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METHODS FOR DEFENDING AGAINST DRUG DWI CHARGES AND THE NEW AGE OF DISCOVERY

I. INTRODUCTION

DREs are trained to detect intoxication caused by several categories of drugs and have been considered as reliable experts in many courts; however, defense attorneys have many tools when defending against charges of drugged DWI, including attacking the scientific reliability of the DIE and showing a DRE’s lack of experience.

II. DRUG DWI’S ARE BECOMING INCREASINGLY COMMON

According to a study by the American Journal of Epidemiology, which analyzed routine toxicology reports of drivers who were killed in vehicle crashes in six U.S. states, the prevalence of drugs other than alcohol in fatally injured drivers increased significantly from 1999-2010 (Brady).

While the prevalence of alcohol remained steady over this period (39%), the prevalence of non-alcohol intoxicants increased from 16.6% in 1999 to 28.3% in 2010. The categories with the greatest increases over this period were cannabinoids and narcotics.

Although the authors of this study recognized that the mere presence of other drugs in a person’s system do not conclusively indicate that the drivers were impaired, they concluded that the “results suggest that drugged driving . . . may play an increasing role in fatal motor vehicle crashes” (Brady 6).

The results of this study were partially confirmed by the 2012 National Survey on Drug Use and Health (NSDUH), which estimated based on responses to surveys, that 10.3 million U.S. citizens (over the age of 12) drove under the influence of illicit drugs in the year prior. The same survey found that almost 4% of drivers over the age of 16 reported driving while on illicit drugs (Substance).

Likewise the National Highway Traffic and Safety Administration (NHTSA) conducted a similar survey in 2007 called the National Roadside Survey (NRS). In this survey drivers were randomly signaled to pull over to a checkpoint where they were asked to give samples of their blood or oral fluid without the fear of prosecution. 300 checkpoints were operated during daytime Friday and “peak” nighttime hours on Friday and Saturday in order to target impaired drivers.

Over 7,700 drivers submitted oral fluid samples and almost 3,300 submitted blood samples. Results from the survey indicated that 11% of daytime drivers were impaired by illicit drugs, while nighttime drivers were impaired 16.3% of the time. The NHTSA did stress in its’ research that “for many drug types, drug presence can be detected long after any impairment.”

However, the data from these studies and dozens more clearly indicate that this trend in “drugged driving” is unlikely to go away soon (Compton, Richard 1-5).

Just consider that according to Mothers against Drunk Driving Texas leads the nation in drunk driving deaths and arrests with 1,296 deaths and 89,256 arrest for DWI in 2012.

You may be wondering “What do these statistics mean for Defense Attorneys in Texas?” The answer is that drug related DWI’s are increasingly common and every diligent Defense Attorney should be aware of the common legal issues and defenses associated with these offenses.

III. POLICE DEPARTMENTS RESPONDED WITH THE INTERNATIONAL DRUG EVALUATION AND CLASSIFICATION PROGRAM (DECP)

The Los Angeles Police Department (LAPD) began developing the DECP in the 1970’s in response concerns from officer in the field that many DWI arrestee’s had little to no alcohol concentrations. The officers believed that many DWI suspects were actually under the influence of drugs, but lacked specific knowledge and skills to support their suspicions.

Two LAPD sergeants collaborated with various doctors, psychologists, and medical researchers to develop a standardized procedure for recognizing drug impairment, the Drug Influence Evaluation (DIE).

Although there was initially no scientific research to prove that DIE was an accurate procedure, their efforts resulted in the development of the first DRE program, which the LAPD formally recognized in 1979. The DRE program was successful in convincing LA several courts to designate DRE’s as “expert witnesses,” despite the lack of formalized scientific studies.

In the early 1980’s the NHTSA recognized the success of the early DECP program and moved to make similar programs available nationwide, however concrete scientific research was needed to confirm the accuracy of the DIE procedure before this was possible.

The NHTSA conducted three scientific studies, all of which supported and standardized the conclusions of the original DIE.

The first study, conducted at John Hopkins University in 1985, focused only on three drug “categories”: Marijuana, Depressants, and Stimulants. The 80 participants were either given doses of the drugs or a placebo and then four LAPD officers trained in the DIE techniques were asked to identify which drugs, if any, the participants had ingested.

Overall the study showed that the officers were “98.7%” accurate in identifying impairment, however...
the study recognized that there were severe limitations and that the study did “not represent a direct test of the validity of [DIE] or related behavioral examinations procedures for detecting and identifying drug intoxication” (Bigelow 1-16).

The second study was conducted the same year in Los Angeles and published in 1986 (Compton). The focus of this study was on the practical application of the DIE, therefore the chosen participants were all adults who were arrested in the city of Los Angeles for DWI. Arrestees were taken to specific LAPD bureaus where a DRE officer would evaluate the suspect and make a determination of whether or not the participant was intoxicated by the use of drugs.

85 DRE officers evaluated 201 suspects for 7 categories of illicit drugs: 86% or 173 suspects gave a blood specimen.

This study, termed the LAPD 173, focused on three methods of detection, which became the basis of the modern DIE: Interview, Physiological Symptoms, and Behavioral Tests.

The interview section required DRE’s to ask suspects about their drug use while paying attention to speech and responsiveness. The physiological section asked officers to assess the physical condition of the suspect including, blood pressure, pulse, skin tone, and other indicators.

The last section required the DRE to administer four intoxication tests: Rhomberg balance, One-leg-stand, finger-to-nose, and walk-and-turn.

The results of the LAPD 173 was that “overall, the DRE’s were fairly accurate in determining which drug or drug class the suspect had taken. They were totally correct in their judgments on 49% of the suspects and partially correct on 38% of the suspects. The DRE’s were wrong on only 23 suspects (13%).” It is worth noting however, that PCP was the predominant intoxicant being found in 56% of suspects (Compton 1-20).

The final study conducted to provide scientific support for the DECP took place in Arizona from 1989 to 1993 and was published in 1994. This study analyzed officer’s performance in identifying 7 categories of intoxicants in 500 participants using the 12-step method (Adler).

One of the methods the DREs use to base their findings of drug intoxication was whether or not observable signs and symptoms associated with different drugs were present. DRE’s were instructed that Eyes signs, Vital signs, and Time Estimates could all be indicators of drug intoxication.

Scientific tables were constructed and given to DREs that showed averages for pupil size, heart rate, and 30-second time estimates for people under the influence of the 7 categories of illicit drugs.

For instance, the average pupil size of a person on cocaine was larger than the pupil size of a person on morphine. DREs would then partially base their opinions on whether or not a person’s indicators fell outside of the normal range and into the range of an intoxicated person.

DRE’s were also trained to base their opinion on whether or not the suspect was found with intoxicating drug or if the suspect admitted to using drugs. Officers were instructed to ask investigatory questions and told that an admission would be strong evidence of intoxication.

The report acknowledges that an admission would likely be forthcoming if an officer confronted the suspect or if the suspect had a known history of drug abuse. Surprisingly, the conclusion of the study relied on the fact that DREs correctly identified intoxication 90% of the time after suspects had already admitted to drug use.

Unsurprisingly the study found that “the DRE program is a valid method for identifying and classifying drug-impaired drivers” after it found that officers were “over 85% accurate” in determining that a driver was intoxicated due to drug use (Adler 33).

To date there have been no major studies supporting the findings of the three NHTSA-funded studies, that methods used by DREs are accurate in predicting drug intoxication. However, there is currently controversy over the accuracy and biases of these studies (Kane).

Although courts have in the past accepted the Bigelow, Compton, and Adler studies as evidence that DRE methods are accurate, it is unclear whether or not they will continue to do so.

Currently the International Association of Chiefs of Police (IACP) is in charge of coordinating the DECP with support from the NHTSA. In addition to officers, who are certified as DRE’s, the DECP educates prosecutors and judges in the prosecution of drugged drivers. Unlike courses in Standard Field Sobriety Tests (SFSTs) and alcohol impairment, defense attorneys are not allowed to participate in DRE training courses; although access to the DRE training manuals is available at http://www.wsp.wa.gov/breathtest/dredocs.php.

An unsuccessful attempt was made to contact Cecelia Marquart, the only DRE/DECP state coordinator in Texas, in hopes of gaining some useful knowledge and statistics about the Texas DRE program. If you wish to know more about the DRE program in Texas contact Marquart at (936) 294-1677 or via email at dre@shsu.edu.
IV. DRUG RECOGNITION EVALUATOR (DRE) TRAINING AND METHODS

A. Drug Evaluation and Classification Training Program

The DECP trains approved public safety officials as DREs through a three phase training process: Pre-School (16 hours), DRE School (56 hours), and Expert Field Certification (40-60 Hours). The DECP website warns that “because of the complexity and technical aspects of the DRE training, not all police officers may be suited for the training.”

This section of the article will primarily cover the Pre-School training process, with less information being provided about the actual 7-day DRE School. Hopefully, this way the reader can gain a strong understanding of the DRE methods without having to spend extended time and effort studying the details of the program.

DRE Pre-School

There are five learning objectives in the DRE training: (1) Be able to describe the involvement of drugs in impaired driving incidents; (2) Name the seven drug categories and recognize their effects; (3) Describe and properly administer the psychophysical and physiological evaluations used in the drug evaluation and classification procedures; (4) Prepare a narrative drug influence evaluation (DIE) report; and (5) Maintain an up-to-date DRE curriculum vitae.

In the Pre-School programs DRE students first learn to about the general effects of certain drugs and to identify drugs that fit within the 7 different categories.

