

**Illinois Secretary of State
Breath Alcohol Ignition Interlock Device (BAIID)
Program Evaluation and Final Report
Volume II: Pilot Implementation Evaluation**



Northwestern University
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Illinois Secretary of State's
Breath Alcohol Ignition Interlock Device Program

Final Report
Volume II: Pilot Implementation Evaluation

Northwestern University Center for Public Safety

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Chapter 1

Introduction

Overview of the Report

This report evaluates the effectiveness of the Illinois Breath Alcohol Ignition Interlock Device (BAIID) pilot program. This pilot program was initiated in June of 1994 and is still in effect.

The primary focus of the study is the comparison of a control group (no interlock device) to a group who used the BAIID. Participants in the study were all multiple DUI offenders who have been granted limited driving relief through a Restricted Driving Permit (RDP) before potential reinstatement of full driving privileges.

The report contains five chapters:

- Chapter 1 introduces the report and provides some background information;
- Chapter 2 contains a review of the literature;
- Chapter 3 describes the Illinois BAIID program;
- Chapter 4 contains the results of the evaluation; and
- Chapter 5 summarizes recommendations arising from the evaluation.

This report is based on two earlier documents. The first was completed by Etzkorn and Martin¹ and was intended as a preliminary report on the effectiveness of the BAIID devices. Information in this report relating to the origins of the BAIID program and operations of the pilot program are based on that report. A discussion comparing findings of that preliminary evaluation and the current evaluation can be found in Chapter 4.

A companion to this report was completed by Lucke, Wark, and Raub² under the same contract that funded this study. Its purpose was to provide guidance to the Secretary of State on ending the pilot phase of the BAIID program, making the Illinois program compliant with federal guidelines, reviewing similar programs in other states, and providing options for the future of the Illinois BAIID program. The literature review from that report was updated for this study.

Key Findings

To evaluate the effectiveness of the BAIID device, two groups were studied:

¹ Etzkorn, Larry D. and Jim Martin. "A Preliminary Report on the Effectiveness of the Illinois Secretary of State's Breath Alcohol Ignition Interlock Device (BAIID) Pilot Program." Paper presented at the 76th Annual Transportation Research Board, Washington, DC: January 1997.

² Lucke, Roy, Richard Wark, and Richard Raub; *Illinois Secretary of State's Breath Alcohol Ignition Interlock Device Program Final Report Volume I: Program Evaluation* June 2001

- Those who were granted restricted driving permits following a DUI-related loss of driving privilege without installation of a BAIID, and
- Those who had to install the BAIID in order to receive the restricted driving permit.

Within the first 3 years after receiving their restricted driving permit, 20% of those who did not use the BAIID had been rearrested for an alcohol-related driving violation. In contrast, only 8% of those who had the BAIID installed had the same outcome. The differences are statistically significant at $p < 0.001$ with a chi square of 110.2 and 5 degrees of freedom (df). These results are discussed in more detail in Chapter 4.

Ignition Interlock Devices

The BAIID device is installed in the vehicle that is to be operated by the individual required to use the device. As indicated by the device name, it locks out the vehicle's ignition until a satisfactory breath sample is delivered. Before delivering the breath sample, the individual must activate the device, allow it to warm up and complete a self-test cycle. The individual then delivers a breath sample in much the same manner as is done for evidentiary breath test instruments. The BAIID device measures breath alcohol concentration (BrAC) in the same manner as the evidentiary devices.

If the test shows a breath test result below 0.025, the BAIID will allow the engine to start. If the result is 0.025 or higher, the vehicle will not start. If there are three BrAC readings of 0.05 or higher in 30 minutes, the BAIID will cause the vehicle to become inoperable for 24 hours.

If the BAIID participant passes the initial BrAC test and the vehicle starts, the BAIID will require the participant to take a rolling re-test. If the participant fails to take the rolling retest or if the rolling re-test results show a BrAC of 0.05 or higher, the BAIID will cause the vehicle horn to begin blowing immediately and continue until the ignition is turned off.

Types of BAIID Devices

There are a number of vendors of BAIID devices and they offer units with different technologies and approaches to an interlock program. There are two basic device technologies: fuel cell-based units, and semiconductor (Taguchi cell) based units. Both have strengths and weaknesses. Fuel cells are specific to beverage alcohol only and are quite unlikely to give false-positive readings. However, they are sensitive to extreme cold weather and are more expensive than the other approach. Semiconductor units can be affected by other hydrocarbons such as menthol cigarette smoke or gasoline fumes and give a reading if these fumes are blown into the unit. Almost all evidential breath test instruments now use fuel cells. However, many states have very successful interlock programs using semiconductor units.

Initiation of the Illinois BAIID Program

Legislation authorizing the use of Breath Alcohol Ignition Interlock Device (BAIID) was first introduced in Illinois in 1987. That year, bills were introduced in both the House of Representatives and the Senate. Neither bill advanced out of committee in its chamber of introduction.

In 1993 three bills were introduced in the House of Representatives. All bills, as introduced, contained similar provisions that included:

- the authorization and, under certain circumstances, the requirement that the court or the Secretary of State require a person whose driving privileges were revoked or suspended following a violation of a DUI offense to operate a motor vehicle equipped with a BAND;
- the authority to make penalties if the requirement is violated;
- the requirement that the Department of Public Health establish standards for certifying BAIIDs;
- the provisions for a hearing process for determining a person's ability to pay.

In March 1993 the Secretary of State's DUI Select Advisory Council recommended that a pilot program be established in Illinois to evaluate the effectiveness of BAIIDs. House Bill 1362 was amended in the House Judiciary II Committee to strip the contents of the bill as introduced and authorize a pilot program. The specific language added to the legislation stated:

“The Secretary of State shall establish a pilot program to test the effectiveness of ignition interlock device requirements upon individuals who have been arrested for a second or subsequent offense of this Section. The Secretary shall establish by rule and regulation the population and procedure for use of the interlock system.”

The legislation with this language passed the House and after being approved by the Senate Transportation Committee, it passed the Senate. House Bill 1362 was signed into law as Public Act 88-238 on Aug. 6, 1993, with an effective date of Jan. 1, 1994. When he signed this legislation, the Governor took the unusual step of sending an Approval Message to the House of Representatives.

“...the safety of the general public remain the driving force in establishing this pilot program.... interlock devices should not be installed as an alternative to statutory sanctions but rather, should be viewed as an additional protection of the general public...all potential candidates for installation of the interlock devices must first meet all eligibility requirements for driving privileges. We will not allow someone who is not otherwise eligible to operate a motor vehicle to be granted driving privileges based solely on the installation of an interlock device.”

Ignition interlock devices were thereby added to the sanctions for DUI in Illinois. Previously, repeat offenders could petition the SOS for a restricted driving permit (RDP) after serving some period of license loss, and such permits generally were issued without other requirements. With the enactment of this legislation, those individuals would also need to install a BAIID device as an additional requirement of receiving the RDP.

Chapter2

Literature Review

Introduction

The breath alcohol ignition interlock device is one of the many approaches employed in dealing with the problem of driving under the influence. The goal of the device is to make it impossible for a potential driver to operate a motor vehicle without first demonstrating a lack of impairment. Clearly, the greatest potential use of such a device would be to restrain drivers who have demonstrated an inability to refrain from driving after drinking. And indeed, the majority of interlock programs appear to have been targeted to repeat offenders.

