

Oral Fluid Testing for Impaired Driving Enforcement



By John Flannigan, Commander, Traffic Operations, Vermont State Police; Stephen K. Talpins, Assistant State Attorney (former), Miami-Dade County, Florida; and Christine Moore, Vice President of Analytical Services, Toxicology for Immunalysis Corporation

Law enforcement, traffic safety professionals, criminal justice professionals, and social advocates have worked together to address alcohol-impaired driving, for decades, dramatically reducing its prevalence and saving tens of thousands of lives.¹ Unfortunately, far less time and resources have been devoted to an equally significant and related problem: driving under the influence of drugs (DUID). In fact, the National Highway Traffic Safety Administration (NHTSA) did not test biological samples from drivers for drugs during the National Roadside Survey (NRS) until 2007 when data showed that 16.3 percent of weekend nighttime drivers tested positive for drugs; marijuana accounted for almost half of the positives. To put this in perspective, 12.4 percent of weekend nighttime drivers tested positive for alcohol, and less than 2.2 percent of weekend drivers tested above the legal limit (0.08) for alcohol.²

Further, the results showed a 97 percent agreement between blood and oral fluid when collected simultaneously and tested for drugs, indicating that oral fluid is a viable alternative to blood for the detection of drugs in drivers.

Many outside the enforcement community were surprised to learn that drug-impaired driving was as much of a problem as alcohol-impaired driving; however, the real surprise came in the most recent data. In the 2013–2014 NHTSA survey, 22.5 percent of weekend nighttime drivers tested positive for drugs, while only 8.3 percent tested positive for alcohol (1.5 percent were above the legal limit).³ As one would expect, an increasing prevalence of drugged driving is likely to cost lives. The number of drivers involved in fatal motor vehicle crashes who tested positive for drugs increased from 28 percent in 2005 to an astounding 32 percent in 2012.⁴ These trends are not surprising for

two reasons. First, the U.S. population is aging and becoming more dependent on potentially impairing prescription medications.⁵ Second, more states have legalized cannabis for medical or recreational purposes.⁶ A recent NHTSA report indicated that the prevalence of marijuana in drivers in Washington State increased significantly since the implementation of legal retail marijuana sales in 2014. In daytime, when children and the elderly are more likely to be outside, the rate of THC identification in drivers almost doubled from 7.8 percent prior to cannabis legalization to 18.9 percent one year after legalization. The prevalence in nighttime drivers also increased (17.5 percent to 22.2 percent), but this was not considered statistically significant.⁷

Law enforcement can use the same success reducing the incidence and impact of drugged driving it has with alcohol-impaired driving by applying some of the

same forensic testing strategies. In this article, the advantages and pitfalls of testing drivers for drugs using biological samples, specifically oral fluids, are presented.

Forensic Testing

Driving behavior is adversely affected by many drugs, including prescribed, over-the-counter, or illegal substances. Drivers under the influence of cannabis tend to think they are better drivers because they drive more slowly; however, their reaction time is also affected, so the ability to react appropriately to an outside event, such as a child running into the road, is diminished. Cocaine and amphetamines (stimulants) may sharpen the reaction time of drivers, but also increase high-risk behavior, such as speeding, or cause dangerous side effects in drivers (e.g., vision problems). Pain medications such as hydrocodone and oxycodone can cause drowsiness, especially at the beginning of treatment cycles.

Traditionally, officers test suspected impaired drivers for drugs by collecting blood or urine samples and submitting them to a forensic laboratory. Both specimen collections are intrusive, require officers to handle biological samples (which most officers prefer not to do), and are relatively expensive. Additionally, each presents its own unique challenges. Oral fluid testing provides some important advantages over both.

Urine: Urine results do not correlate as well with impairment as blood and oral fluid testing do because its window of detection can extend for days, especially in the case of marijuana. Further, only a gender-appropriate officer can collect a urine sample (officers should watch the subjects provide their sample), and it can take hours to provide a specimen.

