



Published in final edited form as:

Alcohol Clin Exp Res. 2013 July ; 37(7): 1243–1251. doi:10.1111/acer.12078.

Administrative Reinstatement Interlock Programs: Florida, a 10-Year Study

Robert B. Voas, Ph.D.¹, A. Scott Tippetts, B.A.¹, and Milton Grosz, M.S.²

¹Pacific Institute for Research and Evaluation, 11720 Beltsville Drive, Suite 900, Calverton, MD 20705-3111

²Florida Department of Highway Safety and Motor Vehicles, Neil Kirkman Building, 2900 Apalachee Parkway, Tallahassee, FL 32399-0500

Abstract

Background—Interlocks reduce driving-under-the-influence (DUI) recidivism by 64%, but offenders resist installing them, preferring to risk driving while their driver’s licenses are revoked. One method of motivating offenders to install an interlock is require it for reinstatement of their driver’s license. This report updates an earlier evaluation of the administrative reinstatement interlock program (ARIP) procedure implemented in Florida in 2002.

Method—Driver records and interlock program records covering 120,000 DUI offenders were followed over 10 years. The flow through the sanction system—conviction, reinstatement, interlock program, and postinterlock period—is described. Logistical regression was used to identify the characteristics of offenders who installed interlocks, and survival analysis was used to evaluate the recidivism of offenders in the various stages in the ARIP.

Results—At any given time, approximately one third of the convicted offenders were serving their license-revocation periods. Half of the offenders who completed their revocation periods remain unqualified for reinstatement because they do not fulfill other requirements. ARIP offenders who do qualify for reinstatement and install interlocks have lower recidivism rates while the devices are on their vehicles.

Conclusions—After 10 years, Florida’s ARIP is a mature system that succeeds in forcing all offenders in the program who qualify for reinstatement to install an interlock for at least 6 months. However, half of all offenders who complete their mandatory revocation period are either unable to, or choose not to, qualify for reinstatement.

Keywords

impaired driving; interlocks; license reinstatement; recidivism; administrative sanctions

Introduction

There is extensive evidence that vehicle alcohol interlocks *while installed on an offender’s automobile* reduce the recidivism rate between 40 and 90%, with a mean effectiveness of approximately 64% (Beirness and Marques, 2004; Elder et al., 2011; Marques, 2009; Marques et al., 2010; Voas et al., 1999; Willis et al., 2004). There is evidence that they are cost-effective. Miller and Levy (2000) estimated that \$7 in benefits resulted for each \$1 in the cost of the interlock program, and Lund, McCart, and Farmer (2007) estimated that if

the interlock requirement were applied to all driving-under-the-influence (DUI) offenders, 800 lives could be saved each year. However, their use as a sanction in the U.S. criminal justice system has been substantially limited because drivers convicted of DUI resist installing the units on their vehicles in voluntary programs that give them the option of remaining suspended rather than installing an interlock. Experience has shown that most DUI offenders, if given the option, will elect to risk driving illicitly rather than install an interlock device (Voas and Marques, 2003). Consequently, though 1.4 million drivers are arrested for DUI each year, only 279,000 interlock units are in use in the United States (Roth, 2012). But this number has been growing by approximately 10 to 15% per year, and the recent congressional reauthorization of the Highway Safety Act provides incentive funds for states that pass laws providing for mandatory interlock laws for all DUI offenders.

A basic method for the courts to increase the number of offenders who install interlocks is to make the alternative less desirable than license revocation. Two studies have shown that courts can increase compliance with the interlock by making the alternative house arrest (Roth et al., 2009; Voas et al., 2002). So far, only Utah has enacted an interlock law that explicitly provides for house arrest as an alternative to the interlock. An alternative to depending on court sanctions to force compliance with the interlock is to establish an administrative reinstatement interlock program (ARIP) that requires a period on the interlock as a prerequisite to reinstatement of full license status. This is a policy that state motor vehicle departments can enforce on all revoked DUI offenders seeking to reinstate their licenses because they have full authority over driver licensing. Several states, among them California, Florida, New Mexico, Oregon, and West Virginia, have instituted such a requirement. The National Highway Traffic Safety Administration (NHTSA) noted that ARIPs are likely to achieve higher installation rates than court programs, provide consistency in program management, and tend to be easier and more cost-effective to manage because relatively fewer individuals and agencies are involved (Fieldler et al., 2012). The ARIP system has two limitations, however. In most states, offenders are ineligible for reinstatement until they have served a period of hard suspension or revocation and met the requirements of the sanctions imposed by the court (fines, probation, treatment, etc.); therefore, the imposition of an interlock is delayed (Voas et al., 2010a). Further, up to a third of second DUI offenders in most states do not seek reinstatement (Voas et al., 2010b). It is therefore important to determine the relative effectiveness of interlock programs that are based on license reinstatement compared to those applied through court sanctions.

In 2002, Florida was one of the first states to initiate an administrative interlock program based on reinstatement. That program has now been in place for a decade. We conducted a study of the first 6 years of the Florida ARIP in 2008. In that study, we followed 82,000 offenders from conviction, through their periods of hard revocation, to qualification for reinstatement, to interlock installation and license reinstatement (Voas et al., 2010a). We found a 93% participation rate in the interlock program by those offenders who qualified for reinstatement. However, less than half of those DUI offenders who had completed their period of required hard revocation qualified for reinstatement. This report updates that 6-year study (2002 to 2008) by including offenders through February 2011, thus extending the coverage to 10 years and doubling the number who had installed an interlock. Table 1 compares the number of offenders in this study with the number covered in our original study.

