

Impact of Compliance-Based Removal Laws on Alcohol-Impaired Driving Recidivism



Contents

Executive Summary.....	2
Introduction	4
Background & Scope of Work	4
Objectives	4
Methods.....	5
Law Review	5
State Selection	6
Data Review	7
Results.....	7
Descriptive Statistics	7
Re-Offense Recidivism	8
Recidivism Including IID Extensions	9
Discussion.....	14
Discussion of Study Findings	14
Importance of Compliance-Based Removal Laws.....	14
Study Limitations	15
Recommendations	16
References & Resources	17
Appendix A. Law Review	20
Appendix B. Descriptive Statistics.....	29
Tennessee	29
Washington.....	31
Arkansas.....	332
Iowa.....	34
Appendix C. Flow Charts	35

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Executive Summary

Impaired driving is a serious public health concern in the United States. In 2021, a total of 13,384 people were killed in alcohol-impaired-driving crashes, which accounted for 31% of all fatal crashes ([NCSA, 2023](#)). Compared to first-time offenders, repeat offenders are more likely to be involved in fatal motor-vehicle crashes ([Dickson et al., 2013](#)). Recidivism studies have shown that DUI recidivism rates can be as high as 21% to 47% ([Fell et al., 2009](#); [Nochajski & Stasiewicz, 2006](#)).

This study examined the impact of ignition interlock device (IID) Compliance-Based Removal (CBR) laws and recidivism. Researchers hypothesized that states with a CBR requirement would have a lower recidivism rate, and greater IID compliance, than states without a similar IID CBR requirement. A comprehensive law review of state-level IID policies was conducted, and data were obtained from states to perform recidivism analyses.

The review of IID laws found 33 states and the District of Columbia currently have a CBR law where the IID term is extended for specific violations, non-compliance with state IID program requirements or by court order (see Appendix A). Researchers also conducted outreach to the 50 State Highway Safety Offices (SHSOs) and state motor vehicle licensing agencies to confirm their IID and CBR laws, determine their potential to provide state data for analysis and obtain contact information for official data requests. The ability to obtain reliable, accurate and complete data in a timely manner was the determining factor for selecting the four states included in this study – Tennessee and Washington, which have CBR laws, and Arkansas and Iowa, which do not.

The data obtained from each of the four states included information on impaired driving arrests, convictions and IID installation and removal from January 1, 2016, through December 31, 2019. This four-year period was selected to allow for the examination of recent data, while reducing the possibility of including anomalies associated with the COVID-19 pandemic that could confound the study. Overall descriptive statistics were calculated for each state to determine the frequency of repeat offenses, IID compliance and to evaluate the completeness of state data. These results demonstrated the lack of quality IID installation and removal data, the infrequency of IID installations, and the large variance in data quality and formatting across states.

The impact of CBR laws was evaluated by examining recidivism. Recidivism was primarily calculated as the percentage of offenders with a second offense following IID installation. Using this metric, the CBR states – Tennessee and Washington – had lower rates of recidivism at 1.7% and 3.7%, respectively, compared to Arkansas at 5.6% and Iowa at 6.0%.

A secondary measure of recidivism was examined by looking at IID duration and, specifically, if an IID was installed for longer than the mandated period. This was a way to examine IID compliance because extensions are often due to a failure to comply with IID requirements (e.g., testing alcohol positive during the mandated IID installation period). This metric calculated the percentage of individuals who recidivated based upon an additional DUI offense after IID installation, as well as IID extensions. The results were mixed with Tennessee having the lowest recidivism rates (11.5%) and Washington the highest (63.1%). Unfortunately, the quality of the IID installation duration data was relatively low when

compared to the offense data. For this reason, greater emphasis should be placed on the recidivism estimates that only use rearrests following an IID installation.

This study showed fewer incidences of alcohol-impaired recidivism in states with a CBR law compared with states without such a law. With impaired driving events increasing nationally ([Stewart, 2023](#)), it is critical to identify effective countermeasures to reverse this trend and save lives. Although further research is needed, the results of this study indicate that states with IID CBR laws had fewer incidences of impaired driving recidivism or rearrests. This provides reasonable rationale for states to consider implementing IID CBR requirements to reduce the number of impaired driving events, serious injuries and fatalities.

The limitations of this study and approach must be acknowledged. The purpose of this study was to examine the correlational relationship between IID CBR laws and alcohol-impaired driving recidivism. This study should be considered a first step for examining this relationship. Although the outcomes are promising, further research is needed to examine and confirm the efficacy of IID CBR laws at reducing impaired driving recidivism. Future research with at least five years of data across additional states would be particularly valuable.

This study also confirmed there are challenges associated with the availability of reliable data and the ability to access data within a reasonable timeframe. Obtaining the data used in this study was challenging. And once the data was received, substantial data cleaning, merging and preparation were performed before the analysis could be conducted. All states are encouraged to review their impaired driving data systems to identify deficiencies and corresponding solutions. It is evident that states struggle with data integration, standardization and sharing. States should facilitate better consistency, completeness and access to data. Researchers also recommend states coordinate among data managers to identify deficiencies and implement improvement to these systems. This task falls within the domain of each state's Traffic Records Coordinating Committee.

Introduction

Alcohol-impaired driving is a significant issue on roadways across the U.S. According to the National Highway Traffic Safety Administration (NHTSA), in 2021 a total of 13,384 people were killed in motor vehicle crashes involving an alcohol-impaired driver. These fatalities account for slightly more than one-third (31%) of all roadway deaths, a 14% increase from 2020 (11,718 to 13,384) ([Stewart, 2023](#)).

Compared to first-time offenders, repeat offenders are more likely to be involved in fatal motor-vehicle crashes ([Dickson et al., 2013](#)). Recidivism studies have shown that DUI recidivism rates can be as high as 21% to 47% ([Fell et al., 2009](#); [Nochajski & Stasiewicz, 2006](#)).

Every state in the U.S. has enacted alcohol-impaired driving laws, which prohibit driving with a blood alcohol content (BAC) at or above a .08%. In 2017, the Utah Legislature passed HB155 “Driving Under the Influence and Public Safety Revisions” that changed the state’s illegal limit from .08 to .05 on December 30, 2018. Although alcohol-impaired driving laws have been in place for many years and are well known, alcohol-impaired driving persists as a significant public health and safety issue.

Ignition interlock devices (IIDs) are the only current technology that can prevent a drinking and driving event when installed in a vehicle. An IID is connected to the ignition of a motor vehicle and prevents the engine from starting if the driver’s ethanol content is detected at or above a set limit determined by state regulation. This limit is typically set at a BAC of .02%.

Currently, 33 states and D.C. (see Law Review – Appendix A) have a Compliance Based Removal (CBR) law (discretionary or required) that is designed to encourage reductions in impaired driving recidivism. CBR laws require that the person mandated to install an IID in their vehicle as a result of an alcohol-impaired driving conviction have a minimum number of IID violation-free days to qualify for IID program completion and device removal.

Background & Scope of Work

The Governors Highway Safety Association (GHSA) contracted with Casanova Powell Consulting and Dr. Ryan C. Smith to examine the relationship between states with IID CBR laws and impaired driving recidivism. The study called for examination of the hypothesis that a state with a CBR requirement may have a lower recidivism rate than a state without a similar IID CBR requirement.

Objectives

This study had four objectives:

1. Identify states with enacted IID CBR laws and appropriate comparison states.
2. Identify states with accurate, reliable and accessible alcohol-impaired driving data (i.e., DUI offense, conviction, and IID installation/removal data).
3. Obtain de-identified data from at least two states with IID CBR laws and at least two states without IID CBR laws.
4. Analyze the data to determine the relationship between IID CBR laws and alcohol-impaired driving recidivism.