Serious questions concerning both accuracy and reliability of early interlocks led to the promulgation of standards by NHTSA (1992). It was emphasized in these standards that the goal was safety and “not the performance of field forensic tasks” (Marques *et al.*, 1999, P. 1862). Thus, rather than total accuracy, two features were emphasized: rolling retests and a data recorder.

The randomly required rolling retests functioned to prevent the driver from having someone else blow into the device to start the car and then proceed to drive. The data recorder provides an excellent record of the driver’s driving and drinking behavior. It yields an accurate reading of attempted starts and how many of these were in each of the three standard categories: car starts with no warning, car starts but a warning that a small amount of alcohol was present, car will not start because of an excessive alcohol reading.

The most essential research question concerning interlocks is the degree to which they prevent recidivism. Is a driver with a DUI history, less likely to drive drunk if he or she has an interlock installed? For very clear reasons, studies evaluating the effectiveness of interlocks tend to be flawed. There is a basic conflict between what is required for optimal experimental design and what constitutes good judicial practice. A well-designed experiment would require that a given population of DUI drivers be randomly split into two groups: one receiving the interlock and the other not. Because of the random assignment, it can be assumed that any differences between the two groups in recidivism is due to the interlock. However, random sentencing violates the ideal that a defendant should receive the most effective sentence, and the public should be afforded maximum protection.

While the methodological concerns discussed above should be kept in mind when considering research work in the field, the clear consistency of the findings across a number of studies lends weight to the assertion that interlocks can reduce recidivism.

Studies of Effectiveness

“The Farr-Davis Driver Safety Act of 1986 made California the first state in the nation to pass legislation authorizing the use of ignition interlock devices as a condition of DUI probation.”

(EMT Group, 1990, P. viii) The act created a court-based model that allowed but did not require judges to mandate use of the interlock. A preliminary evaluation (EMT Group, 1990) found promising but not statistically significant reductions in recidivism as a result of the interlock. While, recognizing that further study would be necessary, the authors saw a promising future for the technology.

Linnell and Mook (1991) summarized the research work up to that time. While recognizing that the scientific value of the research was highly variable, they concluded that the overwhelming evidence supported the effectiveness of interlocks in preventing recidivism. As they note, in part, this finding results from the fact that license suspensions and revocations appear to be relatively ineffective in stopping people from driving, and clearly for those who have an alcohol problem, the chances are good that a certain amount of that driving is going to occur while the person is impaired.

An early study examining the impact of interlocks was performed in Hamilton County Ohio (Morse and Elliot, 1992). First offender DUI drivers with high BACs and multiple offenders were offered the interlock as an alternative to license suspension. The interlock group was compared with the drivers who had refused the interlock and as a result had their licenses suspended. The two groups were followed for thirty months. The findings indicated that the suspended group were approximately three times as likely to recidivate as those with the interlocks. Similar findings were reported in a study performed in North Carolina (Popkin, *et al.*, 1992).

A large study in West Virginia (1997) found similar results even though the devices were used by a relatively small number of drivers. The odds-ratio for recidivism between drivers with the interlock and those without was 0.253 indicating that the non-interlock equipped drivers were about four times more likely to record a violation than those with the device. However in the post-interlock period all differences disappeared and the odds-ratio became 1.003, showing that the interlocks had absolutely no affect after removal.

In summarizing earlier studies of the impact of interlocks on DUI offenders, Coben and Larkin (1999) conclude that “Communities throughout the United States should consider implementing alcohol ignition interlock programs as one additional strategy to reduce the tragic consequences associated with drunk driving” (P. 86). They also suggest that “...additional research is needed to determine if interlock devices have any sustained effect beyond the period during which they are physically applied to the automobile. The cost effectiveness of these devices should also be determined for comparison with other sanctions. Finally, future studies should attempt to determine if certain subgroups are most benefited by ignition interlock programs and examine the potential usefulness of these devices in first time offenders and other individuals at risk for DWI” (P. 86).

As has been noted earlier, most studies of interlock effectiveness suffer from two defects. First were claims of effectiveness arising either from the manufacturers of attitude surveys (Beck, Rauch, and Baker 1999). The second was the lack of a truly randomly selected control group. The problem created with this second defect is clear. Because people selected themselves into or out of the interlock group, differences between the two groups could arise because those persons

in each group had different perspective toward drinking and driving. One such difference is quite obviously the fact that those who selected into the interlock group were more concerned about maintaining their legal driving status and less willing to drive without a valid license. It is not hard to extend their greater concern for legalities to the fact that they would be less likely to drive after drinking.

Beck, Rauch, and Baker (1999) performed what the authors call the first properly controlled study of the efficacy of interlock systems. Subjects were randomly assigned to either an interlock or control condition. Those in the control condition were still allowed to drive but required to sign statements that they would not do so after drinking. The drivers with interlocks had significantly fewer instances of recidivism. While these results certainly indicate a positive outcome with regard to interlocks, two aspects cloud the findings.

First, the subjects employed by Beck were all volunteers, people who had applied for reinstatement of their licenses. They consequently represent a relatively small subgroup of alcohol suspended drivers concerned about reestablishing their legal driving privileges, a distinct minority among DUI repeat offenders. It is also of concern that even among this more highly motivated group, the effectiveness of the interlock lasted only as long as it was installed. Indeed, once the device is removed, the curves for the interlock and control group actually cross. Combined with findings from other studies (e.g. Voas, *et al.*, 1999), it is clear that while interlocks have a significant affect during the time they are installed, the experience gained from having the interlock has no affect whatsoever on subsequent behavior.

Unfortunately, the failure to find any positive impact from the interlock once it is removed, greatly limits its scope of usefulness. Most programs require the interlock to be used for a specified period of time. The assumption is that drivers will learn from the experience and a permanent change in the likelihood of drinking and driving will occur. Implicitly then, courts and motor vehicle departments have used interlocks as an approach to long-term behavior change. In view of data currently available, this application of interlocks does not seem viable. However, employing interlocks for long periods of time might be a workable approach. Indeed, it might be necessary to view them as a permanent feature of repeat offenders' vehicles.

One approach to increasing the long-term impact of interlocks after they are removed is currently being tested in Alberta, Canada (Marques *et al.*, 1999). Drivers using the interlock are exposed to intervention involving training on how to avoid failures and other problems with the device, and ways to cope with the post interlock period. Therapeutic and case management approaches are also employed. While there has not yet been time to collect recidivism data, preliminary studies using results from the data recorder are promising. Interlock users in Calgary where additional the intervention was used had fewer failures than those in Edmonton where it was not. The above finding suggests a potential long-term impact. The drivers involved in the program are less likely to attempt to drive when impaired than those who were not. What is still at question and cannot be resolved until the post interlock recidivism data is analyzed, is the issue of whether the drivers are simply learning to cope better with the interlock rather than experiencing true and lasting behavior change. That interlock users in both cities experienced a lessening of failures and warnings over time, suggests that this sort of learning is at least a component of what is occurring. After all, behavior is situated. Persons learn to cope with the

particulars of situations in which they find themselves. After leaving the situation, behavior that was seen as being relevant to the situation drops away.

