N·T·L·C

Between the Lines

National Traffic Law Center

October 2020 / Volume 28, Issue 10

UPCOMING TRAININGS & CONFERENCES

- **NDAA** *is making its National Courses available virtually in light of health and safety concerns over COVID-19. Check out a full list of NDAA's virtual learning sessions at* http://ndaa.org/wp-content/uploads/NDAA-Offerings-Covid19.pdf.
- **NDAA's Mastering Masking Digital Course/On Demand Training** https://ndaa.org/training/mastering-masking-2/
- **NDAA's Human Trafficking and the Impact on Commercial Driver's Licenses /On Demand Training** https://ndaa.org/training/human-trafficking-and-the-impact-on-commercial-drivers-licenses/
- **NDAA's Prosecuting DUI Cases Online Course/On Demand Training** https://ndaa.org/training/prosecuting-dui-cases/
- **NDAA's Prosecution by the Numbers—Working with State Policymakers and Leveraging Data to Improve Decision-Making /** October 28, 2020 Live webinar @ 2:00 pm–3:00 pm EST
- **NDAA's The Creative Visual Closing Argument /** November 16, 2020 Live webinar @ 11:45 am–1:00 pm EDT
- **NDAA's Understanding & Utilizing 21st Century Forensic Evidence /** December 1–3, 2020 Live webinar @ 11:30 am–5:00 pm EDT each day

RESOURCES

- **Impaired Driving Resources**—https://ndaa.org/programs/ntlc/
- **CDL-Related Resources**—https://ndaa.org/programs/ntlc/commercial-drivers-license/

NDAA STAFF

The National Traffic Law Center is a division of the National District Attorneys Association. This document was prepared under Cooperative Agreement Number 693JJ91950010 from the U. S. Department of Transportation National Highway Traffic Safety Administration. Points of view or opinions in this document are those of the authors and do not necessarily represent the official positions or policies of the Department of Transportation or the National District Attorneys Association.

Use of Oral Fluid to Detect Drugged Drivers

*By **Christine Moore**, PhD, DSc DABCC FAACC / Chief Toxicologist Scientific Affairs Toxicology / R & D Abbott Inc. / christine.moore@abbott.com*
***Bill Lindsey**, Esq., Traffic Safety Resource Prosecutor / Office of Prosecution Services / william.lindsey@alabamada.gov*
***Curt E. Harper**, PhD, F-ABFT / Chief Toxicologist / Alabama Department of / Forensic Sciences / curt.harper@adfs.alabama.gov*
***Jennifer R. Knudsen**, Esq. / Traffic Safety Resource Prosecutor / Colorado District Attorneys' Council / jen@cdac.state.co.us*

Drugged driving is becoming more prevalent throughout the United States. Data produced in the National Highway Traffic Safety Administration (NHTSA) sponsored National Roadside Surveys (NRS

2007; 2013/2014) have shown the prevalence of drugs in blood and oral fluid collected voluntarily from drivers increased from 16.3% to 20%, with marijuana detection rates rising from 8.6% to 12%. Many law enforcement officers and prosecutors are unfamiliar and uncomfortable with investigating and prosecuting these types of impaired driving cases. Traffic safety professionals are exploring avenues to combat these issues. For example, several states have improved warrant systems to get them faster to prevent the loss of critical evidence from biological samples. Perhaps the greatest benefit of using oral fluid for laboratory-based confirmation testing is the ability to analyze a biological specimen collected at the roadside, closer

Many law enforcement officers and prosecutors are unfamiliar and uncomfortable with investigating and prosecuting these types of impaired driving cases.

to the time an individual was operating a motor vehicle. This offers better information about drug positivity that could be lost by collecting a specimen with time periods between the traffic stop and the collection of the specimen. Additionally, the advances in roadside oral fluid field screening technology give law enforcement an additional tool to use to develop probable cause for such warrants before laboratory-based confirmation testing is pursued.