It should be noted that in Florida not all offenders convicted of a DUI offense are entered into the ARIP. In 2011, there were 33,625 DUI convictions (<http://dmvflorida.org/florida-dui.shtml>) in Florida but only about 9,000 interlocks in use (Roth, 2012). Only first DUI offenders with arrest blood alcohol concentrations (BACs) of .20 or higher and offenders

who had a minor in the car when arrested are required to install an interlock to reinstate. This means that the majority of first offenders who constitute two thirds of those convicted of DUI are exempt from the program. Nor are all of the interlock users in Florida in the ARIP as courts in Dade, Polk, Osceola, and Orange Counties have pretrial interlock programs that result in reducing the DUI charge to a lesser offense, such as reckless driving, which keeps those offenders out of the ARIP. Thus, this study covers about one third of all Florida DUI offenders and not all Florida interlock users. It is limited specifically to ARIP participants, which makes it particularly relevant to other states considering the implementation of an ARIP system.

The Florida Interlock Program

The Florida reinstatement interlock program is implemented through a requirement that an ignition interlock unit be installed as a prerequisite for reinstatement of the offender's license to drive following a DUI conviction. The law empowers the Florida Department of Highway Safety and Motor Vehicles (DHSMV) to manage the program. Once the offender's case has been adjudicated, the DHSMV notifies offenders that they will be required to install an interlock for a specified number of months as a condition of reinstatement. Although the ARIP law specifies a minimum length of time that the interlock must be installed on the vehicle based on whether the case involves first or multiple DUI offenses, judges play a substantial role in the program because they are given considerable authority to extend that period depending on the severity of the offense (e.g., whether arrest involved a crash or children were in the vehicle—child endangerment). Because judges have the authority to extend interlock requirements, there is considerable variability around these specifications. Our current data set, for example, includes second offenders with 6-month interlock requirements, as well as first offenders with 12- and 24-month interlock requirements.

Materials and Methods

Data Sources

Data for this study, like the one before, were drawn from the record system maintained by Florida's DHSMV on DUI offenders required by law to install interlocks as a prerequisite to reinstatement. This includes offenders who have not yet qualified for reinstatement and offenders who are qualified but have not requested reinstatement. The file contains the lifetime driving record of each offender and a history of each offender's status in meeting the ARIP requirements. In addition to the basic demographic (age, gender, and ethnicity) information about a subject, this file includes records of violations (including types and dates) and administrative actions (including suspensions, revocations, reinstatements, compliance with court-mandated sanctions, eligibility to reinstate the license, installation, and removal of the interlock, and reports of interlock lockouts).

Data from these files were processed using data-mining techniques to develop measures that would be needed for analysis and then were restructured into rectangular files for analysis.

Data Analysis

The analysis proceeded in three steps. We began by conducting a process analysis to study (a) the varying lengths of full license revocation that influence the eligibility of the offender for reinstatement; (b) the trajectories of the offenders through the Florida ARIP sanction and interlock program; and (c) the time required for offenders to move from conviction to reinstatement. This analysis involved categorizing offenders by program status so that the progress through the various steps in the system could be illustrated.

Second, we examined the characteristics of those offenders who did progress through the system, installed interlocks, and completed the interlock program. We also examined those offenders who installed interlocks but failed to complete the interlock program in the specified time, indicating that they experienced high-BAC events (lockouts) that, by law, extended their time on the device. Logistic regression was used in this analysis with the dependent variable set as a 0/1 bivariate, depending on whether the offender was or was not included in the group.

Third, we examined recidivism at three points in the offender's progress through the system: during their period of full license revocation, while on the interlock, and in the period following removal of the device from the offender's vehicle. Survival analysis (Cox regression) was used to compare recidivism across the three steps because it takes maximum advantage of the available data and allows for the use of covariates to account for the influence of age, gender, ethnicity, and prior offenses. Because offenders spent different lengths of time in each of the three periods we evaluated, it was necessary to limit the survival analysis to the first 2 years within a given step to provide reasonably comparable measures.

Results

Flow of Offenders through the Program

Figure 1 illustrates the flow of ARIP offenders through the Florida interlock program, based on their status as of February 2011 when our data file was closed for analysis. The first step to reinstatement involved completing a period of hard revocation during which an offender is unlicensed and officially not permitted to drive. There is strong evidence, however, that in most states up to 75% of offenders do drive (McCart et al., 2002; Ross and Gonzales, 1988). As shown in the diagram (1a), 90,000 of the 120,000 offenders who entered the program since its initiation had completed their hard revocation. However, 30,000 offenders (1b) who were required to install the interlock had not yet reached the end of their initial hard-revocation period, so they remained fully revoked at the time these data were processed, but they will eventually complete their period of hard suspension. The second step involved the satisfaction of any court-mandated sanctions that were not completed during the period of full revocation, as well as arriving at a status of general compliance within the administrative and judicial systems in Florida (i.e., having no outstanding warrants, fines, tickets, or other pending/unresolved sanctions). Though a substantial number of those completing their hard-revocation period met all of the court-mandated requirements, a large number arrive at that point with issues that must still be resolved to become eligible for reinstatement. As shown in Figure 1 (2a), half of the 90,000 offenders who had completed their hard revocation had satisfied those requirements by the time we closed the file in February 2011, but half (2b) remained disqualified from reinstating their licenses. Some of those still disqualified, after a period of delay (see Figure 3), will eventually comply with all reinstatement requirements and move into the 2a category. Of the 45,601 offenders who became qualified for reinstatement (2a), 44,308 (97%) have installed interlocks (3a). As of February 2011, 9,000 of the offenders remained in the interlock program (4a), whereas 32,000 had completed their time on the interlock and were fully licensed (5a). In this process, three small groups are defined: those who were eligible to reinstate by installing an interlock but have not done so (3b), those offenders who did install interlocks but have been extended on the interlock because they experienced high-BAC lockouts (4b), and those who installed interlocks but failed to complete the mandatory interlock program (5b). The reasons for the failure to complete the interlock program are unknown except that 226 offenders died without completing their interlock requirement.

Length of Revocation Periods

The approximately 30,000 offenders who are still serving their hard-revocation time (1b) reflect the relatively long revocation periods that are imposed on many of those who are eligible for the interlock program. These revocation periods are shown as a function of the number of prior offenses in Table 2. As shown, the hard-revocation period for first offenders is relatively short, with 62% of the offenders receiving 6-month or shorter revocations. However, 27% of the second offenders received 1-year revocations, and 39% were revoked from 2 to 5 years. Overall, 56% (32.2+23.3%) of the offenders in Florida who were required to install interlocks for reinstatement experienced 1 year or less of hard revocation, and the rest experienced extended revocations before becoming eligible for reinstatement.

