifically with respect to their compliance with device requirements and program rules. This 2010 study built on previous research and further illustrated how such knowledge can be used to inform the implementation and delivery of interlock programs, in particular the Dutch interlock program. The results from this study revealed that offenders tend to blow fails or violate the conditions of the interlock program at a relatively high rate at the beginning of their program participation and this behavior quickly diminishes after offenders have been on the device for some time, illustrating a "learning effect". During the first several months offenders have more failed tests, more failed tests at higher blood alcohol concentration (BAC) levels, more violations when starting the car, more violations when conducting a retest, and more circumvention attempts.

The purpose of the current study is to extend the work and findings from the previous study by Vanlaar et al. (2010), which reviewed data which was not specific to jurisdiction or sex of the offender. Instead, the data used were from the United States (U.S.) as a whole, without any breakdown by offender demographics. However, in the current study, new data are used to further investigate behavioral patterns of offenders in a more exhaustive manner.

1.2 Current interlock research and programs

Research is available which evaluates offender compliance with alcohol interlocks – both compliance with installing the device and compliance once the device is installed. In relation to the former, offenders may forgo device installation due to the belief that it is difficult for law enforcement to detect an unlicensed driver. For offenders, driving without a license seems like a low-risk option causing them less hassle than installing the interlock (Voas et al. 2010). Other reasons why offenders refuse to install interlocks may relate to inconvenience, embarrassment, and cost. The likelihood of offenders opting not to install the device may also be related to the program requirements in their jurisdiction and the resulting repercussions of this action (e.g., house arrest). For instance, a California study revealed that of the 775 DWI[1] offenders sentenced to install an alcohol interlock as a condition of probation, 191 offenders (approximately 25%) did not have the device installed (DeYoung 2002) whereas in Florida only 25.6% of arrested offenders installed a mandatory interlock (Marques et al. 2010). This disparity in behavior may be a consequence of the varying structure and rules associated with interlock programs.

It must be underscored that the installation of alcohol interlock devices is essential for two important reasons. First, research has repeatedly shown that these devices are proven to reduce recidivism among both first offenders and repeat offenders while installed. This includes hardcore offenders (also known as persistent/chronic drinkers and repeat offenders) who repeatedly drive after drinking with extremely high BACs and are resistant to change this behavior. A systematic review of 15 scientific studies conducted by the Centers for Disease Control and Prevention (CDC) found that while interlocks were installed, the re-arrest rate of offenders decreased by 67% compared to groups that did not have the device installed (Elder et al. 2011). In a Swedish study, it was found that the frequency of annual DWI offenses decreased by about 60% among offenders who completed a two-year interlock program. Similar reductions were found two to four years after removal of the device (Bjerre and Thorsson 2008). A study of New Mexico's interlock program found that offenders who participated in the program had a 61% lower recidivism rate while the device was installed and a 39% lower recidivism rate following the removal of the interlock compared to offenders who never had the device installed (Marques et al. 2010).

Second, previous studies have noted the predictive value of interlock data. For instance, it has been found that a high rate of BAC fail readings from the alcohol interlock data recording device, particularly in excess of 0.02, is predictive of the likelihood of recidivism (Marques et al. 2003; Beirness and Marques 2004). Similarly, Marques and Voas (2008) found that the number of failed BAC tests logged is predictive of repeat DWI offenders. The higher the rate of failed tests, the more likely offenders will recidivate once the interlock is removed. The presence of elevated BAC tests during early morning hours can also assist in predicting future DWI offenses. The presence of two or more elevated BAC test results during the early morning hours further bolsters the predictive model regarding the likelihood of future DWI offenses (Beirness and Marques 2004).

[1] DWI is a general term that refers to offenses involving driving while impaired or intoxicated by alcohol. In different jurisdictions these offenses may be referred to using a variety of terms including DUI, OWI, and OUI. DWI will be used for the purposes of this report.

With these well-established benefits of interlocks in mind, it is encouraging that a majority of jurisdictions in the U.S., Canada and a growing number of jurisdictions in Europe and Australasia have some form of alcohol interlock program in place. Although at this time there is no European Union (EU) legislation regarding the implementation of alcohol interlocks, several countries have developed or are in the process of developing their own interlock laws and programs. Sweden has been a forerunner in terms of interlocks and has had a program for several years. In recent years Finland, Norway, France, and the Netherlands have passed legislation and implemented an interlock program. Other European jurisdictions (such as Spain, Germany, Austria, Slovenia and Israel) have organized pilot projects and/or have passed enabling legislation (Belgium, Denmark) (Vehmas and Loytty 2013). Several jurisdictions in Australia have implemented alcohol interlock programs including New South Wales, Victoria, Queensland, South Australia, and the Northern Territory; New Zealand and Tasmania have also recently followed suit. An International Inventory of Interlock Programs is available at http://iiip.tirf.ca/.

Historically, interlocks have been directed towards repeat offenders, but more recently, jurisdictions are expanding or considering expanding their programs by making first offenders eligible to participate, either on a mandatory or voluntary basis. For example, according to the Insurance Institute for Highway Safety (IIHS), in the U.S. there are 20 jurisdictions and four counties in California that have mandatory ignition interlock provisions for all impaired driving offenses including first and repeat offenders. These states include Alaska, Arizona, Arkansas, California (four counties), Colorado, Connecticut, Hawaii, Illinois, Kansas, Louisiana, Minnesota, Missouri, Nebraska, New Mexico, New York, Oregon, Utah, Vermont, Virginia, Washington, and West Virginia. IIHS further reports that an additional 12 jurisdictions have implemented first offender interlock legislation, but it is mandatory only if offenders breach specific requirements such as high BAC, refusing a chemical test or having a minor child in the vehicle. These jurisdictions include Delaware, Florida, Idaho, Maryland, Michigan, Nevada, New Hampshire, New Jersey, North Carolina, Oklahoma, Tennessee, Texas, Wisconsin and Wyoming (IIHS 2013). While not all jurisdictions include first offenders in their programs, all 50 states in the U.S. have introduced some form of ignition interlock law. For an overview of the interlock laws in every state, refer to: http://www.ncsl.org/issues-research/transport/state-ignition-interlock-laws.aspx.

Program design can have considerable effects on offender behavior. In the U.S., interlock programs vary depending on whether they are administered by court or probation agencies, by the state licensing authority, or a combination of both (i.e., a hybrid program). For example, licensed-based agencies may not have the authority or capacity to physically monitor interlocked offenders or impose meaningful sanctions (i.e., these programs involve paper-monitoring only and not monitoring by a person). This can make it easier for offenders to incur one or more interlock violations without receiving any real or immediate penalty, or to circumvent the device without detection. Repeat offenders are especially likely to capitalize on such program limitations because they have had a previous opportunity to discover the structure of the program and adjust their behavior accordingly (Robertson and Simpson 2003). Thus, the structure, operations and organization of a program may influence interlock participation and potentially offenders'

behavior while on the interlock. Consequently, it is important to keep in mind that each interlock program across the U.S is unique and utilizes different rules and regulations. This may ultimately influence offender behavior while they are participating in interlock programs.

In the previous study conducted by Vanlaar et al. (2010), one of the limitations was that data from across the U.S. was combined in one dataset. Conversely, the present study has been designed to overcome this weakness by analyzing data from individual jurisdictions. In particular, data from three states are analyzed in this report: Texas, California and Florida. Brief summaries of the interlock program in each state are provided below as important context for the interpretation of the results of the analyses in this report.

1.3 Programs included in this study

The jurisdictions selected for this study vary in terms of program structure, eligibility criteria, and requirements. The following subsections provide detailed descriptions of the nature and components of the Texas, California, and Florida interlock programs.

1.3.1 Texas interlock program

The interlock program in Texas is court-based and relies on judges to order the installation of the device. It is also one of the only states that use interlocks as a condition of pre-trial release. The program has provisions for both first and repeat offenders with mandatory participation required for the latter as well as high BAC first offenders. Judges may require the installation of an interlock for first offenders but this is based on judicial discretion and occurs rarely. For second or subsequent offenses or a high BAC first offense (>0.15) the court is required to order offenders to install an interlock for one year following a period of license suspension. The courts are also required to order the installation of an interlock in cases involving two or more convictions for any combination of DWI, intoxication assault, and intoxication manslaughter. Court compliance in enforcing this mandate varies.

The Texas interlock program is administered by the Department of Public Safety (DPS). The Department is responsible for the establishment of minimum standards for vendors and procedures to ensure compliance with those standards, including procedures for the inspection of service centers. DPS' Breath Alcohol Laboratory is responsible for the approval of interlock devices. There is no centralized authority in relation to monitoring of interlock reports and data.

The courts order the installation of an interlock at the time of sentencing and submits this information to DPS who then restricts offenders' driving privileges. The Driver License Division of DPS issues restricted driver licenses to offenders ordered to install an interlock. This restricted license authorizes an individual to operate a vehicle equipped with an interlock. Most offenders convicted of DWI are sentenced to a term of probation and it is probation officials who monitor offenders while they are on the interlock. The degree to which probation officers monitor interlock offenders, review data downloads, and sanction offenders for non-compliance is inconsistent.

At the end of 2012, there were approximately 31,000-33,000 interlocks installed in Texas. As a result, Texas has the largest number of interlock installations in the country although this is a function of population.

Texas' interlock program administrative rules can be accessed online: http://info.sos.state.tx.us/pls/pub/readtac$ext.TacPage?sl=T&app=9&p_dir=P&p_rloc=123817&p_tloc=&p_ploc=1&pg=4&p_tac=&ti=37&pt=1&ch=19&rl=22.

Preset limit of device: 0.03.

1.3.2 California interlock program

California has a hybrid interlock program that has been in place since 1986 and was implemented statewide since 1990. Participation in the interlock program is mandatory for repeat offenders and discretionary for first offenders. The court has the general authority (as per Sec. 23575 of the Vehicle Code) to order the installation of an interlock on any DWI conviction for a period of up to three years post-conviction. The court is to give heightened consideration in the cases of high BACs, test refusals, or to offenders with two or more prior traffic violations. This statute is not mandatory per se and relies heavily upon judicial discretion to order the device. There are mandatory interlock provisions for offenders who are caught driving while suspended or revoked for DWI. There are also incentives for offenders to install an interlock. For example, offenders convicted of a second DWI serve a two year suspension but can get an interlock restricted licence after 90 days permitted that they meet all eligibility criteria (e.g., proof of DWI education, financial responsibility, and interlock installation).

