volume 4, issue 1

GEORGIA traffic PROSECUTOR

A Publication of the Prosecuting Attorneys' Council of Georgia Traffic Safety Program

···> our mission

The goal of PAC's Traffic Safety Program is to effectively assist and be a resource to our fellow prosecutors in keeping our highways safe by helping to prevent deaths and accidents on the roads in Georgia.

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Photo Courtesy: The International Drug Evaluation & Classification Program (www.decp.org)

feature article >

Drug impaired drivers kill and injure thousands of people each year throughout the United States. Unfortunately, prosecuting drug-impaired drivers is a challenging task for both the Drug Recognition Expert (DRE) and the Prosecutor. Jurors, who are very familiar with alcohol's effects, signs and symptoms, often know little, if anything, about other drugs. To successfully explain the evidence and issues to the jurors in a DUI Drugs case, prosecutors must understand basic drug toxicology.

additional features

The ABCs of DREs

Excerpts reprinted with permission from the International Association of Chiefs of Police (IACP)

What is a Drug Recognition Expert?

A drug recognition expert or drug recognition evaluator (DRE) is a police officer trained to recognize impairment in drivers under the influence of drugs other than, or in addition to, alcohol and in identifying the category or categories of drugs causing the impairment. A DRE is an individual who has successfully completed all phases of the Drug Evaluation and Classification Program's training requirements for certification as established by the International Association of Chiefs of Police (IACP) and the National Highway Traffic Safety Administration (NHTSA).

The Drug Evaluation & Classification Program:

The Drug Evaluation and Classification (DEC) Program trains police officers and other public safety officials as drug recognition experts or drug recognition evaluators (DREs) through a three-phase training curriculum that includes the following:

- Drug Recognition Expert Pre-School (16 hrs.)
- Drug Recognition Expert School (56 hrs.)
- Drug Recognition Expert Field Certification (Approximately 40 hrs.)

The training relies heavily upon the Standardized Field Sobriety Tests (SFSTs), which provide the foundation for the DEC Program. Once trained and certified, DREs become highly effective officers skilled in the detection and identification of persons impaired or affected by alcohol and/or drugs.

The Drug Recognition Expert at Work:

A Drug Recognition Expert conducts a detailed, diagnostic examination of persons arrested or suspected of drug-impaired driving or similar offenses. Based on the results of the drug evaluation, the DRE forms an expert opinion on the following:

1. Is the person impaired? If so, is the person able to operate a vehicle safely? If the DRE concludes that the person is impaired…

2. Is the impairment due to an injury, illness or other medical complication, or is it drug-related? If the impairment is due to *drugs*…

3. Which category or combination of categories of drugs is the most likely source of the impairment?

DREs conduct their evaluations in a controlled environment, typically at police precincts, intake centers, troop headquarters or other locations where impaired drivers are transported after arrest. The drug evaluation is not normally done at roadside and is typically a post-arrest procedure.

In some cases, the person evaluated will be a driver the DRE personally arrested. In many cases, however, the DRE will be called upon to conduct the evaluation after the driver was arrested by another officer. The DRE is requested to assist in the investigation because of his special expertise and skills in identifying drug impairment.

The DRE drug evaluation takes approximately one hour to complete. The DRE evaluates and assesses the person's appearance and behavior. The DRE also carefully measures and records vital signs and makes precise observations of the person's automatic responses and reactions. The DRE also administers carefully designed psychophysical tests to evaluate the person's judgment, information processing ability, coordination and various other characteristics. The DRE will systematically consider everything about the person that could indicate the influence of drugs.

A Drug Recognition Expert never reaches a conclusion based on any one element of the evaluation, but instead on the totality of facts that emerge. The DRE evaluation is *standardized* because it is conducted the same way, by every Drug Recognition Expert, for every suspect whenever possible. Standardization is important because it forces the officers to be better observers, helps to avoid errors, and promotes professionalism.

continued >

This newsletter is a publication of the Prosecuting Attorneys' Council of Georgia. The "Georgia Traffic Prosecutor" encourages readers to share varying viewpoints on current topics of interest. The views expressed in this publication are those of the authors and not necessarily of the State of Georgia, PACOG or the Council staff. Please send comments, suggestions or articles to Fay McCormack at fmccormack@pacga.org or Patricia Hull at phull@pacga.org.

The 12-Step Drug Recognition Expert Protocol:

DREs are trained to conduct a standardized and systematic 12-step evaluation consisting of physical, mental and medical components. The DRE protocol is a compilation of tests that physicians have used for decades to identify and assess alcohol-and/or drug-induced impairment. The protocols consists of the following 12 steps:

1. Breath Alcohol Test
The arresting officer reviews the subject's breath alcohol concentration (BrAC) test results and determines if the subject's apparent impairment is consistent with the subject's BrAC. If so, the officer will not normally call a DRE. If the impairment is *not* explained by the BrAC, the officer requests a DRE evaluation.

