Washington State
Liquor and Cannabis Board

Research Brief
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Impacts of Blood Alcohol Concentration (BAC) Driving Limits

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Purpose Statement
The Research Program received a request from LCB leadership to examine the scientific literature on the effects of Blood Alcohol Concentration (BAC) driving limits on public health, public safety, and economic outcomes. Given proposed legislation in Washington State to change the BAC driving limit from .08% to .05%, this brief focuses on literature examining this reduction.

This brief was written by the LCB Research Program and is based on a review of existing evidence including scientific literature, government reports, regulations and policies, and other credible information sources. Subject matter experts from LCB and other organizations provided review and feedback.

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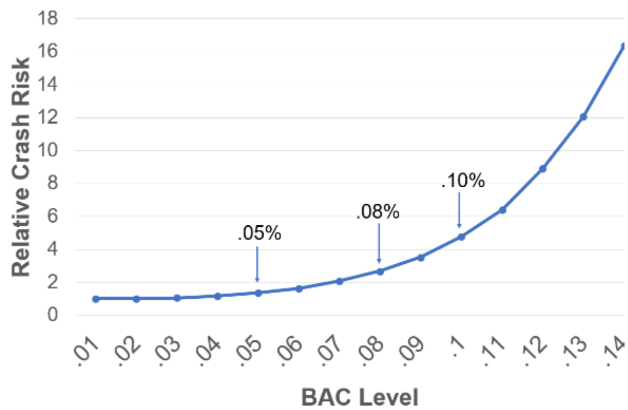
Background

There is substantial evidence that alcohol use impairs the ability to drive safely.[1-2] The risk of being involved in a motor vehicle crash increases at an exponential rate as blood alcohol content (BAC) rises (**Figure 1**).[1]

Figure 1*. Relative crash risk by BAC.*[2]



U.S. History of BAC Driving Limits

Due to strong evidence linking alcohol use with motor vehicle crashes, there have been global efforts to enact laws against impaired driving since the early 1900s.[3] National grassroots advocacy coalitions helped to increase public awareness about the dangers of drinking and driving.[4] The National Highway Traffic Safety Administration (NHTSA) has released several influential reports documenting how BAC driving limits increased public health and safety.[4]

In Washington State, the Legislature enacted a BAC per se driving limit of .10% in 1979 and then reduced that limit to .08% in 1998.[5-6] A '*per se*' driving limit refers to the threshold at which an individual is determined to be legally intoxicated; no further proof of impairment is needed to be found guilty of driving under the influence (DUI). Notably, a driver who has been affected by alcohol can still receive a DUI in Washington even if they have a BAC of less than .08%.

The per se reduction from .10% to .08% in Washington aligned with recommendations from NHTSA that "*at .08 BAC, all drivers, even experienced ones, show impairment in driving ability.*"[4] Pressure from the Clinton administration led all U.S. states who had not done so already to enact a .08% BAC driving limit in the early 2000s.[7]

Impact of .08% BAC Driving Limits

Research shows that lowering the driving limit from .10% to .08% BAC has led to reductions in fatal alcohol-related motor vehicle crashes.[8-9] For example, a longitudinal study from 1982 to 2014 found that reducing the BAC limit in the U.S. was associated with a 10.4% annual reduction in fatal car crashes.[8] Other studies have replicated these results.[9]

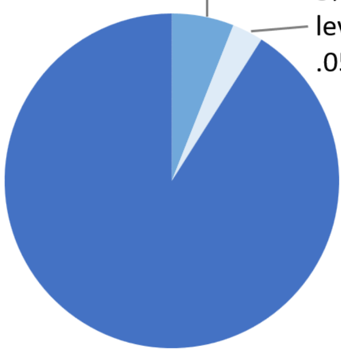
Apart from motor vehicle crashes, one study found that lowering the BAC limit in the U.S. was linked to an 11-14% *increase* in arrest rates from 1990 to 2007.[10] Another study found the adoption of a .08% BAC limit in the U.S. was associated with an 8.3% *increase* in hit-and-run fatalities from 1982 to 2008.[11]