Unfortunately, the interlock is ordered infrequently and is not applied uniformly as a sanction across the state; judges in some counties tend to order the device with greater consistency than others. The monitoring of interlock offenders is done by probation officers but only if those individuals are being actively supervised (in California, most DWI offenders are placed on summary probation. Formal probation is reserved for felony offenders – i.e., those who have obtained three prior DWI convictions within a ten year period prior to the pending fourth arrest).

The California DMV is responsible for approving vendors and has administrative oversight of the program. Additional responsibilities include managing license suspensions, reinstatements, and the issuance of restricted licenses. The DMV does not however, review interlock data or enforce program compliance. The DMV also has no authority to impose sanctions for those individuals who either fail to have the interlock installed or violate program rules and regulations. The only recourse that the DMV has at its disposal is to revoke the restricted license. In order for a driver to be fully re-licensed, they must successfully complete the interlock program.

Preset limit of device: 0.03.

1.3.3 Florida interlock program

Similar to California, Florida has a hybrid interlock program (although it is primarily administrative) whereby the licensing authority can require the device as a condition of license reinstatement if the courts fail to

order one at the time of sentencing. In Florida, the law requires that an alcohol interlock be installed on the vehicle of certain persons convicted of impaired driving. For a high BAC first offense (>0.15), program participation must be court-ordered and the interlock remains on the vehicle for at least six months. For a second offense, program participation is one year (two years for a high BAC) and the offender is required to report monthly to the DWI program for monitoring and is placed on a case management plan. A third offense results in at least two years in the interlock program with a referral to treatment which must be completed prior to program exit. A fourth or subsequent offense results in at least five years in the interlock program.

Florida has one of the most integrated programs in the U.S., pairing information gathered from alcohol interlock ignition interlock devices with substance abuse treatment, with the goal of achieving long-term behavioral change. The program is managed by the Department of Highway Safety and Motor Vehicles (DHSMV) and offenders are monitored through a remedial DWI program that utilizes a set of graduated sanctions to address violations. For a first violation, offenders receive a notification letter advising them to contact a DWI program within 20 days of receipt of the letter; failure to do so results in a cancellation of the restricted license. For a second violation, offenders are required to attend a monitoring appointment where an individualized case management plan is developed. This plan consists of goals that will help offenders prevent drinking and driving and address why the behavior is occurring. Offenders are then required to attend monthly monitoring appointments until their interlock requirement is met. For a third or subsequent violation, offenders have their interlock requirement extended by one month or until they complete treatment. Offenders are to remain on a monthly monitoring appointment schedule until the interlock requirement is met. The DWI program is responsible for referring offenders to treatment and monitoring their progress and compliance. Once offenders complete treatment, DWI program staff notifies the DHSMV who calculates a new interlock time requirement based on the completion date of treatment. If clients receive a subsequent violation after treatment completion, they are referred again.

Due to a high level of automation, Florida is well positioned to conduct evaluations of program success. DHSMV conducted a study that examined participation rates between 2004 and 2010 and found that there were a total of 41,128 devices installed. However, there were large numbers of offenders with administrative requirements and judicial requirements who failed to install the device during that same time period (Fiedler et al. 2012). Another study revealed that out of 21,377 eligible offenders required to install the interlock as of June 2008, 19,914 installed the interlock and 12,466 completed the requirement. In recent years, program participation rates have increased as Florida has recorded a double-digit percentage increase in interlock installations in the past five years. As of 2010, there were a total of 8,335 interlocks installed in the state (Fiedler et al. 2012).

Florida's interlock program administrative rules can be accessed online: https://www.flrules.org/gatewy/chapterhome.asp?chapter=15A-9.

Preset limit of device: 0.05.

1.4 Objectives

In light of the growing use of the interlock as a DWI sanction, and the number of authorities involved in the sentencing and implementation of interlock programs, it is crucial that administrators and practitioners are able to effectively utilize knowledge about behavioral patterns of offenders on this device. An intimate understanding of how interlocked offenders behave while enrolled in programs is essential to the creation of reasonable, realistic and achievable expectations regarding program features and offender performance. Such knowledge can also be useful to identify appropriate responses to events and to anticipate workload among practitioners managing interlock programs and supervising offenders. Ultimately, insight into compliance rates of interlocked offenders throughout their time on the device can be crucial for program administrators to inform decision-making about the operational features of programs and the requisite resources to support it. In other words, understanding behavioral patterns of interlocked offenders is necessary to allocate resources accordingly for the effective and efficient implementation and delivery of the program.

The objectives of this study are to shed light on the behavioral patterns of offenders on interlock devices, specifically in terms of their compliance with device requirements and program rules. In particular, this study reveals how such indicators as percent of offenders who blow failed tests, violation rates and BACs can change over time.

Ultimately this study seeks to reaffirm, bolster and strengthen the previous study by Vanlaar et al. (2010) which examined offender interlock information and behavioral patterns for the U.S. as a whole. In this previous study it was found that offenders tend to blow fails or violate the conditions of the interlock program at a relatively high rate at the beginning of their participation and this behavior quickly diminishes after having been on the interlock for a while. Although these results are valuable, it was not possible to examine these trends in relation to demographic characteristics and break down results according to sex or jurisdiction. The current study, although similarly examining the interlock data and behavioral patterns, analyzes it according to jurisdiction, sex, violation type and length of time on the interlock.

2. METHODS

2.1 Sample

Using interlock data provided by LifeSafer, a leading alcohol interlock ignition interlock provider in Texas, California and Florida, the behavior of a significant number of interlocked offenders was studied. In Texas, data from 4,817 offenders were analyzed, in California 5,671 offenders and 15,016 from Florida. The data used for these analyses were drawn from the period between 1999 and 2012, where each offender was tracked from their first month of program participation to their last, not exceeding a total of 24 months. Note that participation rates drop dramatically beyond 24 months to the extent that results are no longer robust and become unreliable.

2.2 Data

All data logged by the alcohol interlock device used by offenders have been included in this study. A variety of events are typically logged and stored such as providing a breath sample when trying to start the car; providing a breath sample after having started the car (also known as a running retest); results from these breath samples, expressed as a BAC (a "fail" or "failed test" means a test with a BAC at or over a preset level; for the purpose of this study the thresholds used were 0.03 for California and Texas and 0.05 for Florida); and attempts to skip the running retest. Almost 19,000,000 events were included for Texas, whereas California had close to 20,000,000. The highest number of events occurred in Florida, which reached almost 60,000,000 logged events.

2.3 Data analysis

The analyses that have been conducted examined data collected during a two-year period. Data from participants were available between 1999 and 2012. A sliding window of a maximum of two years has been used for the analyses, individualized per offender (so the longest tracking period was two years but because not all offenders participate as long as two years the tracking period for some of them was shorter). Two years was selected as a tracking period because the number of offenders participating beyond two years drops significantly, making the sample too small for meaningful analyses. The earliest time this sliding window commenced for any respondent in California was June 1999 and the latest it could end was January 2012; in Florida this was December 2003 and January 2012; in Texas this was August 2003 and January 2012. Behavorial patterns have also been investigated in time blocks of three months to reveal changes over time.

Descriptive statistics including counts and percentages, along with 95% confidence intervals (95%-CI) and two-sample tests of proportions and two-sample t-tests for means have been calculated. All analyses have been carried out with Stata 12 MP for Windows (parallel edition for two cores; 64-bit operating system).

Given the large amounts of data such techniques as sorting and indexing have been used to facilitate the efficient processing of the data (see e.g., Vanlaar 2008).

The data have been analyzed in relation to several different types of events. These events include: blowing a breath sample over 0.02, blowing a breath sample over the preset limit (0.03 for Texas and California and 0.05 for Florida), blowing a breath sample over 0.08, start-up violations and running retest violations.

The analyses have also been broken down by sex as well as length of program participation, in particular offenders who participated up to one year versus offenders who participated at least one year. This latter distinction has been made as a proxy to control for the level of risk posed by offenders, the underlying rationale being that offenders who have been sentenced to, or are required to complete, a shorter period of time on the interlock typically are lower risk offenders compared to offenders who have been sentenced to or are required to install the interlock for a longer period of time. For example, first time offenders are generally speaking sentenced to a period on the interlock no longer than one year, whereas repeat offenders would be sentenced for at least one year.

3. RESULTS

3.1 Breath samples over 0.02

Table 1 contains the number of offenders in each state who blew over 0.02 on the interlock device, the total number of offenders in the program with a Lifesafer device, and the resulting percentages for each three-month period. Blowing over 0.02 did not result in a fail for these drivers, since each state program has its own preset level (Texas and California: 0.03; Florida: 0.05). Nevertheless, these results do illustrate how many drivers attempted to start their vehicles after having consumed some amount of alcohol.

Table 1: Percent of offenders who blew over 0.02				
Texas				
Month	**# of offenders who blew over 0.02**	**# of offenders in program**	**%**	**95%-CI**
1-3	2,638	4,817	54.8	53.4-56.2
4-6	1,835	4,047	45.3	43.8-46.9
7-9	1,231	3,157	39.0	37.3-40.7
10-12	824	2,303	35.8	33.8-37.7
13-15	536	1,713	31.3	29.1-33.5
16-18	366	1,262	29.0	26.5-31.5
19-21	265	959	27.6	24.8-30.5
22-24	225	770	29.2	26.0-32.4
California				
Month	**# of offenders who blew over 0.02**	**# of offenders in program**	**%**	**95%-CI**
1-3	3,741	5,671	66.0	62.4-65.0
4-6	3,345	5,255	63.7	65.0-67.2
7-9	1,766	3,080	57.3	55.6-59.1
10-12	1,459	2,391	61.0	59.1-63.0
13-15	823	1,811	45.4	43.1-47.7
16-18	554	999	55.5	52.4-58.5
19-21	361	699	51.6	48.0-55.3
22-24	234	504	46.4	42.1-50.8
Florida				
Month	**# of offenders who blew over 0.02**	**# of offenders in program**	**%**	**95%-CI**
1-3	9,580	15,016	63.8	63.0-64.7
4-6	8,690	14,007	62.0	61.2-62.8
7-9	4,978	12,424	40.1	39.2-40.9
10-12	3,853	7,267	53.0	51.9-54.2
13-15	1,598	6,724	23.8	22.7-24.8
16-18	979	2,312	42.3	40.3-44.4
19-21	803	2,004	40.1	37.9-42.2
22-24	730	1,836	39.8	37.5-42.0

The number of offenders who blew over 0.02 declined as they spent more time on the interlock in all three programs. Texas had a consistent decrease in the number of these blows, beginning at 54.8% in the first three months and ending at 29.2% in the 22nd to 24th months. In the first year, California's participants also exhibited this pattern, decreasing from 66.0% at the beginning of the interlock installation period, to 57.3% at the seven to nine month period. The year mark brought a slight increase to 61.0%, but then decreased to 45.4% in the 13th to 15th month. Offenders in California ended the period with almost half of participants (46.4%) blowing over 0.02. The percentage of offenders in Florida varied as well, beginning with 63.8% of offenders blowing over 0.02 in the first three months; this decreased to 23.8% by the 15th month and ended year two at 39.8%. Overall, the reduction in Texas is 47% (54.8-29.2/54.8), in California 30% (66.0-46.4/66.0) and in Florida 38% (63.8-39.8/63.8).

