National Transportation Safety Board

Washington, DC 20594

Safety Recommendation

Date: November 21, 2012

In reply refer to: H-12-32 and -33

The Honorable David L. Strickland
Administrator
National Highway Traffic
Safety Administration
Washington, DC 20590

The National Transportation Safety Board (NTSB) has long been concerned about alcohol-impaired driving, which accounts for approximately one-third of all US highway fatalities. Between 1982 and 1994, the percentage of fatally injured drivers with a blood alcohol concentration (BAC) greater than or equal to 0.08 decreased from 49 to 33 percent.[1] However, since that time, there has been no further decline in the percentage, and efforts are needed to address this lack of progress. The NTSB has issued more than 120 safety recommendations on impaired driving since 1968, and "Addressing Alcohol-Impaired Driving" is on the NTSB's Most Wanted List. The National Highway Traffic Safety Administration (NHTSA) estimates that alcohol-impaired driving in the United States continues to kill over 10,000 people yearly and to injure many more despite numerous federal, state, and local efforts.

The NTSB is also concerned about the growing problem of drug use by drivers. According to NHTSA, from 2005 to 2009, the proportion of fatally injured drivers who tested positive for drugs (illicit, prescription, and over-the-counter) rose from 13 to 18 percent.[2] According to NHTSA's *2007 National Roadside Survey*, 16.3 percent of weekend nighttime drivers tested positive for drugs.[3] The growing prevalence of drugged driving has also captured the attention of the White House Office of National Drug Control Policy, which cites the

[1] See http://www.iihs.org/research/fatality.aspx?topicName=Alcohol-impaireddriving, accessed September 12, 2012.

[2] *Drug Involvement of Fatally Injured Drivers*, DOT HS 811 415 (Washington, D.C.: National Highway Traffic Safety Administration, 2010). The 3,952 fatally injured drivers who tested positive for drugs in 2009 represent one-third of the fatally injured drivers tested and for whom results were known and 18 percent of all fatally injured drivers.

[3] J. H. Lacey and others, *2007 National Roadside Survey of Alcohol and Drug Use by Drivers: Drug Results*, DOT HS 811 249 (Washington, D.C.: National Highway Traffic Safety Administration, 2009).

following principle in its 2011 *National Drug Control Strategy*: "Preventing drugged driving must become a national priority on par with preventing drunk driving."[4]

In May 2012, the NTSB held a forum to identify the most effective, scientifically based actions needed to "reach zero" accidents resulting from substance-impaired driving.[5] Numerous impaired driving countermeasures were discussed at the forum, including laws, enforcement strategies, adjudication programs, substance treatment programs, ignition interlocks, passive alcohol detection systems, and educational campaigns. Presenters discussed the merits and drawbacks of various countermeasures, as well as the challenges to reducing impaired driving. Reductions in accidents and injuries attributable to impaired driving are the ultimate measures of success. However, inadequate data collection and reporting in many states continue to limit our ability to understand and address the problem of impaired driving and to measure the effectiveness of countermeasures.

Postaccident Drug and Alcohol Data

Postaccident data provide law enforcement agencies, researchers, and policymakers with the information they need to determine the scope of safety issues, track changes over time, and assess the effectiveness of countermeasures. Postaccident data concerning drug and alcohol use among drivers can be collected and tracked in a variety of ways. For example, a law enforcement officer may record whether impairing substances were found in the vehicle, whether he or she suspected impairment, where the driver reported having last consumed alcohol, or the results of a roadside breath alcohol test. If the officer determines that additional drug or alcohol tests are merited, those tests may be conducted at a hospital, clinic, or laboratory. For fatally injured drivers, coroners or medical examiners may conduct toxicological tests. Testing requirements vary from state to state: certain states require BAC testing of all drivers involved in fatal accidents or all fatally injured drivers; and many states allow for testing of accident-involved drivers when additional criteria are met, such as evidence that the driver was impaired at the time of the accident.