2. Interview of the Arresting Officer
The DRE begins the investigation by reviewing the BrAC test results and discussing the circumstances of the arrest with the arresting officer. The DRE asks about the subject's behavior, appearance, and driving. The DRE also asks if the subject made any statements regarding drug use and if the arresting officer(s) found any other relevant evidence consistent with drug use.

3. Preliminary Examination and First Pulse
The DRE conducts a preliminary examination, in large part, to ascertain whether the subject may be suffering from an injury or other condition unrelated to drugs. Accordingly, the DRE asks the subject a series of standard questions relating to the subject's health and recent ingestion of food, alcohol and drugs, including prescribed medications. The DRE observes the subject's attitude, coordination, speech, breath and face. The DRE also determines if the subject's pupils are of equal size and if the subject's eyes can follow a moving stimulus and track equally. The DRE also looks for Horizontal Gaze Nystagmus (HGN) and takes the subject's pulse for the first of three times. The DRE takes each subject's pulse three times to account for nervousness, check for consistency and determine if the subject is getting worse or better. If the DRE believes that the subject *may* be suffering from a significant medical condition, the DRE will seek medical assistance immediately. If the DRE believes that the subject's condition is drug-related, the evaluation continues.

4. Eye Examination
The DRE examines the subject for HGN, Vertical Gaze Nystagmus (VGN) and for a lack of ocular convergence. A subject lacks convergence if his eyes are unable to converge toward the bridge of his nose when a stimulus is moved inward. Depressants, inhalants, and dissociative anesthetics, the so-called "DID drugs," may cause HGN. In addition, the DID drugs may cause VGN when taken in higher doses for that individual. The DID drugs, as well as cannabis (marijuana), may also cause a lack of convergence.

5. Divided Attention Psychophysical Tests
The DRE administers four psychophysical tests: the Romberg Balance, the Walk and Turn, the One Leg Stand, and the Finger to Nose tests. The DRE can accurately determine if a subject's psychomotor and/or divided attention skills are impaired by administering these tests.

6. Vital Signs and Second Pulse
The DRE takes the subject's blood pressure, temperature and pulse. Some drug categories may elevate the vital signs. Others may lower them. Vital signs provide valuable evidence of the presence and influence of a variety of drugs.

7. Dark Room Examinations
The DRE estimates the subject's pupil sizes under three different lighting conditions with a measuring device called a pupilometer. The device will assist the DRE in determining whether the subject's pupils are dilated, constricted, or normal. Some drugs increase pupil size (dilate), while others may decrease (constrict) pupil size. The DRE also checks for the eyes' reaction to light. Certain drugs may slow the eyes' reaction to light. Finally, the DRE examines the subject's nasal and oral cavities for signs of drug ingestion.

8. Examination for Muscle Tone
The DRE examines the subject's skeletal muscle tone. Certain categories of drugs may cause the muscles to become rigid. Other categories may cause the muscles to become very loose and flaccid.

9. Check for Injection Sites and Third Pulse
The DRE examines the subject for injection sites, which may indicate recent use of certain types of drugs. The DRE also takes the subject's pulse for the third and final time.

10. Subject's Statements and Other Observations
The DRE typically reads *Miranda*, if not done so previously, and asks the subject a series of questions regarding the subject's drug use.

11. Analysis and Opinions of the Evaluator
Based on the totality of the evaluation, the DRE forms an opinion as to whether or not the subject is impaired. If the DRE determines that the subject is impaired, the DRE will indicate what category or categories of drugs may have contributed to the subject's impairment. The DRE bases these conclusions on his training and experience and the DRE Drug Symptomatology Matrix. While DREs use the drug matrix, they also rely heavily on their general training and experience.

12. Toxicological Examination
After completing the evaluation, the DRE normally requests a urine, blood and/or saliva sample from the subject for a toxicology lab analysis.

Once the 12-step protocol is completed, the DRE submits a detailed report documenting the evaluation, the evidence obtained and his/her opinion as to whether or not the suspect was impaired and the category(s) of drugs causing the impairment.

The International Association of Chiefs of Police (IACP) is the coordinating agency for the DEC Program. The International Association of Chiefs of Police (IACP) coordinates the Program with support from the National Highway Traffic Safety Administration (NHTSA) of the U.S. Department of Transportation. For more information about the program, contact Carolyn Cockroft, the IACP DEC program manager, at 703-836-6767, ext. 206.

The 7 Drug Categories

Physicians have long recognized that different types of drugs affect people differently. Nonetheless, drugs may be categorized or classified according to certain shared symptomatologies or effects. The DRE categorization process is premised on these long-standing, medically accepted facts. DREs are trained to identify signs and symptoms of impairment in the following seven drug categories: Central Nervous System (CNS) Depressants, CNS Stimulants, Hallucinogens, Phencyclidine (PCP) and its analogs, Narcotic Analgesics, Inhalants, and Cannabis. Drugs from each of these categories can affect a person's central nervous system and impair a person's normal faculties, including a person's ability to safely operate a motor vehicle.

