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United States Senate  
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House of Representatives

**National Roadside Survey: NHTSA Changed Methodology to Address Driver Concerns**

Since 1973, the National Roadside Survey (NRS) has estimated alcohol and drug use by drivers on our nation's roadways about every 10 years.<sup>1</sup> Sponsored by the National Highway Traffic Safety Administration (NHTSA), the most recent NRS conducted in 2013–2014 included more than 11,000 drivers at approximately 300 randomly selected locations across the continental United States. Data from the survey informs (1) research on impaired driving and (2) federal and state policies and initiatives. While participation in the survey is random, voluntary, and compensated, some drivers in the most recent survey were concerned that the visible presence of uniformed officers at some survey sites made those sites appear to be mandatory law-enforcement checkpoints. In addition, collection of blood and saliva as part of the testing process raised privacy concerns. In response, NHTSA changed several survey protocols midway through the data collection period. For example, NHTSA used researchers instead of police officers to direct traffic, added additional signs to indicate that the survey was voluntary, and ended the use of passive alcohol sensors prior to obtaining driver consent.<sup>2</sup>

Senate Report 113-182 includes a provision for GAO to review the survey methodology and report to the Senate and House Appropriations Committees.<sup>3</sup> This report examines:

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<sup>1</sup>The most recent survey was conducted in 2013–2014, with prior surveys occurring in 2007, 1996, 1986, and 1973. The two most recent surveys provided information on drivers testing positive for alcohol and illegal, prescription, and over-the-counter drugs. Before 2007, alcohol-impaired driving was the sole focus of the NRS.

<sup>2</sup>This initial passive reading measured ambient air coming from the vehicle interior to provide the researcher with an indication of whether someone in the vehicle had been drinking. This information was used to assist the researcher in ensuring that the driver was capable of consenting to participate, and also to ensure the safety of the driver and the passenger(s).

<sup>3</sup>S. Rep.No.113-182, title I, at 67 (2014). The Joint Explanatory Statement accompanying the Consolidated and Further Continuing Appropriations Act, 2015, (Pub. L. No. 113-235, 128 Stat. 2130 (2014)) also directed the

1. The overall value of NRS data, according to selected researchers and other public safety stakeholders.
2. The key differences between methods used at NRS data collection sites and law enforcement checkpoints.
3. The extent to which NRS methodology ensures voluntary participation and protects participants' privacy.

To address all our objectives, we reviewed NHTSA materials and interviewed agency officials. To determine the overall value of NRS data, we interviewed researchers and other public-safety stakeholders from the following organizations: the White House Office of National Drug Control Policy (ONDCP), the National Institute on Drug Abuse (NIDA) in the National Institutes of Health (NIH), the American Automobile Association (AAA), and the Society of Forensic Toxicologists (SOFT). These organizations were chosen based on having a mission relevant to the issue of drug-impaired driving and recommendations from NHTSA and other stakeholders.<sup>4</sup> Results from these interviews are not generalizable. To identify key differences between methods used at NRS data collection sites and law enforcement checkpoints, we compared the methodology for the 2013–2014 NRS<sup>5</sup> with NHTSA guidance for law enforcement sobriety checkpoints.<sup>6</sup> Finally, to determine the extent to which NRS's methodology ensures voluntary participation and protects driver privacy, we reviewed NRS's protocols designed to ensure that drivers understand that the survey is voluntary and assessed NHTSA's methodology for protecting driver privacy against the Office of Management and Budget's (OMB) standards for surveys.<sup>7</sup>

We conducted this performance audit from October 2017 to March 2018 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

In summary:

- All of the researchers and other public-safety stakeholders we spoke with highlighted the critical value of NRS data, noting that these data are unique, comprehensive, and reliable, and support initiatives to identify and address impaired driving.
- Methods used at NRS data collection sites and law enforcement checkpoints differ in key areas, including driver participation and potential consequences. For example,

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Secretary of Transportation and GAO to report on the national roadside survey as directed by S. Rep No. 113-182. 160 Cong. Rec. H9979 (daily ed. Dec.11, 2014).

<sup>4</sup>We conducted preliminary work for this review on NRS methodology in conjunction with work for our February 2015 report on drug-impaired driving. We did not include this information in our 2015 report as NHTSA had not issued its final report on NRS's methodology. For this review, we contacted key stakeholders previously interviewed to confirm our earlier findings. See GAO, *Drug-Impaired Driving: Additional Support Needed for Public Awareness Initiatives*, [GAO-15-293](#) (Washington, D.C.: Feb 24, 2015).

