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**Issues and Methods in the
Detection of Alcohol and
Other Drugs**

Issues and Methods in the Detection of Alcohol and Other Drugs

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FOREWORD

This TRB circular includes the papers and discussion from a midyear 1998 meeting and workshop organized by the Committee on Alcohol, Other Drugs, and Transportation (A3B10). The conference chair and organizer was Allan F. Williams. James H. Hedlund prepared this circular. In the workshop, the presentation of one or more discussion papers, or comments, followed each paper presentation. Then questions and answers and a general discussion period provided all participants the opportunity to explore the topic further and express opinions on research or program needs, ideas, or opportunities.

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WORKSHOP INTRODUCTION

Issues and Methods in the Detection of Alcohol and Other Drugs

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INTRODUCTION

The central question of this workshop is: How can it reliably be established that a person has consumed alcohol and/or other drugs in amounts that are illegal and/or may cause harm to that person or others? Many people think of this as a relatively easy task, conjuring up images of the “falling down drunk,” although even this obvious display may be something else, for example, diabetic shock. The reality is that even when people have high blood alcohol concentrations (BAC) known to cause significant impairment, it can be difficult for experts and laypersons alike to detect alcohol, especially among seasoned users and among people who wish to remain undetected. Detecting drugs other than alcohol presents its own set of problems, and in many cases the behavioral cues are less obvious than when alcohol has been consumed. The workshop’s focus is on police detection of alcohol and other drugs among drivers of private motor vehicles.

DETECTION PROBLEMS

There are many examples that illustrate serious detection problems involving alcohol consumption. In a 1957 study in which medical assessments of impaired driving ability were compared with results of actual driving tests, it was concluded that “a medical examination alone is not a reliable means of detecting alcoholic impairment of driving ability” (Crime Detection Laboratory, 1957). In several investigations around the world in which people at various BACs were diagnosed as drunk or not, only 62 percent of people with BACs of 0.10–0.15 percent were thought to be drunk (American Medical Association, 1968).

Tolerance to alcohol allows many heavy drinkers to escape detection, even at very high BACs (Chesher and Greeley, 1992). Rosen and Lee (1976) found that although social drinkers exhibited behavioral signs of intoxication at BACs of 0.10 percent, alcoholics showed virtually none, even though both groups were equally impaired on cognitive performance measures involving recall of lists of numbers and words. Perper et al. (1986) reported that many alcoholics admitted to a detoxification unit had normal speech, gait, and unimpaired ability to undress, even with BACs of 0.35 percent and greater. At sobriety checkpoints conducted in North Carolina, 60 percent of drivers with

BACs of 0.10 percent or greater were not detained by police for further testing (Wells et al., 1997). In a study of the detection of alcohol under ideal laboratory conditions, 40 percent of drinking subjects with BACs greater than 0.08 percent were not identified by alcohol odor after they had eaten some food (Moskowitz et al., 1997).

There is scant literature on the detection of drugs other than alcohol among drivers or in other situations. On the road, drivers sometimes come under suspicion of having ingested drugs when they act impaired but test negatively for alcohol. In this context, police officers trained in drug recognition techniques are reasonably accurate in determining if drugs are, in fact, involved (Preusser et al., 1992). However, it is not known how many drugged drivers there are who do not come under suspicion in this manner.

Most of the examples involving alcohol detection pertain to identifying people with high BACs. However, depending on the target population, it is also necessary to identify people with lower BACs—0.08 percent, 0.04 percent, or any alcohol—and this is correspondingly more difficult.

IMPORTANCE OF DETECTION IN VARIOUS SITUATIONS

Although the workshop focuses on police detection of alcohol and other drugs among drivers, there are many other instances in which we wish to detect alcohol and other drugs: commercial transportation in all forms; non-motor-vehicle pursuits such as recreational boating; industry; medical settings in cases in which it may be necessary to distinguish alcohol intoxication from head injury for treatment purposes; school settings; treatment settings to make sure clients are following treatment regimens; and retail establishments where there are alcohol servers.

Detection of alcohol and other drugs in these other realms differs from what is involved in dealing with private motor vehicle drivers. For example, in some cases mandatory testing is involved on a random basis or prior to performing the activity. As the result of the 1991 Omnibus Transportation Employee Testing Act, every driver of a large bus or truck, or anyone who is transporting people commercially, is subject to random alcohol and drug tests. Also, individuals attending drug and alcohol treatment programs, often as the result of a DWI conviction, are subject to testing at the discretion of the counselor. For alcohol servers in retail establishments, the issue is usually not whether patrons have been drinking, but whether servers should continue to serve them drinks.

The situation most analogous to the detection of alcohol and drugs on the highway is the detection of impaired boat operators. In most states, the laws governing drinking and operating boats are the same ones governing driving motor vehicles on the road, and detection of boat operators with illegal BACs by necessity follows similar paths to that for operators of motor vehicles. For example, marine police might stop boats that are being operated in a risky manner, such as powerboats being operated at high speeds at night. They also might examine more closely operators who have been involved in a mishap. However, until recently there has been little effort to systematically deter this population from drinking. Research now is under way to try to understand the magnitude of the problem and to develop field sobriety tests more suited to on-board administration.

DETECTION ON THE HIGHWAY

The detection process on the highway involves two stages: accurately detecting alcohol or other drugs and establishing the basis for criminal prosecution. That is, even though a police officer may successfully detect illegal use of alcohol or other drugs, there are detection-related issues that may hinder the application of sanctions. The workshop addresses both of these issues and emphasizes that detection and follow-up processes must be done in the context of maintaining the legal and constitutional rights of individuals. Notably, the U.S. Constitution prohibits some detection techniques used advantageously in other countries.

EVOLUTION OF DETECTION ISSUES

The workshop addresses detection in regard to current law and practice, but it is of interest that there have been changes in laws against alcohol-impaired driving over the years that have changed the way in which the process of detection and building a case proceed. During the first half of this century, evaluating the degree of impairment of a driver who had been drinking focused principally on the description of behavior. The first state laws prohibited driving while intoxicated or under the influence of alcohol. In practical terms, this meant that only obviously impaired drivers were likely to be arrested. In fact, as research subsequently determined, many alcohol-impaired drivers do not appear drunk, and at that time it was difficult to obtain a conviction because no objective standard existed to prove intoxication. Following World War II, the nation began the process of integrating chemical testing with DUI enforcement. At first, this was in the form of a blood or urine test based on the work of Widmark early in the century. Initially, this was done through what are known as presumptive laws, which establish a presumption of impairment at or above a specified BAC (defendants could try to rebut the presumption). The most significant advance in chemical alcohol test technology was the development of a practical breath test by Borkenstein, opening the way to its widespread use throughout the United States in the 1960s. Reliable chemical testing permitted the adoption of *per se* laws, first adopted by Norway in 1936, that define the offense as driving with a BAC above a proscribed limit. In the United States, *per se* laws were not introduced until the 1970s but now are in place in 49 states and the District of Columbia. Defendants charged with *per se* offenses can no longer try to prove they were not impaired, although they can challenge the validity of the BAC test. Even with *per se* laws, however, behavior plays a vital role in the arrest and conviction of impaired drivers in the United States in two ways. In the field, behavior provides justification for the DUI investigation and arrest, which in turn provides the officer with the authority to require the breath test.

WORKSHOP FOCUS

The workshop traces the detection process from the moment the person enters a vehicle through to the sanctioning process. It should be noted, however, that the detection process can start earlier than this. For example, alcohol servers or passengers may detect impairing amounts of alcohol and deter potential drivers from driving. The workshop

does not attempt to cover all aspects and procedures involved in the arrest process but emphasizes those involving detection and the proof that what has been detected is illegal.

Detection is a relevant topic because it is a key to deterring impaired driving, but it is not easy to accomplish. If people do not think there is much of a chance they will be encountered by the police, or if encountered still are not likely to be detected, or if detected are not likely to be successfully sanctioned, they will be little discouraged from driving while impaired. The goals of the workshop are to examine the detection process, see how it might be improved, and see what the research needs are.

PAPERS PRESENTED

The first paper, by James Hedlund, was written after the workshop took place and basically summarizes key points, issues, and ideas from the workshop.

Papers presented at the workshop address, in sequence, the various stages in encountering and sanctioning persons suspected of alcohol-impaired driving. The paper by Michele Fields sets the stage, laying out the legal/constitutional constraints in the process, the rules of the game that govern how detection of illegal impairment proceeds in the United States while protecting the rights of individuals.

In the second paper, Jack Stuster discusses ways to increase opportunities for police to examine impaired drivers. The percentage of impaired drivers on the road who are detected is very low; one important reason for this is that few impaired motorists are ever encountered by the police in the first place. Stuster discusses various ways to increase the intersection of police and impaired drivers and to recognize vehicles that contain impaired drivers.

Then come three papers that trace the buildup of evidence that may lead to arrest once a vehicle is stopped. David Preusser discusses detection techniques and issues that come into play in the at-the-window encounter with the driver. Marcelline Burns discusses identification of impairment once the driver has been asked to exit the vehicle. Steve Simon discusses issues and procedures involving detection once an arrest has been made, focusing on evidential testing issues.

The workshop addresses both alcohol and other drugs, but much of the research discussed in the papers is based on alcohol alone. Michael Walsh specifically addresses issues and techniques in the identification of drug impairment at the roadside and in the police station, including behavioral cues, drug recognition training, screening and chemical tests, and issues in determining impairment.

In the final paper, Joel Watne discusses prosecution and adjudication issues related to detection, basically addressing the questions as to how detection evidence gets challenged, how people get off, and what changes might improve the detection process.

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WORKSHOP SUMMARY

What's Needed to Improve Police Detection of Alcohol and Other Drugs in Drivers

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INTRODUCTION

This workshop examined the apparently narrow and well-defined topic of police detection of alcohol and other drugs among drivers of private motor vehicles. The workshop appeared to be limited to impaired driving enforcement: How police identify drivers who may be impaired, and how they determine whether drivers are under the influence of alcohol and other drugs. But workshop participants quickly came to appreciate that these enforcement issues were intertwined with the entire system of impaired driving laws, enforcement, and sanctions. Consequently, the workshop papers, discussions, and ideas had a broad range.

This paper summarizes some key points made at the workshop. It concentrates on the workshop's goals. How can police detection be improved? What changes in legislation and programs make any difference?

This paper attempts to capture the sense of workshop participants as expressed in their papers and discussions. Statements in this paper are the author's interpretation of general (though not necessarily unanimous) thinking by workshop participants. Points made at the workshop that may not have had broad support are described as views of "some participants." Because only authors of papers reviewed this summary, its statements may not represent a majority view. Of course, any workshop participant (including the author) may disagree with any of the statements in this paper.

Throughout this paper, the term "impaired drivers" refers to drivers impaired by alcohol or other drugs. "Alcohol-positive" refers to drivers with any measurable positive blood alcohol content. Similarly, "drug-positive" refers to drivers with a measurable amount of any drug that can impair driving performance. "Police" refers to any law enforcement officer with the authority to enforce impaired driving laws.

WHY DETECT IMPAIRED DRIVERS?

The system of laws, enforcement, prosecution, and sanctions directed at impaired drivers exists both to catch impaired drivers and, more important, to deter impaired driving: to convince people not to drive while impaired because they will suffer consequences if they do. Deterrence theory says that to be effective, these consequences must be swift, certain, and severe (and research strongly suggests that swiftness and certainty are more important than severity). The impaired driving system already provides for sanctions that are to varying degrees swift and severe for impaired drivers. But they are far from certain.

Recent estimates suggest that fewer than 1 impaired driving trip in 500 will be detected by police. This defines the workshop's goal: to improve police detection, which will increase the likelihood that impaired drivers will be caught and punished and in turn deter others from driving while impaired by alcohol or other drugs.

Participant Discussion of research and experience concluded that the priority and resources allocated to law enforcement by the community and its leaders are key ingredients in detecting impaired drivers. Police need to be on the street and know that detecting impaired drivers is an important part of their duties. Lacking this, the program and ideas that follow will have little effect. One important way to influence community priorities is through continued public education on all aspects of impaired driving.

THE LEGAL SYSTEM: IMPAIRED DRIVING LAWS AND PRACTICES

Police detection of impaired drivers operates within the system of laws and practices that define, enforce, prosecute, and adjudicate traffic offenses. The laws define the various impaired driving offenses in the first place. The practices establish what police can and cannot do in stopping, investigating, arresting, and obtaining evidence from suspected impaired drivers. In the United States, each of the 50 states and the District of Columbia has its own set of laws and practices. The workshop's considerations apply to these jurisdictions in the United States. Participants from other countries added useful comments on the U.S. situation from an international perspective.

State impaired driving laws come in two forms: behavioral and chemical. All states have "behavioral" laws, under which it is illegal to drive while impaired by alcohol or other drugs. Conviction under these laws requires police to obtain evidence that the driver's performance was impaired and to link this impairment to alcohol or other drugs. Evidence that the driver was alcohol- or drug-positive is not by itself sufficient for conviction. All states also have "chemical," or *per se*, laws for alcohol, under which it is illegal to drive with a blood alcohol concentration (BAC) exceeding a specified level (two states have *per se* laws only for drivers younger than age 21). Some states also have *per se* laws for certain illicit drugs. However, in practice, BAC or drug evidence alone is not sufficient to win conviction under a *per se* law (much to the surprise of foreign workshop participants, where BAC evidence by itself will suffice). Workshop participants familiar with driving while impaired (DWI) trials in several states confirmed that BAC evidence is important, and, in fact, convictions are difficult without a valid BAC reading above the state's *per se* level, but BAC evidence must be accompanied by behavioral evidence of impairment. Some participants mused that detection would be simplified considerably if this were not so, but Participant Discussion clearly pointed out that this situation is unlikely to change in the foreseeable future. Consequently, police must acquire both behavioral and chemical evidence of impairment.

Within this basic framework, state impaired driving laws regarding both alcohol and drugs have developed an almost Byzantine structure of offenses, penalties, and exceptions. As the laws and procedures become more complex, successful conviction becomes more difficult. Workshop participants noted that the basic model for these laws, the impaired driving section of the Uniform Vehicle Code, has not been reviewed for many years. Participant Discussion pointed out the need for a review, with the goal of updating and simplifying the code.

Police detection practices also must operate within the constraints imposed by the United States and individual state constitutions that protect citizens from unreasonable searches and seizures and provide for due process and other rights. The key issues are that police require “articulable suspicion” of some traffic offense in order to make a traffic stop: Except at sobriety checkpoints, they cannot arbitrarily stop a car for no reason (as police in some other countries can). Once a car is stopped, police again cannot request a driver to step out of the vehicle or provide a breath sample unless they again have some articulable suspicion of alcohol or other drugs. (A few states allow police to request a breath sample from a driver who has committed a moving traffic violation or who has been involved in a crash.) And finally, to make an impaired driving arrest, police must have a higher level of evidence: “probable cause” of the offense.

These constraints have given rise to what is in many states an elaborate system of procedures for impaired driving enforcement and arrest. On the one hand, following clearly established procedures can prevent challenges on the grounds of arbitrary behavior from the police. But on the other hand, as procedures become more elaborate, more police time is required for every impaired driving arrest and the chances are greater that police will inadvertently fail to follow the procedures precisely. Any deviation can be challenged in court and may cause the case to be lost. Workshop participants noted the potential benefits in effectiveness and efficiency from review and simplification of these procedures in all states.

Administrative sanctions for impaired driving can bypass some of these criminal justice system issues. Most states have adopted administrative license revocation or suspension (ALR) for drivers who violate the state’s *per se* law. ALR laws have been shown to reduce impaired driving. Administrative license plate suspension also is used. As participants noted, these and other administrative measures are proven techniques available now for states to conduct.

The needs are as follows:

- An updated Uniform Vehicle Code section on impaired driving;
- More uniform state impaired driving laws;
- Simplified state impaired driving arrest and evidence procedures; and
- Broader use of administrative sanctions.

