

BEFORE THE SUPREME COURT OF OHIO

STATE OF OHIO

CASE NOS.: 2008-0853
2008-0858

PLAINTIFF-APPELLANT

ON APPEAL FROM CASE NO. 07 MA 71
BEFORE THE COURT OF APPEALS FOR
THE SEVENTH APPELLATE DISTRICT

-vs-

JESSICA DEROV

DEFENDANT-APPELLEE

MERIT BRIEF OF AMICUS CURIAE OHIO ASSOCIATION OF CRIMINAL
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STATEMENT OF INTEREST OF AMICUS CURIAE

The Ohio Association of Criminal Defense Lawyers (OACDL) is a statewide association of over six hundred (600) public defenders and private attorneys who practice primarily in the field of criminal defense law. The Association was formed for charitable, educational, legislative and scientific purposes with the goal of advancing the interests of society and protecting the rights of citizens and other persons accused of crimes under the laws of the State of Ohio and the United States. OACDL seeks to provide the judiciary and the legislature with insights from its members concerning the day-to-day operation of the criminal justice system and how it affects the citizens of this State. Over the past decade, OACDL has participated as a friend of the court in dozens of cases, including *Ohio v. Robinette* (1996), 519 U.S. 33; *State v. Kinney*, 83 Ohio St.3d 85, 1998-Ohio-425; *State v. Thompson*, 95 Ohio St.3d264, 2002-Ohio-2124; *State v. Hochhausler*, 76 Ohio St. 3d 455, 1996-Ohio-374; *State v. Shindler*, 70 Ohio St.3d 54, 1994-Ohio-452; *State v. Murnahan* (1992), 63 Ohio Std.3d 60; *In re Contempt of Morris* (1996), 110 Ohio App.3d 112; and *In re Williams*, 101 Ohio St.3d 398, 2004-Ohio-1500.

OACDL has an enduring interest in protecting the rights guaranteed to criminal defendants under the United States and Ohio Constitutions. As this case involves several important issues involving probable cause determinations for O.V.I. arrests, both OACDL's membership and the client base served by that membership will be affected by it.

Statement of the Case and the Facts

Ms. Derov was stopped by Trooper Martin for expired and fictitious tags on the license plate.¹ Trooper Martin did not observe any erratic driving by Ms. Derov prior to her stopping her vehicle.² Trooper Martin detected what he deemed to be a strong odor of alcohol emitting from Ms. Derov's breath.³ Trooper Martin testified that Ms. Derov produced her license and registration without problems.⁴ He also admitted that she exited her vehicle in a normal manner and that she did not demonstrate any indicators of impairment from alcohol.⁵

At that point, Trooper Martin asked Ms. Derov to perform standard field sobriety tests. He started with the HGN test.⁶ During the administration of the HGN, Trooper Martin observed that her eyes were glassy and red.⁷ However, he testified that glassy red eyes could be indicators of alcohol consumption, lack of sleep, exposure to smoke, or leaving contacts in too long.⁸ The Seventh District Court of Appeals ruled that the State failed to establish by clear and convincing evidence that the HGN test was performed in substantial compliance with NHTSA standards.⁹

Trooper Martin also had Ms. Derov perform the Walk and Turn test and the One Leg Stand test.¹⁰ The Seventh District Court of Appeals ruled that the State failed to clearly and convincingly establish substantial compliance with the Walk and Turn test.

¹ Tr. at 6-7

² Tr. at 59

³ Tr. at 8

⁴ Tr. at 7

⁵ Tr. at 9, 62

⁶ Tr. at 10

⁷ Tr. at 15

⁸ Tr. at 61

⁹ This ruling is at issue in the third proposition of law.

¹⁰ Tr. at 14 - 24

Appellants did not contest this ruling in this appeal. On the One Leg Stand test, Trooper Martin only observed one clue, which indicates that Ms. Derov passed that test.¹¹

Following the field sobriety tests, Trooper Martin had Ms. Derov submit to a portable breath test (P.B.T.), a test that he admits has not been approved by the Ohio Department of Health.¹² Trooper Martin testified that the P.B.T. indicated that Ms. Derov had consumed alcohol.¹³ At that point, Ms. Derov informed Trooper Martin, that she had consumed one beer without reference to the time that she had consumed it.¹⁴

The resolution of the first proposition of law presented may depend upon the resolution of the second and third propositions of law presented. The State asserts that the odor of alcohol along with glassy eyes and failed field sobriety tests is sufficient to establish probable cause. In looking to the totality of facts and circumstances that Trooper Martin had available to him, he lacked probable cause to arrest Ms. Derov.

By admission of the Trooper, there was no erratic driving in this case.¹⁵ While erratic driving is not mandatory for an O.V.I. arrest, the absence of it is an indicator that the party operating the vehicle is not impaired. Trooper Martin did testify that he followed Ms. Derov for a period of time and did not detect anything wrong with the manner in which she was operating her vehicle. The time of the stop was 2:34 a.m.¹⁶ Trooper Martin observed a strong odor of alcohol and glossy eyes, and Ms. Derov admitted to consuming one drink. Trooper Martin testified that the glassy red eyes could be indicative of alcohol consumption, rather than impairment. Ms. Derov passed the only

¹¹ Tr. at 25, 62

¹² Tr. at 25-26

¹³ Tr. at 26

¹⁴ Tr. at 27

¹⁵ Tr. at 59

¹⁶ Tr at 6

field test that was administered properly by Trooper Martin was the One Leg Stand test. Even if the Court considers the P.B.T. result indicating the presence of alcohol on Ms. Derov's breath, which we assert below that it should not, it only indicates consumption of alcohol, not impairment by it. The record did not demonstrate any evidence of impairment from alcohol consumption.¹⁷ There was no evidence to suggest that Ms. Derov was likely to test over the legal limit, assuming that this Court upholds the ruling regarding the HGN test. If the Court upholds the 7th Dist.'s ruling, is it necessary to state the preceding clause?

¹⁷ The results are addressed later in the brief. HGN results, though, are not indicators of impairment. It is a test used to judge whether a person would test over or under the per se limit. State v. Homan 89 Ohio St.3d 421, 424, 732 N.E.2d 952, 955 (Ohio,2000) In an extensive study, the National Highway Traffic Safety Administration^{FN4} ("NHTSA") evaluated field sobriety tests in terms of their utility in determining whether a subject's blood-alcohol concentration is below or above the legal limit.

Law and Discussion

In its Merit Brief the Appellant, State of Ohio, lists its propositions of law as follows:

Appellant's First Proposition of Law: An Odor of Alcohol Coupled with Glassy Eyes and Failed Sobriety Tests can Support Probable Cause to Arrest¹⁸

Appellant's Second Proposition of Law: A Portable Breathalyzer Test Can Support Probable Cause to Arrest for Driving Under the Influence

Appellant's Third Proposition of Law: There is No 68-Second Minimum Time Requirement for Substantial Compliance with the HGN Test

In this brief Amicus, Ohio Association of Criminal Defense Lawyers (OACDL), will address the issues presented in the above propositions of law in, more or less, the same order as presented by Appellant, State of Ohio. Amicus will, however, do so under propositions of law that Amicus believes more accurately reflect the issues presented to and determined by the courts below and thus presented for this Honorable Court's consideration.

Before addressing the issues that Appellant suggests are *properly* raised by this case, Amicus is compelled to note that this case may not properly or adequately present the issues this Honorable Court believed it presented when it accepted this case. That is, as discussed below, Amicus believes that due to Appellant's failure to make an adequate record, in the trial court, related to the issues involving the "PBT" and the "HGN test," none of the Appellant's arguments in support of the admissibility of these "tests" are found in or are supported by the record.

First Proposition of Law as proposed by Amicus, OACDL:

A court of appeals does not commit reversible error when, after properly holding that certain evidence is inadmissible and/or unreliable and thus should have been excluded from a probable cause hearing, it reviews the record from the trial court

¹⁸ The Appellant's Memorandum in Support of Jurisdiction framed the First Proposition of Law as follows: "An odor of alcohol coupled with glassy eyes and failed field sobriety tests can support probable cause to initiate field sobriety tests."

and determines, applying the “totality of circumstances test”, that the record does not support a finding of probable cause unless the appellate court abuses its discretion in so holding

It should be noted that Appellant’s original First Proposition of Law, as set forth in its Memorandum in Support of Jurisdiction (MISJ), was different than the proposition Appellant put forth in its Merit Brief. The original proposition did not make much sense¹⁹ and the discussion following it in the MISJ did not do much to clarify matters. Ironically, the reframed proposition does not address the factual circumstances of this case; moreover, it contains discussion of a great deal of matters that are not particularly applicable to the actual holdings of the Appellant Court and which are being appealed.

Thus, while Appellant’s initial proposition asserts “an odor of alcohol coupled with glassy eyes and failed sobriety tests can support probable cause to arrest” (emphasis added), that proposition does not apply to or relate to the issues in this case.²⁰ In fact, the Appellee could agree with Appellant’s proposition of law and it would not resolve the case.

Indeed, Amicus does agree with Appellants First Proposition of Law as reframed in its Merit brief. That is, Amicus does not dispute that an odor of alcohol coupled with glassy eyes and failed sobriety tests can support probable cause to arrest. However; the foregoing does not describe the facts of the instant case. Moreover, while it may not be determinative in the instant case, Amicus is compelled to note that “an odor of alcohol coupled with glassy eyes and failed sobriety test(s)” may not necessarily compel or equate to a finding of probable cause in every case as a determination of probable cause is always dependant upon a review of all facts and circumstances presented as the “totality of the circumstances” of the individual case. Indeed, in a

¹⁹ See original assignment of error Id.

²⁰ The Appellant may be including the “PBT” as a “field sobriety test” although that is not clear from the construct of its proposition,

given case the probable cause determination might well depend upon the type of field sobriety test(s) conducted, the basis for determining the subject failed the test, how the court felt the subject performed on the “test” irrespective of whether the officer graded it as a “failed test,” whether the test -if it was a “standardized field sobriety test”- was conducted in such a way that it was found to be in compliance with the provisions of RC 4511.19(D)(4)(b). In fact, even assuming the field sobriety test evidence meets the standards set forth in RC 4511.19(D)(4)(b), the determination of whether probable cause exists might well depend upon the “weight” the trial judge decides to give to the field sobriety test evidence and/or the weight the judge gives contrary evidence as, per 4511.19(D)(4)(b), any field sobriety test evidence only gets “whatever weight the trier of fact considers to be appropriate.”

Fortunately, the facts of this case are not such that we need to delve too deeply into the foregoing. The appellate court below properly found that the two field sobriety tests the accused *allegedly failed* could not be considered in determining probable cause and there is no dispute that the accused passed the third field sobriety test, e.g. the One-Leg-Stand Test. Indeed, the appellate court, in essence, found that the accused did not fail the Walk-and-Turn Test, because – as the Appellant must now concede²¹- the officer did not give her the approved test and she passed the test he did give her. Similarly, the accused could not have failed the Horizontal Gaze Nystagmus Test as the appellate court properly found that the officer did not conduct the test properly.

(I)

Assuming the Appellate Court did not commit reversible error in finding that the Walk-and-Turn Test, the Horizontal Gaze Nystagmus and the “PBT” should not have been considered –as indicia of impairment- in determining whether probable cause existed, the

²¹ Appellant, State of Ohio, has not contested in any way the appellate court’s determination that the trial court erred in not excluding the Walk-and-Turn results.

Appellate Court did not err in determining that probable cause to arrest was not established in the Trial Court

The State failed to set forth the standard of review in ruling upon a Motion to Suppress.

The standard of review with respect to a motion to suppress begins with a review of whether the trial court's findings are supported by competent, credible evidence. *State v. Winand* (1996), 116 Ohio App.3d 286, 288, 688 N.E.2d 9...Once the trial court's findings are accepted as true, the reviewing court independently determines, as a matter of law and without deference to the trial court's conclusion, whether the trial court met the applicable legal standards. *State v. Williams* (1993), 86 Ohio App.3d 37, 41, 619 N.E.2d 1141.

State v. Vicarel 2007 WL 2694746, 3 (Ohio App. 7 Dist., 2007)

The Appellant would have this Honorable Court apply “the magic words” theory of probable cause. It is sometimes assumed that the state’s burden in a motion hearing is so slight that all that is required for the burden to be met is for the officer to mention a few well known phrases such “strong odor of alcohol” or “bloodshot eyes.” This is the magic words theory of probable cause and it is not the law.

The law as set forth by the Ohio Supreme Court is as follows: “Probable cause to believe a driver is operating a vehicle while intoxicated arises from readily discernable indicia under the *totality of the circumstances.*” *State v. Gustafson*, 76 Ohio St.3d 425, 450, 668 N.E.2d 435, 453, 1996-Ohio-425 (Ohio, Jul 30, 1996), emphasis added.

Consequently, contrary to popular belief, once the magic words are uttered, the case

is not over. All of the other facts and circumstances are relevant and are the proper subject of inquiry. To put it simply, the court cannot just say I have three things consistent with probable cause and I have heard enough. If there are 57 things inconsistent with probable cause and only three things consistent with probable cause, under the totality of the circumstances requirement, there is not probable cause. Likewise, if the court has heard the three things favoring probable cause but not the 57 things inconsistent with it, the court has not considered the totality of the circumstances. All 60 are relevant and must be considered even if the three have been proven. The inquiry does not end after the magic words are spoken nor is it proper to reach a decision at that point. All factors must be considered.

In State v. Homan (2000) 89 Ohio St.3d 421, 427, 732 N.E.2d 952, 957, this Court stated:

In determining whether the police had probable cause to arrest an individual for DUI, we consider whether, at the moment of arrest, the police had sufficient information, derived from a reasonably trustworthy source of facts and circumstances, sufficient to cause a prudent person to believe that the suspect was driving under the influence. *Beck v. Ohio* (1964), 379 U.S. 89, 91, 85 S.Ct. 223, 225, 13 L.Ed.2d 142, 145; *State v. Timson* (1974), 38 Ohio St.2d 122, 127, 67 O.O.2d 140, 143, 311 N.E.2d 16, 20. In making this determination, we will examine the “totality” of facts and circumstances surrounding the arrest. See *State v. Miller* (1997), 117 Ohio App.3d 750, 761, 691 N.E.2d 703, 710; *State v. Brandenburg* (1987), 41 Ohio App.3d 109, 111, 534 N.E.2d 906, 908.

In applying the standard of review and the probable cause standard to this case, the decision of the Seventh District Court of Appeals should be upheld.

The Court of Appeals, in this case, did exactly what the court of appeals and this Honorable Court did in the Homan case. In this case the Court of Appeals reviewed the

record to determine, among other things, whether the record supports the use of the Standardized Field Sobriety as reliable evidence in support of a finding of probable cause. In this case, the Court of Appeals also determined whether the “PBT” could be used as admissible and/or reliable evidence.²²

After excluding the PBT evidence, determining that the HGN was not properly admitted and finding that the accused’s performance on Walk-and-Turn could not be legitimately be considered a failure, the Appellate Court reviewed the totality of the remaining evidence to ascertain if probable cause to arrest for OVI was established in the trial court.

Eliminating the HGN test “results,” the PBT evidence and the Walk-And-Turn Test results –but not lay evidence of the accused’s performance on the test²³ the appellate court was left with the following:

1. a lack of any evidence of impaired driving notwithstanding the fact that the officer followed Ms. Derov for a significant period of time,
2. a passing grade on the One-Leg-Stand test,
3. a passing grade on the Walk-and-Turn test as it was given to her,
4. no idicia that her ability to speak was impaired,
5. no indicia that her ability to think and answer questions put to her was impaired,
6. no evidence that her fine motor skills were impaired,
7. no evidence of impairment whatsoever

²² Note, as discussed below, Amicus would assert that even if the PBT should have been admitted in the probable cause hearing, it did not add anything to the facts supporting probable cause and, indeed the PBT evidence –viewed in a light most favorable to Appellant- still does not tend to establish that the accused was impaired or above the per se unlawful level.

²³ Under this Court’s holding in State v. Schmitt, 101 Ohio St.3d 79, 2004-Ohio-37 the appellate court would still have properly considered how Ms. Derov performed on the Walk-And-Turn test for a lay person’s view point and apparently found her performance was consistent with sobriety rather than impairment.

Against the forgoing evidence that clearly tend to support sobriety and not impairment the only evidence in support of probable cause was the officer's perception of a strong odor of alcohol, "red" and "glassy eyes" and an admission of consumption of one beer.

In a recent case the court used the totality of the circumstances, good and bad, to determine that the trooper did not have probable cause holding:

"It is well settled in Ohio that the mere commission of a minor traffic violation combined with an odor of alcohol does not constitute probable cause to arrest for operating under the influence of alcohol.

This case, however, adds the additional element of the defendant's failure of the horizontal gaze nystagmus test. While giving some weight to that testimony, the court cannot ignore the fact that the defendant was able to satisfactorily complete the two other sobriety tests that he was requested to take. If the court is asked to consider as scientifically reliable the one-leg stand test and walk and turn test in establishing probable cause to arrest, the court must also be able to rely upon those tests to establish the lack of probable cause.

Based upon the totality of the circumstances, the court is satisfied that the arresting officer had reasonable grounds to stop the defendant's vehicle, but that he lacked probable cause thereafter to arrest the defendant for the charge of operating under the influence of alcohol."

State v. Bailey, 2008-Ohio-2254, Court of Appeals of Ohio, Third District, Logan County.