The 7 categories of drugs that DREs are trained to detect are: (1) Central Nervous System (CNS) Depressants; (2) CNS stimulants; (3) Hallucinogens; (4) Dissociative Anesthetics; (5) Narcotic Analgesics; (6) Inhalants; and (7) Cannabis.

Next, students are briefly introduced to the DIE and the 12-step method; covered in detail in the following section. Instructors train each DRE student on the various psychophysical and physiological tests associated with the DIE.

Each student must demonstrate a proficiency in administering the four divided attention tests and the five eye examinations. Most DRE students will have some familiarity with the first three eye exams (HGN, VGN, and lack of convergence) because they closely mirror the alcohol impairment eye exams, however the students will also be asked to measure the suspect’s pupil size and pupil reaction to light stimuli.

Learning how to correctly administer all of these tests can be challenging, especially for a less-experienced officer. Each test must first be explained and demonstrated properly to the suspect and each test has specific instructions that must be followed. The DRE then has to make observations about the suspect and interpret those observations in accordance with the proper chart or table to determine if any categories of drugs may be causing intoxication.

Pre-School training sessions stress the importance of instructor-led hands on training. Each DRE student must demonstrate to the instructor and the class that they understand and can successfully administer the tests before they move on to DRE School.

After learning to administer the drug-related tests the DRE student must also learn how to conduct these SFSTs tests (except the pupil tests) on suspects who are under the influence of alcohol. For students this section is a rehashing of the tests that they learned in the previous section, and in most cases DRE students will be officers with certified training and personal experience in the alcohol SFSTs.

Next the DRE students learn how to take basic measurements of a suspect’s vitals, including; pulse rate, blood pressure, and body temperature. The officers are taught to use common medical devices like a thermometer, stethoscope, and sphygmomanometer to measure these vital signs.

DRE students are also taught several locations on the body where the pulse rate of an individual can be taken accurately. After learning how to take a suspect’s vitals a student then learns the various effects that certain categories of drugs can have on a suspect’s vitals.

Lastly, the DRE student will complete a course overview of the 7 categories of drugs and the signs and symptoms exhibited by each category at each stage of the process. The overview focuses on each category individually and provides a summary of the observable indicators of drug intoxication, which would lead a DRE to determine that a suspect is under the influence of a certain category of drug.

Most importantly the DRE is introduced to the DRE Drug Symptomatology Matrix (Appendix A), which is essentially a table that acts as a quick reference guide for a DRE officer during a DIE.

The table reminds the officer what categories of drugs have an effect on the eye exams and vital signs of the suspect, so that the officer can focus their suspicion on a certain category or categories of drugs.

Now that the DRE student has competed DRE Pre-School they are ready for a full course on practical application of these methods in DRE School.

DRE School

The DRE School is a 56 hour course, 7-day course with a 1077 page instructor manual and therefore explaining the class in detail is outside the scope of this article: however, some important aspects of the DRE School are worth delving into.
In general the DRE School structurally parallels much of the DRE Pre-School training program. Students learn first about drug use statistics in the U.S., then are introduced to the 7 categories of drugs they will be asked to identify, and then begin to learn the DIE examinations in greater detail.

However, unlike the Pre-School the DRE School focuses student’s attention on the scientific studies that support the DECP and the legal decisions that affect how DIE testimony is used to help prosecutors. Students are informed that the results of three major DRE studies (Bigelow, Compton, and Adler) indicate that DRE officers can accurately predict intoxication most of the time. No other studies confirming the DIE methods are mentioned in the student manuals.

Students are also presented with some useful legal commentary on the Frye and Daubert standards for expert testimony and informed that their testimony may be certifiable as expert testimony in some courts.

Although the DRE School manual admits that “the [DIE] isn't an exact science” and that “drugs affect different people in different ways,” students are taught that their opinion can be an invaluable tool in supporting the prosecution of suspects for drug DWI, because the DIE is supported by “laboratory analysis.”

The DRE School manual also provides students with case briefs on a number of important decisions in several states; most of these decisions recognize that the DIE is a sufficiently accurate method for determining intoxication. The manual also provides the student with a state-by-state list of case law supporting the HGN test and a long list of scientific studies supporting the accuracy of the HGN test.

In the final section of the DRE School training students are taught how to prepare a curriculum vitae, or resume, showcasing their DRE training and practical experience in assessing individuals suspected of drug DWI.

In this way the DRE School teaches participants where the methods DREs use came from, why they are useful in prosecution, and how to appear credible while testifying in court.

The DRE School also focuses more on how the DRE officers make their overall evaluation of the suspect based on the signs and symptoms they observe. The class instructor demonstrates a practical application of the DIE on a volunteer and then plays a video demonstrating a complete evaluation by a DRE. Students are also given samples of dozens of completed DIE forms —several from each drug category— so that the students may gain a practical understanding of the combinations of indicators that form the basis of a DRE’s final assessment.

After an in depth section on each drug category is completed, the students are asked to use their practical knowledge of the DIE methods and the drug categories to complete “practice” evaluations based on recorded observations detailed in reprinted DIE reports. The students then compare their answers to the model answers and identify any gaps in their knowledge or mistakes that they made.

Once students have a familiarity with the DIE form, they practice filling the form out and preparing narrative statements to accompany the DIE under certain test scenarios.

One of the last sections is designed to teach students about the problem DREs face when a suspect is under the influence of multiple drug categories. Students are taught that polydrug use can cause: The Null Effect; the Overlapping Effect; the Additive effect; and the Antagonistic Effect. Each of these effect categories can explain otherwise inexplicable symptoms that may occur when multiple drugs are combined.

Finally the students get to test their newly acquired skills on live actors, who are not actually intoxicated, but act in a certain way to and tell the student to record certain figures on the DIE form. From this information the DRE student should be able to form a reasonably certain opinion about which drug category, if any, is causing the actor’s intoxication.

In summation the DRE School is an in-depth training course that focuses on the practical application of the DIE, increasing the DRE’s usefulness in prosecution, and preparing DREs for hands-on training in the Expert Field Certification Programs.

Expert Field Certification

Not much information is publically available about the Expert Field Certification and each state seems to have slightly different requirements for the certification. However, each state has certain identical requirements, including: conducting a minimum of 12 drug influence evaluations while under the supervision of a DRE instructor; identifying subjects under the influence of four of the seven drug categories; and attaining a 75% toxicological confirmation rate, all within 6 months after completing DRE School.

In addition, the student must maintain a progress log, a rolling log, and submit a curriculum vitae. Finally, the student must pass a comprehensive final knowledge examination with a score of at least 80%. In Texas DREs must also obtain the written endorsement of two current DREs.

DRE certification is valid for two years. In order to maintain certification, DRE’s must conduct a minimum of four evaluations every two years, submit an updated rolling log, an updated curriculum vitae, and attend 8-hours of recertification training.
Advanced Roadside Impaired Drivers Enforcement

Lastly, DRE officer may be required to complete the Advanced Roadside Impaired Drivers Enforcement (ARIDE) program. ARIDE was created to address the gap between the SFSTs and the DECP and some states require the ARIDE training before officers are allowed to train as DRE’s.

The SFST program teaches officers to identify and assess drivers suspected of being under the influence of alcohol while the DECP provides more advanced training to evaluate suspected drug impairment. The SFST assessment is typically employed at roadside, while an officer trained as a DRE through the DECP conducts a drug evaluation in a more controlled environment such as a detention facility.

ARIDE is intended to bridge the gap between these two programs by providing officers with general knowledge related to drug impairment and by promoting the use of DREs in states that have the DEC Program.

One of the more significant aspects of ARIDE is its review and required student demonstration of the SFST proficiency requirements. The ARIDE program also stresses the importance of securing the most appropriate biological sample in order to identify substances likely causing impairment.

Although it is apparent that DRE officers go through an extended period of training and practical application of their learned skills, it is less apparent that the methods employed by DREs are as accurate as the DRE manual and certain NHTSA studies indicate. This topic will be covered substantially in later sections.

B. Standard DRE Methods

As mentioned previously, DREs are trained to conduct a systematic and standardized 12-step mental, physical, and medical evaluation to determine if a person is intoxicated by one or more of the 7 categories of illicit drugs.

As an attorney it is important to understand the methodology used by DREs in order to diligently represent clients charged with drug DWI. If the DRE in your case fails to complete any of the 12 steps it could be grounds for suppression of the evidence or at least may provide a way to discredit the officer’s testimony.

First the DRE or the arresting officer starts by administering a Breath Alcohol Test to determine the Blood Alcohol Content (BAC) of the suspect. If the test reveals that the suspect is impaired by alcohol then the DRE must determine if alcohol alone explains the impairment. If the DRE believes that other drugs may be causing the suspects intoxication then the DRE will factor the intoxication from alcohol into their final assessment.

Next the DRE will interview the arresting officer or other involved officers and the DRE will ask about the suspect’s driving, appearance, and behavior. In addition the DRE may ask if the suspect has admitted to drug use or was arrested with drugs or paraphernalia. The answers to these questions will factor heavily into the DRE’s final assessment.

The third step is called preliminary examination. At this stage the DRE makes first contact with the suspect and asks them several standard questions about their health, recent drug use, and medications they’re on. The DRE also observes the subject’s attitude, coordination, speech, breath and face at this time.

After putting on protective gloves, the DRE determines if the suspect’s pupils are of equal size and if the suspect’s eyes can follow a moving stimulus and track equally, while taking the suspect’s pulse. The DRE will take the suspect’s pulse three different times during the DIE to ensure that the reading is not caused by nervousness. If the DRE believes that the suspect may be suffering from a medical condition, the DRE will seek medical assistance immediately, but if the DRE believes that the subject’s condition is drug-related, the evaluation continues.

