

**Attitudes Toward In-Vehicle Advanced
Alcohol Detection Technology**

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ABSTRACT

Objectives: Efforts are underway to develop advanced alcohol detection technologies suitable for use in all vehicles to prevent driving with an illegal blood alcohol concentration (BAC). Public attitudes toward having this technology in all vehicles were assessed.

Methods: A nationally representative sample of people 18 and older was interviewed by telephone about attitudes toward in-vehicle alcohol detection technology.

Results: Eighty-four percent of survey respondents supported requiring convicted DWI offenders to put alcohol ignition interlocks in their vehicles. Sixty-four percent said having advanced alcohol detection technology in all vehicles is a good or very good idea, assuming the technology is reliable; 30% said it is a bad idea. Most people in favor said it would prevent alcohol-impaired driving, save lives, or prevent crashes. Among respondents who said it is a bad/very bad idea, one-third cited concerns about privacy or government interference; 20% said not all drivers need to be screened. Support for the technology was highest among respondents who do not drink, but it also was favored by the majority of respondents who drink, respondents who have driven within 2 hours of consuming alcohol, and respondents who may have driven when they were above the legal limit for alcohol. Forty-two percent of respondents who drive said they would want an advanced alcohol detection device in their next vehicles if it was available as an option at a reasonable price. Of the 54% who said they would not want a device, 44% said they do not drink alcohol so it would not be useful. Most people said a price less than \$500 would be reasonable.

Conclusions: It appears that the majority of the US population is receptive to the idea of having advanced alcohol detection devices in all vehicles to prevent people from driving with an illegal BAC.

Keywords: Alcohol-impaired driving; Alcohol ignition interlocks; Advanced alcohol detection technology

INTRODUCTION

In the United States, substantial progress to reduce alcohol-impaired driving was made during the 1980s and early 1990s. But progress stalled in the mid-1990s, and alcohol-impaired driving remains a major crash factor. The proportion of fatally injured passenger vehicle drivers with blood alcohol concentrations (BACs) at or above 0.08% declined steadily from 51% in 1982 to 34% in 1994 and then ranged between 32% and 35% during 1995-2008 (Insurance Institute for Highway Safety, 2009). In the most recent years 2005-08, the proportion steadily increased from 32% to 35%.

The declines in alcohol-impaired driving during the 1980s and early 1990s were due in part to strong new laws and strong enforcement of those laws. Studies found that reductions in alcohol-impaired driving crashes resulted from administrative license suspension laws (Williams et al., 1991; Zador et al., 1989), laws defining offenses on the basis of BAC per se (Zador et al., 1989), 21 minimum legal drinking age laws (Shults et al., 2001) and laws prohibiting people younger than 21 from driving with any measurable alcohol in their systems (Hingson et al., 1994), and highly publicized sobriety checkpoints (Elder et al., 2002). Although these countermeasures have been successful in reducing alcohol-impaired driving, many jurisdictions may be reaching the limit of their resources for detecting and punishing alcohol-impaired driving. Between 2003 and 2007, the number of arrests showed little change, hovering at 1-1.1 million (Bureau of Justice Statistics, 2003-07).

Despite improvements in US laws, it still is difficult to detect and arrest alcohol-impaired drivers once they are driving. The estimated chance of arrest when driving with an illegal BAC is less than 1 in 50 (Hedlund and McCartt, 2002). A preferable strategy would be to identify impaired drivers before they start the vehicle and prevent them from driving. There is technology available to accomplish this, and today almost all states have laws that restrict some people convicted of DWI from driving unless their vehicles have been equipped with alcohol ignition interlocks. These devices have a breath-testing unit that is connected to the vehicle ignition. To start the vehicle, the offender must blow into the device and register a blood alcohol reading below a predetermined level, typically set well below a BAC of 0.08%, the per se threshold for DWI in all states. Ignition interlock restrictions have been shown to be effective at reducing recidivism among repeat offenders, at least while the restriction is in place (Beck et al., 1991). Until recently, laws requiring convicted DWI offenders to install interlocks pertained to repeat offenders or

to first offenders with very high BACs (typically 0.15% or higher). However, as of September 2009, 12 states have expanded the interlock requirement to apply to all offenders, including first-time offenders. These states are Alaska, Arizona, Arkansas, Colorado, Hawaii, Illinois, Louisiana, Nebraska, New Mexico, Oregon, Utah, and Washington.