Blood: Blood is generally considered to be the “gold standard” in testing drivers for drugs as it reflects recent use and indicates drugs circulating in the body. However, only medically trained professionals may collect blood samples, so most jurisdictions need to rely on doctors, nurses, or paramedics to collect samples; in some areas, officers may be trained as phlebotomists. Problems with blood testing include the time between traffic stop and sample collection—it may take 1.5–2 hours to locate an appropriate individual to perform the collection. During this time, the drugs are dissipating from the driver’s body, so lower drug levels are measured in the laboratory test than were present at the time of the impaired driving incident. Further, in the jurisdictions where external professionals perform the collection, prosecutors often have difficulty proving chain of custody, and laboratories with limited resources might not be able to provide a witness for trial or might not have the instrumentation to test samples because blood analysis is more complicated and expensive than urinalysis.⁸ However, despite the associated challenges, blood confers an advantage over urine and oral fluid tests because it can be used to measure blood alcohol concentration (BAC).

Oral fluid: The agreement between the results in blood and oral fluid in the 2007 NHTSA survey was largely due to the fact that they were collected almost simultaneously. As discussed above, in the real world, the collection of blood samples may take place a few hours after the traffic stop as medical personnel are necessary for collections, and that time gap allows drugs in an individual to dissipate. Oral fluid, which is essentially a reflection of free drugs in the blood, can be collected under the observation and supervision of an officer much more quickly following a traffic incident and is, therefore, a more reliable indicator of drugs present in the body at the time of the stop. Active drugs detected in saliva (e.g., THC or cocaine) are indicative of recent intake, not historical use.

The cost for the laboratory analysis of oral fluid is essentially the same as the cost for blood analysis because similar instrumentation is used; an additional cost is that of the oral fluid collection device itself, which generally contains a pad and liquid buffer to stabilize any drugs during storage and transportation; however, medical personnel are not necessary for the collection process, so the time and expense associated with blood collections are eliminated.

The Admissibility of Blood and Urine Testing Under the *Frye* and *Daubert* Standards

U.S. courts traditionally determine the admissibility of new or novel scientific evidence pursuant to the *Frye* standard. The *Frye* standard derives from a 1923 U.S. Supreme Court case involving the admissibility of the systolic blood pressure deception test, an early version of lie detector tests. The systolic blood pressure deception test was predicated on the theory that “truth is spontaneous, and comes without conscious effort, while the utterance of a falsehood requires a conscious effort, which is reflected in the blood pressure.” The court ruled that scientific evidence is admissible only if its underlying theories and procedures are generally accepted in the relevant scientific community or if they have passed from the stage of *experimentation and uncertainty* to that of *reasonable demonstrability*.⁹

While some states continue to apply the *Frye* standard or a modified version, U.S. federal courts and the majority of states apply a “relevancy standard.” This standard often is referred to as the *Daubert* standard after the U.S. Supreme Court case that first employed it.¹⁰ In that case, the court ruled that scientific testimony and evidence may be admitted only when it is reliable and relevant. The court held that the proponent of expert testimony may establish reliability and relevancy by proving that (1) the expert is qualified; (2) the expert employed reliable methods to reach his or her conclusions; and (3) the expert’s testimony would help the fact finders understand the evidence or to determine a fact in issue.

The *Daubert* court laid out a non-exhaustive list of five factors to consider in determining the reliability of scientific evidence: (1) whether the methods can be tested; (2) whether the methods have been peer reviewed; (3) whether there are known error rates; (4) whether there are established standards for applying the method; and (5) whether the methods are generally accepted. Since then, courts have considered additional factors, including whether the expert accounted for alternative explanations or inappropriately extrapolated an accepted premise.

Law enforcement officers and others have relied on blood and urine testing for drugs for decades, and courts routinely admit blood and urine test results under the *Frye* and *Daubert* standards when the samples are obtained by a qualified witness using appropriate methodology.

Legal Issues Pertaining to Blood and Urine Testing

Blood testing is fairly intrusive, and officers typically need a warrant to extract a person’s blood. However, most criminal justice practitioners (including judges) long believed that officers could collect blood samples from DUI drivers under the exigent circumstances exception to the warrant requirement because alcohol and drugs metabolize so quickly. However, that changed in 2013.