Thus in the *Bailey* case the court found the accused's performance on the other tests outweighed the testimony that the accused failed the HGN test.

(II)

Neither a perceived odor of alcohol, nor red and/or glassy eyes are indicia of impairment

The courts in Ohio have properly held that the consumption of alcohol and its mere odor are not *per se* evidence of impairment. *State v. True*, 137 Ohio App.3d 348, 352, 738 N.E.2d 830, 833 (Ohio App. 1 Dist.,2000). For better or worse, the law prohibits *drunken* driving, not driving after a drink. *State v. Taylor* 3 Ohio App.3d 197, 198, 444 N.E.2d 481, 482 (Ohio App.,1981). “The mere odor of alcohol about a driver’s person, not even characterized by such customary adjectives as ‘pervasive’ or ‘strong,’ may be indicia of alcohol ingestion, but is no more a probable indication of intoxication than eating a meal is of gluttony.” *Id.* The law prohibits driving while under the influence.

In 4 Ohio **Jury Instructions** (2006), Section 711.19, “[u]nder the **influence**” is defined as follows:

‘Under the influence’ means that the defendant consumed some (alcohol) (drug of abuse) (alcohol and a drug of abuse), whether mild or potent, in such a quantity, whether small or great, that it adversely affected and appreciably impaired the defendant’s actions, reaction, or mental processes under the circumstances then existing and deprived him of that clearness of intellect and control of himself which he would otherwise have possessed. The question is not how much (alcohol) (drug of abuse) (alcohol and a drug of abuse) would affect an ordinary person. The question is what effect did any (alcohol) (drug of abuse) (alcohol and a drug of abuse), consumed by the defendant, have on him at the time and place involved. If the consumption of (alcohol) (drug of abuse) (alcohol and a drug of abuse) so affected the nervous system, brain, or muscles of the defendant so as to impair, to an appreciable degree, his ability to operate the vehicle, then the defendant was under the influence.

Finally, it should be noted that both medical texts and the researchers who formulated the NHTSA Standardized Field Sobriety Tests have reviewed whether the

presence of an odor of alcohol or the perceived strength of the odor is useful in determining whether a person is intoxicated and have concluded that neither is reliable.

As one medical text states:

“The presence or absence of an odor of ethanol on the breath is an unreliable means of ascertaining whether a person is intoxicated or whether ethanol has been consumed recently, even under optimum laboratory conditions.” See Goldfrank’s Toxicologic Emergencies, Seventh Edition, Goldfrank, Folmenbaum, Lewin, Howland, Hoffman, and Nelson.

Similarly NHTSA researches after conducting a study to determine if trained police officers can reliably estimate BAC ranges based on their appraisal of strength of the odor of ethanol noted:

“Odor strength estimates were unrelated to BAC levels. Estimates of BAC level failed to rise above random guesses. Those results demonstrate that even under optimum laboratory conditions, breath odor detection is unreliable.” See, Police Officers’ Detection Of Breath Odors From Alcohol Ingestion, Herbert Moskowitz, Marcelline Burns, Susan Ferguson, Southern California Research Institute, 11914 West Washington Blvd., Los Angeles, CA 90066, USA, published in Accident Analysis and Prevention 31 (1999) 175 – 180.

Finally, the NHTSA researchers also caution against using “blood-shot eyes” as a basis for judging the likelihood of impairment noting:

“Similarly, bloodshot eyes, while associated with alcohol consumption, also is a trait of many shift workers and people who must work more than one job, as well as those afflicted by allergies.” See: 1997 NHTSA DOT# 808654; DWI Detection at BACs below .10, Anacapa Science Appendix II, E-10.

(III)

The reduction of the per se limits that one’s body can legally possess while operating a motor vehicle did not reduce the indicia of intoxication required to establish probable cause for an OVI arrest

The State did not raise this argument in either the trial court or the Court of Appeals. It is a cardinal rule of appellate procedure that a party cannot assert new legal

theories for the first time on appeal. Stores Realty Co. v. Cleveland (1975), 41 Ohio St.2d 41, 43; “Litigants must not be permitted to hold their arguments in reserve for appeal, thus evading the trial court process.” Mark v. Mellott Mfg. Co., Inc. (1995), 106 Ohio App.3d 571, 589. As such, a reviewing court will not consider any issue a party failed to raise in the trial court, but instead, will consider the issue waived. See Lippy v. Society Natl. Bank (1993), 88 Ohio App.3d 33, 40. The State has waived this argument for review.

If the argument is not waived, the State’s assertion that fewer indicia of impairment are required for probable cause to arrest due to the change in the per se levels from .100 to .080 is flawed. There are typically two separate and distinct charges that one faces following an OVI arrest. Under O.R.C. 4511.19(A)(1)(a) the elements are that “The person is under the influence of alcohol, a drug of abuse, or a combination of them.” Under O.R.C. 4511.19(A)(1)(b) the elements of the offense are that “The person has a concentration of eight-hundredths of one per cent or more but less than seventeen-hundredths of one per cent by weight per unit volume of alcohol in the person's whole blood.” There are several other offenses dealing with high tier limits, blood test results and urine test results. The State ignores the fact that these are separate offenses with completely different elements. This Court previously addressed the relationship between evidence of impairment and per se offenses in State v. Boyd, (1985), 18 Ohio St.3d 30, 31, 479 N.E.2d 850, 851. In Boyd this Court stated:

If the state is to be successful in the prosecution of a person charged with the violation of the preceding section, the state must prove beyond a reasonable doubt each of the essential elements of the crime. State v. Nolton (1969), 19 Ohio St.2d 133, 249 N.E.2d 797 [48 O.O.2d 119]. Accordingly, in order to sustain a conviction under R.C. 4511.19(A)(3), there must be proof beyond a reasonable doubt that the appellee was operating a vehicle within this state and that at the

time he had a concentration of ten-hundredths of one gram or more by weight of alcohol per two hundred ten liters of his breath.

These two facts are the only facts of consequence to the case. Thus, the relevant evidence is limited to that evidence having any tendency to make the existence of either or both of those two facts more probable or less probable. Standing alone, appellee's appearance, manner of speech and walking, and lack of any symptoms of intoxication are not relevant evidence and, therefore, not admissible.

The Court correctly acknowledged the differences between an impairment case and a per se case.

In State v. Myers (1971), 26 Ohio St.2d 190, 198-199, 271 N.E.2d 245 [55

O.O.2d 447], this Court examined the nature of the presumption established by former

R.C. 4511.19:

In * * * [providing that a defendant will be presumed to be under the influence of alcohol if there is a concentration of fifteen hundredths or more of one percent or more by weight in his blood], the General Assembly has expressed its conviction that the relationship between the objective determination by chemical test of the percentage of alcohol by weight in the blood (.15% or more), and its effect on people, is so well scientifically established that it need not be demonstrated by evidence, and may take the place of evidence at trial. The purpose of the presumption is to eliminate the need for expert testimony which would otherwise be necessary to relate the numerical figure representing a percentage of alcohol by weight in the blood as shown by the result of a chemical test, with the common understanding of being under the influence of alcohol. * * * [Citations omitted.] When the test results are in evidence, the evidence that the presumption supplies is the correlation between a scientific fact, the results of the test, and human behavior; that is, that all persons who test .15% or more are under the influence of alcohol.

This legislative determination of the relationship of alcohol levels and impairment is now only applicable in per se prosecutions. The presumption was eliminated when the statute was changed to per se violations. In addressing the admissibility of test results in City of Newark v. Lucas (1988), 40 Ohio St.3d 100, 104-105, 532 N.E.2d 130, 134 the Court stated:

The accuracy of the test is not the critical issue as it is in prosecutions for *per se* violations. Furthermore, the statutory presumptions which existed at the time of *Cincinnati v. Sand, supra*, no longer exist. Thus, no presumptive weight can be given to the test results under these sections. The test results, if probative, are merely considered in addition to all other evidence of impaired driving in a prosecution for this offense.

In light of the fact that no presumptive weight is given to the test results under R.C. 4511.19 and because those results are not dispositive to a determination of innocence or guilt under R.C. 4511.19(A)(1), we refuse to read R.C. 4511.19(B) in an exclusionary manner in prosecutions for violations of R.C. 4511.19(A)(1) with regard to the admission of test results of bodily substances withdrawn more than two hours after the time of the alleged violation. As stated above, R.C. 4511.19(B) and Newark Ordinance 434.01(c) do not, standing alone, exclude evidence of chemical test results. Furthermore, the fact that a bodily substance is withdrawn more than two hours after the time of the alleged violation does not, by itself, diminish the probative value of the test results in an R.C. 4511.19(A)(1) prosecution.^{FN6}

However, in introducing such results, expert testimony, as was proposed*105 by the prosecution in the instant case, would be necessary to relate the test results to the defendant and to the time of the alleged violation, as well as to relate the numerical figure representing a percentage of alcohol by weight in the bodily substance, as shown by the results of the chemical test, to the common understanding of what it is to be under the influence of alcohol.^{FN7} See *Myers, supra*, 26 Ohio St.2d at 198, 55 O.O.2d at 452, 271 N.E.2d at 251. Naturally, as in any action brought pursuant to R.C. 4511.19, the defendant would have the opportunity to challenge the accuracy of his specific test results.

The State's theory that the lowering of the *per se* limits reduces the amount of indicia of impairment necessary to establish probable cause for arrest for an O.R.C. 4511.19(A)(1)(a) violation is illogical. If evidence of impairment is irrelevant for a *per se* case, why would the reduction of the *per se* limit from .100 to .080 eliminate or reduce the indicia of impairment required to establish probable cause for an under the influence or a *per se* violation?

The standard for determining if probable cause exists did not change when the per se limit was reduced. This Court reiterated what test was to be used in State v. Homan (2000), 89 Ohio St.3d 421, 427, 732 N.E.2d 952, 957.

In determining whether the police had probable cause to arrest an individual for DUI, we consider whether, at the moment of arrest, the police had sufficient information, derived from a reasonably trustworthy source of facts and circumstances, sufficient to cause a prudent person to believe that the suspect was driving under the influence. *Beck v. Ohio* (1964), 379 U.S. 89, 91, 85 S.Ct. 223, 225, 13 L.Ed.2d 142, 145; *State v. Timson* (1974), 38 Ohio St.2d 122, 127, 67 O.O.2d 140, 143, 311 N.E.2d 16, 20. In making this determination, we will examine the “totality” of facts and circumstances surrounding the arrest. See *State v. Miller* (1997), 117 Ohio App.3d 750, 761, 691 N.E.2d 703, 710; *State v. Brandenburg* (1987), 41 Ohio App.3d 109, 111, 534 N.E.2d 906, 908.

The State’s assertion that lowered per se levels from .100 to .08 render evidence of motor skill impairment less significant for probable cause determinations lacks legal authority. In State v. Hurley 2003 WL 22700758, 2 (Ohio App. 3 Dist., 2003) the Court, in the context of an underage OMVI prosecution, with a .02 legal standard, noted:

Although the State argues that the evidentiary standard for probable cause should be lower for anyone under 21 years of age, the State fails to provide any legal basis in support of this argument.^{FN2} The evidentiary standard for probable cause to arrest for a OMVI violation is the same for all drivers, regardless of age.²⁴

The other flaw in the State’s position is that there is nothing in this record, or even outside of it, to establish that a police officer making the probable cause determination is

²⁴ But see: Village of Kirtland Hills v. Fuhrman 2008 WL 1933379, 3 (11th App.); Columbus v. Weber, 10th Dist. No. 06AP-845, 2007-Ohio5446, at ¶ 12; State v. Knight, 5th Dist. No.2005-CA-140, 2005-Ohio-6951, at ¶ 28; and State v. Gibson (Mar. 17, 2000), 4th Dist. No. 99CA2516, 2000 Ohio App. LEXIS 1197, at *10,. It should be noted that all of these decisions were based upon the conclusion that the .02 standard is meant to equate to “zero tolerance” and thus evidence of consumption is for all practical purposes all that is needed to establish probable cause that a person under the age of 21 was likely to be violating RC 4511.19(B).

able to distinguish the indicators that a person with a .100 blood alcohol level would show versus one with a .08 would exhibit. The difference between the two levels is miniscule. Even if the per se limits were directly related to levels of impairment, there is no way that an officer could know what a person with a .08 level would show compared to what a person would exhibit with a .100 level.

Second Proposition of Law as proposed by Amicus, OACDL:

Given the lack of any statutory or evidentiary foundation the Court of Appeals did not err in holding that the Portable Breath Test evidence in this case was unreliable and/or inadmissible and thus could not be used to establish probable cause to arrest for an OVI.²⁵

Amicus submits that the admissibility of “Portable Breath Test Evidence” is either governed by statute through the delegation of authority to the Director of Health under RC 3701.143 or the proponent of such evidence must show that it meets the basic reliability standards for scientific evidence. Although the PBT evidence was to be used at a probable cause hearing where the Rules of Evidence do not strictly apply, that does not eliminate the need for the State to establish scientific reliability. Indeed in other contexts where the Evidence Rules don’t strictly apply Ohio Courts have held, “[a]dministrative agencies are not bound by the rules of evidence applied in courts.” *Althof v. Ohio State Bd. of Psychology*, 10th Dist. No. 05AP-1169, 2007-Ohio-1010, at ¶73; *Pearson*, 157 Ohio App.3d 105, 2004-Ohio-2251, 809 N.E.2d80, at ¶19; *Haley v. Ohio State Dental Bd.* (1982), 7 Ohio App.3d 1, 6. In determining when scientific evidence used to make an administrative decision is “reliable,” the same considerations recognized for “good

²⁵ Since Ms. Derov admitted to the consumption of alcohol and Trooper Martin only testified that the PBT test indicated alcohol consumption, not a specific level, the resolution of this issue has little to no bearing on the outcome of the case.

science” in *Daubert v. Merrell Dow Pharmaceuticals, Inc.* (1993), 509 U.S. 579, 125 L.Ed.2d 469, 113 S.Ct. 2786 are appropriately applied under Ohio law.” *Belcher v. Ohio State Racing Comm.*, 10th Dist. No. 03AP-786, 2004-Ohio-1278*Belcher*, 2003-Ohio-2187, at ¶11.

On the other hand it could be argued that in Ohio, the General Assembly has legislatively provided for the admission of various alcohol determinative tests. *State v. Vega* (1984), 12 Ohio St.3d 185, 186-187, 465 N.E.2d 1303, 1305 R.C. 3701.143 authorizes the Director of Health to determine suitable methods for breath alcohol analysis. The Court in *Vega* noted that:

[The judiciary must recognize] the necessary legislative determination that breath tests, properly conducted, are reliable irrespective that not all experts wholly agree and that the common law foundational evidence *189 has, for admissibility, been replaced by statute and rule; and that the legislative delegation was to the Director of Health, not the court, the discretionary authority for adoption of appropriate tests and procedures, including breath test devices.”

Id at 188-189.

The State’s attempt to allow portable breath tests to be used for probable cause determinations is an attempt to usurp the power given to the Director of the Department of Health by the Ohio legislature. The Director of the Department of Health has established methods for breath alcohol analysis through the Ohio Administrative Code. O.A.C. 3701-53-02 provides that the approved evidential breath testing instruments are(1) BAC DataMaster, BAC DataMaster cdm; and (2) Intoxilyzer model 5000 series 66, 68 and 68 EN. The Director has not currently approved any portable breath tests as evidential breath tests for O.V.I. cases. In the past, however, the Director has approved

portable breath testing instruments for use in motor vehicle OVI situations.²⁶ The implication is that the Director, in using the authority given to him by the legislature, no longer considers any portable breath testing instruments to be sufficiently reliable for motor vehicle situations.

There is a conflict among the districts as to the admissibility of P.B.T. results for a probable cause determination. Some courts have held that, although the test results are not admissible at trial, that they can be used as a factor to establish probable cause to arrest.²⁷ It is interesting to note that the basis of the decision that the PBT was not admissible at trial was due to the fact that it was not reliable. In *State v. Shuler* 168 Ohio App.3d 183, 186-187, 858 N.E.2d 1254, 1257 (Ohio App. 4 Dist.,2006) the Court noted this rationale:

PBT devices are not among those instruments listed in Ohio Adm.Code 3701-53-02 as approved evidential breath-testing instruments for determining the concentration of alcohol in the breath of individuals potentially in violation of R.C. 4511.19. PBT results are considered inherently unreliable because they “may register an inaccurate percentage of alcohol present in the breath, and may also be inaccurate as to the presence or absence of any alcohol at all.” See *State v. Zell* (Iowa App.1992), 491 N.W.2d 196, 197. PBT devices are designed to measure the amount of certain chemicals in the subject's breath. The chemicals measured are found in consumable alcohol, but are also present in industrial chemicals and certain nonintoxicating over-the-counter medications. They may *187 also appear when the subject suffers from illnesses such as diabetes, acid reflux disease, or certain cancers. Even gasoline containing ethyl alcohol on a driver's clothes or hands may alter the result. Such factors can cause PBTs to register inaccurate

²⁶ See *State v. Ferguson* 2002 WL 596115, 2 (Ohio App. 3 Dist.) (Ohio App. 3 Dist.,2002) In addition, the results of the PBT are inadmissible because the Ohio Department of Health no longer recognizes the test. Therefore, the results of the field sobriety test and the PBT could not serve as probable cause to arrest the appellant for driving under the influence of alcohol

²⁷ See. *State v. Shuler* (Ohio App. 4 Dist.,2006.)168 Ohio App.3d 183, 858 N.E.2d 1254, 2006 -Ohio- 4336; *State v. Polen* Slip Copy, 2006 WL 3040633 (Ohio App. 1 Dist.); *State v. Masters* 2007 WL 4563478 (Ohio App. 6 Dist.), 2007 -Ohio- 7100

readings, such as false positives. See Tebo, *New Test for DUI Defense: Advances in Technology and Stricter Laws Create Challenges for Lawyers*, Jan. 28, 2005, www.duicentral.com/aba_journal/. This lack of evidential reliability provides a basis for excluding PBT results from admissibility at trial. See *Elyria v. Hebebrand* (1993), 85 Ohio App.3d 141, 619 N.E.2d 445; *State v. Kerns* (March 30, 1998), Van Wert App. No. 15-97-8, 1998 WL 142384.