As noted above, the interlock recorder is an essential aspect of monitoring the compliance of the user. It yields a detailed picture of drinking/driving behavior, at least as it relates to the interlock equipped vehicle. Marques *et al.* (2000) explored an additional possibly valuable use for this component; predicting recidivism from the proportion of attempted starts that ended in either failures or warnings. They discovered that failures and warnings during the first five months of use did make a significant contribution to predicting recidivism. It should be noted however, that interlock failures and warnings as well as recidivism are results of the same behavior driving or attempting to drive after drinking, thus these findings may not be too surprising.

Participation in the Programs

As was noted above, programs where interlocks are utilized as a voluntary approach to being relicensed tend to have very low participation rates. This was highlighted by a study in Alberta Canada (Voas *et al.*, 1999) where it was found that only 8.9% of eligible drivers took part in the program. Thus, although the interlocks did result in a significant decrease in recidivism while installed, and they did not afterwards, because of the small numbers there was very little overall impact on impaired driving.

As Voas noted, "...given the low participation rate, is the interlock an efficient method of controlling the driving of DUI offenders?" (P. 1858). The issue here is a serious one and must be considered in the design of a program. Even though interlocks clearly result in lowering the recidivism rate of DUI offenders, for them to have a meaningful impact on overall traffic safety, ways must be found to greatly increase their usage.

A study by Tippetts and Voas (1997) of West Virginia's program again shows that low participation rates are a glaring weakness of most interlock programs. West Virginia has a strong law mandating long license suspensions for DUI, with the installation of an interlock being the only way to shorten the time period. As they note, this should be a situation that would motivate DUI drivers to enter the interlock program. However, during the seven year period studied (1990-1996), 859 offenders out of a total of 44,313 DUI offences actually received interlocks. This utilization rate of 1.9% certainly does not indicate a wide-spread acceptance of the devices.

In part, the question of utilization is dependent upon the stated goal of a program. If the purpose is to prevent identified individuals from driving, the interlock can certainly have that sort of impact. On the other hand, if the purpose is to have a significant overall impact on traffic safety, the picture is not nearly so clear. All interlock programs report very small usage rates. This finding suggests that to have significant impacts on safety, a successful interlock program must develop new approaches to requiring/encouraging offenders to install and maintain the devices.

A brief consideration of the reward structure of most programs should make the problem quite clear. The evidence strongly indicates that drivers will react to the economic contingencies and

resist the installation of the interlock. From a rational choice model, it is not difficult to understand this choice. The material costs of the interlock are highly significant; they include the cost of installing and maintaining the device. In Illinois, the costs include approximately \$275.00 for the installation and a \$75.00 monthly fee. Additionally, in order to obtain the Restricted Driving Permit to legally drive requires proof of insurance. Because of the DUI arrest, insurance costs will be approximately 50% higher than the cost of basic auto insurance.

There are also nonmaterial costs that must be considered in an analysis of the probability of people using the device. Stigma would, of course, be one consideration. Basically, having the device installed labels one as a drunk driver, an increasingly negative status in American society. The impact of this is increased when passengers are present and he or she must go through a series of “degradation ceremonies” (Goffman 1963) while starting and driving the vehicle.

Choice of BAIID Compared to Driving Without a Valid License

Typically, the “choice” facing the driver is to have the BAIID installed or face continued loss of a drivers’ license. Since the vast majority of those who have a suspended or revoked license continue to drive (Ross and Gonzales 1998, Wiliszowski, *et al.* 1996), the real choice is between driving legally with the BAIID and driving illegally without a valid license. In order to predict choice behavior, the costs of this alternative must be compared with those already noted that are incurred with the installation of the BAIID.

It is clear that driving without a proper license, avoids many of the costs associated with the BAIID. Unless the driver is caught, there are no material costs. Neither fees, nor insurance must be paid. Also, the costs associated with stigma are avoided. While a driver’s passenger might or might not approve of driving without a license, the probability is very high that they will not know the license status of the drivers. Again, in the absence of being stopped by the police, there are no costs. Since the probability of being stopped is typically subjectively (as well as objectively) quite low, the push should be away from installation of the BAIID. Finally, even when a person is arrested for driving on a revoked license, their penalty may not be significant enough to overcome the costs and stigma of having the BAIID. In Illinois, even though statute permits incarceration for driving while revoked, such a penalty is seldom imposed; a fine of under \$1,000 and assessment of community service hours is the common sanction.

The importance of considering the above measures is clear. The evidence for the effectiveness of interlocks while installed on the vehicle is extremely strong. Those with a history of drunk driving are less likely to drive when impaired when confronting an interlock-installed vehicle. We know that interlocks can and will have this positive impact on individual drivers. However, the number of drivers with a history of drinking and driving who utilize the device is so small that the public health impacts are marginal at best.

Summary

Longest (1999) has summarized those aspects which should be considered in the establishment of an interlock program in arguing that voluntary programs simply do not work well. Those most in need of the interlock are those less likely to have it installed. Programs, therefore, should have:

- A statute with very specific language as to those cases where an interlock would be required.
- An effective monitoring program, a probation officer or other official who can closely track progress is needed.
- Requirements for an effective interlock device
- Requirements for effective service provision
- An efficient information system for receiving and tracking data
- Specific penalties for violations
- Agency and individual within the state responsible for the program

There have been a limited number of studies aimed at determining the efficacy of the use of interlocks. These studies suggest a number of important issues regarding the implementation and assessment of interlock programs; each of these issues will be considered below. It is important to note, however, that the basic findings of these studies seem quite clear and have obvious programmatic ramifications. When compared to those who have their licenses revoked or suspended, repeat offenders allowed to drive only device-equipped vehicles have lower recidivism rates. This impact, however, appears to have no carry-over effect once the device is removed. An additional difficulty is the great resistance of drivers to acquire and use the device.

Some Conclusions Drawn from the Literature

In general, the use of ignition interlocks appears to be effective. However, the works discussed above clearly indicates a number of points that should be taken into consideration in the establishment and maintenance of an interlock program.

For interlocks to have an overall impact on traffic safety, they must be part of a compulsory strategy to combat repeat drunk driving. Results strongly indicate that voluntary programs or those that entice people to install an interlock making it a requirement for license reinstatement can have a positive impact on individual drivers. However, the small number of drivers who actually install an interlock under such conditions, greatly restricts the range of its impact.

Participants in the program should have clear and sufficient training as to the operation of the interlock and what to do if problems occur. Frustrations that can arise from the use of the device can lead to a decision not to continue its use.

Because the literature also clearly suggests that interlocks may have no affect on driving behavior after removal, consideration should be given to requiring much longer periods of ignition interlock use. There are no data to support the implicit assumption of many programs that the device allows the driver to learn to not drive after drinking. The driver simply learns not to drink then attempt to drive a vehicle equipped with an interlock. Given this finding, one possibility is to simply consider the interlock as part of the permanent equipment that some drivers might require in order to drive safely. Another possibility, of course is afforded by the work in Alberta concerned with searching for additions to interlock programs that can turn them into effective learning experiences.

The incentive to use the interlock must be must be stronger than the alternative, to remain without a drivers license. As the literature suggests, those who have revoked drivers licenses are likely to continue driving. Given that the costs associated with use of the interlock device are high, and that they may not be any apparent costs to continuing driving, albeit illegally, there is a disincentive to use the interlock device.

Chapter 3

Operation of the Illinois BAID Program

The goal of the Illinois Interlock program is to monitor the serious multiple offender in order to assist in rehabilitation while guaranteeing the safety of the general public.