ON THE ROAD: OBSERVING AND IDENTIFYING DRIVERS WHO MAY BE IMPAIRED

Impaired driving detection begins with police observing a driver and observing a reason to stop him or her. The reason can be a traffic infraction, an action that is not in itself an infraction but is associated with impaired driving (such as driving unreasonably slow), or a crash. Police detect impaired drivers in three basic ways, each of which presents its own challenges and opportunities.

Traffic Patrol

Most police traffic time is spent in traffic patrol activities, and most impaired driving arrests result from patrol. Patrol includes routine traffic patrol, special impaired driving enforcement such as “blanket” or “saturation” patrols, and other traffic activities such as

special event traffic control. In some of these activities, police are looking specifically for impaired drivers; in others, they are not.

Clearly, the more time police are on the road, the greater are their chances of observing impaired drivers. Thus, the first method to improve impaired driving detection is to increase police patrol time. One obvious way is to increase the number of patrol officers. This, of course, either requires additional funds or else it diverts police resources from other needs. A second way is to reduce patrol officer “down time” so that they can spend more hours on the road. A major contributor to this is impaired driving arrests themselves, which may take as long as four hours of an officer’s time. Workshop discussion strongly supported measures to reduce impaired driver processing time through such means as simplified paperwork requirements and automated record systems. Why, for example, must police in one state fill out eight separate forms, each containing some of the same information, when a computerized system would allow information to be entered only once (and could check for some obvious errors)?

The second method to improve impaired driving detection is to help police use their patrol time more efficiently, by providing information on where patrol officers should look and what should they look for. Some patrol activity is targeted to locations and hours favored by impaired drivers (e.g., near bars on weekend nights). Some jurisdictions regularly patrol locations where convicted impaired drivers live (identified on “HOT sheets”). Patrol officers also use a number of established cues to identify drivers who may be impaired. Participants identified two areas where improvements could be made. First, police generally are unfamiliar with cues to identify young drivers who may be impaired, because young impaired drivers are found in different places at different times and exhibit different driving behaviors than older impaired drivers. Second, if police could access vehicle license plate and driver records from their patrol cars, they could determine quickly if a vehicle is licensed to a convicted impaired driver. When a person’s credit card information is available within seconds at virtually every gas station and convenience store in the country, why cannot driver’s license and driver record information be equally accessible to police?

The needs are as follows:

- Increased patrol time by reducing and simplifying impaired driver processing requirements and paperwork;
- A handbook of impaired driving patrol strategies and tactics;
- Patrol strategies and cues for detecting youthful impaired drivers; and
- Improved police access to vehicle and driver records from the patrol car.

Checkpoints

At a sobriety checkpoint, police stop every vehicle (or every second or third vehicle) at a predetermined location to check whether the driver is impaired. Checkpoints can be an effective way of deterring impaired driving because they require all drivers to stop: Experienced and alcohol-tolerant impaired drivers cannot avoid being stopped by driving carefully. Extensive and well-publicized checkpoint programs have been shown to reduce impaired driving crashes.

Checkpoints present three major issues: their legal authority in some jurisdictions, the resources required to conduct them, and their effectiveness in detecting impaired

drivers. Checkpoints are permitted in 39 states and the District of Columbia. The U.S. Supreme Court has found that checkpoints are constitutional, but some state courts have held that checkpoints violate state constitutions. In other states, checkpoints would be permitted if authorized by the state legislature, but the legislature has not yet acted. Some checkpoints are conducted with many police officers and consequently impose a heavy toll on police resources. Recent research has shown that smaller checkpoints can be just as effective as larger ones. Workshop participants encouraged additional research and guidelines on the most cost-effective ways to operate checkpoints. Finally, research has shown that approximately one-half of all legally impaired drivers stopped at checkpoints are not detected. In addition to the points discussed in the following section (At the Car Window), research on cues to identify drivers entering checkpoints by using their vehicle movements also could help police at checkpoints identify drivers who might be impaired.

The needs are as follows:

- Wide use of checkpoints in states where checkpoints are constitutional but not yet permitted;
- Research and guidelines on cost-effective checkpoint operation; and
- Research on cues to use vehicle movements at checkpoints to identify drivers who might be impaired.

Citizen Reports

Some jurisdictions have a process for citizens to report suspected impaired drivers by using a special telephone or cell phone number. This method of reporting suspicious behavior could increase substantially as more and more drivers have cell phones in their vehicles. But it will be useful only if police have the resources to monitor and follow up these reports.

The needs are as follows:

- Research on procedures for and the effectiveness of reporting suspected impaired drivers by cell phone.

AT THE CAR WINDOW: OBTAINING FURTHER EVIDENCE

After a vehicle is stopped, whether in patrol operations or at a checkpoint, police must determine quickly whether there is enough evidence of impairment to require the driver to step out of the car for further investigations. Sometimes this is easy: There may be direct physical evidence of alcohol or drugs (smell, open containers, etc.), or the driver may admit to alcohol or drug use in response to the officer's questions. Lacking these, the officer must attempt to uncover any evidence in other ways.

Many experienced officers have developed strategies to check for impairment. One promising method is to examine the driver's eyes for horizontal gaze nystagmus (HGN). HGN is highly correlated with impairment by alcohol and some drugs and is an integral part of the Standardized Field Sobriety Tests (SFST), but it has not been used widely at the vehicle window. Workshop participants encouraged research to see if HGN should be taught to patrol officers for use at the car window.

Technology can help. The passive alcohol sensor (PAS) can determine whether alcohol is present in the occupant compartment. The PAS can be especially useful at checkpoints, where police must make a quick decision based on almost no other evidence beyond what they observe at the car window. Participant Discussion supported continued development and broader use of the PAS.

Young drivers again present special challenges. Police need cues and strategies for interviewing youth, especially for enforcing zero tolerance laws with a BAC limit of 0.02 percent or less (now in effect in every state). A PAS could be particularly useful in the absence of obvious behavioral cues.

The needs are as follows:

- Research on the use of HGN at the vehicle window as an initial indication of impairment;
- Increased PAS use in patrol and checkpoint operations;
- Strategies for police to enforce zero tolerance laws for youth; and
- A PAS for zero tolerance law enforcement.

Crashes

Drivers in crashes already have given police a reason to question them and to check for possible impairment. However, police investigating a crash have many pressing responsibilities. Some participants suggested that research to develop interview protocols for police at the crash scene may help identify impaired drivers. Others suggested that all crash-involved drivers be tested for alcohol or drug impairment (as is permitted in three states).

Injured drivers present special problems. Because the first concern of police at a crash scene is to treat any injuries, these drivers usually are taken directly to hospitals or emergency rooms. Although the treatment facility often acquires a blood sample for use in treatment, the blood may not be tested for alcohol or drugs; if tested, results may not be given to police. This issue raises broad questions of physician and hospital roles and obligations to their patients on the one hand and to society as a whole on the other hand.

The needs are as follows:

- Police protocols for interviewing crash-involved drivers;
- Breath testing crash-involved drivers (if permissible under state law); and
- Research methods to acquire BAC results for injured drivers.

OUTSIDE THE VEHICLE: OBTAINING EVIDENCE TO MAKE AN ARREST

After the driver has stepped outside his vehicle, the officer has some evidence pointing to impairment. The officer's task now is to decide whether there is enough evidence for an arrest. If so, the officer also must document evidence that can be used in court. As at the car window, both behavioral and technological methods can be used.

The SFST consists of three behavioral tests: walk and turn, one-leg stand, and HGN. These tests were developed to determine whether a driver's BAC exceeded 0.10 percent. Recent research again validated the SFST and showed that it is equally valid at predicting

a BAC of 0.08 percent. The SFST is used to some extent in all states and is taught routinely to police officers in police academies. The SFST, especially HGN, has been challenged in court and has been upheld in most, but not all, decisions.

The key issue with the SFST is to ensure the approximately 400,000 patrol officers in the United States are proficient in its use. In addition, efforts must continue to educate the courts on the SFST and to win legal challenges to its validity.

Technology again can help. A preliminary breath test (PBT) device measures the alcohol content in a driver's breath. Approximately half the states now allow PBTs to be used to provide evidence for an arrest (but not to establish the driver's BAC).

Workshop participants also mentioned several methods to acquire additional information or help prepare for trial. Once again, if the officer has online access to the state's driver record files, he can determine if the suspect has a prior record of impaired driving or other offenses. A standard interview protocol can help officers, especially inexperienced officers, acquire the information needed for trial and avoid pitfalls. Some participants have noted great success with in-car videotaping to record the entire sequence of stopping the vehicle and interviewing the driver at the vehicle window and on the roadside. Although videotaping requires additional equipment and care in operation, it can provide prosecutors and juries with direct and basically irrefutable evidence of a suspect's behavior rather than relying solely on the officer's testimony. Once they see the taped record, offenders frequently plead guilty before going to trial. Of course, tapes of drivers who appear perfectly sober may impede conviction.

The needs are as follows:

- SFST use and standardization through initial and refresher training of patrol officers
- SFST acceptance in court
- Additional states' use of PBT at the roadside
- Roadside impaired driving interview protocols
- Use of in-car videotaping
- Police access to driver records at roadside

IN THE POLICE STATION: BUILDING THE EVIDENCE FOR TRIAL

In the police station after arrest, the driver is interviewed and given an evidentiary breath test. The key issue is to complete the evidence required for trial and to avoid errors that could cause the case to fail. Workshop participants made two suggestions. First, as at the roadside, interview protocols could help acquire the necessary information in a systematic and efficient manner. Second, some jurisdictions have found it useful to videotape the driver's actions while being booked, breath tested, and interviewed. As with roadside videotaping, many drivers will plead guilty before trial once they have seen the visual evidence of their performance that would be presented to the jury.

The needs are as follows:

- Impaired driving interview protocols for use in police stations
- Greater use of videotaping

AT TRIAL: OBTAINING A CONVICTION

All the issues and evidence discussed previously come into focus if the case goes to trial. Most impaired driving cases are settled without a trial. But those cases that are tried establish the framework within which prosecutors, defense attorneys, and judges negotiate settlements. Complicated statutes and procedures make it easier for cases to be lost or dismissed on procedural grounds. Accurate and informed police testimony backed up by evidence from appropriate technology will help win cases. Impaired driving trials never will be simple, and police, prosecutors, and judges all need appropriate information and training before they can do their part effectively.

In addition to reviewing and revising the Uniform Vehicle Code and simplifying established investigation procedures, workshop participants suggested several specific changes that could rationalize and close loopholes in the current system. In some states, impaired drivers can escape with relatively minor penalties if they refuse to take a drug or alcohol test. Should not sanctions for test refusal be at least as severe as those for taking and failing the test? In some states, drivers may request a second test using blood, breath, or urine, as they wish. This process may have been useful in the early days of breath testing, when breath-test instruments were less reliable. Current instruments are very accurate, so the provision of a second test adds little except delay to the process. If states keep the provision, a simple way to avoid difficulty is to define impaired driving in the state's statutes using evidence from either blood, breath, or urine. This also avoids challenges regarding the conversion of results from one medium to another. Some states allow only a single test for any impairing substance. This means that if an apparently impaired driver passes an alcohol test, a second test for other drugs cannot be given. Finally, some states have different laws regarding impairment for operators of boats, airplanes, and other vehicles. It is far simpler to establish uniform laws for all vehicles.

The needs are (in addition to those noted previously):

- Simplified impaired driving statutes and procedures;
- Criminalized BAC test refusal;
- Redefinition of impairment statutorily using either blood, breath, or urine, within two hours of driving;
 - Provision for police to make more than one test for impairing substances and to choose the tests;
 - Consider eliminating independent test laws;
 - Harmonized impaired operator laws for all vehicles;
 - Continued police training in techniques of gathering evidence and presenting at trial; and
 - Judge and prosecutor awareness of impaired driving issues.

DRUGS OTHER THAN ALCOHOL: SPECIAL CONSIDERATIONS

Impairment by drugs other than alcohol presents a special set of challenges. Alcohol impairment can be measured directly by the amount of alcohol in the blood or breath, and the relations between BAC, impairment on driving-related tasks, and crash risk are very well known. None of this is true with other drugs. There are no established relations

between drug presence, impairment, and crash risk. Indeed, drug presence for some drugs can be detected in the body days or weeks after any impairment has ended. Consequently, state laws typically refer to impairment only due to drugs but cannot set specific illegal *per se* levels analogous to the 0.08 or 0.10 percent levels in state alcohol laws. Some states have established *per se* laws for illicit drugs so that any presence of these drugs in a driver is illegal. Finally, the extent of driving and crash involvement by people impaired by other drugs is not accurately known at all, though it is generally believed to be substantially smaller than alcohol-impaired driving and crashes. As a result, police typically look first for alcohol in a driver whom they believe is impaired. If they find it, they rarely will search for other drugs. If they do not, the complexities of finding and establishing impairment by other drugs reduce the officer's incentive to investigate further.

In discussion workshop participants noted that research and clinical evidence point to drugs other than alcohol as a significant problem, perhaps an increasing one. The issues presented deserve greater attention than the workshop was able to devote, given the issues presented by alcohol and the time available at the workshop. In the brief time available for discussion, participants suggested the following specific research development and implementation needs:

- *Per se* laws for illicit drugs;
- Additional penalties for impairment by both alcohol and other drugs;
- Observation protocols for patrol officers to recognize drug impairment at the roadside; and
- Chemical tests to identify drug use at the roadside.

CONCLUSION

The agenda described provides a large number of specific activities to improve the detection of impaired drivers and, more broadly, to improve the entire system of impaired driving laws, enforcement, adjudication, and sanction. But these individual actions occur within the overall context of the community's policies and practices on impaired driving. As noted at the outset, the system's goal is to deter impaired driving. Unless the community supports this goal and provides both leadership and resources to carry it out, individual activities will have little effect. Furthermore, the community must decide how these resources should best be directed: For example, what is the relative priority of adult repeat offenders and youth covered by zero tolerance laws? Research can provide tools for either, but the community must decide where and to what extent these tools will be used. A summary of needs follows in the appendix.

APPENDIX: SUMMARY OF NEEDS

Overall

- Resources and priority for impaired driving law enforcement.
- Public education on impaired driving.

Legal

- Simplified impaired driving laws and procedures.
- Review and revision to the Uniform Vehicle Code.
- Criminalized BAC test refusal.
- BAC definition by blood, breath, or urine in statute.
- Choice of BAC test.
- “One test” laws.
- Reconsider right to independent BAC test.
- Test valid within defined time period.
- Single DWI law for all vehicles.
- *Per se* laws for illicit drugs.
- Checkpoint use in states where legislation is required.
- Use of administrative sanctions.

Program

- Training for officers (SFST, interview and trial procedures), prosecutors, judges.
- Simplified DWI booking and records procedures.
- Automated records systems; available online in the patrol car.
- Continued development and use of technology: PAS, PBT, videotaping.
- Mix of effective strategies (regular and special patrol, checkpoint).
- Impaired driving patrol strategies and tactics handbook.
- BAC test of all crash-involved drivers.

Research

- Better cues for use at the vehicle window (mini-HGN).
- Cues for observing vehicles approaching checkpoints.
- Interview techniques for roadside, crashes, and in the police station.
- Cues and strategies for enforcing zero tolerance laws for youth.
- Methods to acquire BAC results for injured drivers.
- PAS for zero tolerance enforcement.
- Procedures and effectiveness of cell phone impaired driver reporting.
- Cues for identifying drug impairment at the roadside.
- Improved chemical drug tests for roadside use.

Legal and Constitutional Issues Related to Detection

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INTRODUCTION

The objective of this paper is to provide a brief overview of constitutional and other legal issues relating to the detection of impaired drivers. For convenience sake, it is written with regard to alcohol impairment, but the legal issues discussed apply to impairment by other drugs.

Within the framework of the U.S. Constitution, detection issues give rise to concerns under the Fourth Amendment (search and seizure), the Fifth and Fourteenth Amendments (due process), the Fifth Amendment (self-incrimination), and the Sixth Amendment (right to counsel). Other legal issues include state constitutional law, which may be more protective of defendants' rights than the federal Constitution, and state statutory and common law, all of which vary considerably by jurisdiction and even within jurisdictions. It is not possible within the scope of this paper fully to address each issue. At best, the major issues will be put into perspective, and the lesser issues will be identified.

