

Coffee and Conversation Speaker Series

Proceedings from “A Policy Solution to the Enduring Alcohol-related Motor Vehicle Crash Problem”

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Robert Foss, PhD

Retired Senior Research Associate, Highway Safety Research Center (HSRC)

Dr. Rob Foss, a retired researcher from the Highway Safety Research Center, closes out this semester of “Coffee and Conversation” with a final look at one remaining barrier to traffic safety: alcohol-related motor vehicle crashes. Alcohol-related crashes, and the impaired driving that produces them, remains one of the most enduring problems within this discipline, but Foss focuses his talk on clearly defining the problem and how we might address it with policy and technology to build resilience into a transportation system for all.

Foss introduces this topic by noting that he has distilled this conversation from decades of work on this problem and a semester of teaching. He then orients our conversation with a quote from Homer Simpson: “Alcohol: the source of - and answer to - all of life’s problems.” Although this quotation is clearly used for humorous effect, Foss’s intent is to illustrate the deceptive nature of measures to address drunk driving and alcohol-related crashes; this a complicated problem that is difficult to curtail because of its complexity.

Foss then discusses the history of alcohol and its long relationship with human society as a factor in that complexity. Every culture, to one degree or another, has used alcohol. We’ll never get rid of alcohol, Foss warns us, so we have to deal with the reality of use rather than prevention. Another element that makes the alcohol issue so complex is a general lack of understanding of how exactly alcohol affects humans. While Foss is skeptical of the health benefits, he notes that few researchers understand the metabolization of alcohol and often overestimate impairment. For example, NHTSA says impairment begins at the first drink, but Foss claims that’s not true. For example, the effects of alcohol at a very low level on impairment are far less than those of fatigue. Therefore, drinking does not equal impairment, impairments does not equal intoxication or drunkenness, and binge drinking does not equal impairment or drunkenness.

For the purposes of our conversation, “impaired” means that someone is over the legal limit for operating a car or boat. Currently, a blood alcohol content (BAC) value of 0.08% is the legal limit. However, a person with BAC of 0.08% does not general show obvious signs of impairment, even though they are more likely to crash driving with a BAC that high.

Foss then discusses the following sources of information used to determine how common alcohol-impaired driving is in the U.S. The last two are commonly used, but are invalid.

- Roadside BAC surveys (RSSs)
- Self-reported sample surveys
- Crash data
- Anecdotes

Although crash data might seem a good source, they represent only crash-involved drivers, not all drivers. Alcohol increases the chance of a crash, but most drivers do not crash (that is to say, crashing is a rare occurrence). Foss illustrates this point with an example from earlier in his career. Have you heard the anecdote that on a Friday night, half of all drivers are drunk, he asks? This common knowledge came from crash data, and despite its ubiquity, it was never true. The real interpretation is that in the 1970s half of all drivers *killed* on weekend nights had an elevated BAC.

On the other hand, RSS data are reliable. Foss spent 25 years studying alcohol-related motor vehicle crashes and impaired driving, and he learned much by watching RSSs conducted in the field. These surveys consist of brief interviews and measures of BAC. In these surveys, interviewers may ask drivers whether they have had anything to drink, but the key information is a direct measurement of the driver's BAC, using a portable breath-tester. Typically, these surveys are done at night because that is when a greater proportion of drivers have been drinking. They are also typically done on weekends, although the difference between weekends and weekdays is not as pronounced as often thought. If these surveys are done well, they tend to have extremely high response rates.



FIGURE 1: Sample Roadside Survey

Foss informs us that there have been a number of roadside surveys conducted over the years. California and Washington were the most recent locations surveyed, but they have been used far more often in

Canada. Despite Canada's small population, they have paid more attention than the U.S. to measuring impaired driving. British Columbia has been the clear leader in the effort.

Foss then shows us interesting data to convey the complexities of the problem and the inadequacies of our solutions. One interesting finding from the national RSS data is that the percent of drivers with a BAC greater than 0.08% has significantly decreased and is now at about a fifth of what it was in 1973. However, the number of alcohol-involved crashes and fatalities has not followed the same trend. Researchers are trying to understand this conundrum.

The answer is a bit complicated. To explore the reason, Foss shows the risk curve of crash involvement and BAC. Unlike nearly every other risky driving behavior, we have a well-developed risk curve for alcohol-involved crashes. At a BAC of 0.16%, a driver is 30 times as likely to be in a crash. A BAC level of 0.16% is the average BAC of drivers arrested for DUIs, and this value has been constant for decades.