Current Data from Washington State

Alcohol-impaired driving remains a primary risk factor for traffic injuries and fatalities. About 30% of annual fatal crashes in Washington involve drivers who are under the influence of alcohol.[12]

In 2024, there were 103 alcohol-only impaired drivers involved in fatal crashes (i.e., under the influence of alcohol and no other drugs).[13] Most of these impaired drivers were male and between the ages of 21 and 30 years old.[13] Of those with known alcohol levels, the majority had a BAC of .08% or higher.[13] **Figure 2** displays the 90 alcohol-only impaired fatal crashes with known BAC.

***Figure 2**. Alcohol-Only Impaired Drivers Involved in a Fatal Crash in 2024 by BAC Range.*[13]



Calls to Further Reduce BAC Driving Limit Due to continued traffic fatalities related to impaired driving, federal and state organizations have called to further lower the per se limit from .08% to .05% BAC.[12,14-16]

Many organizations that support lowering the limit have issued independent fact sheets on this issue:

- Washington Traffic Safety Commission;
- National Transportation Safety Board;
- Advocates for Highway and Auto Safety;
- National Academies of Science, Engineering, and Medicine.

Because driving impairment can be present at levels lower than .08% BAC, recommendations to reduce the per se driving limit aim to (1) further deter individuals from drinking and driving and (2) create safer roads with fewer crashes.

Utah became the first U.S. state to adopt a per se .05% BAC driving limit in 2017. The law went into effect on December 30, 2018.[17] As of 2024, Utah continues to be the only state with a .05% BAC driving law. Other states have introduced similar legislation including Washington, California, Hawaii, Michigan, New York, and Oregon, but this legislation has not yet become law.

Impact of Utah's .05% BAC Driving Law

In 2022, a report from NHTSA concluded that Utah's law had "*positive effects on highway safety"* in the first year that the law was in effect.[17] The report found that from 2016 to 2019 (note: 2019 was the first year the law was in effect) the total number of fatal crashes decreased by 19.8% after accounting for vehicle miles traveled.[17] Specifically, there were 259 total fatal crashes in 2016 and 225 total fatal crashes in 2019. Total fatal crashes include crashes that both did and did *not* involve alcohol. **Figure 3** shows fatal crashes in Utah from 2014 to 2024. The report from NHTSA also found no economic impact on alcohol sales.[17]

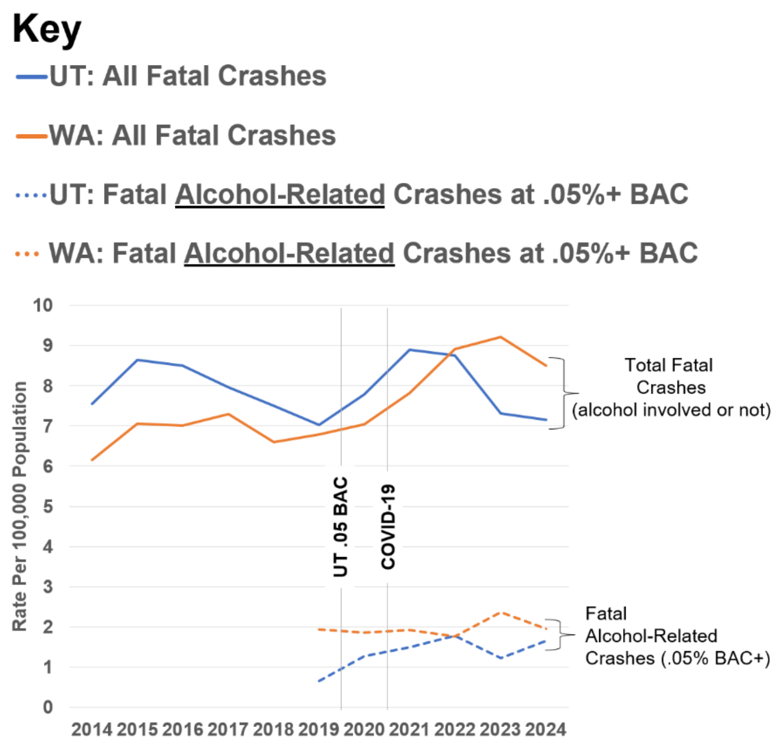
A more recent study examining Utah's .05% BAC law also showed reductions in the total number of reported traffic crashes.[18] However, this reduction was primarily seen the first year the law was in effect and was largely related to property damage-only accidents, rather than injuries or fatalities.[18] Interestingly, there were no changes in automotive insurance car accident claims; the authors of this research speculated the gap between reduced police reports and insurance claims may partly be due to under-reporting because there are severe consequences for driving under the influence that may be avoided if there are no injuries and no filed police report.[18]