ISSUES UNDER THE U.S. CONSTITUTION

The Fourth Amendment to the U.S. Constitution reads:

The right of the people to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures, shall not be violated, and no Warrants shall issue, but upon probable cause, supported by Oath or affirmation, and particularly describing the place to be searched, and the persons or things to be seized.

In other words, the Fourth Amendment protects individuals against unreasonable searches and seizures conducted by government officials. "Search" and "seizure" are terms of art in constitutional law. That is, they have particularized meanings developed under common law over the years. Not all investigatory activities are searches or seizures within the meaning of the Constitution. Therefore, the threshold question in Fourth Amendment jurisprudence is whether the activity at issue is a search or a seizure. If not, the Fourth Amendment does not apply, and the activity is legal unless it violates other laws or regulations, state or federal.

Vehicle Stops

Vehicle stops by police, however brief, are seizures under the Fourth Amendment (LaFave, 1996). Consequently, they must be held to be reasonable. Vehicle stops fall into two categories: individual vehicle stops, typically conducted by an officer acting alone, and

checkpoint stops. Officers may not stop an individual vehicle merely to see if the driver is impaired. The reasonableness element requires that there be some valid, articulable reason for stopping a vehicle that relates to the vehicle, the manner in which it is being driven, or the driver's behavior. Compelling evidence that 17 percent of drivers operating on weekend nights between 10:00 p.m. and 3 a.m. are impaired by alcohol may be sufficient to justify a stop to statisticians, but it does not satisfy the Constitution (Voas et al., 1998).

Police officers deal in real-world situations that are very fluid and impossible to catalogue comprehensively. A recent U.S. Department of Transportation study noted, "from the time an officer observes a DUI suspect (before the stop and after) everything that the officer observes helps him or her form an opinion . . . [on driver impairment]. Every stop is different, but all of the little components add up to either arresting the driver or letting the driver go" (Jones et al., 1998). Therefore, it is possible that some circumstances may arise that do not fall into the following categories but which, nonetheless, will be held reasonable under the Fourth Amendment. Generally, a stop will be upheld if

- The officer observes the driver commit an offense (a moving violation or equipment violation); or
- Erratic driving suggests driver impairment to an experienced officer; or
- The officer stops the driver to render aid, offer assistance, or otherwise intervene if he reasonably believes the person may require some assistance.

Safety belt offenses are a notable exception to the rule that police may stop any driver observed violating a traffic law. Thirty-six states have secondary provisions in their belt use laws that prohibit officers from stopping a vehicle solely because a driver or other passenger is not properly belted. With the exception of Minnesota, this enforcement limitation does not apply to child restraint violations (the decision holding the Minnesota child restraint law to be secondary is on appeal). Officers may stop drivers when they observe a violation of the state's child restraint laws. There are no secondary alcohol and driving laws. Initially, Nebraska passed a zero tolerance law for underage drivers that contained a provision for secondary enforcement only. The secondary provision has since been repealed.

The law governing sobriety checkpoints not only instructs us about when and how checkpoints must be conducted but also gives considerable insight into the rationale for limiting officer discretion to make individual stops.

On November 30, 1976, at 7:20 p.m., a New Castle County, Delaware, patrolman was not answering any calls. He testified that to fill the time productively he decided to stop vehicles to conduct license and registration checks. On a relatively deserted road, he stopped a vehicle that happened along, found marijuana in plain sight in the vehicle, and arrested the driver for illegal possession of a controlled substance. The U.S. Supreme Court ultimately decided the legality of the stop (*Delaware v. Prouse*, 1979). The Court held that individual officers, acting on their own initiative and absent close supervision, may not stop vehicles without the requisite particularized suspicion described above. The Court was troubled by the potential for abuse that exists when officers, unchecked by supervisory authority, are allowed to stop any vehicle they choose. It held,

except in those situations in which there is at least articulable and reasonable suspicion that a motorist is unlicensed or that an automobile is not registered, or that either the vehicle or an occupant is otherwise subject to seizure for violation of law, stopping an automobile and detaining the driver in order to check his driver's license and the registration of the automobile are unreasonable under the Fourth Amendment (*Delaware v. Prouse*, 440 U.S. 663, 59 L.Ed. 2d. 67).

The Court used the term "random" to describe the patrolman's decision to stop Prouse. In fact, the lack of true, scientific randomness is what troubled the Court. The potential for an officer to intentionally or inadvertently introduce improper biases into the selection criteria imperils constitutional rights. In other words, vehicle stops that are conducted capriciously or arbitrarily do not withstand scrutiny under the Constitution.

Commonly, however, when the Court takes something away, it grants something else. *Prouse* was such a case. Recognizing that the fundamental problem with the patrolman's behavior was that he had acted with unfettered discretion and without the checks that the presence of other officers, supervisors, and the public would have created, the Court indicated that vehicles could be stopped without particularized suspicion, if appropriate safeguards were established. This laid the groundwork for sobriety checkpoints.

The seminal case on sobriety checkpoints is *Michigan v. Sitz*. At the trial level, the *Sitz* court held sobriety checkpoints invalid, finding that the arrest rate at checkpoints was not sufficiently high to justify their use under *both* the Michigan and the U.S. constitutions. The Michigan Court of Appeals agreed with the trial court's interpretation of the U.S. Constitution and did not address the issue of the legality of checkpoints under the Michigan Constitution (*Sitz v. Department of State Police*, 1988). The Michigan Supreme Court initially declined to hear the case. Michigan petitioned the U.S. Supreme Court, which reversed the Michigan courts' interpretation of the U.S. Constitution, finding that the minimal intrusion occasioned by a well-conducted checkpoint did not outweigh the state's interest in using sobriety checkpoints to enforce laws against alcohol-impaired driving (*Michigan v. Sitz*, 1990). However, sobriety checkpoints remain illegal in Michigan. The Michigan Court of Appeals held that sobriety checkpoints violate the Michigan Constitution (*Sitz v. Michigan Department of State Police*, 1992). The Michigan Supreme Court agreed, holding that Michigan police may not "engage in warrantless and suspicionless seizures of automobiles for the purpose of enforcing the criminal law" (*Sitz v. Michigan Department of State Police*, 1993).

The U.S. Supreme Court gave its imprimatur to the guidelines that the Michigan State Police used in their checkpoint. Those require supervisors to determine in advance when and where checkpoints are to be conducted and to be present at checkpoints. The guidelines also establish procedures for marking checkpoints and determining which vehicles will be stopped.

Occasionally, drivers turn around to avoid checkpoints. State laws differ with regard to whether executing a legal avoidance maneuver gives rise to reasonable suspicion to stop the vehicle.

Since then, additional criteria have been imposed under state statutes and common law. Oregon and Texas, for example, interpret the U.S. Supreme Court's decision to require legislative authorization for sobriety checkpoints because there was such

authority in *Sitz* (*State v. Anderson*, 1987; *Garcia v. State*, 1993). The extent to which advance publicity for checkpoints is required is a subject of debate (*Commonwealth v. Amaral*, 1986; *Ingersoll v. Palmer*, 1987; *People v. Squire*, 1993).

Checkpoint guidelines should contain nothing superfluous. An overly elaborate guideline may subsequently be held to have established a procedural standard that must, in all cases, be followed. Once a driver has been stopped on suspicion of alcohol-impaired driving or for some other legitimate reason, an officer has both the right and the duty to conduct a reasonable investigation. Although search issues begin to take precedence at this point, seizure remains an issue. The U.S. Constitution requires that a seizure be limited to no more than is necessary to accomplish the purpose for which it was made. Thus the window of opportunity for detecting an alcohol-impaired driver in a routine stop (checkpoint or patrol) is limited.

Roadside Investigation

As indicated earlier, a traffic stop represents a fluid, ever-changing situation. An officer must be a master of divided-attention tasks. Simultaneously, he watches out for his own safety and for that of the driver, vehicle occupants, and others in the area and gathers and evaluates information about the driver. Every piece of information increases or decreases the officer's level of suspicion.

A point made earlier bears repeating at this juncture. All investigations are not searches under the Fourth Amendment. Collection of impairment evidence begins once a vehicle comes to an officer's attention. Evidence includes the manner in which the vehicle is being operated, including the driver's response to the request to stop. Once the driver stops, the officer focuses attention on the driver's appearance and demeanor. Is she disheveled? Do her eyes focus properly and are they clear? Is her affect reasonable given the circumstances? Is she flushed? Can she perform simple divided-attention tasks such as finding her license and registration while responding to simple questions? Is her speech slurred? Is there an odor of alcohol about her or the vehicle? Has the driver admitted to drinking? An experienced officer evaluates a driver with respect to all of these factors and makes an overall judgment about alcohol impairment. At the point that the officer determines that impairment is not likely, he has an obligation to pass the driver through the checkpoint or, if it is a routine traffic stop, to issue the appropriate citations, if any, and release her.

The process that has just been described is evidence collection. None of it constitutes a search under the Fourth Amendment. A brief explanation of why these activities are not searches is in order.

Before 1967, courts held that a Fourth Amendment search involved a physical intrusion into an area in which the defendant had a property interest. *Katz v. U.S.* (1967) greatly extended the reach of the Fourth Amendment. The case arose when investigators affixed a listening device on the outside of a public telephone booth and collected evidence of gambling offenses. The United States argued that because the defendant lacked a property interest in the telephone booth, the Fourth Amendment did not apply. The court disagreed and announced a new test.

For investigatory activity to constitute a search under the Fourth Amendment, three elements must all be satisfied. The defendant must have a reasonable expectation of

privacy with regard to the evidence being sought. Society must generally recognize the expectation of privacy as legitimate. Finally, the defendant must not have voluntarily displayed what he sought to protect.

Applying these criteria to the evidence gathered in the first few moments of a vehicle stop, it is clear that no search occurred. The driver had no reasonable expectation that she would not be seen or heard by a police officer legitimately stopping her on a public road. Even if she expected to be neither seen nor heard, it is not an expectation that society would recognize as reasonable. And, finally, by venturing out in public, she voluntarily exposed herself to observation.

If the driver's appearance and demeanor suggest alcohol impairment, the officer may incrementally escalate the investigation with a view toward establishing the presence or absence of probable cause for an arrest. The emphasis here is on "incrementally." At this point, the officer may engage the person in additional conversation. This provides further evidence for evaluation. The officer may ask the person to exit the vehicle to observe the person's coordination. Each additional piece of evidence will increase or decrease the officer's level of suspicion. If suspicion is not dispelled or it escalates, then field sobriety testing is in order.

Field sobriety testing is the final step in the investigation. The results of field testing are the final pieces of evidence that determine whether probable cause for an arrest exists. Field tests fall into two general categories, behavioral and chemical. Behavioral testing is similar to what occurs initially at the stop. Officers make close observations of driver behavior for signs of impairment. The difference is that the officer requests the driver to execute very specific functions, in effect, standardized tests of coordination (walking heel to toe in a straight line, walking and turning, etc.). The officer observes and records the driver's ability to focus on the instructions, understand them, and execute them. Even the gaze nystagmus test is a form of behavioral testing. The officer requires the driver to focus his or her eyes on a particular point and observes and records involuntary movement that is indicative of impairment.

The most common chemical test conducted in the field is the preliminary breath test (PBT). Preliminary breath test devices are handheld devices fitted with a mouthpiece. The subject blows into the mouthpiece, providing an exclusive sample of breath. Use of the PBT constitutes a search under the Fourth Amendment because we recognize a strong privacy interest in body substances taken directly from inside the body, in this case, breath from inside the mouth and deep lung air that has not been expired and commingled with ambient air.

It is important to understand that Fourth Amendment rights may be waived. Police can always request individuals to submit to searches by consent. PBTs are requested in this matter in several states. However, 29 states and the District of Columbia have statutes that regulate the use of the PBT. These statutes authorize officers to request a PBT but limit their use to circumstances in which the officer has developed reasonable suspicion of alcohol impairment. Consequently, in these states, a PBT may not be used early in the investigation unless indicia of impairment by alcohol is very strong from the beginning. PBTs are very useful because they provide scientific, objective evidence of impairment or violation of *per se* laws. However, where the law prohibits officers from requesting PBTs unless they have already gathered evidence of impairment, they are of no help in the initial screening of drivers. Generally, PBT evidence is not admissible for

any purpose except to establish probable cause for the arrest. In other words, the results of a PBT are inadmissible in trial.

There is a critical need for an objective, reliable tool to assist officers at the very beginning of their screening process. Such a tool must be portable, capable of being used as soon as the stop is made; it must provide an immediate response; and its use must not constitute a search under the Fourth Amendment. The passive alcohol sensor (PAS) is just such a tool. The PAS is an alcohol detection device. It samples the ambient air in an area and determines the presence or absence of alcohol in that sample. For the purposes of enforcing alcohol-impaired driving laws, the PAS should be used within 6–10 inches of a driver's mouth, preferably when the driver is speaking. It immediately alerts police to the presence of alcohol in the sample.

The PAS is more objective and reliable than an officer's nose. Field research at sobriety checkpoints shows that police commonly fail to detain 50–60 percent of drivers whose subsequent PBT results are 0.10 percent BACs. Use of the PAS significantly improves detection rates.

A critical issue for constitutional analysis is that the PAS is distinguishable from PBTs and evidentiary devices by the sample it collects. Because it samples the ambient air around a subject's mouth, arguably in which the subject has no privacy interest, use of the PAS may not constitute a search (Fields and Henricko, 1986). As noted above, because the PBT and evidentiary tests use a sample of unadulterated breath, they clearly implicate the Fourth Amendment. The question of whether use of a PAS constitutes a search has particular significance given the recent U.S. Supreme Court decision (*Knowles v. Iowa*, 1998).

Although the PAS has been used since the 1980s, there are no reported cases analyzing the legal issues raised by the PAS under the Fourth Amendment. Further explication of why use of the PAS should be constitutionally permissible is beyond the scope of this paper. The important point is that the PAS is a reliable tool that can and should be used early in an officer's encounter with a driver as a screening device to eliminate from suspicion drivers who have not been drinking and to focus on those who should be investigated for alcohol offenses. The PAS can also help an officer identify drivers who may be impaired by drugs other than alcohol. If impairment is evident from a driver's behavior and the PAS rules out alcohol, the officer will know to look for other impairing substances or for an underlying medical problem.

Probable Cause

The level of suspicion necessary for an arrest is probable cause. As one commentator noted, probable cause is "an exceedingly difficult concept to objectify" (Cook, 1971). Probable cause is ephemeral because it is flexible. "A finding of probable cause in any given case rarely furnishes a formula for making similar findings in other cases because probable cause depends upon the facts and circumstances of the particular case being reviewed" (*In re Armand*, 1983).

Probable cause exists when known facts and circumstances are sufficient to warrant a man of reasonable prudence in the belief that an offense has been or is being committed . . . Probable cause . . . requires a pragmatic analysis of "everyday life on which reasonable and prudent men . . . act." . . . It is to be viewed from the vantage point of a prudent, reasonable, cautious police officer on the scene at the time of the

arrest guided by his experience and training. . . . It is “a plastic concept whose existence depends on the facts and circumstances of the particular case.” It is however the totality of these facts and circumstances which is the relevant consideration. . . . Viewed singly these factors may not be dispositive, yet when viewed in unison the puzzle may fit (*United States v. Davis*, 1972).

The U.S. Supreme Court described probable cause as a “fluid concept—turning on the assessment of probabilities in particular factual contexts—not readily, or even usefully, reduced to a neat set of legal rules” (*Illinois v. Gates*, 1983).

The officer evaluates the evidence and decides whether he has probable cause for an arrest. Although post-arrest driver behavior may provide additional evidence of impairment, the most significant new piece of evidence will be the evidentiary test.