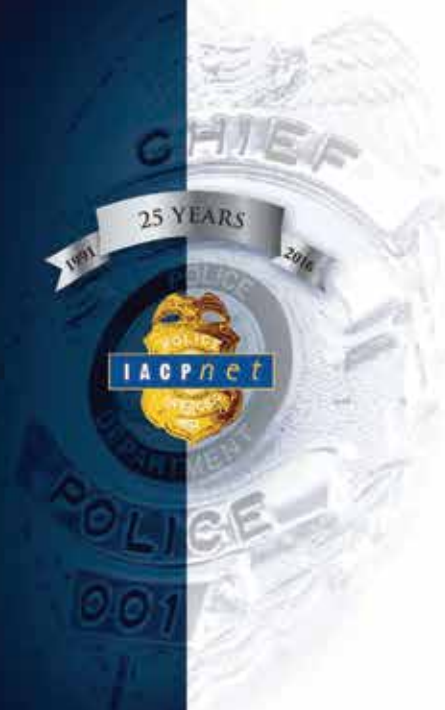
In *Missouri v. McNeely*, the U.S. Supreme Court suggested that advances in technology, including telephonic, radio, video, and electronic warrants, have simplified and sped up the process enough to enable officers to obtain warrants in a timely manner for many DUI cases.¹¹ Thus, the court ruled that the validity of warrantless blood draws must be decided on a case-by-case basis. This, of course, makes it far more difficult for prosecutors to introduce test results in the absence of a warrant. As a result, many jurisdictions have established procedures for streamlining the warrant process. Unfortunately, even the quickest electronic systems can slow the process and result in lost evidence due to metabolism.

A large percentage of DUI arrestees, particularly those with prior arrests, refuse to provide evidential samples for testing. Although no national data exist regarding the frequency of drug test refusals, there are significant data on analogous breath alcohol test refusals. In 2011, the average breath alcohol test refusal rate in the United States was 24 percent.¹² In order to compel DUI arrestees to provide evidential samples, most states have enacted laws requiring officers to suspend or revoke the licenses of drivers who refuse to provide



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samples when officers have probable cause to believe they are impaired (these laws are commonly referred to as administrative license revocation or ALR laws). Some states have gone a step further and passed laws criminalizing such refusals. In *Birchfield v. North Dakota*, the U.S. Supreme Court ruled that states could not criminalize blood test refusals since blood testing is so intrusive (however, the court ruled that similar laws applying to breath test refusals are acceptable since breath testing is minimally intrusive).¹³

McNeely and *Birchfield* did not address urine testing. However, there is a reasonable possibility that the courts will extend the rulings to urine testing because of the privacy concerns it raises. In fact, the Minnesota Supreme Court recently did so in *State v. Thompson*.¹⁴

The Admissibility of Oral Fluid Testing Under the *Frye* and *Daubert* Standards

Oral fluid testing is relatively new when compared to blood and urine testing. However, laboratory testing of oral fluid specimens incorporates validated protocols similar to currently accepted practices for blood testing. Thus, the analyses are extremely reliable, and there is little doubt that the tests are admissible under *Frye* and *Daubert*.

On-site devices, however, are a different matter because the quality varies widely.¹⁵ Most jurisdictions use these kits as screening devices to identify drivers from whom additional biological specimens are to be collected for laboratory testing. In these cases, the results' admissibility is not a significant issue. In jurisdictions that wish to use the results for evidential purposes, officials need to carefully determine the scientific underpinnings of the devices they use and the evidence they can cite for their reliability. That said, it should be noted that a judge in California admitted on-site oral fluid test results from the Dräger DrugTest 5000.¹⁶

Legal Issues Pertaining to Oral Fluid Testing

As noted herein, the U.S. Supreme Court held that (1) there was no per se rule allowing law enforcement officers to obtain blood samples for forensic testing from DUI subjects without a warrant in *McNeely* and (2) that states cannot criminalize blood test refusals in *Birchfield*. However, the authors do not believe that the court will extend either of these cases to include oral fluid drug testing.