Next, the DRE performs an eye examination, looking for horizontal gaze Nystagmus (HGN), vertical gaze Nystagmus (VGN), and for lack of ocular convergence. Three separate tests are conducted by DREs at this point to determine if any of the typical intoxication clues exists. These tests closely mirror the eye exams administered as part of the SFSTs and are considered by courts to be accurate indicators of intoxication. A positive result on any of these tests would indicate to the DRE that the suspect was intoxicated by specific categories of drugs.

The fifth step in the DRE’s examination in the administration of the four divided attention psychophysical tests; Romberg Balance, Walk and Turn, One Leg Stand, and Finger to Nose.

Each of these tests is designed to test the suspect’s ability to divide their attention between different physical and psychological tests. If the suspect performs poorly on any of these tests the DRE has “solid” evidence that will “go a long way” when prosecuting for drug DWI.

The sixth step is for the DRE to do a detailed examination of the suspect’s vitals, which means recording their pulse (for the second time), blood pressure, and body temperature. Since some categories of drugs increase vital signs like blood pressure and pulse, evidence that a suspect has unusual vitals might indicate to a DRE that a suspect is intoxicated by drugs.

Next, the DRE will take the suspect to a separate room so they can administer the dark room examinations. First the DRE measures the normal size
of the suspect’s pupils in light using a pupillometer. Then the DRE turns off the room’s lights and allows the suspect’s eyes to adjust for 90 seconds before estimating their pupil size under three different lighting conditions; room light, near total darkness, and direct light.

During this step the DRE will also test the suspect’s pupils’ ability to react to light stimulus. Some drug categories may cause the suspect eyes to react slower than normal to light stimulus, while other drugs can contract or dilate pupils.

Before leaving the room the DRE inspects the suspect’s mouth and nasal cavities for physical signs of drugs and odors from drug ingestion.

The eighth step requires the DRE to examine the muscular tone of the suspect, although this step may have already been completed during earlier steps involving contact with the suspect. If necessary the DRE officer should “work” the suspect’s arm muscles to determine if the muscles are flaccid or rigid. Either may be an indication of drug intoxication.

The next step for the DRE is to check the suspect for drug injection sites and take the third and final pulse reading. DREs use a magnifying lens to search for “track marks” on the arms, around tattoos, and near scabs. Many categories of drugs can be injected with a hypodermic needle and therefore evidence of injection sites can naturally be probative of drug use.

By this point the DRE has either released the suspect or has an opinion about whether or not they are intoxicated and by which category or drug or combination of drugs is affecting the suspect. Therefore the tenth step is to warn the suspect of their Miranda rights and interview the suspect “in a way that conveys the fact that you already know what he or she has been doing.” DREs are trained to ask questions in “an assertive, confident manner” with the hopes of eliciting a confession from the suspect.

The eleventh step in the DIE process is for the DRE to form an opinion based on the totality of the circumstances about whether or not the suspect is intoxicated. The DRE will consult the DIE Drug Symptomatology Matrix (Appendix A) and indicate which category of drug or combination of drugs they believe are affecting the suspect. The DRE should rely on their experience and training in arriving at a conclusion.

The twelfth and final step in the process is to request a urine, blood, or saliva specimen in order to confirm the category of drug that is affecting the suspect and secure prosecution for DWI. Sometimes the arresting officer will already have collected a sample so the DRE should check with the other officers before making the request.

V. DEFENDING AGAINST CHARGES OF DRUG DWI

A. DRE Specific Defenses

One of the most powerful “swords” a defense attorney can wield when defending clients against charges of drug DWI is to show the judge or magistrate that the standardized DIE method employed by DREs is surrounded by substantial scientific controversy and that since the method’s accuracy cannot be confirmed by any reliable study, DRE officers should not be allowed to testify as expert witnesses.

Prosecutors and defense attorneys in states that have already begun using DREs extensively (Arizona, North Carolina, New York) are mostly fighting over whether or not a DRE should be allowed to testify as an expert witness under either the Frye or Daubert standards.

In state’s that continue to follow the Frye standard there is a good amount of case law from those states indicating that courts will either find; that the Frye standard does not apply because the DIE methods are not “novel,” or that the DIE methods have gained “general acceptance” in the scientific community. People v. Quinn, 153 Misc.2d 139, 580 (N. Y. D. C. 1991). Colorado v. Constantino, Criminal Action No. 96M1511 (Colo. Mesa County Ct. Jan. 15, 1998) (unpublished opinion). State v. Klawitter, 518 N.W.2d 577 (Minn. 1994).

Only one court in a “Frye” state has not allowed a DRE to testify as an expert. In that opinion the judge was concerned about the scientific reliability of the DIE methods and determined that the DECP had not gained “general acceptance” in the scientific community. State v. Squire, No. 892099008 (Md. Cir. Ct. 1992).

The good news for defense attorneys is that Texas follows the Daubert standard when certifying expert witnesses under the Texas Rules of Evidence 702. This means that before as expert can testify they must be certified by the trial judge as a “reliable” based upon four factors announced in Daubert:

(1) The extent to which the theory has been or can be tested;
(2) Whether the theory has been subjected to peer review and/or publication;
(3) The technique’s potential rate of error; and
(4) Whether the underlying technique has been generally accepted as valid by the relevant scientific community.

In addition to these factors the Texas Supreme Court in E.I. du Pont de Nemours Co. v. Robinson added two factors for the trial court to consider:
1. Seven Systemic Biases in DECP Studies

Section III explored the three major studies initiated and funded by the NHTSA; Bigelow (a.k.a. the John Hopkins study), Compton (a.k.a. the LAPD 173), and Adler (a.k.a. the Arizona study). These studies have been cited in dozens of cases to support the reliability of the DIE methods.

Although these studies on their face seem to externally validate the pre-cursors to the DIE method (Bigelow and Compton) and the DIE method itself (Adler), in fact these studies are plagued by identifiable biases and therefore cannot be relied on to support the accuracy of this method (Kane).

Greg Kane, MD recently published a peer-reviewed article in the Journal of Negative results in Biomedicine explaining how these early studies, and studies since then, have all been plagued by identifiable biases, which caused there accuracy ratings of the DIE methods to be skewed (Kane).

Kane used the Quality Assessment of Diagnostic Accuracy Studies (QUADAS) tool to assess the biases present in first three studies. QUADAS is an evidence based tool to be used for the quality assessment of diagnostic accuracy studies that tests for 14 different common biases. The QUADAS method has been reviewed extensively and found to be an accurate tool for identifying bias in diagnostic studies (Whiting).

The entire results of Kane’s analysis can be seen most clearly in the Kane Report QUADAS Table (Appendix B).

It is also important to remember that in the 1980’s the NHTSA had a vested interest in supporting the DRE program with scientific research and did in fact fund all three of the studies while publishing Bigelow and Compton. Although Kane does not allege the identified biases resulted from improper non-scientific influence, it is hardly a stretch to imagine that the scientists knew what results the NHTSA wanted. The first bias Kane discovered is all three of the early studies (Bigelow, Compton, and Adler) was spectrum bias. Spectrum bias occurs when the spectrum of test subjects is not representative of the population that will actually be subjected to the test.

Bigelow’s lab study confirmed that it was subject to spectrum bias. Subjects were all young white males with drug histories. Hardly a representative sample of subjects (Bigelow 4).

Compton’s study sample was made up of people who had already been screened and identified as chemically impaired and arrested by non-DRE officers (Compton 34). It was already apparent to non-DRE officers that the suspects were intoxicated by drugs even before the DRE exam was done.

97 of the 173 subjects were on PCP and 72% of subjects were found to be on multiple drugs (Compton 11).

Likewise Adler also suffered from spectrum bias because officers first screened participants and only subjected them to DRE evaluation after they were arrested. Non-DRE officers determined that a strong legal case could be made against the subjects even before they were evaluated for drug intoxication, which means that the spectrum of participants in Adler was not representative (Adler 19).

The second are of bias identified by Kane was selection bias. When researchers select subjects in a way that distorts test-result-relevant characteristics compared to the population of people the test will be administered on in the real world, a systemic error arises called selection bias.

In Bigelow the study was distorted by the selection of only healthy young men who had been screened to pass the SFSTs and trained on how to do these tests properly. Therefore the study is not an accurate predictor of how the general population will fare when completing the SFSTs (Bigelow 2).

Compton and Adler also suffer from selection bias because in both studies some drivers were stopped,
assessed, and not evaluated, while other drivers were evaluated and included in the study.

The accuracies of these tests necessarily depends on how the officers selected subjects and because selection was not standardized or clearly described both tests suffer from selection bias (Adler 19) (Compton 4).

Kane also identified misclassification bias in all three of these studies. Misclassification bias occurs when the reference test, which is supposed to be 100% accurate in identifying the target condition, does not in fact diagnose the target condition.

In these studies the target condition is intoxicated driving and the reference test was either the known presence of drugs (Bigelow) or toxicology analysis (Compton and Adler). However, because toxicology analysis does not necessarily prove that a driver was intoxicated and none of the studies focused on the subjects intoxication there is no quantifiable way to prove that DRE evaluations were accurate in predicting intoxication.

For instance, Compton noted that “there is no way to determine objectively whether the suspects were too impaired to drive safely,” when the only proof of drug intoxication is metabolites found in the body (Compton 15). This is because, as Adler noted, “a specimen may test positive at a time when the suspect is not under the influence of [drugs]” (Adler 40). Especially in the case of cannabis, metabolites of the drug can be found in toxicology reports long after the subject has ingested the drug and also long after the drug’s impairment has worn off.