Evidential Chemical Tests

Implied consent laws provide the authority for evidential testing of blood, breath, saliva, or urine. States vary with respect to the substances that may be tested, but all permit blood and breath testing. In effect, implied consent laws establish a social contract, a quid pro quo. The state grants eligible drivers a license on condition that they consent to evidential testing when probable cause exists for an arrest for specified alcohol and driving violations. (In some states, arrest triggers the implied consent law.) The implied consent law is the expression of that contract. The penalty for violating that contract by refusing to be tested is license suspension or revocation, and some states have actually made it a minor criminal offense to refuse to be tested when properly requested to do so.

Every implied consent law describes the circumstances that trigger the obligation to be tested. The officer must either have arrested the driver for the specified offenses (the state’s equivalent of driving while intoxicated or the *per se* offense of driving with a prohibited blood alcohol concentration) or have probable cause for the arrest. Implied consent laws also are very particular with regard to the information the officer must give the driver. All require the officer to explain the consequences of refusing the test.

Implied consent laws are the linchpin of *per se* laws and administrative license revocation laws because they create the authority for the chemical test on which the other laws are based. They also are highly detailed and technical. They present a trap for the unwary because if the procedures they mandate are not followed carefully, the chemical test may be suppressed from evidence, leaving the state to rely on behavioral evidence alone at trial.

Evidentiary tests are vulnerable in other respects as well. Both the test equipment and the technicians who administer the tests must be certified, and the certifications must be current. The equipment must have been properly calibrated, and calibration records maintained. Most states require that the test must be administered within a specified time of arrest (typically two or three hours). There are detailed procedures for how the test must be administered. If a defendant demonstrates that any of these requirements were not met, the test may be held inadmissible.

In addition to defenses based on alleged violations of breath-testing procedures, test results have been challenged on more fundamental grounds. The scientific principle

underlying breath testing is Henry's Law, which states that the concentration of a volatile substance dissolved in a liquid is directly proportional to the vapor pressure of the volatile substance above the liquid. The lungs exchange gases between the blood and the atmosphere. As this occurs, alcohol in the blood is transferred into exhaled breath where it can be measured. Breath-testing equipment measures the amount of alcohol in a known amount of deep lung air and calculates from that figure the amount of alcohol in the subject's blood. The key is determining the proper ratio of alcohol found in the breath to alcohol found in the blood. The ratio used in every jurisdiction is 2100 to 1.

Defendants argue that the true ratio is dependent on factors like temperature and atmospheric pressure and, even if these factors are controlled, the actual ratio varies widely among individuals and even in the same individual. Another related argument is that the test measures the defendant's blood alcohol concentration when administered, not when the defendant was driving. These arguments can turn trials into battles between experts, especially in *per se* cases, where the offense has only two elements—operating a motor vehicle and doing so with a prohibited blood alcohol concentration.

Test evidence is used differently depending on the charge. If the defendant is charged with operating a motor vehicle while intoxicated or under the influence of alcohol, test evidence is used in conjunction with behavioral evidence of alcohol impairment. A fact finder may determine that the behavioral evidence alone is sufficient to convict, or that without regard to the ratios or other technical arguments, the breath test proves the presence of alcohol and that, along with behavioral evidence, is sufficient. However, if the defendant is charged with a *per se* offense, then the test is essential for conviction.

Authority for Testing Other Than Through Implied Consent

Although most chemical tests for alcohol or other drugs are administered under implied consent laws, the law permits other methods of testing drivers. First, one can waive Fourth Amendment rights. Drivers can voluntarily consent to testing. Second, in 1966, the U.S. Supreme Court held that involuntary testing is permissible under certain circumstances (*Schmerber v. California*, 1966). The driver, who was being treated in a hospital for injuries sustained in a crash, refused to submit to a blood test. Over his objections, the police directed a physician to take a blood sample for testing. The test results were admitted against the driver, and he was subsequently convicted of driving while intoxicated.

On appeal, he argued that the involuntary test violated the due process protections of the Fourteenth Amendment, the Fifth Amendment privilege against self-incrimination, his Sixth Amendment right to counsel, and the Fourth Amendment protection from unreasonable searches and seizures. The Court held that forcible submission to medical personnel performing the minor routine task of drawing blood did not violate due process. The appropriate test for the due process analysis was whether the police action offended our sense of justice. [In an earlier case, the Court had held that forcibly pumping a suspect's stomach was shocking and violated our sense of justice (*Rochin v. California*, 1952).]

Providing a blood sample did not constitute forcible self-incrimination because the Fifth Amendment protects persons from being required to testify. The *Schmerber* Court found nothing testimonial about providing a blood sample and noted that the Fifth Amendment did not prevent the state from using physical evidence. The distinction is that the privilege bars compelling "communications" or "testimony," but that compulsion that

makes a suspect or accused the source of “real or physical evidence” does not violate the privilege.

Similarly, no Sixth Amendment right to counsel was violated because the purpose of the right to counsel is to assist a person to assert his other rights. As there was no right to resist testing, there was no right to counsel to protect the defendant from having to submit.

As to the Fourth Amendment claim, the Court said that it could not reasonably be argued that the Fourth Amendment did not apply to the forcible extraction of blood. However, unlike the Fifth Amendment, which prohibits compelled self-incrimination in all instances, the Fourth Amendment does not prohibit all involuntary searches and seizures, just those that are held to be unreasonable. The Court found that the police had probable cause to arrest the defendant for DUI. (At the crash scene, the officer smelled alcohol on the defendant’s breath and noted that his eyes were bloodshot, watery, and glassy. These symptoms of impairment were again observed at the hospital two hours after the crash.) Although police are permitted to search persons under arrest, the taking of a blood sample does not fall in the category of search incident to arrest because it involves taking a substance from within the body. The Court balanced the state’s interest in getting the test result, which is “a highly effective means of determining the degree to which a person is under the influence of alcohol,” and the individual’s interest. It determined that the police did not have to wait for a warrant because there was no way of protecting the evidence in the interim. The factors the Court considered in identifying the individual’s interest included the routine nature of the test and lack of risk involved, the qualifications of the doctors who drew the blood, and the environment, a hospital, in which it was drawn. The Court held:

The integrity of an individual’s person is a cherished value of our society. That we today hold that the Constitution does not forbid the States minor intrusions into an individual’s body under stringently limited conditions in no way indicates that it permits more substantial intrusions, or intrusions under other conditions.

Implied consent laws may have limited the application of *Schmerber*. For example, in Maryland, the implied consent law specifically prohibits police from compelling a person to submit to testing [MD CODE ANN., (TR) 16-205.1].

Due Process

The due process clause of the Fourteenth Amendment says that no state shall “deprive any person of life, liberty, or property, without due process of law.” The Fifth Amendment also contains a similar provision.

The due process analysis requires a determination of whether the interest asserted by an individual is a life, liberty, or property interest covered by the clause. A typical DUI/DWI conviction results in fines, possible incarceration, and license suspension or revocation. It is obvious that the potential for a jail sentence implicates liberty interests and that fines implicate property interests. License suspension or revocation implicates property interests as well because the U.S. Supreme Court has recognized that driving is so fundamentally a part of our culture that we have a property interest in the continued possession of a license (*Bell v. Burson*, 1971).

If an interest triggers due process protection, then the relevant question becomes what level of process is due. This depends largely on the gravity of the individual interest at stake. Because our focus is on detecting and prosecuting alcohol-impaired-driving offenses, this discussion is confined to the due process concepts relevant to the criminal prosecution of DUI/DWI and not to the licensing issues.

In criminal cases, the state must prove each element of the crime beyond a reasonable doubt. Consequently, irrebuttable presumptions are unconstitutional because they relieve the state of its burden of proof. Defendants have argued unsuccessfully that *per se* statutes create such irrebuttable presumptions. Courts have reasoned that the *per se* offenses have only two elements: operating the vehicle and having a prohibited alcohol concentration while doing so. As long as defendants have the ability to test the state's case with regard to each element, there is no irrebuttable presumption. Defendants may challenge test accuracy on any relevant grounds (*People v. Ziltz*, 1983). Generally, the opinions find that defendants' irrebuttable presumption arguments confuse DUI/DWI with *per se* offenses. Because intoxication is not an element of the offense, driving at a prohibited alcohol concentration does not establish a conclusive presumption of DUI/DWI (e.g., *State v. O'Connor*, 1984).

Because a driver does not know his alcohol concentration at any given time, defendants have argued that *per se* laws violate due process by establishing a vague standard of conduct. Due process considerations prohibit the state from enacting laws that fail to put the public on adequate notice of what the exact conduct is that is prohibited. Repeatedly, courts have disposed of this argument on the grounds that a person is aware of whether or not he or she has been drinking and that a person who drives after drinking knowingly risks violating the law (*State v. Brock*, 1984).

The admissibility of scientific evidence also raises due process issues. Equipment that purports to measure alcohol concentrations must be based on sound scientific theories. Horizontal gaze nystagmus (HGN) evidence must be presented with the appropriate foundation, demonstrating the validity of the test and the officer's training and competence to administer it (*State v. Superior Court of County of Cochise*, 1986; *People v. Vega*, 1986). Generally, HGN is more likely to be admissible to demonstrate probable cause for an arrest than to prove intoxication or a specified alcohol concentration at trial (Ludington, 1997).

***Miranda* Rights in DUI/DWI Prosecutions**

No discussion of constitutional issues relating to detection of a crime would be complete without mention of *Miranda v. Arizona* (1966). *Miranda* was designed to protect a suspect's Fifth Amendment right not to incriminate himself and his Sixth Amendment right to counsel. It requires the government to warn defendants who are in custody of their rights under the Fifth and Sixth Amendments before asking for a waiver of those rights. Timing, therefore, is the critical *Miranda* issue. *Miranda* attaches to interrogations that occur after a person is in custody, not before. Also, *Miranda* is irrelevant if no attempt is made to interrogate an individual or to use incriminating statements the individual may have made.

The interest *Miranda* seeks to protect is the right of a person not to be compelled to testify against himself. Therefore, it does not apply to non-testimonial evidence.

Evidence of slurred speech is highly incriminating in a DUI/DWI case, but not testimonial. Similarly, asking a suspect if he or she understood instructions given regarding field sobriety or chemical tests does not constitute an interrogation that gives rise to *Miranda* (*Pennsylvania v. Muniz*, 1990).

Courts divide statements made by suspects into two categories, depending on what the state is trying to prove by admitting the evidence. If the *content* of the statement is being used against the person, the evidence is testimonial and therefore covered by the Fifth Amendment. In *Muniz*, for example, evidence of the slurred nature of the defendant's speech was admissible, but his inability correctly to tell officers the year he turned six was inadmissible, because the question probed the defendant's thought processes. HGN tests are not testimonial and cannot be suppressed because the test was administered prior to the *Miranda* warning (*Smith v. State*, 1986).

CONCLUSION

Alcohol-impaired driving is a criminal offense, created by statute. Consequently, all the constitutional rights, state and federal, that apply to any criminal defendant apply to a defendant in a DUI/DWI case. That will remain true as long as DUI/DWI remains a criminal offense or until we reinterpret our Constitution. Neither decriminalizing DUI/DWI nor eviscerating the Constitution seems likely or appropriate. What distinguishes DUI/DWI investigations from other investigations is the plethora of statutory requirements imposed on the state over and above what state and federal constitutions demand. Other panelists will address the practical problems commonly faced by police, prosecutors, and judges, many of which could be eliminated or reduced by clarifying and simplifying the relevant statutes.

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Increasing the Opportunities to Examine Impaired Drivers

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ABSTRACT

Measures of traffic safety have improved substantially during the past two decades. However, more than 40 percent of all fatal collisions still involve alcohol, and the risk of being detected when driving while impaired remains very low, despite law enforcement efforts. This paper discusses enforcement strategies and research results intended to increase opportunities for law enforcement officers to detect and arrest impaired drivers. Driving while impaired detection, sobriety checkpoints, and specific patrol tactics are addressed.

INTRODUCTION

Nearly 1.4 million people have died in traffic crashes in the United States since 1966, the year of the National Traffic and Motor Vehicle Safety Act, which led to the creation of the National Highway Traffic Safety Administration (NHTSA) in 1970. During the late 1960s and early 1970s, more than 50,000 people lost their lives each year on our nation's public roads; more than half of the motorists killed had been drinking. Traffic safety has improved considerably since that time: The annual death toll has declined to about 40,000, even though the numbers of drivers, vehicles, and miles driven all have greatly increased. The dramatic improvements in traffic safety are reflected in the change in fatality rate per 100 million vehicle miles traveled: The fatality rate fell from 5.5 in 1966 to 1.7 in 1996 (Fatal Analysis Reporting System, 1996), a 69 percent improvement. Figure 1 illustrates this important trend. When miles traveled are considered, the likelihood of being killed in traffic in 1966 was more than three times what it is today.

There have been significant improvements in traffic safety during the past 17 years; however, an average of more than 115 people still die *each day* from motor vehicle crashes in the United States. It is estimated that 41 percent of drivers who die in crashes have been drinking. Despite law enforcement efforts, the risk of detection when driving while impaired (DWI) is relatively low. Professor Borckenstein estimated the rate 20 years ago as one DWI¹ arrest for every 2,000 trips at blood alcohol concentrations (BAC) greater than 0.10 percent; more recently, Ross (1992) estimated the risk to be as low as one in 5,000 miles driven.

¹ Various terms are used throughout the United States for offenses involving drinking and driving. In this paper, driving while impaired (DWI) is used to refer to all occurrences of driving at or above the legal blood alcohol concentration (BAC) limit of a jurisdiction.

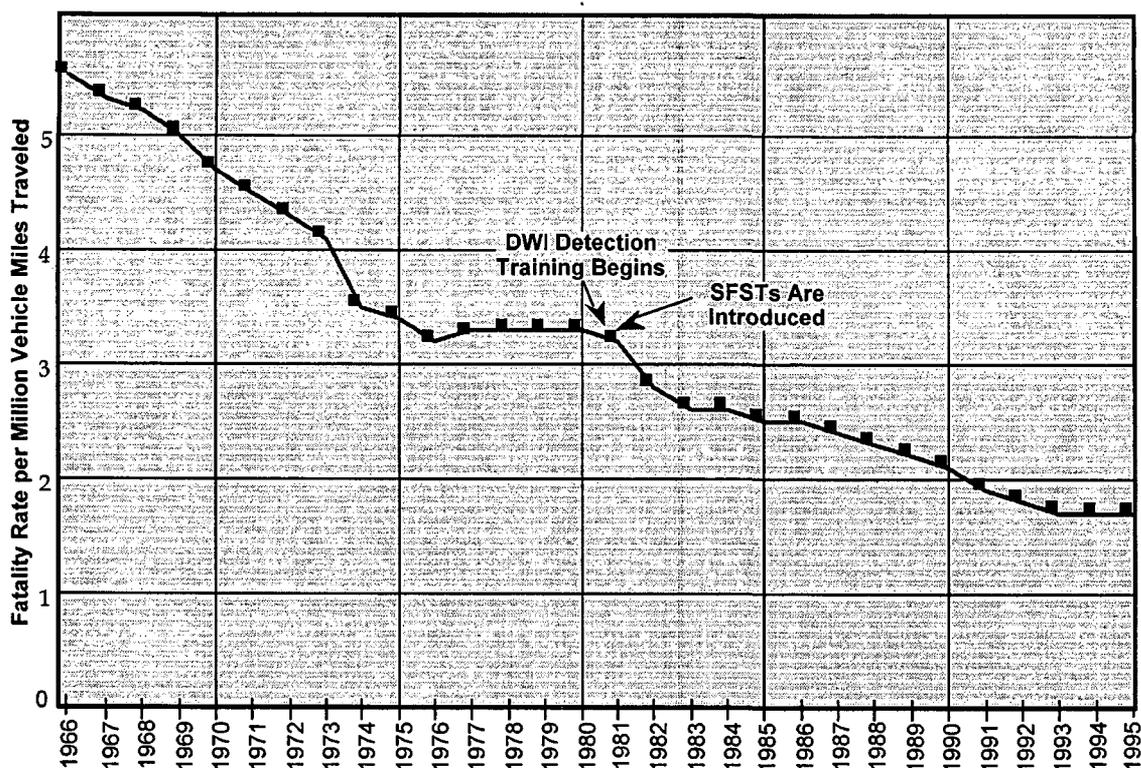


FIGURE 1 Fatality rates per million miles traveled in the United States.

