

Status Report

Insurance Institute for Highway Safety | Highway Loss Data Institute

Locking out impaired driving

Laws that require interlocks for all DUI offenders save lives



ALSO IN THIS ISSUE

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Laws requiring all impaired-driving offenders to install alcohol interlocks reduce the number of impaired drivers in fatal crashes by 16 percent, a new IIHS study shows. If all states without such laws adopted them, more than 500 additional lives could be saved each year.

A separate study shows that those laws could be made even more effective. In a detailed examination of Washington's interlock policies, Institute researchers found that, as the state's interlock laws were strengthened, interlock installations went up and recidivism declined. At the same time, more DUI charges were reduced to lesser offenses that don't require interlocks. That suggests states could increase the impact of their interlock laws by closing such loopholes.

The two studies are the latest to support the expansion of alcohol interlocks — in-vehicle breath-testing units that require a blood alcohol concentration (BAC) below a certain level, typically somewhere between 0.02 and 0.04 percent, before the vehicle can be started.

More than a quarter of U.S. crash deaths occur in crashes in which at least one driver has a BAC of 0.08 percent or higher. The prevalence of impaired driving in fatal crashes has changed little in the past two decades, and interlock laws are one of the few recent policy innovations that have made a difference.

Forty-five states require interlocks for at least certain impaired-driving offenders. Twenty-eight states, the District of Columbia and four California counties have some type of interlock requirement that apply to first-time offenders.

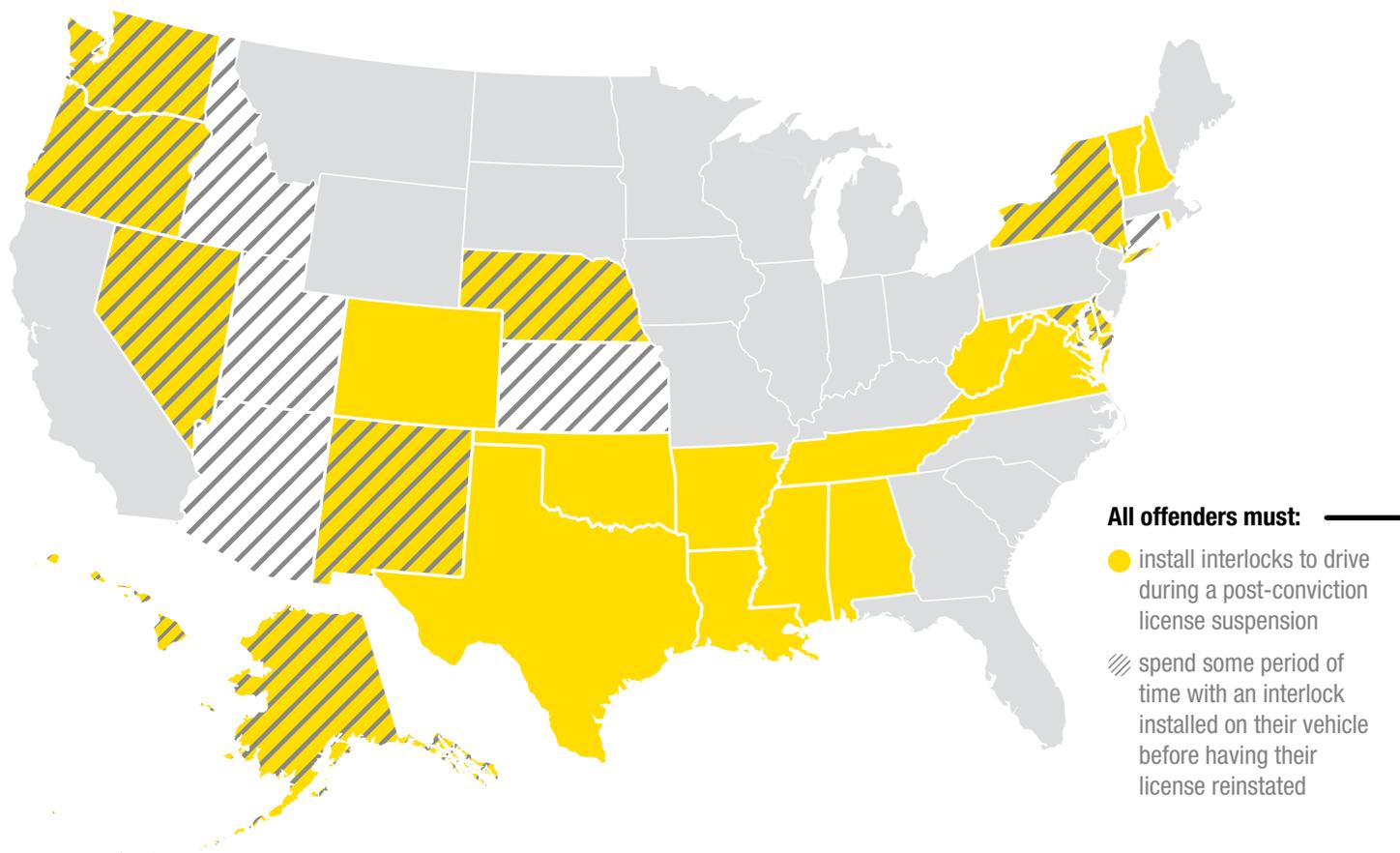
More than 10,000 people were killed in 2016 in crashes involving a driver with a BAC of 0.08 percent or higher. If all states mandated interlocks for all DUI offenders, more than 500 of those deaths would have been avoided.