Lund et al. (2007) explored the possible outcome of more widespread use of alcohol interlock devices in cars. They estimated that drivers with BACs at or above 0.08% were involved in the deaths of 12,945 road users in the United States in 2005 and that, had all these drivers had BACs below 0.08%, 8,916 of the deaths would have been prevented. Most fatal-crash-involved drivers did not have prior DWI convictions within the past 3 years. If these drivers with prior DWI convictions had been restricted to BACs below 0.08%, an estimated 777 deaths could have been prevented; restricting BACs to zero would have prevented an estimated 1,104 deaths. Applying the same methods to data on fatal crashes in 2008 yielded estimates of 8,104 preventable deaths if all drivers in fatal crashes had BACs below 0.08%, 635 preventable deaths if all drivers with prior DWI offenses had been restricted to BACs below 0.08%, and 904 preventable deaths if all drivers with prior offenses had been restricted to zero BACs.

Clearly much larger gains are achievable by preventing all drivers, not just DWI offenders, from driving with illegal BACs. Current interlock technologies have many inconvenient features (e.g., slow readings, frequent calibrations) that make them inappropriate for application to the vehicle fleet outside of convicted offenders or commercial fleets. However, new alcohol detection technologies are being explored by a partnership between the National Highway Traffic Safety Administration and the Automotive Coalition for Traffic Safety, a consortium of automakers (Ferguson et al., 2009). The Driver Alcohol Detection System for Safety (DADSS) program is a 5-year initiative to research, develop, and test technologies that detect alcohol in a driver's system quickly, accurately, and unobtrusively. Potential technologies include analysis of air samples in the vehicle occupant compartment, tissue spectroscopy that can estimate BAC by assessing light absorption at a particular wavelength based on measurements of light reflected from the skin, and systems that assess alcohol emission through the skin by touch.

For advanced alcohol test technologies to be used in vehicles on a more widespread basis in the United States, there needs to be public support, but little is known about whether the public understands or accepts the concept. Limited information comes from two US public opinion surveys. In a 2006 survey

about attitudes toward alcohol-impaired driving countermeasures, 58% of respondents supported “smart vehicle technology” that would prevent driving for “common sources of driver error such as fatigue, distraction, and being at or beyond the legally permitted level of alcohol intake” (McInturff and Harrington, 2006). As part of a 2008 survey to assess attitudes toward a variety of highway safety measures, respondents were asked about their level of support for “requiring all drivers to use equipment that tests them for alcohol before they can start the car.” Thirty-seven percent of respondents said they supported such a requirement (AAA Foundation for Traffic Safety, 2008). A 2007 Canadian survey found that 56% of respondents supported equipping all new vehicles with an alcohol detection device that would prevent starting the vehicle if the driver is above a preset limit (EKOS Research Associates, 2007).

The current study takes a closer look at what the US population thinks about equipping vehicles with advanced alcohol detection devices. A national telephone survey questioned people about their attitudes toward requiring DWI offenders to install ignition interlocks and about whether or not they favor broader use of advanced technologies. Drivers also were asked about their patterns of drinking and of driving after drinking, and these patterns were related to attitudes about advanced alcohol detection technology.

METHOD

Questions were administered as part of a telephone omnibus survey conducted weekly by the survey firm International Communications Research (ICR) to a representative national sample of people 18 and older. Each survey collects information on a variety of topics during interviews with a minimum of 1,000 people, half men and half women. The sample is based on a fully-replicated, stratified, single-stage random-digit-dialing sample of telephone households (ICR, 2009). Sample telephone numbers are computer-generated. Within each sample household, one adult respondent is randomly selected using a computerized procedure based on the "most recent birthday method" of respondent selection.

For the current study, interviews were conducted during July 15-19, 2009, which encompassed weekdays and weekends. Up to four attempts were made to a telephone number on various days and at different times. Demographic data were collected on each respondent (age, gender, education, employment status, race, and marital status) and each household (income, whether own or rent residence, household size and composition, and number of telephone numbers in household). Detailed

geographic data also were recorded for each respondent (e.g., census region/division, state, county, and metropolitan status).