There are several districts that have ruled that PBT results are not admissible, even to establish probable cause to arrest, including the Seventh District Court of Appeals in this case.²⁸ The rationale behind this decision is apparent. Why should a test that has been deemed inherently unreliable, one that is not approved by the Director of the Department of Health for O.R.C. 4511.19 cases, be reliable enough to factor into the momentous decision of whether to make a warrantless arrest? The Fourth Amendment to the U.S. Constitution protects us from unreasonable search and seizure. Why would evidence that is not reliable enough to satisfy the Ohio Rules of Evidence be reliable enough to make a decision involving one of our constitutional rights? Even though the burden at trial differs from that necessary to establish probable cause to arrest, that does not make the results of a PBT test any more reliable.

In reviewing the record in this case, there was no foundational testimony regarding the PBT. The record is absent of a scintilla of evidence to establish the reliability of the PBT for a probable cause determination. The situation raises an interesting issue. The Ohio Rules of Evidence do not apply at a suppression hearing.

State v. Boczar, 113 Ohio St.3d 148, 2007-Ohio-1251, 863 N.E.2d 155, at ¶ 17. A PBT test would have to be considered scientific evidence that would require expert testimony

²⁸ See *State v. Delarosa*, 11th Dist. No.2003-P-0129, 2005-Ohio-3399; *State v. Ferguson*, 3d Dist. No. 4-01-34, 2002-Ohio-1763; *State v. Derov*, 7th Dist. No. 07 MA 71, 2008-Ohio-1672; *Cleveland v. Sanders*, 8th Dist. No. 83073, 2004-Ohio-4473; *State v. Mason* (Nov. 27, 2000), 12th Dist. No. CA99-11-033, 2000 Ohio App. LEXIS 5472

to establish its admissibility at trial. What test or standard should be used by a trial court when dealing with scientific evidence for purposes of ruling on a Motion to Suppress?²⁹ In the context of drug dogs, the Courts have demanded some demonstration of reliability in the context of the probable cause determination.³⁰ In cases involving confidential informants Courts have held that there must be some demonstration of reliability to establish probable cause.³¹ The State should be required to demonstrate the reliability of the P.B.T. before the court can use the result to rule on the presence or absence of probable cause. The State in this case did not offer any testimony to demonstrate that the instrument used had ever been calibrated.

Whatever the standard may be, it could not have been met in this case given the lack of foundational testimony and any evidence of the scientific reliability of the instrument used.³² The Court should uphold the decision of the Seventh District Court of Appeals in this case that the results of the PBT are not admissible to establish probable cause to arrest in an OMVI case.

The State argues that other jurisdictions recognize the reliability of PBTs'. First,

²⁹ This court has held: "The HGN test cannot be compared to other scientific tests, such as a polygraph examination, since no special equipment is required in its administration. * * * *The admission of the results of the HGN test is no different from any other field sobriety test, such as finger-to-nose, walk-and-turn, or one-leg-stand.*" (Emphasis added.) *State v. Bresson* (1990), 51 Ohio St.3d 123, 129, 554 N.E.2d 1330. Further, this court drew no distinction among the field sobriety tests in *Homan*. *State v. Boczar* 113 Ohio St.3d 148, 153, 863 N.E.2d 155, 160 (Ohio,2007).

³⁰ *State v. Barbee* 2008 WL 2789474, 5 (Ohio App. 9 Dist.) (Ohio App. 9 Dist.,2008) After an extensive survey of state and federal case law, the Sixth District adopted the majority view that "proof of the fact that a drug dog is properly trained and certified is the only evidence material to a determination that a particular dog is reliable." *Id.* at ¶ 55.

³¹ *State v. Dalpiaz*, 151 Ohio App.3d 257, 783 N.E.2d 976, 2002-Ohio-7346, at ¶ 43 (holding that an affiant must provide an indication of an informant's reliability in order to establish probable cause for the issuance of a search warrant)

³² There is no reference in the record as to the make and or model of the portable breath test used in this case.

they assert that Kansas admits the results of PBT's for probable cause and at trial.³³ The State of Kansas does not admit results of PBT's for determination of guilt or innocence at trial. "The PBT results are not evidence of guilt for a DUI charge because it is not admissible at trial." *State v. Chacon-Bringuez* 28 Kan.App.2d 625, 632, 18 P.3d 970, 976 (Kan.App.,2001) In addition, the Appellant failed to point out that in Kansas PBT results can be used to establish probable cause do to a legislative determination codified in statute, not a judicial determination of their reliability.³⁴ This raises the same issue we have in this case. If it is not reliable enough to use at trial, why is it reliable enough to effect our constitutional rights. The States of Wisconsin, Vermont and Missouri have similar statutes.³⁵ Ohio does not have this legislative determination.

In *Bokor v. Department of Licensing* 74 Wash.App. 523, 526, 874 P.2d 168, 169 (Wash.App. Div. 3,1994) the Court addressed the situation where a PBT result was offered at a suppression hearing without any evidence of its' reliability or the officer's training. The Court found:

An officer cannot reasonably rely on data obtained from a technical device unless he has some understanding of how it works or assurances of its reliability from an expert knowledgeable about the underlying principles on which the device is based; and a reasonable basis for believing the device will produce reasonably reliable results under the circumstances in which it is used, including adequate maintenance and correct operation. See *State v. Superior Court*, 149 Ariz. 269, 718 P.2d 171, 60 A.L.R.4th 1103 (1986) and *State v. Bresson*, 51 Ohio St.3d 123, 554 N.E.2d 1330 (1990) regarding admissibility of the horizontal gaze nystagmus test.

The State failed to offer any evidence of the reliability of the PBT in this case. In fact they did not establish which device was used and that Trooper Martin was trained

³³ Appellants Merit Brief at 23

³⁴ See Kansas Statutes Annotated 8-1001.

³⁵ Wisconsin Stat 343.303; Vt Stat 23, 1203(f); Mo Stat. 577.021(3)

properly to use it. Without any evidence to demonstrate reliability, the Seventh District Court of Appeals properly ruled that the PBT cannot be used to establish probable cause.

Third Proposition of Law as proposed by Amicus, OACDL:

A Court of Appeals will not be reversed for finding that HGN evidence is inadmissible and/or unreliable where the appellate court relies upon the testimony and admissions of the arresting officer wherein the officer concedes that he failed to comply with his training and/or admits that the HGN test should take a certain amount of time to perform and the evidence shows the test in question was completed in a much shorter time frame

The Appellant, State of Ohio, incredibly suggests, “the appellate court arbitrarily came to the conclusion that the HGN requires a minimum of 68- seconds based on Trooper Martin's testimony.” Amicus submits that the officer’s testimony about his training and his admissions that he learned in his training that the HGN test takes at least 68 seconds, coupled with his admission that he only took 48 seconds establishes a violation of RC 4511.19(D)(4)(b). The officer admits that he took 30 per cent less time to conduct the test than his training requires. Substantial compliance defined by this Honorable Court in *State v. Burnside*, 100 Ohio St.3d 152, 2003-Ohio-5372 {¶ 34}, is limited to “de minimus” errors. A 30 per cent variance is a major variance and well above de minimus.

Amicus would note that, per 4511.19(D)(4)(b) it is incumbent upon the State to prove “by clear and convincing evidence that the officer administered the test in substantial compliance with the testing standards for any reliable, credible, and generally accepted field sobriety tests that were in effect at the time the tests were administered, including, but not limited to, any testing standards then in effect that were set by the national highway traffic safety administration.” (Emphasis added.) There was no

evidence introduced as to what the NHTSA “testing standards” were at the time of Ms. Derov’s arrest, nor was there evidence that the officer was trained in the most recent standards. Indeed, there is no testimony as to when NHTSA published its latest SFST manual. Thus Not only did the State fail to meet this burden, the appellate court *properly* found non-compliance with the standards used by the officer *based upon the officer’s own admissions and concessions as to how he was taught to conduct the tests*. Ironically, the Appellant, State of Ohio, now seeks to discount the officer’s testimony in favor of the State’s interpretation of materials not in the record.

Amicus agrees with the Appellee that the question of whether the HGN test takes a minimum of sixty-eight seconds is not determinative of whether the officer in this case demonstrated that he substantially complied with his training and, agrees more over that the officer’s testimony also established that he did not conduct the “Onset Prior to 45 degrees” phase properly. Moreover, other than the officer’s testimony and admissions there is no record upon which for this Honorable Court can even attempt to determine whether a minimum time frame for conducting the HGN test can be ascertained.

While the NHTSA manuals provide some details and times related to the conduct of certain parts of the test, the officers learn how to conduct the test from the trained NHTSA Instructors. While the reported cases, and the cases cited by Appellant, do not include the testimony or instruction from a trained NHTSA Instructor, Troy McKinney, Esq., co-author of all four editions of *Texas Drunk Driving Law*, Trichter and McKinney, 2 Volumes, Michie Publishers, who is a trained NHTSA SFST Instructor has published a very good rule of thumb on the time it takes to conduct the HGN test.³⁶ Mr. McKinney’s

³⁶ While published in many journals and other material, the attached article Challenging and Excluding HGN tests was originally published in the *Champion*, the a publication of the National Association of

analysis (attached) is that the HGN test must take a minimum of eighty two (82) seconds and consist of (14) fourteen passes to be done properly.

However, while Counsel would respectfully direct the Court's attention to Mr. McKinney's article and analysis it should be noted that perhaps the primary purposes of that article is to 1) break down and explain the various elements and "passes" required in the HGN procedure and 2) to provide a numerical "smell test" to be able to use to see if a particular HGN procedure could logically and reasonably have been conducted properly. Counsel submits that it does that quite well and that any HGN procedure that does not pass that test cannot logically or reasonably be conducted in compliance with the NHTSA procedures. **The HGN procedure followed in the instant case does not come close to passing that smell test.**

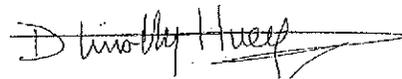
In the appendix Amicus counsel has attached an attempted computation of "minimum base times" for the various elements of the Horizontal Gaze Nystagmus Test by reference to the text of the NHTSA SFST manuals used in the McKinney article. The term "minimum base time" is meant to denote the absolute fastest time that a given HGN examination can take, but will necessarily underestimate the time. It should be noted that the time it takes to conduct an HGN examination will vary depending on the third stage of the procedure, e.g. checking for onset of nystagmus prior to 45 degrees. Hypothetically, the earlier onset is found, the less time the test may take. However, by counsel estimation of "minimum base times" the fastest HGN test will take long than 78.5 seconds. (See appendix H)

Criminal Defense Lawyers April 2002 at page 50.. Please note that the formatting of the attached is different from the publication as it was provided by Mr. McKinney at Amicus Counsel's request as the version appearing in the Champion did not copy well. Counsel has also been informed that this article also appears in the supplement to Drunk Driving Defense, Sixth Edition by Lawrence Taylor (Aspen Press), a treatise cited in over ten published Ohio opinions.

Amicus again submits that the record does not contain enough information to allow this Honorable Court to set a legal standard for how long it takes to complete the HGN test and, moreover, the record does contain the officer's admissions that he did not take as long as he was trained he should take. However, if the Court wishes to peruse the various manuals, Amicus would urge the Court to review the McKinney article and Amicus counsel's attempt to compute minimum base times for the phases of the test. Amicus submits that logically an HGN test must take more than the 48 seconds it took to conduct the instant HGN test.

CONCLUSION

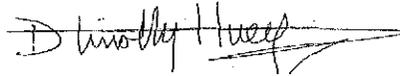
In conclusion, the Court of Appeals did not err after excluding inadmissible and unreliable evidence from the probable cause determination. In viewing the admissible and reliable evidence under the totality of the circumstances test, the trooper lacked probable cause to make the arrest. The results of a portable breath test cannot be considered, even for probable cause purposes, since there has been no evidence introduced to establish the reliability of the unit, nor any foundational evidence regarding the particular unit used in this case as well as the trooper's qualifications to operate it. Finally, the Court of Appeals did not err in excluding the results of the HGN test from its probable cause determination. The HGN test was not administered in substantial compliance with N.H.T.S.A. standards.



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CERTIFICATE OF SERVICE

I certify that a copy of the Merit Brief of Amicus Curiae O.A.C.D.L. on Behalf of Appellee was sent by ordinary U.S. mail to counsel for Appellant, Paul J. Gains, Rhys B. Cartwright, Jones and Ralph M. Rivera of the Office of the Mahoning County Prosecutor, 21 W. Boardman Street, 6th Floor, Youngstown, Ohio 44503-1426; to counsel for Amicus Curiae Mothers Against Drunk Driving (MADD), Attorney Tim Van Eman 500 S. Front St. Suite 200 Columbus, Ohio 43215; to counsel for Amicus Curiae City of Youngstown, Attorney Joseph R. Macejko, City Prosecutor's Office 26 S. Phellps St., 4th Floor, Youngstown, Ohio 44503; to counsel for Amicus Curiae Ohio Attorney General Nancy H. Rogers, Attorney Nancy H. Rogers, Attorney Benjamin C. Mizer, Attorney Michael Dominic Meuti, Attorney Jason Patrick Small 30 East Broad St., 17th Floor Columbus, Ohio 43215 on this 21st day of October, 2008.

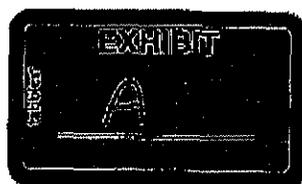


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★3701.143 Blood analysis to determine alcohol, drug or controlled substance in body

For purposes of sections 1547.11, 4511.19, and 4511.194 of the Revised Code, the director of health shall determine, or cause to be determined, techniques or methods for chemically analyzing a person's whole blood, blood serum or plasma, urine, breath, or other bodily substance in order to ascertain the amount of alcohol, a drug of abuse, controlled substance, metabolite of a controlled substance, or combination of them in the person's whole blood, blood serum or plasma, urine, breath, or other bodily substance. The director shall approve satisfactory techniques or methods, ascertain the qualifications of individuals to conduct such analyses, and issue permits to qualified persons authorizing them to perform such analyses. Such permits shall be subject to termination or revocation at the discretion of the director.

As used in this section, "drug of abuse" has the same meaning as in section 4506.01 of the Revised Code.



4 OJI 711.19

4 Ohio Jury Instructions 711.19 (2006)

Ohio Jury Instructions
Criminal
Ohio Judicial Conference

Current through August 2008 Update

Volume Four
Part II: Specific Crimes
Chapter 711: Alcohol Traffic Offenses [Rev. 1-21-06]

**711.19 Operating under the influence of alcohol and/or drugs of abuse R.C. 4511.19(A)(1)
(offenses committed before 1/1/04) [Rev. 1-21-06]**

1. The defendant is charged with operating a (vehicle) (streetcar) (trackless trolley) while **under** (the **influence** of alcohol) (the influence of a drug of abuse) (the influence of alcohol and a drug of abuse). Before you can find the defendant guilty, you must find beyond a reasonable doubt that on or about the _____ day of _____, _____, and in _____ County (*other jurisdiction*), Ohio, the defendant operated a (vehicle) (streetcar) (trackless trolley) while **under** (the **influence** of alcohol) (the influence of [*specify drug of abuse*]) (the influence of alcohol and [*specify drug of abuse*]).

2. OPERATE. The term "operate" is a broader term than driving. It includes not only a person being in control of a vehicle while it is in motion but also a person, whether conscious or unconscious, in the driver's location in the front seat of a stationary vehicle so as to be capable of doing any act or series of acts which could cause or contribute to the vehicle being put in motion. It is not necessary to prove that the defendant ever had the vehicle in motion or intended to put the vehicle in motion.

COMMENT

This instruction should be given only if a genuine issue of fact is raised concerning the operation of the vehicle. State v. Cleary (1986), 22 Ohio St.3d 198, 490 N.E.2d 574, extends the concept of operation to stationary vehicles. See also State v. McGlone (1991), 59 Ohio St.3d 122, 570 N.E.2d 1115.

Only if there is a dispute about whether the vehicle is capable of movement, is an instruction on operability necessary. Operability of a vehicle has been addressed in varying ways by Ohio courts as an affirmative defense, an element of the offense or a factual issue.

3. VEHICLE. R.C. 4511.01(A).

4. ALCOHOL. R.C. 4301.01(B)(1).

5. DRUG OF ABUSE. You are instructed that (*specify drug of abuse*) is a drug of abuse.

COMMENT



The classification of a particular substance as a drug of abuse is a question of law. The identity of a particular substance, whether or not the defendant had ingested that substance and its affect, if any, upon him are questions of fact. For the definition of "drug of abuse" see R.C. 2925.01(B), 3719.01, 3719.011(A), 3719.41 and 4729.01(E).