<sup>5</sup>See Kelley-Baker, T., Lacey, J. H., Berning, A., Ramirez, A., Moore, C., Brainard, K., Pell, K., *2013-2014 National Roadside Study of Alcohol and Drug Use by Drivers: Methodology*, DOT HS 812 294 (Washington, DC: NHTSA, July 2016).

<sup>6</sup>NHTSA, *Saturation Patrols and Sobriety Checkpoints Guide: A How-to Guide for Planning and Publicizing Impaired Driving Enforcement Efforts*, DOT HS 809-063 (revised October 2002).

<sup>7</sup>OMB, *Standards and Guidelines for Statistical Surveys* (September 2006), accessed February 2016, [https://unstats.un.org/unsd/dnss/docs-nqaf/USA\\_standards\\_stat\\_surveys.pdf](https://unstats.un.org/unsd/dnss/docs-nqaf/USA_standards_stat_surveys.pdf).

participation in the NRS is voluntary, and according to NHTSA officials, no participants have ever been arrested for being impaired. By contrast, selected drivers may be arrested at law enforcement checkpoints if found to be impaired.

- NRS's methodology for protecting privacy follows OMB's survey standards. Our assessment of this methodology found that changes related to the use of law enforcement officers, among others, addressed perceived concerns raised by some drivers during the most recent survey regarding voluntary participation and the privacy of drivers.

### Selected Stakeholders Stressed the Value of NRS Data

All of the researchers and public safety stakeholders we spoke with stressed that the NRS is of critical value because it is the only source of nationwide, generalizable data on drug and alcohol use by drivers.<sup>8</sup> They stated that, among other things:

There is no other comprehensive source of data about drugged driving, including the use of opioids, marijuana, or combinations of drugs.<sup>9</sup> While arrest data and drug-testing results provide some information on drugged driving, these data are limited. For example, in many cases, drivers who are arrested are tested for alcohol impairment only, not for the presence of drugs.

- NRS data are reliable. The survey is a methodologically sound national sample, and NRS data on blood and oral testing for both alcohol and drugs are valid at national and state levels.

All of the stakeholders we spoke with also stated that NRS data provide critical support for initiatives to address impaired driving, such as identifying policy or legal priorities, measuring progress toward goals, and supporting the need for policy changes or legal actions. For example:

- Trend data from the NRS can be used to measure progress in reducing alcohol-impaired or drugged driving. Other data sources are more limited, focusing on fatal crashes or arrests, for example, and not on measuring the extent of the driving public's use of alcohol and drugs.
- NRS data are essential for public health and safety efforts and for the development of preventive messages.
- Similar to data that supported efforts encouraging states to lower their illegal driving blood-alcohol concentration limit to 0.08,<sup>10</sup> data on drugged driving such as those from the NRS are essential both for establishing the need for impairment thresholds, as well as setting the threshold levels.

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<sup>8</sup>In our 2015 work, we were unable to find any other source of reliable data on the extent of drugged driving in the United States through a literature review and interviews with public safety stakeholders and state officials. Officials from 11 organizations (e.g., state and federal highway safety and law enforcement agencies, and advocacy and professional organizations) also told us that the NRS was useful to them because it was a reliable indicator of the extent of drugged driving.

<sup>9</sup>For the purposes of this report, the term "drugged driving" refers to driving with any detectable amount of drugs in one's system, as opposed to "drug-impaired driving," which refers to driving while impaired to some degree from using drugs. Due to challenges in measuring the amount and effect of one or multiple drugs in drivers, there is no nationwide definition of "drug-impaired driving."

<sup>10</sup>Beginning in 1998, Congress has made grant funds available to states to encourage them to lower the illegal blood-alcohol concentration limit to 0.08. See 23 U.S.C. § 163.

NRS data have been used to update standards of practice for toxicologists and law enforcement, according to the stakeholders we interviewed. For example, they noted that:

- The National Safety Council uses NRS data to establish standard-testing procedures—including for which drugs to test—for toxicology laboratories nationwide.
- NRS data are key to developing valid saliva testing procedures, according to the researchers with whom we spoke; such procedures may provide a cheaper, more accessible test for drug impairment, once thresholds have been set. Findings from the NRS have been used in law enforcement training to emphasize the risk of day-time drug impairment and the need for drug-recognition expertise, as well as the range of different drugs or combinations of drugs and alcohol that may be present in drivers.