The sample was weighted to provide nationally representative and projectable estimates of the US adult population 18 and older. The weighting process takes into account the disproportionate probabilities of household selection due to the number of separate telephone lines and the probability associated with the random selection of an individual household member. Following application of the above weights, the sample is post-stratified and balanced by key demographics such as age, sex, region and education. Given the sample size (N=1,004) and sampling method, the estimated sampling tolerance for survey percentages is ± 3.1 percentage points or smaller ($p < 0.05$).

In the tables, unweighted and weighted sample sizes are given for each survey question; the percentage breakdown of responses is based on the weighted sample. Because the level of awareness of in-vehicle advanced alcohol test technologies was unknown, the technologies were described to survey respondents. The verbatim questions are provided in the tables. The statistical significance of differences in attitudes by reported drinking patterns and by respondent characteristics was examined with chi-square tests ($p < 0.05$) using PROC SURVEYFREQ in SAS (SAS Institute, 2004).

RESULTS

Sample Characteristics

Interviews were conducted with 1,004 people 18 and older; when weighted, this represented 228.4 million people. Characteristics of the weighted sample are shown in Table 1. Eight percent of the sample was 20 or younger, 23% was ages 21-34, 45% was ages 35-59, and 23% was 60 and older. The sample was about evenly split between males and females. A little more than half of the respondents had attended or graduated from a college or university. Eighty-five percent of respondents said they drive a vehicle for personal transportation or work. Fifty-five percent of respondents reported a household income less than \$50,000; 14% said their household income was at least \$100,000. With regard to the geographic distribution of the sample, 18% of respondents lived in the Northeast region, 22% lived in the North-Central region, 37% lived in the Southern region, and 23% lived in the Western region.

Attitudes toward Size of Alcohol-impaired Driving Problem and Ignition Interlocks for DWI Offenders

About three-quarters of respondents said that alcohol-impaired driving is a problem in their communities; 38% believe it is a big or very big problem (Table 2). Seventy-two percent said they have heard about alcohol ignition interlocks being required for the cars of convicted DWI offenders. Eighty-four percent said this is a good or very good idea; 15% said it is not a good idea or a bad idea.

Attitudes toward Advanced Alcohol Detection Technology in All Vehicles

The concept of advanced alcohol detection technologies was described and contrasted with current alcohol ignition interlocks (Table 3). Respondents were asked whether having the advanced technology in all vehicles is a good or a bad idea, if the technology was shown to be reliable. Almost two-thirds of respondents said it is either a good (28%) or very good (36%) idea. Thirty percent said it is a bad (19%) or very bad (11%) idea. Six percent of respondents were not sure.

Among respondents who said equipping all vehicles with the technology is a good/very good idea, two-thirds said it would prevent alcohol-impaired driving (Table 3). Saving lives and preventing crashes was mentioned by 38%. Among respondents who said it is a bad idea, similar proportions of respondents said that not everyone needs it (20%), it would cost too much (16%), they were concerned about privacy (16%) or government interference (16%), or the technology would not be accurate or would malfunction (15%).

Attitudes toward Having Advanced Technology in Next Vehicle

Respondents who reported driving a vehicle for personal transportation or work were asked whether they would want advanced alcohol test technology in their next vehicles, if it was available as an option at a reasonable cost (Table 4). Forty-two percent said they would want the technology, 54% said they would not, and 4% were undecided. When asked to explain their responses, 56% of drivers who would want the technology said it would prevent alcohol-impaired driving. Other common explanations were that the technology would prevent young people from driving when impaired (16%) or would save lives or prevent crashes (15%). By far the most common explanation among drivers who would not want the technology was that they do not drink alcohol (44%). Other frequent reasons were that the

technology would cost too much (18%), respondents do not need it (18%), or respondents do not drink and drive (13%).

Most drivers (68%) thought a reasonable cost for the technology would be \$500 or less (Table 4). About a quarter thought a reasonable cost would be less than \$200; in contrast, 10% thought a reasonable price would be \$1,000 or higher.