6. UNDER THE INFLUENCE. "Under the influence" means that the defendant consumed some (alcohol) (drug of abuse) (alcohol and a drug of abuse), whether mild or potent, in such a quantity, whether small or great, that it adversely affected and noticeably impaired the defendant's actions, reaction, or mental processes under the circumstances then existing and deprived the defendant of that clearness of intellect and control of himself/herself which he/she would otherwise have possessed. The question is not how much (alcohol) (drug of abuse) (alcohol and a drug of abuse) would affect an ordinary person. The question is what effect did any (alcohol) (drug of abuse) (alcohol and a drug of abuse), consumed by the defendant, have on him/her at the time and place involved. If the consumption of (alcohol) (drug of abuse) (alcohol and a drug of abuse) so affected the nervous system, brain, or muscles of the defendant so as to impair, to a noticeable degree, his/her ability to operate the vehicle, then the defendant was **under the influence**.

COMMENT

State v. Hardy (1971), 28 Ohio St.2d 89, 57 O.O.2d 284, 276 N.E.2d 247; State v. Steele (1952), 95 Ohio App. 107, 52 O.O. 488, 117 N.E.2d 617.

7. CHEMICAL ANALYSIS (OPTIONAL).

(Use appropriate alternative)

(A) Evidence of a (breath) (blood) (urine) test administered to the defendant may only be considered as evidence indicating whether the defendant had or had not consumed some alcohol. You may not, on the basis of the test alone, conclude or infer that the defendant was or was not **under the influence** of alcohol.

COMMENT

Testimony that an analysis of breath, blood or urine reflected the presence of alcohol in the defendant's system may be admitted into evidence for the limited purpose of proving that the accused had, in fact, consumed alcohol. This testimony may be admitted without expert testimony. The court may be required to give instructions advising the jury of the limited purpose and application of this evidence.

(B) Evidence of a (breath) (blood) (urine) test administered to the defendant may be considered along with all other evidence in determining whether the defendant was or was not **under the influence** of (alcohol) (drug of abuse) (alcohol and a drug of abuse).

COMMENT

A chemical test result may be admissible in an R.C. 4511.19(A)(1) prosecution when the same test is not admissible in a prosecution under R.C. 4511.19(A)(2), (3) or (4). Newark v. Lucas (1988), 40 Ohio St.3d

100, 532 N.E.2d 130.

*An actual test result offered to prove that the defendant was or was not **under the influence** would be admissible only upon the offering party presenting expert testimony to explain the meaning of the test result to the jury. State v. Szulc (Dec. 29, 2000), Erie App.No. E-00-021, unreported; State v. Scheurell (1986), 33 Ohio App.3d 217, 515 N.E.2d 629; State v. Bakst (1986), 30 Ohio App.3d 141, 506 N.E.2d 1208.*

8. EXPERT WITNESS AND HYPOTHETICAL QUESTION (OPTIONAL). 4 OJI 405.51.

COMMENT

This instruction should be given only if the optional chemical test instruction in subsection 7(B) is used.

9. REFUSAL TO SUBMIT TO TEST (OPTIONAL). Evidence has been introduced indicating the defendant was asked but refused to submit to a chemical test of his/her (blood) (breath) (urine) to determine the amount of (alcohol) (drug of abuse) in his/her system, for the purpose of suggesting that the defendant believed he/she was **under the influence** of (alcohol) (drug of abuse) (alcohol and a drug of abuse). If you find the defendant refused to submit to said test, you may, but are not required to, consider this evidence along with all the other facts and circumstances in evidence in deciding whether the defendant was **under the influence** of (alcohol) (drug of abuse) (alcohol and a drug of abuse).

COMMENT

Maumee v. Anistik, 69 Ohio St.3d 339, 1994-Ohio-157.

Some appellate courts have applied this instruction to refusal to perform field sobriety tests. See State v. Flynt, 11th Dist. No. 2001-P-0116, 2003-Ohio-1391; State v. Arnold (Sept. 7, 1999), 12th Dist. No. CA99-02-026.

10. ADDITIONAL FINDING:
PRIOR CONVICTION. 4 OJI 413.35.

11. CONCLUSION. 4 OJI 413.01.

12. CONCLUSION WITH LESSER INCLUDED OFFENSE. 4 OJI 413.21, 413.23.

COMMENT

This instruction would only be given if requested in a felony prosecution.

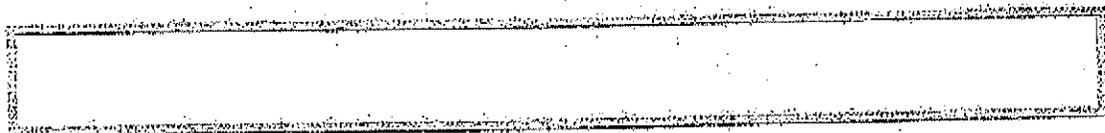
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EMERGENCIES TOXICOLOGIC

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respiratory depression. An average non-alcoholic adult with a blood ethanol concentration of greater than 300 mg/dL (65.22 mmol/L) is usually comatose.⁷

The acute effects of ethanol ingestion also depend on the habituation of the drinker. This is mainly a consequence of the development of tolerance, which has a metabolic (biotransformation) and a functional (pharmacodynamic) component.¹² Metabolic tolerance to ethanol is based on enhanced elimination by the ADH enzyme and the MEOS/CYP2E1 system. Functional tolerance (resistance to the effects of ethanol at the cellular level) is a more important determinant of habituation and may be mediated through alterations in glutamatergic, serotonergic, and adrenergic neurons.²¹ Although individuals who are acutely intoxicated move through a progressive sequence of events, the association of a particular stage of intoxication with a specific blood ethanol level is not usually possible without knowing the pattern of ethanol use of the patient. In asymptomatic, specific symptoms manifestations or habituation typically occur with significantly higher blood ethanol concentrations than nonhabituated individuals. Regardless, the absolute change above the baseline ethanol level may be important.

A patient may present with obvious signs and symptoms consistent with ethanol intoxication that include flushed face, diaphoresis, tachycardia, hypotension, hypothermia, hypoventilation, mydriasis, nystagmus, vomiting, dysarthria, muscular incoordination, ataxia, altered consciousness, and coma. However, the presentation of an ethanol-intoxicated patient should also prompt the physician to carefully evaluate the patient for a variety of coexisting clinical and metabolic disorders. These coexisting disorders include hypoglycemia, head and neck injury, acid-base derangements, hyponatremia, hyponitrogenemia, meningitis, sepsis, myopathy and neuropathy, bone marrow suppression, cardiomyopathy and dysrhythmias, gastrointestinal hemorrhages, pancreatitis, peptic ulcer, liver disease, and ingestion of ethylene glycol, methanol, or isopropanol. Diplopia, visual disturbances, and nystagmus may be evident, which may be a result of the toxic effects of ethanol or may represent Wernicke's encephalopathy. Hypothermia may be exacerbated by environmental exposure, by vomiting and loss of carbohydrate or energy substrate, and by ethanol-induced vasodilation. Ethanol intoxication can impair cardiac output in patients with myocardial infarction; it also may cause or contribute to dysrhythmic states such as atrial fibrillation and nonsustained ventricular tachycardia, as well as atrioventricular (AV) block, in binge drinkers.^{22,23} Ethanol-induced angina is rarely described.²⁴ Hyperamylasemia may represent an underlying pancreatitis or salivary gland hyperplasia, which is also commonly associated with alcoholism and poor nutrition.²⁵ Ethanol-induced seizures are reported in adults, but are more frequent in children with ethanol-induced hypoglycemia.²⁶

In the United States, according to National Highway Traffic Safety Administration (NHTSA) information, as of September 1999, 31 states legally defined driving under the influence of alcohol as a blood ethanol concentration above 100 mg/dL (21.74 mmol/L) whereas another 17 states and the District of Columbia used 80 mg/dL (17.34 mmol/L) as the legal limit.²⁷ Under these laws it is a crime to drive with a blood ethanol concentration at or above the proscribed level, regardless of circumstances or behavior. Maryland and South Carolina do not have such a law but have set presumptive limits. In non-tolerant individuals, blood ethanol concentrations as low as 20 mg/dL (4.35 mmol/L) have been demonstrated to impair driving-related skills.^{28,29} Gross motor control and orientation may be significantly affected at concentra-

tions of 50 mg/dL (10.87 mmol/L).^{21,30} Clinical ethanol intoxication is usually apparent at blood ethanol concentrations of 50 mg/dL (10.87 mmol/L).

EVALUATION AND MANAGEMENT OF THE ETHANOL INTOXICATED PATIENT

Acute altered mental status in an alcoholic patient can be a consequence of a variety or combination of causes, including acute ethanol intoxication, hypoglycemia, therapeutic or illicit drug overdose, Wernicke-Korsakoff syndrome, head trauma, a postictal condition, infection, an intracranial hematoma (acute or chronic), hepatic encephalopathy, an electrolyte or acid-base disorder, or ethanol withdrawal. Acute ethanol intoxication occurs in habitual drinkers when they raise their ethanol level an equivalent amount above baseline (as described above). The intoxicated patient can present with a broad range of diagnostic possibilities. A meticulous and systematic approach to the evaluation and management of an intoxicated patient helps the clinician avoid the potential pitfalls in such a situation.

Ethanol is rapidly absorbed from the gastrointestinal tract following oral ingestion. In situations in which recent ingestion (within 1 hour of presentation), delayed absorption, and concomitant ingestions are under consideration, gastric emptying may be a reasonable approach in the extremely intoxicated, comatose patient.³¹ However, gastric emptying followed by the administration of activated charcoal is generally reserved for the unconscious patient with a history of a serious ingestion. Occasionally, the extremely intoxicated or comatose patient may have severe respiratory depression necessitating endotracheal intubation and ventilatory support.

The patient's fluid and electrolyte status should be assessed and abnormalities corrected. Multivitamin (with folate 1.5 mg) and magnesium (2 g) should be added to the maintenance IV solution. Potassium and phosphate should be supplemented as indicated. Clinically significant abnormal coagulation profile may require administration of fresh plasma, serum, and vitamin K. The presence of fever should prompt a diligent search for, and treatment of, its etiology.

As with any patient presenting to the ED with an acute altered mental status, rapid but thorough investigation and treatment should be undertaken for reversible causes of acutely altered mental status, such as hypoxia, hypoglycemia, or opioid effect. Supplemental oxygen should be administered as needed. Intravenous dextrose (0.5-1.0 g/kg), thiamine 100 mg, and folosone 2 mg should be administered as clinically indicated. Abnormal vital signs should be noted, and the patient should be evaluated and treated accordingly. Patients who are combative and violent should be physically restrained and then chemically sedated with a benzodiazepine. Attempts by those who are clinically intoxicated to sign out against medical advice or who attempt to leave should also be prevented (CLap. 118). The presence or absence of an odor of ethanol on the breath is an unreliable means of ascertaining whether a person is intoxicated or whether ethanol has been consumed recently, even under optimum laboratory conditions.³² A thorough physical examination should be performed to evaluate precipitating or coexisting medical or surgical illnesses.³³ While in the ED, the patient should be evaluated frequently. Laboratory

and radiographic imaging studies should be obtained as clinically indicated.

A variety of techniques and agents have been advocated in the past either to reverse the intoxicating effects of ethanol or to enhance its elimination. Neither coffee nor caffeine itself counteracts the impaired psychomotor functions seen with acute intoxication.¹⁰³ Earlier anecdotal reports suggested a role for naloxone in reversing ethanol intoxication,^{82,83} but the results could not be reliably reproduced.¹⁴⁰ The specific benzodiazepine antagonist flumazenil has no predictable effect on ethanol intoxication.⁸⁹ It is unlikely that a specific ethanol antagonist will be discovered because ethanol's mechanism of action are complex and apparently are not mediated by a single receptor. Hemodialysis is an effective means of enhancing the systemic elimination of ethanol because of its small volume of distribution and low molecular weight. In severe ethanol poisoning resulting in respiratory failure or coma, hemodialysis may be an adjunct treatment to supportive care. However, this is rarely indicated or necessary.

Laboratory Testing

Blood tests that may be helpful include CBC, electrolytes, BUN, creatinine, ketones, acetone, lipase, liver enzymes, coagulation profile, ammonia, calcium, and magnesium. Total body magnesium may be depleted because of poor dietary intake, decreased GI absorption secondary to ethanol, and renal wasting as a consequence of the ethanol-related diuresis.¹²⁴ Patients with an anion gap metabolic acidosis should have urine ketones and a serum lactate level (Chaps. 24 and 66). Elevated serum or urinary ketones may be indicative of alcoholic ketoacidosis (AKA), starvation ketosis, or diabetic ketoacidosis. Because the laboratory nitroprusside reaction detects only ketones (acetone and acetoacetate) and not β -hydroxybutyrate, the assay for ketones in patients with AKA may be only mildly positive. High serum acetone levels may be indicative of isopropanol intoxication. A blood-ethanol level should be included in the initial laboratory studies.⁶⁶ If the blood-ethanol concentration is inconsistent with the patient's clinical condition, a prompt review of the patient's history is indicated, along with an exhaustive search for an underlying disorder, especially toxic-metabolic, trauma-related, neurologic, and infectious etiologies. Comatose patients with ethanol levels below 300 mg/dL (65.22 mmol/L) and patients with values in excess of 300 mg/dL (65.22 mmol/L) who fail to improve clinically during a limited period of close observation, should have a head CT scan, followed by a lumbar puncture if warranted. Because chronically ethanol-tolerant patients are prone to trauma and coagulopathies, both of which can cause intracerebral bleeding, the threshold for CT scanning these patients should be particularly low.

When blood methanol, ethylene glycol, and isopropanol levels are indicated but not readily available, a serum osmolality by freezing point depression may be helpful. A high osmol gap, the difference between the measured and the calculated serum osmolality, provides indirect evidence that osmotically active agents are present such as the toxic alcohols (Chap. 24). However, a "normal" osmol gap does not eliminate the toxic alcohols as being possible causes for an increased anion gap metabolic acidosis.⁶⁴ Ethanol itself will contribute to the measured serum osmolality and thus to the osmol gap. Ethanol's contribution to osmolality can be estimated by dividing the ethanol level in mg/dL by 4.6 (one-tenth the molecular weight of ethanol) and added to the calculated osmolality.

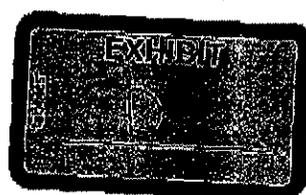
There are numerous methodologies available to detect the presence of ethanol and quantitate its level. Blood-ethanol levels performed by immunoassay or gas chromatography are commonly used in hospitals. Although accurate, the results of these tests may be delayed several hours, and this delay may hamper decision-making and management in the emergency setting. Breath-alcohol analyzers, using microprocessors and infrared spectral analysis, are widely available and are routinely used by law-enforcement agencies as ethanol-screening devices. In the ED setting, they have been shown to accurately predict blood-ethanol levels.¹³⁴ Because the unconscious or uncooperative patient may be unable to cooperate with the proper use of the breath-alcohol analyzer, attempts have been made to sample the breath of unconscious patients with breath-alcohol devices attached to mouth-cup and nasal tube adapters.^{37,48} The normal blood/breath ethanol ratio also demonstrates individual and interindividual variations over time.⁷² Other potential sources of error include recent use of ethanol-containing products, belching or vomiting of gastric ethanol contents, inadequate exhalation, obstructive pulmonary disease, and poor technique.^{3,43} Furthermore, metered-dose inhalers (MDI) may contain a significant concentration of ethanol. Breath ethanol measurements with a mean ethanol level of 189 mg/dL (41.09 mmol/L) were recorded just after two puffs of Torameta (bitolterol mesylate with 38% ethanol), Bronkometer (isotharine mesylate with 30% ethanol), Primatus Mist (albuterol with 34% ethanol), and salbutamol, while simultaneous blood-ethanol levels were undetectable.^{5,52,80} Although MDIs may cause elevations of breath ethanol above the legal criteria for intoxication these effects are transient and may be prevented by a 10-15 minute interval between MDI use and breath-ethanol testing.^{33,88}

Dipstick tests designed to detect ethanol in saliva are less reliable than breath tests and cannot be recommended at this time.¹¹⁷ Determining fatty acid ethyl esters (FAEEs) may be a highly sensitive test for ethanol use.²⁰ Because FAEEs remain in the system for at least 24 hours, they may have a role as a marker of recent ethanol use, even after ethanol is completely metabolized. However, their availability is limited and their place in patient management is undefined.

Indications for Hospitalization

A patient with uncomplicated intoxication can be safely discharged from the ED after a period of careful observation. An individual should not be discharged while still clinically intoxicated. However, consideration may be given to a situation where the intoxicated patient is discharged to a protected environment under the supervision of a responsible adult. In this case the clinical assessment of the patient is more important than the blood ethanol level. Indications for hospital admission include persistently abnormal vital signs, persistently abnormal mental status with or without an obvious cause, a mixed overdose, concomitant serious trauma, consequential ethanol withdrawal, and an associated serious disease process such as pancreatitis or gastrointestinal hemorrhage.