Table 2: Percent of offenders who blew over 0.02 by sex

Texas						
Month	**# of males who blew over 0.02**	**%**	**95%-CI**	**# of females who blew over 0.02**	**%**	**95%-CI**
1-3	2,017	54.9	53.3-56.6	410	59.9	56.3-63.6
4-6	1,386	37.9	36.0-40.0	298	50.5	46.5-54.5
7-9	927	44.6	42.9-46.4	217	46.2	41.7-50.7
10-12	650	35.9	33.7-38.1	122	35.6	30.5-40.6
13-15	444	31.9	29.4-34.3	66	28.4	22.6-34.3
16-18	305	29.0	26.3-31.8	49	30.2	23.2-37.3
19-21	225	27.4	24.3-30.4	28	26.4	18.0-34.8
22-24	192	28.8	25.3-32.2	26	32.9	22.5-43.3
California						
Month	**# of males who blew over 0.02**	**%**	**95%-CI**	**# of females who blew over 0.02**	**%**	**95%-CI**
1-3	2,762	66.1	64.7-67.5	782	65.4	62.7-68.1
4-6	2,457	63.8	62.3-65.3	731	64.3	61.5-67.1
7-9	1,377	58.0	56.0-60.0	321	56.4	52.3-60.5
10-12	1,122	60.6	58.4-62.8	272	64.3	59.7-68.9
13-15	641	45.7	43.1-48.3	145	45.2	39.7-50.9
16-18	441	56.1	52.6-59.6	94	55.3	47.8-62.8
19-21	290	53.1	48.9-57.3	62	50	41.2-58.8
22-24	179	45.1	40.2-50.0	49	54.4	44.2-64.7
Florida						
Month	**# of males who blew over 0.02**	**%**	**95%-CI**	**# of females who blew over 0.02**	**%**	**95%-CI**
1-3	7,030	63.5	62.6-64.4	2546	64.7	63.2-66.2
4-6	6,332	61.6	60.6-62.5	2354	63.3	61.7-64.8
7-9	3,842	42.0	41.0-43.0	1133	34.6	33.0-36.3
10-12	3,034	53.4	52.1-54.7	815	51.4	49.0-53.9
13-15	1,267	24.0	22.8-25.1	330	22.9	20.8-25.1
16-18	783	42.2	39.9-44.4	195	43.0	38.5-47.6
19-21	640	39.8	37.4-42.2	163	41.3	36.4-46.1
22-24	588	39.5	37.1-42.0	142	40.8	35.6-46.0

Table 2 presents the number and percentage of males and females who blew over 0.02 in each three-month interval. In general, males and females performed similarly perhaps with the exception of females in California, where the reduction is only 17% (65.4-54.4/65.4) compared to 32% (66.1-45.1/66.1) for males.

3.2 Breath samples over preset limit

Each state program imposes a preset limit on the interlock device such that offenders should not blow over it or they will register a fail. This limit is often lower than the legal limit of 0.08. With respect to the three states included in this report, the preset limits are as follows: Texas is 0.03, California is 0.03 and Florida is 0.05. The following is a summary of the number and percentage of offenders who blew over their respective preset limit in each state, as well as this same data reported according to sex. Similar data are presented for the average failed blows per offender over the respective preset limit.

Table 3 presents the number of offenders who blew over the preset limit in Texas by three month time intervals, as well as the average number of failed blows over 0.03 per offender by the same three month intervals. Almost half of offenders began the program by blowing over the preset limit, with 2,287 doing so out of 4,817 participants (47.5%). This percentage decreased steadily throughout the two years, ending at 22.9% of offenders blowing over the preset limit in the last three months of the program. This corresponds to a 52% reduction (47.5-22.9/47.5).

Table 3: Percent of offenders who blew over 0.03 in Texas				
Month	**# of offenders who blew over 0.03**	**# of offenders in program**	**%**	**95%-CI**
1-3	2,287	4,817	47.5	46.1-48.9
4-6	1,517	4,047	37.5	36.0-39.0
7-9	979	3,157	31.0	29.4-32.6
10-12	638	2,303	27.7	25.9-29.5
13-15	405	1,713	23.6	21.6-25.7
16-18	278	1,262	22.0	19.7-24.3
19-21	201	959	21.0	18.4-23.5
22-24	176	770	22.9	19.9-25.8
Average number of blows over 0.03 per offender in Texas				
Month	**# of blows over 0.03**	**# of offenders in program**	**Avg/per offender**	**95%-CI**
1-3	21,248	4,817	4.41	2.26-6.56
4-6	16,683	4,047	4.12	1.98-6.26
7-9	4,929	3,157	1.56	.84-2.28
10-12	6,754	2,303	2.93	-.98-6.84
13-15	6,226	1,713	3.63	-1.74-9.00
16-18	2,077	1,262	1.64	-.50-3.79
19-21	472	959	.49	.39-.60
22-24	475	770	.62	.43-.81

As for the average number of blows over 0.03 per offender in Texas, the first six months reveals a high number of blows per offender (more than four) but this decreased substantially by the end of the program to .62; although there was a substantial increase that occurred at months 13-15.

Table 4 examines the behavior of both males and females in Texas with respect to offenders exceeding the preset limit. As can be seen for percent of offenders blowing over 0.03, males are slightly lower than females, decreasing from 47.7% in the first three months to 22.0% in the last three months whereas females began at 52.0% and decreased to 27.8%.

As for average blows per offender, males do not exhibit a clear decreasing pattern in the first 15 months, beginning at 4.87 and decreasing to 1.17, and then increasing to 4.36. Males complete the 24-month period with a low of .64 blows over 0.03 per offender on average. Females reached a high number of blows per offender on average in the first six months, with offenders averaging 10.52 blows over 0.03, however this decreased substantially to .49 blows per offender by the end of the monitoring period.

Table 4: Percent of male and female offenders who blew over 0.03 in Texas						
Month	**# of males who blew over 0.03**	**%**	**95%-CI**	**# of females who blew over 0.03**	**%**	**95%-CI**
1-3	1,751	47.7	46.1-49.3	356	52.0	48.3-55.8
4-6	1,152	37.1	35.4-38.8	249	42.2	38.2-46.2
7-9	732	30.0	28.1-31.8	179	38.1	33.7-42.5
10-12	501	27.7	25.6-29.7	98	28.6	23.8-33.4
13-15	338	24.3	22.0-26.5	46	19.8	14.7-25.0
16-18	231	22	19.5-24.5	40	24.7	18.1-31.3
19-21	171	20.8	18.0-23.6	23	21.7	13.9-29.5
22-24	147	22.0	18.9-25.2	22	27.8	18.0-37.7
Average number of blows over 0.03 per male and female offender in Texas						
Month	**# of blows over 0.03 males**	**Avg/per offender**	**95%-CI**	**# of blows over 0.03 females**	**Avg/per offender**	**95%-CI**
1-3	17,867	4.87	2.07-7.66	2,671	3.90	1.89-5.92
4-6	10,169	3.27	1.29-5.26	6,209	10.52	.20-20.85
7-9	2,860	1.17	.87-1.47	1,885	4.01	-.56-8.58
10-12	6,094	3.36	-1.60-8.33	530	1.55	-.04-3.13
13-15	6,071	4.36	-2.25-10.96	83	.36	.22-.50
16-18	1,994	1.90	-.67-4.47	71	.44	.28-.60
19-21	402	.49	.38-.60	57	.54	.20-.87
22-24	425	.64	.42-.86	39	.49	.28-.71

Table 5 presents the number of offenders who blew over the preset limit of 0.03 in California along with the average number of blows per offender for this violation. Within the first year of the program, offenders in California fluctuate between 59.1% and 50.8% of offenders blowing over the preset limit. This decreased to 38.6% for months 13-15 and then increased slightly and ends at 40.5%. Overall, this corresponds to a 31% reduction (59.1-40.5/59.1).

The average number of blows over 0.03 per offender reveals a similar pattern to that of the percentage of offenders; it decreases in the first 15 months (3.59 to 2.47), then increases to 3.03 blows per offender by the end of the program. When comparing California and Texas, California has a lower number of blows per offender than Texas but the average number of blows does not decrease as dramatically as is the case in Texas.

Table 5: Percent of offenders who blew over 0.03 in California				
Month	**# of offenders who blew over 0.03**	**# of offenders in program**	**%**	**95%-CI**
1-3	3,352	5,671	59.1	57.8-60.4
4-6	2,969	5,255	56.5	55.1-57.8
7-9	1,566	3,080	50.8	49.1-52.6
10-12	1,267	2,391	53.0	51.0-55.0
13-15	699	1,811	38.6	36.4-40.8
16-18	483	999	48.3	45.2-51.4
19-21	309	699	44.2	40.5-47.9
22-24	204	504	40.5	36.2-44.8
Average number of blows over 0.03 per offender in California				
Month	**# of blows over 0.03**	**# of offenders in program**	**Avg/per offender**	**95%-CI**
1-3	20,349	5,671	3.59	3.40-3.77
4-6	16,666	5,255	3.17	3.00-3.34
7-9	10,275	3,080	3.34	3.07-3.60
10-12	7,891	2,391	3.30	3.02-3.58
13-15	4,473	1,811	2.47	2.18-2.76
16-18	2,895	999	2.90	2.52-3.28
19-21	2,122	699	3.04	2.43-3.64
22-24	1,527	504	3.03	2.23-3.82

In **Table 6** the same information regarding the percent of offenders blowing over 0.03 is presented but broken down by sex. The percent of males committing this violation decreases more compared to females, dropping from 59.3% to 39.0% (a 34% reduction; 59.3-39/59.3). Females, on the other hand, only decrease from 58.0% to 48.9% (a 16% reduction; 58.0-48.9/58.0).