(1) Central Nervous System (CNS) Depressants

CNS Depressants slow down the operations of the brain and the body. Examples of CNS Depressants include alcohol, barbiturates, anti-anxiety tranquilizers (e.g., Valium, Librium, Xanax, Prozac, and Thorazine), GHB (Gamma Hydroxybutyrate), Rohypnol and many other anti-depressants (e.g., as Zoloft, Paxil).

(2) CNS Stimulants

CNS Stimulants accelerate the heart rate and elevate the blood pressure and "speed-up" or over-stimulate the body. Examples of CNS Stimulants include Cocaine, "Crack", Amphetamines and Methamphetamine ("Crank").

(3) Hallucinogens

Hallucinogens cause the user to perceive things differently than they actually are. Examples include LSD, Peyote, Psilocybin and MDMA (Ecstasy).

(4) Dissociative Anesthetics

This category includes drugs that inhibit pain by cutting off or dissociating the brain's perception of the pain. PCP and it's analogs are examples of Dissociative Anesthetics.

(5) Narcotic Analgesics

A narcotic analgesic relieves pain, induces euphoria and creates mood changes in the user. Examples of narcotic analgesics include Opium, Codeine, Heroin, Demerol, Darvon, Morphine, Methadone, Vicodin and OxyContin.

(6) Inhalants

Inhalants include a wide variety of breathable substances that produce mind-altering results and effects. Examples of inhalants include Toluene, plastic cement, paint, gasoline, paint thinners, hair sprays and various anesthetic gases.

(7) Cannabis

Cannabis is the scientific name for marijuana. The active ingredient in cannabis is delta-9 tetrahydrocannabinol, or THC. This category includes cannabinoids and synthetics like Dronabinol.

History of the Drug Evaluation and Classification Program

Reprinted with permission from the International Association of Chiefs of Police (IACP)

The Los Angeles Police Department (LAPD) developed the Drug Evaluation and Classification Program in the early 1970s. Back then LAPD officers noticed that many of the individuals arrested for driving under the influence (DUI) had very low or zero alcohol concentrations. The officers reasonably suspected that the arrestees were under the influence of drugs, but lacked the knowledge and skills to support their suspicions. In response, two LAPD sergeants collaborated with various medical doctors, research psychologists, and other medical professionals to develop a simple, standardized procedure for recognizing drug influence and impairment. Their efforts culminated in the development of a multi-step protocol and the first DRE program. The LAPD formally recognized the program in 1979.

The LAPD DRE program attracted NHTSA's attention in the early 1980s. The two agencies collaborated to develop a standardized DRE protocol, which led to the development of the DEC Program. During the ensuing years, NHTSA and various other agencies and research groups examined the DEC program. Their studies demonstrated that a properly trained DRE can successfully identify drug impairment and accurately determine the category of drugs causing such impairment.

In 1987, NHTSA initiated DEC pilot programs in Arizona, Colorado, New York and Virginia. The states of Utah, California, and Indiana were added in 1988. Beginning in 1989, IACP and NHTSA expanded the DEC Program across the country. Currently, 45 states, the District of Columbia, three branches of the military, the Internal Revenue Service (IRS), and several countries around the world participate in the DEC Program.

In 1992 the governing board of the International Association of Chiefs of Police approved the creation of the Drug Recognition Section.

Photo Courtesy: The International Drug Evaluation & Classification Program (www.decp.org)

The National Traffic Law Center: A Resource for Prosecutors and Law Enforcement

Excerpts reprinted with permission from *Between the Lines*, Volume 10, Number 3, 2001

In June 1991, in an effort to reduce traffic injuries and fatalities on our nation's roads, the United States Department of Transportation convened Traffic Safety Summit II. At the summit, prosecutors, judges, defense attorneys, law enforcement officials, highway safety experts and drug and alcohol abuse specialists from across the country generated 188 recommendations on all aspects of the prosecution and adjudication of traffic offenses. One of the top priorities was the creation of an information clearinghouse.

In response, in August 1992, the National Highway Traffic Safety Administration (NHTSA) began funding the National Traffic Law Center (NTLC), under a cooperative agreement with the American Prosecutor Research Institute (APRI) in Alexandria, Virginia. The staff at NTLC includes experienced former prosecutors who provide a wide range of services to prosecutors and law enforcement officers.

Clearinghouse

The National Traffic Law Center is a clearinghouse for resources, such as case law, model legislation, research studies, training materials, trial documents and a professional reference directory. The information covers a wide range of topics, including: Breathalyzers; Crash Reconstruction; Horizontal Gaze Nystagmus; Standardized Field Sobriety Tests; and toxicology.

Research

The NTLC provides legal research on topics of particular importance to prosecutors and law enforcement. The Center routinely receives calls from around the country, sometimes under the pressure of time (Prosecutor calling: "I'm in trial, on lunch break, and due back in court in 25 minutes. Can you help me with this issue that just came up?"). The NTLC is committed to providing as much assistance as possible in the allotted time frame.