The Adler and Compton studies also suffered from misclassification bias when DRE officers used confessions and searches to aid in their determination that subject was intoxicated. In Adler 434 confessions and searches were responsible for 80% of officers’ predictions, and not surprisingly officers were correct 90% of the time a suspect confessed or was found with drugs (Adler).

When officers based their opinions on confessions and searches they were ignoring the question of whether or not the driver was impaired and instead they get a “freebie” answer, which was sure to be confirmed and unfairly increased the accuracy of officer predictions.

This is the exact reason that several later studies of the DRE methods purposefully excluded witness statements, confessions, and evidence of drugs or paraphernalia in DRE assessments (Shinar) (Smith) (Schechtman).

Another form of misclassification bias Kane identified in his review was present in both the Compton and Adler studies.

Compton concluded that officers could correctly predict drug intoxication 94% of the time (Compton ii). However, the study defined mistaken drug category identifications as “correct” identifications as long as any drug was found in the toxicology report. Meaning an officer could determine that a subject was intoxicated by a certain category of drug and if literally any drug was found in the suspects specimen the “incorrect” or “mistaken” identification was classified as correct.

Adler had similar biases that increased the “accuracy” rating of the study to 83.5%. DREs were able to predict the class of drug they believed was causing intoxication only 43% of the time, however, just as in the Compton study, mistaken identification were assumed to be correct when any drug was found (Adler 32-34). Clearly misclassification bias significantly improved the reported accuracy of the DREs predictions.

Kane also confirmed in his study that Compton and Adler were subject to verification bias because in both studies the reference test (toxicology report) was not administered unless the subject failed the DRE evaluation (Adler 26)(Compton 2).

If the officer thought someone was not intoxicated then no toxicology report was administered and the officer could not be shown to be incorrect. When this happens a substantial error occurs whereby incorrect assessments by DREs are overlooked and the apparent accuracy of the DRE evaluation is increased.

Another major bias identified by Kane in all three studies was incorporation bias. In each study the index test (DRE evaluation) was used to form a part of the reference test (toxicology report). When DREs in these studies suspected drug intoxication they specified which category of drug they believed to be influencing the suspect. The toxicologists responsible for verifying the DREs assessment in each of these studies received the DRE report indicating which drugs to look for in the specimen (Bigelow) (Compton 6,7) (Adler 7).

Although the studies maintained that this was necessary because the technology of the time was limited, it caused a substantial bias to occur because the toxicologists knew which drugs to look for and admitted altered their standard testing practices. This led to an increased accuracy rating and an artificially low false-positive rate in each study.

The sixth bias that Kane identified in each of the studies was index test reproducibility. This bias occurs when the results of the study cannot be specifically reproduced because the studies do not describe with enough specificity the methods DRE officers were instructed to use.

Bigelow hardly describes the DRE’s evaluation process at all, calling it a “modified version of their usual evaluation procedure” with three components (Bigelow 5). Compton was a little better, describing the three step process in greater detail, however
Compton failed to indemnify a standardized procedure for identifying drug intoxication (Compton 6). Adler listed the 12 steps in the DIE, but similarly lacked any detailed description of these methods (Adler 8).

Because none of these studies reproduced the methods used by DREs with any specificity, none of the index tests could be reproduced by later studies trying to confirm their results. In addition, even if these three studies were accurate none of the studies used the DIE methods currently employed by DREs, and therefore they have limited probative value in supporting DRE accuracy.

The last bias Kane identified in some of the studies was test review bias and diagnostic review bias. These biases exist when the subjective diagnostic tests are investigated in studies that are not blinded and knowledge of one test result (either index or reference) tends to make the test results agree.

In Bigelow DREs were told the four categories of drugs that were administered to participants, therefore they knew not to guess or even consider the other three categories, a situation that is unlikely to happen in the real world (“Hey officer, I’m not sure if I’m intoxicated, but I know I haven’t used cannabis, stimulants, or depressants!”) (Bigelow 3).

Both Compton and Adler failed to count DRE opinions when toxicology reports indicated they were wrong. For example, Adler reported DRE evaluations as accurate when the DRE opinion correctly predicted one drug, incorrectly identified another drug, and failed to identify a third drug (Adler 34).

Compton’s report that DRE opinions “identified one or more drugs correctly in 87% of the suspects” and Adler’s assertion that “DRE decisions were supported by laboratory analysis for 404 (83.5%) of the 484 specimens,” both relied on similar counting schemes whereby incorrect results were ignored (Compton 16) (Adler 33).

It became apparent soon after the Arizona Dept. of Public Safety published its Adler study in 1994 that several of the DECP studies were affected by significant bias.

Later studies tried to limit these biases, but were unable to confirm the high accuracy rates reported in the earlier three studies and succeeded only in creating controversy over the DECP. (Shinar) (Smith) (Heishman).

Shinar was a double blind study performed to evaluate the ability of DREs to detect drug impairments and to identify the type of drug responsible for the impairment. (Shinar 2)

The officers were not allowed to interview the subjects, and their conclusions were based solely on observable signs and symptoms on systematically measured vital signs, and on standardized sobriety tests of motor coordination.

Results showed that with this partial information, the officers are able to detect drug impairment at better-than-chance levels with a sensitivity (correct detection of impairments) of 72%, but with a specificity of 43% (false alarm rate of 57%)

The Smith study had DRE officers evaluate 70 DIE reports filed previously and compared their answers to the toxicology reports (Smith 1). The study thereby eliminated confessions and searches from factoring in to the DRE’s decision and found an overall accuracy rating of 95%. However, the study was limited, contained similar biases identified by Kane, and found high rates of error in certain drug categories.

Lastly, the Heishman study found that DREs were accurate 76% of the time in predicting the presence of drugs, but only accurate at predicting the category of drug 32% of the time.

In review, Kane’s study found, using the QUADUS tool, that Bigelow, Compton, and Adler were all subject to various biases, the cumulative effect of which was to substantially distort the accuracy figure associated with DRE evaluations.

2. DRE methods insufficiently reliable under Daubert-Robinson standard

As previously stated the Texas Supreme Court in Robinson expanded the factors announced by the U.S. Supreme Court in Daubert to include two additional factors for the trial court to consider when determining whether or not expert testimony will be reliable.

Therefore, Texas trial courts must now consider six factors at the “gatekeeper” hearing: (1) The extent to which the theory has been or can be tested; (2) Whether the theory has been subjected to peer review and/or publication; (3) The technique’s potential rate of error; (4) Whether the underlying technique has been generally accepted as valid by the relevant scientific community; (5) The extent to which the technique relies upon the subjective interpretation of the expert; and (6) The non-judicial uses which have been made of the theory or technique.

A diligent defense attorney must be ready to argue that DREs cannot testify as experts because these factors weigh heavily against the reliability of the DIE and DECP.

The first factor, the extent to which the methods have been tested, was explored in depth in the previous section. Several scientific studies have been conducted in order to measure the accuracy of the DIE as applied by DREs, however at best these studies are biased or unclear in their conclusion. At worst the most recent studies effectively show that the DIE method is no better than an officer randomly guessing.
Defense attorneys should be ready to argue based on the Kane and Beirness studies that DRE methods are not an accurate way to specifically predict drug intoxication and that early studies of the DECP were heavily biased, making their results have little probative value.

The second factor can also weigh against finding that DRE methods are reliable. While recent studies on DRE accuracy have been published in major journals and subject to peer review, two of the three primary studies supporting the DIE were funded and published by the NHTSA, and none of these studies were subject to peer review.

In fact only recently have any of these studies been peer reviewed and subject to criticism. On the contrary the Kane and Beirness studies have been published in major journals and have been subject to peer criticism since that time.

Although both the Heishman studies were published and subject to peer criticism, they did not conclude that the DRE methods were as accurate as previously thought, and when compared to Beirness’ results it becomes apparent that at a minimum there is controversy over how accurate these methods are. (Heishman 1)(Beirness).

The rate of error associated with the DRE methods depends on which study the court finds credible.

Bigelow (1985) reported a 1.3% rate of error, Compton (1986) reported a 6% error rate, Adler (1994) reported a 16.5% error rate, Heishman (1996) found error 24% of the time, Schechtman (2005) reported a 10% error rate, while Smith (2002) reported high errors rates for certain categories (31%- CNS Depressants, 22%- CNS Stimulants, 19%- Cannabis) and Shinar (2005) reported a 28% rate of error overall.

The Kane study (2013) found that the original three studies were rife with systemic error and therefore had deflated rates of error. The Papafotiou studies (2005) likewise found that the DIE methods had a high rate of error when detecting amphetamines (95%) and cannabis (34.2%). (Papafotiou 2).

The apparent trend is that more recent studies tend to discredit the accuracy of DRE methods.

In State v. Sampson, an Oregon case from 2000, the court found that there was not a significant rate of error, however the court there only considered the first three studies when making its’ determination. State v. Sampson, 167 Ore. App. 489 (2000).

Now that several, more credible studies have been published indicating that there may be significant error rates associated with the DRE methods courts are likely to reassess the reliability of DREs as expert witnesses.

The fourth factor to consider, whether the technique has been generally accepted the relevant scientific community, may weigh on either side depending on how well an attorney is able to present the evidence.

The first step in the analysis of this factor is to determine who the “scientific community” is in this case. The scientific community can include any community that has “given [the DRE methods] serious consideration.”

Most courts have found that law enforcement officer cannot be considered the relevant community for determining “general acceptance.” Sampson, at 501.