As for the average number of blows per offender, males do not show much change during the 24-month period, decreasing from 3.68 in the first three months to 2.69 in the last three months. Females do not fare much better, ending the program with a higher average number of blows per offender (4.54 at the end

compared to 3.22 at the beginning). It warrants mentioning that the lower numbers in these tables make the results less robust compared to tables where males and females are considered together.

Table 6: Percent of male and female offenders who blew over 0.03 in California						
Month	**# of males who blew over 0.03**	**%**	**95%-CI**	**# of females who blew over 0.03**	**%**	**95%-CI**
1-3	2,480	59.3	57.9-60.8	694	58.0	55.2-60.8
4-6	2,176	56.5	54.9-58.0	650	57.2	54.3-60.0
7-9	1,220	51.4	49.4-53.4	284	49.9	45.8-54.0
10-12	981	53.0	50.7-55.3	230	54.4	49.6-59.1
13-15	547	39.0	36.5-41.6	122	38.0	32.7-43.3
16-18	381	48.5	45.0-52.0	84	49.4	41.9-56.9
19-21	248	45.4	41.2-49.6	53	42.7	34.0-51.4
22-24	155	39.0	34.2-43.8	44	48.9	38.6-59.2
Average number of blows over 0.03 per male and female offender in California						
Month	**# of blows over 0.03 males**	**Avg/per offender**	**95%-CI**	**# of blows over 0.03 females**	**Avg/per offender**	**95%-CI**
1-3	15,372	3.68	3.46-3.90	3,849	3.22	2.85-3.58
4-6	12,925	3.35	3.14-3.56	3,048	2.68	2.39-2.97
7-9	8,155	3.44	3.13-3.73	1,773	3.12	2.50-3.73
10-12	6,147	3.32	3.00-3.64	1,432	3.39	2.68-4.09
13-15	3,503	2.50	2.17-2.82	851	2.65	1.88-3.43
16-18	2,385	3.03	2.59-3.48	435	2.56	1.76-3.36
19-21	1,615	2.96	2.29-3.63	430	3.47	1.88-5.05
22-24	1,068	2.69	1.89-3.49	409	4.54	1.91-7.18

In **Table 7**, in Florida a large percentage (45.2%) of offenders recorded blows over 0.05 during the first 3-month period. The percentage of offenders with a failed blow over 0.05 decreased to 23.5% in the first nine months and increased to 30.8% by the 12th month; the percentage then decreased again to 12.0% during months 13 to 15. In Florida, there is a smaller percentage (20.2%) of offenders who complete the 24-month period with a blow over the preset limit. Overall, the decrease is 55% (45.2-20.2/45.2).

A similar pattern is found in the average number of blows over 0.05 per offender. The average number of blows per offender decreases from 1.50 in the first three months to .30 in months 13 to 15. This is followed by an increase at months 16 to 18 to .66 and a decrease during the last 3 months to .55 blows per offender over 0.05.

Table 7: Percent of offenders who blew over 0.05 in Florida				
Month	**# of offenders who blew over 0.05**	**# of offenders in program**	**%**	**95%-CI**
1-3	6,786	15,016	45.2	44.4-46.0
4-6	5,657	14,007	40.4	39.6-41.2
7-9	2,914	12,424	23.5	22.7-24.2
10-12	2,237	7,267	30.8	29.7-31.8
13-15	806	6,724	12.0	11.2-12.8
16-18	520	2,312	22.5	20.8-24.2
19-21	415	2,004	20.7	18.9-22.5
22-24	370	1,836	20.2	18.3-22.0
Average number of blows over 0.05 per offender in Florida				
Month	**# of blows over 0.05**	**# of offenders in program**	**Avg/per offender**	**95%-CI**
1-3	22,552	15,016	1.50	1.45-1.55
4-6	16,939	14,007	1.21	1.16-1.26
7-9	7,932	12,424	.64	.60-.67
10-12	5,896	7,267	.81	.76-.86
13-15	1,998	6,724	.30	.26-.33
16-18	1,519	2,312	.66	.55-.76
19-21	1,199	2,004	.60	.50-.70
22-24	1,009	1,836	.55	.45-.65

Similar trends as were evident in **Table 7** also appear in **Table 8** when data are presented for both males and females regarding blows over Florida's preset limit.

Table 8: Percent of male and female offenders who blew over 0.05 in Florida						
Month	**# of males who blew over 0.05**	**%**	**95%-CI**	**# of females who blew over 0.05**	**%**	**95%-CI**
1-3	4,958	44.8	43.8-45.7	1,825	46.4	44.8-47.9
4-6	4,120	40.1	39.1-41.0	1,534	41.2	39.7-42.8
7-9	2,261	24.7	23.8-25.6	650	19.9	18.5-21.2
10-12	1,768	31.1	29.9-32.3	468	29.5	27.3-31.8
13-15	639	12.1	11.2-13.0	166	11.5	9.9-13.2
16-18	421	22.7	20.8-24.6	99	21.8	18.0-25.7
19-21	329	20.5	18.5-22.4	86	21.8	17.7-25.8
22-24	292	19.6	17.6-22.4	78	22.4	18.0-26.8
Average number of blows over 0.05 per male and female offender in Florida						
Month	**# of blows over 0.05 males**	**Avg/per offender**	**95%-CI**	**# of blows over 0.05 females**	**Avg/per offender**	**95%-CI**
1-3	16,817	1.52	1.46-1.58	5,726	1.46	1.36-1.55
4-6	12,442	1.21	1.16-1.26	4,485	1.21	1.11-1.30
7-9	6,161	.67	.63-.72	1,739	.53	.47-.60
10-12	4,641	.82	.76-.88	1,252	.79	.70-.88
13-15	1,611	.31	.26-.35	386	.27	.21-.33
16-18	1,252	.67	.55-.78	277	.61	.36-.86
19-21	938	.58	.48-.69	261	.66	.40-.92
22-24	762	.51	.41-.61	247	.71	.42-1.00

3.3 Breath samples of 0.08 and higher

Table 9 reports results regarding breath samples of 0.08 or higher. Of note, this is the legal BAC limit for per se impaired driving laws in all U.S. jurisdictions. Failed breath tests at this level are noteworthy, and would also be considered a program violation in all three jurisdictions.

Table 9: Percent of offenders who blew over 0.08				
Texas				
Month	**# of offenders who blew over 0.08**	**# of offenders in program**	**%**	**95%-CI**
1-3	762	4,817	15.8	14.9-16.8
4-6	380	4,047	9.4	8.5-10.3
7-9	252	3,157	8.0	7.1-8.9
10-12	127	2,303	5.5	4.6-6.4
13-15	92	1,713	5.4	4.3-6.4
16-18	55	1,262	4.4	3.2-5.5
19-21	38	959	4.0	2.7-5.2
22-24	36	770	4.7	3.2-6.2
California				
Month	**# of offenders who blew over 0.08**	**# of offenders in program**	**%**	**95%-CI**
1-3	1,517	5,671	26.8	25.6-28.0
4-6	1,223	5,255	23.3	22.1-24.4
7-9	653	3,080	21.2	19.8-22.6
10-12	505	2,391	21.1	19.5-22.8
13-15	263	1,811	14.5	12.9-16.1
16-18	174	1,999	17.4	15.1-19.8
19-21	114	699	16.3	13.6-19.0
22-24	81	504	16.1	12.9-19.3
Florida				
Month	**# of offenders who blew over 0.08**	**# of offenders in program**	**%**	**95%-CI**
1-3	3,595	15,016	23.9	23.3-24.6
4-6	2,730	14,007	19.5	18.8-20.1
7-9	1,295	12,424	10.4	9.9-11.0
10-12	969	7,267	13.3	12.6-14.1
13-15	328	6,724	4.9	4.4-5.4
16-18	209	2,312	9.0	7.9-10.2
19-21	167	2,004	8.3	7.1-9.5
22-24	147	1,836	8.0	6.8-9.2

Similar to the number of blows over 0.02, the number of blows over 0.08 decreased over time. In Texas this decrease was 70% (15.8-4.7/15.8). In California the decrease is 40% (26.8-16.1/26.8). And in Florida the decrease is 67% (23.9-8.0/23.9).

Table 10 contains the same data from Table 9 but it is reported according to the sex of offenders. While the patterns are very similar, it appears females in California are the exception with a reduction of only 18% (24.4-20/24.4).

Table 10: Percent of offenders who blew over 0.08 by sex						
Texas						
Month	**# of males who blew over 0.08**	**%**	**95%-CI**	**# of females who blew over 0.08**	**%**	**95%-CI**
1-3	558	15.2	14.0-16.4	134	19.6	16.6-22.6
4-6	297	9.6	8.5-10.6	54	9.2	6.8-11.5
7-9	187	7.7	6.6-8.7	47	10	7.3-12.7
10-12	99	5.5	4.4-6.5	15	4.4	2.2-6.5
13-15	73	5.2	4.1-6.4	12	5.2	2.3-8.0
16-18	46	4.4	3.1-5.6	8	4.9	1.6-8.3
19-21	32	3.9	2.6-5.2	6	5.7	1.3-10.1
22-24	30	4.5	2.9-6.1	4	5.1	.23-9.9
California						
Month	**# of males who blew over 0.08**	**%**	**95-CI**	**# of females who blew over 0.08**	**%**	**95%-CI**
1-3	1,137	27.2	25.9-28.6	292	24.4	22-26.8
4-6	906	23.5	22.3-24.6	248	21.8	19.4-24.2
7-9	504	21.2	19.6-22.9	127	22.3	18.9-25.7
10-12	393	21.2	19.4-23.1	96	22.7	18.7-26.7
13-15	207	14.8	12.9-16.6	45	14.0	10.2-17.8
16-18	138	17.6	14.9-20.2	32	18.8	12.9-24.7
19-21	88	16.1	13.0-19.2	22	17.7	11.0-24.5
22-24	62	15.6	12.0-19.2	18	20	11.7-28.3
Florida						
Month	**# of males who blew over 0.08**	**%**	**95-CI**	**# of females who blew over 0.08**	**%**	**95%-CI**
1-3	2,599	23.5	22.7-24.3	995	25.3	23.9-26.6
4-6	1,975	19.2	18.4-20.0	753	20.2	18.9-21.5
7-9	983	10.7	10.1-11.4	311	9.5	8.5-10.5
10-12	762	13.4	12.5-14.3	206	13.0	11.3-14.7
13-15	259	4.9	4.3-5.5	69	4.8	3.7-5.9
16-18	168	9.0	7.7-10.4	41	9.1	6.4-11.7
19-21	141	8.8	7.4-10.2	26	6.6	4.1-9.0
22-24	116	7.8	6.4-9.2	31	8.9	5.9-11.9

3.4 Start-up violations

Below, in **Table 11**, the percent of offenders who had a violation at start-up is presented. The percent of offenders who violate at start-up declines from 8.6% in the first three months in Texas to 5.6% at the end of the 24th month. Overall the reduction is 35% (8.6-5.6/8.6). This pattern is not replicated through the 24 months in California. Instead, the percentage of participants who violated at start-up fluctuates between 3.4% and 4.8%, closing the last monitoring period with a higher percentage (4.8%) than during the first three months (4.7%).