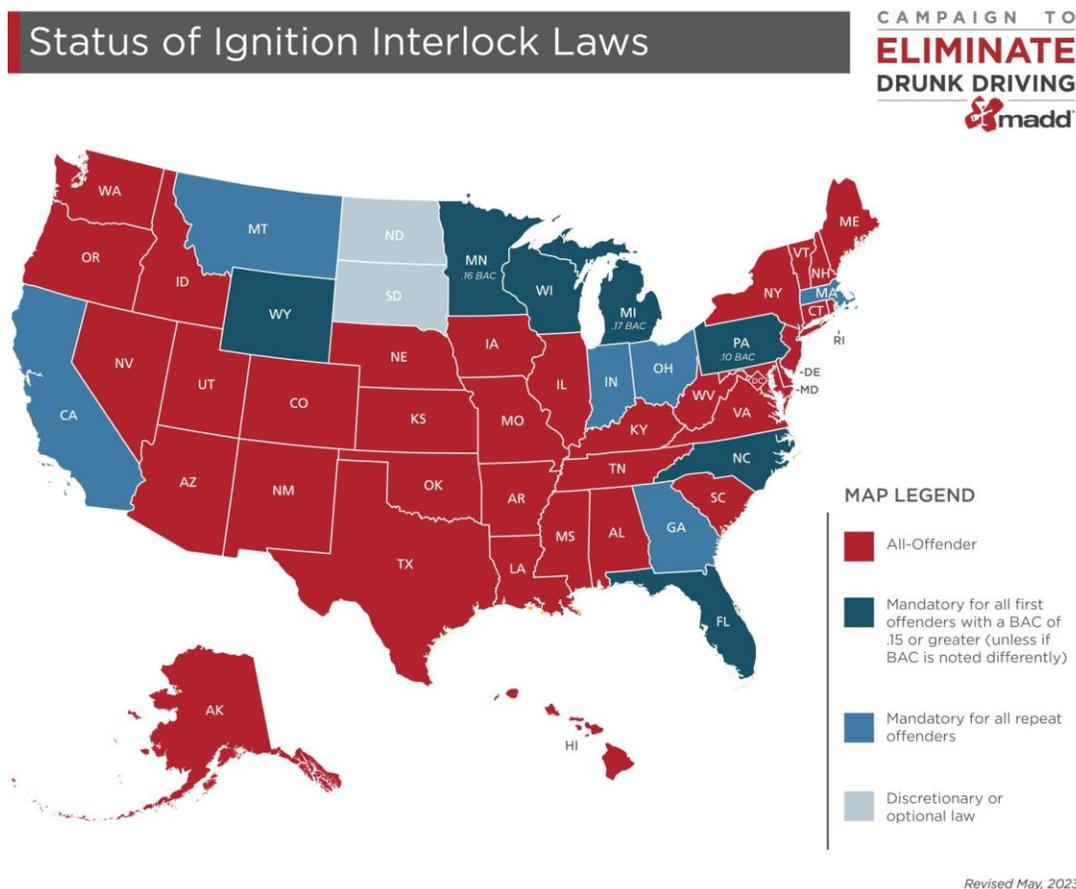
Methods

Law Review

Researchers conducted a comprehensive review of states laws to identify which require all convicted alcohol-impaired driving offenders to install an IID. They also scanned prior research to determine whether any studies had been conducted of Compliance Based Removal laws. Sources reviewed included the [Governors Highway Safety Association \(GHSA\)](#), [National Conference of State Legislatures \(NCSL\)](#), [Insurance Institute for Highway Safety \(IIHS\)](#), [Responsibility.org](#), and [Mothers Against Drunk Driving \(MADD\)](#) websites along with individual state statutes. A synthesis of this law review can be found in Appendix A.

All 50 states have some form of an IID law requiring installation of the device either for varying offense levels, as an incentive to reduce license suspension terms or to enable the offender to drive with a restricted license. Currently 35 states have implemented an all-offender IID law as shown in Figure 1 below.

Figure 1. State Ignition Interlock Laws



Thirty-three states and D.C. currently have a CBR law where the IID term is extended for specific violations, non-compliance with state IID program requirements or by court order (see Appendix A). Violations or non-compliance may include the following:

- An attempt to start the vehicle with a BAC (BAC varies among states).
- Failure to take or pass any required retest.
- Failure to appear at the ignition interlock system vendor when required for maintenance, repair, calibration, monitoring, inspection, or replacement of the device if the ignition interlock system no longer functions.
- Tampering, circumvention or bypassing of the device, or attempting to do so.
- Driving a non-interlock equipped vehicle.
- Removing an interlock without authorization from the DMV.
- Requesting or soliciting another person to blow into or activate the device for the purpose of providing the restricted driver with an operable motor vehicle.
- Obscuring the camera for camera equipped IIDs.
- Any other noncompliance of program requirements as deemed by the state.

State Selection

The research team reached out to the 50 State Highway Safety Offices (SHSOs) and state motor vehicle licensing agencies to confirm their IID and CBR laws, determine their potential to provide the requested information and to obtain contact information for follow up data requests. The ability to obtain reliable, accurate and complete data in a timely manner was the determining factor for selecting the four states included in this study: Tennessee and Washington, which have CBR laws, and Arkansas and Iowa, which do not.

Data Review

All four states were asked to provide data on Driving Under the Influence (DUI) arrests, DUI convictions, IID installations, and IID removals for the period January 1, 2016, through December 31, 2019. This four-year period was selected to allow for the examination of recent data, while reducing the possibility of including anomalies associated with the COVID-19 pandemic.

The state-provided data contained several caveats and inconsistencies. The quality, quantity and depth of these data varied significantly. These data were provided in a format where multiple data sources needed to be “cleaned” (e.g., accounting for missing data, data errors and lack of standardization) and linked for statistical analysis. This linking was done using a unique offender identifier that was de-identified, so that all personal information was removed.

Table 1 shows the data variables provided by each state. While the variable characteristics differed by state, each was able to provide data on DUI offense, IID installation and IID removal.

Table 1. Data Variables Provided by the Study States

Tennessee (CBR)	Washington (CBR)	Arkansas (Non-CBR)	Iowa (Non-CBR)
Driver License Number (DLN)	Unique Identifier	Customer Identifier	Customer Number
DUI Offense	State Jurisdiction	Arrest ID	Occurrence Date
Offense Date	Violation Type	Arrest Date	Lookup Value (Offense)
Conviction Date	Interlock Requirement Found	Interlock Duration	Interlock Device ID
Device Installation Date	Term of Requirement Days	Interlock Install	Install Date
Period Begin	IID Tolling*	Interlock Removal	Uninstall Date
Period End	Vehicle ID		
Number of Offenses	Installation Dates		
	Removal Dates		

* A toll is a pause of the interlock requirement if an offender was involved in a traffic crash, their vehicle required unforeseen repairs or becomes inoperable due to uncontrollable circumstances through no fault of the offender.

These data sources required significant quality control and processing. This included resolving any data discrepancies, addressing missing or incomplete data, and linking data across the provided data sources. Several offenders were charged with multiple offenses with the same arrest date or conviction date, which might suggest there was more than one occurrence or a separate impaired driving arrest. These offenses were sorted and identified where possible; however, due to discrepancies within these entries, there were occurrences where conflicting elements prompted the researchers to exclude these cases from the analysis. The researchers also found clerical or other errors in the datasets and called this to the states' attention. The state data providers confirmed they were aware of these data issues. These limitations are known to be present in other recidivism research and documented in this report.

Often, data on offenses/violations, installations and removals were provided to the research team in separate datasets. The researchers linked these data using the unique person identifier. Data were often provided at the offense or IID level as opposed to the individual level. For most analyses, these data needed to be transposed, so that all offenses and IID installations/removals were organized into the same row for a single individual. This was performed on all four state databases.

Results

Descriptive Statistics

Descriptive statistics were calculated to better understand the data provided by each state and overall state-level trends (Appendix B). After cleaning and analyzing each state's data, researchers determined that data varied in terms of state interlock laws, requirements for installations and extensions, extension periods, variables provided, and the timeframe of the data that were provided. In addition, there were law changes that took effect during the study period (see Table 1). Each state was analyzed individually because these significant differences across states did not allow for the data to be accurately collapsed into one single analysis.

The research team reviewed data from both the CBR states (Tennessee and Washington) and non-CBR states (Arkansas and Iowa). This process also identified which data should be included and excluded in further analyses as described below.

Given the variability and nuances within each of the state datasets, the following inclusion, exclusion, and classification criteria were applied to the data analyses:

- Offenders who had only one arrest during the study period and never installed an IID were removed from the analysis. Since they never installed a device, their exclusion did not influence the CBR analysis.
- Offenders who had only one arrest during the study period, with a zero period of installation, were removed from the analysis. These offenders were treated like those who never installed the device, and therefore, did not influence the CBR analysis. This often indicated that an IID was never actually installed.
- The IID installation duration was compared to the mandated period of installation to examine early, on-time and late removals. A 15-day grace period was applied to the mandated date of removal. Specifically, an IID removed 15 days before or after the mandated removal date were considered “on-time” removals.

Researchers created flow charts for each state to illustrate how data were sorted for analysis (Appendix C).¹

Descriptive statistics were calculated to provide a snapshot of the impaired driving arrest and IID landscape in each state, as well as to sort the data for recidivism analyses. The state with the largest number of unique offenders in the provided datasets was Washington (n = 107,373), followed by Tennessee (n = 59,203), Iowa (n = 53,708), and Arkansas (n = 45,752). Recidivism was calculated using two metrics. The first metric examined re-offense rate and the second metric included both re-offense rate and IID extensions (as a proxy for IID violations).