Length of Time from Arrest to Interlock Installation

The full revocation period is not the only factor that determines the length of time between the DUI offense and the installation of an interlock. Delays in court trials with a consequent delay in the initiation of revocation plays some role; some offenders who complete their term of revocation may require more time to fulfill their obligations to the court, or they may simply delay in applying for reinstatement. Figure 2 displays the years from the arrest date to installed date (median, 1.24 years) for 44,308 offenders who installed interlocks.

Offenders Ineligible for Reinstatement

As shown in Figure 3, many offenders who complete their term of revocation remain ineligible for reinstatement (2b in Figure 1) for substantial periods. The extent to which this group will eventually satisfy the issues that are preventing them from becoming eligible for reinstatement is unknown, but Figure 3 shows that over half of those in the 2b category (see Figure 1) have been in it for more than 2 years, suggesting that they are not likely to apply for reinstatement.

The Characteristics of Those Who Install Interlocks

Table 3 provides the results of the logistic regression exploring the relationship of demographic and prior record factors to the installation of the interlock. In this analysis, only those offenders who completed their hard-revocation period were included. Each of the factors in Table 3—age, gender, race /ethnicity, and prior DUI offenses—show a substantial and significant relationship to the installation of an interlock. As shown, female offenders were more likely to install an interlock once they had completed their period of hard revocation. The probability that offenders would install an interlock increased relatively linearly as a function of age. Hispanic and African-American offenders were less likely than were White offenders to install interlocks. Asians, on the other hand, were more likely to install interlocks than White drivers were, whereas Native American offenders installed the units at a rate similar to Whites. Slightly less than 50% of the first offenders installed interlocks, compared to almost 60% of second offenders and 55% of third offenders.

Failure to Complete the Interlock Program Requirements

Offenders who install interlocks can fail to be reinstated if they quit the program or if they attempt to circumvent the unit and thus continue to have a high number of lockouts that delays completion of the interlock program. To explore the characteristics of offenders who did not complete or failed to complete in a timely manner their interlock requirement, we conducted a logistic regression of our demographic and prior offense data for the subgroup of our offenders who installed interlocks. We related those measures to the occurrence (or nonoccurrence) of a failure to complete their time on the interlock. Table 4 shows the results of that analysis. The probability of failing to complete the interlock period was approximately equal for males and females; however, younger offenders were less likely to

complete the interlock period than older offenders were. Among the least likely to complete the interlock period were Native Americans, Asians, and Hispanics. The probability of failing to complete the interlock period increased with the number of priors, with second offenders having almost double and third offenders triple the probability of failure compared to a first offender.

Recidivism Rates

Because of the varying periods involved, the recidivism rate per year was calculated separately based on the length of time the offenders were fully revoked. The 90,000 offenders who passed through that stage (Figure 1) were grouped based on the number of years they were revoked, and separate annual recidivism rates were calculated for each group. The results of the survival analysis for each of the overlapping subsets of offenders are shown in the upper section of Table 5. Because the longer revocation periods were applied to DUI offenders based on the number of their prior offenses (Table 2), it is not surprising that the recidivism rate rose with the number of years of revocation. The lower section of Table 5 presents the annual recidivism rates of offenders while the interlock was on their vehicles and after it had been removed. In keeping with past research, the recidivism rate while on the interlock was approximately two thirds lower than after the units were removed (Elder et al., 2011; Willis et al., 2004).

Time on Interlock

To provide an indication of the extent to which the ARIP is promoting the use of interlocks, we examined the percentage of offenders who spent some time on the interlock as a function of the time they were in the program determined by their date of conviction or license revocation. As shown in Table 6, of the 81,000 offenders for whom we had at least 2 years of postconviction data, 43% had some time on the interlock. For the subgroup of those for whom we had 5 or more years of data to follow, 60% had some time on the interlock. This primarily reflects the greater proportion of second and third offenders among those in the group we followed for 5 or more years due to their longer hard-revocation periods. As shown in Table 3, the installation rate for second offenders was 60% and 55% for third offenders, compared to only 48% of first offenders. A second indicator of how the ARIP promotes the use of interlocks is provided by determining the percentage of the total person-months from conviction to full license reinstatement for offenders who installed and completed their time on the interlock. As shown in Table 6, this amounted to approximately 40% of the total time following conviction that they were serving a DUI sentence. Sixty percent of the time, their licenses were revoked. This accounts only for the 45% of ARIP offenders (Table 1) who did install interlocks, leaving out the 55% who did not install interlocks and remained revoked from the date of their conviction to the end of our study period in February 2011. The third column of Table 6 includes all ARIP offenders over the 10-year period in the calculation of the percentage of person-months on the interlock. When the offenders who did not install interlocks are included, less than 20% of all the “sanction time” of the ARIP offenders was spent on the interlock.

Discussion

The results of this 4-year update of our original Florida interlock study closely conform to those of the original evaluation. The percentage of offenders who completed their revocation periods and became eligible for reinstatement in the 2008 report was 53%; in this study, that percentage was 49%. In the earlier study, the proportion of those eligible to reinstate who installed interlocks was 93%, whereas in 2011, 97% installed interlocks. As in the 2008 report, we found in this 2011 update that women were somewhat more likely to install interlocks (55% vs. 47%), that younger drivers were less likely to install than older drivers,

and that Hispanic and African-American offenders were only half as likely as White drivers to install interlocks. The results of the two studies were also similar in finding that second offenders were more likely to install interlocks than first offenders or offenders with three or more offenses.