Table 11: Percent of offenders who had a violation at start-up				
Texas				
Month	**# of offenders who violated at start-up**	**# of offenders in program**	**%**	**95%-CI**
1-3	413	4,817	8.6	7.8-9.4
4-6	268	4,047	6.6	5.9-7.4
7-9	192	3,157	6.1	5.2-6.9
10-12	140	2,303	6.1	5.1-7.1
13-15	105	1,713	6.1	5.0-7.3
16-18	76	1,262	6.0	4.7-7.3
19-21	49	959	5.1	3.7-6.5
22-24	43	770	5.6	4.0-7.2
California				
Month	**# of offenders who violated at start-up**	**# of offenders in program**	**%**	**95%-CI**
1-3	266	5,671	4.7	4.1-5.2
4-6	202	5,255	3.8	3.3-4.4
7-9	132	3,080	4.3	3.6-5.0
10-12	100	2,391	4.2	3.4-5.0
13-15	63	1,811	3.5	2.6-4.3
16-18	48	999	4.8	3.5-6.1
19-21	24	699	3.4	2.1-4.8
22-24	24	504	4.8	2.9-6.6
Florida				
Month	**# of offenders who violated at start-up**	**# of offenders in program**	**%**	**95%-CI**
1-3	436	15,016	2.9	2.4-3.0
4-6	376	14,007	2.7	2.6-3.2
7-9	225	12,424	1.8	1.6-2.1
10-12	183	7,267	2.5	2.2-2.9
13-15	77	6,724	1.1	.09-1.4
16-18	46	2,312	2.0	1.4-2.6
19-21	41	2,004	2.0	1.4-2.7
22-24	28	1,836	1.5	1.0-2.1

It should be noted that the absolute number of offenders in California is very low for start-up violations, making these data less stable. Although the percentages do not illustrate a decrease in these violations, the absolute number of offenders who violated at start-up did decrease over the two-year participation period.

The percentage of offenders in Florida with this violation throughout the 24 months also does not consistently decrease but fluctuates between 1.1% and 2.9%. Nevertheless, the percentage of offenders with a violation at start-up in the last three months of the interlock installation is much lower (1.5%) as compared to the beginning (2.9%) of their participation, corresponding to an overall reduction of 48% (2.9-1.5/2.9).

Table 12: Percent of offenders who had a violation at start-up by sex						
Texas						
Month	**# of males who violated**	**%**	**95%-CI**	**# of females who violated**	**%**	**95%-CI**
1-3	317	8.6	7.7-9.5	54	7.9	5.9-9.9
4-6	214	6.9	6.0-7.8	35	5.9	4.0-7.8
7-9	150	6.1	5.2-7.1	28	6.0	3.8-8.1
10-12	114	6.3	5.2-7.4	17	5.0	2.7-7.3
13-15	94	6.7	5.4-8.1	7	3.0	0.8-5.2
16-18	63	6.0	4.6-7.4	9	5.6	2.0-9.1
19-21	45	5.5	3.9-7.0	2	1.9	-.7-4.5
22-24	36	5.4	3.7-7.1	6	7.6	1.8-13.4
California						
Month	**# of males who violated**	**%**	**95%-CI**	**# of females who violated**	**%**	**95%-CI**
1-3	197	4.7	4.1-5.4	54	4.5	3.3-5.7
4-6	153	4.0	3.4-4.6	40	3.5	2.4-4.6
7-9	110	4.6	3.8-5.5	16	2.8	1.5-4.2
10-12	91	4.4	3.4-5.3	14	3.3	1.6-5.0
13-15	47	3.4	2.4-4.3	12	3.7	1.7-5.8
16-18	41	5.2	3.7-6.8	4	2.4	.07-4.6
19-21	19	3.5	1.9-5.0	3	2.4	-.3-5.1
22-24	21	5.3	3.1-7.5	2	2.2	-.8-5.2
Florida						
Month	**# of males who violated**	**%**	**95%-CI**	**# of females who violated**	**%**	**95%-CI**
1-3	326	2.9	2.6-3.3	110	2.8	2.3-3.3
4-6	271	2.6	2.3-2.9	105	2.8	2.3-3.3
7-9	185	2.0	1.7-2.3	40	1.2	.8-1.6
10-12	153	2.7	2.3-3.1	30	1.9	1.2-2.6
13-15	67	1.3	1.0-1.6	10	.69	.3-1.1
16-18	39	2.1	1.4-2.8	7	1.5	.4-2.7
19-21	32	2.0	1.3-2.7	9	2.3	.8-3.8
22-24	21	1.4	.8-2.0	7	2.0	.5-3.5

When examining these data according to sex of the offender (**Table 12**) it becomes clear that the numbers for this offense are low, making it challenging to draw meaningful conclusions based on proportions. However, based on absolute numbers clear decreases in violations are apparent both for males and females in all three states.

3.5 Violations, fails and refusals of running retests

Running retests are requested from drivers at certain intervals after the initial start of the vehicle. If drivers ignore these prompts, attempt to circumvent the device or fail the breath test, this is considered a violation. Generally speaking, there are more violations, fails and refusals of the running retest than violations at start-up. **Table 13** contains the percent of offenders who violate, fail or refuse a running retest and in **Table 14**, the same data are reported broken down by sex of the offender. This table is followed by a similar table, **Table 15**, which highlights the same retest data but instead reports the average number of violations per offender followed by the corresponding data according to sex in **Table 16**.

The number of offenders who violate, refuse or fail a running retest decreases by 45% (43.5-23.8/43.5) in Texas over the 24-month period. Similarly, in California, these occurrences among offenders are reduced by approximately half over the duration of interlock installation for offenders (52%; 30.7-14.7/30.7). In Florida, the percentage of offenders violating a retest decreased by two-thirds between the first three months of installation and the last three months of installation (64%; 30.1-10.9/30.1).

Table 13: Percent of offenders who violated, failed or refused a running retest				
Texas				
Month	**# of offenders who violated/failed/refused**	**# of offenders in program**	**%**	**95%-CI**
1-3	2,094	4,817	43.5	42.1-44.9
4-6	1,292	4,047	31.9	30.5-33.4
7-9	906	3,157	28.7	27.1-30.3
10-12	652	2,303	28.3	26.5-30.2
13-15	454	1,713	26.5	24.4-28.6
16-18	349	1,262	27.7	25.2-30.1
19-21	258	959	26.9	24.1-29.7
22-24	183	770	23.8	20.8-26.8
California				
Month	**# of offenders who violated/failed/refused**	**# of offenders in program**	**%**	**95%-CI**
1-3	1,740	5,671	30.7	29.5-31.9
4-6	1,152	5,255	21.9	20.8-23.0
7-9	645	3,080	20.9	19.5-22.4
10-12	527	2,391	22	20.4-23.7
13-15	287	1,811	15.8	14.2-17.5
16-18	206	999	20.6	18.1-23.1
19-21	136	699	19.5	16.5-22.4
22-24	74	504	14.7	11.6-17.8
Florida				
Month	**# of offenders who violated/failed/refused**	**# of offenders in program**	**%**	**95%-CI**
1-3	4,527	15,016	30.1	29.4-30.9
4-6	2,901	14,007	20.7	20.0-21.4
7-9	1,531	12,424	12.3	11.7-12.9
10-12	1,169	7,267	16.1	15.2-16.9
13-15	436	6,724	6.5	5.9-7.1
16-18	288	2,312	12.5	11.1-13.8
19-21	209	2,004	10.4	9.1-11.8
22-24	201	1,836	10.9	9.5-12.4

As can be seen in **Table 14**, both males and females show a consistent decrease in number of offenders who violate, fail, or refuse a running retest. Regardless, the percentage of both males and females remains quite high for this violation by the end of the program in Texas (24.6% and 21.5% respectively). In California, as seen previously, the percentage for both male and female offenders decreased consistently during the first year, with a low percentage of offenders violating between months 13 and 15. However, this increased again by the 16th month and at the end of the 24 months the percentage who continued to violate was 14.6% of males and 14.4% of females. In Florida, similar to California, there is a substantial decline among males during the first 15 months (from 30.7% to 6.6%) and among females (from 28.6%

to 5.8%). However, these percentages then increased for the remainder of the second year and at the end of the program 10.6% of males and 12.6% of females were still committing this type of violation.