Instead the relevant community for the DECP could be any of the following: pharmacologists, toxicologists, physicians, optometrists, neurologists, criminalistics, ophthalmology, and more.

Although the DIE method may be accepted in the criminalistics community does not mean that it has been accepted by all scientific communities involved.

In Sampson the defense was able to find two witness (a physician and a toxicologist) who testified that neither of their communities had accepted these methods as scientific.

Probably the most effective way to convince a judge that the DECP has not gained “general acceptance” is to produce expert witnesses who will testify that the theory has not been accepted.

The next factor to consider is the extent to which the technique relies upon the subjective interpretation of the expert.

In the case of the DRE officer employing the DIE methods this factor might weigh the heaviest against admitting the officer as an expert.

Although prosecutors and officers will retort that the DIE methods is a standardized 12-step process, it is readily apparent that the procedure involves subjective interpretation.

One way to highlight this is to show how two different DRE officers can make two different assessments of the same individual using the DIE method. Also showing that the methods used might indicate several different categories of drugs at the same time can prove that the officer has to use subjective interpretation in their analysis.

Another fact tending to show subjectivity is the fact that officer case their decisions on the totality of the circumstances and their own personal experiences in administering these tests.

A more experienced officer, therefore, has a larger collective experience to draw from, which leads to non-standard results, contrary to what prosecutors would have the judge believe.

The last factor to consider is the non-judicial uses which have been made of the theory or technique. This factor likely is of little help to a defense attorney, since most courts recognize that the DRE program is
widespread and has been in use for many years; however, a defense attorney should be ready to argue that the DRE program is relatively new and was developed by two LAPD officer, not scientists or researchers.

3. Insufficient training, knowledge, or experience

Rule 702 states that “If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education may testify thereto in the form of an opinion or otherwise.

Rule 702 contains three requirements for the admission of expert testimony: (1) the witness must be qualified; (2) the proposed testimony must be “scientific ... knowledge”; and (3) the testimony must “assist the trier of fact to understand the evidence or to determine a fact in issue.” Tex. R. Civ. Evid. 702. E.I. du Pont de Nemours & Co., Inc. v. Robinson, 923 S.W.2d 549, 556 (Tex. 1995).

Therefore a defense attorney should be able to discredit a potential DRE expert witness by showing that the officer lacks certain qualifications generally attributed to DRE or that the officer’s scientific knowledge of the DIE and DECP is substandard.

Mostly this should be done on cross-examination or during a gatekeeper hearing to show that the officer doesn’t really know what they are talking about when it comes to drug categories and methods.

In order to successfully accomplish this task it is likely that you will have to do research on the student manuals and other 3rd party sources about the impairing effects of drugs.

Ask them questions about the effects of multiple drugs. Give them a tough hypothetical, maybe one even similar to your client’s case, and try show that small changes in observations can completely alter a DREs assessment.

Probe into the officer’s history, make sure to look at their curriculum vitae, press them on their achievements as an officer.

Has the officer ever been contradicted by toxicology results? Ask them how they did on the final exam. Obviously he passed with over 80%, but what was his/her actual score? What categories of questions did they fair worst in?

Maybe you can show that the officer has a particular weakness and that might just be enough to establish reasonable doubt in a jury’s mind or convince a judge that the officer is unreliable.

Ask them if they performs the test the same way each time. Ask them to explain each of the 12 steps, use your research and memorization skills to try and catch him in an inaccuracy.

Another way to discredit officers is through the use of adverse scientific studies, which have been discussed in length previously.

What studies is the officer aware of that support the DRE methods? What does the officer think about other studies that show a high rate of error in the DIE methods?

All of these questions and many more should be considered when trying to discredit a DRE witness. Remember during your cross exam that it is your job to help your client and often enough that means discrediting the testimony of officers.

B. Defenses Based on Texas Case Law

Here is some of the applicable statutory law defense attorneys should be familiar with.

Tex. Penal Code Ann. § 49.04 (Vernon 2008) - Under Texas law, a person commits DWI “if the person is intoxicated while operating a motor vehicle in a public place.”

Tex. Penal Code Ann. § 49.01 (West)- “Intoxicated” means: not having the normal use of mental or physical faculties by reason of the introduction of alcohol, a controlled substance, a drug, a dangerous drug, a combination of two or more of those substances, or any other substance into the body.

Tex. Penal Code Ann. § 49.11. - The Legislature has not seen fit to include a culpable mental state in its definition of the offense. In fact, proof of a culpable mental state is expressly not required for conviction of an offense dealing with intoxication. Ex parte Ross, 522 S.W.2d 214, 217 (Tex. Crim. App. 1975).

The next sections address common defenses raised in certain categories of drug DWI through case law.

1. Prescription Drugs

Officers in Williams v. State were called when reports were made of man driving lawn mower while intoxicated. Defendant exhibited the usual signs of intoxication: a strong odor of alcoholic beverage, unsteadiness, glassy and bloodshot eyes, and slurred speech.

Defendant performed two field sobriety tests, both of which indicated that he was intoxicated. Defendant admitted that he had consumed two beers earlier that day and had also taken Librium (prescription drug). There is evidence that Librium is a sedative commonly used to reduce the anxiety associated with alcohol withdrawal. When used together with alcohol, it can have “an additive effect.” Court entered the following charge to the jury:

The court charged the jury that “[I]f a defendant indulges in the use of prescription drugs to such an extent that he thereby makes
Defendant argued that the instruction on the synergistic effects of ingesting alcohol and prescription drugs was an improper comment on the weight of the evidence.

Court held that defendant could be convicted of driving motor vehicle while intoxicated (DWI) if he became intoxicated by consuming alcohol, either alone, or in combination with prescribed medication that made him more susceptible to effects of alcohol than he otherwise would have been. *Williams v. State*, 03-02-00751-CR, 2004 WL 34840, (Tex. App.—Austin 2004, no pet h.).

The defendant in *Heard v. State* was accused of driving while “under the influence of intoxicating liquor.” The defendant denied drinking on the day in question, but said she had taken several prescription drugs.

Her physician testified that he had prescribed these drugs for a medical condition and that their effects could mimic the effects of alcohol intoxication. The doctor acknowledged on cross-examination that the drugs could also make an individual more susceptible to the intoxicating effects of alcohol.

Over the defendant's objection, the court gave the jury an “increased susceptibility” or “synergistic effects” instruction, then authorized the defendant's conviction on a finding that she drove while “under the influence of intoxicating liquor, either alone or in combination with drugs.”


The defendant in *State v. Sutton* was accused of operating a motor vehicle in a public place while intoxicated “by reason of the introduction of alcohol into [his] body.” The defendant testified that he consumed two beers after taking the prescription drug Klonopin.

An expert testified that an adult male who took Klonopin before drinking two beers would appear to be intoxicated on alcohol. The court's charge included a susceptibility instruction, then authorized the defendant's conviction if the jury found that he operated a motor vehicle while intoxicated “by reason of the introduction of alcohol into his body, either alone or in combination with Klonopin.”

In a plurality opinion, the court of criminal appeals held that the case was controlled by *Heard*. The court held that the court's charge did not enlarge on the allegations in the information because it required a finding of alcohol intoxication even if the jury believed that the Klonopin had made the defendant more susceptible to the effects of alcohol. *Sutton v. State*, 899 S.W.2d 682 (Tex. Crim. App. 1995).

At trial, appellant admitted to taking four types of prescription drugs during the morning of and the evening before the stop. *Nelson v. State*, 149 S.W.3d 206, 209 (Tex. App.—Fort Worth 2004, pet. ref’d). He also admitted that this was not the first time that he had taken the drugs and that he knew their effects.

Appellant complained that the trial court erred by denying appellant's requests for special jury instructions on automatism and medically-induced involuntary intoxication.

Involuntary intoxication by prescription medication occurs only “if the individual had no knowledge of possible intoxicating side effects of the drug, since independent judgment is exercised in taking the drug as medicine, not as an intoxicant.” *Mendenhall v. State*, 15 S.W.3d 560, 565 (Tex. App.—Waco 2000), rev’d on other grounds 77 S.W.3d 815, 818 (Tex. Crim. App. 2002).

Involuntary conduct is a defense to prosecution. See TEX. PENAL CODE ANN. § 6.01. However, in Texas a claim of involuntary conduct is not available when the defendant voluntarily took the intoxicant. *Torres*, 585 S.W.2d at 749 (holding that the defendant must have exercised no independent judgment in taking the intoxicant).

Evidence sustained conviction for driving a motor vehicle while intoxicated in the case of *Miller v. State*, notwithstanding evidence that alcoholic content of defendant's blood was .04 per cent.

An expert for the state testified that phenobarbital (prescription drug) would have a very strong effect as to tolerance with alcohol, would lower it tremendously, and that a concentration of phenobarbital 4.9% would so lower tolerance in any person that .04 percent alcohol would produce intoxication.

“A person who gets himself in the condition whereby he may become intoxicated from a lesser quantity of whisky than it would ordinarily take to produce intoxication, is nevertheless intoxicated from the use of whisky.” *Miller v. State*, 341 S.W.2d 440 (Tex. Crim. App. 1960).


Likewise, Officers who have “years of experience” and are “qualified” may give lay opinion.

The Court in Smithhart held that “unlike alcoholic intoxication, which is ‘of such common occurrence’ that its recognition requires no expertise . . . this court is unable to say that such is the case with being under the influence of drugs.”

“A non-expert witness may express his opinion that a person was drunk based on his observations of the accused. See Garza v. State, 442 S.W.2d 693 (Tex. Crim. App. 1969).