STRATEGIES FOR INCREASING DWI DETECTION

Impaired drivers are detected and DWI arrests are made as a consequence of collision investigations, special events policing, traffic enforcement patrols, routine patrols, DWI patrols, and sobriety and driver's license checkpoints. Occasionally, law enforcement officers are directed to impaired motorists by concerned citizens and emergency medical personnel. However, most DWI arrests are made by officers on traffic enforcement, routine patrols, and special DWI patrols.

Officers who focus on DWI enforcement develop strategies to improve the efficiency of their operations. Most of the strategies are intended to increase the probability of encounters with impaired drivers, for example, by patrolling a course that includes bars and restaurants that are known or suspected to contribute to drinking and driving. Officers have reported in interviews that they consider it unsportsmanlike to "camp out" near a particular establishment and wait for a patron to drive away; proprietors complain that this tactic has resulted in some establishments going out of business.

Although most officers refrain from "sitting on a bar," they routinely make mental notes of vehicles parked near certain establishments. When they later observe a previously noted vehicle departing the location, or encounter it on the road, the officers often attempt to predict the driver's BAC by calculating the time spent at the bar and estimating the number of drinks that were consumed. Estimates sometimes can be made without a confirmed duration. For example, a tradesman's truck or van parked outside a bar at 8:00 p.m. might suggest to an experienced officer that the driver has been drinking since leaving a work site about four hours earlier. Officers' estimates can be uncannily

accurate. Patrolling areas in which bars are located, noting the presence of vehicles, and later stopping the vehicles for legitimate cause is a rational DWI detection strategy; devising strategies and predicting BACs on the basis of indirect evidence simply make the job more interesting for the officers.

Most special DWI enforcement consists of roving patrols, of the type just described, in which officers concentrate their efforts on detecting and processing DWI motorists. Like fishermen who return to previously successful fishing spots, roving patrol officers typically focus their efforts on areas in which DWI arrests have been made or crashes have occurred. Patrol strategies include cruising a circuit of hazardous areas and drinking locations while looking for vehicle code violations and other DWI detection cues. Experienced officers usually inspect the faces of oncoming drivers for the signs of alcohol impairment, in addition to evaluating driving performance from behind. Roving DWI patrols often respond to traffic collisions to determine if alcohol was involved, and they occasionally respond, along with other patrol units, to complaints about loud or wild parties; these responses are more to evaluate the driving performance of those leaving the party than to assist with noise control.

Roving DWI patrols typically are deployed at 2100 hours and relieved at 0300 hours the next morning; it has been my experience that between three and four hours are spent on patrol each night, while the remaining two to three hours are consumed by the paperwork and other processing tasks associated with DWI arrests. Roving DWI patrols are distinguished from "saturation patrols," which might focus on enforcement of DWI or other infractions, are geographically limited in scope, and usually are conducted by a large number of patrol units at a time. Some agencies periodically support special DWI patrols, such as saturation patrols, with facilitated booking systems (e.g., mobile command posts equipped with breath-testing equipment and staffed by personnel to assist in the processing of arrests). Facilitated booking of DWIs permits officers to spend more time in the field, increasing opportunities to encounter impaired drivers and to make more DWI arrests per shift.

Most DWI enforcement strategies, appropriately, focus on increasing the probability of contacts with adult impaired drivers. Anecdotal accounts and research evidence suggest that adult-focused DWI strategies are incompatible with the drinking and driving patterns of young drivers. Preusser et al. (1992) found that drivers under 21 years of age were involved in fatal, alcohol-involved crashes at rates at least twice that of drivers 25 years of age and older; young drivers, however, were underrepresented in the numbers of DWI arrests. The disproportionate representation of youth in alcohol-involved DWI arrest rates is attributable, in part, to a mismatch of traditional DWI enforcement strategies and the drinking and driving patterns of youth. Because underage drinking is illegal, it is more likely to occur at a residence or at the beach, the river, or some other out-of-the-way place than in a bar or restaurant. The locations where youth drink, and the routes to and from those locations, tend not to be included in adult-focused DWI patrols. The danger associated with underage drinking and driving is compounded by a tendency to consume all the alcoholic beverage available (usually because it cannot be stored), and other factors, such as an undeniable lack of driving experience and skill and youthful delusions of immortality.

An emphasis on DWI enforcement since 1980 has been a factor in the significant improvement in traffic safety, as represented by declining fatal and alcohol-involved crash rates. NHTSA-sponsored research contributed substantially to the improved condition, in

part by providing patrol officers with useful and scientifically valid information and training materials concerning the behaviors that are most predictive of impairment. In particular, NHTSA sponsored research that led to the development of a DWI detection guide that listed 20 driving cues and the probabilities that a driver exhibiting a cue would have a BAC of at least 0.10 percent (Harris et al., 1980; Harris, 1980). A similar study was conducted recently that identified 24 driving cues that are predictive of DWI at the 0.08 level (Stuster, 1997). NHTSA also sponsored research that led to the development of a motorcycle DWI detection guide (Stuster, 1993). NHTSA's DWI training materials, based on the results of these studies, have exposed the current generation of law enforcement officers in the United States to information critical to DWI enforcement by providing a systematic, scientifically valid, and defensible approach to on-the-road DWI detection.

At the same time NHTSA was providing patrol officers with information concerning the driving behaviors that are the most predictive of impairment, the agency also sponsored research that led to the development of a standardized battery of tests for officers to administer to assess driver impairment after an enforcement stop has been made (Burns and Moskowitz, 1977). Beginning in 1980, officers from across the United States have been trained to detect impaired drivers on the road and to make informed DWI-arrest decisions. NHTSA has maintained an emphasis on DWI by sponsoring additional research to develop and evaluate procedures and technologies to counter impaired driving. The following paragraphs describe a few of the studies intended to assist officers in the detection of impaired drivers.

ON-THE-ROAD DWI DETECTION

The field detection of DWI by law enforcement officers is a problem of subtlety and complexity. As a consequence of observing and interpreting one or more operator behaviors, a patrol officer typically assesses the likelihood that a driver is DWI or otherwise impaired. This assessment then is combined with other information to reach an enforcement decision—to stop the vehicle or to continue with the patrol. Either decision might be incorrect. A decision to stop might result in the apprehension of a sober motorist (a false detection); a decision to permit the motorist to continue on his or her way might result in an undetected DWI—perhaps even a traffic collision that could have been prevented by police intervention.

An *ideal* cue always would lead to a correct decision. When an ideal cue is present, the probability of DWI detection is 1 (a certainty); when the cue is not present, the probability of DWI detection is 0 (also a certainty). Conversely, when nighttime drivers are tested randomly for BAC, the probability of detection (BAC = 0.08 percent) might be only about 0.04, while the probability of false detection would be 0.96. Between the certainty of the hypothetical ideal cue and the probabilities of random detection, an officer's decision to apprehend involves the observation and interpretation of visual cues and other information, and the subsequent trade-off between the value of a correct detection and the cost of a false detection. The factors involved in the trade-off and the post-detection apprehension process establish requirements and criteria for DWI detection. In short, the detection process should employ visual cues that occur frequently with DWI at the lower statutory limits, are most capable of discriminating between DWI and sober operation, are simple to understand, and are easy to use by patrol officers.

Operation of a motor vehicle is a multi-dimensional task; the operator must divide his or her attention between maintaining proper lane position and speed while monitoring the environment for other vehicles' movements, traffic lights, and signs. When operator attention is divided, reaction time degrades as BAC is increased. Alcohol slows the central processing of visual information; the operator's eyes fixate for longer periods as BAC increases, apparently reducing the stimuli perceived per unit of time. This ultimately results in the "gazing" effect characteristic of higher BACs (Moskowitz et al., 1976; Moskowitz, 1973) and contributes to performance degradation. This physiological process is translated into several observable driving cues. Other driving cues result from alcohol's effect on judgment and decision-making capabilities.

In the original NHTSA-sponsored research on DWI detection, Dr. Douglas Harris focused on the tasks performed by both drivers and officers on patrol (Harris et al., 1980). The focus on task performance led to a systems approach to the research, involving interviews with experts, analysis of DWI arrest reports, ride-along observations, BAC testing, development of prototype detection guides, and field evaluation. A key element of this approach is the collection of driver data for all enforcement stops that are made, regardless of the dispositions of the stops. Collecting data about all observations of a driving cue permits the calculation of proportions of stops in which the cue was found in association with an illegal BAC level; validated proportions become the probabilities of DWI when observed on the road. The original NHTSA-sponsored research resulted in the creation of the DWI detection guide shown in Figure 2 and in a training booklet and film. These materials have instructed many thousands of law enforcement officers in the cues

DWI DETECTION GUIDE	
Chances in 100 of nighttime driver with BAC equal to or greater than .10	
TURNING WITH WIDE RADIUS	65
STRADDLING CENTER OR LANE MARKER	65
APPEARING TO BE DRUNK	60
ALMOST STRIKING OBJECT OR VEHICLE	60
WEAVING	60
DRIVING ON OTHER THAN DESIGNATED ROADWAY	55
SWERVING	55
SLOW SPEED (MORE THAN 10 MPH BELOW LIMIT)	50
STOPPING (WITHOUT CAUSE) IN TRAFFIC LANE	50
FOLLOWING TOO CLOSELY	50
DRIFTING	50
TIRES ON CENTER LANE MARKER	45
BRAKING ERRATICALLY	45
DRIVING INTO OPPOSING OR CROSSING TRAFFIC	45
SIGNALLING INCONSISTENT WITH DRIVING ACTIONS	40
SLOW RESPONSE TO TRAFFIC SIGNALS	40
STOPPING INAPPROPRIATELY (OTHER THAN IN LANE)	35
TURNING ABRUPTLY OR ILLEGALLY	35
ACCELERATING OR DECELERATING RAPIDLY	30
HEADLIGHTS OFF	30

Special adjustment to the cue values

- 2 or more cues observed: add 10 to the larger value
- BAC equal to or greater than .05: add 15 to the value obtained for BAC equal to or greater than .10

FIGURE 2 DWI Detection Guide (Harris et al., 1980).

associated with DWI at 0.10 percent BAC and greater. The research contributed immensely to law enforcement's capability to counter drinking and driving by providing officers with formal training about scientifically valid DWI cues. The training sensitized officers to the driving behaviors indicative of DWI. The scientific approach to the research, and the formal training of officers, gave credibility to officers' statements on arrest reports and testimony in court.

Widespread acceptance of the DWI detection training materials by law enforcement agencies and the courts prompted NHTSA to sponsor research to support the development of similar materials focusing on motorcycle DWI. The study began with interviews of patrol officers from across the United States concerning the riding behaviors they had found in association with DWI. A data base containing nearly 1,000 motorcycle DWI arrest reports was assembled and analyzed, and three separate field studies were conducted. The field studies involved the participation of 50 law enforcement sites, representing 19 separate agencies in eleven states (Stuster, 1993).

Data were collected during the field studies concerning all enforcement stops made of motorcyclists, regardless of the disposition of the stops. Proportion of the total number of stops in which specific cues were observed in association with DWI were calculated. A preliminary detection guide and training materials were tested during the 1991 riding season in an extensive validation study. It was found that use of the detection guide and exposure to the training materials substantially improved the abilities of law enforcement officers to detect impaired motorcyclists, especially on the cues dependent on balance and vigilance skills. Many officers reported that before participating in the field study, they rarely arrested motorcyclists for DWI, except at crash scenes. However, after viewing the training video, they began stopping motorcyclists for the DWI cues and making arrests, they believed, before crashes occurred.

A Motorcycle DWI Detection Guide, associated booklet, and 12-minute training video were developed to present the 14 rider behaviors that were found to best discriminate between impaired and unimpaired operation of a motorcycle. The cues are presented in two categories. Excellent Cue Predictors (cues with a DWI probability of 50 percent or greater) are drifting during turn or curve, trouble with dismount, trouble with balance at a stop, turning problems, inattention to surroundings, inappropriate or unusual behavior, and weaving. Good Cue Predictors (cues with DWI probabilities of between 30 and 49 percent) are erratic movements while going straight, operating without lights at night, recklessness, following too closely, running a stop light or sign, evasion, and wrong way. The Motorcycle DWI Detection Guide is presented in Figure 3.

NHTSA sponsored a third DWI detection study in 1993, in response to the increasing number of states adopting a 0.08 percent BAC limit for DWI. The research included a comprehensive review of the low BAC literature, interviews with DWI experts from across the United States, development of a data base of low BAC arrest reports, and conduct of three field studies. The analysis of archival, interview, arrest report, and field data led to the development of a draft DWI detection guide, training booklet, and training video for evaluation; the materials included 24 driving and 10 post-stop cues.

Law enforcement agencies representing the 11 states that, at the time, had 0.08 percent BAC limits for DWI participated in the validation study. Officers reviewed the video and printed training materials and then completed a data collection form following every enforcement stop made. Data were collected during more than 12,000 enforcement

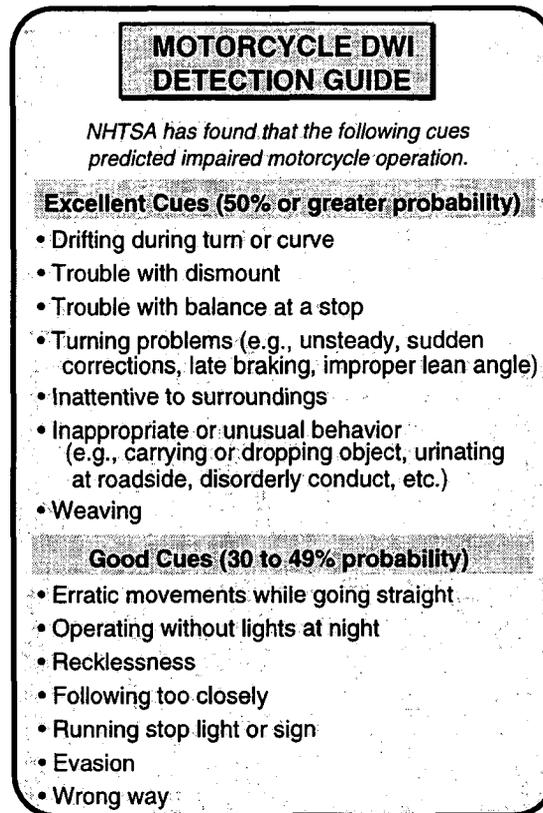


FIGURE 3 Motorcycle DWI Detection Guide (Stuster, 1993).

stops during this research project. The stops were made by several hundred officers, representing more than 50 law enforcement agencies from across the United States.

A feature that distinguishes this study from previous DWI detection research was our effort to obtain low BAC data to identify any driving cues that are reliable predictors of alcohol impairment at lower BAC levels. BACs were measured and recorded by officers during the preliminary field study for all drivers who were found to exhibit any objective sign of alcohol consumption (including the faint odor of an alcoholic beverage on the breath). Although the proportions and, by extrapolation, the probabilities increase at the lower BAC levels, it is important to question to what extent the inclusion of lower BAC data contributes to a particular cue's probability of detecting a drinking driver. In other words, "Are there any good predictors of low BAC levels?"