Table 14: Percent of offenders who violated, failed or refused a running retest by sex						
Texas						
Month	**# of males who violated**	**%**	**95%-CI**	**# of females who violated**	**%**	**95%-CI**
1-3	1600	43.5	42.0-45.2	290	42.4	38.7-46.1
4-6	997	32.1	30.4-33.7	191	32.4	28.6-36.1
7-9	700	28.6	26.8-30.4	145	30.9	26.7-35.0
10-12	507	28.0	25.9-30.1	98	28.6	23.8-33.4
13-15	369	26.5	24.2-28.8	58	25	19.4-30.6
16-18	300	28.6	25.8-31.3	39	24.1	17.5-30.7
19-21	226	27.5	24.4-30.5	24	22.6	14.7-30.6
22-24	164	24.6	21.3-27.9	17	21.5	12.4-30.6
California						
Month	**# of males who violated**	**%**	**95%-CI**	**# of females who violated**	**%**	**95%-CI**
1-3	1294	31.0	29.6-32.4	352	29.4	26.8-32.0
4-6	844	21.9	20.6-23.2	245	21.5	19.2-23.9
7-9	497	20.9	19.3-22.6	121	21.3	17.9-24.6
10-12	391	21.1	19.3-23.0	106	25.1	20.9-29.2
13-15	227	16.2	14.3-18.1	50	15.6	11.6-19.5
16-18	165	21.0	18.1-23.8	31	18.2	12.4-24.0
19-21	110	20.1	16.8-23.5	21	16.9	10.3-23.5
22-24	58	14.6	11.1-18.1	13	14.4	7.2-21.7
Florida						
Month	**# of males who violated**	**%**	**95%-CI**	**# of females who violated**	**%**	**95%-CI**
1-3	3,402	30.7	29.7-31.6	1,124	28.6	27.2-30.0
4-6	2,130	20.7	19.9-21.5	768	20.6	19.3-21.9
7-9	1,190	13.0	12.3-13.7	340	10.4	9.3-11.4
10-12	924	16.3	15.3-17.2	245	15.5	13.7-17.2
13-15	351	6.6	6.0-7.3	84	5.8	4.6-7.0
16-18	233	12.5	11.0-14.1	54	11.9	8.9-14.9
19-21	163	10.1	8.7-11.6	46	11.6	8.5-14.8
22-24	157	10.6	9.0-12.1	44	12.6	9.2-16.1

As can be seen in **Table 15**, the average number of violations decreased as participants progressed through the installation period. In Texas, the number of violation attempts per offender is more than two in the first three months but is reduced to .74 by the end of the 24th month. There are similar patterns evident among offenders in both California and Florida. In the former, offenders began the program with .69 retest violations per offender on average and this decreased to .30 by the end of the second year; in the latter (Florida) the average number of retest violations decreased from .55 in the first three months to .20 in the final three months.

Table 15: Average number of violations, fails or refusals of a running retest per offender				
Texas				
Month	**# of violations**	**# of offenders**	**Avg/ offender**	**95%-CI**
1-3	11,041	4,817	2.29	2.0-2.6
4-6	6,956	4,047	1.72	1.1-2.2
7-9	3,453	3,157	1.09	.91-1.3
10-12	2,310	2,303	1	.86-1.2
13-15	1,431	1,713	.84	.65-1.0
16-18	950	1,262	.75	.64-.86
19-21	699	959	.73	.56-.90
22-24	573	770	.74	.54-.95
California				
Month	**# of violations**	**# of offenders**	**Avg/ offender**	**95%-CI**
1-3	3,890	5,671	.69	.64-.73
4-6	2,191	5,255	.42	.39-.45
7-9	1,248	3,080	.41	.36-.45
10-12	1,067	2,391	.45	.39-.50
13-15	562	1,811	.31	.26-.36
16-18	415	999	.42	.31-.52
19-21	310	699	.44	.31-.58
22-24	150	504	.30	.21-.39
Florida				
Month	**# of violations**	**# of offenders**	**Avg/ offender**	**95%-CI**
1-3	8,311	15,016	.55	.53-.58
4-6	4,298	14,007	.31	.29-.32
7-9	2,178	12,424	.18	.16-.19
10-12	1,746	7,267	.24	.22-.26
13-15	671	6,724	.10	.08-.12
16-18	466	2,312	.20	.17-.24
19-21	279	2,004	.14	.12-.16
22-24	364	1,836	.20	.10-.29

Regarding the average number of retest violations per offender by sex, **Table 16** reveals that offenders in Texas have the highest average out of all three states. Male offenders exhibit similar declines as compared to females, with males decreasing from 2.29 violations on average per offender in the first three months to .72 in the last three months. The average number of violations per female offender begins at 2.28 in the first three months and decreases to 1.11 during the final three months. In California, the average violations per male offender decreased from .68 at the beginning of the program to .32 by the end of the program. The pattern for female offenders in California is inconsistent, decreasing during the first nine months from .70 to .34, increasing at the one year mark to .57, as well as in months 16 to 18 (to .63) and ending at a low of .19. In Florida males and females show similar behavior to one another and the state overall reflects

similar patterns as California with a decrease occurring in the first nine months, followed by an increase at the one year mark, which then declines until the final months of the program.

Table 16: Average number of violations, fails or refusals of a running retest per offender by sex						
Texas						
Month	**# of violations for males**	**Avg.**	**95%-CI**	**# of violations for females**	**Avg.**	**95%-CI**
1-3	8,396	2.29	1.89-2.69	1,557	2.28	1.77-2.77
4-6	5,811	1.87	1.20-2.53	793	1.34	1.02-1.67
7-9	2,320	.95	.83-1.07	643	1.37	.77-1.96
10-12	1,731	.96	.79-1.12	453	1.32	.85-1.79
13-15	1,006	.72	.62-.82	340	1.47	.27-2.66
16-18	779	.74	.63-.85	145	.90	.4-1.39
19-21	616	.75	.56-.94	69	.65	.35-.95
22-24	479	.72	.52-.92	88	1.11	.10-2.13
California						
Month	**# of violations for males**	**Avg.**	**95%-CI**	**# of violations for females**	**Avg.**	**95%-CI**
1-3	2,839	.68	.63-.73	834	.70	.59-.80
4-6	1,618	.42	.38-.46	453	.40	.33-.46
7-9	992	.42	.37-.47	196	.34	.28-.41
10-12	778	.42	.36-.48	239	.57	.40-.73
13-15	417	.30	.25-.35	133	.41	.24-.59
16-18	293	.37	.30-.44	107	.63	.12-1.14
19-21	271	.50	.33-.66	32	.26	.13-.38
22-24	129	.32	.21-.44	17	.19	.08-.30
Florida						
Month	**# of violations for males**	**Avg.**	**95%-CI**	**# of violations for females**	**Avg.**	**95%-CI**
1-3	6,156	.56	.53-.58	2,154	.55	.49-.60
4-6	3,148	.31	.29-.32	1,147	.31	.28-.34
7-9	1,669	.18	.17-.20	505	.15	.13-.17
10-12	1,369	.24	.21-.27	377	.24	.20-.28
13-15	560	.11	.08-.13	110	.08	.06-.09
16-18	394	.21	.17-.26	71	.16	.11-.20
19-21	216	.13	.11-.16	63	.16	.10-.21
22-24	294	.20	.08-.31	70	.20	.12-.28

3.6 Length of program participation

Each state has a different requirement regarding length of time that offenders must remain in the interlock program. Generally speaking, the duration for which a participant remains in the program can be indicative of how many DWI offenses, or the severity of offenses a participant has committed. For instance, for the purposes of our analysis, it is important to keep in mind that offenders with a first offense in Texas may be required to install the device for up to one year. On the other hand, first offenders in Texas who had a

BAC over 0.15 at the time of their arrest or offenders who had repeat DWI offenses must participate in the program for one full year. Non-compliance results in an extension of program participation. In California, the court decides the length of time that participants remain on the interlock, but it cannot exceed three years. Repeat offenders must remain on the interlock at least one year. In Florida, a first offense with a passenger in the vehicle who is under 18 years of age at the time of the arrest and/or a BAC over 0.15 receives the interlock for six months. On a second offense, offenders must participate in the interlock program for one year. On a second offense in which a passenger under 18 was in the vehicle at the time of the arrest and/or the driver had a BAC over 0.15, or a third offense, offenders receive an interlock for two years. Offenders with a fourth and subsequent offense receive an interlock for five years.

With these program features in mind, data have been organized by duration of participation for up to one year versus more than one year, the underlying rationale being that, in general, offenders who are on the interlock up to a year are likely of lower risk compared to offenders on the interlock for one year or longer. In other words, "length of time on the interlock" is used as a proxy to distinguish between lower-risk versus higher-risk offenders, and the hypothesis of interest is that lower-risk offenders are more amenable to become compliant, or become compliant faster than higher-risk offenders. Note that this approach is limited in that length of time on the interlock may be affected by program extensions due to non-compliance, which would render this approach a tautological one, although, this bias is limited because of choosing 'one year' as the cut-off to distinguish between both groups.

Table 17 presents data regarding participants who violated the preset BAC limit in each jurisdiction, according to length of participation. In Texas, offenders who participated in the program for up to one year learned more quickly than their counterparts who participated for more than one year. Among those participating up to one year, the number of offenders who blew over the preset limit of 0.03 decreased from 46.4% in the first three months to 22.0% in the last months of the program, corresponding to a reduction of 53% (46.4-22.0/46.4). Among those participating in the program more than one year there was a higher percentage of offenders violating at the outset (49.5%) and this only decreased to 29.7% by the end of year one, which is a reduction of only 40% (49.5-29.7/49.5). In the second year, these offenders showed further change with the percentage dropping to 22.9% by months 22-24 for an overall reduction of 54% (49.5-22.9/49.5).

In California, there was a slightly higher percentage of offenders blowing over the preset limit of 0.03 among those who participated in the program up to one year (59.5%) compared to those in the program for more than one year (58.4%) but this group decreased at a more substantial pace, ending the 12 months at 42.8% (a reduction of 28%; 59.5-42.8/59.5) as compared to their counterparts who are in the program for at least one year who were at 56.3% by the same time (a reduction of only 4%; 58.4-56.3/58.4). Those in the program for an additional year began this period with a decrease to 38.6% but increased again to 40.5%, corresponding to an overall decrease of 31% (58.4-40.5/58.4).

In Florida, those in the program less than one year exhibited a learning curve with the percentage of offenders blowing over the preset limit of 0.05 decreasing by 48% (47.1-24.5/47.1). Among the offenders in the program who participated more than a year, the percentage decreased from 42.9% to 31.3% in the first year (a reduction of 27%; 42.9-31.3/42.9), with a more substantial decline to 12.0% at months 13 to 15 and ending year two at 20.2%; an overall reduction of 53% (42.9-20.2/42.9).