While oral fluid drug screening technology is not new to the science arena, use of this technology by law enforcement at the roadside is a newer concept prompted by the commercialization of cannabis and the opioid epidemic. Programs have been in place internationally for many years; however, they are relatively new within the United States. Lessons learned from jurisdictions that have piloted and/or utilize oral fluid drug testing are instructive for jurisdictions that are exploring the viability of this approach.

There are advantages and disadvantages of different specimen types (*i.e.*, blood, urine, oral fluid) for purposes of drugged driving investigation. Most states collect blood in suspected drugged driving cases; therefore, the greatest volume of reference data is available for blood drug concentrations. Specimen choice considerations include level of invasiveness, ease and cost of collection and analysis, state statute, and correlation to recency of use. It is important to note that there is not a direct correlation between concentration and the degree of impairment for drugs other than alcohol with any specimen type and it is ill-advised to predict impairment in a specific individual based on toxicology results alone. The totality of

circumstances in a drugged driving case should also be considered when opining on impairment.

Blood is considered, by most, to be the gold standard of biological samples in drug-impaired driving cases. It is blood that carries the drug throughout the body so that it can interact with receptors in the brain to cause effects. Therefore, it is an attractive specimen that contains pharmacologically active parent drug and often reflects recent drug use.

Due to the invasive nature of a blood collection, people are afforded more legal protections than other samples (*e.g.*, breath, which may be taken as a search incident to arrest). Adulteration potential is extremely low with blood. However, some challenges with blood

Due to the invasive nature of the search, people are afforded more legal protections than other samples (e.g., breath, which may be taken as a search incident to arrest).

analysis include delay in collection time (*e.g.*, ≥ 2 hours between arrest and blood draw in many states), requirement of specialized personnel for collection (e.g., nurse, phlebotomist), higher laboratory costs, and longer analysis time.

Urine typically contains high concentrations of drug metabolites while often lacking parent drugs (*e.g.*, THC). These metabolites may be present for days or weeks after last use. The window of detection for drugs in urine does not reflect recent use and lacks any correlation to impairment. Despite costing less to perform qualitative testing in urine, agencies are discouraged from using this specimen type in impaired driving cases. With that said, it is recognized that some states collect urine for drugged driving cases because of per se laws and/or the ease of analyzing for drugs.

Despite its limited use in drugged driving investigations in the United States, oral fluid testing has been around for over a decade and is used today in workplace drug testing, pain management monitoring, and other applications. Oral fluid is the most practical specimen to be used by field screening devices (*e.g.*, at the roadside) due to rapid, noninvasive, and simple sample collection. These devices may be used by law enforcement to establish probable cause in a drugged driving investigation. Currently, there are no reports of intentional volume manipulation or adulteration with oral fluid. Observed collection minimizes the potential

for adulteration and same-gender observation is not required. The level of invasiveness is lower than blood or urine and likely more akin to breath testing. Like blood, oral fluid contains the pharmacologically active parent drug, which likely represents recent drug use. Another significant advantage of oral fluid in a drugged driving investigation is the ability to collect the confirmation specimen closer to the time proximity of driving (*e.g.*, at the roadside) than blood or urine. It is well-known that some drugs (*e.g.*, THC, cocaine) rapidly metabolize and dissipate from the body and a timely collection increases the likelihood of detection.

A major advantage of oral fluid drug screening is the amenability to rapid point of collection (on-site) results (e.g., roadside screening for drugged driving investigations).

A major advantage of oral fluid drug screening is the amenability to rapid point of collection (on-site) results (*e.g.*, roadside screening for drugged driving investigations). These devices typically include an oral fluid collector (*e.g.*, cartridge with pad) and an internal detection system based on lateral flow immunoassay. The presence of a drug can be determined by an objective reading of the test strip by the device itself, typically in the form of an analyzer (e.g., Abbott SoToxa [formerly DDS2], Dräger DrugTest 5000), or by visual inspection of an appearance of a line similar to a pregnancy test (e.g., DrugWipe).