This study was limited by the same factors as the 2008 study. First, we do not have information on the offenders' decisions regarding meeting the conditions required to qualify for reinstatement. Though we know that the deficiencies on their driving record that prevent them from becoming qualified include such items as failure to pay fines or attend treatment, we do not know whether the failure to comply was forced by economic circumstances or represented a specific decision not to pursue reinstatement. Second, our knowledge of the status of offenders who are not currently on an interlock is limited to the information on the state driver record, so we cannot be sure whether those without an entry on their record are not driving or are driving illicitly but successfully avoiding citations.

Despite these limitations, the data presented reflect a mature example from a large state of how an administrative interlock program based on the reinstatement process functions. After 10 years, the program appears to be producing consistent results. It has been successful in ensuring that ARIP offenders who qualify for reinstatement install interlocks. In keeping with the mass of interlock research, ARIP offenders in Florida who install interlocks experience a two thirds or greater reduction in recidivism when compared with offenders serving their revocation sentences. Though the extent to which Florida is representative of the other states that are implementing ARIP is unknown, it appears to be an important and instructive example for policy makers to consider when deciding whether to use the ARIP procedure as a method for extending the use of interlocks with DUI offenders. The advantages and limitations of the ARIP process can be illustrated by reviewing the phases of the Florida program shown in Figure 1.

In our original study covering the first 6 years of the ARIP, we found that approximately half of the ARIP offenders were serving their period of hard revocation. In this study covering 10 years of the program, we found that only a third of the offenders were in the hard-revocation phase (Figure 1). The higher rate in the earlier study reflected the initial backlog of offenders with long revocations when ARIP was implemented in Florida in 2002. That backlog appears to have worked itself through the system so that the one-third figure appears to represent the stable proportion of offenders serving revocations in the Florida ARIP. That one third of offenders are revoked is based on the sanctions established by the Florida ARIP law, and that proportion will presumably vary across states depending on the severity of the revocation sanction.

In both the earlier and the current ARIP studies, half of those who completed their time on hard revocation qualified for reinstatement and went on to install interlocks, whereas the other half of the offenders failed to qualify for reinstatement. Relatively little information is available on those who fail to qualify. During the revocation phase, no information is posted on the driver's record unless the offender commits another offense. Thus, some of those who fail to qualify once they have met their hard-revocation requirement may not have been driving since their conviction. Yet others may have been driving illicitly and successfully avoiding meeting court treatment and fine requirements during their hard-revocation period. Such offenders would appear to be unmotivated to reinstate, as indicated by the long periods they have been in an unqualified status (Figure 3). As with the length of the hard-revocation period, the process of qualifying for reinstatement is a potential selective mechanism, as those offenders with poor records of compliance to the court requirements face the highest hurdles in meeting the qualification requirements.

As Fieldler, Brittle, and Stafford (2012) noted, an important consideration for establishing an ARIP system is that it is expected to enlist a larger proportion of DUI offenders in interlock programs than court systems, where many offenders avoid installing the devices. This is important because of the strong evidence that interlock programs reduce recidivism (Elder et al., 2011; Willis et al., 2004) relative to license revocation, thereby reducing the risk to innocent road users. Table 5 underlines the significance of time on the interlock compared to time with a revoked license in this study where the recidivism rate is four to five times greater. Generally, the rate of compliance with the interlock has simply been reported as the percentage of all offenders who installed the devices. However, this study suggests (Table 6) that that measure is not a good indicator of the total time that the ARIP offenders are being monitored by the interlock. In this study, though 40 to 60% of the offenders installed interlocks, those that did so were only on the interlocks for 40% of the sanction period following their conviction. Consequently, in addition to half of the offenders avoiding interlocks entirely, 60% of the time of those who did install interlocks was spent in a revoked rather than interlock status. When the half of the ARIP offenders who did not install interlocks is considered, the percentage of all person-months on the interlock falls below 20%. Thus, to gauge the true effect of the specific deterrent value of an interlock program within a sanction system, it is necessary to use a measure such as the percentage of all person-months on the interlock rather than simply recording the percentage of offenders who installed the devices.

From this study, it appears that about half of all DUI offenders do not reinstate their licenses under the conditions imposed by the Florida ARIP. This is high, but not exceptional. In a previous study of seven large states without ARIPs that covered more than 40 million drivers, we found that a quarter of the first offenders and a third of the multiple offenders did not reinstate within 5 years of the date of their suspension (Voas et al., 2010b). Tashima and Helander (1999) reported even lower rates of reinstatement for first and second DUI offenders in California, which did not have an ARIP at that time. Thus, independent of an interlock program, a sizeable proportion of all DUI offenders in most states do not reinstate and therefore cannot be forced to install an interlock through the ARIP process.

The Florida ARIP fully meets the requirements of the law by ensuring that essentially all offenders *who qualify for reinstatement* install interlocks, but that still leaves the majority of the ARIP-eligible offenders “untreated.” Thus, the question arises as to whether methods are available to increase the extent to which ARIP offenders can be required to drive with interlocks because the research literature indicates that relative to license suspension or revocation, the interlock reduces recidivism and the risk to the driving public by two thirds. One possibility would be to substitute an interlock requirement for a portion or all of the hard-revocation period. Congress has provided in the recent reauthorization of the Highway Safety Bill a provision that repeals the penalty applied to states that do not mandate a minimum period of hard suspension. This, plus the provision of incentive funds for enacting mandatory interlock laws for all offenders, should encourage states to substitute time on the interlock for full license suspension. In New Mexico, this option is available voluntarily to all suspended DUI offenders (Marques et al., 2010; Roth et al., 2007; Voas et al., 2005). However, because offenders can resist the interlock by claiming not to have a car, a voluntary alternative may be ineffective because experience has shown that only a small proportion of DUI offenders will take advantage of such programs (Voas and Marques, 2003). To ensure a high rate of interlock installations, a less attractive alternative sanction is required, such as house arrest (Roth et al., 2009; Voas et al., 2002) or abstinence monitoring (Voas, 2010). Another possibility for increasing the amount of interlock coverage in an ARIP is to reduce the eligibility requirements for reinstatement. In Florida, as in many other states, factors not related to traffic safety, such as failure to pay child support, can keep an offender from qualifying for reinstatement. Such barriers along with minor traffic offenses,

such as unpaid fines, might be set aside in the interest of getting more offenders onto an interlock.