Re-Offense Recidivism

The first analysis of recidivism focused on the number of individuals who received an additional arrest following IID installation. Table 2 shows the breakdown of offenders for the first recidivism analysis of re-offenses. As noted above, this analysis was limited to individuals with complete IID installation data. Across all states, approximately one third of individuals with an offense had a valid IID installation noted in the database. Based upon the state data provided, it was impossible to differentiate if missing installation data were the result of the offender failing to install an IID or because these data were simply missing from the database. Offenders with an IID installation were further broken out by whether they had single or multiple offenses in the database and if any of the multiple offenses occurred after the first IID installation. The key column for the recidivism analysis is whether an individual re-offended after an IID installation, which is represented by the far-right column (shaded in gray).

¹ Appendix B and C used raw data provided by the states. Additional data cleaning was necessary for the recidivism analyses performed for this study. Numbers reported for recidivism analyses may vary slightly from these Appendices due to the extra data cleaning performed during analysis.

Table 2. Offenders Shown by IID Installation and Offense

State	Number of Unique Offenders	Number of Offenders with IID Install Data	Single Offense - IID Install	Multiple Offense - IID Install	
				No Offense After IID Install	Offense After IID Install
Arkansas	45,752	20,232	17,297	1,813	1,126
Iowa	53,708	16,840	14,232	1,592	1,016
Tennessee	59,203	16,787	15,891	612	284
Washington	107,373	33,455	31,345	873	1,237

Re-offense recidivism was simply calculated as the number of individuals with an offense after an IID installation divided by the total number of offenders with a valid IID install. This can also be visualized using the following formula:

$$Recidivism_1 = \frac{A}{B}$$

Where *A* is the total number of offenders with a second offense after IID installation, *B* is the number of offenders with an IID installed.

This translates into the following recidivism rates for each of the study states using data from Table 2:

$$Arkansas_{Rec1} = \frac{1,126}{20,232} = 5.6\%$$

$$Iowa_{Rec1} = \frac{1,016}{16,840} = 6.0\%$$

$$Tennessee_{Rec1} = \frac{284}{16,787} = 1.7\%$$

$$Washington_{Rec1} = \frac{1,237}{33,455} = 3.7\%$$

Recidivism Including IID Extensions

The second metric of recidivism also considers the length of time an IID was installed compared to the mandated period of installation. Specifically, these analyses examined if an individual had an early removal, on-time removal or late removal.

A 15-day grace period was applied to examine if individuals with IID installations and removals removed their devices early (less than mandated period), on-time (within 15 days of the mandated period) or late (greater than the mandated period). A late removal for states with IID CBR laws may indicate an

extension for a violation of the compliance-based removal provision. But it also could be due to other factors such as cost restraints for removal or the inability of the offender to schedule a removal within the mandated period.

In addition to the data exclusion criteria described previously (i.e., offenders must have a valid install), IID extension analyses also required a valid removal date and a mandated length of installation. The mandated length of installation was sometimes provided by the state and sometimes extrapolated by the research team based upon available offense data and state law.

Table 3 shows the number of individuals with valid install and removal data by offense number across each of the four states. As expected, only including individuals with IID installs and removals further reduced the sample size. It also demonstrated some of the limitations with these data. Specifically, many cases did not have linkable installation and removal data and could not be included in the analysis. This was likely due to a combination of offenders not installing or removing an IID and data tracking/matching issues in the data collected by the states. Inconsistencies in the amount of linkable data across states were evident and caution is needed when comparing states using these data. For example, Arkansas, which had the smallest number of unique offenders overall, had the largest number of offenders with both IID installation and removal data.

Table 3. Offender Distribution Based on IID Install/Removal and Offense Number

State	Unique Offenders	Offenders with IID Install and Removal Data	Single Offense – IID Install/Removal	Multiple Offense – IID Install/Removal
Arkansas	45,752	15,595	15,034	561
Iowa	53,708	9,169	8,441	728
Tennessee	59,203	7,523	7,001	522
Washington	107,373	13,116	12,640	476

These data were further analyzed to determine the actual length of IID installation compared to the mandated length of installation. These numbers were calculated separately for individuals with a single offense versus multiple offenses. Table 4 shows the breakdown of individuals with early, on-time and late removals given the mandated period of installation and a 15-day grace period before and after the mandated removal date.

Table 4. Duration Breakdown for Early, On-Time and Late Removals for Offenders

Single Offenses								
	Tennessee		Washington		Arkansas		Iowa	
Removal Outcome	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Early Removal	87	1.24%	5,976	47.28%	217	1.44%	6,486	76.84%
On-Time Removal	6,298	89.96%	2,365	18.71%	8,564	56.96%	780	9.24%
Late Removal (Extended)	616	8.80%	4,299	34.01%	6,253	41.59%	1,175	13.92%
Total Included	7,001	100.00%	12,640	100.00%	15,034	100.00%	8,441	100.00%
Multiple Offenses								
	Tennessee		Washington		Arkansas		Iowa	
Removal Outcome	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Early Removal	2	0.12%	1,596	36.07%	35	6.24%	404	55.49%
On-Time Removal	1,362	83.92%	367	8.29%	235	41.89%	130	17.86%
Late Removal (Extended)	259	15.96%	2,462	55.64%	291	51.87%	194	26.65%
Total Included	1,623	100.00%	4,425	100.00%	561	100.00%	728	100.00%

These IID extension numbers were used to supplement the first recidivism metric which only examined re-offense after an IID install. This second recidivism metric considered recidivism as not only a re-offense after installation, but also an IID extension. For these analyses, only single offenders with an extension were used. Individuals with an early IID removal were excluded because it was impossible to determine the nature of the early removal. This resulted in the following formula:

$$Recidivism_2 = \frac{A + C}{(A + C) + (D + E)}$$

Where A equals the total number of offenders with an offense after IID install (consistent with “A” from the first recidivism calculations – see Table 2 “Offense After IID Install”), C is the number of single offenders with an IID late/extended period of installation, D is the number of multiple offenders without a second offense after IID installation (see Table 2 “Those With No Offense After IID Install”), and E is the number of single offenders with an on-time removal.

This translates into the following recidivism numbers for each of the study states:

$$Arkansas_{Rec2} = \frac{1,126 + 6,253}{(1,126 + 6,253) + (1,813 + 8,564)} = \frac{7,379}{17,756} = 41.6\%$$

$$Iowa_{Rec2} = \frac{1,016 + 1,175}{(1,016 + 1,175) + (1,592 + 780)} = \frac{2,191}{4,563} = 48.0\%$$

$$Tennessee_{Rec2} = \frac{284 + 616}{(284 + 616) + (612 + 6,298)} = \frac{900}{7,810} = 11.5\%$$

$$Washington_{Rec2} = \frac{1,237 + 4,299}{(1,237 + 4,299) + (873 + 2,365)} = \frac{5,536}{8,774} = 63.1\%$$

Table 5 shows these recidivism rates by CBR status. This allows for easier comparison across recidivism numbers, states and CBR status. The average recidivism rates for all four states are also provided.

Table 5. Recidivism Rates by State

Recidivism	CBR States		Non-CBR States		Average
	Tennessee	Washington	Arkansas	Iowa	
Recidivism ₁	1.7%	3.7%	5.6%	6.0%	4.3%
Recidivism ₂	11.5%	63.1%	41.6%	48.0%	41.1%

Note. Recidivism₁ refers to the proportion of individuals who committed a second offense after IID installation during the study period. Recidivism₂ also includes IID duration outcomes in the analysis.

Discussion

Discussion of Study Findings

The goal of this study was to examine the correlation between CBR laws and impaired driving safety outcomes. This study examined data from four states: Tennessee and Washington, which have CBR laws, and Arkansas and Iowa, which do not. The effects of this policy were examined using two key metrics. The first, and more robust metric, was whether a driver received an additional DUI offense following installation of an IID. The second metric was IID installation duration as compared to the mandated period. This allowed for an approximate examination of whether an IID had to be extended for a driver. Both metrics were used to examine recidivism across these four states.

The primary recidivism metric was whether an individual had an additional DUI offense following an IID installation. This was calculated as “Recidivism₁” in the recidivism analyses. Across all four states, the average recidivism rate was 4.3% when measured as the number of individuals with an additional DUI following an IID installation. The two CBR states had the lowest rates of recidivism using this metric. Both Tennessee (1.7%) and Washington (3.7%) had lower recidivism rates than Arkansas (5.6%) and Iowa (6.0%). While there are many factors outside the scope of this study that can influence recidivism rates, these findings are a positive indication that CBR laws are associated with lower recidivism rates.