Differences in Attitudes toward Technology by Drinking Patterns

About two-thirds of respondents said they consume alcoholic beverages (Table 5). Forty-one percent reported drinking once a month or less, 13% drink about once a week, 10% drink 2-3 times a week, and 3% drink 4 times or more a week. About one-quarter of respondents who said they drive and also consume alcohol said they ever drive within 2 hours after drinking. About 70% of these respondents said they may have driven when they were above the legal limit for alcohol.

Attitudes toward advanced alcohol detection technology varied by reported drinking patterns and reported drinking and driving patterns; most of these differences were not statistically significant. Support for having advanced alcohol detection technology in all vehicles was lower among drivers than nondrivers (63% vs. 69%; $\chi^2=0.4$, $p=0.51$), although not significantly so (Table 6). Compared with the level of support among drivers who do not drink (72%), support was significantly lower among all drivers who drink (59%; $\chi^2=6.2$, $p=0.01$) and among drivers who drink 4 times or more a week (43%; $\chi^2=9.7$, $p=0.002$); support also was lower among drivers who drink about once a week (61%; $\chi^2=2.3$, $p=0.13$), but not significantly so. Among drivers who drink, support was lower among those who ever drive within 2 hours of drinking than among those who never do so (55% vs. 60%; $\chi^2=1.2$, $p=0.27$). Among drivers who reported ever driving within 2 hours of drinking, support was comparable among those who said they may have driven when above the legal limit and among those who said they had not (55% vs. 56%; $\chi^2=0.1$, $p=0.79$). Neither of the latter two differences was statistically significant.

The proportion of drivers who said they would want advanced alcohol detection technology in their next vehicles was higher among drinkers than nondrinkers (44% vs. 39%; $\chi^2=1.3$, $p=0.26$) (Table 7). The proportion wanting the technology in their next vehicles was higher among those who said they ever drive within 2 hours after drinking than among those who said they drive after drinking (54% vs. 41%;

$\chi^2=3.3$, $p=0.07$). The proportion wanting the technology also was higher among those who said they may have driven when they were above the legal alcohol limit than among those who had not done so (56% vs. 50%; $\chi^2=0.2$, $p=0.68$). None of these differences was statistically significant.

Differences in Attitudes toward Technology by Respondent Demographics

Attitudes toward advanced alcohol detection technology were examined by the respondent characteristics summarized in Table 1. Support was higher among females than among males (72% vs. 55%; $\chi^2=25.6$, $p<0.0001$). Support also varied significantly by household income, such that 71% of respondents with household incomes less than \$50,000 said having advanced technology in all vehicles would be a good idea, compared with 55-58% of respondents with household incomes of \$50,000-99,000 or \$100,000 or higher ($\chi^2=15.2$, $p=0.004$). Support varied little among the geographic regions at 63-65% ($\chi^2=0.8$, $p=0.86$). Differences in support by respondent age ($\chi^2=11.0$, $p=0.09$) and by education ($\chi^2=4.8$, $p=0.19$) were not statistically significant and did not show a consistent trend.

Female drivers were significantly more likely than male drivers to want advanced alcohol detection technology in their next vehicles (48% vs. 37%; $\chi^2=4.2$, $p=0.04$). The proportion of drivers wanting the advanced technology in their next vehicles was 36% among drivers in the North-Central region, 39% in the Southern region, 44% in the Western region, and 55% in the Northeast region; these differences were marginally significant ($\chi^2= 7.8$, $p=0.05$). Differences in attitudes by age group also were marginally significant but did not follow a consistent trend ($\chi^2= 12.5$, $p=0.05$). There were nonsignificant differences by education ($\chi^2=4.9$, $p=0.18$) and household income ($\chi^2=7.8$, $p=0.10$), and these differences did not follow a consistent trend.

DISCUSSION

It has been unclear whether the public is receptive to the concept of having advanced alcohol technology in all vehicles that would prevent starting a vehicle if the driver's BAC exceeded the legal per se threshold. The current findings indicate that most people support this concept when and if developers get the technology ready for universal use. Support is strongest among people who do not drink, but there still is a majority of support among people who drink, people who drink 4 times or more a week, people who have driven within 2 hours after drinking, and people who may have driven above the legal

alcohol limit. Almost all those who favor the technology in all vehicles pointed to safety benefits. People not in favor usually cited concerns about privacy or government intrusion or said that not all drivers need the technology. Some mentioned concerns about cost or doubted the technology will be accurate and reliable.