In summary, this study produced five key findings regarding the Florida ARIP that may be relevant to other states with ARIP programs, depending on the similarity of their programs to the Florida model. First, the ARIP procedure produces close to a 100% compliance with the requirement to install an interlock among offenders who were qualified to reinstate. Second, about a third of all ARIP offenders at any given time will be ineligible for the interlock program because they are serving their period of hard revocation. Third, of those who complete their period on hard revocation, only half will qualify for reinstatement and install interlocks, whereas the other half will remain ineligible to reinstate. Fourth, the offender's decision about whether to install an interlock is hidden within the process of qualifying for reinstatement, so it is impossible to determine whether the failure to qualify resulted from a decision to avoid installing an interlock or simply the offender's inability to meet the requirements for reinstatement. Fifth, though the ARIP process results in 45% of *all* DUI offenders installing interlocks, but the group of offenders who install interlocks spend only about 40% of their postconviction time on the interlock.

Acknowledgments

This work was supported by the National Institutes of Health, National Institute on Alcohol Abuse and Alcoholism, Grant Nos. R21AA018732 and P20AA017831.

References

- Beirness D, Marques P. Alcohol Ignition Interlock Programs. *Traffic Inj Prev.* 2004; 5:299–308. [PubMed: 15276931]
- Elder RW, Voas R, Beirness D, Shults RA, Sleet DA, Nichols JL, Compton R. Task Force on Community Preventive Services. Effectiveness of ignition interlocks for preventing alcohol-related crashes: A Community Guide systematic review. *Am J Prev Med.* 2011; 40:362–376. [PubMed: 21335270]
- Fieldler, K.; Brittle, C.; Stafford, S. Case studies of ignition interlock programs. Washington, DC: U.S. Department of Transportation, National Highway Traffic Safety Administration; 2012. (DOT HS 811 594)
- Lund, AK.; McCartt, AT.; Farmer, CM. Contribution of alcohol-impaired driving to motor vehicle crash deaths in 2005. In: Logan, BK.; Isenschmid, DS.; Walsh, JM.; Beirness, D.; Morland, J., editors. Proceedings of the T2007 Joint International Meeting of TIAFT/ICADTS/IIS; ICADTS; Seattle, WA. 2007 Aug 26–30.
- Marques, PR. The Alcohol Ignition Interlock and Other Technologies for the Prediction and Control of Impaired Drivers. In: Verster, JC.; Pandi-Perumal, SR.; Ramaekers, JG.; de Gier, JJ., editors. *Drugs, Driving and Traffic Safety.* Vol. Vol II. Basel, Switzerland: Birkhäuser Verlag AG; 2009. p. 457–476.
- Marques, PR.; Voas, RB.; Roth, R.; Tippetts, AS. Evaluation of the New Mexico Ignition Interlock Program. Washington, DC: U.S. Department of Transportation, National Highway Traffic Safety Administration; 2010. (DOT HS 811 410)
- McCartt, AT.; Geary, LL.; Nissen, WJ. Observational study of the extent of driving while suspended for alcohol-impaired driving. Washington, DC: U.S. Department of Transportation, National Highway Traffic Safety Administration; 2002. (DOT HS 809 491)
- Miller TR, Levy DT. Cost-outcome analysis in injury prevention and control: Eighty-four recent estimates for the United States. *Med Care.* 2000; 38:562–582. [PubMed: 10843309]
- Ross H, Gonzales P. The effect of license revocation on drunk-driving offenders. *Accid Anal Prev.* 1988; 20:379–391. [PubMed: 3223984]

- Roth, R. survey of currently installed interlocks in the U.S. 2012. [Roth Interlock Research Data Web site]. 2012. Available at: <http://www.rothinterlock.org/2012surveyofcurrentlyinstalledinterlocksintheus.pdf>.
- Roth R, Voas RB, Marques P. A note on the effectiveness of a house arrest alternative for motivating DWI offenders to install ignition interlocks. *J Saf Res.* 2009; 40:437–441.
- Roth R, Voas RB, Marques PR. Interlocks for first offenders: Effective? *Traffic Inj Prev.* 2007; 8:346–352. [PubMed: 17994487]
- Tashima, HN.; Helander, CJ. 1999 annual report of the California DUI Management Information System. California Department of Motor Vehicles, Research and Development Section; Sacramento, CA. 1999. (CAL-DMV-RSS-99-179)
- Voas RB. Monitoring drinking: Alternative to suspending license to control impaired drivers? *Transport Res Rec.* 2010; 2182:1–7.
- Voas RB, Blackman KO, Tippetts AS, Marques PR. Evaluation of a program to motivate impaired driving offenders to install ignition interlocks. *Accid Anal Prev.* 2002; 34:449–455. [PubMed: 12067107]
- Voas RB, Marques PR. Commentary: Barriers to interlock implementation. *Traffic Inj Prev.* 2003; 4:183–187. [PubMed: 14522641]
- Voas, RB.; Marques, PR.; Roth, R. The Hard Suspension Barrier: Does New Mexico's Interlock Licensing Law Solve the Problem?. In: Beirness, DJ.; Robertson, RD., editors. *Alcohol interlock programs: Pushing back the frontiers.* Tempe, AZ: Traffic Injury Research Foundation; 2005. p. 53-58.
- Voas RB, Marques PR, Tippetts AS, Beirness DJ. The Alberta Interlock Program: The evaluation of a province-wide program on DUI recidivism. *Addiction.* 1999; 94:1849–1859. [PubMed: 10717963]
- Voas RB, Tippetts AS, Fisher DA, Grosz M. Requiring suspended drunk drivers to install alcohol interlocks to reinstate their licenses: Effective? *Addiction.* 2010a; 105:1422–1428. [PubMed: 20528811]
- Voas RB, Tippetts AS, McKnight AS. DUI offenders delay license reinstatement: A problem? *Alcohol Clin Exp Res.* 2010b; 34:1282–1290. [PubMed: 20477763]
- Willis C, Lybrand S, Bellamy N. Alcohol ignition interlock programmes for reducing drink driving recidivism. *Cochrane Database Syst Rev.* 2004; 18 CD004168.