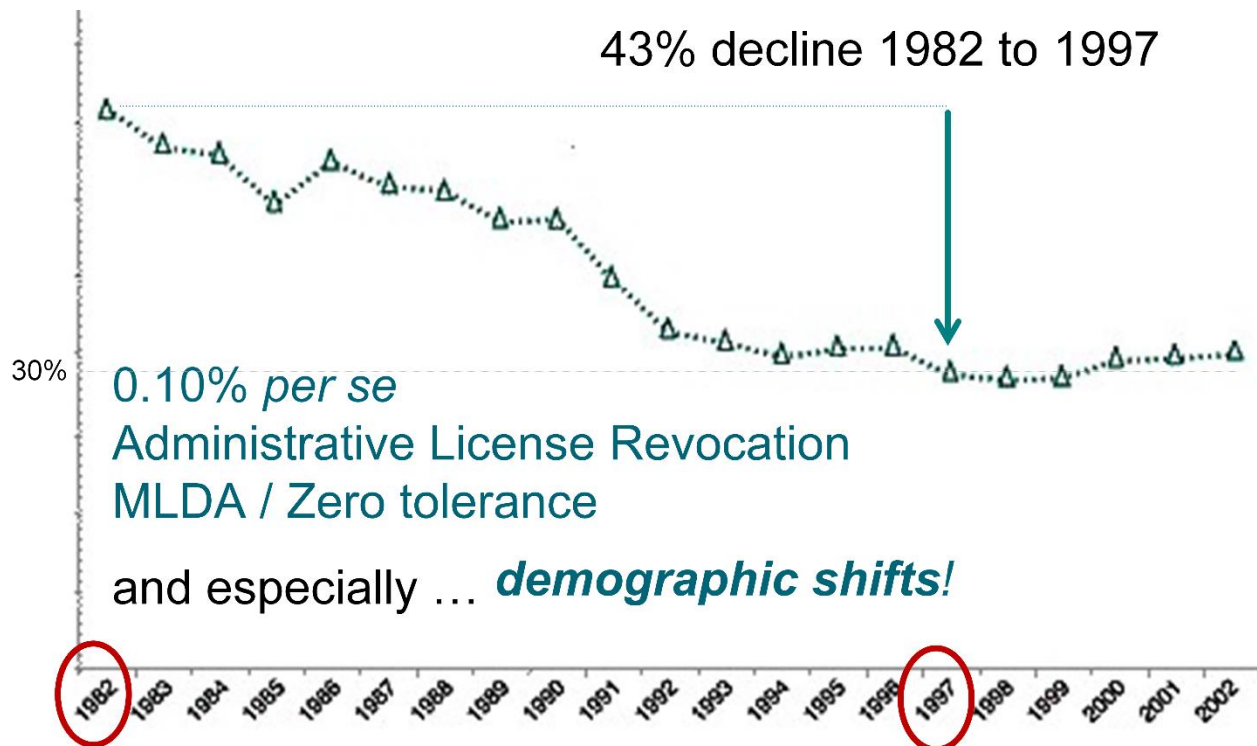


FIGURE 2: Potential Explanations for Changes in Impaired Driving

The dramatic decline from 1982-1997 was due in equal parts to two things:

1. **Policy action** – Definition of 0.10% as the *per se* illegal limit, adoption of administrative license revocation laws, and establishing 21 as the minimum legal drinking age.
2. **Demographics** – The biggest driver in the change, however, was the aging of the Baby Boomer generation. By 1997 the entirety of this huge generation had aged out of the prime drinking age (21-35).

Obviously, we cannot change demographics, so, Foss asks, where should we go next?

“Most of our efforts since the mid-1990s have done little more than made some people money and ruined a lot of lives,” Foss notes.

So, Foss jokes, what’s the simple solution? The answer is there is no simple solution. More punishment will not work because the DWI system in each state is really an accretion of dissonant policies that have created an untenable legal structure. The two main issues with this system are the sheer number of people charged and the punitive measures that hamper individuals’ abilities to live. Because the charges are criminal rather than administrative, people hire legal representation, and the courts cannot keep up with all the cases. In order for punishment to have any effect at all, people have to believe they will be caught and punished, but in an open society, this cannot be realized.

Foss’s suggested solution, is a sensible, workable system focused on control rather than punishment. At the center of this system is the use of ignition interlocks both to control future driving after drinking by individuals who are arrested and to deter others from doing so. If this technology is enforced administratively, the only way to get around the system is to find a different car. The focus on control rather than punishment encourages people to seek improvement rather than to cheat the system and deals with the problem administratively rather than overwhelming the courts.

If we wanted to pursue the 0.05% BAC limit, it could be done, but this system would also have to be conducted administratively. There is some guidance from the 2010 legislation in British Columbia that broadly engaged an administrative system and included ignition interlocks as a key element. This change produced huge decreases in impaired driving and alcohol-involved crashes from 2010 to 2012.

Foss concludes the discussion with a few key points for achieving policy victories in this field:

- Political clout is essential
- Dogged persistence is essential
- Evidence is important in persuading policy-makers to act, but it matters less than couching arguments as simple, compelling ideas and appealing to emotion