However, the rule as to whether a non-expert witness may testify whether a person is under the influence of drugs is different. The court held that the non-expert opinion testimony of the arresting policeman was inadmissible to show that defendant had been under the influence of valium (prescription drug) when arrested. Smithhart, at 283.

[The Officer’s] only knowledge concerning valium was that ‘he heard’ that it would give a person some symptoms of being drunk or intoxicated. Such hearsay information is without probative value and cannot be considered in determining the sufficiency of the evidence to support a conviction. See Payne v. State, 480 S.W.2d 732 (Tex. Crim. App. 1972).

2. Ambien and Xanax

Ambien cases in Texas deal primarily with the involuntary intoxication defense under what circumstances it is available to defendants who ingest Ambien.

The Court in Farmer had to decide if the Defendant was entitled to raise a voluntariness defense when his wife laid out his medication on their microwave, which included Ambien, and he unknowingly ingested Ambien. Farmer v. State, 411 S.W.3d 901, 906 (Tex. Crim. App. 2013).

Appellant had taken different medications on and off for more than 10 years, including Ultram, a painkiller, and Soma, a muscle relaxer. Appellant was also prescribed Ambien to assist with his insomnia.

Ambien and Soma are considered controlled substances by the Federal Government. Defendant testified that he did not intentionally or voluntarily take Ambien on the day of the accident and that it was “taken by mistake.”

The Court found that the only way that the voluntariness defense could be raised in a DWI case “if a third person causes the accused to become intoxicated” either by forcing defendant to ingest the intoxicant or by causing the defendant to unknowingly ingest the intoxicant and concluded “that Appellant’s action in taking the Ambien pill was a voluntary act because Appellant, of his own volition, picked up and ingested the Ambien pill.”

This case follows the Torres line of cases, which establish that Texas defendants cannot invoke the involuntary intoxication defense unless they are forced to take the drug against their will or are drugged unknowingly.

Defendant in Rounsavall v. State, testified that on the evening of his two drinks, he had taken the prescription sleep aid, Ambien. He further stated he had no recollection of any events until he awoke in the holding facility at the Lubbock Police Department. Rounsavall v. State, 07-09-0046-CR, 2010 WL 547092 (Tex. App.—Amarillo 2010, opinion after remand).

Defendant also testified that after he returned to his home he found two bottles of alcohol that had been completely emptied and that his bottle of Ambien had been scattered in his bedroom.

Expert testimony revealed that the drug, especially in its instant release formula, could render a person into a somnambulistic state, or a state of sleepwalking.

The essence of appellant's evidence was that he did not voluntarily consume any additional alcohol after the two earlier drinks and the consumption of the Ambien and therefore he was entitled to an involuntary intoxication jury instruction.

The court held that involuntary intoxication was not a defense to driving while intoxicated for four reasons: 1) legislature had not seen fit to include a culpable mental state in the offense; 2) the Texas Court of Criminal Appeals has declined to include a culpable mental state in the offense; 3) that court had previously followed the legislature and court of criminal appeals direction in the Nelson case; 4) all other Texas courts that had considered the question had come to the same conclusion.

During trial, Brown testified that he had consumed two tumblers of whiskey the night before his arrest, and that sometime during the night he had woken up to take his blood pressure medicine but had mistakenly taken Ambien. Brown further testified that, because of the mistake, he did not remember consuming more liquor or driving his car. Brown v. State, 290 S.W.3d 247, 248 (Tex. App.—Fort Worth 2009, pet. ref’d).

We hold that the trial court did not err in refusing Brown's request for a jury instruction on involuntary intoxication because involuntary intoxication cannot be a defense to DWI.

As these cases demonstrate involuntary intoxication is generally not a defense to DWI and courts may instruct juries that they can find intoxication from multiple sources.

3. Cannabis

Although there are no cases dealing exclusively with marijuana or synthetic marijuana intoxication, it is
important for defense attorneys to understand that prosecutors often seek a “synergistic effect” instruction to try and prove intoxication from multiple sources.

After the arresting officer observed appellant’s truck swerve on a public road and hit the right curb twice in a distance of 10 blocks, he stopped defendant. Defendant admitted that he had one puff of a marijuana cigarette at 6:00 p.m. that day and that he drank two beers between 6:00 p.m. and 10:00 p.m. before his arrest at “around 10:30 p.m. Lewis v. State, 708 S.W.2d 561 (Tex. App.—Houston [1st Dist.] 1986, no writ).

Defendant was charged with DWI even though intoxilyzer test results indicated that his BAC was .00.

The information alleged in pertinent part that defendant did not having the normal use of his mental and physical faculties by reason of the introduction of a combination of marijuana and alcohol into his body.

Assuming that the intoxilyzer machine was able to take an accurate reading of appellant's blood, the trier of fact could accept or reject that evidence as probative on the issue of whether appellant was intoxicated by reason of a combination of marijuana and alcohol at the time appellant was driving.

“Even though test results showed no alcohol intoxication, reasonable jury could have concluded that defendant was intoxicated from using marijuana.” Id.

In Dickerson v. State, defendant was pulled over for speeding out of a bar parking lot, and officer testified that he smelled alcohol and marijuana on defendant. No marijuana was found in the car; but Harmon, and later a second officer, saw marijuana stems and seeds scattered over the floorboard of the vehicle. Dickerson v. State, 2006 WL 475800 (Tex. App.—Dallas 2006, no pet. h.).

The officer first conducted the HGN test. During that test, he observed six clues of intoxication. Appellant was belligerent and refused any more tests.

Having formed the opinion that appellant had lost the normal use of his mental and physical faculties, the officer arrested defendant. The information charged that Appellant had driven while intoxicated on a combination of alcohol and marijuana.

“It is well-established law that the State may plead in the conjunctive and prove in the disjunctive and therefore the state did not have to establish that both alcohol and marijuana caused defendant to become intoxicated.” See Kitchens v. State, 823 S.W.2d 256, 258 (Tex. Crim. App. 1991) (State is free to prove defendant’s intoxication was cause by either alcohol or marijuana or a combination of both).

Clearly allowing the state to charge a defendant with synergistic DWI presents a real challenge to defense attorneys.

VI. MICHAEL MORTON ACT SIGNS NEW AGE OF DISCOVERY IN TEXAS

Many defense attorneys are familiar with the typical discovery in a DWI refusal or breath test case however, not every defense attorney knows about the significant changes that have occurred in Texas over the last few years.

This section is dedicated to educating defense attorneys about the recently enacted Michael Morton Law (Texas Code of Criminal Procedure 39.14) and informing readers about changes that I have personally observed in DWI discovery during my 15 years of practice.

A. The Michael Morton Act

Each prosecutor is charged under Texas Code of Criminal Procedure art. 2.01 “not to convict, but to see that justice is done.” What you rarely hear quoted is the next sentence: “They shall not suppress evidence or secrete witnesses capable of establishing the innocence of the accused.”

Since its inception in 1965, art. 39.14 of the Code of Criminal Procedure of Texas has regulated discovery in criminal cases. It has been amended at least twice in the past eight years, and in the opinion of many it was still working well. But recently, a few old cases have come to light that demonstrate that not every prosecutor took this requirement to seek justice and hand over evidence seriously.

The Texas legislature recently passed Senate Bill No. 1611 in order to reform the discover process in Texas criminal cases. The bill was named after Michael Morton, a man who was wrongly imprisoned for almost 25 years and later exonerated by evidence that was withheld from Morton’s defense attorneys by prosecutors.

The bill revised art. 39.14 of the Texas Code of Criminal Procedure to read:

“as soon as practicable after receiving a timely request form the defendant the state shall produce and permit the inspection and the electronic duplication, copying, and photographing, by or on behalf of the defendant, of any offense reports, any designated documents, papers, written or recorded statements of the defendant or a witness, including witness statements of law enforcement officer . . . or objects or other tangible things not otherwise privileged that constitute or contain evidence material to any matter involved in the action and that are in the possession, custody, or control of the state or any person under contract with the state.”
Pay special attention to the last sentence “or any person under contract with the state.” This means that any government organization, employee, or any corporation under contract with the state must turn over any evidence that could exculpate your client.  
The practical effect of this revision in the law is to force prosecutors have an “open file” system so that all discovery material is shared with the defense attorney. Even though the Brady decision has long established that prosecutors must turn over exculpatory evidence, the new Michael Morton act codifies and provides an additional enforcement mechanism to stop prosecutors from “hiding the ball.”

For those of you that have practiced in jurisdictions that there was no “open file”, I will tell you that in the 15 years that I've been licensed I've only known of one jurisdiction that did not practice “open” discovery. Other jurisdictions may have been tougher to deal with, requiring that the lawyer must actually go get the discovery from the state, but I have never experienced a completely closed file policy. As a defense attorney I tend to support an open file policy, and I believe an open file policy tends to support justice.

Another important change that this law brings is in allowing the defense attorney to make electronic copies of all the discovery documents. Although not all counties have electronic systems to facilitate discovery, the day is fast approaching when all discovery will be available to attorneys at the click of the mouse. This is likely to reduce to amount of time and money attorneys spend on discovery, which is often the most expensive part of representing a client.

Section (f) of the Michael Morton Act also represents a change in the law of client-attorney relations for defense attorneys across Texas. The new rules for discovery certainly help the defense attorney diligently defend their client by providing more transparent discovery, however section (f) limits an attorney’s ability to share discovery documents like police and witness reports.