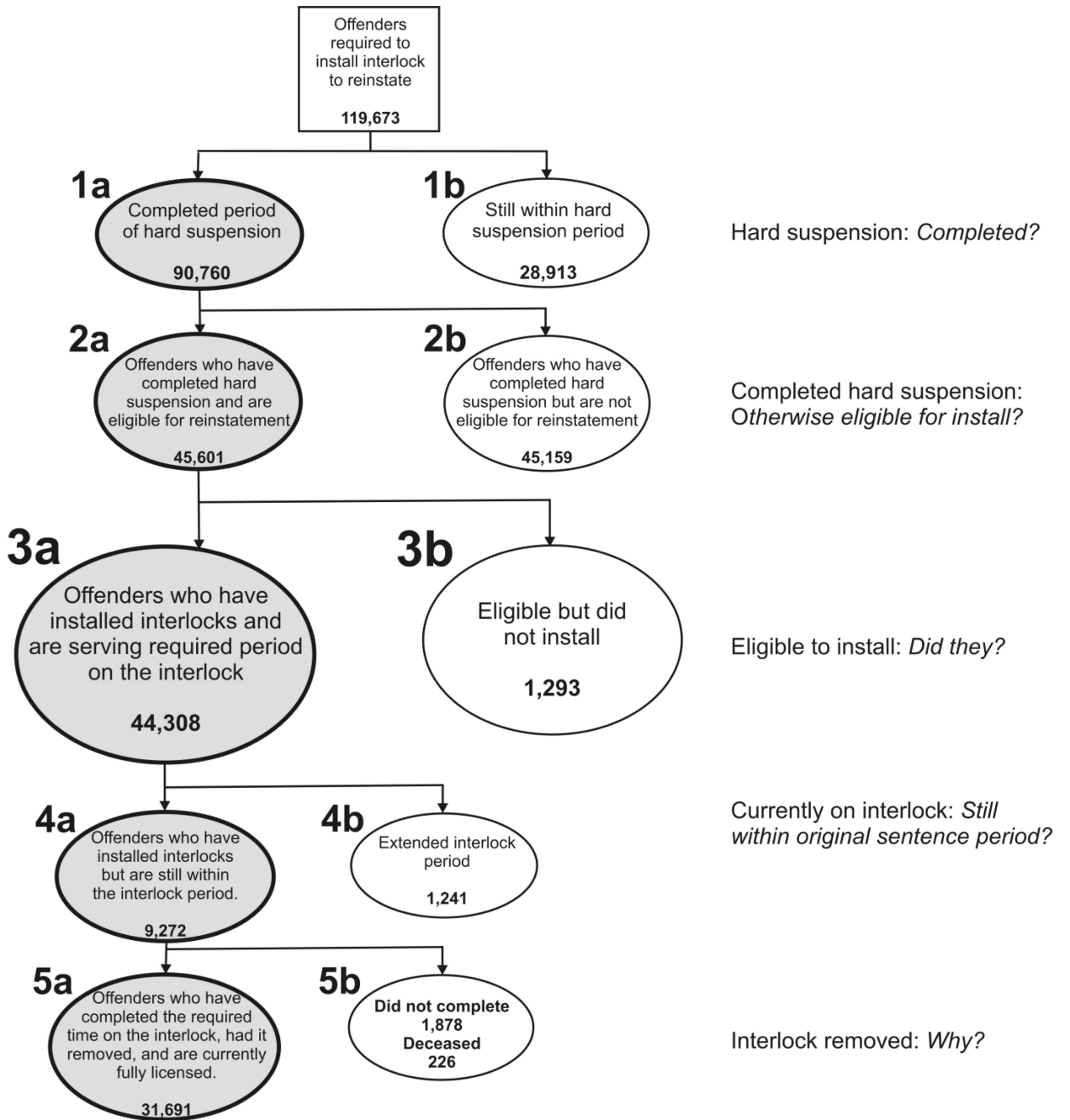


Figure 1. Course of interlock offenders from the point of conviction through qualification for reinstatement, interlock driving period, and postinterlock full restoration of the driving privilege