Oral fluid, which is largely a reflection of the free drug circulating in the blood, can be collected and analyzed with commercially available field screening devices allowing the result to be determined within a few minutes; this is particularly useful for situations where drug intake must be determined quickly to take further action.

In recent years, improvements in sensitivity, technology, and instrumentation have greatly improved performance and there are now several commercially available devices that are valid for roadside use. It is important to be aware of devices which should not be used for evidentiary purposes.

A field screening result represents a qualitative assessment (*i.e.*, positive or negative). Devices are immunoassay based and, consequently for forensic purposes, require an independent confirmatory test as recommended with any laboratory-based immunoassay screening procedure. A positive field screening result may indicate a specific drug (*e.g.*,

methamphetamine) or drug class (*e.g.*, benzodiazepines). The results are considered presumptive positives until an evidentiary confirmation has been conducted. An evidentiary confirmation will indicate the specific drug present in the oral fluid. For example, a benzodiazepine positive by a field screening device could be confirmed as alprazolam by evidentiary confirmation in the laboratory. There are numerous benzodiazepines available for therapeutic use or recreational abuse.

Field screening is generally thought to consist of small handheld instruments or visually read devices, but bench-top instruments operating in jails and hospital settings may also be considered screening devices. The devices based on immunoassay technology are prone to the same advantages and drawbacks associated with cross-reactivity and antibody selection as other immunoassays. Advantages include convenient sample collection, ease of use, rapid results, straightforward interpretation, and relatively low costs associated with implementation of a drug screening program.

Disadvantages may include smaller sample volume, difficulty providing a specimen (*e.g.*, dry mouth) and senisitivity challenges from specific drug classes (*e.g.*, benzodiazepines). Further disadvantages related to the field screening devices include the cost of devices and test cartridges and limited scope of analysis.

AAA HAS DEVELOPED USEFUL ORAL FLUID RESOURCES WHICH ARE AVAILABLE FOR FREE:

To access the Oral Fluid Pocket Card for law enforcement, visit https://tinyurl.com/AAAPocketGuide.

To access the Using Oral Fluid to Detect Drugs handout, visit https://tinyurl.com/AAAOralFluidHandout.

The implementation of an oral fluid drug screening (at roadside) or testing (laboratory-based) program should be a collaborative process involving multiple stakeholders within the administrative and criminal justice systems. This ensures that different perspectives are considered, and important contemplations of each system facet are addressed. An isolated approach limits success and has the potential to lead to unnecessary challenges or issues that could otherwise be easily resolved. There are a multitude of oral fluid field screening devices available; therefore, law enforcement and laboratory personnel must take a variety of factors into consideration when determining which devices to approve and use in the field.

The cost of roadside devices that include an analyzer as part of the system and their test cartridges may prohibit some agencies from purchasing these tools. There is variability in oral fluid technology because some devices are single use and disposable and others utilize systems. The size of systems can also vary because some units have large box-like analyzers and others are hand-held. While oral fluid screening can be costly, the cost of oral fluid confirmation collection devices is typically significantly more affordable. While per test costs are presently high, the development of a larger market for oral fluid technology is likely to create more competition and drive down costs similar to other forms of alcohol and drug testing technology.

Roadside devices do not typically allow confirmation laboratory testing of the same specimen that is screened although there are a few exceptions (*e.g.*, the use of the Dräger DrugTest 5000 in Australia). Therefore, a second oral fluid confirmation sample should be collected for forensic toxicology laboratories offering this testing. In such cases, total oral fluid-elution buffer volume is typically low (~2–4mL) and may restrict the number of confirmatory tests that can be performed. This can be adequately handled if a laboratory performs qualitative analysis via LC-MS/MS. Lastly, oral fluid testing is not currently common to most forensic laboratories and would require time, financial resources, and skilled personnel to conduct method development and validation. However, increasing laboratory capacity has become an important priority for many within the traffic safety field and further appropriations to state laboratories to increase efficiency and reduce backlog in sample analyses could support more widespread adoption of oral fluid confirmation testing.