Law enforcement officers use Police Accident Reports (PAR) to document the accident, including information about alcohol and drug testing. PAR data are used to populate state and national crash databases such as the NHTSA Fatality Analysis Reporting System (FARS) and the National Automotive Sampling System General Estimates System (NASS GES). FARS is a nationwide census of fatal traffic crashes and fatalities, whereas NASS GES is a nationally representative set of motor vehicle crashes of all types, ranging from minor to fatal. The resulting aggregate data sets are used to track the number and rates of impaired driving accidents, to allocate funding and resources to the problem, and to study the effectiveness of state-level programs in addressing impaired driving.

Data should be valid, reliable, and sufficient to facilitate meaningful analysis. Discussions at the forum and followup work by NTSB staff suggest that, in general, the methods used to gather and analyze BAC data are valid and reliable; however, reporting rates for some states and some subgroups, such as surviving drivers in fatal crashes, continue to be

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[4] See http://www.whitehouse.gov/sites/default/files/ondcp/ndcs2011.pdf, accessed July 14, 2012.

[5] See http://www.ntsb.gov/reachingzero, accessed June 29, 2012.

unacceptably low. For drug data, more fundamental problems exist, such as a lack of standardization in testing and reporting.

Poor BAC Reporting Rates

In 1985, the NTSB made two recommendations to NHTSA to "undertake a more extensive and aggressive program to provide direct technical support to states to improve alcohol testing and reporting of all drivers in fatal highway crashes" (Safety Recommendation H-85-47) and to urge those states with deficient measurement and reporting programs to "increase the allocation of highway safety grant program funds and state matching funds to improve the measurement and reporting of alcohol involvement in fatal highway crashes" (Safety Recommendation H-85-48).[6] When the 1985 recommendations were issued, NHTSA reported national BAC data for 47 percent of fatally injured drivers and 18 percent of drivers who survived fatal crashes; at the time, only 13 states were reporting BAC data for more than 80 percent of fatally injured drivers.

In its letter closing these recommendations,[7] the NTSB noted that in 1990, 28 states tested over 80 percent of fatally injured drivers, which signified a marked improvement over the 1985 reporting rates. However, a recent NHTSA report reveals that some of the gains made in the 1980s have not been maintained. In 2010, only 23 states reported BAC test results for more than 80 percent of fatally injured drivers; in two states (Alabama and Iowa), reporting rates were under 25 percent.[8] Additionally, the national reporting rate for drivers who survived fatal crashes—30 percent in 2010—remains low. Encouragingly, a few states had reporting rates higher than 80 percent for fatally injured drivers and 60 percent for surviving drivers.[9]

At the NTSB forum, participants discussed several issues that account for the shortcomings in drug and alcohol data in state and national crash databases, including that state postaccident BAC testing laws and reporting protocols vary considerably and that testing of drivers involved in nonfatal-injury crashes is minimal.

A review of state laws reveals that although nearly every state has a provision allowing for postaccident drug and alcohol testing, most states have additional standards of proof that must be met beyond involvement in a fatal or serious injury accident. Additional standards of proof may include demonstrating that the driver is impaired, caused the accident, or committed a traffic violation. Additionally, in most states, surviving drivers have a right to refuse postaccident drug and alcohol testing.

A NHTSA-sponsored review of state BAC testing and reporting laws and practices found that states with mandatory testing laws had higher median BAC reporting rates than states with

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[6] NTSB safety recommendation letter to the NHTSA Administrator, December 6, 1985.

[7] NTSB safety recommendation response letter to the NHTSA Administrator, June 7, 1993.

[8] *Traffic Safety Facts: 2010 Data, State Alcohol-Impaired Driving Estimates*, DOT HS 811 612 (Washington, D.C.: National Highway Traffic Safety Administration, 2012).

[9] Alaska, Maine, Montana, Nebraska, and New Mexico.

additional standards of proof or discretionary testing.[10] However the authors also noted that, "Testing policies can achieve high rates without a law, while a mandatory testing law will not produce high rates without strong policies to implement it." The report describes case studies conducted in nine states and recommends numerous best practices for improving BAC testing and reporting rates. Examples of best practices include establishing standard practices for coroners and medical examiners to follow in testing fatally injured drivers, establishing good communication protocols with medical facilities and hospitals that provide tests on surviving drivers, and using electronic data transfer methods when possible to reduce data transmission delays or errors.