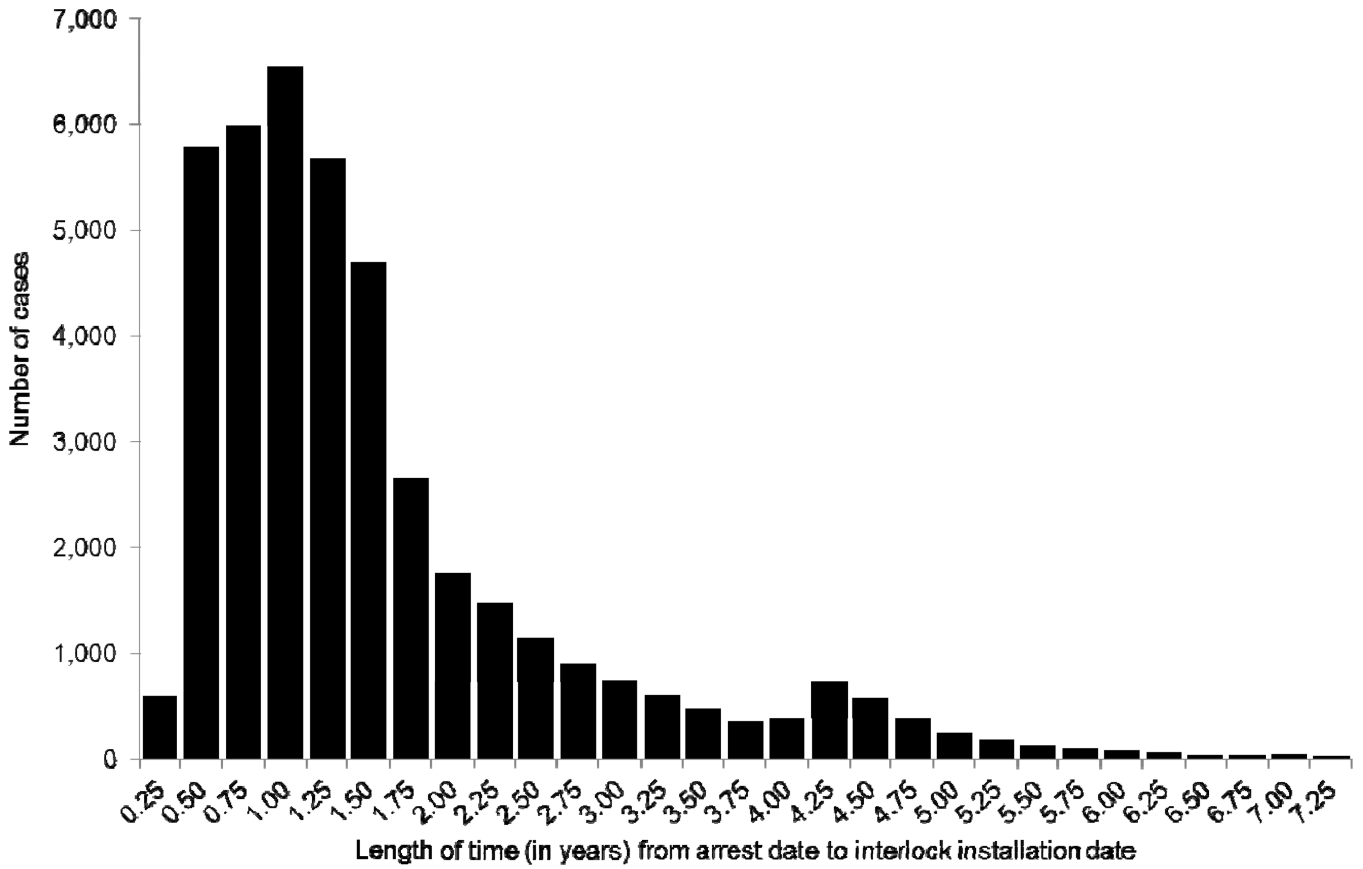


Figure 2.
Length of time from arrest to interlock installation

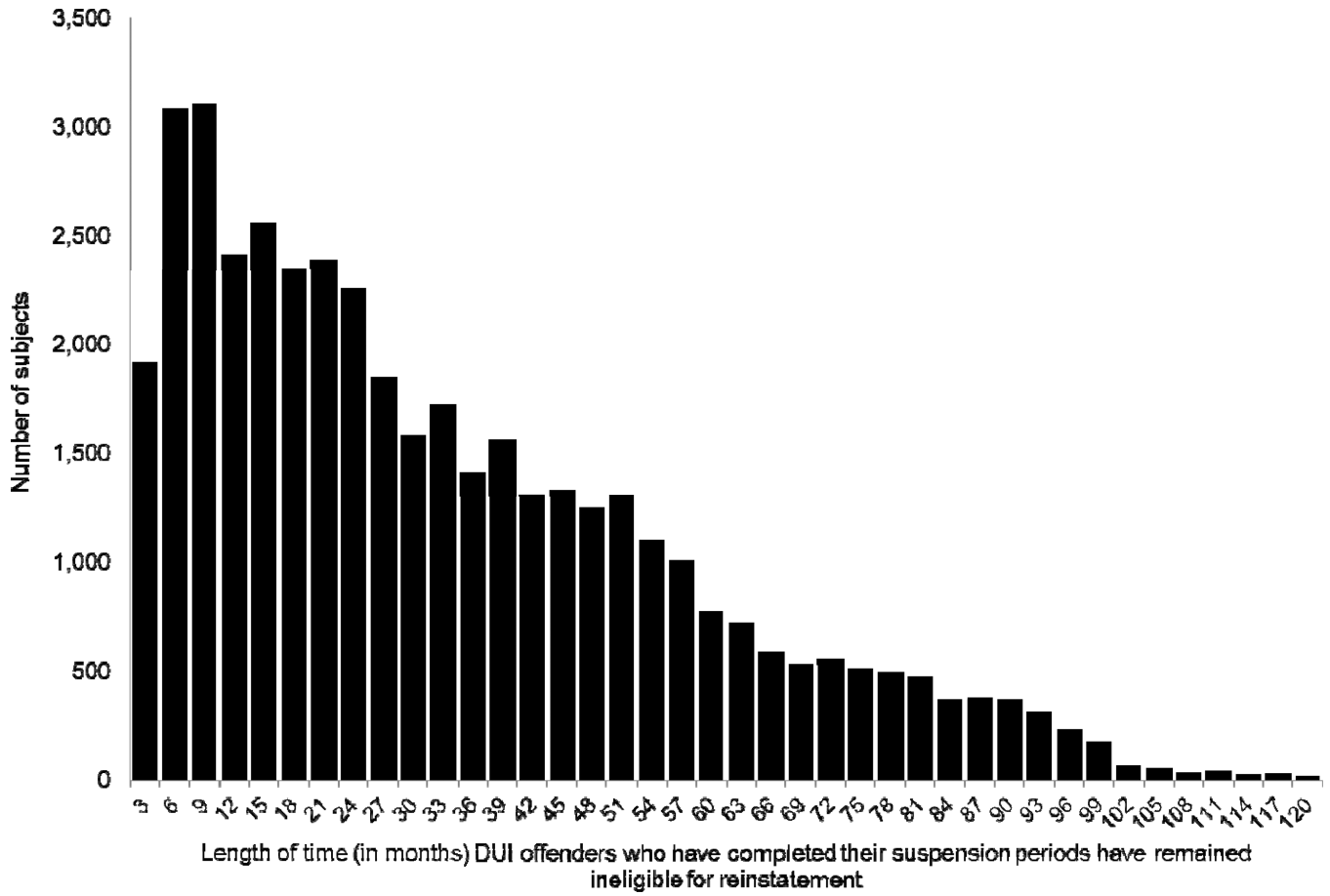


Figure 3. Length of time DUI offenders who have completed their suspension periods but are ineligible for reinstatement have been in that status