This section requires that certain identifying personal information, like phone number, address, and SSN, but not the names of officers or witnesses, be redacted from discovery documents before they are shared. These requirements extend to any agents of the attorney as well and are only enforceable for discovery generated on or after Jan. 1st, 2014.

We would be naïve to believe there will not be some problems with the new rules. After all, most anything new has a few kinks to work out. Several questions and concerns have already been raised about this new law.

The practical effect of this new section on my law firm has been reproachable. Whereas before I was using a simple online service to provide my clients with access to their case files, billing information, and other case updates, now I have had to deactivate my new client’s access to our case service. My new clients wonder why I can’t show them the police reports or witness statements about their case.

The legislature’s motivation in enacting section (f) was to protect witnesses who testified against the defendant from being harassed or silenced by your client. Although this is a noble cause, there is little to no evidence that this section will serve its purpose and it is highly likely that it is unconstitutional as denying a criminal defendant effective assistance of counsel or because it denies a defendant the right to face their accused.

Of course my law firm could go through every discovery document and redact all the pertinent information, but that would require me to hire several additional clerks and pass the expenses onto my clients. Defense attorneys know all too well that when your prices increase less clients are willing to employ your services.

The Morton act likely represents a new age of discovery procedure in Texas, and while some of the new law benefits defense attorneys and justice in general, section (f) represents a further challenge to the efforts attorneys make to represent their clients diligently

B. My Personal Experience with DWI Discovery

My personal experience with DWIs in Texas is that more and more cases in Texas are becoming blood test cases. There are basically two reasons for this. First, more jurisdictions are moving away from breath tests and requesting a sample of blood instead.

Second, and probably the most substantial change I have seen in the practice of DWI defense over my first 15 years of practice is that nowadays many jurisdictions will aggressively seek a chemical test when a suspect refuses. Many of the officers working for the cities and counties in my practice area of West Texas will immediately apply get a blood test search warrant if the client refuses to take a voluntary sample. My experience is that this is the case throughout most of the state of Texas now.

This section addresses the type of discovery defense attorneys really need to be able to succeed in successfully challenging to the DWI blood test result itself. Most of us think blood test discovery is the data or pieces of information that are generated within the blood testing lab itself. While that is absolutely correct, there are also two other areas in blood test discovery that are just as critical for obtaining adequate information.

One of the first things I do when a client comes in my door to talk to me is determine whether there is was a video camera or other recording device in the room
experience with the area when determining whether or not the blood test was conducted in. Most, but not all, of these medical centers will have video evidence of your client’s blood test.

That means defense attorneys need to know where the actual blood tests are conducted in their jurisdiction and surrounding jurisdictions. In Lubbock, the warrant blood draws are done at the county hospital. Our specific hospital, University Medical Center, has a separate emergency room entrance for arrested individuals. This area was initially designed to detain the prisoners brought from the county jail or the Texas Department of Corrections prison, so you can imagine that it isn’t the nicest place to visit.

Oftentimes challenging the results of the blood test can be the only way to successfully defend your clients against DWI charges. That’s why it is important for defense attorneys seeking to challenge the blood results to actually visit the testing room and experience what your prospective clients have to go through. Sometimes defense attorneys are so busy litigating or fact finding that we just forget to ask, “Can I see the room where the blood is actually taken.” That’s exactly what my office did so that we could get an idea of what happens at the actual draw sight.

The first thing that you notice when you enter the detention area is that there are two small rooms. The first is the entrance room which is probably someplace in the neighborhood of a 10 x 10 room. When the sliding doors open, you see a small chair where they typically have the individual sit while their blood is drawn for testing. There is also another room that has a solid metal door. When you open that door, there are four small jail cells about the size of a phone booth. My clients have often had their blood taken in those small jail cells and I have seen clients held in those cells for a long time before the test was administered.

In my jurisdiction there are actually two cameras in this particular room that are mounted overhead. Upon investigation, we determined that the hospital has a security system that records those two rooms as well as many other areas in the hospital. In most cases, as is the case in my jurisdiction, there is video but no audio. Something is better than nothing though, and you would be surprised how many times these videos prove to be helpful when defending our clients.

When we visit the hospital with our investigators we review the cameras in addition we also take pictures of everything in the two rooms. One item that we focused on was the hand sanitizer in the room because it had a very high percentage of alcohol and nurses can sometimes cause the blood specimen to be contaminated. It is very beneficial to have personal experience with the area when determining whether or not there may be an issue with the actual blood draw.

At the hospital in our jurisdiction this video is not saved in a typical fashion. It’s much like a typical convenience store security camera. It records for about 30 days and if there is no reason to save the data it is dumped after 30 days. I’m not sure if this is typical in other areas of Texas, but it is advisable that every DWI attorney know how this information is kept. If your client is arrested on the first and by the next first, the chances are that the video is no longer available.

Because almost all DWIs are not filed within the first 30 days there’s really no way to determine whether or not this security film would be of benefit to you in the case. Accordingly, every time we are hired on a case that has a blood draw, we filed a motion to require UMC, our County Hospital, to ensure that the video of the client is not destroyed. Because typically our DA has not filed a case in the first 30 days, we use the magistrate number because we have a full-time magistrate.

We file a motion requesting the video be saved and the magistrate gives us a setting date. We then issue a subpoena to the hospital to pull the video, save it, and turn it over to us or show up at the hearing. The first half a dozen times that we did this we receive a motion to quash because the tapes might have privileged information about patients that would cause a HIPPA violation. I found this rather humorous since this same hospital testifies at every DWI blood test trial that the defendant is not admitted into the hospital and is not a patient of the hospital; that instead the hospital is complying with the court order to draw the blood. However, when we want to see the video of how the blood test was taken, apparently they are protected under the patient’s rights.

This is really much to do about nothing because we will give the security individual the timeframe that we believe our client was at the hospital and if there are any other individuals who are on the video besides a police officer and the client, we will sign a protective order. Once I have the video, especially at the magistrate level, I know that that data is saved and protected. Later on at the trial court level, if I need to have a motion to suppress or I need to use it in a trial it’s fairly easy just to use it in the way that we wanted to begin.

Some questions you might want to ask when reviewing the tape are: Did the nurse actually clean the site the way that the phlebotomist manual requires them to? Did they take the blood with a butterfly needle? Did they properly invert the tube of your client’s blood 5 to 8 times as a manufacturer request or did they shake it vigorously? What was the demeanor of your client? What about the nurse?

In fact, one of the things that the video may help you determine is what was the demeanor of the nurse who actually took the blood? You may be lucky
and get video that has audio, but even if you don’t see if you can find anything on the video that indicates that the nurse is upset with your client or treating your client in any type of improper manner.

Believe it or not we have actually had several videos that we see the nurse is not using any type of a glove before taking blood from the client. Nurses are people just like you and I and they oftentimes have to work late and perform difficult procedures. They make mistakes and a single mistake could exculpate your client entirely.

In my experience a common mistake some defense attorneys make is assuming that the blood test was done properly and not spending time going through the discovery. Never assume that the individual who drew your client’s blood did it properly.

One issue that you may discover is problems with the nurse’s certification. Under the new Michael Morton Act discovery rules now apply to any entity that is contracted with the state. So for our County Hospital which is contracted with the state, we request personnel files of the nurse as well as any disciplinary actions that the hospital may have taken on a nurse that would indicate he or she was not competent. I will ask in a Morton request for the job application, the personnel record, the disciplinary record, the peer reviews, and anything that is basically in the hospital’s files of this employee.

Always check the disciplinary page of the Texas Board of nursing and search the nurse’s information. The website for the Texas Board of nursing is located at https://www.bon.state.tx.us/disciplinaryaction

We've had several cases where the nurse who actually drew the blood of the client had been disciplined. In fact in one case a nurse had actually been removed and was no longer an authorized registered nurse. We also found out through that webpage that a nurse had moved to New Mexico and New Mexico had not licensed that individual based upon disciplinary action in Texas. So don’t be afraid to do a little research about the people in charge of conducting your client’s blood test. Before you make a decision on going to try the case, find out whether the nurse has disciplinary actions or not.

Of course if the State of Texas knew about it, and they should reasonably have known about it if they would have searched their witnesses, there may be a Brady claim as well. Does that mean that the blood test cases get to go away? I don't know it depends upon your prosecutor. Case law may simply allow the officer to try to testify that the nurse took the blood draw according to the proper medical procedure. In fact we had a case where the DA did not call the nurse but had a police officer try to testify that it was done in a proper manner. If that's the case I suggest that you purchase the book Phlebotomy Essentials fifth edition, by Ruth McCall.

Phlebotomy Essentials contains 500+ pages about dealing with standard phlebotomy procedures. It discusses everything from the order of draw, how to properly clean the site, and how to actually draw the blood. It is fairly easy to use the book to make a checklist of as many questions as you want in order to show the jury that the police officer has no training in phlebotomy.

Additionally, it is unlikely that the officer has sufficient knowledge to tell whether or not the nurse took the blood properly. Many of you may have a husband or a wife or a daughter or a friend who is an actual nurse. I suggest you sit down with them, buy them dinner and get them to brainstorm all the things that go into properly obtaining a blood sample.

Try to be creative in thinking of the areas that you can get to through discovery to these hospitals or these nurses that are actually drawing your client's blood. We have had several nurses testify that they enjoyed drawing the blood of people charged with the DWI and even this small admission can help your client escape charges. Ask if they receive any additional funds - do they get paid overtime - are they pay on a pro rata top compensation? Do they have a relationship with the police officers? You never really know what good will come out of this until you start digging; but I would say we have certainly seen some interesting things when it comes to the nurses.