Table 17: Percent of offenders who blew over preset limit by length of program participation								
Texas (preset limit=0.03)								
Month	**Participated in program <= 1 year**				**Participated in program > 1 year**			
	# of offenders who blew over/total offenders		**%**	**95-CI**	**# of offenders who blew over/ total offenders**		**%**	**95-CI**
1-3	1,439	3,104	46.4	44.6-48.1	848	1,713	49.5	47.1-51.9
4-6	834	2,234	35.7	33.8-37.7	683	1,713	39.9	37.6-42.2
7-9	382	1,444	26.5	24.2-28.7	597	1,713	34.9	32.6-37.1
10-12	130	590	22.0	18.7-25.4	508	1,713	29.7	27.5-31.8
13-15	-	-	-	-	405	1,713	23.6	21.6-25.7
16-18	-	-	-	-	278	1,262	22.0	19.7-24.3
19-21	-	-	-	-	201	959	21.0	18.4-23.5
22-24	-	-	-	-	176	770	22.9	19.9-25.8
California (preset limit=0.03)								
Month	**Participated in program <= 1 year**				**Participated in program > 1 year**			
	# of offenders who blew over/total offenders		**%**	**95-CI**	**# of offenders who blew over/ total offenders**		**%**	**95-CI**
1-3	2,295	3,860	59.5	57.9-61.0	1,057	1,811	58.4	56.1-60.6
4-6	1,913	3,444	55.5	53.9-57.2	1,056	1,811	58.3	56.0-60.6
7-9	562	1,269	44.3	41.6-47.0	1,004	1,811	55.4	53.1-57.7
10-12	248	580	42.8	38.7-46.8	1,019	1,811	56.3	54.0-58.6
13-15	-	-	-	-	699	1,811	38.6	36.4-40.8
16-18	-	-	-	-	483	999	48.3	45.2-51.4
19-21	-	-	-	-	309	699	44.2	40.5-47.9
22-24	-	-	-	-	204	504	40.5	36.2-44.8
Florida (preset limit=0.05)								
Month	**Participated in program <= 1 year**				**Participated in program > 1 year**			
	# of offenders who blew over/total offenders		**%**	**95-CI**	**# of offenders who blew over/ total offenders**		**%**	**95-CI**
1-3	3,903	8292	47.1	46.0-48.1	2,883	6,724	42.9	41.7-44.1
4-6	3,058	7283	42.0	40.9-43.1	2,599	6,724	38.7	37.5-39.8
7-9	642	5700	11.3	10.4-12.1	2,272	6,724	33.8	32.7-34.9
10-12	133	543	24.5	20.9-28.1	2,104	6,724	31.3	30.2-32.4
13-15	-	-	-	-	806	6,724	12.0	11.2-12.8
16-18	-	-	-	-	520	2,312	22.5	20.8-24.2
19-21	-	-	-	-	415	2,004	20.7	18.9-22.5
22-24	-	-	-	-	370	1,836	20.2	18.3-22.0

Analysis of the number of offenders who blew over 0.08 per state using length of program participation can be found in **Table 18**. Comparable results can be calculated.

Table 18: Percent of offenders who blew over 0.08 by length of program participation								
Texas								
Month	**Participated in program <= 1 year**				**Participated in program > 1 year**			
	# of offenders who blew over/total offenders		**%**	**95-CI**	**# of offenders who blew over/ total offenders**		**%**	**95-CI**
1-3	485	3,104	15.6	14.3-16.9	277	1713	16.2	14.4-17.9
4-6	210	2,334	9.0	7.8-10.2	170	1713	9.9	8.5-11.3
7-9	88	1,444	6.1	4.9-7.3	164	1713	9.6	8.2-11.0
10-12	22	590	3.7	2.2-5.3	105	1713	6.1	5.0-7.3
13-15	-	-	-	-	92	1713	5.4	4.3-6.4
16-18	-	-	-	-	55	1262	4.4	3.2-5.5
19-21	-	-	-	-	38	959	4.0	2.7-5.2
22-24	-	-	-	-	36	770	4.7	3.2-6.2
California								
Month	**Participated in program <= 1 year**				**Participated in program > 1 year**			
	# of offenders who blew over/total offenders		**%**	**95-CI**	**# of offenders who blew over/ total offenders**		**%**	**95-CI**
1-3	1,006	3,860	26.1	24.7-27.4	511	1,811	28.2	26.1-30.3
4-6	748	3,444	21.7	20.3-23.1	475	1,811	26.2	24.2-28.3
7-9	217	1,269	17.1	15.0-19.2	436	1,811	24.1	22.1-26.0
10-12	83	580	14.3	11.5-17.2	422	1,811	23.3	21.4-25.2
13-15	-	-	-	-	263	1,811	14.5	12.9-16.1
16-18	-	-	-	-	174	999	17.4	15.1-19.8
19-21	-	-	-	-	114	699	16.3	13.6-19.0
22-24	-	-	-	-	81	504	16.1	12.9-19.3
Florida								
Month	**Participated in program <= 1 year**				**Participated in program > 1 year**			
	# of offenders who blew over/total offenders		**%**	**95-CI**	**# of offenders who blew over/ total offenders**		**%**	**95-CI**
1-3	2,004	8,292	24.2	23.2-25.1	1591	6,724	23.7	22.6-24.7
4-6	1,461	7,283	20.1	19.1-21.0	1269	6,724	18.9	17.9-19.8
7-9	268	5,700	4.7	4.2-5.3	1027	6,724	15.3	14.4-16.1
10-12	51	543	9.4	6.9-11.8	918	6,724	13.7	12.8-14.5
13-15	-	-	-	-	328	6,724	4.9	4.4-5.4
16-18	-	-	-	-	209	2,312	9.0	7.9-10.2
19-21	-	-	-	-	167	2,004	8.3	7.1-9.5
22-24	-	-	-	-	147	1,836	8.0	6.8-9.2

In Texas, the reduction after one year for offenders in the program up to one year is 76% (15.6-3.7/15.6), while it is only 62% (16.2-6.1/16.2) for offenders who participated at least one year. The overall reduction after two years for those who participated at least one year is 71% (16.2-4.7/16.2).

In California, the reduction after one year for offenders in the program up to one year is 45% (26.1-14.3/26.1), while it is only 17% (28.2-23.3/28.2) for offenders who participated at least one year. The overall reduction after two years for those who participated at least one year is 43% (28.2-16.1/28.2).

In Florida, the reduction after one year for offenders in the program up to one year is 61% (24.2-9.4/24.2), while it is only 42% (23.7-13.7/23.7) for offenders who participated at least one year. The overall reduction after two years is 66% (23.7-8.0/23.7).

In **Table 19**, results regarding start-up violations are available. In Texas, the reduction after one year for offenders in the program up to one year is 54% (8.9-4.1/8.9), while it is only 2% (4.6-4.5/4.6) for offenders who participated at least one year. There is no overall reduction after two years for those who participated at least one year as the percent increases from 4.6 to 4.8.

In California, the reduction after one year for offenders in the program up to one year is 34% (4.7-3.1/4.7), while it is only 2% (4.6-4.5/4.6) for offenders who participated at least one year. Similar to Texas, there is no overall decrease in California at the end of two years for those who participated at least one year as the percent of participants who committed a start-up violation increased from 4.6 to 4.8.

In Florida, the reduction after one year for offenders in the program up to one year is 35% (2.6-1.7/2.6), while it is only 21% (3.3-2.6/3.3) for offenders who participated at least one year. The overall reduction after two years for those who participated at least one year is 55% (3.3-1.5/3.3).

Table 19: Percent of offenders who violated at start-up by length of program participation								
Texas								
Month	**Participated in program <= 1 year**				**Participated in program > 1 year**			
	# of offenders who violated/total offenders		**%**	**95-CI**	**# of offenders who violated/ total offenders**		**%**	**95-CI**
1-3	277	3,104	8.9	7.9-9.9	136	1,713	4.6	3.7-5.6
4-6	137	2,334	5.9	4.9-6.8	131	1,713	4.0	3.1-4.9
7-9	71	1,444	4.9	3.8-6.0	121	1,713	4.4	3.5-5.4
10-12	24	590	4.1	2.5-5.7	116	1,713	4.5	3.6-5.5
13-15	-	-	-	-	105	1,713	3.5	2.6-4.3
16-18	-	-	-	-	76	1,262	4.8	3.5-6.1
19-21	-	-	-	-	49	959	3.4	2.1-4.8
22-24	-	-	-	-	43	770	4.8	2.9-6.6
California								
Month	**Participated in program <= 1 year**				**Participated in program > 1 year**			
	# of offenders who violated/total offenders		**%**	**95-CI**	**# of offenders who violated/ total offenders**		**%**	**95-CI**
1-3	182	3,860	4.7	4.0-5.4	84	1,811	4.6	3.7-5.6
4-6	129	3,444	3.7	3.1-4.4	73	1,811	4.0	3.1-4.9
7-9	52	1,269	4.1	3.0-5.2	80	1,811	4.4	3.5-5.4
10-12	18	580	3.1	1.7-4.5	82	1,811	4.5	3.6-5.5
13-15	-	-	-	-	63	1,811	3.5	2.6-4.3
16-18	-	-	-	-	48	999	4.8	3.5-6.1
19-21	-	-	-	-	24	699	3.4	2.1-4.8
22-24	-	-	-	-	24	504	4.8	2.9-6.6
Florida								
Month	**Participated in program <= 1 year**				**Participated in program > 1 year**			
	# of offenders who violated/total offenders		**%**	**95-CI**	**# of offenders who violated/ total offenders**		**%**	**95-CI**
1-3	217	8,292	2.6	2.2-3.0	219	6,724	3.3	2.8-3.7
4-6	190	7,283	2.6	2.2-3.0	186	6,724	2.8	2.4-3.2
7-9	43	5,700	.7	.5-1.0	182	6,724	2.7	2.3-3.1
10-12	9	542	1.7	.6-2.7	174	6,724	2.6	2.2-3.0
13-15	-	-	-	-	77	6,724	1.1	.9-1.4
16-18	-	-	-	-	46	2,312	2.0	1.4-2.6
19-21	-	-	-	-	41	2,004	2.0	1.4-2.7
22-24	-	-	-	-	28	1,836	1.5	1.0-2.1

Finally, in **Table 20,** results regarding running retest violations are available. In Texas, the reduction after one year for offenders in the program up to one year is 52% (42.9-20.7/42.9), while it is only 31% (44.5-30.9/44.5) for offenders who participated at least one year. The overall reduction after two years for those who participated at least one year is 47% (44.5-23.8/44.5).

In California, the reduction after one year for offenders in the program up to one year is 52% (29.9-14.3/29.9), while it is only 24% (32.2-24.5/32.2) for offenders who participated at least one year. The

overall decrease in California at the end of two years for those who participated at least one year is 54% (32.2-14.7/32.2).

In Florida, the reduction after one year for offenders in the program up to one year is 54% (29.5-13.6/29.5), while it is only 47% (31.0-16.3/31.0) for offenders who participated at least one year. The overall reduction after two years for those who participated at least one year is 65% (31.0-10.9/31.0).