The recidivism numbers reported here are relatively low because of the timespan of the data collected (four years). Recidivism rates would be higher if a longer period of re-offense was considered. The recidivism rates over the lifetime of an offender are likely significantly higher than recidivism over a four-year span. Recidivism remains a profound safety and public health issue.

Each state also provided information on IID installations, IID removal and the general length of the mandated installation period. While these data had significant issues and required several assumptions about the length of the mandated install period, an additional metric of recidivism was evaluated in this study that considered this rate (Recidivism₂). This considered both an offense after an install and an extended period of IID installation before removal as measures of recidivism. Results from this analysis were mixed. In these analyses, Tennessee had the lowest rate of recidivism (11.5%) followed by Arkansas (41.6%), Iowa (48.0%), and Washington (63.1%). Again, due to a large variance in the quality of IID mandated installation period data and lower reliability of that data, primary consideration should be given to the recidivism rates reported using re-offense data (Recidivism₁).

Importance of Compliance-Based Removal Laws

With the recent increase in risky driving precipitated by the COVID-19 pandemic and the persistence of these behaviors, including driver impairment by alcohol and other drugs, the nation has lost ground in achieving a zero deaths goal. Mental health challenges, especially resulting from the pandemic, are on the rise. These elevated levels of adverse mental health conditions, substance abuse and suicidal ideation reported by adults likely continue to contribute to the increase in drinking and driving behaviors ([Czeisler, 2020](#)). Recommendations regarding alcohol- and other drug-impaired driving have been on the National Transportation Safety Board’s (NTSB) Most Wanted List since its inception in 1990. A recently released NTSB report identifies safety recommendations to combat alcohol- and other drug-impaired driving ([NTSB, 2023](#)), and the agency has numerous recommendations related to IID policy.

The present study showed lower levels of rearrests in states with a CBR law. With impaired driving events trending in the wrong direction, it is critical to identify effective countermeasures to reverse this trend and save lives. Although further research is needed, the results of this study indicate that those states with IID CBR laws had a lower rate of impaired driving recidivism or rearrests. This provides reasonable rationale for states to consider implementing IID CBR requirements to reduce the number of impaired driving events, serious injuries and fatalities.

Study Limitations

The limitations of this study and approach must be acknowledged. The purpose of this study was to examine the correlational relationship between IID CBR laws and alcohol-impaired driving recidivism. This study should be considered as a first step for examining this relationship. Although the outcomes of this study are promising, further research is needed to examine and confirm this relationship.

Recidivism studies at minimum should utilize data from multiple sources over a 5-year period with multiple examples for each cohort. Recidivism studies are limited when the length of the dataset is less than five years. This study reviewed two states from each category (IID CBR law state versus non IID CBR law state), as data were provided by those states who were able to collect requested variables within what was considered a reasonable time frame for this project.

The ability to obtain state data for recidivism analyses in a timely manner was the determining factor for selecting the states included in this study. Other states were approached for this study, but there were significant barriers to providing the requested data in a timely manner. This is indicative of a larger problem. States rely heavily on these data to determine the effectiveness of policy, programs and other countermeasures to improve impaired driving safety. Yet, the data are often inconsistent and difficult to access, analyze and reliably interpret.

Data provided by the participating states required significant cleaning and had notable limitations, both of which were acknowledged by the state agencies providing these data. For example, arrest data were not separated by level of offense (basic DUI, enhanced or aggravated DUI, high-BAC DUI, repeat DUI); therefore, various risk levels of offenders were viewed as one group or cohort within each state. There was a large variance in the quality of data during the mandated period of IID installation. While researchers usually could determine if an individual had an IID installed for greater than the mandated period, it was unclear why an extension occurred. This could have been the result of a mandated extension or simply a driver's decision to delay removal. For this reason, while recidivism analyses were conducted using these data, greater emphasis should be given to results examining re-offense after IID installation (i.e., Recidivism₁ in this study).

Despite these limitations, this study creates an important datapoint that can be added to the limited empirical knowledge about IID CBR laws and their relationship to impaired driving recidivism. Future research should further investigate these relationships. This study is a crucial first step in understanding the potential value of IID CBR laws. Although lower rates of alcohol-impaired recidivism were observed in the two states with IID CBR requirements, additional research is warranted.

Recommendations

Further research should be conducted using more comprehensive data, which includes, at minimum, five years of data for multiple IID CBR and IID non-CBR states.

Additionally, the research team encourages all states to review their impaired driving data systems to identify deficiencies and solutions to address them. The four states in this study provided data from more than one repository, which needed to be manually cleaned, transposed and merged. It is evident that states struggle with data integration and sharing, as coding and nomenclature are inconsistent even within individual states. States should attempt to facilitate consistency among variable nomenclature to allow for data integration among agencies. In addition, states could better facilitate data coordination among managers to identify weaknesses and implement improvements to these data systems. This is a task that falls within the domain of each state's Traffic Records Coordinating Committee (TRCC).

Although not an objective of this study, the researchers found that state IID installation rates are significantly low. Increasing installation rates with monitored compliance is strongly recommended, as research provides strong evidence that, while installed on an offender's vehicles, IIDs reduce recidivism among both first-time and repeat offenders (EMT Group, 1990, et al., as cited in Mayer, 2019).

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Appendix A. State Compliance Based Removal Laws

State	IID Law	CBR Law Yes/No Discretionary	Notes
AL	Mandatory for all convictions	Yes	Any violation extends the period on an interlock by six months from the date of violation. A violation includes: 1) A breath sample at or above a minimum BAC level of .02 recorded more than four times during a monthly reporting period, 2) Any tampering, circumvention, or bypassing of the device, or attempt thereof, 3) Failure to comply with the servicing or calibration requirements of the interlock every 30 days.
AK	Mandatory for all convictions	No	
AZ	Mandatory for all convictions	Yes	Eliminate the mandatory (“hard”) suspension period if offender chooses to install an interlock. If an offender is caught driving a non-interlock equipped vehicle, the duration on an interlock is extended by one year. If there is a report of tampering, circumvention or certain other violations, the time period on interlock is extended from six to twelve months. There is a DMV hearing process so an offender can contest interlock time extensions.
AR	Mandatory for all convictions	No	Interlock Required for a first and second offender, unless the offender is driving an employer’s vehicle for employment purposes, not able to provide a deep lung breath sample, or resides more than 100 miles from an ignition interlock provider.
CA	Mandatory for all repeat and injury-involved offenses, first-time injury or vehicular manslaughter offenses	Yes	Eliminate the mandatory (“hard”) suspension period if offender chooses to install an interlock. If at any time during the person’s restriction period that the DMV receives notification from the installer of a recordable violation, the DMV will “pause” the restriction. The person will not be given credit toward the restriction of time during which the person does not have proof of an interlock installation on file with the DMV.
CO	Mandatory for high BAC (0.15 and above) and repeat convictions, highly incentivized for first convictions	Yes	A person can exit the program if the interlock reports show that for four consecutive months, the person did not interrupt or prevent the normal operation of the motor vehicle due to an excessive BAC or did not detect there has been tampering with the device, there have been no other reports of circumvention or tampering, and there are no grounds to extend the restriction.