Some alcoholics develop an organic brain syndrome that persists even when the person is sober. Many others are poor, lack social support, and lack the ability to comply with a treatment plan. Thus, the threshold for admission should be lower for chronic drinkers who are homeless, medically indigent, psychiatrically impaired, or otherwise disadvantaged. Alcoholics who are sober and who desire ethanol detoxification can be admitted for "drying-out"



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ACCIDENT
ANALYSIS
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Police officers' detection of breath odors from alcohol ingestion

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Abstract

Police officers frequently use the presence or absence of an alcohol breath odor for decisions on proceeding further into sobriety testing. Epidemiological studies report many false negative errors. The current study employed 20 experienced officers as observers to detect an alcohol odor from 14 subjects who were at blood alcohol concentrations (BACs) ranging from zero to 0.130 g/dl. Over a 4 h period, each officer had 24 opportunities to place his nose at the terminal end of a 6 in. tube through which subjects blew. Subjects were hidden behind screens with a slit for the tube to prevent any but odor cues. Under these optimum conditions, odor was detected only two-thirds of the time for BACs below 0.08 and 85% of the time for BACs at or above 0.08%. After food consumption, correct detections declined further. Officers were unable to recognize whether the alcohol beverage was beer, wine, bourbon or vodka. Odor strength estimates were unrelated to BAC levels. Estimates of BAC level failed to rise above random guesses. These results demonstrate that even under optimum laboratory conditions, breath odor detection is unreliable, which may account for the low detection rate found in roadside roadside conditions. © 1999 Elsevier Science Ltd. All rights reserved.

Keywords: Alcohol odor detection; Blood alcohol concentration; Drinking drivers

1. Introduction

Alcohol breath odor is the most frequently cited observation by US police officers in alcohol related traffic offenses. Usually the strength of the odor is categorized as either slight, moderate or strong. Despite the frequent reliance on this clue in officers' investigation of drivers, little objective evidence is available on the probability of successfully detecting, identifying or measuring alcohol odors.

A computer literature search supplemented by examining references in various publications elicited only two studies examining the detectability of breath alcohol odor. The first study was found in a monograph published by Widmark (1932) (German Edition 1932, English Translation, 1981). Widmark was a professor at the University of Lund, Sweden and presented data obtained from behavioral testing of 582 drivers arrested for possible driving under the influence of alcohol. The behavioral testing occurred in police stations through-

out Sweden, and were performed by more than 150 physicians. The seven behavioral tests included the odor of alcohol on the breath, the Romberg Test of body sway, walking a straight line and turning, finger to finger test, picking up small objects and slurred speech. Each of these items in the behavioral battery was administered to all subjects. Widmark noted that the examination occurred sometime after arrest at the police station and therefore the breath odor would have been during the post absorption stage. No subject whose blood alcohol concentration (BAC) was 0.06% or below had an alcohol breath odor detected by physicians. Between 0.061 and 0.08% BAC, 33% of the drivers were detected as having an odor; between 0.081 and 0.10% BAC, 63% of the drivers were detected; from 0.101 to 0.181% BAC, detections averaged 81%; between 0.181% and 0.260% BAC, detections averaged 92%; and it was only above 0.261% BAC that an alcoholic odor was 100% detected on the breath. It should be noted that all these drivers had been arrested for probable intoxicated driving and were exhibiting many other symptoms of alcohol presence which could have influenced the physician's perception. Despite this the probability of detecting alcohol on the breath re-

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mains surprisingly low and variable until very high BACs.

The other reference dealing with the issue was a National Highway Transportation Safety Administration, Department of Traffic (NHTSA/DOJ) pilot study examining cues utilized by officers in detecting drivers under the influence of alcohol (DUI) (Compton, 1985). This was an experimental study where 75 male volunteer drivers were administered ethanol beverages sufficient to produce BACs of either zero or between 0.05 and 0.15%. Consumption was spaced over a 1.5-2 h period. After an additional half hour wait, subjects drove a car over a closed course to a check point, where an officer/observer conversed with the driver and noted among other symptoms whether an alcohol odor was present. Other symptoms examined were face flushing, slurred speech, eye dilation, demeanor, disheveled hair, poor dexterity and clothes disheveled. The officers then made a determination whether the driver should be detained for further investigation.

Drivers with a zero BAC were correctly identified 95% of the time. There were 7% false-positives, i.e. identification of a zero BAC driver as having alcohol odor. Since officers were aware that they were participating in an alcohol study, a 7% false-positive rate is undoubtedly higher than would occur in actual traffic stops. An alcohol odor was detected in drivers with BACs between 0.05 and 0.09% only 39% of the time producing a false negative error rate of 61%. Conversely, 61% of drivers with BACs between 0.10 and 0.15% were detected as emitting an alcohol odor with 39% false negatives, i.e. drivers above 0.10%, not detected. Variability between officers in detecting odor was quite large.

The detection rates of the Widmark and Compton studies appear roughly comparable, although BACs in the Compton study between 0.10 and 0.15% were less well detected, possibly due to the outdoor field conditions under which the Compton study was performed. This in contrast to the Widmark study done in the enclosed space of a room in a police station. Another factor in the Widmark study was that the physicians knew that they were dealing with drivers arrested for probable DUI.

The study reported in this paper was performed to examine police officers ability to detect alcohol odors under optimum conditions, but without possible contamination by observation of other behavioral cues. Thus the study was conducted in a closed environment with subjects blowing through a short plastic tube to concentrate the breath stream and prevent odor dispersion. Officers placed their nostrils near the exit end of the tube. Subjects stood behind opaque screens with a slit for the tube. This insured that no other behavioral cues suggesting the presence of alcohol, which

might have influenced judgments in the Widmark and Compton studies, would be present in the current study. The only cue presented to the officers would be odor. In addition to examining the detectability rate as a function of BAC, various types of beverages were consumed by the subjects and the role of beverage type on detectability was also examined.

2. Method

2.1. Design

The experiment was conducted as one double-blind session with four repeated trials over a 4-h period. The site was the Drug Recognition Expert Program facility of the Los Angeles Police Department (LAPD). Twenty officers who participated in the study were trained and experienced Drug Recognition Experts attending a mandatory recertification class.

2.2. Subjects

Eight males and six females, ages 21-35 years of age, participated as paid volunteer subjects. They were recruited with newspaper ads and then screened for physical and emotional fitness and use of medication and drugs. Alcohol use was assessed with the Cahalan et al. (1969) quantity-frequency-variability scale.

Applicants who met screening criteria were enrolled in order of application. They were advised of the conditions of the study, including the maximum amount and the types of alcohol beverage they would drink, the duration of the drinking period, and the time the session would end. They were instructed to abstain from food for 4 h prior to the scheduled time for beginning the drinking. All subjects gave written informed consent to voluntary paid participation in the experiment. All aspects of the experiment and subjects' participation were approved by an institutional review board.

2.3. Alcohol treatment

The alcohol dosages and drinking times were varied so that at each of the four test sessions 12 subjects had BACs ranging from zero to roughly 0.12%. Each subject was assigned a target peak BAC, and the alcohol dose was calculated to produce that BAC taking into account gender, body weight, body composition and duration of the drinking and absorption periods. Subjects drank for 0.5, 1, or 1.5 h followed by an additional half hour absorption period prior to participation in testing. The alcohol beverages were 80 proof vodka (40% ethanol) mixed with orange juice, 86 proof bourbon (43% ethanol) mixed with 7-Up or

Cola, red wine (12% ethanol) and beer (approximately 4.75% ethanol by volume).

The mixed drinks and wine were served as three equal portions at equal time intervals. Twelve ounce cans of beer were given at equal time intervals in the number required for the target BAC. BAC measurements were obtained with three Intoximeters provided by the LAPD Scientific Investigation Division and operated by LAPD laboratory personnel.

2.4. Setting and apparatus

The drinking session occurred in a large lounge area. Testing occurred in two separate large rooms in which opaque plastic curtains (76 in. high and 28 feet long) were installed wall to wall approximately six feet from one end of each room. The floor was marked on both sides of the curtain at equal intervals as positions 1 through 6. Slits were cut in the curtain at heights of 60, 66 and 72 in. to allow the insertion of plastic tubes. Drinking subjects used the slit positions most appropriate for their heights. The tubes were 6 in. lengths of hard plastic with a 2 1/4 in. external diameter and 1/4 in. wall thickness.

2.5. Procedures

2.5.1. Subjects

Subjects were transported to the LAPD facility by taxi one hour prior to the start of drinking. Breath samples were obtained to confirm initial zero BACs. Subjects' blood pressures were checked and female subjects provided urine samples which were tested for pregnancy. Research staff monitored subjects throughout the drinking and absorption period. Subjects were allowed to eat lunch when a minimum of an hour had elapsed after the absorption period. Six subjects had lunch between test period 2 and 3, but other subjects had a delayed lunch because they began drinking later in the session. Lunch was a pizza, salad and corn chips.

At each test period six subjects were escorted to each of the two testing rooms. Research assistants assigned them to specific positions behind the curtain as determined by an incomplete Latin square design for each of the four testing periods. Once in their positions, the subjects placed their breath tubes half way through the slots and stood silently.

Although there were 14 subjects, only 12 participated at each test period. Subjects 1-12 participated in periods 1 through 3 but in period 4, subjects 2 and 3 were replaced by subjects 13 and 14. This change was required in order to continue to present a balanced distribution of BACs at all test periods. As the BACs of subjects who began drinking early declined, other subjects began drinking and were brought into the study. The number of subjects at zero BAC decreased in later periods.

2.5.2. Officers

Officers were informed of the experiment objective and were given data forms to record their examination of subjects, identified only by number. The data form requested judgments as to the presence or absence of alcohol odor, the strength of the odor, if present, the type of alcohol beverage and an estimate as to the subject's BAC. Officers were requested to work independently and not to converse with the subjects. The 20 officers were split into two groups which alternated as observers in different rooms at different test periods. At each test period the officers made judgments only on the six subjects in the room to which they were assigned for that test period.

After the 12 subjects were positioned by research assistants, the officers were summoned. The subjects were hidden from the officers' view by the opaque plastic screens. Each officer approached a marked curtain position and, when ready, asked a subject to blow through the test tube, e.g. 'Position 4, blow through your tube'. He completed the form for that subject and that test period based on the presence or absence of an odor of alcohol. He then moved to the next available unoccupied position in that room and repeated the procedure until all six subjects were examined. Since the order of smelling subjects was random, if there were a carry over effect from smelling one subject to another there would have been no systematic error. Upon completion, officers handed their test forms to the research assistant and left the room. The test periods began at 12:00 and were repeated at 15:00, 14:00 and 15:15 h.

3. Results

3.1. Measured BACs

Two successive Intoximeter BACs were taken before and after each test period. Table 1 presents the mean measured BAC for breath specimens for 14 subjects at four test times. The table indicates the beverages consumed by each subject. Alcohol was only administered to each subject at a single drinking period. Test periods for odor detection lasted no more than 15 min each, and the decline in BAC level during those periods averaged 0.005%.

3.2. Officers' detection rate for the odor from alcohol

Table 2 summarizes the accuracy of odor detection by the 20 officers for each of the four test periods for all detection attempts and by three BAC categories. There should be 120 detection attempts for each period (20 officers evaluating six subjects), but several data points were missing for the first three periods.

Table 1
Mean measured BACs for 14 subjects at four test times blood alcohol concentrations (%)

Subject	Test 1	Test 2	Test 3	Test 4	Beverage
1	0.000	0.000	0.000	0.000	None
2	0.000	0.000	0.000	-	None
3	0.000	0.000	0.000	-	None
4	0.000	0.000	0.000	0.028	Scotch
5	0.000	0.000	0.120	0.022	Vodka
6	0.000	0.000	0.102	0.049	Scotch
7	0.108	0.105	0.090	0.065	Vodka
8	0.130	0.114	0.099	0.079	Scotch
9	0.029	0.021	0.064	0.050	Beer
10	0.164	0.083	0.091	0.033	Wine
11	0.040	0.033	0.021	0.004	Beer
12	0.017	0.005	0.001	0.000	Wine
13	-	-	-	0.116	Beer
14	-	-	-	0.067	Scotch
Mean BAC	0.042	0.042	0.046	0.059	

Results for the first two periods will be discussed initially, as the consumption of the lunch clearly changed the probability of detection. Overall, successful classification of odors were 81 and 76% in the first two periods. Examination of the two positive BAC categories found 68 and 76% correct detections for BACs above 0.08%, but only 60 and 70% at or below 0.02%.

Table 2
Number of responses total by test period and by BACs

Total	1	2	3	4
Total				
Correct	92 (81%)	87 (76%)	87 (80%)	76 (65%)
False positive	5	6	10	5
False negative	10	11	20	17
Uncertain	8	10	16	11
Total	133	114	133	110
0.00% BAC				
Correct	48 (82%)	37 (71%)	21 (55%)	14 (70%)
False positive	5	6	10	5
Uncertain	5	5	7	1
Total	58	48	38	20
≤ 0.02% BAC				
Correct	12 (60%)	14 (70%)	18 (74%)	22 (55%)
False negative	7	3	9	13
Uncertain	1	3	5	3
Total	20	20	32	40
> 0.02% BAC				
Correct	35 (85%)	36 (78%)	18 (48%)	40 (67%)
False negative	3	3	13	14
Uncertain	2	2	4	6
Total	40	41	35	60

Table 3
Strength of alcohol odor by BAC (number of ratings)

Observing	Slight	Moderate	Strong
BAC (g/dl)			
<0.04	8	4	0
0.04-0.08	15	19	3
>0.08	48	51	30
Total	71	76	33

Officers correctly assessed zero BACs 85 and 77% of the time.

The majority of subjects in the last two periods had consumed lunch and food odors interfered with detection of alcohol odor. Overall, correct assessments declined in the third and fourth periods to 59 and 62% respectively. Detections were 49 and 67% above 0.02, and 74 and 55% at or below 0.02%. Correct judgments regarding zero BACs also dipped to 55 and 70% in the last two periods.

Each officer had 24 sniffing opportunities, but correct detection varied greatly from six to 22 with a mean of 16. The large inter-officer variability is consistent with the conclusion of the Corbett (1985) study. Similarly, false negatives ranged from 1 to 10, with a mean of three, and uncertain responses from 0 to 16 with a mean of two. False positives were less frequent with a range from 0 to 4 but only a mean of one.

If officers reported the presence of an alcohol odor, they were asked to rate the strength of that odor as either slight, moderate or strong. Table 3 summarizes the number and percent of responses in the three response categories as a function of BAC level for all beverage types combined.

A trend towards correlation between BAC and odor strength estimate appears to exist, but a Chi square statistical test failed to reach significance at the 0.05% level. While no BAC below 0.04% was rated as producing a strong odor, BACs above 0.04% were rated as every strength level from slight to strong. Conversely, looking at the 'slight' odor strength rating column, the actual BACs of subjects ranged from the lowest level (0.019%) to the highest (0.138%). For a police officer, a 'strong' odor estimate should suggest that the subject is more likely than not to have a BAC above 0.08%. On the other hand, failing to detect any odor or detecting a 'weak' odor is no evidence that the driver is not above 0.08%.

Although somewhat confounded by differences between BACs, there also was little relationship between the type of beverages consumed and the estimate of the strength of the beverage. Officers, after rating odor strength, were asked to identify the beverage. It was a near unanimous statement of all officers that they were unable to determine the beverage type.

The difficulty in detecting alcohol breath odor or identifying the beverage type may run counter to subjective impressions. It should be noted that this study examined odor in nearly all cases after absorption was completed. Judgments made during drinking, or soon thereafter when the beverage remains in the oral mucous membranes or in the stomach, would likely increase odor detection and beverage identification.

If an officer reported the presence of an odor, he was requested to estimate the BAC of the subject using one of three response categories: 0.04% or below, 0.05-0.08%, and above 0.08%. The officers were correct 19, 35, 25 and 29% in test periods 1-4 respectively, which is roughly what is expected by random estimates. Errors were two times more likely to be underestimates rather than over estimates.

Although comparisons between the four beverage types were hindered by difference in BACs, there is little evidence that beverage type was a significant influence in detecting the odor of alcohol. Table 4 presents the number of correct and incorrect detection for all subjects by test period, beverage and BAC. There is a slight tendency for beer and wine, at higher levels, to be more easily detected. Since the volume of beer is much greater than the volume of other beverages, it is possible that odor from unabsorbed stomach contents led to more detections. Rates of detection for vodka differed little from bourbon although the amount of congeners such as fusel alcohols in bourbon is perhaps a hundred times greater. Officers had no greater difficulty with vodka than other beverages despite the fact that vodka's content of almost pure ethanol renders it essentially odorless as a beverage. These results suggest that some common by-product of ethanol consumption underlies the odor production from fully absorbed beverages.

Table 4
Was there an odor? Decisions for positive BACs by beverage type and BAC

Beverage type	BAC range	Mean BAC	No. subjects	% Yes
Beer	<0.04	0.021	15	30
	0.04-0.08	0.054	30	67
	>0.08	0.097	27	88
Wine	<0.04	0.017	29	28
	0.04-0.08	0.061	9	44
	>0.08	0.093	13	83
Vodka	<0.04	0.006	10	60
	0.04-0.08	0.066	10	60
	>0.08	0.098	48	59
Bourbon	0.04-0.08	0.079	10	80
	>0.08	0.102	68	72

4. Conclusions and discussions

In a controlled setting, highly trained and experienced police officers were asked to determine if subjects had been drinking based solely on the odor emitted from the subjects' breath. The setting, which was unlike a roadside condition, was designed to maximize the opportunity to use odor as a cue. It is unlikely that in a normal roadside interaction police officers would have their nostrils close to a circumscribed, strong breath stream.