DUI Penalties in Illinois

There are two types of actions applicable to individuals arrested for DUI in Illinois:

- Statutory Summary (driver license) Suspension
- Criminal penalties for a DUI conviction (including license revocation)

A Statutory Summary Suspension is an administrative procedure providing for the automatic license suspension of a driver arrested for DUI who fails either breath or chemical testing (a test showing a BrAC or BAC of .08³ or more or any amount of cannabis or a controlled substance) or who refused to submit to or fails to complete testing.

Penalty for failing chemical testing:

First offense--mandatory three-months drivers license suspension
Second offense--mandatory 12-month suspension

Penalty for refusing to submit to chemical testing:

First offense--mandatory six-month drivers license suspension
Second offense--mandatory 24-month suspension

A Statutory Summary Suspensions does not apply to an individual with a blood-alcohol concentration of less than .08. If additional evidence, such as an open container violation, warranted a DUI arrest, the outcome of the court case will determine any penalties. Summary suspensions are automatic, effective on the 46th day from the date of notification of the suspensions.

This suspension of driving privileges does not replace the criminal penalties for a DUI conviction. If an Illinois driver refuses to submit to chemical testing in another state, Illinois driving privileges will be suspended for the same length of time as if the refusal were recorded in Illinois. In 1996 the Secretary of State's office recorded 583 suspensions for Illinois drivers who refused chemical tests in another state.

Criminal penalties for a DUI conviction include license revocation, possible jail time, community service, and fines.

³ 0.10 prior to July 2, 1997

Second time DUI offenders lose their driving privileges for a minimum period of three years. The revocation period for a person convicted of a third or subsequent DUI is a minimum of six years.

Restricted Driving Permits (RDPs)

Multiple DUI offenders with Statutory Summary Suspensions who failed breath or chemical testing or those convicted of DUI must appear before a hearing officer in the Secretary of State's Department of Administrative Hearings to apply for a Restricted Driving Permit (RDP) if they are seeking any driving relief during their suspension or revocation period. Persons whose driving privileges are lost due to either suspension or revocation may be granted driving relief only for employment, educational, and medical purposes when no other form of transportation is available.

For a multiple DUI offender whose BrAC or BAC test results are .08 or greater, the RDP cannot be issued for the first 90 days of the suspension. A multiple DUI offender who refused to submit to or fails to complete testing is not eligible for an RDP.

To obtain an RDP, a multiple DUI offender must prove that a hardship exists, provide a current professional drug and alcohol evaluation, and when appropriate, provide proof of remedial education or treatment program. The multiple DUI offender's driving record is reviewed to ensure that the driver would not threaten public safety if allowed to drive on a limited basis.

Rules and Regulations of the BAIIID

Rules establishing the BAIIID were filed on May 24, 1994. These rules were a result of existing RDP requirements, the parameters from the Governor's Approval Message of August 6, 1994, and the desire of the Secretary of State to establish a program that would include an evaluation of all issues related to a BAIIID program.

The definitions of three terms play a major role in the scope of BAIIID:

- DUI disposition
- Recidivist
- BAIIID eligible petitioner

For purposes of the BAIIID, "**DUI disposition**" means "any conviction or supervision for DUI, or any conviction of reckless driving reduced from DUI, any statutory summary suspension or implied consent suspension, and any conviction for reckless homicide."

For purposes of the BAIIID, "**recidivist**" means "any individual who has lost driving privileges as a result of a DUI disposition, received driving relief from the Secretary of State, and then receives another DUI disposition which results in another suspension or revocation."

For purpose of the BAIID, a “**BAIID eligible petitioner**” is “an Illinois resident who is in any one of the following populations:

1. Any recidivist as defined in this Subpart, the arrest date of which occurred on or after January 1, 1982, and thereafter received another DUI disposition causing a further loss of driving privileges regardless of whether it is the reason for the current loss of driving privileges. It shall also include any individual who has been issued a judicial driving permit (JDP) and who, within three (3) years of that issuance date, appears at an administrative hearing for driving relief due to the subsequent DUI disposition.
2. Any individual classified Level III Dependent with at least six but. less than twelve Months abstinence from alcohol and/or drugs.
3. Any individual with three DUI dispositions if:
 - a) The last DUI arrest occurred within the three years period preceding the date of
 - b) the hearing; or
 - c) Any one of the DUI dispositions involved a BrAC or BAC of 0.20 or more;
4. Any individual with four or more DUI dispositions.

While greatly simplified, the BAIID office functions as follows:

1. They are notified by the administrative hearings office that an individual has been granted driving relief in conjunction with a BAIID unit.
2. A vendor will notify the BAIID office that the individual has had the device installed.
3. (If no such notification is received, the BAIID office will follow-up with both the individual and administrative hearings.)
4. Once the device is in place, the BAIID office will receive periodic updates from the BAIID vendors as to the performance of the individuals using their unit.
5. The BAIID office examines the vendor reports and looks for evidence of attempts to tamper with or bypass the device or evidence of attempts to start the unit with alcohol in their systems.
6. When violations are noted (either failures or tampering), depending on the specifics of the violation, the BAIID office might send a letter to the driver asking for an explanation of the violation (there can be extenuating circumstances).
7. After the one-year BAIID use period, the BAIID office is notified of device removal by the vendor.

In addition to monitoring the BAIID device users, the BAIID office must also oversee the device vendors. The office must assure that vendors are meeting their obligations to device users and take responsibility for investigating and resolving complaints.

Chapter 4

Assessment of the Effectiveness of Using the Breath Alcohol Ignition Interlock Device

This chapter examines differences in subsequent driving behavior between a group of drivers who, as part of receiving a restricted driving permit, were required to install a breath alcohol ignition interlock and those who received the permit without such a requirement. It shows that those using the interlock device were less likely to be rearrested for alcohol related violations. However, as discussed in more detail below, some caution must be exercised with these findings because the two groups may not represent the same population of drivers. The other important finding is that canceling the restricted driving license for violations of the rules and regulations does not appear to prevent these persons from continuing to drive.

The first section addresses forming the comparison groups along with issues that may affect subsequent analysis. The likelihood of being re-arrested after receiving the restricted driving permit (RDP) is compared between the two groups. Two approaches are used, the traditional chi square test and a survival analysis. Finally, the subsequent driving records of those dropped from the interlock program are compared to those who remained in it.

Grouping of Drivers for Evaluating the Interlock Devices

Selection of the Comparison Groups and Potential for Bias

For purposes of comparing how drivers with suspended/revoked driver licenses responded to the use of the Breath Alcohol Ignition Interlock Device (BAIID), two groups of drivers were used. One group received an RDP without any other conditions. The other group received an RDP and *had to install a BAIID*. Each group comprises persons who appeared before an SOS Hearing Officer, was eligible to receive the RDP (according to the requirements discussed earlier), and were issued the RDP.

The group receiving the RDP without conditions for this report is labeled “control.” It covers RDP’s issued for three years from July 1, 1991 through June 30, 1994, prior to the BAIID being required as part of the change in state law. The “treatment” group were those who received the RDP and had to install the BAIID. They consist of all drivers receiving an RDP from July 1, 1994, through June 30, 1997.