If a nurse is subject to any type of abuse situation there is a program that is commonly called Texas Peer Assistance Program for Nurses. Although the program indicates that it is confidential, during any type of a motion to suppress when the nurse is present I will ask the nurse have you ever been subject to the requirements of this program? Were you at the time that you took the blood involved with or in this program?

That may not even be relevant at trial but one of the things it does is it lets the nurse know that you're serious about doing your homework. If the nurse indicates she is involved in the program and there is an issue with the nurse, obviously you have more investigation to do. Reach out to their peers or supervisors, and even if they can't turn this information over because it's confidential it may be Brady material.

So now that you've obtained a video so that you can determine how the actual blood draw was done we also want to make sure that you visited the scene of the blood draw to take pictures. You would be amazed at the pictures of the condition of the jail cells and the County Hospital where I do most of my cases. When we reviewed that area and take pictures we saw rust, dried blood, and smelled the odor, the overwhelming odor of urine.
These pictures are really important to set the scene for your juries. Most people think that when a person's blood is taken it is done so in a sanitary place. Most jurors think of a hospital room with a sterile bed that the individual is laying down and a caring is there to gently remove the blood from the individual’s arm. When they see the pictures of the rusted out jail cells with dried blood and you can communicate the overwhelming smell of urine they may not think that that blood test holds as much credibility as before.

I have one video where you see a substance begin to leave one jail cell cross the two foot floor and go into the jail cell where my client has actually held. That substance on the video is the urine of another detainee. The person in the other cell could not hold it anymore so they just went on the floor and went in such a volume amount that you could actually see it go into my client’s holding cell. Do you think that the jury is going to think that that blood was obtained in a sanitary place as required by law?

After you have obtained the information dealing with the nurse and the actual blood draw, the next area of concern is the discovery of the state's blood test. Although this paper focuses on the blood test typically done in my jurisdiction by the Texas Department of Public Safety, you can use the same concepts for hospital blood tests done because of an accident. Especially if the hospital is the county hospital and if they contract with the state. What we will typically get is the blood test report itself.

That doesn't tell us much of anything other than what the results the lab reported are, who was the analyst, when was the actual blood tested, and a few other details of the test.

Often in the laboratory litigation package we get a copy of a few of the chromatograms. We typically do not get a copy of the other chromatograms for every other person who was sampled in the batch. It is important for the expert to review the entire batch run so that they can inspect the graft results of not only your defendant but also every other person in the batch run.

There are several things that the experts tell us that they're looking for and these include; issues of peak tailing, redrawing of lines, or other issues such as potential other chemicals being counted at the same time that ethanol is exiting the column. One of the reasons that you absolutely need the raw data files is to be able to look at the raw results and see if the analyst told the computer program to remove or not report certain substances. The analyst also has the ability to tell the computer software to not report certain things.

For example the analyst has the ability to redraw the baseline and to make the computer printout shows that potentially the alcohol peak goes all the way back down to the baseline when in reality it doesn't or there are other issues such as bad tailing involved. Most importantly, the software can be told to remove substances. If you don’t have the raw data files then you can’t use the software to verify that nothing has been changed or left out of the final printout.

If you have to raw data now you have something for your expert to examine and determine if there are any issues with the lab's analysis. Second you have something to use to cross examine the analyst who oftentimes will not have a strong ability to explain to a jury why they removed certain data from a result and you can win your client's case on cross examination.

Our job as criminal defense attorneys is not to be the expert witness. You may very well have a background in science and you may have taken classes on gas chromatography, but at the end of the day our job is to deal with reasonable doubt. All I really want is a way to rationalize or explain the real possibility that the blood test of my client is not true and accurate and there are other areas that in fact show that my client is not intoxicated. I'm simply looking for a hook so that a jury can find a reason not to trust the blood test results.

That is why obtaining the discovery including the raw data, the pre-analytical discovery, and all the lab documentation is so important when defending against DWI charges.

VII. DEFENSE ATTORNEYS HAVE TOOLS TO DEFEND AGAINST DRUG DWI CHARGES

As I have demonstrated a defense attorney has many tools when defending a client against drug or alcohol related DWI charges, however one of the best tools attorneys have is themselves and their case staffs. Attorneys who aren’t afraid to do the hard work and work diligently are much more likely to succeed in defending DWI clients.

I want to give special thanks to my staff here at Hamilton, Hull & Rogers and especially to our law clerk from Texas Tech School of Law Garrett Wilson for providing the background research for these issues.
BIBLIOGRAPHY


### Drug Symptom Matrix

<table>
<thead>
<tr>
<th>CNS Depressant</th>
<th>Inhalants</th>
<th>PCP</th>
<th>Cannabis</th>
<th>CNS Stimulants</th>
<th>Hallucinogens</th>
<th>Narcotic Analgesics</th>
</tr>
</thead>
<tbody>
<tr>
<td>HGN Present</td>
<td>Present</td>
<td>Present</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>VERTICAL NYSTAGMUS Present* (High Dose)</td>
<td>Present* (High Dose)</td>
<td>Present</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>LACK OF CONVERGENCE Present</td>
<td>Present</td>
<td>Present</td>
<td>Present</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>PUPIL SIZE Normal (1)</td>
<td>Normal (4)</td>
<td>Normal</td>
<td>Dilated (6)</td>
<td>Dilated</td>
<td>Dilated</td>
<td>Constricted</td>
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<tr>
<td>REACTION TO LIGHT Slow</td>
<td>Slow</td>
<td>Normal</td>
<td>Normal</td>
<td>Slow</td>
<td>Normal (3)</td>
<td>Little to none visible</td>
</tr>
<tr>
<td>PULSE RATE Down (2)</td>
<td>Up</td>
<td>Up</td>
<td>Up</td>
<td>Up</td>
<td>Up</td>
<td>Down</td>
</tr>
<tr>
<td>BLOOD PRESSURE Down</td>
<td>Up</td>
<td>Down (5)</td>
<td>Up</td>
<td>Up</td>
<td>Up</td>
<td>Down</td>
</tr>
<tr>
<td>BODY TEMPERATURE Normal</td>
<td>Up/Down</td>
<td>Normal</td>
<td>Up</td>
<td>Normal</td>
<td>Up</td>
<td>Down</td>
</tr>
</tbody>
</table>

#### GENERAL INDICATORS
- Uncoordinated
- Disoriented
- Sluggish
- Thick, Slurred speech
- Drunk-like behavior
- Gait ataxia
- Drowsiness
- Droopy eyes
- Fumbling
- 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
- Perspiring
- Warm to the touch
- Blank Stare
- Difficulty in speech
- Incomplete verbal responses
- Repetitive speech
- Increased pain threshold
- Cyclic behavior
- Confused and agitated
- Possibly violent and combative
- Chemical odor "Moon walking"
- Very red eyes
- Odor of marijuana
- Body tremors
- Eyelid tremors
- Relaxed
time and distance
- Possible
- Paranoia
- Disorientation
- Restlessness
- Body tremors
- Excited
- Euphoric
- Talkative
- Exaggerated
- Reflexes
- Anxiety
- Bruxism
- Redness to nasals
- 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 and distance
- Memory loss
- Disorientation
- Flashbacks
- (NOTE: With LSD, piperonation may be observed)
- 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

#### USUAL METHODS OF ADMINISTRATION
- Oral
- Injected
- Insufflated
- Smoked
- Oral
- Insufflated
- Injected
- Eyedrops
- Smoked Oral
- Injected
- Oral
- Insufflated
- Smoked
- Injected
- Transdermal
- Injected
- Oral
- Smoked
- Insufflated

#### DURATION OF EFFECTS
- 1-16 hours (depending on the substance)
- 5 minutes to 8 hours (depending on the substance)
- 4-6 hours
- 2-3 hours
- 5 minutes to 12 hours (depending on the substance)
- Varies depending on type of hallucinogen
- 4-24 hours (depending on the substance)

#### OVERDOSE SIGNS
- Shallow breathing
- Cold, clammy skin
- Pupils dilated
- Rapid, weak pulse
- Coma
- Convulsions
- Long, intense trip
- Fatigue
- Paranoia
- Agitation
- Increased body temp.
- Hallucination
- Convulsions
- Long, intense trip
- Slow, shallow breathing
- Clammy skin
- Convulsions

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

*High dose for that particular individual
### Table 1 QUADAS results

<table>
<thead>
<tr>
<th>Question</th>
<th>Bigelow</th>
<th>Compton</th>
<th>Adler</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Was the spectrum of patients representative of the patients who will receive the test in practice?</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>2. Were selection criteria clearly described?</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>3. Is the reference standard likely to correctly classify the target condition?</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>4. Is the time period between reference standard and index test short enough to be reasonably sure that the target condition did not change between the two tests?</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>5. Did the whole sample or a random selection of the sample, receive verification using a reference standard of diagnosis?</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>6. Did patients receive the same reference standard regardless of the index test result?</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>7. Was the reference standard independent of the index test (i.e. the index test did not form part of the reference standard)?</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>8. Was the execution of the index test described in sufficient detail to permit replication of the test?</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>9. Was the execution of the reference standard described in sufficient detail to permit its replication?</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>10. Were the index test results interpreted without knowledge of the results of the reference standard?</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>11. Were the reference standard results interpreted without knowledge of the results of the index test?</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
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<tr>
<td>12. Were the same clinical data available when test results were interpreted as would be available when the test is used in practice?</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
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<td>13. Were uninterpretable/ intermediate test results reported?</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
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<td>14. Were withdrawals from the study explained?</td>
<td>No</td>
<td>No</td>
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