Care was taken in the current survey to describe the concept of universal use of advanced alcohol technology in some detail. The description contrasted the advanced technology with current alcohol ignition interlocks used by DWI offenders and explained that the technology would be unobtrusive, inexpensive, and reliable, and would prevent driving with an illegal amount of alcohol. Three prior surveys also have queried respondents about their support for alcohol test technologies in all vehicles. It is difficult to compare the current results with these surveys as the descriptions of the technologies differed and the questions were framed differently. A majority of respondents in a 2006 US survey conducted by Mothers Against Drunk Driving supported “smart vehicle technology” to prevent common sources of driver error such as fatigue, distraction, and exceeding the legal alcohol threshold; however, the survey did not assess the level of support specifically for advanced alcohol detection technology (McInturff and Harrington, 2006). Another US survey found lower support (37%) than identified in the current survey, but respondents were queried about “requiring” all drivers to use equipment that tests them for alcohol, and the question did not address a threshold for alcohol (AAA Foundation for Traffic Safety, 2008). Similar to the current survey, a Canadian survey asked about support for putting alcohol detection devices on all vehicles that would prevent driving based on a preset limit of alcohol; the level of support (58%) was consistent with that reported here (EKOS Research Associates, 2007). It is likely that many people are unfamiliar with the concept of having advanced alcohol detection technology. The description of the technology and its potential placement on vehicles almost certainly affects respondents’ answers.

According to the current survey, there appears to be a sizeable market for purchasing advanced alcohol detection technology as an option in new vehicles. More than 40% of people who drive a vehicle for personal transportation or work say they would want advanced alcohol test technology in their next vehicles, if it was offered as an option and the cost was reasonable. Drivers who did not want the technology most often said they do not need the technology because they do not drink. More than half of

drivers who report driving within 2 hours of drinking, and more than half of drivers who may have driven when they were above the legal alcohol limit said they would want the technology in their next vehicles. These are presumably the drivers who would benefit most from the technology.

Although a substantial proportion of survey respondents expressed interest in advanced devices as optional equipment on a personal vehicle, some vehicle manufacturers are currently developing less sophisticated technology for current or near-term use. In some instances the intended market is fleet vehicles. In Sweden, there is widespread use of Volvo's AlcoGuard™ system on government, commercial, and public transport vehicles. This device requires drivers to provide a breath sample each time before starting the vehicle. The Swedish government is investigating the possibility of mandating alcohol detection devices for some classes of drivers (Traffic Injury Research Foundation, 2009). Toyota and its truck subsidiary Hino Motors have begun road tests of a breathalyzer intended for use on fleet vehicles, and Nissan is testing technology that would detect alcohol in the driver's perspiration or exhaled air (Greimel, 2009). Saab's "AlcoKey" concept uses a small mouthpiece in the key fob to test a driver's breath for alcohol (The Saab Network, 2004, 2006). If these efforts by manufacturers result in wider use of current detection technologies in fleet settings, this may further raise acceptance of the concept of advanced alcohol detection technologies for all drivers. It is unclear whether individual owners also will want to purchase the less sophisticated technology if offered as an option.

The survey findings also indicate strong support (84%) for laws that require DWI offenders to install alcohol ignition interlocks in their vehicles. These findings lend support to efforts underway in many states to broaden interlock requirements to cover all offenders, including first-offenders. However, it is clear that most people believe it is time to use technology to prevent all people from driving impaired, not just convicted DWI offenders.