The terms “control” and “treatment” in this assessment do not meet the strict standards normally applied to evaluations. Assignment to either group should arise randomly, and none of the subjects should have a choice in their selection. Further, persons assigned to one group cannot have conditions attached to that assignment which are more restrictive than those for the control group, and they cannot leave the group because they do not meet the conditions. Failure to meet these standards can result in “selection bias.” The control and treatment groups for the BAIID project did not meet these standards.

The most critical bias introduced was that drivers could elect to join either the control or treatment groups by choosing to have an RDP. Provided they met the rules and restrictions of

the RDP, these persons could drive legally. Otherwise, the drivers license remained invalid (suspended or revoked); persons could not legally drive. Given also the costs associated with obtaining the RDP, especially in the treatment group where a BAIID also was required, some persons be willing to risk the penalties of getting caught as being less costly than having the RDP. Moreover, those requesting an RDP might also be those who have more of an incentive to not drink and drive. No direct data are available. However, using estimates from the number of licensed drivers in the SOS files, the number with multiple DUI arrests, and the average number of DUI arrests annually suggest that less than 20% of those eligible for an RDP obtained one. One finding from the analysis for this report also clearly indicates that a class of persons who had invalid drivers licenses (those who had their BAIID cancelled) continued to drive and be arrested for DUI or other traffic violations, or be involved in crashes.

In addition to the other restrictions of the RDP, members of the treatment group had to voluntarily incur additional expenses (up to \$300 for installation and \$75 per month maintenance fee) to equip and maintain BAIID on the vehicle. No data are available that would indicate how many persons did not enter the treatment group, but who could have received the RDP had the additional conditions not been present.

Finally, persons could “voluntarily” drop out of the treatment group by actions which led to canceling their RDP. These actions included failure to install the BAIID, multiple attempts to start the vehicle with at high BAC levels, failure to be monitored, or by-passing or tampering with the equipment. These same restrictions would not have applied to the control group.

Demographics of the Comparison Groups

An initial report comparing control and treatment groups was been prepared for the Illinois Secretary of State and presented at the Transportation Research Board in 1997.⁴ This current report was intended to extend the number of months of post-implementation for comparison purposes. However, the original base of driver license records used for the “Preliminary Report” could not be recovered. As a result, the control group and treatment groups were re-selected using what was believed to be the same logic used to select the original driver base. The new control group had 1,384 persons compared to 1,298 used in the previous report. Why 100 additional drivers appeared in the revised control group could not be determined. The differences were minimal for the new and previous treatment groups, 1,560 compared to 1,565 drivers.⁵

The only personal data available to compare the two groups are demographic data covering age, sex, and county of residence. A tabulation was run for each of these factors. Table 1 shows the age grouping of the driver at the hearing for the revised control and treatment groups. The distribution by age is fairly consistent between the groups. On the average, those in the

⁴ Etzkorn, Larry D. and Jim Martin. *ibid*

⁵ In some of the tables the authors show 1,541 drivers with BAIID; the differences could not be reconciled.

treatment group were 1.2 years older. A chi square test of differences yielded a value of 20.2 with 5 degrees of freedom (df) which is not statistically significant.

Table 1
Breath Alcohol Ignition Interlock Device Evaluation
Comparison of Control and Treatment Groups
Driver Age at Hearing

Age at Hearing	Group			
	Control		Treatment	
	Frequency	Percent	Frequency	Percent
21 to 25	43	3.1%	26	1.7%
26 to 35	618	44.7%	606	38.8%
36 to 45	502	36.3%	637	40.8%
46 to 55	174	12.6%	220	14.1%
56 to 65	39	2.8%	60	3.8%
65 and older	8	0.6%	11	0.7%
Total	1,384		1,560	
Avg. Age	37.5		38.7	

Chi square = 20.16 df=5, ns

Table 2 shows the distribution of drivers by sex. The percentage of males in each group was approximately the same, Males also are significantly over-represented when comparing DUI violations to all violations.

Table 2
Breath Alcohol Ignition Interlock Device Evaluation
Comparison of Control and Treatment Groups
Sex of Driver

Driver Sex	Group			
	Control		Treatment	
	Frequency	Percent	Frequency	Percent
Female	123	8.9%	118	7.6%
Male	1,261	91.1%	1,442	92.4%
Total	1,384		1,560	

Chi square = 1.81 df=1, ns

Finally, each group was examined in terms of the county in which the driver resided (Table 3). For analytical purposes, the state was divided into five groups of counties: 1) Cook County which includes Chicago; 2) Collar Counties which are the seven counties surrounding Cook County (Will, Grundy, Kendall, Kane, DuPage, McHenry, and Lake) all of which are experiencing significant suburban growth; 3) St. Louis Metro which consists of St. Clair and Madison Counties (like the Collar Counties, experiencing significant suburban growth); 4) counties with large cities (90,000 or more) which include Sangamon, Peoria, Winnebago, Champaign, McLean, and Rock Island, and 5) all remaining counties. Distribution of the drivers by county of residence as shows no differences (chi square of 4.0 with 4 df) between the two groups. However, the control group had a slightly greater representation in the 8 metropolitan Chicago counties 61% compared to 56% for the treatment group.

Table 3
Breath Alcohol Ignition Interlock Device Evaluation
Comparison of Control and Treatment Groups
County of Residence

County	Group			
	Control		Treatment	
	Frequency	Percent	Frequency	Percent
Cook	361	26.1%	361	23.1%
Collar	390	28.2%	462	29.6%
St. Louis Metro	34	2.5%	45	2.9%
Large Cities	132	9.5%	155	9.9%
Other	467	33.7%	515	33.0%
Total	1,384		1,560	

Chi square =3.99 df=4, ns

Data were not available which could be used to examine the driving record of each of the drivers prior to receiving the RDP. Given that other descriptors were consistent between the two groups, and that the conditions under which an RDP would be issued remained the same, an assumption can be made that no significant differences existed in driving histories.

One additional issue which arose when working with the treatment group is that some of its members were removed because of violations of rules and regulations. Being removed meant that the driver was returned to their original suspended/revoked status. In some cases, applicants had provided false information. Others were dropped because they failed to install the BAIID, tampered with it, consistently had starting attempts when the BAC was higher than 0.025, or failed to return for monitoring. A few moved out-of-state, were jailed, or died. Finally, some were dropped for traffic violations, including DUI.

Table 4 summarizes the reasons why SOS rescinded the RDP. As the table shows, 26 drivers were re-arrested for DUI. An additional 126 were cancelled for other reasons. The 152 cancelled RDP's represent 9.7% of the total RDP's issued for the treatment group. The initial report presented at the Transportation Research Board had eliminated these individuals from the analysis. However, such a step removed a group of drivers who might be the most likely ones to commit further alcohol infractions. Testing the effectiveness of a program requires that all persons assigned to it be included in the evaluation. The purpose behind the BAIID program appears to be one of controlling driving after an individual has been drinking, especially one who has shown a propensity to do so in the past. Otherwise, the evaluation will examine the effectiveness of the unit itself. The analysis below continues to include all individuals. The following analysis includes all drivers assigned to the control and treatment groups.