In *Maryland v. King*, the U.S. Supreme Court recognized that oral fluid DNA testing is far less intrusive, dangerous, and painful than blood testing.¹⁷ Accordingly, the court held that taking a cheek swab to verify a person's identity through DNA testing is

a legitimate police booking procedure and permissible under the Fourth Amendment.

Based on this precedent, it is probable that the court will treat oral fluid drug testing the same way it has treated oral fluid DNA testing and breath testing. In other words, it appears that law enforcement officers may obtain oral fluid samples for drug testing without needing to obtain a warrant, and states may pass laws criminalizing oral fluid test refusals. Assuming this to be true, oral fluid drug testing confers significant advantages for law enforcement over blood and urine drug testing. It is, however, recommended that police leaders consult with counsel to ensure any collection policies align with state or federal laws.

Current System Failures and Consequences

Unfortunately, in most U.S. jurisdictions, officers do not test impaired drivers for drugs unless they provide blood or breath samples below the legal limit for alcohol as a matter of standard operating to save the time and expense associated with the testing process. More than 1.1 million people were arrested for DUI in 2014.¹⁸ No one knows what percentage of those drivers had drugs in their system, since the states don't separate drugged drivers from alcohol-impaired drivers, and, more important, the vast majority of impaired drivers are not tested for drugs since they test above the legal limit for alcohol.¹⁹

The failure to identify and properly prosecute drivers for drug-impaired driving may have significant direct and indirect consequences. In every state, probation officers evaluate DUI offenders for alcohol and drug problems and refer them to appropriate treatment programs. Unfortunately, offenders often minimize or deny their issues; therefore, they might evade treatment that can alleviate their condition. This may explain why DUI recidivism rates are relatively high. In Norway, researchers followed 1,102 drivers who tested positive for drugs and 850 drivers with blood alcohol levels between 0.16 and 0.19 for seven years. They found that the drivers who tested between 0.16 and 0.19 recidivated at a rate of 28 percent, while those who tested positive for drugs recidivated at a rate of 57 percent (more than twice as often).²⁰ If impaired drivers are not tested for drugs, it is impossible to know which group they fall into, thus hindering proper treatment and recidivism prevention efforts.

Proposed Solutions: Oral Fluid Testing

Currently, many officers have advanced training as a Drug Recognition Expert (DRE) or in Advanced Roadside Impaired Driving Enforcement (ARIDE). However, many drug-impaired drivers continue to

evade detection at roadside contacts because their conditions are attributed to others factors, such as drowsiness and medical conditions. Roadside oral fluid testing can assist officers in developing probable cause for arrest by providing objective and scientific evidence, just as officers may use preliminary breath testers (PBTs) to confirm alcohol impairment. Further, using the devices at roadside minimizes the chances that evidence will be lost through metabolism. Officers who use on-site devices in this manner are cautioned to consider the results within the totality of the circumstances, not simply rely on the results as a stand-alone basis to make an arrest.

Several years ago, practitioners and researchers suggested testing all DUI arrestees for drugs.²¹ Screening arrestees with blood or breath alcohol levels above the legal limit with on-site oral fluid devices and collecting samples for forensic testing for those that screened positive (the "Miami Protocol") was recommended. The protocol would have two significant benefits: First, it would enhance DUI prosecutions; second, and more important, it would provide a cost-effective way to identify drug-impaired drivers, thus providing the information that probation officers and treatment professionals need to better monitor and rehabilitate probationers. In the ideal world, officers would collect samples for laboratory testing immediately after a positive screen to minimize the loss of evidence.