CT	Highly incentivized for all convictions	Yes	If an interlock user commits any of the following violations, 30 days per violation will be added on an interlock: 1) Failing to appear for interlock service within 5 days of a scheduled service date, 2) Second or subsequent occasion of failing a rolling retest, 3) Failing to submit to a rolling retest, 4) Tampering with or attempting to tamper with or circumventing or attempting to circumvent the interlock, 5) Operating a vehicle without an interlock, 6) Removing an interlock without authorization from the DMV, 7) Requesting or soliciting another person to blow into or otherwise activate the device for the purpose of providing the restricted driver with an operable motor vehicle. If a violation occurs, the DMV will notify the person via mail. All violations will be reported to the Court Support Services Division of the Judicial Branch (Probation Department).
DE	Highly incentivized for all convictions	Yes	The license could potentially be restored during suspension once the Office of Highway Safety has established a continuous sobriety monitoring program. The DOT extends the user's revocation period for the following actions: 1) BAC of .05 or above, 2) running retest violation, 3) missed monitoring appointment, 4) startup violation or lock-out failure, 5) tampering with or bypassing the interlock system, 6) intentional circumvention of the interlock system or program requirements, 7) any other noncompliance of program requirements as deemed by the Secretary or the Secretary's designee. A 2-month extension for any combination of 3 of the above actions. A 4-month extension for any combination of 5 of the above actions. A 6-month extension for any combination of 8 of the above actions. An additional 1 month shall be required for each action listed greater than 8.
D.C.	Mandatory all offender	Discretionary	A person required to participate in the program pursuant to § 50-1403.01(a) shall enroll in the program for a period of time to be determined by the mayor. If a person violates the rules of the interlock program, he or she will either spend more time in the program, or will have their driver license revoked, depending on the circumstances. No day-for-day credit for early installation.
FL	Mandatory high BAC and repeat offender	Discretionary	Use of ignition interlock device is mandatory for at least 1 year upon a second conviction if driver qualifies for a permanent or restricted license and for at least 2 years for any third conviction and for other extenuating circumstances. If a first-time DUI offender was accompanied in the vehicle by a person younger than 18 years of age, the person shall have the ignition interlock device installed for 6 months for the first offense and for at least 2 years for a second offense. A DWI defendant who is placed on probation and who is otherwise permitted to operate a motor vehicle shall be required to operate vehicles equipped with ignition interlock devices for not less than 6 months. In addition, the licensing agency may require any person seeking reinstatement of their driving privileges to use an ignition interlock device on their vehicle. This requirement can apply to either occupational restricted or regular driving privileges. A user may have their time on interlock extended as a result of a third or subsequent violation by the DHSMV. Violations are sent to DUI programs. A violation includes: 1) Any two breath tests above the .05 BAC upon initial startup of the vehicle, 2) Any retest above a .05 BAC, 3) Any

			evidence of equipment tampering that is determined to be the result of alcohol use, 4) Missed rolling retest.
GA	Incentivized first offender and mandatory repeat	No	Grant unlimited driving privileges during the suspension period if the offender chooses to install an interlock.
HI	Mandatory for all convictions	No	For first offense: 1-year revocation of license and privilege to operate a vehicle during the revocation period and installation during the revocation period of an ignition interlock device on any vehicle operated by the person. For second offense within 5 years or first conviction if Highly Intoxicated: A 2-year revocation of license and privilege to operate a vehicle during the revocation period and installation during the revocation period of an ignition interlock device on any vehicle operated by the person.
ID	Mandatory for all convictions	No	If a person is convicted, found guilty or pleads guilty to violating provisions relating to driving under the influence, the court shall order the person to have a state-approved ignition interlock system installed at his expense, on all motor vehicles operated by him. Ignition interlock installation is mandatory following the mandatory license suspension period for violators who had BAC over 0.20 at time of arrest. Any person who has been found guilty of DUI within the prior 10 years, installation of an ignition interlock is mandatory.
IL	Mandatory for all convictions; highly incentivized for first convictions	Discretionary	The court shall require any persons who are convicted of DUI to equip any motor vehicle the person operates with an ignition interlock device during the period of statutory license suspension. Other than offenders that must drive to and from a farm, or operate a tractor while working on a farm, DUI offenders will be automatically issued an ignition interlock device. They may decline the device, but without it, the offender will face increased penalties. If an IID violation(s) is detected, the user will receive a letter from the Secretary of State's office requesting an explanation. A recordable violation is: 1) 10 or more unsuccessful attempts to start the vehicle within a 30-day period, 2) 5 or more unsuccessful attempts to start the vehicle within a 24-hour period, 3) BAC reading of .05 or higher, 4) Failing a running retest, or failing to take a running retest, 5) Failing to submit the interlock for a monitoring report in a timely manner, 6) Failure to use the interlock as required, 7) Attempts to tamper with or circumvent the interlock, 8) Obscuring the camera. If the user does not respond to the request or the explanation is insufficient, the suspension may be extended for an additional 3 months per violation and/or the

			interlock license may be cancelled. Three extensions may result in the car being impounded for a period of at least 30 days. A 4 th extension may result in the vehicle being seized.
IN	Mandatory for repeat convictions	No	<p>As a condition for obtaining probationary driving privileges, the court may require a defendant to use only vehicles equipped with ignition interlock devices for a term established by the court with the limitation that such term cannot exceed the maximum prison sentence; violation of this requirement is a Class A infraction. Other provisions of law also provide that a person convicted of an illegal per se/intoxicated offense (within 5 years or within 10 years but more than 5 years of a previous conviction) may be granted probationary (restricted) driving privileges on the condition that the person only operates vehicles equipped with ignition interlock devices.</p> <p>An interlock provider is required to notify the judge within two weeks if any of the following occur: 1) Any attempt to start the vehicle with a BAC of .04 or higher if the person does not register a test result indicating a BAC of .04 within 10 minutes of the initial test, 2) Absent a documented failure of the interlock, failure to take or pass any required test, 3) Failure of the person ordered to use an interlock to appear at the interlock vendor or provider for maintenance, repair, calibration, monitoring, inspection, or replacement of the interlock, (4) Any violations of restrictions imposed by the court.</p>
IA	Mandatory all offender	No	<p>A defendant whose alcohol concentration is .08 but not more than .10 shall not be eligible for any temporary restricted license for at least thirty days if a test was obtained and an accident resulting in injury or property damage occurred. The department shall require the defendant to install an ignition interlock device on all vehicles if the defendant seeks a temporary restricted license.</p> <p>Prior to July 1st, 2018, a defendant whose alcohol concentration is more than .10 shall not be eligible for any temporary restricted license for at least thirty days if a test was obtained and an accident resulting in injury or property damage occurred or the defendant's alcohol concentration exceeded .15. The department shall require the defendant to install an ignition interlock device on all vehicles if the defendant seeks a temporary restricted license. After July 1, 2018 all offenders regardless of BAC are required to install</p>
KS	Mandatory all offender	Yes	First offense, BAC over 0.08: a 30-day suspension followed by 6 months of ignition interlock device if your record is clear OR 12 months of interlock if you have a prior open container violation or three or more moving violations.
KY	Mandatory for all convictions	Yes	A first-time offender must have 90-days of no recordable violations to have the device removed.
LA	Mandatory for high BAC (0.20 and above) and repeat	Yes, as of 8/1/23	Eliminate the mandatory ("hard") suspension period if offender chooses to install an interlock.

	convictions; highly incentivized for first convictions		<p>Effective August 1, 2023, HB484 enacts conditions for reinstatement of a driver's license at Blood Alcohol Concentration (BAC) of .15 which implements harsher penalties at .20 BAC. HB484 eliminates the waiting period where DWI defendants can drive immediately if they install an IID.</p> <p>Effective August 1, 2023, SB82 introduces compliance-based removal IIDs. Defendants who have multiple violations recorded by their device will be required to drive with the device installed for a longer period of time.</p>
ME	Highly incentivized for all convictions	No	Length of the mandatory suspension period is reduced if the offender chooses to install an interlock.
MD	Mandatory for all convictions	Yes	Grant unlimited driving privileges during the suspension period if the offender chooses to install an interlock. Participant must prove to MVA that during the last three months on the program they have not had: 1) An attempt to start the vehicle with a BAC of .04 or more unless a subsequent test performed within 10 minutes registered a BAC lower than .04, 2) A failure to take or pass a random test with a BAC of .025 or lower unless a subsequent test performed within 10 minutes registered a BAC lower than .025, 3) A failure to appear at the approved service provider when required for maintenance, repair, calibration, monitoring, inspection, or replacement of the device causing the device to cease to function.
MA	Mandatory for repeat convictions	Yes	Upon completion of the required period, the interlock will not be authorized for removal if the person has had any interlock infractions or violations during the past six consecutive months. Day-for-day credit for early installation
MI	Mandatory for high BAC (0.17) and repeat convictions	Yes	If the interlock records 3 start-up test failures in a monitoring period, or 1 rolling retest failure, or if it detects tampering, the vehicle must be taken to a service center immediately. Test failures, tampering or other interlock related violations will result in an extension of the time before the driver can ask for another driver license appeal hearing or may require that the original license revocation/denial be reinstated.
MN	Highly incentivized for high BAC (0.16) and repeat convictions	Yes	Grant unlimited driving privileges during the suspension period if the offender chooses to install an interlock. Time may be extended for violations; last 90 days must have no failed tests recorded on device. An additional 180 days can be added to the revocation period for the following violations: 1) Tampering, circumventing or bypassing the device, 2) Operating a vehicle not equipped with an interlock, 3) Violation of an interlock license, 4) For canceled drivers, the failure to provide no fewer than 30 initial breath tests each month, 5) Failure to bring the vehicle in for a service appointment every 30 days (or 60 days if the device is wireless), 6) Three failures to take a rolling retest within a seven day period. An additional 90 days can be added to the license revocation for an alcohol reading greater than .02 BAC.