Table 4
Drivers Removed from the Treatment Group

Cancellation Reason	Number	Percent
Original Group	1,560	
Cancelled - DUI Arrest	26	1.7%
Closed/Cancelled Other	126	8.1%
Surrender/No reinstate	39	2.5%
Failure Install/Monitor	35	2.2%
By-pass/Tampering	12	0.8%
Relapse	14	0.9%
Other Arrest	11	0.7%
Died/Left State	8	0.5%
Other	7	0.4%
Total Removed	152	9.7%
Treatment Remaining	1,408	

Although not shown in the table, another 48 drivers had actions which may have affected the analysis. Six of the 48 had been in the control group and reappeared in the treatment group. The remaining 42 had their RDP and the BAIID continued for more than one year because of problems, such as frequent attempts to start the vehicle after drinking.

Assessment of Recidivism Between the Control and Treatment groups

Arrest for DUI After Receiving the Restricted Driving Permit

The Illinois Secretary of State made available driver record summaries (called "abstracts") for all drivers who had been members of either the control or treatment groups. These abstracts

covered a period from the time drivers were issued the RDP until December 2000. This section examines time elapsed from the hearing for the RDP until their next alcohol arrest.

As shown in Table 5, through December 2000, 938 drivers in the control group (68%) and 1,352 (87%) in the treatment group had not been rearrested for an alcohol related violation⁶. However, because those drivers in the control group had up to 9.5 years of driving (July 1991 through December 2000) compared to some in the treatment group having only 3.5 years (June 1997 through December 2000), including all arrests is useful only for showing possible trends in arrests. It does show that by the fourth year approximately the same percentage of persons in the treatment group as in the control group appear to be arrested for DUI. Continuing to gather data for these two groups over the next two to three years should clarify whether the trend is continuing.

Table 5
Time to First DUI Re-arrest
Through December 2000

Group	Time to Arrest					Total in Group
	1 Year and Less	1 to 2 Years	2 to 3 Years	3 to 4 Years	Total Arrests	
Control	94	107	71	47	319	1,384
Percent	6.8%	7.7%	5.1%	3.4%	23.0%	
Treatment	20	48	57	45	170	1,560
Percent	1.3%	3.1%	3.7%	2.9%	10.9%	

Table 6 displays the same data as Table 5, except that the period for comparison is limited to three years after the hearing. Within the first 3 years, 20% of the control group has been rearrested for an alcohol violation. Only 8% of the treatment group has had the same outcome. The differences are statistically significant at $p < 0.001$ with a chi square of 110.2 and 5 degrees of freedom (df). However, as both Table 5 and Table 6 suggest, the differences between the two groups are beginning to disappear by the end of the third year. The perceived effectiveness of the BAIID may last approximately 3 years.

Those drivers in the control group who were re-arrested within three years averaged 515 days until the arrest with a standard deviation of 275 days. Those in the treatment group averaged 716 days to the arrest with a deviation of 262 days. These values are significantly different at the 0.001 level based on a t-Test of differences ($t=5.28$ with a F test showing no differences between the variances).

⁶ The arrests are for driving under the influence, but the conviction could have been for any alcohol related violations including failure to take a breath/blood test, DUI, or plead down to reckless driving.

Table 6
First DUI Re-arrest
First Three Years After Receiving the RDP

Group	No DUI Arrest	Time to Arrest						All Arrests	Total in Group
		1 Year and Less	1 to 1.5 Years	1.5 to 2 Years	2 to 2.5 Years	2.5 to 3 Years			
Control	1,112	94	61	46	44	27	272	1,384	
Percent	80.3%	6.8%	4.4%	3.3%	3.2%	2.0%	19.7%		
Treatment	1,435	20	18	30	30	27	125	1,560	
Percent	92.0%	1.3%	1.2%	1.9%	1.9%	1.7%	8.0%		

Chi square = 110.2, df=5, p<0.001

As Figure 1 displays, the trend where the differences in percentages of each group arrested for DUI becomes smaller as time from the hearing date gets longer. There is a rapid decrease in arrests for the control group through the first two years. Meanwhile, the percentages of the treatment group arrested are increasing to meet the decreasing control group percentages. Up to five years of data covering each group will provide confirmation of this trend.

Differences in arrests between the control and treatment groups during the first year should be expected. Those in the control group could drive after drinking; the interlock device would have acted to prevent this action in the treatment group. When arrested, those in the treatment group in all likelihood were driving a vehicle not equipped with the BAID or had someone else blow into the device to start the vehicle.

Two conclusion are drawn from the analyses. First, when the BAID remains installed, most drivers are not re-arrested for DUI. The interlock device has the obvious benefit of preventing driving while under the influence. Even after the device is removed, the second conclusion is that drivers who had the BAID appear to refrain from driving after drinking up to two more years. This could be considered a “halo” effect, and it has been shown to occur elsewhere in the literature. After three years, those who had the BAID may be reverting to their original habits of drinking and driving.

Survival Analysis

While the chi square tests of differences between the control and treatment group showed differences statistically significant at greater than the 0.001 level, such tests also are sensitive to the “N” of the sample. A large N will result in small differences being significant. Moreover, the chi square only looks at grouped data, not at the individual points, e.g., days until re-arrest, which make up the groups. To overcome this deficiency, a survival analysis also was performed.

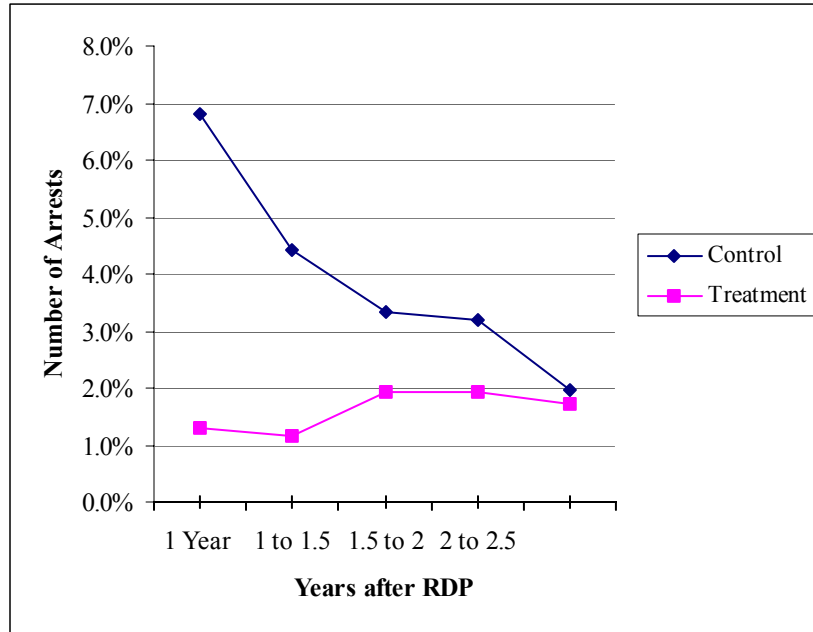


Figure 1
DUI Arrests Up to 3 Years After RDP Issued

In this type of analysis, those surviving are compared by time to those failing, and includes the ability to set a “cutoff” or censoring point, after which further analysis ceases. Survivor analysis is a powerful tool used when only part of a population has failed after a given time. It often is applied to laboratory studies of medicines and stress testing of mechanical items.

As shown in Figure 2, those in the treatment group are more likely to survive at any time during the first three years than those in the control group. However (supporting the more general analysis of Figure 1), the survival lines are beginning to converge. By the end of the third year after receiving the RDP, the survival rate for those who were not required to use an interlock device, and those that were, does not differ.