Technical Assistance

NTLC staff assists prosecutors in all areas of trial preparation, including methods to counter specific defenses. One common request is for information regarding expert witnesses, whether needed by the prosecutor or being offered by the defense. As an example, a prosecutor in Kansas recently contacted NTLC seeking information on out-of-state defense witnesses (one from Florida, the other from Wisconsin) who would be testifying about the Intoxilyzer 5000 and crash reconstruction. The NTLC provided the caller with copies of prior transcripts, publications, and background information on these individuals gathered from other prosecutors and law enforcement agencies who had previously dealt with them. In an attempt to serve callers, the NTLC routinely performs internet and LEXIS seraches and contacts prosecutors who are familiar with particular expert witnesses, forwarding the results of such research along the requester.

Training

NTLC works closely with NHTSA to develop and deliver prosecutor training programs. Current courses include *Prosecution of Driving While Under the Influence*; *Prosecuting the Drugged Driver*; *Lethal Weapon: DUI Homicide*; and, most recently, *Protecting Lives, Saving Futures*. Each course incorporates substantive legal presentations by faculty, along with skill-building sessions where students participate in a mock trial. Participants are critiqued and videotaped to assist in improving their trial skills. These courses are held annually at the National District Attorneys Association's National Advocacy Center, on the campus of the University of South Carolina at Columbia. They are also available for local jurisdictions to present on their own at minimal cost.

Speaker

The legal staff of NTLC is available to make presentations on specific subjects in conjunction with local, state, and national conferences and seminars, with expenses paid by the host organization.

Publications

Finally, the Center produces a variety of publications and written materials, from single-page quarterly newsletters to state law summary charts (e.g., PBT Laws; Admissibility of Chemical Test Refusals) to comprehensive manuals, including *Prior Convictions in DUI Prosecutions*, which is in excess of 1,000 pages and updated annually. The NTLC website, www.ndaa-apri.org, includes some of these materials.

For additional information about these services and publications, contact the National Traffic Law Center, 99 Canal Center Plaza, Suite 510, Alexandria, Virginia, 22314, (phone) 703-549-4253, (fax) 703-836-3195, or e-mail at trafficlaw@ndaa-apri.org.

Drug Category Symptomology Chart

Major Indicators	CNS Depressants	CNS Stimulants	Hallucinogens	Dissociative Anesthetics	Narcotic Analgesic	Inhalants	Cannabis
HGN	Present	None	None	Present	None	Present	None
Vertical Nystagmus	Present (high doses)	None	None	Present	None	Present (high doses)	None
Lack of Convergence	Present	None	None	Present	None	Present	Present
Pupil Size	Normal (1)	Dilated	Dilated	Normal	Constricted	Normal (4)	Dilated (6)
Reaction to Light	Slow	Slow	Normal (3)	Normal	Little or none visible	Slow	Normal
Pulse Rate	Down (2)	Up	Up	Up	Down	Up	Up
Blood Pressure	Down	Up	Up	Up	Down	Up/Down (5)	Up
Body Temperature	Normal	Up	Up	Up	Down	Up/Down Normal	Normal
Muscle Tone	Flaccid	Rigid	Rigid	Rigid	Normal	Normal to Flaccid	Normal
General Indicators	Uncoordinated Disoriented Sluggish Thick, Slurred speech Drunk-like Behavior Drowsiness Droopy Eyes Fumbling Gait Ataxia *Note Methaqualone Pulse elevated & Body tremors ETOH & Quaaludes elevate pulse Soma & Quaaludes dilate pupils	Restlessness Body tremors Excited Euphoric Talkative Exaggerated reflexes Anxiety Grinding teeth (bruxism) Redness to nasal area Runny nose Loss of appetite Insomnia Increased alertness Dry mouth Irritability	Dazed appearance Body tremors Synesthesia Hallucinations Paranoia Uncoordinated Nausea Disoriented Difficulty in speech Perspiring Poor perception of time & distance Memory loss Disorientation Flashbacks *Note: LSD piloerection may be observed (goose bumps, hair standing on end)	Perspiring Warm to the touch Blank stare Very early angle of HGN onset Difficulty in speech Incomplete verbal responses Repetitive speech Increased pain threshold Cyclic behavior Confused Agitated Hallucinations Possibly violent and combative Chemical odor “moon walking”	Droopy eyelids – (Ptosis) “On the nod” Drowsiness Depressed reflexes Low, raspy, slow speech Dry mouth Facial itching Euphoria Fresh puncture marks Nausea Track marks *Note Tolerant users exhibit relatively little psychomotor impairment **Hippus**- A rhythmic pulsating of the pupils as they dilate and constrict within fixed limits	Residue of substance around nose and mouth. Odor of substance Possible nausea Slurred speech Disorientation Confusion Bloodshot, watery eyes Lack of muscle control Flushed face Non-communicative Intense headaches **Note: Anesthetic gases cause below normal blood pressure; Volatile Solvents and aerosols cause above normal blood pressure	Marked reddening of conjunctiva Odor of marijuana Marijuana debris in mouth Body tremors Eyelid tremors Relaxed inhibitions Increased appetite Impaired perception of time & distance Disorientation Possible paranoia **Rebound Dilation** – A period of constriction followed by dilation with a change equal to or greater than 2 mm.
Duration of Effects	Barbiturates: 1-16 hours Tranquilizers: 4-8 hours Methaqualone: 4-8 hours	Cocaine: 5-90 minutes Amphetamines: 4-8 hours Methamphetamine: 12 hours	Duration varies widely from one hallucinogen to another	Onset: 1-5 minutes Peak effects: 15-30 minutes Exhibits effects up to 4-6 hours	Heroin: 4-6 hours Methadone: Up to 24 hours Others: vary	6-8 hours for most volatile solvents Anesthetic gases and aerosols very short duration	2-3 hours exhibits effects (Impairment may last up to 24 hours without awareness of effect)
Usual methods of Administration	Oral Injected occasionally	Insufflation (snorting) Smoked Injected Oral	Oral Insufflation Smoked Injected Transdermal	Smoked Oral Insufflation Injected Eye drops	Injected Oral Smoked Insufflated	Insufflated (historically have been taken orally)	Smoked Oral
Overdose Signs	Shallow breathing Cold, clammy skin Pupils dilated Rapid weak pulse Coma	Agitation Increased body temperature Hallucinations Convulsions	Long intense trip	Long intense trip	Slow shallow breathing Clammy skin Coma Convulsions	Coma	Fatigue Paranoia