Under these laboratory circumstances, 78.5% of the officers' decisions were correct during the first two trial periods when confounding food odors were not present. The majority of errors were false negatives, i.e. officers failed to perceive the odor of alcohol in drinking subjects. The false positive rate for officers, i.e. a report of alcohol odor in subjects at zero BAC, was considerably lower. In fact, considering their strong expectations of the presence of alcohol, the number of false positives was quite low, i.e. less than 6%. This suggests that under real life conditions officers are unlikely to report the odor of alcohol for an individual at zero BAC.

As expected, the probability of detecting a breath odor is correlated with BAC. At BACs of 0.08% and below, the probability appears close to 60%, but for BACs above 0.08% the probability rises to the 80% range when no food odors are present. Under more realistic field conditions, the probability of detecting alcohol odor would be much lower. Even when an odor is detected, officers may not take action because of underestimating BACs. Few of the estimates of levels were correct, and nearly all the errors were underestimations, which would lead to decisions to release individuals.

This laboratory situation created an optimum opportunity to use alcohol odor as a sole indication of the presence of alcohol and for estimation of its strength. Clearly, estimates of strength, even in this situation, were invalid as were identifications of the beverage consumed. Also, even these extremely experienced officers were capable of detecting the presence of alcohol relatively reliably only in the region of 0.08% and higher.

The finding that there were only small differences in the intensity of the odor as a function of the type of beverage is of scientific interest. It suggests the fusel oils and other chemical constituents of many alcoholic beverages are not the primary determinant of odor after the beverage is fully absorbed. Note that although vodka has only a few parts per million of these chemicals and bourbon contains several thousand parts per million, there was little difference in the detection of the odors from these two substances. This suggests that what is detected in the breath may be a constituent of the metabolism of alcohol.

In this controlled environment study, it was demonstrated that officers were able to derive only limited information from alcohol odor. These findings are consistent with the Widmark (1932) police-station study and the Compton (1985) open air roadside studies. Both previous studies found small likelihood of detecting breath alcohol odors for BACs below 0.08-0.10% and detection failures even above 0.10%.

Given the difficulty of detecting the odor of alcohol under roadside conditions and the likelihood of underestimating BAC from the strength of the odor, it would seem prudent for an officer who detects any odor of alcohol on a driver's breath, (assuming that the driver hasn't drunk in the last 15 or 20 min), to administer field sobriety tests or an alcohol breath analyzer.

Furthermore, given the low probability of detecting an alcohol breath odor, it might be prudent for officers to use a breath testing device whenever a driver exhibits behaviors frequently associated with alcohol use. Equally prudent might be the use of a passive alcohol sensing device whenever an officer contacts a driver after a collision or traffic infraction.

Acknowledgements

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Anacapa Sciences, Inc.: Appendix E
DWI Detection at BACs Below 0.10

Eight post-stop cues were recommended unchanged:

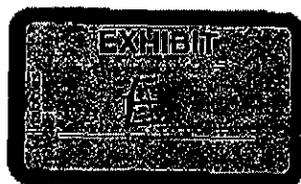
- Cue 29.2, *Leaning on vehicle or object*
- Cue 29.3, *Fumbling with DL/registration (includes dropping, not realizing that they have it)*
- Cue 29.7, *Repeating questions/comments*
- Cue 29.12, *Odor of alcohol on breath/facial area/person*
- Cue 29.26, *Slurred speech*
- Cue 29.33, *Difficulty exiting vehicle*
- Cue 29.37, *Slow to respond to officer request/officer has to repeat request*
- Cue 29.40, *Difficulty with motor vehicle controls*

In addition, Cues 29.1 and 29.28 were combined to form the single cue *Swaying, unsteady or balance problems*. And, Cues 29.13, 29.14, and 29.16 were combined to form the single cue *Provides incorrect information or claims to have forgotten personal information, or changes story or answers*.

None of the other post-stop cues was recommended for the preliminary field study for a variety of reasons. For example, the behaviors that relate to attitude provide conflicting guidance—as many drivers are argumentative as are cooperative. Further, a cheerful attitude should not be a cause for suspicion of impairment; the implications of reasoning otherwise are chilling. Also, cues that simply state the obvious appear to be of little possible utility to officers (e.g., open container). In this regard, we included the odor of alcohol from the driver (but not from a vehicle), not because it might be useful to officers to know the obvious, but to provide the basis for including the cue in formal training, which then will permit officers to include the cue in their expert testimony.

Finally, some cues were eliminated because they might be indicators more of social class than of alcohol impairment. For example, officers informed us that a flushed or red face might be an indication of a high BAC in some people. However, the cue also is characteristic of agricultural, oil field, and other outside work. Similarly, bloodshot eyes, while associated with alcohol consumption, also is a trait of many shift workers and people who must work more than one job, as well as those afflicted by allergies. A disheveled appearance similarly is open to subjective interpretation. We attempted to limit the recommendations to clear and objective post-stop behaviors.

BAC Distribution	Number of Cases
zero	144
0.01-0.03	58
0.04-0.07	29
0.08+	120
Refused	14
Total	365





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NEW TEST FOR DUI DEFENSE

Advances in Technology and Stricter Laws Create Challenges for Lawyers

BY MARGARET GRAHAM TEBO

Long a staple of many a general law practice, defending clients charged with drunken driving has evolved into a more complex and specialized field.

The changes track the ever-more sophisticated technology used to detect impaired drivers and a cultural shift that has raised the severity of punishment and imposed a stigma on those arrested.

More states now mandate license revocation, alcohol evaluation and treatment, and jail time or house arrest for a conviction for DUI, also known as driving under the influence. (In some jurisdictions, the offense is known as DWI, or driving while intoxicated.)

As the stakes increase, defense attorneys need detailed knowledge of how Breathalyzers work, about the physiology of the human body, and about the intricacies of field sobriety tests, say lawyers who represent DUI defendants.

Prosecutors, too, are learning the science to present their cases and rebut defense attorneys' challenges.

"The DUI bar today is much more specialized. Now, it's all about physics, chemistry, biophysics—scientific evidence that most lawyers aren't very good at naturally until they're well-trained in it," says Lawrence Taylor, principal of a Southern California DUI defense firm that bears his name.

In fact, attorneys who set foot in the courtroom before learning the



science of DUI defense are committing malpractice, Taylor asserts.

Before the advent of complex breath, blood and field sobriety tests, DUI defense was similar to the defense of any criminal case, says Rod Frechette, an Albuquerque, N.M., defense attorney. Lawyers challenged the arresting officer's probable cause for the traffic stop and arrest, the officer's training in recognizing intoxication, and the police department's chain of custody for physical evidence, Frechette says.

The increasing technical expertise now required of lawyers prompted the ABA recently to approve a certification program created by the National College for DUI Defense. The organization, based in Montgomery, Ala., trains lawyers in the science of DUI cases and teaches techniques for

LIVES SAVED, LIVES RUINED

The changes in DUI laws and evidence were prompted in large part by evolving cultural attitudes about drinking and driving. In the early 1990s, Congress began conditioning states' ability to get federal highway funds on implementation of various highway safety rules, among them lowering the drunken driving threshold.

All but a few states now set the legal blood-alcohol driving limit at .08 percent, 20 percent lower than the .10 standard that was common as recently as the late 1980s.

Advocacy groups like Mothers Against Drunk Driving say tougher laws led to a decline in the rate of accidents involving drunken drivers for about 15 years (although the rate has recently begun to increase again). Some 1.5 million drivers were arrested for DUI in 2002, the latest year for which that figure is available, according to the National Center for Statistics and Analysis in Washington, D.C.

MADD spokeswoman Misty Moyse says the Dallas-based organization's efforts have helped save some 275,000 lives, based on declining rates of drunken driving deaths, over its 25-year history. "We're concerned about everybody's right to drive on safe roads," she says.

But Taylor believes the public's rush to fix the country's drunken driving problem has created what he calls a "DUI exception to the Constitution." He argues that in as many as a third of all DUI arrests, the driver is innocent of the charge.

He notes the stigma of merely being arrested for DUI can be severe. The defendant may face loss of a job, loss of status in the community and even loss of child custody if in the midst of a divorce or custody fight.

"I had a client who committed suicide, and his case had not even been resolved. Families are broken up, careers are destroyed. I hate to call it a

modern witch-hunt, but things are really quite bleak," Taylor says.

Attorney Bruce Dorner sees the issue, too, but from both sides. Dorner, whose practice is in Londonderry, N.H., is a former police officer who used to arrest his share of drunken drivers. Now he's a lawyer who often defends them.

"I know what it is to watch people weaving all over the road and then get sick in the back of your cruiser and still you have to go to court and explain in detail why you arrested them for DUI," Dorner says.

But Dorner says he's also sensitive to civil rights issues such as due process and proper procedure. He says that in the past 10 years, officers' training has greatly improved, and they are now more consistent and accountable in applying the law.

Yet, he says, in his state, which is mostly rural, the mandatory 90-day license suspension can be a hardship on families when the breadwinner cannot use the car to get to work. "Yes, there needs to be punishment, but taking the license for 90 days effectively means a whole family won't have food on the table," says Dorner, who advocates a to-and-from-work license that other states allow for first offenders.

To regain a driver's license, a first offender in New Hampshire is required to undergo an alcohol evaluation and a mandatory drinking education course. A second offense brings a mandatory seven-day jail sentence and another seven days of inpatient alcohol treatment.

MADD also expresses concern about sentences, but says they often aren't stiff enough for repeat offenders. While some states have increased penalties, Moyse says, others have a revolving jailhouse door for repeat offenders.

Under the federal Transportation Equity Act for the 21st Century, states receive more federal money if they impose the following penalties for repeat offenders who have more than one DUI offense in five years:

- A minimum one-year license suspension.
- Impoundment or immobilization of the offender's vehicle, or installation of a vehicle ignition lock that requires the driver to blow into a tube to prove sobriety before the car will start.
- Mandatory alcohol evaluation and treatment as appropriate.
- A mandatory minimum jail sentence.

Currently, 38 states plus the District of Columbia have laws in accord with the federal standard. In addition, 37 states mandate that even first-time offenders receive mandatory alcohol evaluations and participate in

some sort of required alcohol awareness program.

THE COCKTAIL QUESTION

DUI defense attorneys say they are often asked what someone should do if stopped for DUI.

First, know the jurisdiction, Frechette says. If there are no automatic consequences for refusing a field sobriety test, there is nothing to gain by taking one.

Taylor says police officers will often ask what he calls the "cocktail question": Have you been drinking tonight? Typically a driver will say, "Just one or two cocktails with dinner, officer." It is at this point that the officer decides to arrest the driver, Taylor says. Attempting the field sobriety tests can only hurt the driver now, no matter how well the driver thinks he or she can do.

Taylor advises drivers to be polite and not argue with the officer. Ask for an attorney, he says, and don't answer questions.

If you get arrested and you're sure your blood-alcohol content is under .08, take a blood test. If you're not sure, take the breath test, Taylor says. Blood tests are harder to refute than breath tests.

Of course, not everyone arrested for DUI follows those recommendations. Police gather the evidence, and then it's up to the defense attorneys to assess its reliability. Dorner says his experience as a police officer guides the approach he takes in defending his clients. "I focus on not directly attacking the police officer. It annoys the judge and offends the department. I attack the evidence—the medical tests, whether the driver was wearing high heels [for the sobriety test], that sort of thing," Dorner says.

For their part, prosecutors say the increasing reliance on technology and flaws in drunken driving tests obscure the real issue: public safety. They point to the statistics: In 2003, more than 17,000 people died in alcohol-related traffic accidents and about 275,000 were injured, according to the National Center for Statistics and Analysis.

At the time of arrest, nearly every drunken driver thinks it's OK to drive after a few drinks, says Deputy District Attorney Alana Mathews-Davis, who prosecutes DUI offenses in Sacramento, Calif. "All injury accidents involving alcohol are probably [caused by] people who thought they were not too drunk to drive."

Convincing juries that flawed measurements lead to false results is dishonest when common sense indicates the driver was in fact intoxicated, Mathews-Davis says. "Instead of raising reasonable doubt, some defense attorneys raise reasonable distractions," she says.

Domer, though, says it's his responsibility to test the evidence. "At the end of the day, the prosecutors and the defense lawyers each have a job to do. It can be done civilly and with mutual respect."

LOOKING FOR CLUES

Whether attacking the evidence or supporting it, attorneys must have an understanding of it. The National Highway Traffic Safety Administration, an arm of the Transportation Department, has adopted three standard field sobriety tests. Some states now use the NHTSA tests, while others allow police officers to use whatever tests they see fit to measure whether someone stopped for suspicion of DUI is intoxicated.

The first of the NHTSA tests is horizontal gaze nystagmus. In this test, officers ask drivers to follow a penlight or other object from side to side with their eyes. Scientific evidence suggests that intoxicated people exhibit jumpy eye movements in attempting to follow a solid object from one side of their field of vision to the other and back. This effect has often been described as "marbles on sandpaper" as opposed to the "marbles on glass" effect seen in the eyes of sober drivers.

The second test requires drivers to stand with one foot directly in front of the other and walk heel to toe for a given number of steps, pivot on a foot as the officer directs, and walk back the same way. Drivers must keep their arms down at their sides, must not leave a gap of more than six inches between heel and toe, and must walk in a straight line.

The third test requires the driver to stand on one leg, with the other bent at 90 degrees, and hold that position without swaying for a period of time specified by the officer, such as 30 seconds. Often, the driver will be asked to count off the 30 seconds.

Officers administering the tests are taught to watch for signs of imbalance, called clues, such as holding the arms out to each side while walking the line or standing on one foot, or failing to follow directions. A driver who scores four to six clues on the tests is deemed to be intoxicated under NHTSA standards.

Other field sobriety tests commonly used in states that do not require the NHTSA tests include reciting the alphabet forward from a letter chosen by the officer, stopping at another specified letter, or counting backward from a given number to another. Any hesitation or deviation means the driver has scored a clue.

Before asking drivers to perform any of the tests, officers should ask whether they have any physical impairments that prevent them from performing, Frechette says, adding that many officers fail to do so. Officers should also be careful about asking drivers with certain clothing, such as a woman wearing high heels, to perform the walking and one-leg stand tests.

If police officers fail to consider the physical abilities of the driver, the charges could be dismissed. In a recent North Carolina case, a judge threw out DUI charges against a woman who failed the walk-and-turn and the one-foot-stand field sobriety tests because she was wearing stiletto heels. (See "*In These Shoes?*" *Obiter Dicta*, January 2005 *ABA Journal*, page 74.)

Frechette says that officers, and sometimes courts, tend to rely too much on field sobriety tests. The determination of whether a driver has passed or failed is subjective, often depending on how much training the officer has received, how carefully the officer observes the driver, and how capably the driver can perform the tests when sober.

Some of the physical skills required for the tests far surpass the physical requirements of driving a car, and they are not a good indicator of sobriety in those with physical impairments, Frechette says. Other factors play a key role, including whether the driver understands English, is nervous, or is taking the tests when it is dark outside.

"Field sobriety tests are not about impairment. The [police instruction] manuals talk about the percent likelihood of impairment from failure of the tests. Failing does not automatically mean you're drunk," Frechette says.

Taylor says police officers often have decided to make an arrest by the time they ask the driver to take a field sobriety test. In many jurisdictions, he says, drivers can refuse to take the test without automatic consequences unless the driver is underage.

BREATH OF FOUL AIR

But in most jurisdictions, drivers who refuse breath tests face automatic license suspension. In addition, some states now distribute portable Breathalyzer machines to officers on patrol. In most jurisdictions, the results of the portable breath tests are not admissible in court. Rather, the portable machine is used to find probable cause to arrest drivers and take them to the police station for a more sophisticated breath test, or to a hospital for a blood test.

But that's changing, Taylor says, as more states allow the results of the roadside breath test to be considered evidence of intoxicated driving. However, he says, roadside test machines are unreliable, difficult to use and often improperly calibrated by officers. Many environmental factors can influence the tests, he adds, including carbon monoxide from passing vehicles.

Yet, the very unreliability that causes false positives also makes roadside breath tests easier to refute in court, Taylor says.

The two most-often-used brands of nonportable breath tests are the

Intoxilyzer 5000, made by a company based in Owensboro, Ky., and the Intoximeter, made by a St. Louis company. Some state statutes specify which machine authorities should use, and most states specify how often the machines should be calibrated. The Intoxilyzer 5000 is the newer and increasingly more common model.

Many defense practitioners see problems with both types of breath machines. Both are designed to measure the amount of certain chemicals in the subject's breath. The chemicals are found in consumable alcohol, but also are present in industrial chemicals and certain nonintoxicating over-the-counter medications. They also may appear when the subject suffers from illnesses such as diabetes, acid reflux disease or certain cancers. Even gasoline containing ethyl alcohol on a driver's clothes or hands can alter the result. These factors can easily cause a driver to score a false positive, Frechette says.

In a 2004 Illinois case, the state's highest court threw out the summary license suspension of a driver who took medication for acid reflux disease. Illinois, like most states, requires drivers to be observed for 20 minutes after arrival at the police station before the test is administered. If the driver regurgitates during that 20 minutes, the test will give a false reading. The court said that even "silent" regurgitation, such as an acid reflux episode that the officer cannot see, negates the results of the breath test. *People v. Bonutti*, No. 96218.

Courts in Michigan also have addressed that issue in two recent unpublished opinions, which nevertheless upheld the drivers' convictions on other grounds.