MS	Mandatory for all convictions	Yes	<p>For the first offense, the offender will have a license suspended for 90 days and until such person attends and successfully completes an alcohol safety education program. However, in the court's discretion, the license may be suspended for 30 days, and the offender must operate a vehicle under an ignition interlock restricted license for 90 days following the mandatory thirty-day suspension.</p> <p>Upon a second offense, the license shall be suspended for a period of 45 days. The offender's license will not be restored following the mandatory suspension, unless the person holds an ignition interlock restricted license for one year.</p> <p>Upon a third offense, the license will be suspended for a mandatory two years. Following the 2 years, offenders will not be eligible to drive unless they hold an ignition interlock restricted license for 3 years following the release of incarceration.</p> <p>The court may impose an ignition interlock restriction for up to four years for a violation resulting in the serious bodily harm or death of another."</p> <p>Interlocks users must prove to Department of Public Safety that none of the following incidences occurred within the last 30 days: 1) An attempt to start the vehicle with a BAC of .04 or more, 2) Failure to take or pass any required retest, 3) Failure of the person to appear at the interlock vendor when required for maintenance, repair, calibration, monitoring, inspection, or replacement of the device.</p>
MO	Mandatory for all suspension and revocations; mandatory for repeat convictions	Yes	<p>Eliminate the mandatory ("hard") suspension period if offender chooses to install an interlock. A court may require that any person who is found guilty of or pleads guilty to a first intoxication-related traffic offense, and a court shall require that any person who is found guilty of or pleads guilty to a second or subsequent intoxication-related traffic offense, shall not operate any motor vehicle unless that vehicle is equipped with a functioning, certified ignition interlock device for a period of not less than 6 months from the date of reinstatement of the person's driver's license.</p> <p>A violation is defined as any incident of device tampering, circumvention or a BAC of .025 or greater. A person should not remove the device until the installer has certified to the Department of Revenue that a person is violation free. A person must request this certification from the interlock installer. Failure to obtain certification will result in a 30-day extension of interlock restricted driving privilege or an additional 30-day suspension without any driving privileges.</p>
MT	Mandatory for repeat convictions	No	

NE	Mandatory for all convictions	No	Effective July 1, 2022, an individual whose license is administratively revoked following an arrest for DUI may request an ignition interlock permit or a 24-7 sobriety program permit. Because the individual is granted day-for-day credit toward any post-conviction license revocation, it is possible for the individual to avoid a mandatory post-conviction ignition interlock requirement.
NV	Mandatory for all convictions	Discretionary	The court can extend the order of a person required to install an ignition interlock device if the court receives a report from the Department of Motor Vehicles or the manufacturer of the device that the person has committed certain violations. Nevada authorizes a restricted license without an ignition interlock for any offender who participates in a 24-7 sobriety program, as well as for a first offender who is not able to provide a deep lung breath sample or resides more than 100 miles from an ignition interlock manufacturer or its agent.
NH	Mandatory for all convictions	Discretionary	If it is found that a person required to drive a motor vehicle equipped with an interlock has failed without reasonable cause including, but not limited to, illness, hospitalization or incarceration, to comply with any requirement for the maintenance or calibration of the device, or shows a consistent pattern of failures to pass the breath test provided by the device, the commissioner after a hearing may order a further license suspension or revocation for a period of not more than 12 months.
NJ	Mandatory for all convictions	Yes	SB 824 requires offenders since 2019 to have no more than one failure to take or pass a test during the final 30 days of the mandated period and that all other maintenance and monitoring obligations are met. All convicted drunk drivers who use an interlock must have no recordable violations during the final 30 days on device (such as registering a BAC of .08 or greater) or a judge could extend the interlock restriction by up to 90 days.
NM	Mandatory for all convictions	Yes	To obtain an unrestricted driver's license, the person must show: 1) A minimum of six months of driving with an ignition interlock license with no attempts to circumvent, remove or tamper with the ignition interlock device, 2) Evidence that the ignition interlock device has not recorded two vehicle lockouts, 3) Evidence of verified active usage as that phrase is defined by the DMV.
NY	Mandatory for all convictions	No	Probation officers and monitoring authorities have the capability of taking the offender back to court and requesting an extension based on their behavior while on an interlock.
NC	Mandatory for high BAC (>.15) and repeat convictions	No	Grant unlimited driving privileges during the suspension period if the offender chooses to install an interlock.
ND	Discretionary	No	
OH	Incentivized first offender and mandatory repeat	Yes	If imposed, as a condition of probation by the court, offenders must obtain a specially marked driver's license indicating they may only operate a vehicle equipped with such an ignition interlock device. For first and second offenses, the court may order a person to use ignition interlock devices when using an occupational license; for third and subsequent offenses, the court must require a person to use these devices when using an occupational license.

			Grant unlimited driving privileges during the suspension period if the offender chooses to install an interlock. Any interlock violation committed by a person during the last 60 days of the suspension extends the interlock use and suspension for another 60 days from the violation. A person has a right to appeal any interlock extension. Compliance-based removal of an interlock is important in making sure drunk driving behavior changes. An interlock violation is defined as: 1) Tampering or circumventing the device and 2) Registering a reading of .025 BAC or greater while on the device.
OK	Mandatory for license reinstatement	Yes	As of November 2023, IDAP is now required for all offenders.
OR	Mandatory for all convictions and diversions	Yes	In the last 90 days, there cannot be any of the following: 1) An attempt to start a vehicle while the person has a BAC of .04 percent or higher unless a subsequent test performed within 10 minutes registers a BAC lower than .04 percent and a digital image confirms that the same person provided both samples, 2) Failure to pass a random retest due to a BAC of 0.02 percent or higher unless a subsequent test performed within 10 minutes registers a BAC lower than .02 and a digital image confirms that the same person provided both samples; or 3) For any person required to use an ignition interlock device, a failure to take a random retest.
PA	Mandatory for high BAC (>.10) and repeat convictions	Yes	As of 2017, a Compliance Based Removal state, as of result of Act 33, Title 75 - PA General Assembly (state.pa.us) subsection 3805(h.2) about compliance. A person must remain on an interlock until PennDOT receives a declaration from the person's interlock vendor, in a form provided or approved by the department, certifying that the following incidents have not occurred in the two prior consecutive months: 1) An attempt to start the vehicle with a BAC of .08 or more, not followed within five minutes by a subsequent attempt with a breath alcohol concentration lower than .08., 2) Failure to take or pass any required retest, 3) Failure of the person to appear at the ignition interlock system vendor when required for maintenance, repair, calibration, monitoring, inspection or replacement of the device such that the ignition interlock system no longer functions.
RI	Mandatory for all convictions	Discretionary	Effective January 1, 2022, the court must order an ignition interlock system and/or blood and urine testing for the convicted person to drive during the suspension or for a repeat offender to restore licensure. Interlock companies submit quarterly reports concerning proof of installation and proper use of interlocks to the DMV. Prior to the reinstatement of an unrestricted license, the DMV shall review the person's driving record and compliance with the ignition interlock order to ensure that the person has fulfilled the specific requirements as set forth by the sentencing judge or magistrate. Upon verification conditions have been satisfied, a license shall be reinstated.
SC	Mandatory for all convictions	Discretionary	Depending on the violation, an offender's time on an interlock can be extended two to six months. Mandatory for all convictions - May 2023.
SD	Discretionary	No	24/7 program predominant DUI sanction.

TN	Mandatory all offender	Yes	TCA 55-10-425 Ignition Interlock Device Compliance-Based Removal Law became effective July 2016 requiring all defendants charged and convicted of DUI on or after that date to install and use a functioning IID. The person is required to maintain the device in working order for a minimum of 365 consecutive days or for the entire period of the driver license revocation period, whichever is longer. The ignition interlock device requirement under this section is compliance-based and the defendant is required to complete the final 120-day period of the requirement free of any violations or the required usage period would be extended an additional 120 consecutive days from the date of the most recent violation.
TX	. Mandatory for all convictions	Discretionary	For a first or subsequent offense: The court must order the offender to install ignition interlock devices on all the motor vehicles he owns for the period of license suspension. The offender can choose a hard suspension with no interlock. Courts require proof of compliance with device before exiting the program, but it is not a statewide law.
UT	Mandatory for repeat convictions; highly incentivized for first convictions	No	Offenders caught driving a non-interlock equipped vehicle will have their license suspended one year and their interlock restriction extended three years.
VT	Mandatory all offender	Yes	If a person makes 3 attempts to start a vehicle with a BAC of .04 or above, the interlock requirements will be extended for a period of 3 months. Any subsequent 3 attempts to start a vehicle with a BAC of .04 or above, will result in additional 3-month extensions which will run consecutively. If a person fails one random retest due to a BAC of .04 or above, but less than .08, the interlock requirements will be extended for a period of 3 months. Any subsequent random retest failures due to a BAC of .04 or above, but less than .08, will result in additional 3-month extensions, which will run consecutively. If a person fails one random retest due to a BAC of .08 or above, the interlock requirements will be extended for a period of 6 months. If a person 1) operates a motor vehicle not equipped with an interlock, or 2) attempts to tamper with or circumvent the device, or 3) fails to pull over after failing a random retest, the interlock requirements will be extended for a period of six months. If a person misses a required service visit to have the interlock calibrated, the interlock requirements will be extended for a period of 60 days.
VA	Mandatory for repeat convictions; highly incentivized for first convictions	Yes	A recordable violation extends the interlock time period by six months.