Figure 4 summarizes an analysis of the low BAC data obtained during the preliminary field study. The seven cues listed in the figure are those that met the criteria of having been observed at least 15 times during the preliminary study, with a probability (p) value of at least 0.30 at the 0.08 level. The figure shows that the low BAC occurrences of the cues do not contribute much to the p values at the lower BAC levels, compared with the occurrences above the 0.08 level. For example, data from the preliminary field study indicated that the probability of finding a driver at the 0.08 level or above by stopping vehicles for all traffic infractions or behaviors was 0.025, or 2.5 percent (i.e., 125 divided by 5,091). However, the probability of a BAC equal to or greater than 0.08 percent was 41.4 percent if the vehicle was observed straddling a lane line; the probability increased to 47.6 percent if the vehicle was observed

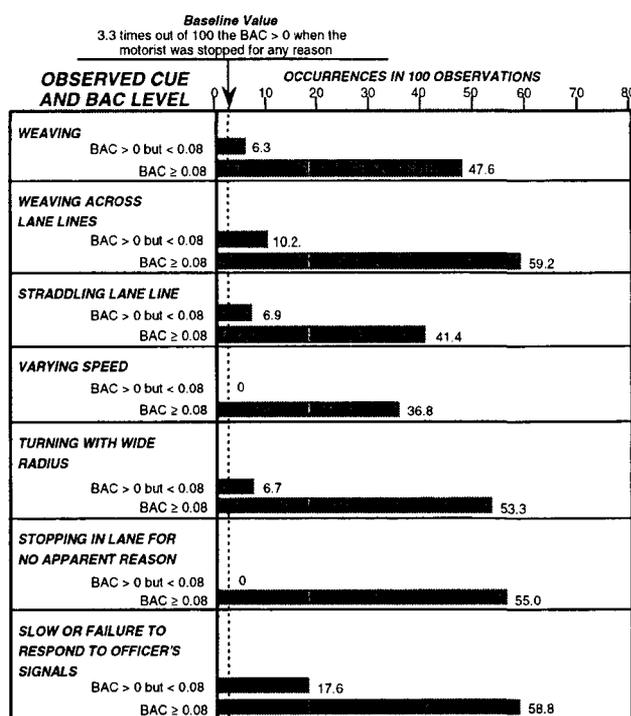


FIGURE 4 Contributions of low BAC cases to probabilities for key cues.

weaving; and the probability jumped to 59.2 percent if the vehicle was observed to weave across lane lines. These cues discriminate between alcohol impairment and unimpaired driving and provide substantial improvement in the DWI-detection capabilities of an observer.

Similarly, it can be calculated that the probability of finding a driver with a BAC *greater than zero* by stopping vehicles for any traffic infraction or behavior was 0.033, or 3.3 percent (i.e., 169 divided by 5,091). However, the probability of finding a driver with a BAC *greater than zero but less than 0.08 percent* was only 0.009, or slightly less than 1 percent (i.e., 44 divided by 5,091—44 is the number of drivers with BACs within these limits during the field study). Together, these data show that the low probability of detection at the low BAC levels contributes little to overall probability, even when cues that discriminate at the 0.08 level are observed. In short, the cues that are key predictors of DWI at the 0.08 percent BAC level fail to emerge with useful *p* values at the lower BAC levels (e.g., 6.3 percent for weaving).

The results of the validation study further confirmed the key cues that were contained in the original NHTSA guide, a few additional driving cues, and 10 post-stop cues. The DWI driving cues were presented in functional categories in both the printed materials and the training video: Problems Maintaining Proper Lane Position, Speed and Braking Problems, Vigilance Problems, and Judgment Problems. Slight modifications were made to the draft training materials, based on the results of the validation study. The final version of the DWI detection guide is presented in Figure 5.

The new DWI detection guide and training program are distinguished from the previous materials in several ways. One of the most important distinctions is a shift from the detection of “drunk” drivers, the objective of the original program, to the detection of

DWI DETECTION GUIDE

Weaving plus any other cue: p = at least .65
Any two cues: p = at least .50

PROBLEMS MAINTAINING PROPER LANE POSITION p=.50-.75

- Weaving • Weaving across lane lines
- Straddling a lane line • Swerving
- Turning with a wide radius • Drifting
- Almost striking a vehicle or other object

SPEED AND BRAKING PROBLEMS p=.45-.70

- Stopping problems (too far, too short, or too jerky)
- Accelerating or decelerating for no apparent reason
- Varying speed • Slow speed (10+ mph under limit)

VIGILANCE PROBLEMS p=.55-.65

- Driving in opposing lanes or wrong way on one-way
- Slow response to traffic signals
- Slow or failure to respond to officer's signals
- Stopping in lane for no apparent reason
- Driving without headlights at night*
- Failure to signal or signal inconsistent with action*

JUDGMENT PROBLEMS p=.35-.90

- Following too closely
- Improper or unsafe lane change
- Illegal or improper turn (too fast, jerky, sharp, etc.)
- Driving on other than the designated roadway
- Stopping inappropriately in response to officer
- Inappropriate or unusual behavior
- Appearing to be impaired

POST STOP CUES

p = .85

- Difficulty with motor vehicle controls
- Difficulty exiting the vehicle
- Fumbling with driver's license or registration
- Repeating questions or comments
- Swaying, unsteady, or balance problems
- Leaning on the vehicle or other object
- Slurred speech
- Slow to respond to officer/officer must repeat
- Provides incorrect information, changes answers
- Odor of alcoholic beverage from the driver

* p=.50 when combined with any other cue:

- Driving without headlights at night
- Failure to signal or signal inconsistent with action

The probability of detecting DWI by random traffic enforcement stops at night has been found to be about three percent (.03).



NTSA
People Saving People

FIGURE 5 DWI Detection Guide developed by Stuster, 1997.

“impaired” drivers. The cues that emerged from the recent study apply to drivers with BACs of 0.08 percent and greater, and to be instructive and credible, the cues were illustrated as realistically as possible. For example, the illustration of weaving was of the type associated with a BAC of 0.08 percent, rather than the extreme weaving portrayed in the original training materials. The new DWI detection materials also reflect a shift in emphasis from the probabilities of DWI to functional categories of related cues. Many officers reported during interviews that all cues on the guide are considered equally important, regardless of differential probabilities, and, occasionally, officers’ testimonies have been challenged when they could not recall the probabilities of specific cues. The emphasis on categories of impaired driving behavior was intended to relieve officers of the requirement to memorize 34 specific probabilities. Finally, including post-stop cues in the detection guide was intended to provide officers with additional, scientifically valid information to help make, and later support, arrest decisions.

Several officers who were interviewed during the study mentioned that, when they describe a motorist’s post-stop behaviors in court, they are often challenged by defense attorneys because information about post-stop cues usually is not included in DWI training. An officer’s extensive field experience, and a driver’s obvious signs of impairment, can be excluded from consideration because training based on empirical data about post-stop cues has been lacking. For this reason, 10 of the 41 post-stop behaviors that emerged from the ride-along field study were recommended for inclusion in the preliminary and validation field studies, and ultimately in the final versions of the training materials.

Only 10 of the post-stop cues were recommended, for a variety of reasons. For example, the behaviors that relate to attitude provided conflicting guidance—as many drivers were found to be argumentative as cooperative. Furthermore, 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., an 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, although 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.

DWI DETECTION AT SOBRIETY CHECKPOINTS

The purpose of sobriety checkpoints is to deter motorists from driving while impaired. The deterrent effect of checkpoints is based on the accurate detection of DWI and public perceptions of risk. Compton and Engle's (1983) brief review for NHTSA was the earliest technical account of sobriety checkpoints (called roadblocks) as a general deterrence approach to DWI in the United States; they summarized the early sobriety checkpoint efforts of the Delaware, Maryland, New York, and Arizona state police agencies (and a few local departments) and discussed the most salient issues concerning the conduct of sobriety checkpoints. Chief among the issues was the legality, specifically the constitutionality, of stopping motorists without probable cause for suspicion of criminal activity. The question of constitutionality retained its salience until June of 1990, when the U.S. Supreme Court settled the matter by supporting a DWI arrest made at a checkpoint by the Michigan State Police. But to many people, including many law enforcement officers, sobriety checkpoints represent an infringement of constitutional guarantees.

Several evaluations of checkpoint programs have been published since the initial NHTSA review. Epperlein (1985) studied a brief checkpoint experiment in Arizona; Mercer (1984) reported on the impact of high-visibility "roadcheck" activity in British Columbia (between 1977 and 1980); Williams and Lund (1984) evaluated the impacts of checkpoint programs in Delaware; Voas et al. (1985) evaluated a checkpoint program in Charlottesville, Virginia; Levy (1988) and Levy et al. (1989) evaluated a checkpoint program in New Jersey; and Lacey et al. (1990) describe checkpoint programs in Clearwater and Largo, Florida (which are combined with roving patrols called "wolfpacks") and previous DWI countermeasure efforts that included checkpoints in Indianapolis, Indiana.

In a study evaluating screening procedures for police officers at sobriety checkpoints, cues noticed by officers were correlated with the BAC levels of the drivers. Compton (1985) found significant differences in stopping behavior. In general, drivers stopped smoothly at

low BAC levels (0.00–0.04) and “jerkily” at higher BAC levels (0.10–0.15). Drivers with a low BAC did not swerve; those with higher BACs (greater than 0.10) did swerve.

The results of the early studies showed that checkpoint programs might deter drinking and driving, at least temporarily. However, most of the previously conducted sobriety checkpoint programs involved relatively infrequent scheduling of checkpoints. For example, in the early program evaluated by Epperlein (1985), only two checkpoints in each of three sites were conducted, and the Clearwater/Largo study conducted by Lacy et al. involved 12 checkpoints during a 15-month period. Only the programs documented by Williams and Lund (1984) and Voas et al. (1985) were characterized by what might be called a vigorous program of sobriety checkpoints (i.e., 30 to 50, and 94 per year, respectively). Both of these studies found some improvement in traffic safety measures that were attributed to the checkpoint programs. But the studies were conducted more than a decade ago when sobriety checkpoints were novel, extremely controversial, and newsworthy.

In 1991, NHTSA sponsored research to systematically evaluate the absolute and relative effectiveness of different checkpoint configurations and to compare the effects of checkpoint and roving patrol programs with a comparison site that received no special treatment (Stuster and Blowers, 1995). Six California communities participated in the study. Four of the communities' police departments implemented programs of sobriety checkpoints; the checkpoint configurations varied in terms of staffing level (three to five officers versus eight to twelve) and mobility of the checkpoints (remaining in one location for the evening versus three sequential locations within the city). The fifth community's police department implemented a program of aggressive roving patrols that focused on DWI enforcement. The sixth community refrained from implementing any special DWI enforcement effort for the duration of the project and served as the experimental comparison site; statewide totals (minus the project communities) provided additional comparison. The level of effort devoted to the roving patrols was equal to the officer hours required to operate the high-staffing level checkpoints.

The primary dependent measure of program impact was the proportion of all injury and fatal crashes that was alcohol-involved (BAC greater than 0.01). No significant differences in effectiveness of the four sobriety checkpoint programs were found. However, interrupted time series analyses found significant declines in alcohol-involved crashes in the checkpoint communities; while the statewide totals declined, alcohol-involved crashes in the checkpoint communities declined, on average, at a rate three-and-a-half times the combined rate of all other communities in the state.

Further evidence of the deterrent effects of the checkpoints was found in the declining arrest rate during the programs. The programs began with a combined arrest rate of approximately .008, or about four DWI arrests per 500 vehicles contacted, but by the mid-points of the programs the rate had fallen to .004, or two arrests per 500 vehicles. The arrest rate declined to .0019, or about one DWI arrest per 500 vehicles, by the end of the nine-month programs; that is, fewer arrests were made, despite increasing numbers of vehicle contacts, as illustrated by Figure 6.

Officers maintained high levels of vigilance and motivation throughout the checkpoint programs. Proficiency in detecting DWI cues in the approach lanes increased with experience. Officers closely monitored all approaching vehicles and even the slightest deviation from (what officers' considered to be) normal driving behavior immediately was

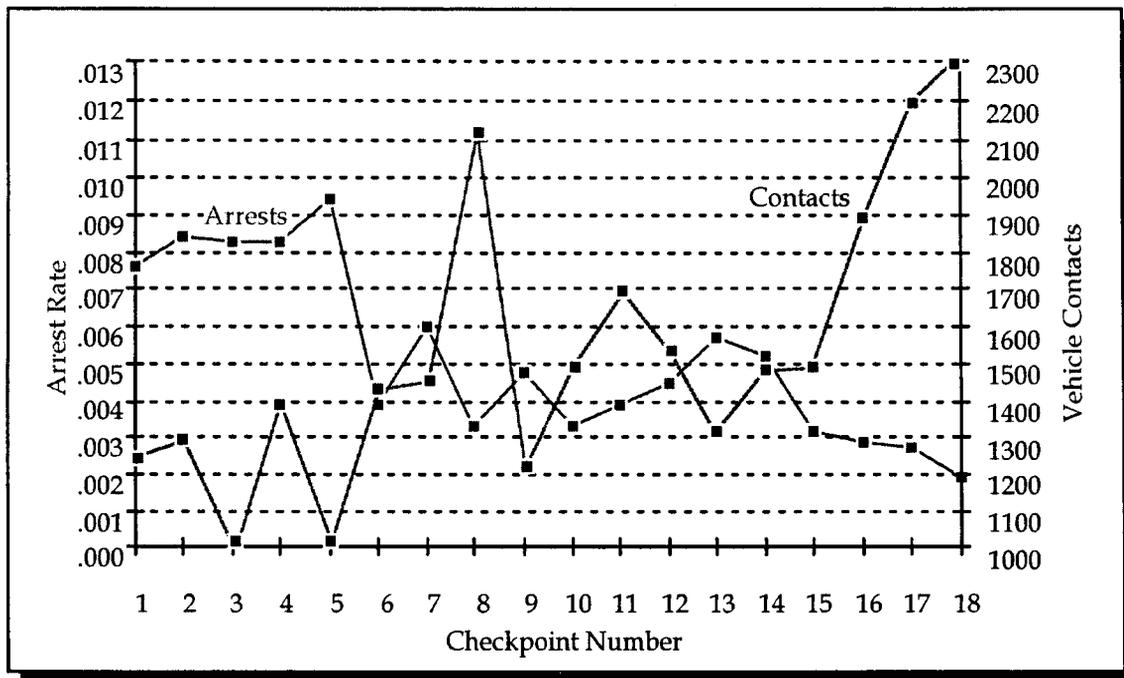


FIGURE 6 Number of DWI arrests and vehicle contacts in four sobriety checkpoint programs (based on data from Stuster and Blowers, 1995).

interpreted as possible evidence of a DWI. Sudden braking and lateral excursions were the most frequently observed driving cues. Officers initially interpreted attempts by motorists to avoid checkpoints by turning before reaching the approach lane to be clear evidence of DWI. This proved not to be the case, as many of the drivers had other reasons for wishing to avoid contact with law enforcement (e.g., illegal alien status).

Officers also scrutinized approaching vehicles for other signs of possible DWI, including furtive movements of the driver or passengers. There were many encounters with vehicles during the 72 checkpoints conducted as part of this study in which officers were initially certain of DWI arrests, based on the number of passengers in a vehicle, their demeanor, and the proximity of the checkpoint to well-known drinking establishments. Officers usually were correct in their predictions during the first few checkpoints but were surprised, and at first disappointed, to find with increasing frequency, sober, designated drivers rather than the expected DWIs.

DEVELOPMENT OF AUTOMATED PROCEDURES FOR ASSESSING THE BEHAVIOR OF DRIVERS APPROACHING CHECKPOINTS

The difference between sobriety checkpoints and roving DWI patrols is analogous to the difference between trapping and hunting strategies among commercial fishermen. For example, lobster fishermen, crab trappers, and most gillnetters deploy their gear in locations known to be inhabited by the target species, in much the same way that checkpoints are set up at locations known for DWI arrests or alcohol-involved crashes. In contrast, some fishermen adopt a hunting strategy by searching for indicators of fish by both visual and technical means, then pursuing their prey, in the same manner that roving

patrol officers search for, then stop, motorists who exhibit DWI cues. The trapping strategy is fundamentally passive and dependent upon the appearance of targets in the area; the hunting strategy is not. Hunters can increase their catch by increasing their effort with the same amount of equipment (e.g., spending more time “on the grounds,” prospecting new areas); the means for trappers to increase their catch is to increase the amount of gear deployed. If we continue the analogy, roving patrols can increase their DWI arrest rate by improving the efficiency of their effort (e.g., spending less time completing paperwork and more time on the road “prospecting” new areas for impaired drivers, such as the out-of-the-way locations of underage drinking). In contrast, checkpoint programs rarely experience increasing arrest rates; a declining arrest rate is a measure of a checkpoint program’s deterrence on drivers. However, to be effective deterrents, checkpoints must be perceived by the public to substantially increase the probability of detection and arrest for those driving while impaired.