Even when they are mandated for first offenders, interlocks come into play only after a DUI arrest, so their direct purpose is to reduce recidivism. Like other types of sanctions, however, they may act as a deterrent for those who haven't yet committed a first offense if they are well-publicized.



U.S. alcohol interlock requirements

Laws that apply to all impaired-driving offenders, March 2018



Policies on alcohol interlocks vary by state. In some states, ordering an interlock for someone convicted of impaired driving is completely at the courts' discretion. In other states, the law requires interlocks for repeat offenders or those with particularly high blood alcohol concentrations (BACs). In a growing number, all offenders must install an interlock.

Most states require interlocks for repeat offenders at a minimum. Only five states — Indiana, Montana, North Dakota, South Dakota and Wisconsin — have no mandatory interlock requirements.

The 28 states highlighted on this map, along with the District of Columbia and four California counties, have some type of interlock requirement for first offenders. Specifically, in 23 states, D.C. and four California counties, all offenders must install interlocks to drive during a post-conviction license suspension. In 15 states and four California counties, all offenders must spend some period of time with an interlock installed on their vehicle before having their license reinstated.

Details about interlock requirements in each state can be found at iihs.org/interlock-laws.

Interlock laws cut deaths

Whether interlocks keep those convicted of DUI from reoffending or deter people generally from driving while impaired, the overarching goal is to reduce alcohol-impaired driving and the deaths and injuries that result. The national study shows they have succeeded.

“We looked at the number of impaired passenger vehicle drivers involved in fatal crashes over time and compared them with the number of drivers in fatal crashes that didn't involve impairment,”

says Eric Teoh, IIHS senior statistician and the paper's lead author. “We found that state laws mandating interlocks for all DUI offenders reduced the number of drivers in fatal crashes with BACs of 0.08 percent or higher by 16 percent compared with no interlock law.”

In 2016, 10,497 people died in crashes involving drivers with a BAC of 0.08 percent or higher. Of those, 8,853 involved impaired passenger-vehicle drivers. At that time, the number of states with first-offender laws was 25. Had all states had all-offender interlock »



The number of impaired (BAC ≥ 0.08%) drivers in fatal crashes falls

- ↓ **3%** when states require interlocks for repeat offenders only
- ↓ **8%** when states require interlocks for repeat offenders and first offenders with high BACs
- ↓ **16%** when states require interlocks for all DUI offenders, including first offenders

After Washington's interlock law was strengthened, fewer people reoffended

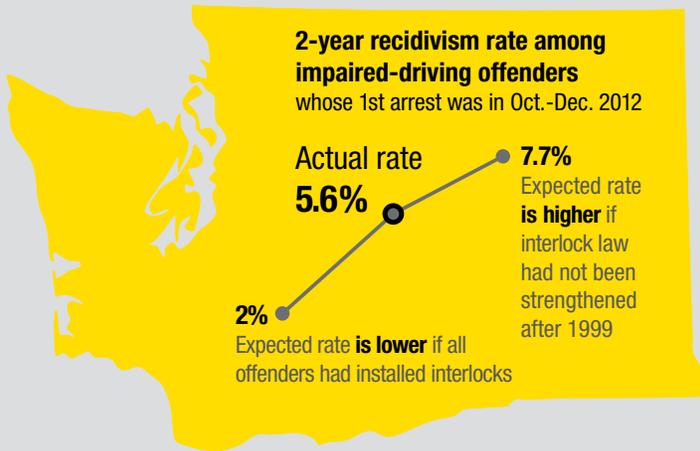


Photo courtesy Mothers Against Drunk Driving

Washington's experience shows that more robust interlock laws can cut down on repeat offenses. However, despite the requirements, many of the state's impaired drivers continued to avoid interlocks, thereby shrinking the law's benefits.