WA	Mandatory for all convictions	Yes	RCW 46.20.720 – Compliance Based Review refers to the final period of the interlock restriction. Prior to having the interlock restriction lifted the interlock manufacturer will review the interlock device history for any qualifying violations which may extend the restriction period. For those who were arrested prior to July 23, 2017, the CBR period is four months. For those who were arrested on or after July 23, 2017, The CBR period is 180 days. House Bill 1614 requires that an ignition interlock may not be removed until the offender passed 180 days without a test failure, attempt at circumventing the device or failure to appear at the vendor for monitoring and calibration of the device. It also requires that to vacate a DUI prior offense, not only must ten years have passed since the offense, but there also has to have been no other alcohol- or drug-related violations within that ten years.
WV	Mandatory all offender	Yes	<p>An individual convicted of driving under the influence must participate in the State’s Alcohol Test and Lock Program (ATLP). Part of the ATLP is use of an ignition interlock device (IID). Within sixty (60) days of installing an IID through a state-approved service provider, individuals must enroll in the ATLP. An IID must be installed on all vehicles owned or operated by the offender.</p> <p>No person will be removed with recorded violations during the last 60 days of scheduled participation and shall be assessed additional penalty time up to 60 days or until final download is violation free. All participants of the WV Interlock Program are governed by the following demerit system. This demerit system has been established to formalize the DMV’s policy regarding violations occurring during participation of the Interlock Program. Demerit accumulation may cause an extension of the program participation and/or disqualification. For example, participants of the interlock program that blow a high BAC upon initial startup of his/her vehicle may be assessed a \$50 fee by the servicing interlock provider. Upon verification of this violation by the DMV, a demerit assessment, program extension and /or disqualification will be administered in accordance with this policy. The DMV shall monitor program compliance every 30 days from the date of installation. All violations occurring within a monitoring period will be reviewed and the violation causing the greatest demerit value will be assessed.</p>
WI	Mandatory for high BAC (>.15) and repeat convictions	No	<p>For a second or subsequent offense (within 5 years), a person’s vehicles must be immobilized or equipped with an ignition interlock device for not less than 1 year nor more than the maximum period of license revocation.</p> <p>Ignition interlock usage starts 1 year after the revocation period.</p>
WY	Mandatory for high BAC (>.15) and repeat convictions	No	Circumventing or disconnecting the device will result in additional legal action, driving penalties and additional ignition interlock required time.

Appendix B. Descriptive Statistics

Tennessee

Tennessee Overall Offenses and Offender Totals

Tennessee	Overall Totals
All Offenses	73,863
Total # of Offenders	67,001

Tennessee Single Offenses/Offender Totals

Tennessee	Single Offenses	%
Total	60,928	82.5%
Total Single Installed	23,996	39.4%
Total Single Did Not Install	36,932	60.6%
Not Extended	18,672	77.8%
Total Extended	5,324	22.2%
Extended <1 Year	4,934	92.7%
Extended =1 Year	22	0.4%
Extended >1 Year	368	6.9%

Tennessee Repeat Offenses/Offender Totals

Tennessee	Repeat Offenses	%	Repeat Offenders	%
Total	12,934	17.5%	6,075	9.1%
Total Repeat Installed	4,577	35.4%	2,185	36.0%
Total Repeat Did Not Install	8,357	64.6%	3,933	64.7%
Installed After 1st Offense	3,258	71.2%	1,567	71.7%
Not Extended	2,604	79.9%	1,301	83.0%
Total Extended	656	14.3%	362	16.6%
Extended <1 Year	553	84.3%	301	83.1%
Extended =1 Year	9	1.4%	9	2.5%
Extended >1 Year	94	14.3%	66	18.2%
Those Who Installed After 2nd+ Offenses	1,319	10.2%	618	10.2%
Not Extended	1,134	86.0%	536	86.7%
Extended	185	14.0%	87	14.1%
Extended <1 Year*	62	33.5%	60	69.0%
Extended =1 Year*	7	3.8%	7	8.0%
Extended >1 Year*	110	59.5%	21	24.1%

*Offenses are under-represented, as they are duplicated in "Not Extended" since they did not extend the interlock term on the first offense.

Washington

Washington Overall Offenses and Offender Totals

Washington	Overall Totals
All Offenses	252,470
Total # of Offenders	216,614

Washington Single Offenses/Offender Totals

Washington	Single Offenses	%
Total	189,516	75.1%
No Arrest Date	28,481	15.0%
Arrest Date Present	161,035	85.0%
No Interlock Required	100,852	62.6%
Interlock Required	60,183	37.4%
Total Single Did Not Install (Of Those Required)	20,521	34.1%
Total Single Installed (Of those Required)	39,662	65.9%
Installed Pre Law-Change	19,714	49.7%
Installed < Term	1,335	6.8%
Installed = Term	758	3.8%
Extended	17,620	89.4%
Installed Post Law Change	19,948	50.3%
Installed < Term	3,507	17.6%
Installed = Term	347	1.7%
Extended	16,094	80.7%

Washington Repeat Offenses/Offender Totals

Washington	Repeat Offenses	%	Repeat Offenders	%
Total	62,954	24.9%	27,098	12.5%
Total Interlock Required	49,622	78.8%	21,190	78.2%
Total Repeat Installed	33,123	52.6%	2,185	8.1%
Total Repeat Did Not Install	16,499	26.2%	3,933	14.5%
Interlock Required after 1st Offense	18,790	29.8%	8,766	32.3%
Did Not Install	5,175	8.2%	3,151	11.6%
Installed Pre Law-Change (of those required)	6,907	36.8%	5,885	67.1%
Installed < Term	1,043	15.1%	612	10.4%
Installed = Term	241	3.5%	53	0.9%
Extended	5,624	81.4%	3,513	59.7%
Installed Post Law Change (of those required)	6,708	10.7%	4,645	17.1%
Installed < Term	1,557	23.2%	993	21.4%
Installed = Term	148	2.2%	102	2.2%
Extended	5,003	74.6%	3,527	75.9%
Interlock Required after 2nd Offense	30,832	49.0%	12,424	45.8%
Did Not Install	11,324	36.7%	4,584	36.9%
Installed Pre Law-Change (of those required)	6,852	22.2%	4,676	37.6%
Installed < Term	1,142	16.7%	735	15.7%
Installed = Term	291	4.2%	188	4.0%
Extended	5,419	79.1%	3,752	80.2%
Installed Post Law Change (of those required)	12,656	41.0%	6,907	55.6%
Installed < Term	3,755	29.7%	1,951	28.2%
Installed = Term	312	2.5%	180	2.6%
Extended	8,589	67.9%	4,776	69.1%
No Interlock Required	13,332	21.2%	5,908	21.8%

Arkansas

Arkansas Overall Offenses and Offender Totals

Arkansas	Overall Totals
All Offenses	52,805
Total # of Offenders	45,752

Arkansas Single Offenses/Offender Totals

Arkansas	Single Offenses	%
Total	40,075	75.9%
Total Single Installed	17,297	43.2%
Total Single Did Not Install	22,778	56.8%
Less than Required Term	260	1.5%
Equal to or Greater Than Required Term	17,037	98.5%

Arkansas Repeat Offenses/Offender Totals

Arkansas	Repeat Offenses	%	Repeat Offenders	%
Total	12,730	24.1%	5677	12.4%
Total Repeat Installed	6,534	51.3%	2,950	52.0%
Total Repeat Did Not Install	6,196	48.7%	2,727	48.0%
Installed After 1st Offense	4,522	69.2%	2092	70.9%
Less Than Required Term*	2,254	49.8%	765	36.6%
Equal to or Greater than Required Term*	2,367	52.3%	1455	69.6%
Those Who Installed After 2nd+ Offenses	2,012	15.8%	866	15.3%
Less Than Required Term	908	45.1%	515	59.5%
Equal to or Greater than Required Term	1,104	54.9%	345	39.8%