This solution has not been evaluated in depth; however, various parties have conducted preliminary evaluations. In 2012, the researchers partnered with the Miami-Dade County State Attorney's Office, Miami-Dade Police Department (the local sheriff's office), NMS Foundation, and the Center for Forensic Science Research and Education to evaluate the efficacy of using two on-site devices to screen drugged drivers for additional confirmatory testing. Interestingly, 39 percent of drivers with breath alcohol levels of 0.08 or higher tested positive for at least one drug category.²² None of these incidents of drug use in drivers would have been identified under the traditional standard operating procedures, since they had already tested above the threshold for alcohol impairment. The officers who participated in the evaluation liked the kits (one even referred to them as a "blessing").²³

Several other jurisdictions have conducted similar pilot projects demonstrating the efficacy and utility of oral fluid screening. For example, in California (in 2014), officers used two different brands of rapid screening devices at four sites. There were less than 1 percent false results, both positive and negative, on the devices when compared to blood or evidential oral fluid. In Vermont (in 2015), officers used both devices, as well, and achieved less than

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Quantisal oral fluid collection device

2 percent false results, both positive and negative, when compared to urine, blood, or evidential oral fluid. Pilot projects have also been completed in Oklahoma, Wisconsin, and Kansas—though results are not yet available—and other jurisdictions are conducting additional pilot projects.

Recommendations

On-site oral fluid testing devices are not perfect; however, they provide a viable and cost-effective way to identify drugged drivers proximate to the traffic stop. The authors recommend that officers screen all impaired drivers for drugs using on-site devices.

It is also recommended that jurisdictions consider replacing blood and urine testing with oral fluid laboratory tests for four reasons. First, as noted above, *McNeely* and *Birchfield* make it difficult for officers to obtain blood (and possibly urine) samples without a warrant. However, those same cases suggest that oral fluid testing doesn't carry those legal challenges. Second, officers can collect evidentiary samples for submission to the laboratory at roadside, which minimizes the possibility that the DUI subjects will eliminate the drugs from their system. Third, positive oral fluid test results of a parent drug indicate recent usage only, potentially correlating to the duration of drug effect, and do not indicate use from days ago. Fourth, it appears that states may criminalize oral fluid test refusals, unlike blood tests, thus increasing test compliance rates. ❖

Notes:

¹Richard Compton and Amy Berning, "Results of the 2007 National Roadside Survey of Alcohol and Drug Use by Drivers," *Traffic Safety Facts*, July 2009. According to the National Highway Traffic Safety Administration's (NHTSA's) Fatality Analysis Reporting System (FARS), an estimated 23,246 people were killed in crashes where at least one driver had a blood alcohol level above 0.08; in 2014, 9,967 people died in such crashes. See, e.g., Jennifer N. Dang, *Statistical Analysis of Alcohol-Related Driving Trends, 1982–2006* (NHTSA, May 2008); and National Center for Statistics and Analysis, "Alcohol-Impaired Driving," *Traffic Safety Facts – 2014 Data* (NHTSA, December 2015).

²Note that a driver might test positive for drugs without being impaired, just as a driver might test positive for low levels of alcohol without being impaired. John H. Lacey et al., *2007 National Roadside Survey of Alcohol and Drug Use by Drivers: Alcohol Results*, NHTSA, December 2009, <http://www.nhtsa.gov/DOT/NHTSA/Traffic%20Injury%20Control/Articles/Associated%20Files/811248.pdf> (accessed December 6, 2016).

³Amy Berning, Richard Compton, and Kathryn Wochinger, "Results of the 2013–2014 National Roadside Survey of Alcohol and Drug Use by Drivers," *Traffic Safety Facts* (NHTSA, February 2015).

⁴"Drug Involvement of Fatally Injured Drivers," *Traffic Safety Facts* (NHTSA, November 2010); Amy Berning and Dereece D. Smither, "Understanding the Limitations of Drug Test Information, Reporting, and Testing Practices in Fatal Crashes," *Traffic Safety Facts* (NHTSA, November 2014).

⁵Joanne E. Brady and Guohua Li, "Trends in Alcohol and Other Drugs Detected in Fatally Injured Drivers in the United States, 1999–2010," *American Journal of Epidemiology* 179, no. 6 (March 2014): 692–699. In a survey of Alabama drivers aged 55 or older, 68.7 percent reported current use of potentially impairing medications. See Paul A. MacLennan et al., *2009 Older Adult's Knowledge About Medications That Can Impact Driving* (Washington D.C.: AAA Foundation for Traffic Safety, 2009).