Footnote: These indicators are the most consistent with the category. Keep in mind that there may be variations due to individual reaction, dose taken and drug interactions.

1. Soma, Quaaludes usually dilate pupils
2. Quaaludes & ETOH may elevate
3. Certain psychedelic amphetamines cause slowing
4. Normal but may be dilated
5. Down with anesthetic gases, but up with volatile solvents and aerosols
6. Pupil size possibly normal

Normal ranges

Pulse: 60-90 beats per minute

Pupil size: 2.5 – 5.0 (Room Light); 5.0 – 8.5 (Near Total Darkness); 2.0 – 4.5 (Direct Light)

Blood pressure: 120-140 Systolic; 70-90 Diastolic

Body temperature: 98.6 +/- 1.0 degree

Revised 04/07

Helping the Jury to Understand Reckless Behavior

By John Kwasnoski, Professor Emeritus of Forensic Physics, Western New England College, reprinted with permission from *For the Record*, Volume 2, Issue 3, July 2005

Prosecutors and police have all seen the fatal DWI crash in which the defendant's vehicle barreled out of control at a speed greatly in excess of the posted limit, went out of control, struck a tree or utility pole, and may have even torn the vehicle in two. There is little doubt about the speed, but as the case is prepared for trial the prosecution is troubled by the jury's potential inability to find the defendant's behavior to be reckless. So let's take a look at what reckless operation of a motor vehicle really is from the perspective of the person who designs the roads to be safe.

Webster's definition of reckless includes such language as "not regarding consequences" and "irresponsible," but making it clear to the jury might include relating the defendant's behavior to the driver behavior for which the roadway itself was designed to be safe. Why was the speed limit of the road posted as it was - what safety and human factors considerations led to the decision to post the legal speed limit at 35 mph? This could involve the town engineer or highway engineer, or an outside roadway design expert to explain to the jury the design considerations involved with the determination of a safe speed limit for any road. If the road is posted with a speed limit of 35 mph it should be understandable that operating at a speed of 65 mph on that road might create situations that are not safe, and that might endanger other people using the road.

For example, in the design of a new condominium complex the planners had to look at how much sight distance would be afforded to people in the complex who wanted to exit the driveway and enter the roadway safely. A sight assessment was conducted, and then a determination was made of the safe operating speed consistent with that sight distance. Perhaps changes were made to the road environment to provide the needed sight distance. If there were insufficient sight distances it may have been necessary to post signs on the road warning of a "hidden driveway." The driveway design is evaluated with regard to established highway design guidelines published in either a state highway design manual or in a nationally-recognized manual like the "green book" (1). The professional highway design engineer can explain to a jury the consequences of people exiting a driveway onto a roadway when available sight distance does not allow them to see approaching traffic, because the traffic is traveling at too great a speed. The engineer can explain the reality of "an accident waiting to happen" when drivers operate at speeds well in excess of the posted limit at particular locations along the roadway on which the defendant operator traveled.

In one case in which the author worked a site map of the roadway it showed over thirty potentially dangerous situations created by the defendant operator's excessive speed, including inability to see around turns in the roadway, over the crests of rolling hills, approaching pedestrian crosswalks, and approaching traffic control signs and intersections. Clearly, the design guidelines showed that at the speed the defendant was operating the situations were not safe for other drivers operating prudently. In fact, based on the defendant's speed being so far in excess of the safe design speed for the road, the jury could clearly see that it was almost a certainty that the defendant driver would eventually cause a crash.