Table 20: Percent of offenders who violated, failed and refused a running retest by length of program participation

Texas								
Month	Participated in program <= 1 year				Participated in program > 1 year			
	# of offenders who violated/total offenders		%	95-CI	# of offenders who violated/ total offenders		%	95-CI
1-3	1,331	3,104	42.9	41.1-44.6	763	1,713	44.5	42.2-46.9
4-6	698	2,334	29.9	28.0-31.8	594	1,713	34.7	32.4-36.9
7-9	351	1,444	24.3	22.1-26.5	555	1,713	32.4	30.2-34.6
10-12	122	590	20.7	17.4-23.9	530	1,713	30.9	28.8-33.1
13-15	-	-	-	-	454	1,713	26.5	24.4-28.6
16-18	-	-	-	-	349	1,262	27.7	25.2-30.1
19-21	-	-	-	-	258	959	26.9	24.1-29.7
22-24	-	-	-	-	183	770	23.8	20.8-26.8
California								
Month	Participated in program <= 1 year				Participated in program > 1 year			
	# of offenders who violated/total offenders		%	95-CI	# of offenders who violated/ total offenders		%	95-CI
1-3	1,156	3,860	29.9	28.5-31.4	584	1,811	32.2	30.1-34.4
4-6	708	3,444	20.6	19.2-21.9	444	1,811	24.5	22.5-26.5
7-9	223	1,269	17.6	15.5-19.7	422	1,811	23.3	21.4-25.2
10-12	83	580	14.3	11.5-17.2	444	1,811	24.5	22.5-26.5
13-15	-	-	-	-	287	1,811	15.8	14.2-17.5
16-18	-	-	-	-	206	999	20.6	18.1-23.1
19-21	-	-	-	-	136	699	19.5	16.5-22.4
22-24	-	-	-	-	74	504	14.7	11.6-17.8
Florida								
Month	Participated in program <= 1 year				Participated in program > 1 year			
	# of offenders who violated/total offenders		%	95-CI	# of offenders who violated/ total offenders		%	95-CI
1-3	2,444	8,292	29.5	28.5-30.5	2,083	6,724	31.0	29.9-32.1
4-6	1,477	7,283	20.3	19.4-21.2	1,424	6,724	21.2	20.2-22.2
7-9	309	5,700	5.4	4.8-6.0	1,222	6,724	18.2	17.3-19.1
10-12	74	543	13.6	10.7-16.5	1,095	6,724	16.3	15.4-17.2
13-15	-	-	-	-	436	6,724	6.5	5.9-7.1
16-18	-	-	-	-	288	2,312	12.5	11.1-13.8
19-21	-	-	-	-	209	2,004	10.4	9.1-11.8
22-24	-	-	-	-	201	1,836	10.9	9.5-11.8

4. DISCUSSION

In previous research a common pattern was found with respect to offender behavior over time on the interlock. In particular, it appeared there was "a learning curve" illustrating that offenders were more likely to violate at the beginning of program participation, but over time these violations decreased as offenders supposedly learned about, or experienced the consequences of program violations and the nuances associated with the functioning of and compliance with devices.

This current report made it possible to analyze offender behavior on the interlock, but in more detail, i.e., by state, by sex and by length of participation. The following is a summary of the results that emerged from the data used in this study.

4.1 Results based on monthly patterns

Comparable to results from the previous study by Vanlaar et al. (2010), a clear pattern emerged as offenders progressed through each three month interval. This can be seen in almost all circumstances, across sexes and across program length, especially in Texas and Florida and also in California, albeit somewhat less pronounced. Aside from the possibility of circumvention (e.g., the offender driving a different non-interlocked vehicle, although this is usually prevented by monitoring the offender's mileage, or number of vehicle starts, on their interlocked vehicle), this learning behavior does appear to take place according to our findings, and offenders in an interlock program do become more compliant over time. However, it warrants mentioning that the decreasing pattern of the events we studied is not always a smooth one. Sometimes increases occur during participation, despite an overall decrease from the beginning until the end of participation, but it is not clear if this is the result of a data artefact or a true increase. For example, often an increase in events occurs immediately after the fifth monitoring period from months 13-15. While this is speculative, this could be due to the impact of an unanticipated program extension or a meeting with a probation agent at the end of one year (the offender may not have considered the extension a possible consequence of non-compliance or may be reminded of potential consequences by the monitoring authority and, as a result, may be determined to start the second year without violations, after which they become more complacent again; this would indeed lead to a decrease of events in months 13-15 followed by an increase in months 16-18).

4.2 Results based on sex

Overall, male and female offenders did not appear to have significant differences in behavior. It appears that any differences according to sex are more likely due to smaller sample sizes, with less stable patterns in both groups as a consequence. Overall, as males and females progressed through the 24 months in the program, regardless of violation, their behavior was quite similar.

4.3 Results based on a comparison of states

When comparing patterns among offenders across Texas, California, and Florida, overall, the same decreasing trend of violations is noticeable, albeit somewhat less pronounced in California. Also, there were differences in the volume of violations committed per violation type. For instance, Florida generally had a lower number of offenders committing violations per violation type when compared to the other states. In general, California had the largest percentage of offenders in relation to all BAC violations. Texas, on the other hand, had the highest percentages of offenders committing start-up violations and running retest violations.

It is not surprising that certain differences exist with regards to types of violations across states. In general, it can be assumed that offenders will behave similarly with respect to learning about the device and curbing their violations over time, but due to the different program violation rules and different levels of monitoring across each of the three states, differences in violation types will emerge. As mentioned previously, Florida has high penalties for those who blow high BACs with the consequence for one BAC violation being that offenders must report to the program monitor, and for two elevated tests offenders must report to the monthly DWI program (Marques and Voas 2010). Conversely, California's program does not have a monitoring component, meaning consequences for violations are rarely or never imposed, allowing offenders more freedom to be non-compliant. Findings from our study to this effect lend credence to the hypothesis that consistent monitoring is important for successful interlock program completion.

4.4 Results based on length of program participation

More insight emerged from the different patterns observed once offender data were organized according to length of participation in the interlock program. Clear differences were found between the group of offenders who participated in the program for up to one year in comparison to those who participated more than one year. The rationale behind this distinction is that offenders who participate only up to one year more likely represent lower-risk offenders compared to those who participate at least one year in the program, who more likely represent higher-risk offenders. The expectation, then, is that any learning behavior in the former group would be more pronounced than in the latter. It warrants mentioning that this approach is limited in that length of time on the interlock may be affected by program extensions due to non-compliance, which would render this approach a tautological one. However, this bias is limited because of choosing 'one year' as the cut-off to distinguish between both groups, and as such, some relevant conclusions regarding the hypothesis of interest can be drawn.

In general, when looking at offenders who were in the program for up to one year, these offenders indeed exhibited a more pronounced pattern of improvement. In particular, as a group, they learned faster to become compliant, compared to offenders who are in the program for at least one year. It could be argued that the offenders in the program for up to one year showed greater improvement because they are more likely to be first offenders and are more motivated to successfully complete the program and get off of the

interlock. They may put more effort into changing their behavior in order to remove themselves from the unfavourable DWI process and are thus more compliant.

Offenders in the program longer than one year generally were not as compliant. For the first 12 months, these offenders did not improve their behavior as quickly as those in the program up to one year, and the percentage of offenders violating in this group did not decrease as quickly. These results may suggest that this group of offenders is not as keen to alter their behavior and although they show some evidence of improvement (i.e., the percentage of offenders committing violations does decrease over time) it is not as pronounced when compared to offenders who are in the program for up to one year. This may be due to the fact that these offenders delay becoming compliant or require further intervention and/or treatment in order to learn to control their drinking.

Nevertheless, this group of offenders did show improvement, but it took them longer to achieve similar levels of improvement as compared to those offenders in the program for up to one year. Alternatively, perhaps it can be argued that the interlock program length has an influence on offender behavior. Thus, if offenders are aware they will have the device installed for a longer period of time, they may become more easily discouraged with regard to compliance to program rules; this would speak to the importance of also using positive reinforcements for good behavior as opposed to only using negative reinforcements of bad behavior with this group. Similarly, the longer offenders have the device, the more time they have to identify strategies to circumvent the device. This may be an explanation for the fact that circumvention attempts can actually increase over the duration of program participation in certain cases.

While outcomes from duration of device installation are confounded to some extent by program factors that make interpretation of this effect complex, these results do speak to the importance of considering the potential impact of longer interlock sentences, or repeated program extensions. More data are needed to obtain better insights into these findings, in particular to confirm whether offender type affects learning patterns, whether program type affects learning patterns, or both. Our data suggests both likely play a role.

5. CONCLUSION

The objective of this study was to confirm findings from previous research into behavioral aspects of offenders in an interlock program. In particular, a previous study revealed that offenders appear to learn to become compliant over time as they progress through the program (Vanlaar et al. 2010). Such findings have relevance to the delivery of programs. However, the results were limited in that the data did not enable researchers to study such patterns by jurisdiction. As illustrated in this current report, program rules vary considerably across jurisdictions, to the extent that analysis results that are not broken down by jurisdictions can be biased. Furthermore, this previous study also did not distinguish between males and females, or low and high risk offenders when analyzing the data. Therefore, an additional objective of this current study was to further elaborate on these initial findings by analyzing the data in more detail.

In order to achieve these objectives, data from three different states were used, Texas, California and Florida. These data were further broken down by sex, as well as by length of participation (the latter was used as a proxy for the level of risk of the offender because higher risk offenders are typically sentenced to a longer time on the interlock than lower risk offenders).

The results from this current study corroborate the findings from the previous study, i.e., many offenders on an interlock are not compliant at the beginning of their program participation, but the majority of them soon learn to become more compliant. It was found that those learning patterns were most pronounced in two states with stronger and more consistent monitoring practices (Texas and Florida) whereas these patterns were less pronounced in the state with less consistent monitoring practices (California). This speaks to the importance of consistent monitoring. In terms of sex, no substantial differences in learning patterns between males and females were found.

With respect to length of participation, it became clear that participants who are only in the program for a maximum of one year become compliant much faster than participants who are in the program for at least one year. Such findings potentially speak to the need of coupling interlock programs with other interventions like treatment for higher risk offenders as well as the possible usefulness of using not only negative reinforcements for bad behavior but also using positive reinforcements for good behavior. However, outcomes from duration of device installation are confounded to some extent by program factors that make interpretation of this effect complex, so caution is warranted when drawing conclusions. More data are needed to obtain better insights into these findings, in particular to confirm whether offender type affects learning patterns, whether program type affects learning patterns, or both. Our data suggests both likely play a role.

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