Several factors can contribute to some alcohol-impaired drivers passing undetected through sobriety checkpoints, including high officer workloads and increasing reluctance by officers to inhale the breath of hundreds of motorists. Automated DWI detection might contribute to public perceptions of arrest risk and materially assist officers, especially if sensors can detect subtle patterns of vehicle movements that are not readily apparent to human observers. For these reasons, NHTSA is sponsoring research to explore the possibility of automatically detecting impaired drivers in the approach lanes of sobriety checkpoints.

Research conducted under this contract has identified the vehicle movements characteristic of alcohol-impaired driving and a technology that promises the accuracy necessary to measure those movements (i.e., lateral displacement, speed and braking). The system that presently is under development has at its heart a laser speed gun, similar to those used by law enforcement agencies across the United States. Instead of remaining focused on a target vehicle, however, the laser’s beam sweeps across the lane from left to right, then back, firing 90 times during each scan (45 times per sweep). A vehicle reflects the infrared pulses when it enters the field of view of the scanning laser (beginning at a range of about 300 feet); the ranges to the vehicle and the associated angles (from the laser to the vehicle) are obtained from these optical returns as the laser sweeps across the lane. Because all the ranges and angles are known, the distance of the vehicle’s edge from the lane line can be calculated twice each scan. The scanning laser sweeps across the lane and back approximately three times each second. The prototype scanning laser has been designed to be located at the side of the road (on a low tripod); a laptop computer is connected by cable to perform system calibration and data acquisition.

The next step in this research and development project will be to conduct a controlled field test using dosed drivers at a simulated checkpoint. The purpose of the controlled field test will be to determine if drivers exhibit measurable driving behavior that can be correlated with BAC level. Analyses will include vehicle movement variables of (1) lateral displacement (lateral position, and the frequency and amplitude of excursions), and (2) vehicle speed (speed at acquisition, speed at points within the approach lane, and changes in speed). Analyses will attempt to identify vehicle movements and patterns of variables that correlate with BACs = 0.08 percent, and if possible, lower BAC levels. In this regard, the scanning laser system is distinguished from other efforts to detect DWI using

advanced technology by directly assessing driving performance, rather than searching for other, indirect measures of possible DWI.

The test plan has been approved by NHTSA's Human Use Review Panel and the controlled field test will be conducted in October 1998. If meaningful correlations are found during the controlled field test, the ultimate product of this research program will be an automated system to assist officers in screening alcohol-impaired drivers at sobriety checkpoints. The ultimate system might be slightly larger than a conventional laser speed gun and incorporate real-time processing and decision-aiding functions.

CONCLUSIONS

Operating a motor vehicle involves the performance of divided-attention tasks for which humans are poorly suited. A driver must attend to several sources of information, using all sensory modalities. The driver must process the information, make a continual series of decisions, and translate those decisions into control adjustments, primarily involving speed and direction. Driving errors are common under optimum conditions, and even minor errors and misjudgments can be fatal. The probability of error is greatly increased when driver performance is impaired by alcohol.

An alcohol-impaired driver can exhibit impairment to on-the-road observers in several ways. Specifically, judgment can be impaired, causing a driver to follow another vehicle too closely, make an unsafe lane change, or perform other inappropriate acts. A driver's ability to process information can be impaired, resulting in speed and braking problems, and problems associated with degraded vigilance. Impairment also is evident in problems maintaining proper lane position, for example, weaving or turning with a wide radius.

Focusing on the tasks performed by drivers on the road has permitted us to identify 24 visual cues that are highly predictive of DWI. However, the visual cues available to detect impaired drivers as they approach a sobriety checkpoint are limited by the constrained driving conditions to vehicle speed, change in speed, vehicle lateral displacement, and change in lateral displacement. Because these vehicle movement variables are among the most predictive on-the-road DWI cues, it is possible they will emerge as useful measures of driving impairment when observed unobtrusively by an automated decision-aiding system.

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Comments on “Increasing the Opportunities to Examine Impaired Drivers”

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INTRODUCTION

The detection of impaired drivers is a fundamental component of legal efforts to deal with the drinking-driving problem. It lies at the heart of effective deterrence. As Larry Ross so aptly pointed out, effective deterrence depends on the certainty, swiftness, and severity of punishment. By most standards, the punishments are considered severe. Administrative license suspension has undoubtedly enhanced the swiftness of punishment. But despite our efforts over the past 20 years, the certainty of being apprehended and punished remains relatively low.

Years ago, Bob Borkenstein estimated that 1 out of 2,000 impaired drivers was arrested. More recently, using data on self-reported drinking and driving combined with police arrest data, we estimated that the ratio was closer to 1 out of 500. Whatever the actual rate, chances are an impaired driver is not going to get caught. The bottom line is that the probability of arrest remains low. As long as the arrest rate is low and the public perceives the chances of arrest as low, we will not achieve true effective deterrence.

There are two choices: increase the perceived likelihood of arrest and increase the actual likelihood of arrest. There are some good examples of how the perceived likelihood of arrest can be increased. But unless you can fool a lot of the people for a long time, the ruse will be short-lived, and the benefits temporary. Hence, this workshop deals with strategies and techniques that will facilitate the detection of considerably more than one impaired driver out of 2,000.

COMMENTS

Jack Stuster presents a commendable overview of the first phase involved in the detection of impaired drivers. This can be referred to as the “active” phase. This occurs while the drinking driver is operating the vehicle. This phase is to be distinguished from the “post-active” or “stopped vehicle” phase, which begins when the police officer has selected the vehicle from the traffic stream and the “postmortem” (or adjudication) phase, which involves the examination of the evidence by the court.

There are two aspects of the “active” phase of detection discussed in the paper: (1) increasing opportunities for interacting/observing/detecting impaired drivers (increased surveillance); and (2) increasing the probability of stopping a driver who is impaired (increased efficiency).

My comments focus on the first aspect, but not before commenting on the second. I applaud the approach NHTSA has taken in funding research to increase the efficiency of detection. The determination of objective cues and driving behaviors associated with impaired driving is a laudable approach. To the extent that these cues are quantifiable and

reliable indicators of driving while impaired, they will enhance the efficiency of detection and assist in the adjudication phase of the process. The use of such cues in the field helps to identify impaired drivers, thereby minimizing the amount of time spent “unproductively” with non-impaired drivers.

Far too often police officers rely on inappropriate (and inefficient) cues to assist in the detection of an impaired driver such as type of vehicle, condition of vehicle, age of driver, driver’s race, etc. Intermittent reinforcement perpetuates the use of such indicators. Unfortunately, not only is it difficult to justify the use of such cues in court but it also results in officers missing large segments of the impaired driver population. The more objective the cues, the better.

Before police officers can use any of the detection techniques outlined by Jack Stuster, they must first be in a position to observe driver behavior and interact with drivers. This is done in a variety of ways, including routine patrols, collision investigations, special traffic enforcement campaigns (e.g., seat belts, license checks), citizen reports, special DUI patrols (e.g., saturation patrols), and sobriety checkpoints.

Each method serves a unique function and probably targets a slightly different segment of the driving while impaired population. Hence, reliance on a single technique is ill-advised.

Improved detection involves more than simply increasing enforcement. As Stuster points out, the key is to implement better, more efficient techniques.

Over the past several years, a great deal of attention has been directed at sobriety checkpoints. Special enforcement efforts of this nature are personnel- and cost-intensive. Although checkpoints create the opportunity for intersecting with a large number of drivers (which is important for general deterrence), they tend to find a relatively small number of impaired drivers. From this perspective, they are inefficient. This is not to suggest, however, that they are ineffective. There are several examples of highly effective sobriety checkpoint campaigns. Rather, the checkpoints are an inefficient means of detecting impaired drivers. Perhaps the greatest value of sobriety checkpoints is that they put the officers out there on the road actively looking for impaired drivers. In addition to the public relations value of this exercise, it serves to increase the public’s perception of the likelihood of arrest.

The inefficiency of sobriety checkpoints is illustrated by the discrepancy between the proportion of impaired drivers identified through roadside surveys and the proportion arrested at checkpoints. We know that police, even when face to face with drivers at sobriety checkpoints, fail to detect more than half of all impaired drivers. This situation is of considerable concern. Not only does it underscore the difficulty of the task of detection but it also highlights the need for more effective detection techniques. In addition, the failure to detect impaired drivers at checkpoints only reinforces the behaviors of those drivers who manage to escape detection. If the police do not suspect these drivers of being impaired and allow them to proceed, they are unlikely to be deterred from engaging in the same behavior on subsequent occasions. It is, therefore, imperative that we undertake further research to understand who these drivers are and why they are not detected.

Jack Stuster also alludes to the fact that not all checkpoints are created equal. They differ in the number of officers and vehicles employed, the number of locations per shift, the sites used, the time of year, etc. I do not believe we know which approach or combination is most effective. In fact, there are often disagreements concerning whether

checkpoints should be set up early in the evening so as to interact with as many drivers as possible, or later in the evening when the probability of encountering drunks is greater. Further information would facilitate the implementation of the most effective and efficient type of checkpoints.

In his paper, Stuster indicates that officers sometimes try to make their jobs more interesting by attempting to guess the BAC of a suspected offender. The issue, however, goes beyond simply making the job interesting. The success of any particular enforcement technique or detection strategy ultimately depends upon officer motivation and training. Officers involved in DUI enforcement must receive encouragement, support, reinforcement, and DUI arrests. DUI surveillance is an important aspect of police work and should not be perceived as second-class duty. It is the responsibility of senior police officers, the administration, and the public to ensure that officers engaged in DUI enforcement receive the same support, credit, and encouragement as officers doing other types of police work.

In this context, the “system” often works against us. A simple DUI arrest can take several hours to process. All too often an officer’s time and effort are for naught because the courts rule in favor of the accused. This can be most discouraging and affects the morale of all officers engaged in DUI enforcement. Moreover, it creates a situation whereby officers may exercise discretion and use other means to remove potential DUI offenders from the road without laying formal charges. Greater efforts must be made to simplify the procedures and necessary paperwork to lessen the burden on officers and to reduce the opportunity for errors that can result in a case being dismissed on a technicality. A simplified process would also allow officers to spend more time on the road.

As a final point, I would like to at least raise the possibility of pushing the detection process further upstream to include a “preactive” phase—that is, before the drunk gets behind the wheel. While this issue may well be beyond the scope of this workshop, I think it would be a mistake if we restricted our view of detection to situations in which the impaired individual is actively posing a risk to all road users. While Stuster indicates that officers may view it as “unsportsmanlike” to lie in wait outside establishments known as sources of impaired drivers, it is not inconceivable for them to enter licensed premises on occasion to remind potential drivers and/or management that the police will be looking for impaired drivers. Enhanced server intervention programs might also be implemented. Finally, we might also re-visit the development of reliable and valid “self-detection” techniques to assist drinkers and/or their companions in determining their fitness to drive.

Comments on “Increasing the Opportunities to Examine Impaired Drivers”

BARRY M. SWEEDLER

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The paper by Jack Stuster does a very good job of outlining the enforcement strategies and the research results intended to increase opportunities for law enforcement officers to detect and arrest impaired drivers. It focuses on DWI detection, sobriety checkpoints, and specific patrol tactics. Dr. Stuster also discusses new technology to detect impaired drivers at checkpoints.

I would like to expand on some of Dr. Stuster’s points and discuss a number of additional strategies that I believe will increase the opportunities that law enforcement officers have to come in contact with impaired drivers.

FACILITATING BOOKING OF DWIs

Dr. Stuster notes that some agencies support special DWI patrols with facilitated booking of DWIs. This can take the form of mobile breath-testing vehicles and personnel to assist in processing the arrests. This is a subject that has been discussed for more than two decades. Officers still complain that it takes many hours to process a DWI arrest. The time has come to stop talking about the problem and do something about it. **A report or set of guidelines to assist the arresting officer in significantly reducing the time spent off the road is overdue.** The guidelines should include suggested methods for computerizing the reports that an arresting officer must complete. In this computer age, there is no excuse for an officer to be required to provide handwritten copies of the same information on many forms. Getting the arresting officer back on the road quickly is one sure way to increase an officer’s contacts with impaired drivers.

ENFORCEMENT OF YOUTH DWI AND ZERO TOLERANCE

In his paper, Dr. Stuster reviews the cues that have been developed to detect impaired drivers and motorcycle drivers and for post-stop procedures. He also cites Dave Preusser’s (1992) work on detecting youth DWI. Preusser et al. found that young drivers are significantly underrepresented in DWI arrests compared with fatalities and have different drinking and driving habits. They drink at different times and places than older drivers and do not display the same impairment cues as adult drivers. The arrest process for juveniles is also more difficult and time-consuming. A number of successful programs to detect and prevent youth drinking and driving have been documented (Center for Substance Abuse Prevention, 1995). These include special patrols at times and places when and where young drivers drink, special training of officers, encouragement from high-ranking officials, and techniques to prevent the young impaired drivers from scattering. However, these programs could be more widely adopted. There is also evidence emerging that the zero tolerance laws that are now in effect in all states are not being well enforced (Voas, 1998). Based on this discussion, **the law enforcement community needs specific**

guidance or cues to detect young drinking drivers, information on where and when they drink and drive, and details on programs that are effective.

REPORT EVERY DRUNK DRIVER IMMEDIATELY PROGRAMS (REDDI)

One way to increase police contacts with impaired drivers is to turn every driver into a potential reporter. In the 1980s most states adopted REDDI programs that encouraged motorists who observed certain erratic behaviors of other drivers to call and report that information. The programs were well advertised, using roadside billboards. Those programs required motorists to drive to a telephone or use a CB radio to make the report. Even with the time-delay problems, thousands of impaired drivers have been detected in this manner (National Transportation Safety Board, 1982). Many of these programs are still in operation but are not being publicized and have different telephone numbers to call. Now that many drivers have cellular telephones, these programs, if well publicized, can have an ever greater impact on both increasing police contacts with impaired drivers and deterring their behaviors. **A new emphasis, perhaps in conjunction with the cellular telephone industry, is needed to revitalize this important program.**

PERSISTENT DRINKING DRIVER

While Dr. Stuster does not mention any special enforcement campaigns aimed specifically at the persistent or repeat offender drinking driver, a number of states and communities have implemented special emphasis programs to improve their chances of catching these multiple offenders, who in most instances should not be driving. **Special programs aimed at apprehending persistent and repeat offenders should be greatly expanded.** In 1991, Ohio, as part of its Habitual Offenders Program, instituted the Habitual Offender Tally, or *HOT* sheet, which lists offenders who have been convicted of DWI five or more times and whose driving privileges are currently suspended. The list is shared with state and local police. Special awards recognize officers who arrest those on the *HOT* sheet. Another program, known as *Stakeout*, is in use in some states, including New York. Police officers watch the homes of repeat offenders who have lost their licenses, usually at times when people would leave or return from work, to see if they drive. Special license plates, such as the *Zebra* tags in use in Oregon and Washington State, have proved useful for officers to make contacts with repeat offenders.

SOBRIETY CHECKPOINTS

There is quite a bit of discussion on sobriety checkpoints in Dr. Stuster's paper. I would like to mention a few additional items that should be considered when sobriety checkpoints are planned and conducted. One important step at all checkpoints should be checking for a valid license. There also should be greater use of passive alcohol sensors. The lessons learned from the random breath-testing programs in Australia and other countries, and from the successful programs of *Booze It & Lose It* in North Carolina and *Checkpoint Tennessee*, should be reviewed carefully. **Guidelines on the most effective way to conduct sobriety checkpoints should be developed for use by state and local law enforcement agencies.**

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Comments on “Increasing the Opportunities to Examine Impaired Drivers”

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ABSTRACT

More people have been arrested for driving while intoxicated (DWI) over the past 20 years than for any other crime in the United States. Yet it is estimated that only one arrest is made for every 500 to 1,000 impaired driving trips. One way to increase DWI detection, to generally and specifically deter impaired driving, and to reduce impaired driving fatal crashes is to institute highly publicized, frequent sobriety checkpoints using passive alcohol sensors. With the increasing use of seat belt, driver's license, sobriety, and other safety checkpoints, passive alcohol sensors can increase DWI detection dramatically. Cost effectiveness of this approach must be better communicated to the enforcement community. Methods to promote the use of checkpoints must be developed.