Two tests of differences are performed: log-rank and Wilcoxon. These both are non-parametric tests, but unlike the chi square test of frequency differences, they are not as sensitive to a large N. Both tests showed significant differences, but the log-rank test was significant only at the 0.05 level.

Behavior of Those Whose RDP Was Cancelled

According to SOS records, 152 persons in the treatment group⁷ had their RDP rescinded and were returned to the original suspended/revoked status. Of the 152 drivers, 26 were arrested for

⁷ Similar data were not available for the control group

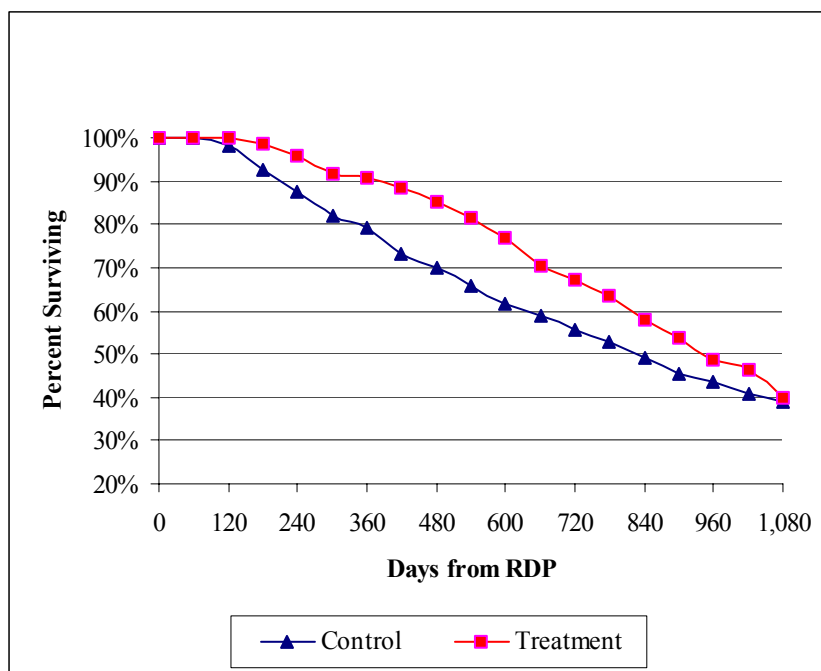


Figure 2
Survival Rates – DUI Arrests for Control and Treatment Groups

DUI while driving on the RDP. The reasons for the cancellation were shown in Table 4. In all cancellations, these persons were returned to the status of not having a valid drivers license. Because they longer have a valid drivers license, the presumption is that these persons will not operate a motor vehicle.

As Table 7 shows, by the end of three years 37% of those who had been returned to revoked/suspended status for reasons other than being arrested for DUI had been arrested for driving under the influence. The percentage of those whose BAIID was cancelled and were arrested for DUI within 3 years of the hearing date was approximately double the percentage control group. The chi square of 26.9 is significant at the 0.001 level.

The survival analysis appears graphically as Figure 3. It clearly shows that after 180 days, those in the cancelled group are being arrested for DUI at a much faster rate than those in the control group. By 240 days, the two curves cross. Log-Rank and Wilcoxon tests show the likelihood that the two groups could have been similar in behavior has a probability less than 0.001. There is a delay of approximately 180 days before the first arrest. This delay possibly occurred because during an initial period, many drivers were at least in the process of obtaining or attempting to obtain a BAIID and may not have been driving. The important note is that these persons had volunteered for the RDP, suggesting some concern for driving within the norms. Only later were these persons eliminated from the program because they could not live within those norms.

Table 7
First DUI Re-arrest
Control Compared to Cancelled Treatment Group

Group	No DUI Arrest	Time to Arrest						Total in Group
		Less Than 1 Year	1.0 to 1.49 Years	1.5 to 1.99 Years	2.0 to 2.49 Years	2.5 to 3.0- Years	All Arrests	
Control	1,112	94	61	46	44	27	272	1,384
Percent	80.3%	6.8%	4.4%	3.3%	3.2%	2.0%	19.7%	
Cancelled*	80	10	10	16	5	5	46	126
Percent	63.5%	7.9%	7.9%	12.7%	4.0%	4.0%	36.5%	

* Excluding cancellation for DUI arrest
 Chi square = 26.9, df=5, p<0.001

Because both Table 7 and Figure 3 clearly show arrests for DUI occurring *after* the status of the drivers license was returned to “revoked/suspended,” this raises a question about the effectiveness of the having a revoked drivers license in preventing subsequent driving. For the overall analysis of behavior after the hearing, the Secretary of State had made available a summary of all arrests for DUI, driving on an invalid license, and crashes.

All Arrests for DUI or Driving on an Invalid License

The driving records for the 152 persons in the treatment group who had their RDP rescinded were examined for an entry in three categories; arrests for DUI, arrested for having an invalid license, or to be involved in a crash. Any of these three events raises the presumption that a person was operating a vehicle. Therefore, any arrests for these 152 drivers implies that they were driving and probably doing so even though they had an invalid drivers license, e.g., revoked. The days from the hearing for the RDP until the first entry in one of the three classifications (DUI, invalid license, crash) appeared were counted. For the 26 whose RDP had been cancelled for an alcohol-related violation, the 2nd alcohol arrest was used. Only the first three years are analyzed. Table 8 displays the results of the findings. In the three years following the hearing date, approximately 62% of drivers whose RDP had been cancelled for an alcohol violation and 55% of those cancelled for other reasons had another driving action on their record. An additional 29 drivers had entries appearing after three years.

Extending the trend of percentages beyond the three years in this study suggests that as many as 3 of every 4 drivers who were removed from the BAIID program and whose drivers licenses are revoked continue to drive. More importantly, they continue to be arrested for driving under the influence at a rate far in excess of the rate for the driving population in Illinois. Given a base of 11.4 million registered drivers (Etzkorn and Martin 1997) and an average of 47,000 DUI arrests yields an annual rate of 4.2 DUI arrests per 1,000 drivers. The annual rate of arrests in the group

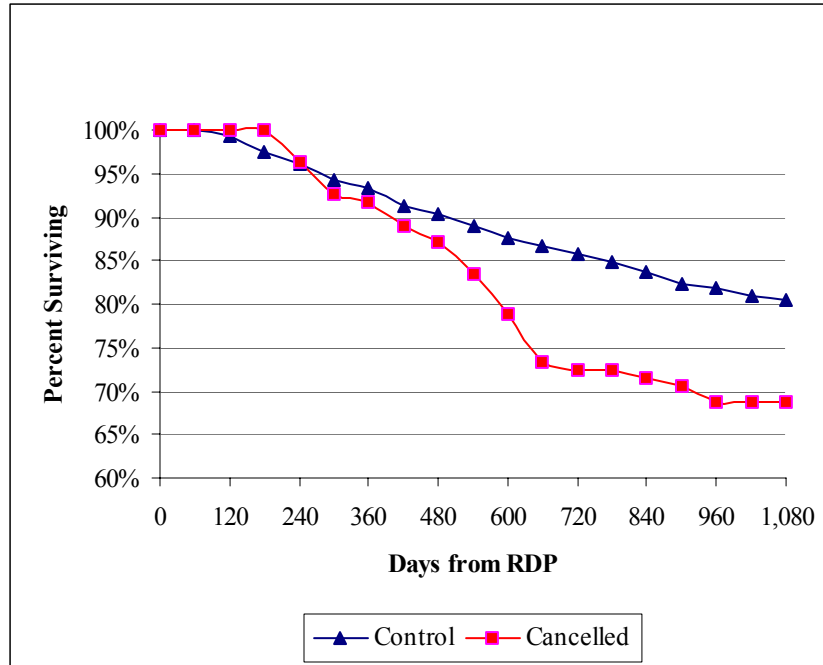


Figure 3
Survival Rates – DUI Arrests Control Group
and Cancelled Groups

Table 8
Further Driving Actions for Cancelled Treatment Group
Time to First Action