A site map could be used to show potentially dangerous situations where the defendant's speed created a potential for disaster. The local engineer could tell the jury why each situation was so dangerous based on the guidelines used to design the road and determine what the speed limit should be. The jury should be able to see why they themselves would be in danger if they had been on that road at the time the defendant's crash occurred. If it looks, walks, and sounds like recklessness be sure the jury can connect the defendant's reckless actions with the legal definition they will hear in the charging instructions. This tactic of connecting the meaning of reckless to the safety considerations governing safe road design might resonate with jurors and give them a basis for reaching a decision.

Photo Courtesy: National Highway Traffic Safety Administration (www.nhtsa.gov)

(1) "A Policy on Geometric Design of Highways and Streets," 1990, AASHTO (American Association of State Highway Transportation Officials).

⇢ blood alcohol concentration limits worldwide

Blood alcohol concentration (BAC) represents the amount of ethanol in a given amount of blood, and is noted as "weight by volume." The table below lists the legislated maximum levels for a number of countries given in milligrams of ethanol per milliliter of blood (mg/ml). (Last updated February 2007)

COUNTRY	STANDARD BAC (in mg/ml)
Albania	0.1
Algeria	0.1
Argentina	0.5
Armenia	0
Australia	0.5
Austria	0.5
Azerbaijan	0
Belarus	0.5
Belgium	0.5
Bolivia	0.7
Bosnia and Herzegovina	0.5
Botswana	0.8
Brazil	0.6
Bulgaria	0.5
Cambodia	0.5
Canada	0.8
Columbia	0
Costa Rica	0.49
China	0.3
Croatia (Republic of)	0
Czech Republic	0
Denmark	0.5
Ecuador	0.7
El Salvador	0.5
Estonia	0.2
Ethiopia	0
Finland	0.5
France	0.5
Georgia	0.3
Germany	0.5
Greece	0.5
Guatemala	0.8
Honduras	0.7

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Emerging Technology in Alcohol Measurement Devices

Reprinted with permission from Jim McNally, Ph.D., President and CEO, TruTouch Technologies, Inc.

Technology is always advancing and *TruTouch 1100* is just one more example of the progression of alcohol testing devices. Although we never know exactly how a new machine may be utilized in DUI prosecution or defense in each State, it is important for prosecutors and law enforcement officers to know what machines exist and how they operate.

How It Works

The TruTouch 1100 employs near infrared spectroscopy to measure alcohol and verify identity. The measurement involves transmitting light into the skin via contact with an optical fiber sensor. The reflected light is analyzed to determine the alcohol concentration and to verify the subject's identity.

TruTouch has conducted numerous human alcohol dosing studies including ones sponsored by the National Institutes of Heath that confirmed measurement accuracy comparable to today's breath technology.

Noninvasive Technology As Compared To Other Testing Methods

Presently there are many technologies used for alcohol testing, and all of them require: a sample of a bodily fluid, the use of a disposable, and close supervision. Most testing methods are cumbersome, require test subject cooperation, and are not capable of producing simple, minimally supervised screening with fast turnaround of test results. None can provide identity verification as an integral part of the test. These limitations have hampered widespread alcohol testing from penetrating many opportunities outside of law enforcement. The result is that the markets are underserved. There is no lengthy observation period (as with breath devices due to "mouth alcohol" concerns) or waiting for results (as with blood and urine tests).

Noninvasive Technology

The TruTouch technology is a 100% noninvasive, touch-based alcohol measurement that offers significant improvements in safety and ease-of-use relative to existing measurement approaches. The noninvasive technology employs near-infrared (NIR) absorption spectroscopy to measure the concentration of alcohol by introducing NIR light into the skin and collecting the light that returns to the tissue surface (often referred to as diffuse reflectance).

Alcohol Sensitivity and Selectivity

An advantage of NIR spectroscopy is that the structure of a molecule dictates the specific manner in which it absorbs NIR light. Thus, the absorbance spectrum of each molecular species is unique, which allows the spectrum of alcohol to be discriminated from those of other molecules, such as water, that are commonly present in the body. In addition, Beer's Law states that the magnitude of the absorbance signal for a given substance (e.g. alcohol) is proportional to its concentration. Consequently, NIR spectroscopy provides noninvasive tissue measurements that are both sensitive and selective for alcohol.