BAC data will play a significant role in the federal funding that states receive to address impaired driving. The Moving Ahead for Progress in the 21st Century Act (MAP–21), enacted in 2012, includes language that will modify the way states receive federal grant money to fund impaired driving countermeasures. Eligibility for the grants will be based partly on the state's average impaired driving fatality rate, defined as the number of fatalities in motor vehicle accidents involving a driver with a BAC of at least 0.08 for every 100 million vehicle miles traveled, based on the most recently reported three calendar years. Accurate average impaired driving fatality rate estimates will depend largely on whether a state has a comprehensive program for testing and reporting postaccident driver BAC levels.

Improving postaccident BAC testing and reporting rates requires commitment, communication, and coordination among several stakeholders, including law enforcement agencies, coroners/medical examiners, hospitals, toxicology laboratories, state accident database managers, and FARS analysts. A 2004 NHTSA-sponsored report recommended establishing national guidelines for testing and reporting rates and suggested 80 percent BAC reporting for fatally injured drivers and 60 percent reporting for drivers who survived fatal accidents.[11] Those reporting goals were again mentioned in a 2012 report.[12] Several states have achieved these levels, but many others have not. The NTSB believes that, without adequate levels of BAC testing and reporting, states will not have the necessary tools to determine whether impaired driving programs and other countermeasures are meeting their goals.

Therefore, the NTSB recommends that NHTSA develop and disseminate to the 50 states, the Commonwealth of Puerto Rico, and the District of Columbia BAC testing and reporting guidelines based on the 2012 report *State Blood Alcohol Concentration Testing and Reporting for Drivers Involved in Fatal Crashes: Current Practices, Results, and Strategies, 1997–2009*. The NTSB also recommends that the 45 states with low reporting rates for BAC,[13] the

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[10] T. Casanova, J. H. Hedlund, and J. Tison, *State Blood Alcohol Concentration (BAC) Testing and Reporting for Drivers Involved in Fatal Crashes: Current Practices, Results, and Strategies, 1997–2009*, DOT HS 811-661 (Washington, DC: National Highway Traffic Safety Administration, 2012).

[11] J. H. Hedlund, R. G. Ulmer, and V. S. Northrup, *State Laws and Practices for BAC Testing and Reporting Drivers Involved in Fatal Crashes*, DOT HS 809 756 (Washington, D.C.: National Highway Traffic Safety Administration, 2004).

[12] *Blood Alcohol Concentration Testing and Reporting by the States*, DOT HS 811 662 (Washington, D.C.: National Highway Traffic Safety Administration, 2012).

[13] This recommendation excludes Alaska, Maine, Montana, Nebraska, and New Mexico because, as noted earlier, these states have BAC test result reporting rates that exceed NHTSA's suggested target of 80 percent for fatally injured drivers and 60 percent for drivers who survived fatal accidents.

Commonwealth of Puerto Rico, and the District of Columbia increase their collection, documentation, and reporting of BAC test results by taking the following actions, as needed, to improve testing and reporting rates: (1) enact legislation, (2) issue regulations, and (3) improve procedures used by law enforcement or testing facilities. Additionally, the NTSB recommends that once NHTSA has developed the guidelines recommended above, these states, the Commonwealth of Puerto Rico, and the District of Columbia incorporate the guidelines into a statewide action plan to achieve BAC reporting rates of at least 80 percent of fatally injured drivers and at least 60 percent of drivers who survived fatal crashes. These reporting rates represent realistic, achievable goals for the states, which will allow meaningful assessment of their progress on impaired driving efforts. These levels should be seen as minimum acceptable reporting rates rather than as final goals.