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Table I Characteristics of sample

	Percent N=1,004 weighted N=228.4 million
Age (years)	
18-20	7.8
21-24	5.2
25-29	9.2
30-34	8.5
35-59	44.9
60-70	13.4
71+	9.6
Refused	1.4
Gender	
Male	48.6
Female	51.4
Education	
Less than high school graduate	15.1
High school graduate	29.4
College or graduate school	53.2
Technical school/other	2.0
Refused	0.3
Drive a car for personal transportation or work	
Yes	84.5
No	15.4
Refused	0.1
Household Income	
<\$50,000	55.1
\$50,000-99,000	19.3
\$100,000+	13.6
\$50,000+ unspecified	2.0
Don't know	3.6
Refused	6.5
Region*	
Northeast (CT, MA, ME, NH, NJ NY, PA, RI, VT)	18.2
North-Central (IL, IN, IO, KS, MI, MN, MO, ND, NE, OH, SD, WI)	22.1
Southern (AR, AL, DC, DE, GA, FL, KY, LA, MD, MS, NC, OK, SC, VA, TN, TX, VA, WV)	36.9
Western (AZ, CA, CO, ID, MT, NM, NV, OR, UT, WA, WY)	22.9

*Sample excluded residents from Hawaii and Alaska, the homeless, the institutionalized population, and members of the US Armed Forces living in barracks.

Table II Attitudes toward size of alcohol-impaired driving problem and alcohol test devices in cars of convicted DWI offenders

	Percent N=1,004 weighted N=228.4 million
How big a problem is alcohol-impaired or drunk driving in your community?	
Not a problem	16.2
A small problem	38.6
A big problem	28.1
A very big problem	9.9
Don't know	7.2
Refused	0.2
Many drunk drivers are repeat offenders. They have been arrested for drunk driving more than once. To help prevent repeat offenses, some states require offenders to install special alcohol test devices in their cars. If the devices register alcohol when the drivers blow into a small tube, their cars will not start. Have you heard of these alcohol devices being required for the cars of convicted drunk drivers?	
Yes	71.9
No	28.1
Do you think requiring alcohol devices in cars driven by convicted drunk drivers is...?	
A very good idea	44.6
A good idea	39.0
Not a good idea	6.9
A bad idea	7.8
Don't know	1.7
Refused	0.1

Table III Attitudes toward having advanced alcohol test technology in all vehicles

	Percent
<p>Now we want you to consider advanced alcohol test technology that is being developed. This new technology could measure quickly, accurately, and unobtrusively the amount of alcohol in drivers. It would not require the driver to blow into something but might measure alcohol in the blood through the skin or in exhaled breath. The advantage of this advanced technology is that it could be installed permanently and inexpensively on all vehicles, not just those of convicted drunk drivers, and prevents anyone with an illegal blood amount of alcohol from driving the car.</p>	
<p>If this technology is shown to be reliable, do you think having this advanced alcohol test technology in all vehicles is a good idea or a bad idea?</p>	
	N=1,004 weighted N=228.4 million
A very good idea	35.6
A good idea	28.1
A bad idea	19.1
A very bad idea	11.2
Undecided/don't know	5.6
Refused	0.5
<p>(If good/very good idea) Why do you feel this technology is a good/very good idea?</p>	
	N=598 weighted N=145.5 million*
Prevent drunk driving	66.6
Save lives/prevent accidents	37.9
Prevent young drivers from driving drunk	2.5
Other	9.3
Don't know	1.5
<p>(If bad/very bad idea) Why do you feel this technology is a bad/very bad idea?</p>	
	N=335 weighted N=69.1 million*
Not everyone needs it/not necessary	19.7
Will cost too much	15.9
Privacy concerns	15.8
"Big brother" government concerns	15.9
Will be inaccurate/malfunction	14.8
Will cause mechanical/car problems	5.6
Can be defeated/will get around it	4.1
Presumes guilt	3.6
Other	19.9
Don't know/need more information	2.0

*Multiple responses allowed; percentages sum to more than 100%

Table IV Attitudes toward advanced alcohol test technology in next vehicle among respondents who drive a vehicle for personal transportation or work