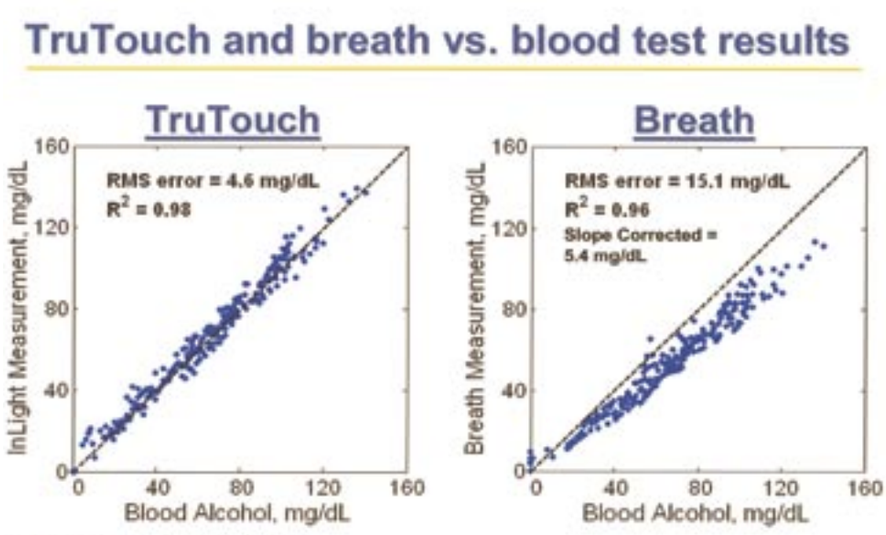
Biometric Identity Verification

The skin is primarily comprised of the epidermis, dermis, and subcutaneous layers. Each layer has different characteristics that influence its relative contribution to the TruTouch spectroscopic measurement. For example, the subcutaneous layer is largely comprised of lipids (fats) while the dermal layer is composed primarily of water and collagen. The TruTouch measurement inherently contains contributions from each layer, which provides insight into both the chemical composition and structure of the tissue. Because all people have different tissue properties (dermal hydration, collagen density, and layer thicknesses), the TruTouch measurement captures these inter-personal differences and uses them as the basis for its unique biometric identity verification feature.

For additional information regarding TruTouch 1100, please visit TruTouch Technologies at (www.TruTouchTechnologies.com)

Hungary	0
Iceland	0.5
India	0.3
Ireland	0.8
Israel	0.5
Italy	0.5
Japan	0.3
Kenya	0.8
Kyrgyzstan	0.5
Latvia	0.49
Lithuania	0.4
Luxembourg	0.8
Macedonia	0.5
Malaysia	0.8
Malta	0.8
Mauritius	0.5
Mexico	0.8
Moldova	0.3
Mongolia	0.2
Nepal	0
The Netherlands	0.5
New Zealand	0.8
Nicaragua	0.8
Norway	0.2
Panama	0
Paraguay	0.8
Peru	0.5
Philippines	0.5
Poland	0.2
Portugal	0.5
Romania	0
Russian Federation	0.2-0.5
Singapore	0.8
Slovak Republic	0
Slovenia	0.5
South Africa	0.5
South Korea, Rep of	0.52
Spain	0.5
Sweden	0.2
Switzerland	0.5
Thailand	0.5
Turkey	0.5
Turkmenistan	0.3
Uganda	0.8
United Kingdom	0.8
United States	0.8
Uruguay	0.8
Venezuela	0.5
Zimbabwe	0.8

-Courtesy: International Center for Alcohol Policies



T. Ridder, S. Hendee, and C. Brown, "Noninvasive Alcohol Testing Using Diffuse Reflectance Near-infrared Spectroscopy", APPLIED SPECTROSCOPY, v 59, no 2, pp. 181-188 (2005).

TruTouch Technologies, Inc.

···› more to come

This issue of the Georgia Traffic Prosecutor has explored the role of the Drug Recognition Expert (DRE) and serves as in introduction to the DRE Program. In the publications to follow, each will feature articles regarding the seven of the drug categories.

2007 Candlelight Vigil

Each year hundreds of people gather to remember loved ones who have been killed or injured in a drunk driving crash. Mothers Against Drunk Driving (MADD) Georgia invites you to attend a special candlelight vigil in honor of those victims on Saturday, April 28, 2007 in Macon, Georgia. For more information regarding this special event, please contact Cynthia Hagain at cchagain@maddga.org or (404) 223-3331.

Please visit www.maddga.org for further details and to R.S.V.P.

MADD Georgia State Office
100 Edgewood Avenue, Suite 810
Atlanta, GA 30303-3070

Click It or Ticket

Law enforcement agencies across the State of Georgia are participating in an aggressive national "Click It or Ticket" mobilization. The mobilization will be conducted May 21 through June 3 to identify seat belt law violators in an effort to reduce fatalities and serious injuries on Georgia roadways.

Congratulations to Georgia Law Enforcement!

On March 23, 2007, a Georgia Chapter of Mothers Against Drunk Driving honored police officers from across the state of Georgia for their dedication to the reduction of impaired driving deaths and injuries.