The waiting period that favored the defendant in the Illinois case can work both for and against drivers. Blood-alcohol content may continue to rise after an individual stops drinking as the alcohol is absorbed into the bloodstream. If a person goes only slightly over the .08 threshold, the defense attorney can sometimes successfully argue that the person's blood-alcohol content a half-hour earlier was below the threshold. If the driver was near his ultimate destination, the argument can be made that he would have safely reached the destination before his blood-alcohol rose to an illegal level.

"Remember, merely drinking and driving is not illegal for an adult. Driving with a blood-alcohol level of .08 or above is illegal," Taylor says.

Taylor notes that prosecutors sometimes argue the reverse—that even though a driver's breath test was below the legal limit, delays in administering the test allowed his body to metabolize some of the alcohol. Thus, prosecutors argue, drivers who score .07 a few hours after being arrested must have been over the legal limit when they were pulled over.

Dorner says at least one police jurisdiction in his area has stopped using Breathalyzers. The shift came after a demonstration that was supposed to show judges how effective breath tests were. In a controlled situation, each judge was given several alcoholic drinks and then asked to blow into the machine. One judge who drank until he was visibly impaired nevertheless scored 0.0 on the machine, even after several tries. That police department now relies solely on blood tests, according to Dorner.

But even blood tests are fallible. They're based on a scientific formula that uses the average-sized person to determine at what concentration of blood-alcohol drivers should be considered intoxicated, Frechette says. The problem is that few people are average-sized.

In addition, people absorb alcohol into the bloodstream at different rates depending on metabolism, size, weight, health and food consumption, he says.

"Take 10 people in a bar, and give each a pint of vodka to chug," Frechette says. "Some of those people will have absorbed it all in 20 minutes. For some, it will take six hours. The mean is one-and-a-half hours. In one hour, one of those people will have a BAC of .05, one will have a .27 and the mean will be .16. We don't [try to] do justice by estimates and averages in this country, except when it comes to drunken driving."

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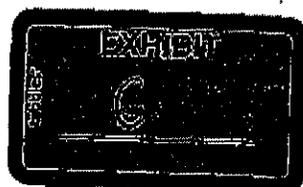
An attempt to calculate Minimum Base Times for the Horizontal Gaze Nystagmus Test by D. Timothy Huey, Attorney at Law

Please note that at first blush the times set forth herein as "Minimum Base Times" for each stage of the HGN may seem to contradict and are less than those found in the article by Troy McKinney, Esq, *Challenging and Excluding HGN Tests*, that is because the numbers herein are not meant to set forth the actual time one could logically and reasonably conduct an HGN test properly, but rather to establish "Minimum Base Times" for each stage of the HGN test. These "Minimum Base Times" do not reflect the amount of time it should or will take to conduct the various stages of the HGN, but rather, sets a base time that each stage would have to take to follow and be consistent with the dictates in the NHTSA manuals.

Please note that these times are not "reasonable" times as at each juncture where the manuals dictate that the tester should do something in or at, "not less than x time or speed" or in "approximately x seconds" but also states "you must use all x seconds" the computations below simply use x not x+. Thus where the manual says that when checking for nystagmus at maximum deviation the stimulus must be held at maximum deviation for at least 4 but no more than 30 seconds, the computations below unrealistically use 4 seconds in the Minimum Base Time calculations.

Moreover, particular care has been taken to find Minimum Base Times for finding "Onset of Nystagmus prior to 45 Degrees." Keeping in mind that checking for the point of Onset of Nystagmus is perhaps the most critical of the checks and that it is not supposed to be rushed. The McKinney article reasonably assumes that all tests - irrespective of whether or where Onset of Nystagmus is finally found and confirmed - will, at minimum, take about the same time as it would take to do a very quickly done check if that point was 30 degrees. (Confer calculations below.) However, the Minimum Base Times herein are more specific, addressing all possible points of onset up to and including onset at or beyond 45 degrees, and again are more unreasonably low.

Where the NHTSA Manuals do not specify times or speeds for passes such as the check for vertical nystagmus or procedures such as "hold times" the below assumes, as the tester must, that said times are to be consistent with the previously specified times that are set forth to perform the same procedure in a different stage. Reference to such



times and discussion of their applicability are included. However, please note that, again, the hold times used herein while looking for Onset are not consistent with the defined hold time in the Manuals of 4 seconds but, again erring very unreasonably low, 2 seconds is used. Also note that where, as here, the points (degrees) of confirmed Onset and number of holds to try and find it during that pass are unknown or hard to determine.

Three Minimum Base Times are listed: "No Nystagmus Present At All"; Speedy Gonzales" –meaning Onset immediately found at or less than 10 degrees on each pass; and "For Dummies" aka "Standard Procedure" –meaning that the tester, in contradiction to the dictates of the Manuals, merely went to just less than 45 degrees and checked for nystagmus there. Counsel opines below that this procedure is very typical, but the other two truly set forth the only Minimum Base Times that can be divined without knowledge of whether the tester employed the typical method. Finally, these times all further err on the low side in that no holds or hold times that clearly must have been present while searching for the point of Onset, if the tester followed proper procedures, are included in those calculations.

The text below provide both the required steps and procedures and the calculations of, and basis for, the Minimum Base Times discussed above as said apply to the various stages of the HGN procedure. All of the materials below are intended to set forth the procedures in 2000 NHTSA Student Manual with little commentary, analysis, or discussion and do so in the order they appear in the SM the, starting at page VIII-6 and proceeding accordingly.¹ Also included herein is a very brief discussion, analysis or commentary (often including verbatim references to the Manuals) of or on the procedures as they relate to the manner, order or time required to properly conduct the HGN test and its component parts. Counsel makes apologies in advance for any blank portions of pages such as the portion below.

Unfortunately, for this author and perhaps those who read this, establishing the time required to properly do the HGN test, without the officer's aide, requires a reasonably thorough review and discussion of each of the elements and how they are to be done according to the NHTSA Manual. This analysis presumes the reader is familiar

with the NHTSA protocol as set forth in the 2000 Student Manual and thus we will not start with and discuss basic things like what a "clue" or "pass" is. References herein are either to either the 2000 manual or the 1995 Student Manual (95 SM.)

Again unfortunately, counsel fears that in order to conclude that the instant test was not done according to the dictates of the NHTSA Manual by a comparison of the required and actual time used to perform the test this Honorable Court may require that counsel provide references to where in the manual these matters can be found. Counsel has done so below. Please note that at first blush the times set forth herein as "Minimum Base Times" for each stage of the HGN may seem to contradict and are less than Mr. McKinney's computations. That is because the numbers herein are not meant to set forth the actual time one could logically and reasonably conduct an HGN test properly, but rather to establish "Minimum Base Times" for each stage of the HGN test. These "Minimum Base Times" do not reflect the amount of time it should or will take to conduct the various stages of the HGN, but rather, sets a base time that each stage would have to take to follow and be consistent with the dictates in the NHTSA manuals.

The text below boxes below provide both the required steps and procedures and the calculations of, and basis for, the Minimum Base Times discussed above as said apply to the various stages of the HGN procedure. Except where noted, All references are to the procedures in 2000 NHTSA Student Manual with little commentary, analysis, or discussion and do so in the order they appear in the SM the, starting at page VIII-6 and proceeding accordingly.² Also included are discussion, analysis or commentary (often including verbatim references to the Manuals) of or on the those procedures as they relate to the manner, order or time required to properly conduct the HGN test and its component parts. To make the comparison simpler and more understandable, effort has been made to place each text box in its entirety on one page and on the same page include the corresponding text box. Counsel makes apologies in advance for any blank portions of pages such as the portion below.

SFST Procedures Section VIII, 2000 NHTSA Student Manual -HS 178 R2/00

HORIZONTAL GAZE NYSTAGMUS (HGN)

1. ADMINISTRATIVE PROCEDURES

- A. Eyeglasses – have suspect remove eyeglasses (P. VIII.-6)
- B. Verbal Instructions (P. VIII.-7)
 - 1. “I am going to check your eyes.”
 - 2. “Keep your head still and follow this stimulus with your eyes only.”
 - 3. “Keep following the stimulus with your eyes until I tell you to stop.”
- C. Position stimulus 12 to 15 inches from suspect’s nose and slightly above eye level.
- D. **First Set of Passes / Pre-grading Checks**
 - 1. **Check for Equal Tracking** – move stimulus smoothly across suspect’s entire field of vision. If eyes don’t track together (one lags behind the other), possible medical disorder, injury, or blindness.
 - 2. **Check for Equal Pupil Size** - if pupils are not the same size, may indicate head injury.

Equal Tracking and Pupil Size: Movements and Minimum Base Time

Check for Pupil Size: No time or speed is directly specified, arguably can be done at same time as Equal Tracking. Perhaps requiring more time taken to do the later.

Check for Equal Tracking: Passes required: Minimum of 1 per eye – Minimum Total 2.

Speed of pass dictated by the Manual: The speed of all passes is initially governed by the fundamental purpose of the HGN test, e.g. to establish that “The suspect cannot follow a slowly moving stimulus with the eyes.” (95 SM VIII-14).

In regard to Equal Tracking, obviously the stimulus must be moved at a speed that would allow every subject to follow it, unless they have a medical condition that prevents it. This is particularly true if officer claims the suspect could and did track the stimulus and the officer had enough time to look at both eyes tracking left and right, do so and to check for Equal Pupil size during a single pass each direction.

The quickest “pass” (high speed pass) permitted in the Manuals is done at a speed of “approximately two seconds to bring the suspects eye as far to the side as it can go,” ... “two seconds out and two seconds back for each eye.” (See Smooth Pursuit VIII-7.) It would be illogical to assume the Equal Tracking pass is to be faster than a “high speed” pass, especially when not explicitly stated, and given that the officer, whether qualified to or not, is conducting a check for a potentially life threatening and/or serious “medical condition” or “injury.” (VIII-7.)

Note, when pressed most officers will say they did not use a high speed pass on this check.

Equal Tracking and Pupil Size, Total Minimum Base Time

Time per pass: 4 seconds minimum.

Passes: 1 per eye

Minimum Time 8 seconds

Counsel submits that, unless opposing counsel or this Court can find authority and or can logically divine that this pass can be done faster than two seconds out and two back per each eye, the Equal Tracking and Pupil Check should take a minimum of eight seconds.

F. CHECK FOR LACK OF SMOOTH PURSUIT (high speed) (P. VIII.-7)

1. The nose is the starting point
 2. Check subject's LEFT EYE, then RIGHT EYE. (Repeat.)
 3. Stimulus must be moved steadily
 4. Speed/Timing: For each eye check, 2 seconds out, 2 seconds back (P. VIII.-7.)
 5. Tester must conduct at least 2 passes for each eye.
 6. If eyes cannot follow a moving object smoothly, count this clue.
-

Smooth Pursuit, Movements and Minimum Base Time

Time per pass: 4 seconds minimum (Two seconds out, two back for each eye / pass.)

Passes: 2 per eye

Minimum Time 16 seconds

G. CHECK FOR DISTINCT NYSTAGMUS AT MAXIMUM DEVIATION

(Slow speed) (P. VIII.-7)

1. The nose is the starting point
 2. Check subject's LEFT EYE, then RIGHT EYE. (Repeat.)
 3. Move stimulus until subject's eye has gone as far as possible eye to the side
(No white should be showing in the corner of subject's eye)
 4. Speed/Timing: Hold the subject's eye in that extreme position (max deviation) for at least 4 seconds
 5. Tester must conduct at least 2 passes for each eye
 6. Jerkiness must be distinct at maximum deviation to score this clue
-

Distinct Nystagmus at Maximum Deviation: Movements and Minimum Base Time:

The total time to perform this check on both eyes and repeat it in reality should be something more than 32 seconds. However, we will use that number as the baseline minimum time.

Proper Movement Speed Time: This is not designated as a "high speed pass" therefore it must be slower than the four seconds per pass per eye that it takes for the high speed used in Smooth Pursuit. Thus the Maximum Deviation movement time is something more than and certainly not less than 4 sec per pass. (See also, discussion re Equal Tracking above.)

Passes required: 2 per eye - Total 4.

Distinct Nystagmus at Maximum Deviation

Hold Time required: Not less than 4 or more than 30 seconds.

Hold + Movement Time: $(4 \times 4) 16 + (4 \times 4) 16 = 32$ seconds.

(Absolute) Minimum 32 + seconds.

H. CHECK ONSET OF NYSTAGMUS PRIOR TO 45 DEGREES (P. VIII.-8)

1. The nose is the starting point.
2. Check subject's LEFT EYE, then RIGHT EYE. (Repeat.)
3. Speed/Timing: Should take about 4 seconds to move from subject's nose to shoulder (and/or 45 degrees.) "It is important to use the full four seconds." (E.g. minimum is 4 or more) P. - VIII 8. (Note: 45 degrees is presumed at every subject's shoulder.)
4. When you first observe eye jerking, stop and verify this jerking continues
(NOTE: When tester first observes subject's eye jerking, check to ensure that ten percent of white of the eye is still showing closest to ear. If no white is showing, the tester has probably gone past the 45 degree mark. Question: What do you do then?)
5. Must conduct at least 2 passes for each eye
6. If nystagmus is observed prior to 45 degrees, score this as a clue.

Check Onset of Nystagmus Prior To 45 Degrees: Movements and Minimum Base Time: From a mathematical prospective, the minimum time required to check for Nystagmus at Maximum Deviation is reasonably simple to determine based upon the directives in the manual. That is, you start with a speed that takes about, but not less than, 4 seconds each way. However, determining how long it must take, or should have taken,

for a particular subject will be dependant upon several variables; the points of onset, number of holds and length of each hold. **Note:** The "For Dummies" estimate below will be pretty accurate in most cases.

Point(s) of Onset: The first question is at what point (degree of deviation) onset of nystagmus was found and **confirmed**, if found and confirmed at all, during each pass. That point can, and probably should, be at least slightly different for each of the four passes. Knowing the final point where onset was found and confirmed will tell you the time it should have taken to get to that point from the center and the same time applies for going back. However, that presumes the tester knows which point onset will be found and **confirmed - before searching** for it and did not stop on the way there. That is not how the test is required to be done, but is utilized in the "For Dummies" method.

Total Number and Length of all the "Holds": The Student Manuals, and in great detail the Instructor's Manuals, set forth a process of diligently and slowly looking "carefully for any sign of jerking." "When you see it, stop and verify that the jerking continues." (2000 SM P. VIII-8.) The Instructors are taught to teach that if you only "think you see it, you don't, move on." Thus, more than one "hold" may, and presumably will, be required per pass. Thus the next variable is; what was the total number of holds of the stimulus during each pass while trying to find and then confirm point of onset as well as the length of each hold?

Doing the Math Part I: Where nystagmus is found or suspected at all, 4 seconds to 45 degrees equals slightly less than 1 second per each 10 degrees from 0 until point stimulus is first stopped, e.g. first hold. And just less than 1 second per 10 degrees thereafter until finally held to confirm (jerking) is present and does not go away and then 1 second per 10 degrees on the way back.

If no nystagmus found at all and movement stops at 45 deg. $(4+4) = 8$ seconds per pass.

If you do not know and/or the officer can not remember some are all of these variables you can still ascertain the minimum time it must take or have taken to do this phase of the test. It is mathematically simpler, but less accurate - usually an underestimate, if you do not know or the officer cannot remember any of them.

If you do not know and/or the officer can not remember some or all of these variables you can still ascertain the "Minimum Base Time" it must take or have taken to do this phase of the test. It is mathematically simpler but less accurate - usually an underestimate- if you do not know or the officer cannot remember any of the variables.

Speed and minimum times for each pass: Consult chart below after reading the following.

Doing the Real Math Part II: The most accurate computation is based upon using the time of each pass in seconds based on angle of confirmed onset (0-10 = 1 sec; 10-20 = 2 sec, etc) plus total time of all Hold(s) plus time of return to center from confirmed angle of onset. The process is simplified by using the chart below.

Onset confirmed at 10 degrees Plus a 2 sec. = (1+2+1) 4 seconds per pass. Add 2 for 4 sec hold

Onset confirmed at 20 degrees Plus a 2 sec. = (2+2+2) 6 seconds per pass. Add 2 for 4 sec hold

Onset confirmed at 30 degrees Plus a 2 sec. = (3+2+3) 8 seconds per pass. Add 2 for 4 sec hold

Onset confirmed at 40-44 Plus a 2 sec. = (4+2+4) 10 seconds per pass. Add 2 for 4 sec hold

Speed and time if no nystagmus is present. The directive is "at a speed that takes ... 4 (or more) seconds to reach 45 degrees," for each per pass out and 4 or more back, thus 8 seconds per pass and/or 42 seconds total. But again that assumes no signs of nystagmus at all.

When nystagmus is present: Where any nystagmus is suspected at all the movement must stop and if not confirmed at that point the movement begins again and so on until the point nystagmus is confirmed. So you have to be able to break the time down.

Breaking down the movement time: You could break the 4 seconds per 45 degrees into any increment you encounter, 4 seconds per 45 degrees equals 1 second per 11.25 degrees equals or 0.088... seconds per each degree. For simplicity and consistency we can round* to 1 second per 10 degrees and therefore add 1 second to our total for each 10 degrees traveled per pass. Unless you or the officer knows the precise degree where nystagmus was found and confirmed then simply use .088 per degree. (See chart below).