Stakeholders also expressed concerns about a current prohibition on NHTSA’s use of federal funding for the survey,<sup>11</sup> stating that without future NRS data there will be no way to track trends in drugged driving, including which drugs are used by drivers and their prevalence. According to these stakeholders, given current challenges, including the increased use of drugs in combination and the expansion of legal marijuana use in some states, it is critical that researchers are able to provide scientifically valid information to Congress and others.

#### Methods Differ at Law Enforcement Checkpoints and NRS’s Data Collection Sites

An NRS site allows researchers to collect data to estimate the prevalence of alcohol-impaired and drugged driving, while a law enforcement checkpoint is a highly visible effort designed to detect and deter specific driving behaviors, such as driving without using a safety belt or under the influence of alcohol. Table 1 illustrates differences in key aspects of NRS sites and law enforcement checkpoints: the warning devices and signage used, police visibility, personally identifiable information collected, extent of driver participation and driver refusal, appearance of personnel, and consequences of driver impairment.

**Table 1: Comparison of the 2013-2014 National Roadside Survey’s (NRS) Methodology to Guidance Used for Law Enforcement Checkpoints**

	<b>NRS’s methodology</b>	<b>Guidance for law enforcement checkpoints</b>
<b>Warning devices and signage</b>	<ul style="list-style-type: none"> <li>• Reflective road signs that state “Paid Voluntary Survey.”</li> <li>• LED signs with scrolling message “Paid Voluntary Survey” added midway through the 2013–2014 survey.</li> </ul>	<ul style="list-style-type: none"> <li>• Signs warning drivers of checkpoints ahead and marked police vehicles with warning lights flashing.</li> </ul>
<b>Police visibility</b>	<ul style="list-style-type: none"> <li>• Following changes made midway through the 2013-2014 survey, researchers direct traffic and carry out all survey protocols, with police presence in the background for safety.<sup>a</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Marked patrol vehicles are positioned to be highly visible to approaching drivers before the checkpoint.</li> <li>• Visible police presence at the checkpoint and police carry out all protocols.</li> </ul>
<b>Personally identifiable information</b>	<ul style="list-style-type: none"> <li>• No identification is requested or collected.</li> </ul>	<ul style="list-style-type: none"> <li>• Drivers may be asked for identification, such as driver’s license and vehicle registration.</li> </ul>

<sup>11</sup>Congress has prohibited NHTSA since 2015 from using federal funds to plan or carry out future roadside surveys. Pub. L. No. 113-235, div. K, title I, § 142, 128 Stat. 2130, 2715 (2014), Pub. L. No. 114-113 div. L, title I § 142, 129 Stat. 2242, 2853 (2015), Pub. L. No. 115-31, div. K, title I § 141, 131 Stat. 135, 744 (2017). The prohibition on funding the NRS for fiscal year 2018 is in H.R. 3353, 115th Cong. (2017) but was omitted from S. 1655. 115th Cong. (2017).

	<b>NRS's methodology</b>	<b>Guidance for law enforcement checkpoints</b>
<b>Driver participation</b>	<ul style="list-style-type: none"> <li>• Every third driver is invited to stop if researchers are available to administer the survey.</li> <li>• Drivers are asked to participate in the survey and researchers explain that the survey is voluntary, paid, and anonymous.<sup>b</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Drivers are stopped in a specific sequence (e.g., every other vehicle or every fourth vehicle).</li> <li>• Drivers are assessed for potential impairment.</li> </ul>
<b>Driver refusal</b>	<ul style="list-style-type: none"> <li>• Drivers may refuse to participate in the survey. Drivers who refuse are counted as a refusal and the researcher asks for a voluntary breath sample (at the driver's discretion) before the driver leaves the site.</li> </ul>	<ul style="list-style-type: none"> <li>• There is no protocol allowing for drivers to refuse to participate.</li> </ul>
<b>Appearance of personnel</b>	<ul style="list-style-type: none"> <li>• Researchers who interview survey participants are dressed in khakis, t-shirt, windbreaker, safety vest, and "Research Team" hat.</li> </ul>	<ul style="list-style-type: none"> <li>• Uniformed police officers.</li> </ul>
<b>Driver impairment</b>	<ul style="list-style-type: none"> <li>• Drivers who are deemed impaired by researchers are offered alternative arrangements, such as a safe way home, including a taxi ride or a hotel stay at no cost to the driver.<sup>c</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Drivers that are deemed impaired are subject to enforcement actions, including arrest.</li> </ul>

Source: GAO analysis of NRS methodology and guidance from the National Highway Traffic Safety Administration. | GAO-18-328R

<sup>a</sup>Midway through the 2013–2014 survey, patrol vehicles or police lights were no longer used ahead of the survey sites, and police were no longer used to direct traffic.