Current Georgia DREs

Thomas Patrick Adams	Gwinnett Co. PD
Robert Adair	Cobb PD
Patrick Alexander	Houston Co SO
Sean Alexander	Houston Co SO
Brenan Baird	Athens-Clarke Co PD
Courtney Beal	Forsyth Co SO
Mario Benito	Marietta PD
Dan Blythe	Henry Co PD
Anthony Bobbitt	Sumter Co SO
Joseph Boggus	Dawson Co SO
Michael Bowen	Dalton PD
Matt Boyd	Powder Springs PD
Shannon Brock	St. Mary's PD
Shaun Browder	GSP, Post 46 Conyers
Stanley Bryant	Roswell PD
Michael Burns	Warner Robins PD
Mark Cabe	GSP, Post 33 Milledgeville
Casey Caswell	Waycross PD
John Clayton	Marietta PD
Scott Cole	Paulding Co SO
Bryan Conley	Gwinnett Co PD
George Cotton	GSP, Lagrange
Chad Cowart	College Park PD
Brian Cuendet	GSP, Post 46 Conyers
James Dahlquist	Cobb Co PD
Jeffrey Daniel	Marietta PD
Bodie Dickerson	Lawrenceville PD
James Dixon	Henry Co PD
Danny Doyle	Fulton Co PD
Brian Dunn	Henry Co PD
Jarrod Eason	Leslie PD
Thomas Elledge	Cobb Co PD
Michael Ellison	Paulding Co SO
Eddie Emory	Paulding Co SO
Charles 'Randy' Evans	Warner Robins PD
Garrett Fiveash	GSP, Post 46 Conyers
Jonathan Fuss	Georgia Police Academy
Todd Gillespie	East Ellijay PD
David Gilliam	Dougherty Co PD
Corey Goble	Baldwin Co SO
Patrick Gray	Cobb Co PD
Tommy Grier	Fulton Co PD
Paul Guhl	Albany PD
James Harper	Henry Co PD
Jason Harper	Alpharetta PD
James Harrell	Bibb Co SO
John Head	Fulton Co PD
Rob Heagerty	Forsyth Co SO
Blake Hitchcock	Carrollton PD
Tre Howard	GSP, Post 44 Forsyth
Stephen Hutchins	Duluth PD
Glen Ishoy	Cobb Co PD
Daniel Jett	Griffin PD
Eric Johnson	Dawson Co SO
Damon Jones	Union City PD
Buford Jones	Cobb Co PD
Levon Kitchens	GSP, Atlanta
Pete Lamb	Richmond Co SO
Daniel Lambert	Alpharetta PD
David Lankford	Whitfield Co SO
David Lapides	Sandy Springs PD
Kris Lawler	Gwinnett Co PD
Jonathan Long	Lawrenceville PD
Bill Loring	Forsyth Co SO
Mark Lyles	Tift Co SO
A.J. Lyons	Columbia Co SO
David Martin	Douglas Co SO
Kevin McBurnett	Emerson PD
Harry McCann	Conyers PD
Ted McCarthy	Thomasville PD
Matthew McClung	Monroe PD
Ken McClure	Cobb PD
Kevin McNeese	GSP, Post 30 Cordele
Rick Meehan	Morrow PD
Forrest Miller	DeKalb Co PD
Larry Mooney	Butts Co SO
Ryan Morgan	Lawrenceville PD
W.D. Nesbit	Smyrna PD
Chad Nichols	Rabun Co SO
Chris Niehus	Richmond Co SO
Stephen Nolan	Cobb Co PD
Jeffrey Owen	Henry Co PD
Tony Palacios	Georgia Police Academy
Ken Parker	Baldwin Co SO
Mark Perry	GSP
Eric Phillips	Perry PD
Gregg Phillips	Forsyth PD
Jason Poole	Cobb Co PD
Chris Quattrochi	Milledgeville PD
Chris Ralston	Lawrenceville PD
William Reid	Bibb Co SO
Tommy Ross	Winder PD
Tracy Rucker	DeKalb Co PD
Scott Santille	Rockdale Co SO
Tim Scott	Athens-Clarke Co PD
Steve Shelton	GSP, Thomson
Jeff Shoemaker	Hall Co SO
Slate Simons	Houston Co SO
Anthony Snow	Putnam Co SO
Scotty Spriggs	Forsyth Co SO
Bruce Stanford	Georgia Police Academy
Ed Starling	GSP, Post 46 Conyers
Justin Tabor	GSP, Perry
Kyle Tanner	GSP, Atlanta
Richard Thompson	Forsyth Co SO
Matthew Turner	Camden Co SO
Jim Van Alstine	Acworth PD
Lee Wade	Carrollton PD
Griggs Wall	Gainesville PD
Lee Weaver	GSP, Post 20 Dublin
Robert Wex	Georgia State University PD
Donald Williams	Sumter Co SO
Justin Wilson	Alpharetta PD
Brad Wolfe	Bibb Co SO
Mark Wynne	GSP, Post 1 Griffin

GEORGIA traffic PROSECUTOR

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····> fact:

Drunk driving is the nation's most frequently committed violent crime, killing someone every 31 minutes. Because drunk driving is so prevalent, about three in every ten Americans will be involved in an alcohol-related crash at some time in their lives. In 2003, an estimated 17,013 people died in alcohol-related traffic crashes in the USA. These deaths constituted 40 percent of the nation's 42,643 total traffic fatalities.

-Statistics courtesy MADD

The "Georgia Traffic Prosecutor" addresses a variety of matters affecting prosecution of traffic-related cases and is available to prosecutors and others involved in traffic safety. Upcoming issues will provide information on a variety of matters, such as ideas for presenting a DUI/Vehicular Homicide case, new strategies being used by the DUI defense bar, case law alerts and other traffic-related matters. If you have suggestions or comments, please contact Editors Fay McCormack or Patricia Hull at PAC.