There are cutoffs (*i.e.*, for field screening devices) and limit of detections (*i.e.*, for confirmation techniques) with any analytical test. False positive and negative rates and precision at the decision point should be evaluated during device approval and method valida-

tion. There is always the possibility of the presence of a drug below the cutoff or limit of detection (LOD). This should be considered in conjunction with the timing of sample collection when interpreting toxicology results.

Oral fluid field screening devices can be used by law enforcement during a drugged driving investigation to identify drug use. Most of the devices that have been evaluated in recent reports screen for marijuana, cocaine, methamphetamine, amphetamine, opioids, and benzodiazepines. The devices are analogous to preliminary breath tests (PBTs) for alcohol and should be used to establish probable cause. They display results of *positive* or *negative* and should be administered after standardized field sobriety tests (SFSTs) to confirm suspicion of drug use. At this stage, the officer has concluded that the driver is impaired and unable to safety operate a motor vehicle. The roadside oral fluid screen is used to identify what drug class(es) is/are likely causing the impairment. This information can be used to assist with obtaining a search warrant to collect a confirmation specimen (*i.e.*, blood and/or oral fluid). A field screen should not be used for evidentiary purposes, and local law will dictate if these results are admissible in court and under what circumstances.

Preferably, an oral fluid specimen will be collected as the evidentiary specimen proximate to the time of driving and suspected impairment. It is known that some drugs (*e.g.*, THC, cocaine) metabolize and dissipate rapidly from the body resulting in drug concentrations that are low or none detected at the time of a blood draw, often two hours or more after the arrest or crash. Therefore, the analysis of the blood specimen does not reflect blood concentration at the time of the traffic stop or crash. In states that have established per se limits for drugs, the delay in blood sample collection is particularly problematic and can make it difficult to prosecute cases. It is for these reasons that oral fluid should be collected by the investigating officer or by his or her representative as close to the arrest or crash as possible (*e.g.*, at roadside) to increase the likelihood of detecting the impairing substance at the time of driving. To paint the most comprehensive picture of impairment and recency of use, a program may elect to test both blood and oral fluid as confirmation specimens (the oral fluid drug testing program established by the Alabama Department of Forensic Sciences utilizes this approach).

As with any impaired driving investigation, all facets of the investigation should be considered (*i.e.*, vehicle in motion, personal contact, and SFST performance). The totality of circumstances in conjunction with the toxicological analysis should be reviewed.

The adjudication of impaired driving offenses is difficult due to the complex and scientific nature of these cases. Drug-impaired driving cases tend to be particularly challenging because state statutes vary considerably and the approaches commonly used in prosecuting impaired driving cases (*e.g.*, proving that a defendant had a blood alcohol concentration above the per se limit) are not always applicable.

The use of field screening devices and laboratory oral fluid testing has not been widely litigated in the criminal justice system. Some states have laws authorizing oral fluid testing, but practices vary greatly. When police ask a person to provide a biological sample during an impaired driving investigation, it is considered a search and is subject to constitutional scrutiny. *See Schmerber v. California,* 86 S. Ct. 1826, 1833-36 (1966) (testing of the blood is a search under the Fourth Amendment requiring courts to determine whether the search was justified and whether the means used to get blood were reasonable).

Birchfield v. North Dakota, 136 S. Ct. 2160 (2016), provides guidance on the legal analysis of these searches. This decision notes that there are far fewer privacy concerns with breath tests, than blood tests. *Id.* at 2176-77 (there is no piercing of the skin, the effort is comparable to blowing up a balloon, expelled air [breath] is not part of the body, breath test reveals only the amount of alcohol compared to other results that may come from testing blood, etc.). Breath tests do not give rise to significant privacy issues (including no embarrassing moments during collection) and only create minimal inconvenience for the test subject. "[T]he Fourth Amendment permits warrantless breath tests incident to arrests for drunk driving," but not blood tests. *Id.* at 2184. Blood tests are significantly more intrusive, because getting blood is extracting a part of the person's body by piercing skin and going into a vein and blood can be tested for things besides the alcohol content. *Id.* at 2178. Thus, courts must weigh more privacy issues in cases involving blood.