Lack of Standard Practices for Drug Toxicology Testing

As a result of a 1990 NTSB safety study[14] that examined drug and alcohol use among fatally injured drivers of heavy trucks, the NTSB made several recommendations to the US Department of Transportation (DOT) and the states on standardizing postaccident toxicological specimen collection, testing, and reporting, as well as on increasing the toxicological data in national databases by enacting legislation to require testing of all drivers in fatal commercial truck accidents.[15]

Two of the 1990 recommendations to the DOT (or its modal administrations) have been classified "Closed—Acceptable Action." Safety Recommendation H-90-13, which called for the standardization of procedures for toxicological specimen collection, testing, and reporting, was closed due to regulatory changes made in 2001 that require employers to conduct postaccident alcohol and drug testing on surviving commercial motor vehicle drivers in fatal accidents or those accidents involving both bodily injury or disabling vehicle damage and a traffic citation.[16] The regulations state that tests must be conducted for alcohol within 8 hours of the accident and for drugs within 32 hours.[17] Safety Recommendation H-90-16, which called for the revision of the FARS database to include drug toxicology data, was also classified "Closed—Acceptable Action" as a result of numerous changes that NHTSA made to the FARS database to facilitate coding of drug tests and test results.

The remaining recommendations to the DOT, which called on the agency to establish a postaccident drug and alcohol test plan, improve reporting of toxicological data, and give incentives to states to provide postaccident toxicological reports, were all classified

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[14] *Fatigue, Alcohol, Other Drugs, and Medical Factors in Fatal-to-the-Driver Heavy Truck Crashes (vol. 1).* Safety Study NTSB/SS-90/01 (Washington, DC: National Transportation Safety Board, 1990).

[15] Safety Recommendations H-90-11, -13, -14, and -15 to the DOT; H-90-16 to NHTSA; and H-90-43 to the states.

[16] Final rule by the Federal Motor Carrier Safety Administration codified at 49 *Code of Federal Regulations* Part 382, "Controlled Substances and Alcohol Use and Testing" (66 *Federal Register* 43097, August 17, 2001).

[17] Laboratories must test for the following five drugs or classes of drugs in a DOT drug test: (1) marijuana metabolites, (2) cocaine metabolites, (3) amphetamines, (4) opiate metabolites, and (5) phencyclidine. In 2010, the DOT modified its tested drugs and drug cutoff concentrations to harmonize with drug testing requirements set by the US Department of Health and Human Services, which included adding additional tests for MDMA, MDA, and MDEA to the amphetamine drug group.

"Closed—Unacceptable Action" in 2005 due to a lack of progress. Safety recommendations directing the states to collect blood samples for alcohol and other drug toxicological testing from all vehicle operators in fatal commercial truck accidents (Safety Recommendation H-90-42) and to report those data to NHTSA (Safety Recommendation H-90-43) were ultimately classified "Closed—Unacceptable Action" for the large majority of states. State testing rates still vary widely; the proportion of fatally injured drivers for whom drug toxicology data were available in 2010 ranged from 0 to 100 percent.[18]

With respect to drug testing and reporting, both FARS and NASS GES include a "Drug Test" variable that has three linked elements: Test Status, Test Type, and Test Result. Test Status refers to whether the person was tested for drugs. Test Type refers to the type of test (blood, urine, both, or other), if a test was given. Test Result reports the specific drug that was found; up to three tests and associated types of drugs can be recorded for an individual. Drug types are classified as narcotics, depressants, stimulants, hallucinogens, cannabinoids, PCP, anabolic steroids, and inhalants; within each classification, numerous specific drugs may be coded. However, the cutoff levels that are used to determine whether a non-DOT-mandated drug test result is "positive" or reportable vary among states and testing laboratories.

In a 2009 report to Congress, NHTSA stated, "The development of a method of measuring driver impairment due to the use of drugs would greatly enhance the ability of law enforcement to investigate suspected drug-impaired driving cases."[19] There are numerous challenges in developing a methodology to measure *impairment* due to drugs, many of which concern the ways that various drugs affect and are metabolized by individual users.[20] At a more fundamental level, no standard guidance currently exists for states regarding a minimum set of drugs that should be evaluated, recommended methods for drug testing, or reporting thresholds for accident databases. Therefore, establishing standards for postaccident drug testing and reporting is a needed first step toward improving our understanding of the problem of drugged driving. Although collecting consistent postaccident drug data alone will not solve the problem, it will give researchers and policymakers a better understanding of the prevalence of drug use among drivers, as well as provide tools with which to assess the risks associated with various substances. And, importantly, it will provide a reliable and valid marker of the effectiveness of laws, enforcement, education, and other countermeasures to address drugged driving.