<sup>b</sup>Drivers were offered financial incentives to provide oral fluid (\$10) and blood samples (\$50). Additionally, at each site a small sample of those who initially refused were offered an additional incentive of \$100 to participate in the study as a means for estimating non-participation bias, although this practice was ended halfway through the 2013–2014 study.

<sup>c</sup>If a potentially impaired driver declined all of the alternative arrangements when presented by researchers, the options would be presented again by a police officer.

NHTSA reported that driver participation at NRS data collection sites varied with different levels of police involvement (see table 2). For example, at sites with no police involvement, more than 92 percent of drivers signaled to enter the data collection sites and determined eligible to participate consented to providing at least a breath sample, compared to about 83 percent at locations with full police involvement. Following changes to the NRS protocols, law enforcement officers were no longer used to direct traffic at any of the NRS data collection sites.

**Table 2: Drivers Participating in 2013–2014 National Roadside Survey (NRS), by Police Involvement**

	<b>No police involvement</b>	<b>Partial police involvement (officer assists with traffic direction)</b>	<b>Full police involvement (marked vehicle with lights, officer directs traffic)</b>
<b>Signaled to enter location</b>	<b>1,457</b>	<b>5,036</b>	<b>7,674</b>
• Did not enter location	21%	26%	16%
• Entered location	79%	74%	84%
<b>Eligible drivers<sup>a</sup></b>	<b>1,142</b>	<b>3,647</b>	<b>6,311</b>
• Interviewed	89%	84%	75%
• Tested:			
• Breath sample	92%	87%	83%
• Oral fluid sample	83%	77%	65%
• Blood sample	56%	48%	36%

Source: National Highway Traffic Safety Administration's NRS methodology. | GAO-18-328R

<sup>a</sup>Eligible drivers included those in private vehicles, over the age of 16, and able to complete the survey in English or Spanish.

## NRS's Methodology Is Designed to Safeguard Voluntary Participation and Driver Anonymity

NHTSA's protocols are designed to ensure that drivers understand that participation in the survey is voluntary and anonymous. For example, researchers obtain a driver's consent at each stage of the study, including for breath, saliva, or blood samples. Further, as noted previously, midway through the 2013–2014 survey, NHTSA increased signage and changed the role of law enforcement to help drivers understand that they are free to choose to participate or not. NHTSA also ended the use of passive alcohol sensors prior to obtaining informed consent from the driver (such use may pose an ethical issue). These new protocols addressed perceived issues during the 2013–2014 survey regarding voluntary participation.

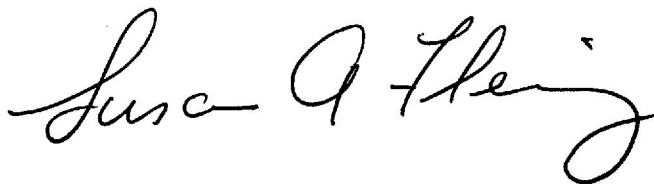
We found that NRS's methodology followed OMB's standards and guidelines for survey principles related to the protection of privacy. Further, NHTSA reported that breath, blood, and saliva samples were destroyed after testing for alcohol and drugs. NHTSA also reported that, over five iterations of the NRS, there have been no incidents in which entrance to the survey site or participation in the survey led to an arrest and that protocols exist to respond to intoxicated drivers. For example, impaired drivers might be offered a ride home in a taxi, to be driven home by survey personnel, or a room in a hotel nearby. Finally, none of the researchers or public safety stakeholders we spoke with had concerns about the role of law enforcement or about privacy protections.

We provided a draft of this report to DOT for review and comment. DOT provided technical comments that were incorporated, as appropriate.

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We are sending copies of this report to the appropriate congressional committees and the Secretary of Transportation. In addition, the report will be available at no charge on the GAO website at <http://www.gao.gov>.

If you or your staff have any questions about this report, please contact me at (202) 512-2834 or [FlemingS@gao.gov](mailto:FlemingS@gao.gov). Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff members who made key contributions to this report were Sara Vermillion (Assistant Director), Molly Laster, Greta Goodwin, Katie Hamer, Sara Ann Moessbauer, Cheryl Peterson, and Michelle Weathers.



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