The Court has not heard a case concerning oral fluid, but sample types can be compared using its analysis of breath and blood in *Birchfield.* The level of intrusiveness is somewhere between blood and breath. There is no piercing of the skin, but the collection involves taking something from the body that a person is not ordinarily disposing of frequently like breath when someone exhales. Although there is no needle inserted in a vein, the subject may have to keep a device in her mouth for several minutes (compared to seconds for breath testing instruments or blowing up a balloon). No embarrassing moments should occur during the collection. Oral fluid is almost always collected to test for drugs other than alcohol so it

is more like blood in that the results are not just limited to the measurement of alcohol in the sample.

Another similarity between breath and oral fluid is that law enforcement may take two breath samples, one on the roadside (PBT) and one after arrest (using an approved instrument in a controlled environment). The PBT results may help a law enforcement officer establish probable cause to arrest and/or know whether further testing is required (*i.e.*, if the person who appears to be greatly intoxicated blows .000 on a PBT, then an officer should consider a test that can detect other drugs). The roadside result should be used in pretrial hearings or as allowed by law only. After probable cause has been established, the results from a secondary laboratory-based confirmatory test may be used at trial. The use of oral fluid testing can be conducted in a similar way. An oral fluid field screening device is also used by law enforcement to assist in establishing probable cause for the arrest and to apply for a search warrant for blood and/or confirmatory oral fluid sample. Any laboratory results from testing oral fluid (like blood results) are admissible in all legal proceedings, including trial.

The collection of the oral fluid sample to send to a laboratory is similar to DNA collection. Oral fluid can be collected as an undiluted fluid via passive drool, expectoration into a tube, or using a cotton or synthetic fiber collection pad placed into a dry tube or into a diluent for shipment to a laboratory; although the collection of passive drool without a stabilizing buffer allows THC to degrade rapidly. The United States Supreme Court has already ruled that similar types of collection processes are far gentler than a blood draw and that the intrusion is negligible. *See Maryland v. King,* 133 S. Ct. 1958 (2013). The balance of privacy issues and law enforcement concerns will aid in the determining the reasonableness of the search.

There is not a direct corollary with the evidentiary test results and degree of impairment, but it will aid law enforcement and prosecutors in explaining the impairment and may give all parties a potential timeframe of when the individual last used the drug.

At least one court has had a hearing on the admissibility of an oral fluid field screening device result. The evidentiary hearing concerned the use of a Dräger DrugTest 5000, and the court found that "the correct scientific procedures were used . . . [t]he court further finds that there is sufficient reliable evidence of the drug screening test administered." *People v. Junior Salas,* Register of Actions Kern County, California Case Number BF15363A. November 30, 2015 (Appendix A) and Transcript of Excerpt of Jury Trial Testimony (402 Hearing) (Appendix B).

We depend on law enforcement and prosecutors to promote the usefulness of oral fluid drug screening technology, while not overstating how such results can be used during the adjudication of an impaired driving suspect. Ultimately, we want to create a process that provides law enforcement, scientists, and prosecutors with the tools to develop, utilize, and admit oral fluid testing results in criminal courts. Always remember, no matter the impairment, "if you feel different, you drive different."