(“from p. 3) requirements in place, 543 of those deaths would have been prevented, Teoh calculated.

For the analysis, the authors grouped together two types of all-offender laws: those that require all offenders, including first offenders, to install interlocks to have their license reinstated and those that only require it to drive during a post-conviction suspension. The analysis controlled for factors besides interlocks that could affect crashes.

Laws that required interlocks for repeat offenders only cut the number of drivers with BACs of 0.08 percent by 3 percent compared with no interlock law, and that effect wasn't statistically significant, the study showed. Laws that required them for both repeat offenders and offenders with high BACs provided an 8 percent benefit.

One state's experience

The examination of Washington's laws updates an earlier study that found that recidivism declined after the state expanded its interlock requirement, which previously targeted only repeat and high-BAC offenders and offenders who refused the alcohol test, to all offenders in 2004 (see *Status Report*, March 6, 2012). The update looks at trends in Washington over a longer period during which the interlock law was further bolstered.

The additional changes included allowing an interlock in lieu of an administrative driver's license suspension before conviction, a change that went into effect in 2009. Then, beginning in 2011, convicted drivers had to prove they had driven with an interlock for the last four months of their interlock requirement without any interlock violations before getting their full driving privileges restored.

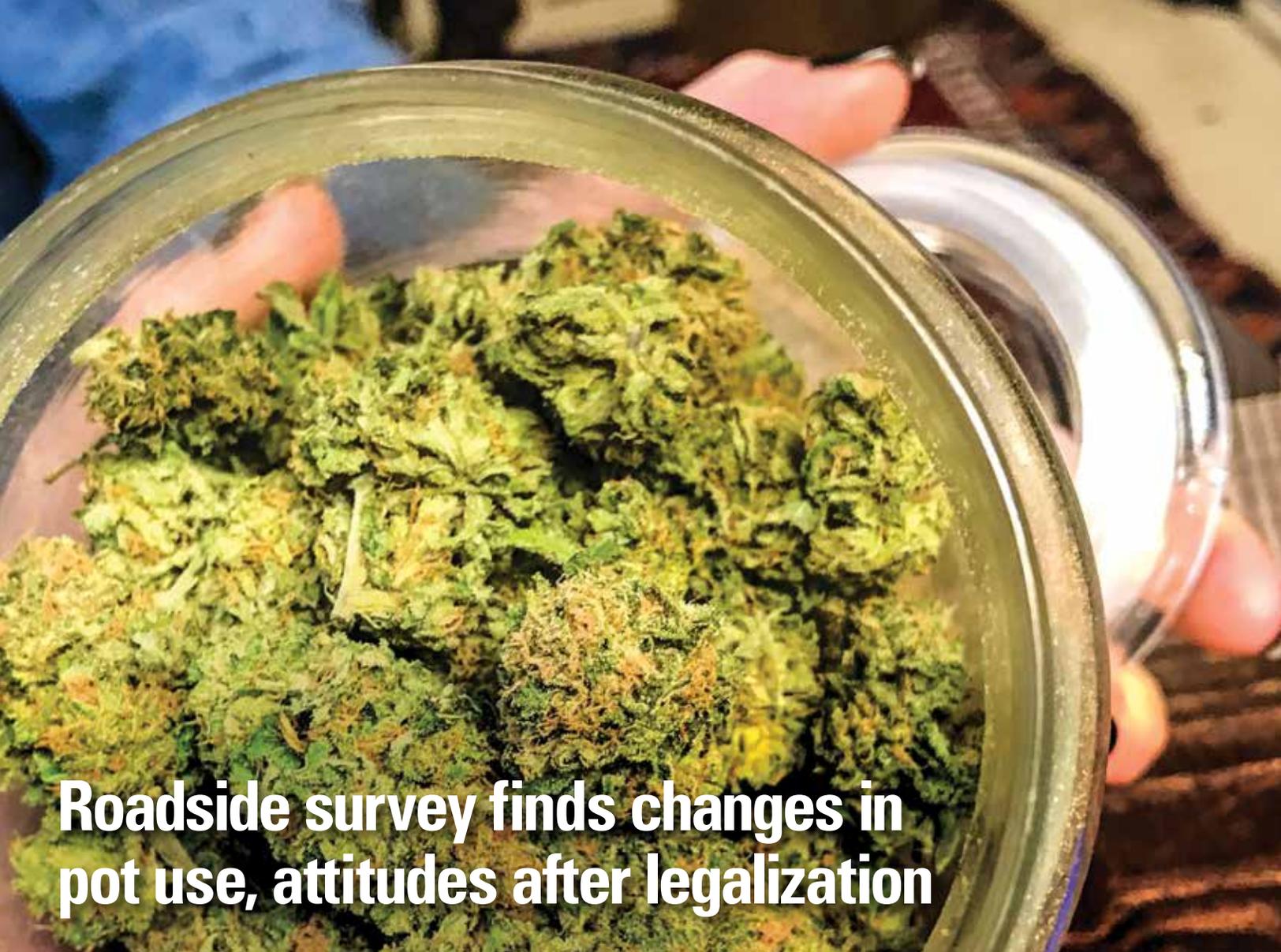
As it became harder for impaired drivers in Washington to avoid interlocks, there were fewer repeat offenses. For first offenders arrested during the last quarter of 2012, the recidivism rate declined from an expected 7.7 percent without the law changes to 5.6 percent. The interlock installation rate was only 38 percent in that quarter. If all of these DUI offenders had installed interlocks, the recidivism rate could have shrunk to 2 percent.