Utah and Washington's Fatal Crash Rates Across Time

Since Utah is the only U.S. state to enact a .05% BAC driving limit, comparing their crash rates with Washington can be informative. However, Utah and Washington differ in several ways (e.g., policies, alcohol regulation), which can limit the ability to make comparisons between states.

Figure 3 shows the rate of fatal crashes per 100,000 population from 2014 to 2024 for both Washington and Utah.[13,20] Figure 3 also shows fatal alcohol-related crashes at .05% or higher BAC starting the year Utah began tracking crashes at this level in 2019. Note that data beyond 2019 is complicated by the COVID-19 pandemic, during which risky driving and motor vehicle crashes increased nationwide.[19]

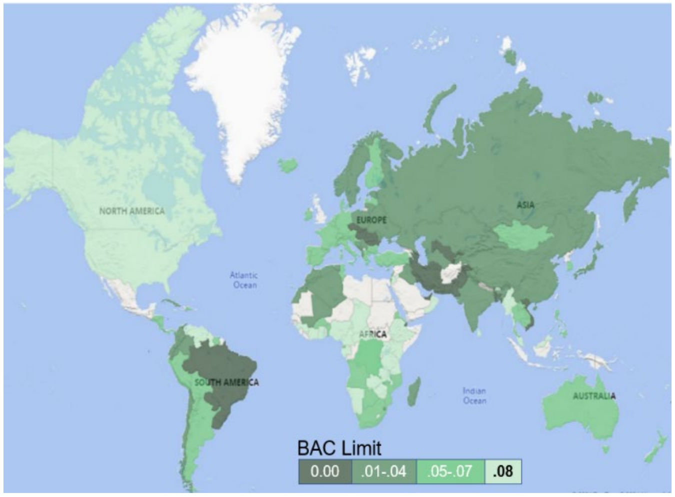
Figure 3*. Total Fatal Crashes and Fatal Alcohol-Related Crashes per 100,000 people in Washington (WA) and Utah (UT).[13,20]*



International BAC Driving Limits

Currently, many countries have BAC driving limits below .08% (**Figure 4**).[21] Since U.S. data on BAC driving laws is limited, examining international studies can provide further insight.

Figure 4. *Global BAC Driving Limits.*[21]



International Impact of .05% BAC Driving Limits
Some international studies have found lowering the BAC driving limit to .05% resulted in decreased non-fatal and fatal crashes.[22-23] For example, a meta-analysis found that seven out of the 11 examined studies published from 1986 to 2013 showed reductions in traffic crashes and fatalities when the BAC limit was lowered to at least .05%.[22] Limited changes in overall alcohol consumption were also observed, but a select number of studies showed modest reductions in overall use.[22]

In Canada, most provinces currently have administrative (not criminal) violations for driving between .05% and .08% BAC. Results from a longitudinal study indicate these administrative BAC laws may be effective in reducing fatal driving injuries, but not in overall DUI arrests, charges, or reports of impaired driving by police.[24]