Some groups have made recommendations to guide toxicological research investigations, but those recommendations have not been widely adopted by the states. For example, in 2006, a group of experts meeting under the auspices of the International Council on Alcohol, Drugs and Traffic Safety's working group on illegal drugs and driving reached consensus on 136 recommendations concerning the behavioral, epidemiological, and toxicological aspects of

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[18] DOT HS 811 415.

[19] R. Compton, M. Vegega, and D. Smither, *Drug-Impaired Driving: Understanding the Problem and Ways to Reduce It: A Report to Congress*, DOT HS 811 268 (Washington, D.C.: National Highway Traffic Safety Administration, 2009).

[20] G. M. Reisfield and others, "The Mirage of Impairing Drug Concentration Thresholds: A Rationale for Zero Tolerance Per Se Driving Under the Influence Drug Laws," *Journal of Analytical Toxicology*, vol. 36 (2012), pp. 353–356.

drugged driving research.[21] The group's recommendations address biological specimens, optimal collection procedures, drugs/drug classes to be included in toxicological test panels, and cutoff limits for those drugs. In 2007, the *Journal of Forensic Science* published a similar set of expert recommendations describing standard practices for forensic toxicology laboratories in the investigation of drugged driving cases.[22]

Unfortunately, in spite of the need for consistent drug toxicological data, little has been done to establish and promote a set of standards for the states. Therefore, the NTSB recommends that NHTSA develop and disseminate to appropriate state officials a common standard of practice for drug toxicology testing, including (1) the circumstances under which tests should be conducted, (2) a minimum set of drugs for which to test, and (3) cutoff values for reporting the results.

Place of Last Drink Data

Several panelists at the NTSB forum discussed the importance of responsible beverage service with respect to both commercial servers of alcohol and social hosts.[23] Currently, 43 states and the District of Columbia have laws ("dram shop liability laws") or case law that imposes civil liability on those individuals, licensed establishments, or retailers that sell alcohol to minors or obviously intoxicated adults when the consumer is subsequently involved in an alcohol-related accident resulting in death or injury to third parties. These laws provide an incentive for owners of alcohol-serving establishments to train their employees in responsible beverage service. Dram shop liability laws, which allow individuals to sue establishments for the drunken behavior of their patrons, have been shown to reduce alcohol-related accidents.[24]

Social host liability laws are an extension of dram shop laws and impose civil liability on social hosts who provide alcohol to minors or obviously intoxicated adults in a noncommercial setting and the individual is then involved in an alcohol-related accident resulting in death or injury to a third party.

Effective enforcement of criminal and civil provisions of both dram shop and social host liability laws requires good data collection. An essential part of any arrest or accident investigation involving an alcohol-impaired driver should include an assertive effort by law

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[21] J. M. Walsh and others, "Guidelines for Research on Drugged Driving," *Addiction*, vol. 103, no. 8 (2008), pp. 1258–1268.

[22] L. J. Farrell, S. Kerrigan, and B. K. Logan, "Recommendations for Toxicological Investigation of Drug Impaired Driving," *Journal of Forensic Science*, vol. 52, no. 5 (2007), pp. 1214–1218.

[23] Among adults who self-report binge drinking, about 54 percent of all binge drinking episodes take place at a bar, club, or restaurant, compared to 36 percent at homes and 10 percent elsewhere. (T.S. Naimi, D. E. Nelson, and R. D. Brewer, "Driving After Binge Drinking," *American Journal of Preventive Medicine*, vol. 37, no. 4 (2009), pp. 314–320.)