Why did only 38 percent of impaired-driving offenders install interlocks even though doing so was a requirement for license reinstatement? Some people may have continued to drive without a valid license. Others may have given up driving.

But one key reason is that, after the changes to the law, an increased number of first offenders had their charges reduced to alcohol-related negligent or reckless driving. Those offenses don't require interlock orders, but they do count as prior offenses if a person is arrested again for impaired driving. When such convictions are excluded from the analysis, the installation rate increases to 54 percent.

“Washington's experience shows that more robust interlock laws can cut down on repeat offenses,” says Charles Farmer, IIHS vice president for research and statistical services and a co-author of the study. “It also suggests that such changes could have an even greater effect if loopholes that allow people to avoid interlocks by pleading to lesser offenses were closed. It's a perfect example of why legislation, enforcement and adjudication need to work together for highway safety policies to achieve the desired result.”

For copies of “State alcohol ignition interlock laws and fatal crashes” by E.R. Teoh et al. and “Effects of Washington state's alcohol ignition interlock laws on DUI recidivism: an update” by A.T. McCartt et al., email publications@ihs.org. ■



Roadside survey finds changes in pot use, attitudes after legalization

Drivers surveyed during the daytime in Washington were more likely to test positive for marijuana after the state legalized recreational sales of the drug than before, an IIHS analysis has found. The proportion of drivers surveyed at night who tested positive did not change.

In what could be a sign of changing attitudes after legalization, drivers who tested positive for marijuana a year after legalization were more likely to admit to researchers that they had used the drug recently than drivers who tested positive when sales were still illegal in the state. They were also less likely to say marijuana impairs driving.

With more states making marijuana legal, researchers are trying to get a handle on the drug's effect on crashes. Simulator and on-road studies have shown that marijuana can degrade some aspects of driving performance, but pinning down the relationship between marijuana use and real-world crashes has been more difficult.

An analysis by HLDI last year showed that states that have made marijuana sales legal have seen an increase in crashes relative to nearby control states. The study looked at collision claims in Washington and two other states that allow recreational marijuana sales — Colorado and Oregon — and found that legalization was associated with a 3 percent increase in collision claims rates (see *Status Report*, June 22, 2017, at iihs.org).

In this new analysis of Washington roadside data, IIHS Senior Research Scientist Angela Eichelberger sought to learn how marijuana use and people's perception of its risks changed following legalization of recreational marijuana sales.

The Washington roadside survey was a collaboration of the National Highway Traffic Safety Administration, Pacific Institute for Research and Evaluation, Washington Traffic Safety Commission and IIHS. Researchers surveyed drivers three times — in June 2014, the month before retail marijuana sales began, in November-December 2014 and in June 2015. Information was collected on Fridays during the day and at night and on Saturday nights.