Iowa Overall Offenses and Offender Totals

Iowa	Overall Totals
All Offenses	63,138
Total # of Offenders	53,708

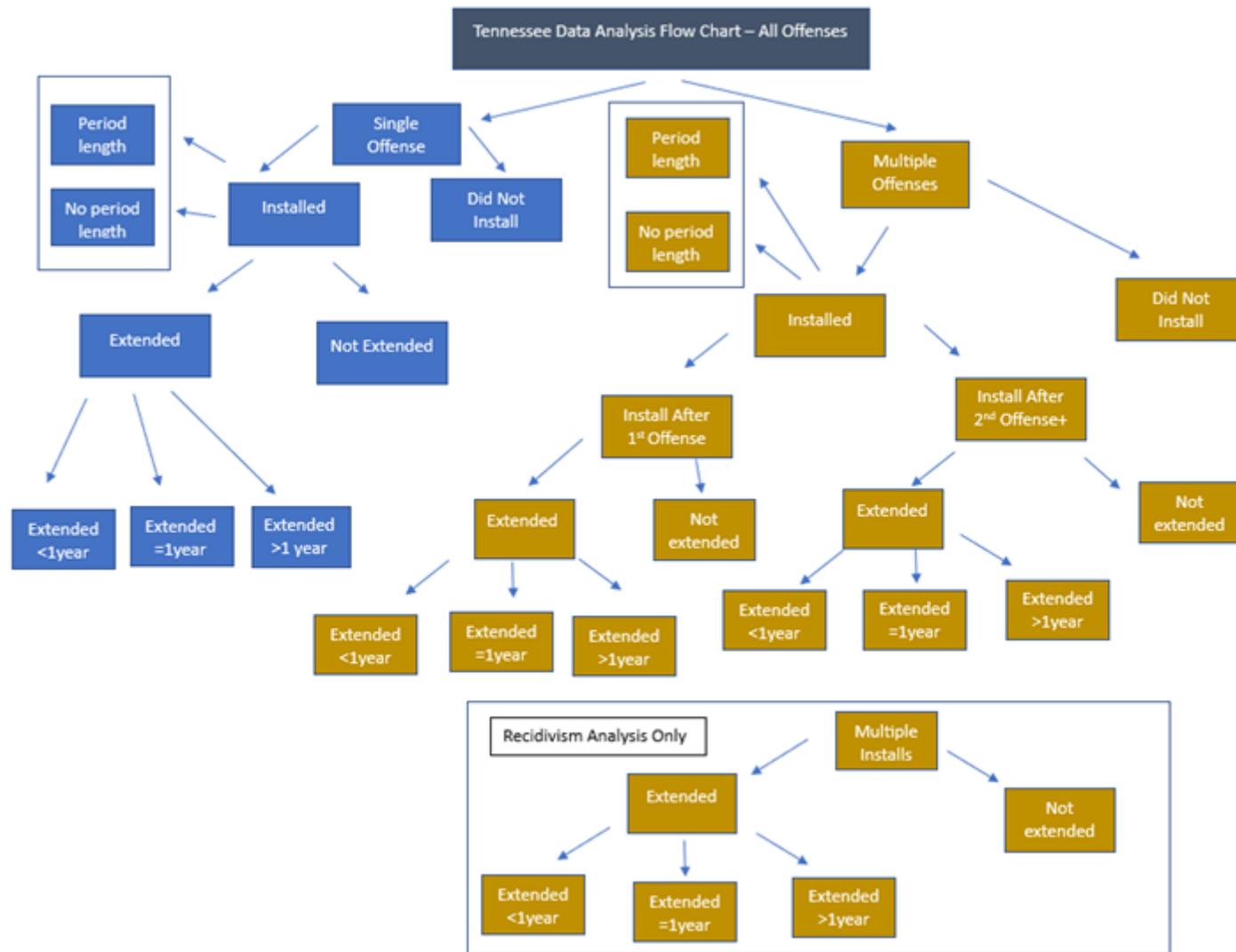
Iowa Single Offenses/Offender Totals

Iowa	Single Offenses	%
Total	46,511	73.7%
Total Single Did Not Install	36,846	79.2%
Total Single Installed	9,665	20.8%
Installed 180 Days or Less	3,504	36.3%
Installed 181 Days to 1 Year	3,705	38.3%
Installed 1-2 Years	2,229	23.1%
Installed > 2 Years	227	2.3%

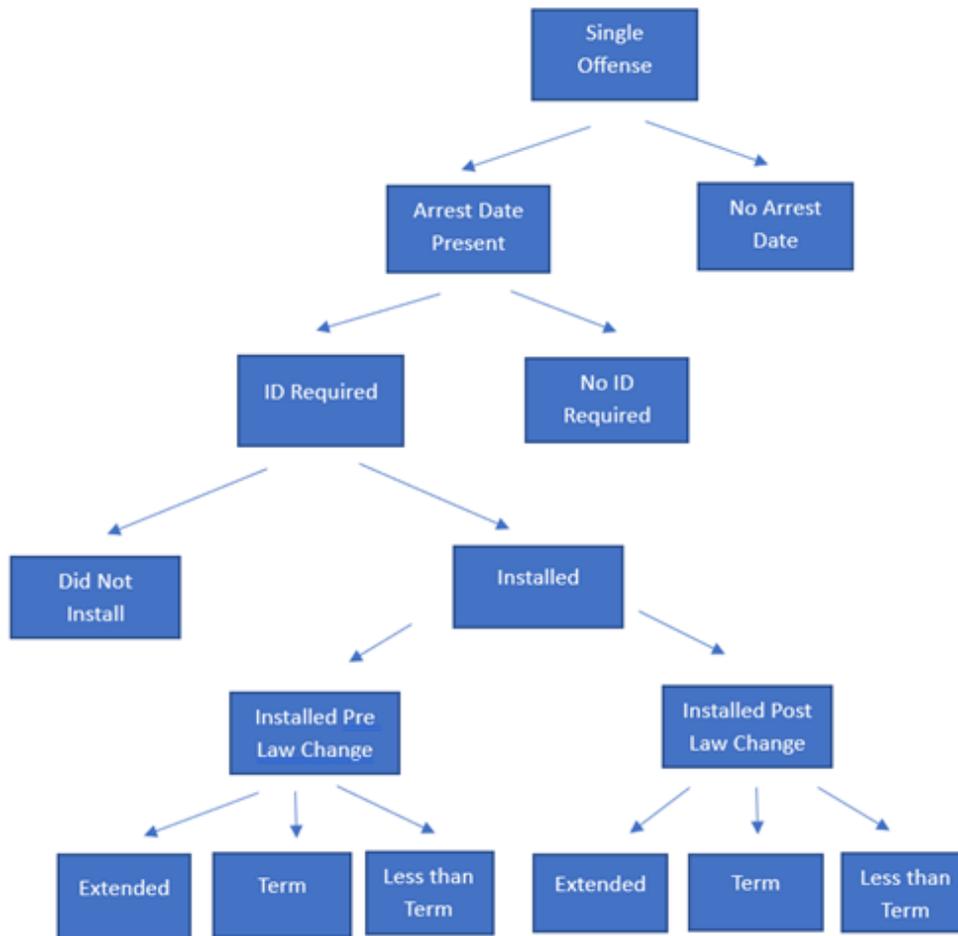
Iowa Repeat Offenses/Offender Totals

Iowa	Repeat Offenses	%	Repeat Offenders	%
Total	16,627	26.3%	7197	13.4%
Total Repeat Installed	5,870	35.3%	2,608	36.2%
Total Repeat Did Not Install	10,757	64.7%	4,589	63.8%
Installed After 1st Offense	5,289	90.1%	2,353	90.2%
Installed 180 Days or Less	3,013	57.0%	1,353	57.5%
Installed 181 Days to 1 Year	813	15.4%	366	15.6%
Installed 1-2 Years	1,291	24.4%	557	23.7%
Installed > 2 Years	172	3.3%	77	3.3%
Those Who Installed After 2nd+ Offenses	581	9.9%	255	9.8%
Installed 180 Days or Less	351	60.4%	159	62.4%
Installed 181 Days to 1 Year	98	16.9%	41	16.1%
Installed 1-2 Years	97	16.7%	41	16.1%
Installed > 2 Years	35	6.0%	14	5.5%

Appendix C. Flow Charts



Washington Data Analysis Flow Chart – Single Offenses



Washington Data Analysis Flow Chart – Multiple Offenses