About Rounding Be careful about attempts to cite the rounding up as a basis to automatically deduct 2.16 seconds (4 x .54 (45 x .012) seconds) from your total Minimum Base Time for all passes. This is perhaps insignificant, but wrong unless you at least have a reasonable idea of the point of confirmation. Keep in mind the mandate is that you must use all 4 seconds if you go to 45 degrees so with "For Dummies" no time would be added or should be subtracted. Also to find the Minimum Base for the "Speedy Gonzales" calculation, we have assumed our rounding is high by 0.48 (10 x .012 x 4) and rounded up to .5 seconds. So for our "Speedy Quick" calculation -nystagmus at 10 degrees or less- we then have subtracted the maximum .5 seconds, to get the Base Minimum Time. Also note that in all other calculations we are erring very conservatively on the low side and where the time is something more than x, we use x.

If you really want to err on the low side or it really does not matter in your case you can eliminate any debate by erroneously adding the maximum that rounding could ever possibly be seen as understating and thus add 2.16 seconds to the "Minimum Base Time"

Required Hold Time(s): Must look for anything that looks like jerking, hold, check to confirm that the eye "is still jerking" and do a proper reference check by reference to the shoulder and the whites of the eyes. The required time is as long as it takes to: (1) Check alignment w/ shoulder (2) Check for some whites showing, (3) Confirm nystagmus: "if you think you see it its not there". The logical time for each hold and particularly the confirmatory final hold is 4 seconds (e.g. consistent with hold time for max. deviation). However, to be conservative the chart below uses 2 seconds as baseline, if the officer concedes it is 4 seconds add 2 more per pass.

Total and Minimum Base Time(s) for "On Set" Check per NHTSA (All Unrealistic)
32 seconds - No Nystagmus Found

16 seconds - Speedy Quick - Onset is found at once at 10 degrees or below in all four passes

40 to 48 seconds Using Basic or "for Dummies" method that is most often employed

"For Dummies" or Basic Estimate 10-12 seconds: In reality most officers take the stimulus to (hypothetically just less than) 45 degrees and "find" nystagmus there. Even they have to take a minimum of (4 + 4 + 2) **10 seconds**. Add 2 seconds for a full 4 second hold.

VERTICAL NYSTAGMUS

(Detect impairments due to drugs like PCP, CNS depressants, high alcohol levels) (P. VIII.-9)

1. Position stimulus horizontally (parallel to the ground) about 12 to 15 inches in front of subject's nose
2. Instruct subject to hold his head still, and follow the stimulus with his eyes only
3. Raise the stimulus until the suspect's eyes are elevated as far as possible
4. Hold for approximately 4 seconds
5. Watch closely for evidence of the eyes jerking

Speed: 1 to 4 second each way. See discussion of slowly moving object above. Presume you must raise stimulus at least 12"-15" to get, "eyes elevated as far as possible." 12" to 15" is the same distance as to get to a true 45 degrees horizontally, depending on how far away stimulus is held from subject in 12"-15" range. If you are uncertain about computing or explaining that X" out by X across equals 45 degrees," consult and measure the lines on the "Estimating a 45-Degree Angle" template. SM P. VIII-6. To be consistent with other passes speed should be either 2 seconds (high speed) or 4 seconds

(Slow speed.) If you want to be really conservative use 1 second. The calculations herein use 2 seconds as it is the fastest speed NHTSA uses.

Holds: Approximately 4 seconds. (Using 2 above and 4 here and total is still very conservative.)

VGN – Total Minimum Time: 6 seconds

Absolute Minimum Base Time Where No Onset of Nystagmus Observed at all

56 Seconds for First Three Sets of Passes
6 Seconds for Vertical Nystagmus (Overly Conservative)
32 seconds Onset Passes Not Stopping or Holding ever

Total 94 seconds (No Onset of Nystagmus Observed at all)

Absolute Minimum Base Time for Entire Test with 5 or 6 clues

56 Seconds for First Three Sets of Passes
6 Seconds for Vertical Nystagmus (Overly Conservative)
16.5 seconds if all 4 Onset Passes Stop at 10 degrees. (Includes 0.5 seconds for rounding.)

Total 78.5 seconds (Speedy Gonzales)

Absolute Minimum Base Conservative Estimate – Dummies Method
[Common Erroneous Practice]

56 Seconds for First Three Sets of Passes
6 Seconds for Vertical Nystagmus (Overly Conservative)
40 to 48 seconds Onset Passes Stopping Only Once Near 45 Degrees

Total 102 to 110 seconds (For Dummies Method)



Challenging and Excluding HGN Test

W. Troy McKinney

The majority of States recognize that the Horizontal Gaze Nystagmus (HGN) test is scientific evidence.¹ As a scientific test it generally requires expert testimony for admissibility. Even States that have found, as a matter of law, that the scientific basis for HGN and the general method of applying it are sufficiently reliable to allow admission without proof of these elements in each case, generally require some degree of proof that the test was administered correctly on the occasion in question.

When the technique must have been properly administered, as required by the design, on the occasion in question, one needs to know the technique well enough to demonstrate to the court that it was not ~~correctly~~ administered. Even if the administration goes solely to weight and not admissibility, as it does in some states, it is still necessary to know the proper method of administration in order to effectively cross examine the officer who administers the test.

Whether the issue is admissibility or weight, the crucial issue in most DWI trials is whether the test was administered in accordance with the National Highway Traffic Safety Administration (NHTSA) guidelines for the HGN. One study observed that the HGN test was administered in the field incorrectly over 90 percent of the time.²

In order to challenge the admissibility or weight of the HGN, one must know the NHTSA guidelines and requirements. No one should try a DWI case involving the HGN without studying and having a copy of the NHTSA Instructor and Student Manuals from the Standardized Field Sobriety Testing Course.

Initially, the NHTSA protocol for administration of the HGN - as with all three of the standardized field sobriety tests (SFST) -- must be strictly followed or the results are unreliable and invalid as an indication of the presence of alcohol or any other central nervous system depressant. From the NHTSA manuals:

The Standardized Field Sobriety Tests are not at all flexible. They must be administered each time, exactly as outlined in this course.

Officers administering SFSTs at roadside are expected not to deviate from the SFST administrative instructions described later in this course.

The validation applies only when the tests are administered in the prescribed, standardized manner; and only when the standardized clues are used to assess the subject's performance; and only when the standardized criteria are employed to interpret that

performance. If any one of the standardized test elements is changed, the validity is compromised.³

Thus, strict compliance with the NHTSA protocol and requirements is required by NHTSA. Without strict compliance, the validity is compromised. Indeed, without such strict compliance, the NHTSA study data cannot be used to evidence validity.⁴ Importantly, without evidence of validity, the test administration and results are functionally meaningless.

The NHTSA requirements for administering the HGN include:

1. **Pretest.** The subject should be asked to remove their glasses. The presence of contacts should be noted but contacts need not be removed.⁵

2. **Instructions.** The officer should verbally instruct the person to place their feet together and their hands by their side. The officer should verbally instruct the person that they will be asked to follow a stimulus with their eyes and that while they are doing so, they should follow it only with their eyes and should not move their head. The officer should ask the person if they understand the instructions and should not continue with the administration of the test unless and until they have obtained an acknowledgement of understanding from the person.

3. **Positioning the Stimulus.** The officer should position the stimulus between 12 and 15 inches away from the person's nose, slightly above eye level. The stimulus is positioned slightly above eye level in order to cause the person's eyes to open more widely and thus make viewing the eyes easier.⁶

4. **Passes -- General.** The movement of the stimulus consists of a total of at least 14 passes of the stimulus. These 14 passes are divided into four stages or segments⁷ and each eye must have two passes for each segment except for the initial equal tracking passes, which require only one for each eye. One pass of the stimulus for the left eye, as viewed from the perspective of the person administering it, is the movement of the stimulus from the center position to the right-hand limit of the pass and back to center. One pass of the stimulus for the right eye is the limit of the pass and back to center.

5. **Passes -- Equal Tracking.** The first set of passes is designed to confirm equal tracking and equal pupil size. The officer is required to rapidly move the object from the center to the person's far left, to the person's far right, then back to the center position. This portion of the test should take at least two seconds. While looking for equal tracking, the officer is also required to look for and confirm that the pupils are of equal size. This set of passes is designed to alert the officer to the blatant presence of neurological symptoms that may require

immediate medical attention. A person whose eyes do not track equally or who exhibits unequal pupil size should be immediately referred for medical evaluation and treatment and the HGN should be terminated.⁸

6. Passes -- Smooth Pursuit. The second set of four passes is designed to determine whether the person has or lacks smooth pursuit of the stimulus. In this phase, the stimulus is moved from the center position to the person's far left and back to the center position twice for each eye. The stimulus should be moved at a speed that takes at least two seconds from the center position to the side position.⁹ At a rate of at least four seconds per eye per pass (two second out to the side and two seconds back to center), this phase of the HGN should take at least 16 seconds. In this phase, the officer is looking for a lack of smooth pursuit. If a lack of smooth pursuit is detected, a "clue" is scored for the eye in which the officer observed a lack of smooth pursuit.

7. Passes -- Maximum Deviation. The third set of four passes is designed to determine whether the person has distinct nystagmus at maximum deviation. Maximum deviation is the point at which the eye has moved fully to one side and cannot move any further. In this phase, the stimulus is moved from the center position to the person's far left at a rate taking at least two seconds, held for at least four seconds, and then moved back to the center position at the same two-second rate.¹⁰ In this phase, each pass for each eye must take at least eight seconds and the four passes together must take at least 32 seconds. When the stimulus is at maximum deviation, the officer must observe "distinct" nystagmus in order to score a clue for that eye. It is insufficient to simply observe nystagmus at maximum deviation since most people will exhibit some visible nystagmus when the eye is held at maximum deviation. The nystagmus that must be observed in this phase must be distinct: that is, greater than the natural nystagmus that will occur from holding the eye at maximum deviation.¹¹

8. Passes -- Onset Angle of Nystagmus. The fourth and final set of four passes is designed to determine whether the onset of nystagmus occurs prior to the eye's movement to a 45-degree deviation. In this phase, the stimulus is moved very slowly -- at a rate that would take at least four seconds to move the stimulus to the person's shoulder or at a rate of no more than 10 degrees per second. Once the officer thinks that he sees nystagmus he is required to stop moving the stimulus and hold it steady to confirm the presence of nystagmus. The stimulus must be held sufficiently long to confirm the onset of nystagmus, sufficiently long for the officer to examine the alignment between the stimulus and the edge of the shoulder (approximately 45 degrees) so that he can estimate the angle of onset, and sufficiently long for the officer to confirm the presence of some white remaining in the corner of the eye. Assuming an onset angle of 30 degrees and the stimulus being held for two seconds to confirm the continuation of nystagmus,

each of the four passes in this phase must take at least eight seconds (three seconds out, two second hold, three seconds back) and the four passes together must take at least 32 seconds.¹²

9. Vertical Nystagmus. Although there is also a protocol for two passes for vertical nystagmus (VGN) upon completion of the HGN, VGN was not examined in the NHTSA validation research of the SFSTs and it was not included in the SFST battery during the original research.

14 x 82 Litmus Test

When the four phases and 14 passes of the HGN are combined, administration of the HGN from the time the stimulus first begins moving must take **NOT LESS THAN** 82 seconds. Any HGN test that does not contain at least 14 passes and take at least 82 seconds from the time the stimulus first begins moving is improperly administered because it was not administered in accordance with NHTSA protocol and requirements. As a practical matter, most HGN administrations should take at least 90 seconds. Since very few people are 100 percent proficient all of the time, since some pauses during the administration are natural, and since some passes, such as the onset passes may actually take longer than the theoretical minimum, when for instance, the onset is at 40 degrees instead of 30 degrees, any HGN that takes less than 90 seconds is suspect and should be more closely examined for compliance with each individual phase of the test.

Other Common Mistakes

Other common mistakes in the administration of the HGN include moving the stimulus too quickly -- or less commonly too slowly -- on individual passes, holding the stimulus closer than 12 inches or further away than 15 inches, not holding the stimulus for at least four seconds at maximum deviation, and curving the stimulus upward, downward, or around (also called looping) as it is being moved through the passes. If any of these mistakes are present in the administration of the HGN, the test and its results are not reliable because the officer did not administer the test in accordance with NHTSA protocol and requirements.¹³

According to the NHTSA material, the presence of four clues indicates a likely blood alcohol level of at least .10. In most states, however, it is improper for any witness or officer to testify to any correlation or relationship between any number of clues and any quantifiable blood or breath alcohol level. Rather, what is admissible from the presence of at least four clues is testimony that the administration of the HGN indicated "intoxication." In reality, all that the presence of gaze nystagmus indicates is the presence of a central nervous system (CNS) depressant in the person's system. While alcohol is a CNS depressant, the HGN is not specific for alcohol. Indeed, alcohol does not even cause nystagmus. Rather, its presence in a person's

system simply exaggerates the presence of the nystagmus present in all people.

More detailed information about the NHTSA requirements and protocol for the HGN as well as the other SFSTs can and should be obtained from the NHTSA manuals and the studies that have been conducted regarding them. Every practitioner handling DWI cases should have and learn the material in those manuals.

Manuals

There are 3 different types or classes of manuals: (1) Student Manuals for the Student Course; (2) Instructor Manuals for the Student Course; and (3) Instructor and Student Manuals for the Instructor Training Course. The links and NTIS Numbers for each follow. Everyone should have, at least, the 1995 and 2000 Student and Instructor Manuals for the basic SFST course. The NHTSA SFST manuals can be obtained from:

US Dept. of Commerce
Technology Administration
National Technical Information Service
Springfield, VA 22161

800-553-6847 for orders
888-584-8332 customer service
<http://www.ntis.gov>

Since material ordered from NTIS may not be returned and is nonrefundable, the order numbers listed here should be confirmed prior to ordering.

Student Manual 1989: NTIS Order Number: PB96-780739INT.
Student Manual 1992: NTIS Order Number: PB94-780228INT.
Student Manual 1995: NTIS Order Number: PB96-780739INT
Student Manual 2000: NTIS Order Number: AVA20839-BB00INA

Instructor Manual 1992: NTIS Order Number: PB94-780210INT
Instructor Manual 1995: NTIS Order Number: PB96-780754INT.
Instructor Manual 1995: NTIS Order Number: AVA19910-BB00INA.
Instructor Manual 2000: NTIS Order Number: AVA20838-BB00INA

Teacher-Trainer Manual 1995: NTIS Order Number: PB96-780747INT.
Student - Instructor Manual 1989: NTIS Order Number:
PB93-114742INT

The NTIS web site also has the videotapes that are used in the courses.

1. *Schultz v. State*, 106 Md. App. 145 664 A.2d 60 (1995);
Emerson v. State, 880 S.W.2d 759 (Tex. Crim. App. 1994); *State v. Witte*, 251 Kan. 313, 320, 836 P.2d 1110, 1114 (1992).

2. Booker End-position Nystagmus as an Indicator of Ethanol Intoxication, 41 Science & Justice 113 (2001).

3. The admonitions from the NHTSA manuals appear in every manual since at least 1992. Generally, admonitions concerning the need to administer the HGN (and other SFSTs) in accordance with the proscribed protocol are found in Chapters VII and VIII.

4. This article should not be misunderstood as suggesting that the HGN or other SFSTs are reliable indicators of intoxication or impairment. Given that at least one peer-reviewed study has found that close to one-half of people who had not been drinking and who were administered the SFSTs would have been arrested, there are substantial questions about the validity of the tests for their intended purpose. See Cole, S. & Nowaczyk, R., *Field Sobriety tests: Are They Designed For Failure?* Percept. & Motor Skills 99-104 (1994). However, the scope of this article is the method of their administration and not their inherent accuracy and reliability.

5. Some versions of the NHTSA manuals have also required or suggested that the examiner should inquire into whether the person has previously suffered head or neurological injury that might affect the HGN. However, the current version of the NHTSA SFST manual contains no such requirement.

6. By raising the stimulus above normal horizontal eye-level, it is questionable whether the NHTSA designed HGN is actually testing the muscles in the eye controlling only horizontal movement. Logically, it seems that by raising the stimulus, eye muscles involved in vertical and diagonal movement of the eye become involved.

7. Only the final three sets of passes are graded as part of the testing process.

8. While the NHTSA protocol for the HGN only provides for one pass across each eye, many officers will make at least two passes for equal tracking. There is nothing wrong with making additional passes for equal tracking. It does, however, increase the number of passes that must be present for a complete HGN test. Thus, if the officer testifies that he made two passes across each eye for equal tracing then the required number of passes for a complete HGN will increase to 16.

9. The stimulus should be moved at a constant rate so as not to induce a lack of smooth pursuit. Speeding up and slowing down through the passes can create the appearance of lack of smooth pursuit because the examiner is varying the speed of the stimulus.

10. As with the other passes, the stimulus should be moved at a constant, slow pace. Varying the speed can induce an appearance

of what the examiner is looking for during the test.

11. Of course, if the officer is not able to explain what normal nystagmus looks like, it is doubtful that he will be able to tell that the alleged nystagmus at maximum deviation is truly distinct.

12. As a practical matter, it takes at least two seconds, and frequently longer, to make the confirming observations once the stimulus is stopped. Any examiner holding the stimulus steady for less than two seconds will not have made all of the necessary observations.

13. Interestingly, in order to have a correctly administered HGN, the person must have held his head still during the administration. Viewed objectively, this means that when the person was told to hold his head still (and not sway), he was able to do so. Of course, this can be compared to the Romberg or one-leg-stand where clues are given for swaying even though the person is not told not to sway. It can be argued that, like the HGN, if the person had been told not to sway, he would not have done so.