A total of 2,355 drivers completed a questionnaire about their past and current marijuana use and perceived risks of driving after using marijuana. Of those participants, 99 percent gave saliva or blood to test for THC, the primary psychoactive chemical found in marijuana and hydroxy-THC, a psychoactive metabolite. The presence of either generally indicates recent use of marijuana but doesn't necessarily indicate impairment because the chemicals can be detected in the body for hours or, in the case of some frequent users, days.

Among drivers surveyed in the daytime, the proportion testing positive for THC increased from 8 percent before retail sales began »

(« from p. 5) to 23 percent six months after. Among those surveyed at night, the proportion stayed constant at about one-fifth.

“This is very different from what we see with alcohol. Drinking and driving is much more prevalent at night than during the day,” Eichelberger says.



Marijuana plant at a dispensary

THC-positive drivers were more willing to admit to marijuana use in the final survey wave. Seventy-two percent reported past-year marijuana use a year after retail sales began, while only about one-third did during the first two waves.

“Legalization may have made using marijuana more socially acceptable, so people more readily admit to it,” Eichelberger says.

THC-positive drivers’ perceptions about the effect of marijuana on driving also changed. Before sales began, 45 percent of those who tested positive said it impairs driving. A year into legalization, only 17 percent did. The percentage among THC-negative drivers went from 52 to 56 percent.

For a copy of “Marijuana use and driving in Washington state: opinions and behaviors before and after implementation of retail sales,” by A.H. Eichelberger, email publications@ihs.org. ■



Drivers prefer automated systems that operate smoothly

IHS researchers have been studying their co-workers as they try to understand how drivers react to vehicle features that help them with some aspects of driving. A new analysis of employee test drives looks at reactions to adaptive cruise control and active lane keeping. It suggests people are most comfortable with systems they believe make smooth, gradual movements and are wary of using the features in the most challenging driving conditions.

Automation has the potential to eliminate many crashes by removing human error from the equation. While fully automated vehicles are a long way off, existing features like adaptive cruise control and active lane keeping automate parts of the driving task. Whether or not those features make roads safer depends in part on whether drivers accept and opt to use them.

Fifty-one IIHS and HLDI employees drove one of five vehicles — a 2017 Audi

A4, a 2017 Audi Q7, a 2016 Honda Civic, a 2016 Infiniti QX60 and a 2016 Toyota Prius — equipped with adaptive cruise control, among other features. Adaptive cruise control maintains a set speed and a set following distance from the vehicle in front of it. Three of the vehicles — the two Audis and the Civic — also had active lane keeping, which provides sustained steering input to keep the vehicle within its lane.

The volunteers used the vehicles for periods ranging from one day to three weeks. They were given instruction in use of the features and were asked to drive with the technology activated all the time. Afterward, the drivers answered questions about their opinions of the features.

An earlier study using IIHS-HLDI employee volunteers measured driver trust in various features (see *Status Report* special issue: autonomous vehicles, Nov. 10, 2016, at ihs.org). It found that drivers trusted



side-view assist the most and active lane keeping the least. Adaptive cruise control was in the middle.

Overall, drivers in the new study viewed both adaptive cruise control and active lane keeping somewhat positively. For the A4 and Q7, the adaptive cruise control was viewed more positively than active lane keeping, but the opposite was true for the Civic.

The volunteers preferred adaptive cruise control systems that they felt made smooth, gradual changes and consistently detected moving vehicles ahead. They also preferred active lane keeping that they thought made infrequent steering corrections.

“Even with automation, drivers want to feel like they’re in control of the vehicle,” says David Kidd, an IIHS senior research scientist and lead author of the study. “They want these features to fit into their driving style instead of imposing a different driving style on them.”



Adaptive cruise control display on a Toyota Prius

Drivers said they would be more comfortable using the features in light traffic and on interstates than in stop-and-go traffic and on local roads — conditions under which crashes are more likely. Most current systems aren’t designed to be used in those more challenging situations, although IIHS researchers found owners’ manuals to be inconsistent and vague on this topic. If

systems are only used in light traffic and on interstates, that will limit their potential safety benefits.

For a copy of “System attributes that influence reported improvement in drivers’ experiences with adaptive cruise control and active lane keeping after daily use in five production vehicles,” by D.G. Kidd and I.J. Reagan, email publications@iihs.org. ■

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HLDI shares and supports this mission through scientific studies of insurance data representing the human and economic losses resulting from the ownership and operation of different types of vehicles and by publishing insurance loss results by vehicle make and model.

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