

Drunk driving laws don't match the research

July 25 2016, by Brad J. Uren



How many drinks does it take to get to the limit? Credit: Centers for Disease Control and Prevention

Emergency physicians learn to be prepared for anything thrown at us in the clinical arena. Personal life is a different story. Last year a drunk driver with multiple prior offenses and no valid driver's license smashed a truck through the wall of my son's daycare.

Fortunately, the children and staff were in undamaged areas. But just minutes before, my son and I had walked through the exact spot in the art room where the truck came to rest in a pile of debris.

Having worked in the ER for years, I've seen the aftermath of [drunk driving](#) often enough before, but that was the first time I had seen an accident caused by a drunk driver up close.

Drunk driving is a major public health problem in the U.S. In 2014 nearly one-third of the nation's 32,675 traffic fatalities [were alcohol-related](#). This means a completely preventable death happened every 53 minutes in this country.

My brush with a drunk driver made me wonder about what practices and policies can help prevent accidents and fatalities. Research suggests lower [blood alcohol concentration](#) limits and interventions like ignition interlocks can make a big difference.

Think you're OK to drive?

When drunk drivers come to the ER they often express surprise, disbelief or denial about their blood alcohol concentration (BAC) or their level of impairment. They often are drunker than they think they are.

Higher blood alcohol levels, no matter how "sober" you feel, can have a real impact on your ability to perform tasks that require concentration, such as driving. While people who drink more often may feel the effects of alcohol less acutely than someone who does not, their reflexes and judgment can still be impaired. And the more you drink, the harder it is to judge how intoxicated you are.

At least one study involving college students has shown that higher BACs are associated with an [underestimation of an individual's level of intoxication](#).

Studies have also shown that increasing BAC is also associated with a

[decreased reaction time](#). For instance, one study pointed to an average decreased reaction time of 120 milliseconds, just over a tenth of a second, associated with a blood alcohol content (BAC) level of 0.08, the legal limit. Traveling at 70 miles per hour, a drunk driver would travel for an additional 12 feet before reacting to a roadway hazard.

Legal limit for blood alcohol is pretty high

In 2000 Congress passed legislation making 0.08 the national standard for impaired driving in the United States. Under the law, states that did not [adopt 0.08 as the standard](#) by 2004 faced cuts in federal highway funding. By the time the law was passed many states had already adopted the 0.08 standards, but some states used 0.10 as the standard.

The lowering of the limit was in response to a [1992 National Highway Traffic Safety Administration report to Congress](#) recommending this action as a way to reduce highway deaths. Implementation of these lower BAC laws has been associated with [a decrease in alcohol-related highway fatalities](#). But 0.08 is still a fairly high BAC level compared to other developed countries.

Among the largest industrialized countries, only the U.S., [United Kingdom](#) (with the exception of Scotland, which sets a lower limit) and [Canada](#) permit BACs as high as 0.08. France, Germany, Italy and Australia currently set their BAC limit at 0.05. Japan has the lowest requirement of this group at 0.03. European countries in particular have sought lower BAC requirements in the past decades as part of an [effort to decrease traffic deaths](#)

When the European Commission, the executive body of the European Union, made its recommendations to change EU laws to recommend a [BAC of 0.05](#) as the per se limit for impaired driving, they included supporting data, including fatality reductions, from countries with

existing 0.05 BAC laws.

There's a big difference between 0.05 BAC and 0.08

It might not take as many drinks as you think to slow your reaction time and make safe driving harder.

For the purposes of standardization, [a drink is defined](#) as 12 ounces of 5 percent alcohol beer, five ounces of 12 percent alcohol wine or one and a half ounces of 80 proof (40 percent alcohol) liquor. To account for an individual drinking over a longer period of time, subtract about 0.01 percent for each 40 minutes of drinking time.

According to the Centers for Disease Control and Prevention, in a 160-pound man, two alcoholic beverages can bring about some loss of judgment, decreased ability to rapidly track a moving target and result in decreased ability to multitask. Women generally weighing less than men, would see a higher BAC per drink.

Three alcoholic drinks will bring a person's blood alcohol level to a level of approximately 0.05 percent, which can impair the ability to rapidly focus vision, lower alertness, and decrease coordination to the point that steering becomes difficult and response to driving emergencies becomes blunted.

After approximately four alcoholic drinks, balance, vision and reaction time are often affected. It becomes harder to detect roadway dangers. Reasoning and information processing are [often measurably impaired](#). This corresponds most closely to a BAC of 0.08 percent, the limit set by most states for legal operation of a vehicle.

A [blood alcohol](#) of 0.10 percent is generally associated with a clear loss of [reaction time](#) and control. There will be reduced ability to maintain

proper lane position or brake appropriately.

Not surprisingly, as the BAC level climbs higher than 0.10 percent, it is associated with the progressively deteriorating ability to drive a vehicle safely.

Studies going back to the 1960s have demonstrated the correlation between BAC and accident risk. The [relative risk of being in a crash](#) is 1.38 times higher at a BAC of 0.05 than 0.00. At 0.08, the risk is 2.69 times higher. At 0.10, the crash risk climbs to five times higher.

When you consider the medical evidence, including [the physiological effects](#), and the relative risk of crash, you can understand why some countries set the legal limit at 0.05 and why in 2013 the NTSB [recommended that 0.05](#) become the new limit in the U.S.

Ignition interlocks could stop drunk drivers

Drunk driving is a tough problem to solve. One solution is to focus interventions on those who have a prior alcohol impaired driving arrest because they are at [higher risk of doing it again](#). The reasons for this are not clear, but many drunk driving episodes are [linked to binge drinking](#) and not simply social drinking.

Ignition interlocks, which are essentially breathalyzers connected to the vehicle's ignition system, could also make a difference. These devices ensure that the vehicle can only be started by a sober driver. They've been around for many years and modern versions have features to resist tampering, and require intermittent rechecks to ensure the driver doesn't drink after starting the vehicle.

All states use [ignition interlocks to some degree](#), but as of January 2016, only 23 states require interlocks for all DUI offenders, which are

sometimes called universal ignition interlock laws. The [NTSB recommended](#) the use of ignition interlocks for all first time offenders in 2012.

A 2015 study in the *American Journal of Public Health*, found that states with these laws have [fewer alcohol involved crash deaths](#). Researchers compared data for 18 states which implemented universal ignition interlock laws to 32 states that had not. In those 18 states, universal interlock laws [saved 918 lives](#), a 15 percent reduction in deaths related to drunk driving.

It is every driver's responsibility to understand that there is no "safe" BAC level. It's simple: The more you drink, the less you are able to drive safely, and the higher the likelihood of an accident. For those who ignore the evidence and the law, at least there is a technical solution that could help stop further loss of life to this preventable problem.

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