	Percent
If this technology was available as an option and the cost was reasonable, would you want this technology in your next vehicle?	N=890 weighted N=193 million
Yes	42.3
No	53.7
Undecided/don't know	3.5
Refused	0.5
(If yes) Why do you want this technology in your next vehicle?	N=326 weighted N=81.7 million*
Prevent drunk driving	55.8
Prevent young drivers from driving drunk	16.3
Save lives/prevent crashes	14.6
Should be in all vehicles	8.1
I/we don't drink so no concern	7.2
Higher resale value/lower insurance rates	2.5
I/we don't drink and drive so no concern	1.7
Other	15.8
Don't know	1.4
(If no) Why do you not want this technology in your next vehicles?	N=531 weighted N=103.7 million*
I/we don't drink alcohol	43.8
Will cost too much	18.4
I/we don't need it	17.8
I/we don't drink and drive	13.0
Privacy concerns	7.6
Will be inaccurate/malfunction	5.8
"Big brother" government concerns	5.4
Will cause mechanical/car problems	2.6
Other	13.3
Don't know	1.3
What do you think is a reasonable cost for this technology?	N=890 weighted N=193 million
\$500 or less	
<\$200	26.8
\$200-500	26.0
Unspecified amount	15.1
More than \$500	
\$501-\$1,000	1.4
≥\$1,000	10.1
Unspecified amount	13.1
Nothing/should be included in cost of vehicle	2.8
Don't know/refused	4.6

*Multiple responses allowed; percentages sum to more than 100%

Table V Drinking and drinking and driving behaviors

	Percent
About how often do you, yourself, drink an alcohol beverage, including beer, wine, or liquor? Would you say...?	N=1,004 weighted N=228.4 million
Never	32.9
Once a month or less, like special occasions or celebrations	40.8
About once a week	12.9
2-3 times a week	9.6
4 or more times a week	3.3
Don't know	0.1
Refused	0.4
Drive a car for personal transportation or work	
Yes	84.5
No	15.4
Refused	0.1
(If drive and also drink alcohol beverages) Do you ever drive within 2 hours after drinking an alcohol beverage?	N=584 weighted N=133.3 million
Yes	26.0
No	73.0
Don't know	0.9
Refused	0.1
(If ever drive within 2 hours after drinking) How often do you drive after drinking an alcohol beverage? Is it...?	N=148 weighted N=34.6 million
Once a month or less, like special occasions or celebrations	82.8
About once a week	11.2
More than once a week	4.3
Don't know	1.7
(If ever drive after drinking an alcohol beverage) Have you ever driven when you felt you might have been over the legal limit for alcohol?	
Yes	69.5
No	29.5
Refused	0.9
(If ever drove when might have been over the legal limit) Thinking about the last time you drove when you might have been over the legal limit for alcohol — was that...?	N=90 weighted N=24.1 million
In the past month	7.0
More than a month ago, but within the past 6 months	24.0
More than 6 months ago, but within the last year	12.6
1-5 years ago	14.7
More than 5 years ago	34.4
Don't know	5.7
Refused	1.7

Table VI Percent of different respondent subgroups who said that having advanced alcohol detection technology in all vehicles is a good idea

	N	Weighted N (millions)	Percent who said technology is a good idea
All survey respondents	1,004	228.4	63.7
Respondents who...			
Drive a vehicle	890	193	62.7
Do not Drive	113	35.3	69.1
Respondents who...	630	152.1	59.0
Drink			
Drink about once a week	140	29.4	65.6
Drink 4 times a week or more	53	7.5	49.4
Do not drink	363	75.1	73.8
Respondents who drive and...			
Drink	575	132.4	58.5
Drink about once a week	126	25.5	60.5
Drink 4 or more times a week	47	6.2	42.8
Do not drink	306	59.7	72.4
Drivers who drink and...			
Ever drive within 2 hours of drinking	148	34.6	55.1
Never drive within 2 hours of drinking	431	97.4	59.5
Drivers who drink, have driven within 2 hours of drinking, and...			
Have driven when may have been above legal alcohol limit	90	24.1	55.3
Have not driven when may have been above legal alcohol limit	57	10.2	56.3

Table VII Percent of different driver subgroups who would want advanced alcohol test technology in next vehicle if offered as an option

	N	Weighted N (millions)	Percent who would want technology
All drivers	890	193	42.3
Drivers who...			
Drink	575	132.4	44.0
Do not drink	306	59.7	38.8
Drivers who drink and...			
Ever drive within 2 hours of drinking	148	34.6	53.5
Never drive within 2 hours of drinking	431	97.4	41.0
Drivers who drink, have driven within 2 hours of drinking, and...			
Have driven when may have been above legal alcohol limit	90	24.1	55.6
Have not driven when may have been above legal alcohol limit	57	10.2	50.3