Table 1

Rounded estimates of DUI offenders in the 2008 and in the 2011 studies

	Research	
	Prior	Current (Feb 2011)
Total cases	82,000	120,000
Completed hard revocation	46,000	91,000
Installed interlock	20,000	44,000
Completed interlock	12,500	32,000

Table 2

Revocation length sentence per number of prior offenses

Revocation period	Number of prior offenses				Total
	0	1	2	3+	
3-6 months	27,362	8,364	2,199	475	38,400
	62.0%	19.1%	12.2%	3.6%	32.2%
1 year	11,012	11,673	4,118	949	27,752
(9, 12, 18 months)	24.9%	26.7%	22.8%	7.2%	23.3%
2-5 years	1,584	17,156	2,938	806	22,484
	3.6%	39.2%	16.3%	6.1%	18.8%
10 years	47	570	5,698	1,313	7,628
	.1%	1.3%	31.6%	10.0%	6.4%
Indefinite	4,160	6,000	3,087	9,569	22,816
	9.4%	13.7%	17.1%	73.0%	19.2%
Total	44,165	43,763	18,040	13,112	119,080
	37.1%	36.8%	15.1%	11.0%	

Table 3

Progression to installation for those who completed hard revocation

	Installation rate (%)	Relative % diff	B	S.E.	Wald	df	Sig.	Exp(B)
Age (vs. 60+):					240.264	5	.000	
16-20	39.1	-46.1	-.618	.058	114.805	1	.000	.539
21-29	46.0	-27.3	-.319	.035	85.355	1	.000	.727
30-39	49.8	-12.5	-.134	.034	15.654	1	.000	.875
40-49	48.8	-12.1	-.129	.033	15.105	1	.000	.879
50-59	50.2	-6.3	-.065	.035	3.465	1	.063	.937
60+	52.4	(base)						
Male:	47.1	-14.4	-.156	.018	78.854	1	.000	.856
(vs. female)	55.5							
Race/Ethnicity:					1856.135	5	.000	
(vs. White)	52.4							
Asian	66.5	+71.9	.542	.103	27.714	1	.000	1.719
African American	40.9	-42.4	-.552	.026	447.918	1	.000	.576
Hispanic	41.7	-39.6	-.504	.020	643.764	1	.000	.604
Indian	47.7	-11.2	-.119	.145	.671	1	.413	.888
Other	18.3	-80.2	-1.618	.050	1038.827	1	.000	.198
Prior DUIs:					4976.264	3	.000	
(vs. first offender)	47.7							
1 prior	59.6	+30.7	.268	.016	236.407	1	.000	1.307
2 priors	55.4	+7.4	.071	.023	9.620	1	.002	1.074
3+ priors	15.1	-83.4	-1.796	.030	3629.270	1	.000	.166

Relative % diff = difference relative to contrast category; B = regression coefficient; S.E. = standard error of coefficient; df = degrees of freedom; Sig. = alpha probability (significance); Exp(B) = exponentiation of coefficient

Table 4

Failure to complete interlock within sentence period for those who installed

	Installation rate (%)	Relative % diff	B	S.E.	Wald	df	Sig.	Exp(B)
Age (vs. 60+):					67.795	5	.000	
16-20	9.1	186.0	.827	.174	22.607	1	.000	2.286
21-29	9.1	82.6	.602	.104	33.592	1	.000	1.826
30-39	9.8	55.5	.442	.101	19.128	1	.000	1.555
40-49	9.2	38.1	.323	.100	10.431	1	.001	1.381
50-59	8.0	21.6	.196	.105	3.454	1	.063	1.216
60+	6.4	(base)						
Male:	9.4	7.1	.071	.048	2.141	1	.143	1.074
(vs. female)	7.5							
Race/Ethnicity:					79.382	5	.000	
(vs. White)	8.4							
Asian	12.6	67.9	.518	.202	6.603	1	.010	1.679
African American	9.0	10.9	.104	.078	1.768	1	.184	1.109
Hispanic	12.0	54.3	.434	.052	69.548	1	.000	1.543
Indian	15.6	92.8	.657	.319	4.246	1	.039	1.928
Other	6.2	18.4	.203	.213	.910	1	.340	.816
Prior DUIs:					371.959	3	.000	
(vs. first offender)	6.1							
1 prior	10.1		.640	.046	190.465	1	.000	1.897
2 priors	14.2		1.056	.059	325.453	1	.000	2.873
3+ priors	13.3		.945	.094	100.988	1	.000	2.573

Relative % diff = difference relative to contrast category; B = regression coefficient; S.E. = standard error of coefficient; df = degrees of freedom; Sig. = alpha probability (significance); Exp(B) = exponentiation of coefficient

Table 5

Recidivism rates of offenders while revoked and during and after the interlock period

	Rate (%)	Subjects
RECIDIVISM of all mandated to receive Interlock:		
During suspension:		
1 year	4.38	91,520
2 years	4.90	60,709
3 years	5.29	42,464
4 years	6.00	29,282
5 years	6.86	18,600
RECIDIVISM of Interlock installers only:		
On interlock:		
6 months	0.55	36,063
12 months	1.20	19,581
Post-deinstallation:		
1 year	3.55	24,976
2 years	6.76	18,095

Table 6

Percentage of Florida DUI offenders who installed interlocks as a function of time since conviction or suspension

Time since conviction suspension	N of offenders	Percentage with some time on interlock	Percentage of sanction time on interlock: completers only ¹	Percentage of all sanctioned offender person-months on interlock ¹
2+ years	81,251	43.0%	41.1%	14.7%
3+ years	62,400	46.9%	40.1%	15.5%
4+ years	45,757	52.0%	37.0%	16.9%
5+ years	30,598	59.6%	38.8%	19.3%

¹Does not include time following reinstatement.