Scotland lowered the driving limit to .05% while other regions in Great Britain remained at .08% BAC. Two recent studies comparing Scotland to other regions in Great Britain found no difference in road traffic crashes or fatality rates.[25-26] In one of these studies, a small reduction in per-capita alcohol consumption from retail sales was observed.[25] One qualitative study examined concerns from business owners after the .05% BAC law took effect.[27] This study found that business owners experienced a small reduction in revenue the first year. Rural businesses appeared to be most impacted, likely due to fewer alternative rideshare options. In general, business owners were able to adapt and offer alternative low-alcohol drinks or food options to boost sales.[27]

Public Perceptions on Lower BAC Driving Laws
Among a nationally representative sample of U.S. adult drivers, 29% believed the BAC limit should be lower than .08%.[28] Over 60% indicated a lower BAC limit would have no effect on their driving behavior, and 79% indicated it would have no effect on their drinking habits.[28]

Concerns about reducing the current per se BAC driving limit have been raised by the hospitality industry.[29] For example, there is fear that a lower BAC limit would increase the liability employees and businesses already face related to RCW 66.44.200, which mandate that *"no person shall sell liquor to any person apparently under the influence of liquor".* The benchmark for overservice is based on apparent intoxication signs which include, but is not limited to, slurred speech, staggering, being unable to sit up straight, and bloodshot eyes.[30]

A small qualitative study conducted in the U.S. found that the majority of law enforcement officers and prosecutors believed that lowering the BAC limit to .05% would save lives.[31] However, officers and prosecutors expressed concerns related to the usefulness of current sobriety tests in detecting impairment at .05% BAC.[31] They additionally believed that lowering the limit would increase arrests and prosecutions, which may further increase burden on court systems.[31]

Detecting Lower BAC Levels

Current instruments to measure breath and blood alcohol concentration are reliable indicators of both low and high intoxication levels. For example, the Washington State Patrol undergo rigorous accreditation and calibration standards to ensure scientifically accurate results.[32]

Standardized Field Sobriety Tests (SFSTs), behavioral tests used by police officers to determine impairment, may be less reliable at lower BAC levels.[33] Research sponsored by NHTSA to validate SFSTs concluded these tests are reliable.[35-37] Other researchers, however, call for further review.[33-34,38-41] Note that a full summary of enforcement practices for identifying intoxicated drivers is out of scope for this research brief.

Combined Efforts

In general, research indicates that implementing a stricter BAC is most effective when combined with other policies or measures. For example, studies suggest that changes in behavior once lower BAC driving limits are enacted may largely be due to increased media coverage and, subsequently, public knowledge about risks associated with impaired driving.[9] One study found that the majority of people in the U.S. are not aware of specific BAC driving limits in their state or the number of drinks it takes for them to reach that limit.[28] Other studies find that a reduction in fatal crashes related to a lower BAC driving limit are greatest in places with both administrative license suspension laws and regular sobriety checkpoints.[9]

Summary

Most available research finds that stricter BAC driving laws are associated with reduced traffic fatalities.[8-9] Many studies indicate these reductions are not only due to stricter laws, but also to other combined efforts such as increased media attention, public health education, and enforcement resources.[9,28] A select number of studies suggest that lowering the BAC driving limit may increase arrests, hit-and-run crashes, and under-reporting.[10-11,18] Although some studies indicate a brief decrease in alcohol consumption behavior, these changes are likely short lived.[25,27-28] Businesses may experience a short-term, minor drop in sales.[27]

More information on the utility of current enforcement practices (e.g., field sobriety tests) and detection of lower levels of impairment is warranted.[33-35,38-41]

If other U.S. states lower the BAC driving limit, it would be critical to track a range of outcomes to better understand the effects on both public health and businesses.

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