⁶Northwest High Intensity Drug Trafficking Area (NWHIDTA), *Washington State Marijuana Impact Report*, vol. 1, March 2016; Rocky Mountain HIDTA, *The Legalization of Marijuana in Colorado – The Impact*, vol. 2, August 2014; Rocky Mountain HIDTA, *The Legalization of Marijuana in Colorado – The Impact – Preliminary Report*, vol. 1, August 2013.

⁷See, e.g., Barry K. Logan, Amanda L. A. Mohr, and Stephen K. Talpins, "Detection and Prevalence of Drug Use in Arrested Drivers Using the Dräger Drug Test 5000 and Affiniton DrugWipe Oral Fluid Drug Screening Devices," *Journal of Analytical Toxicology* 38, no. 7 (2014): 444–450.

⁸NHTSA, "Drivers' Use of Marijuana in Washington State," *Traffic Tech*, Technology Transfer Series, August 2016.

⁹See, *Frye v. United States*, 293 F. 1013 (D.C. Ct. App. 1923).

¹⁰*Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 589 (1993).

¹¹*Missouri v. McNeely*, 569 U.S. ___, 133 S. Ct. 1552, 185 L.Ed.2d 696 (2013).

¹²Esther S. Namuswe, Heidi L. Coleman, and Amy Berning, "Breath Test Refusal Rates in the United States – 2011 Update," *Traffic Safety Facts*, Research Note (NHTSA, March 2014).

¹³*Birchfield v. North Dakota*, 579 U.S. ___, 2016 WL 3434398 (June 23, 2016).

¹⁴*State v. Thompson*, 886 N.W.2d 224 (Minn. 2016).

¹⁵See Sylvia Vanstechelman et al., "Analytical Evaluation of Four On-site Oral Fluid Drug Testing Devices," *Journal of Analytical Toxicology* 36, no. 2 (March 2012): 136–140, and Frank Musshoff et al., "Performance Evaluation of On-site Oral Fluid Drug Screening Devices in Normal Police Procedure in Germany," *Forensic Science International* 238 (May 2014): 120–124.

¹⁶*State v. Salas*, Case No. BF153631A (Cal. Kern Co., November 30, 2015, oral order).

¹⁷*Maryland v. King*, 133 S. Ct. 1958, 186 L.Ed.2d 1 (2013).

¹⁸See Federal Bureau of Investigation, "Crime in the United States: 2014," table 29, Estimated Number of Arrests, United States, 2014, <https://www.fbi.gov/about-us/cjis/ucr/crime-in-the-u.s./2014/crime-in-the-u.s.-2014/tables/table-29>.

¹⁹In 1993, Miami-Dade County, Florida, prosecutors and police officers reviewed data from 25,129 DUI arrests involving the county's three largest police departments. Ninety-one percent (91 percent) of DUI arrestees provided breath samples of 0.08 or higher or refused to provide a sample. When the study was replicated in Grand Island, Nebraska, 89.81 percent of the drivers tested provided samples of 0.08 or higher or refused to provide a sample. For further information, contact Stephen K. Talpins. There is little doubt that similar data could be obtained from virtually any jurisdiction in the United States.

²⁰A. S. Christophersen et al., "Rearrest Rates among Norwegian Drugged Drivers Compared with Drunken Drivers," *Drug and Alcohol Dependence* 66, no. 1 (March 2002): 85–92.

²¹Stephen K. Talpins et al., "The Miami-Dade Protocol: Making Drugged Driving Enforcement a Reality," *Journal of Alcoholism & Drug Dependence* 3, no. 4 (August 2015).

²²Logan, Mohr, and Talpins, "Detection and Prevalence of Drug Use in Arrested Drivers Using the Dräger Drug Test 5000 and Affiniton DrugWipe Oral Fluid Drug Screening Devices."

²³Talpins et al., "The Miami-Dade Protocol: Making Drugged Driving Enforcement a Reality."