AUTHOR BIOS

DR. CURT E. HARPER has over 12 years of experience as a Forensic Toxicologist. He was appointed Toxicology Discipline Chief for the Alabama Department of Forensic Sciences (ADFS) in 2012. As Toxicology Discipline Chief, he oversees technical operations, method development and validation, and the quality assurance/quality control program, manages productivity, serves as training coordinator, and develops and maintains standard operating procedures. Dr. Harper has a PhD in Pharmacology and Toxicology and a Master's of Science in Forensic Science from the University of Alabama at Birmingham (UAB). He holds a board certification as a Fellow of the American Board of Forensic Toxicology (F-ABFT) and serves as Chair of the SOFT/AAFS Drugs and Driving and Vice Chair of the Oral Fluid Committees. In addition, he acts as a board member for the International Association for Chemical Testing (IACT). Dr. Harper serves as an adjunct professor at the University of Alabama at Birmingham (UAB) in the Department of Justice Sciences and faculty for the Borkenstein Alcohol Course at Indiana University. His interests include DUI/D testing and interpretation, oral fluid drug testing, drug facilitated sexual assault, and Q-TOF unknown drug screening. As an Alabama Peace Officer, Dr. Harper has been certified as a Drug Recognition Expert since 2015 and acts as a member of the Alabama Impaired Driving Prevention Council. Prior to his appointment as Discipline Chief for ADFS, he served as Toxicology Supervisor in Richmond for the Virginia Department of Forensic Science for two years. Dr. Harper has testified on the effects of alcohol and other drugs in over 185 criminal or civil cases during his tenure in Alabama and Virginia. He was awarded the 2019 Kevin E. Quinlan Award for Excellence in Traffic Safety.

JENNIFER KNUDSEN is Colorado's Traffic Safety Resource Prosecutor (TSRP). She works for the Colorado District Attorneys' Council, which represents Colorado's elected district attorneys. She graduated from the University of Denver with a Bachelor of Arts in Political Science (Departmental Honors with Distinction and University Honors) and the University of Colorado School of Law where she earned a juris doc-

torate and certificate in taxation. Ms. Knudsen started her career as a judicial law clerk to the Honorable Stephen M. Munsinger (retired) and Brian D. Boatright in the First Judicial District in Golden, Colorado. She first became a prosecutor in Arapahoe and Douglas Counties in the Eighteenth Judicial District Attorney's Office. As an Assistant Attorney General, she represented the Directors of Tax Compliance and Enforcement; the Motor Vehicle Dealer Board; Liquor Enforcement, Division of Motor Vehicles; and Port of Entry at the Colorado Department of Revenue. She has handled other traffic safety matters on a state and local level in private practice and legal counsel to law enforcement. She also acts as a resource to traffic safety professionals in-state and nationwide, produces and edits the Colorado's Prosecutors DUI Manual, works on state and federal legislation related to traffic safety issues, and oversees the maintenance and creation of online resources for Colorado's prosecutors. She is also a member of the Colorado DRE Advisory Committee and the MADD Law Enforcement Awards Selection Committee. Ms. Knudsen is a co-author of Strategies for Prosecuting DWI Cases, which was published during the summer of 2016 by Aspatore (a division of Thomson Reuters). She has also sat on a panel of experts for a Standardized Field Sobriety Testing and Drug Evaluation & Classification Program assessment for the National Highway Traffic Safety Administration. She was awarded the 2018 Kevin E. Quinlan Award for Excellence in Traffic Safety.

BILL LINDSEY has over 13 years of experience as a prosecutor for the State of Alabama. He was appointed TSRP for the State of Alabama in 2015. He received his BA in Political Science from the University of Mississippi and his J.D. from the University of Alabama. He serves as chairman of the Alabama Impaired Driving Prevention Council and the Alabama Traffic Safety Resource Council. Prior to his appoint as TSRP, Mr. Lindsey served as a Deputy District Attorney for the 6th Judicial Circuit of Alabama (Tuscaloosa County) for almost 10 years. Mr. Lindsey is also a co-author of Strategies for Prosecuting DWI Cases.

DR. CHRISTINE MOORE is currently the Chief Toxicologist for the Rapid Diagnostics Division of Abbott. Dr. Moore has a BSc degree in Applied Chemistry, a master's degree in Forensic Science, and a PhD and DSc in Forensic Toxicology from the University of Glasgow, Scotland. She is Board Certified in Toxicological Chemistry, and a Fellow of the Royal Society of Chemistry and of the American Academy of Forensic Sciences. She currently has over 120 peer-reviewed publications regarding the analysis of drugs in various biological matrices, including blood and oral fluid.