Cancellation Reason and Next Action	No Other Actions	Time to Action					Total Actions	Total in Group
		1 Year and Less	1 to 1.5 Years	1.5 to 2 Years	2 to 2.5 Years	2.5 to 3 Years		
Alcohol	10	5	2	0	5	4	16	26
Percent	38.5%	19.2%	7.7%	0.0%	19.2%	15.4%	61.5%	
2nd DUI*		2	1	0	1	0	4	
Crash		0	0	0	1	0	1	
Invalid License		3	1	0	3	4	11	
Other	57	17	14	20	11	7	69	126
Percent	45.2%	13.5%	11.1%	15.9%	8.7%	5.6%	54.8%	
1st DUI		10	8	16	3	5	42	
Crash		2	2	0	0	0	4	
Invalid License		5	4	4	8	2	23	

* An additional 6 drivers had DUI arrest after 3 years.

whose BAIID was cancelled is 110 per 1,000 drivers. Revoking the drivers license for those whose driving record makes them originally eligible for an RDP does not appear to deter driving, especially driving under the influence of alcohol.

Comparison of the Findings to the Preliminary Report

Drawing direct comparisons between the initial report and this current analysis is difficult because of the means by which the authors of the initial report presented their data. They used data for a period ending June 30, 1997. This provided up to six years of time for the control group, but a maximum of three years for the treatment group.

Where the two reports agree is in the reductions in arrests for DUI when the BAIID is installed. The initial study stated that recidivism was reduced “59 percent overall” and “78 percent while the device is installed.” Even with more time available for study, and including the drivers whose RDP’s were cancelled, the current analysis yields a similar finding. There was an 82% reduction in DUI arrests for the first year that the BAIID was installed and 62% reduction over comparable three-year periods. Additionally, both reports suggest that after three years, differences between the group that received RDP’s without restrictions, and those that required the use of BAIID begin to disappear.

The previous report had a 101 cancellations, including five for DUI, for the treatment group. revised data show 126 cancellations *in addition to* 26 cancelled for a DUI arrest. While both values are small enough to limit the effect of including the cancellations on the study of recidivism, the original report should not have dropped the cancelled RDP’s from the analysis. These cancellations represented failures of the program.

Summary from the Analyses

In 1997, of the 11.4 million driver records, 660,400 persons or 5.8% of the drivers had one or more DUI actions (includes supervision and “plead down” findings) on their record. Of these drivers, 93.0% had one or two DUI arrests listed. Extrapolating the percentage with more than two DUI arrests to the annual average number of DUI arrests would suggest that 3,290 drivers will be arrested annually for at least their third DUI. They could be eligible for an RDP under current rules.⁸ On this basis, the 1,560 RDP’s issued for the treatment group during three years, represented only 16% of the number of arrested individuals who may have been eligible.

A more disturbing finding involves the high rate of subsequent driving arrests and crashes for those who are dropped from the program. Clearly these persons are driving even though their drivers license status is “revoked.” This finding then argues against the use of license revocation

⁸ This value ignores those arrested once or twice who fit the Level III Dependency classification and who also would have been eligible for the RDP.

as a means of preventing driving in that population of drivers who abuse alcohol and drive, or who fail to follow the rules and regulations attached to the use of BAIID. It suggests that these persons will drive unless physical intervention, e.g., the use of BAIID, or vehicle impoundment or immobilization is used. Taking away the BAIID without another intervention may not be an effective action.

The study was not organized to examine subsequent driving records of those who had multiple DUI arrests and who *were not* part of the BAIID program. If the subsequent driving behavior of those dropped from the BAIID program is indicative of the behavior of the approximate 2,750 persons annually who may be eligible, but do not elect to obtain their RDP (or are not eligible), suggests that there are many drivers on the road who do not have a license and who continue to drive under the influence.

Chapter 5 Conclusions and Recommendations

During the period that the breath alcohol ignition interlocks (BAIID) were installed on their vehicles, fewer drivers were arrested for DUI than a similar group without the interlocks. This finding is in agreement with what has been found by most other researchers. Even though the control group employed in this study was from a different population than that used for the treatment group, the differences were probably not large enough to offset the significant differences found in driving behavior. These findings support the assertion that simply providing a Restricted Drivers Permit, as well as the rules and restrictions under which the license is offered, is not sufficient to prevent persons from continuing to drive after drinking. Adding a device that prevents the vehicle from starting when alcohol is detected is a critical component. Those few drivers who were arrested for DUI while the device was installed in their vehicle probably had tampered with the device, were driving another vehicle, or not yet had the device installed.

The BAIID does not appear to promote a long-term change in driving behavior. By the end of three years, those who had the device installed had arrest rates roughly similar to those who had never been exposed to the BAIID. This finding is in agreement with other research that in general has found even shorter carry-over affects. The current work in Alberta, Canada, that includes remedial interventions in addition to the interlock appears to hold some promise in this area.

The finding that long-term behavior is not likely to change also implies the need to determine if the continued use of the BAIID may need to be a permanent requirement for some drivers. Currently, only in a few cases has the SOS continued requiring the use of the device for more than one year. The Secretary of State may need to establish a base line establishing guidelines for requiring continued (long term) use of the BAIID.

In the short-term, the interlock appears effective for those who use it. However, this group represents only a fraction of the potentially eligible drivers. Because this study was a replication of an earlier one, no additional investigation was made of the large group (approximately 70% of the total) who may have met the conditions for use of the BAIID but did not apply for the RDP. More information concerning the likelihood that these drivers will continue to drive without a valid license is clearly needed. The literature has indicated that the vast majority of those with revoked licenses continue to drive. If this were confirmed as the case with Illinois drivers with multiple alcohol offences, it would call into question the strategy of employing revocation as a sanction for those drivers presenting the greatest potential danger on the road.

The failure of revocation as a tool to control driving clearly was evident with the small group of drivers who had applied for the BAIID, but for multiple reasons were returned to revoked status. In the three-year period following the return to revoked status, 60% were either arrested for a driving infraction including DUI or involved in a crash; both events clearly indicating they were continuing to drive. It appears that what is needed is to increase the incentives for using BAIID while at the same time increasing the disincentives for driving while in a revoked status.

In summary, BAIID appears to be a valuable tool that helps reduce driving under the influence of alcohol by those who previously were likely to continue to drink and drive. However, especially given the economic disincentives such as the costs of installation, monitoring and increased insurance premiums, many potential users will not be motivated to obtain a Restricted Driving Permit when the interlock device is required. Moreover, there is not apparent disincentive for persons to continue driving even though their license has been suspended or revoked. Finally, for those who tamper with the BAIID, fail to report for monitoring, or do not have it installed, simply a return to revoked status is not an effective option. An approach needs to be found that will effectively prevent driving while impaired or in more severe cases, driving at all.

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