[24] (a) A. C. Wagenaar, and H. D. Holder, "Effects of Alcoholic Beverage Server Liability on Traffic Crash Injuries," *Alcoholism: Clinical and Experimental Research*, vol. 15, no. 6 (1991), pp. 942–947. (b) D. Eisenberg, *Evaluating the Effectiveness of a 0.08 Percent BAC Limit and Other Policies Related to Drunk Driving*, Discussion Paper No. 00-23 (Stanford, California: Stanford Institute for Economic Policy Research, January 2001). (c) K. Whetten-Goldstein and others, "Civil Liability, Criminal Law, and Other Policies and Alcohol-Related Motor Vehicle Fatalities in the United States: 1984–1995," *Accident Analysis and Prevention*, vol. 32, no. 6 (2000), pp. 723–733.

enforcement officers to determine the location where the impaired driver had been served alcohol. This information is useful to state alcohol regulatory and law enforcement authorities conducting enforcement actions to deter future violations.

At the NTSB forum, it was noted that place of last drink (POLD) data have been used to focus training and enforcement actions on establishments that may be serving alcohol to underage or intoxicated patrons. Massachusetts data from 2008 indicated that using POLD data to guide compliance and enforcement actions led to a reduction in driving under the influence arrests associated with establishments that were targeted for intervention.[25]

Increasing the collection of POLD data will provide states and law enforcement agencies with the information needed to target individuals and establishments that contribute to the problem of alcohol-impaired driving and is likely to serve as a deterrent to serving minors and those who are intoxicated. Therefore, the NTSB recommends that the 50 states, the Commonwealth of Puerto Rico, and the District of Columbia require law enforcement agencies to collect POLD data as part of any arrest or accident investigation involving an alcohol-impaired driver. Additionally, the NTSB recommends that the International Association of Chiefs of Police and the National Sheriffs' Association inform their members of the value of collecting POLD data as part of any arrest or accident investigation involving an alcohol-impaired driver.

As a result of the May 2012 forum on "reaching zero" accidents from substance-impaired driving, the National Transportation Safety Board makes the following recommendations to the National Highway Traffic Safety Administration:

> Develop and disseminate to the 50 states, the Commonwealth of Puerto Rico, and the District of Columbia blood alcohol concentration testing and reporting guidelines based on the 2012 report *State Blood Alcohol Concentration Testing and Reporting for Drivers Involved in Fatal Crashes: Current Practices, Results, and Strategies, 1997–2009*. (H-12-32)
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> Develop and disseminate to appropriate state officials a common standard of practice for drug toxicology testing, including (1) the circumstances under which tests should be conducted, (2) a minimum set of drugs for which to test, and (3) cutoff values for reporting the results. (H-12-33)

The NTSB also issued four other recommendations, including two to the 45 states, the Commonwealth of Puerto Rico, and the District of Columbia, which that have low reporting rates for BAC testing, Puerto Rico, and the District of Columbia; one to the 50 states, the Commonwealth of Puerto Rico, and the District of Columbia; and one to the International Association of Chiefs of Police and the National Sheriffs' Association.

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[25] F. Mahoney, "Alcoholic Beverage Control Regulation and Enforcement: Overview and Strategies for Preventing Impaired Driving," presentation at the NTSB forum, "Reaching Zero: Actions to Eliminate Substance-Impaired Driving," May 15–16, 2012, Washington, D.C.

These safety recommendations are derived from the NTSB's investigation and are consistent with the evidence we found and the analysis we performed. Chairman HERSMAN, Vice Chairman HART, and Members SUMWALT, ROSEKIND, and WEENER concurred in these recommendations.

The NTSB is vitally interested in these recommendations because they are designed to prevent accidents and save lives. We would appreciate receiving a response from you within 90 days detailing the actions you have taken or intend to take to implement these recommendations. When responding, please refer to the safety recommendations by their recommendation number. We encourage you to submit your response electronically to correspondence@ntsb.gov. If it exceeds 10 megabytes, please e-mail us at the same address for instructions. To avoid confusion, please do not submit both an electronic copy and a hard copy of the same response.

[Original Signed]

By: Deborah A.P. Hersman
Chairman