Although it is true that nearly *1.4 million* people have died in traffic crashes in the United States since 1966, we arrest *1.4 million* drivers *each year* for driving while intoxicated (DWI) or driving under the influence (DUI) of alcohol. More people have been arrested for DWI in the past 20 years than for any other crime (Federal Bureau of Investigation, 1997). If self-reported drinking and driving is accurate, there were almost 800 million episodes of drinking and driving in 1995. Assuming most of those people were impaired, that means we arrested only 1 driver out 556 drinking and driving trips in 1995 (Jones and Boyle, 1996). This is probably a low estimate, but we will find out how low when work is completed by one of our colleagues here at the workshop, Paul Zador.

Dr. Jack Stuster's paper on “Increasing the Opportunities to Examine Impaired Drivers” is a thorough review of the strategies to increase DWI detection. He mentions that impaired drivers are detected and DWI arrests made as a consequence of collision investigations, routine patrols, sobriety checkpoints, etc. He does *not* mention an ever-increasing enforcement measure that will certainly play a role over the next few years—seat belt usage enforcement checkpoints. These have great potential in detecting impaired driving as evidenced by the “Click It or Ticket” campaign in North Carolina (2,000 arrests for DWI in addition to 59,000 citations for restraint usage violators).

Roving patrols and saturation patrols may be the most popular form of police detection of DWI, but they may not be the most effective. There is growing evidence, as Dr. Stuster points out later, that *sobriety checkpoints* may be the most effective method of deterring DWI. Random sobriety checks, especially when they are conducted in conjunction with the use of passive alcohol sensors (PAS), have the potential to

- (1) Detect more impaired drivers,
- (2) Serve as a general deterrent to drinking and driving, and
- (3) Serve as a specific deterrent to impaired driving, if enough drivers are caught.

Dr. Stuster has a good discussion of sobriety checkpoints in his paper, but he failed to reference one of the recent and most important studies to date—the effectiveness of the “Checkpoint Tennessee” program (Lacey et al., 1997). That study showed that when a sobriety checkpoint program is conducted every weekend, all around the state, at randomly selected sites, is highly publicized, and uses passive alcohol sensors to help detect DWI, a 22 percent reduction in the number of drunk-driving related fatal crashes (a reduction of nine per month) can be expected. Drinking and driving went down in Tennessee and the reported use of designated drivers went up (as noted by the police at the checkpoints).

Dr. Stuster also gives a thorough review of the *cues* police can use to detect drivers at BACs greater than or equal to 0.08 g/dl. It is interesting to note that “Speeding” or “Going 10 Mph Over the Speed Limit” are not in the top 20 cues. For those who think impaired driving always results in speeding or other reckless driving, this is important information. “Driving Too Slow” is in the top 10 cues, but “Speeding” is not. Further research, however, could show that young drivers (under age 21) with low BACs might exhibit that “speeding” behavior more often than adult drivers.

Finally, Dr. Stuster is conducting important research on automated procedures for assessing the behavior of drivers approaching sobriety checkpoints. Whatever the results, it is strongly recommended that the costs of such a detection system are considered and compared with the cost of each police officer using a passive alcohol sensor. Passive sensors have a higher detection rate of impaired driving than any other procedure to date. They may be considered costly and burdensome by some in the police community, but they have great potential for DWI detection (with very little training required).

In conclusion, considering the low DWI detection rate in the United States, we must find better procedures and ways to increase that rate. Dr. Stuster gives a compelling description of the cues that police should look for to detect DWIs. While these cues will help the police, a bigger view of the problem dictates procedures that will ultimately deter impaired driving, which, it is hoped, is the goal of any enforcement program. Highly publicized, frequently conducted checkpoints (whether they are for seat belt usage, for driver’s license checks, or for detection of impaired drivers) will serve as both a general and a specific deterrent to DWI. Passive alcohol sensors will increase detection at these checkpoints. If properly conducted, even high BAC-experienced drunk drivers could be specifically deterred because they know a PAS will detect them as drinking drivers when other behaviors they have learned to mask may escape police detection. Passive alcohol sensors will also detect commercial drivers at illegal BAC levels (0.04 BAC) and under age 21 drivers at low BACs to enforce “Zero Tolerance” laws. While cost and police resources are important issues in this approach, it nevertheless appears to be cost effective based upon the research. Better ways to promote *checkpoint/passive sensor* use must be developed and barriers to their use must be overcome.

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Identification of Alcohol Impairment on Initial Interview

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Earlier papers described overall impaired driving issues, legal issues, and stopping vehicles from a moving traffic stream. After a vehicle is stopped, the next step in the process is the driver interview, typically conducted by the officer at the driver-side window of the vehicle. The purpose of this interview, in conjunction with other observations made by the officer, is to determine whether or not there is reasonable suspicion to proceed with an impaired driving investigation. If yes, the driver is typically asked to step out of the vehicle and submit to field sobriety testing. If no, no further impaired driving investigation would likely be conducted.

The objective of this paper is to summarize available research on process and procedure as they relate to an impaired driving investigation at the driver-side window immediately following a vehicle stop. Throughout this paper, the term DUI encompasses driving while intoxicated; driving under the influence; operating while intoxicated; operating under the influence; operating at a BAC above 0.08 or 0.10 percent, and similar charges. It should be noted that this general use of the term DUI obscures important distinctions between each charge as defined uniquely in the laws of each state.

BACKGROUND

Enforcement of impaired driving laws is conducted by police officers who are members of municipal departments, state police agencies, highway patrols, sheriff's departments, and a variety of other police agencies. Collectively, these agencies have approximately 600,000 sworn personnel and make nearly 1.5 million DUI arrests each year (FBI, 1997). Nationally, the number of arrests has declined over the past 10 years.

Many of these arrests are being made by officers assigned to police entities whose primary mission is traffic. These officers may be part of the highway patrol, other state police organizations dedicated to traffic, the traffic division of a municipal or county-level department, or a dedicated DUI patrol. Such officers make up only a portion of the total complement of sworn personnel. Regular or precinct patrol officers may or may not be conducting impaired driving enforcement depending on their training, their department's emphasis on impaired driving enforcement, and the demands placed upon them for other types of police services.

A DUI arrest can result from regular patrol activity, a crash investigation, or some special operation such as a sobriety checkpoint. Patrol activity, including DUI patrols, provides the greatest number of arrests, followed by crash investigations and special operations. Patrol activity provides the officer with the greatest amount of information prior to the driver-side interview; sobriety checkpoints provide the least amount of information.

For patrols, DUI detection relies on officer experience, stopping many motorists for observed moving violations, and/or a set of DUI detection cues (Stuster, 1997). Typically, the officer has observed the on-road driving behavior of the motorist before

stopping the vehicle and commencing the driver-side interview. In fact, the officer may have followed the motorist for some time prior to the stop and already suspect that an impaired driving violation has occurred. Also, typically, the officer can concentrate entirely on this motorist rather than on the many concerns present at a crash scene or other vehicles waiting to go through a checkpoint.

At a crash scene, the first priority is to secure the location and provide assistance to those who may be injured. Most often, the officer has not seen on-road driving behavior, only its consequences. It may be difficult for the officer to pursue a DUI investigation when the suspected driver has been injured. People may be reluctant to provide evidence since a DUI arrest following a crash could have both criminal and civil liability implications. An actual driver interview may never occur or may occur several days later in the hospital. In the 1960s, it was not uncommon to find departments that recorded 50 percent or more of their DUI arrests at crash scenes, and some such agencies persist today. However, as DUI arrests from patrol activities have increased, it is more usual now to find only one-quarter or fewer DUI arrests being made following crashes.

Checkpoints offer a third, characteristically different set of circumstances. First, unlike observations during patrol, at a checkpoint the officer has only a very limited opportunity to observe on-road driving behavior. The driver-side interview can be virtually the only source of information for determining whether or not to proceed with an impaired driving investigation. Second, a police agency's authority to conduct checkpoints is often restricted by law, regulation, or agency policy to ensure that motorists move through the checkpoint with a minimum of delay. Such restrictions can have the effect of placing time or procedural requirements on the officer that are not necessarily present during normal patrol. For instance, at some checkpoints, officers do not request the license and registration of all motorists entering the checkpoint. Yet, a driver's ability to produce a license and registration without fumbling is an important cue for identifying impairment (Stuster, 1997). Available research indicates that more than half of all drinking drivers are missed at checkpoints (Jones and Lund, 1986; Ferguson et al., 1995; Wells et al., 1997).

It should also be noted that there are differences in the characteristics of drinking drivers arrested during the various types of enforcement activities. For example, 23 percent of drivers arrested at Charlottesville, Virginia, checkpoints were under the age of 21 as compared with only 11 percent of drivers arrested by patrol activity during the same period (Voas et al., 1985). In Connecticut during 1997, 11,747 drivers were arrested for DUI (data provided by Connecticut DOT). Of these, 23 percent were arrested as a result of a motor vehicle crash while most of the remainder were arrested from patrol operations. The crash arrests were significantly more likely to occur on Mondays through Thursdays; during daylight and early evening hours; involve both more younger and more older drivers; more females; and much more often involve very high BACs (41 percent at 0.20 percent BAC or greater versus 30 percent at that level for other DUI arrests).

OBSERVABLE CUES

As discussed earlier by Fields, an officer begins the driver interview with some level of suspicion regarding impaired driving. This level might be near zero for, say, a routine traffic stop on a Tuesday afternoon and very high if the officer has followed the vehicle for some time on Friday night and observed multiple DUI on-road driving cues. Evidence

collected during the interview will lower this level of suspicion or raise it to the point of requiring the motorist to exit the vehicle for field sobriety tests. Such evidence may consist of observable cues, described in this section, or chemical tests, described later.

An extremely important post-stop cue that might be observed during the driver interview is an open container, drugs, or drug paraphernalia. The officer may also obtain a direct admission of the use of alcohol or some other drug. The importance of this type of information, when it is present or if it can be developed, should not be underestimated.

Ulmer et al. (in process) obtained results for 1,125 non-alcohol drug impaired driving suspects in Colorado during the period 1994–95. Of these suspects, 58 percent admitted drug use at some point during the arrest process; 27 percent denied drug use; and drug use admission or denial was unknown for the remaining 15 percent. In cases where the suspect admitted drug use, the officer's opinion regarding which drugs had been used was confirmed by laboratory analysis 93 percent of the time. In cases where the suspect denied drug use, the officer's opinion that drugs were involved was confirmed only 55 percent of the time. Similarly, for 341 Arizona cases during 1995, admitted drug use was confirmed by the laboratory 90 percent of the time, while for denials and drug use admission unknown, laboratory confirmation of an officer's opinion that drugs were present was confirmed only 69 percent of the time. Another observable post-stop cue that can be obtained as part of the driver interview is the smell or odor of alcohol. Moskowitz et al. (1997) dosed subjects to 0.00 percent BAC, at or below 0.08 percent BAC, and above 0.08 percent BAC. Samples of exhaled breath from each of the subjects were delivered to police officers across an opaque screen through a plastic tube two inches in diameter. Results for these "optimum" laboratory conditions indicated 78.5 percent correct police officer judgments. Compton (1985) tested dosed subjects at "simulated" checkpoints. Police officers reported the odor of alcohol 61 percent of the time for subjects at BACs of 0.10 percent to 0.15 percent and 39 percent of the time for subjects at BACs of 0.05 to 0.09 percent. This compares with 7 percent of the time for subjects at BACs of 0.00 to 0.04 percent. Clearly, the odor of alcohol is an extremely important post-stop cue.

Stuster (1997) also recommended that the odor of alcohol should be used, along with several other post-stop cues. To be recommended, a post-stop cue must be observed often enough to be useful and, when observed, must be correlated with impairment. The cues, total number of times observed, number of times associated with a DUI arrest, and percent of observations associated with a DUI arrest are listed in Table 1. These data cover 4,604 total vehicle stops, made by 11 police agencies, resulting in 574 DUI arrests.

TABLE 1 Post-Stop Cue Data

CUE	N	DUI	%
Odor of alcohol from driver	566	488	86
Difficulty with vehicle controls	75	73	97
Difficulty exiting the vehicle	159	153	96
Fumbling with license and registration	184	167	91
Repeating questions or comments	187	178	95
Swaying-unsteady-balance problems	398	385	97
Leaning on vehicle or object	126	124	98
Slurred speech	400	389	97
Slow to respond to officer	198	190	96
Provides incorrect information	98	89	91

Some officers introduce "divided attention" as part of the interview process. Typically, the officer will ask some question or questions while the driver is looking for his license and registration. Compton (1985) found only a modest relationship between multiple divided-attention types of cues and driver BAC at "simulated" checkpoints.

Horizontal gaze nystagmus (HGN), a key component of the Standardized Field Sobriety Test, is being used by some officers as a screening test part of the driver interview while the driver is still seated in the vehicle. An officer asks the suspect to focus his eyes on an object, such as the tip of a pen, while that object is moved far to the right and far to the left. HGN refers to the involuntary jerking of the eyes as they are turned as far as possible to the side. Impaired drivers are often unable to follow the slowly moving object smoothly; exhibit nystagmus sooner at a more shallow angle; and exhibit greater nystagmus when the eye is as far to the side as possible (Tharp et al., 1981).

Compton (1985) found that HGN could be "easily and accurately administered" to a driver seated in the vehicle at a simulated checkpoint. Police officers correctly identified 95 percent of the drivers at BACs of 0.10 percent or greater while incorrectly identifying only 15 percent of the sober drivers. More recently (McKnight et al., in process), it has been confirmed that HGN can be administered to a driver seated in the vehicle. In this same study, HGN was the "most valid indicator" of BACs above and below 0.04 percent and was the only one of the three tests in the Standardized Field Sobriety Test Battery that distinguished BACs in the 0.08 to 0.10 percent range.

In summary, as part of the driver-side interview, the officer may obtain an admission of drinking, or of taking some other drug, or may observe direct evidence indicative of alcohol or other drug use. The officer may also detect the odor of alcohol. Next, there are a series of cues that, when observed, are indicative of impairment. These include slurred speech, psychomotor failures or decrements, the suspect's providing incorrect information, and the suspect's needing extra time or extra instruction for simple cognitive tasks. HGN can be administered at the driver-side window and can be a very effective screening test should police agencies choose to use it in this way. Currently, it is often the case that drivers at or above 0.10 percent BAC are not detained at checkpoints (55 percent, Jones and Lund, 1986; 45 percent, Ferguson et al., 1995) or by officers on normal patrol (31 percent, Kiger et al., 1991) or on special DUI patrol (12 percent and 44 percent, Lund and Jones, 1987). Perhaps observable cues could be aided by chemical tests.

CHEMICAL TESTING

In some countries it is possible to conduct a direct active chemical test to screen drivers at the roadside with or without probable cause for a DUI arrest. This is not true in the United States. A direct chemical test of a bodily substance, such as blowing into a breath test device, is conducted only after an arrest is made or only on a voluntary and non-evidentiary basis with the consent of the suspect.

Still, chemical tests have the potential of providing the officer with an efficient and objective measure of alcohol. One technology that has been used to obtain such tests is the passive alcohol sensor (PAS). The intent of these devices is to capture and test a measured amount of exhaled breath of the driver during the driver-side interview. Currently available devices must be held very close to the driver's mouth and are activated just as the driver is speaking. The exhaled breath is considered to be "in plain

view” and thus can be captured and chemically tested without probable cause for a DUI arrest. The test is passive in that it does not require the active cooperation of the driver other than answering the officer’s questions during the interview. PAS devices have been shown to be particularly useful at sobriety checkpoints, where the officer has little information about the driver prior to initiating the driver-side interview.

PAS devices of the earliest design were tested by the District of Columbia patrol officers. The results indicated that drivers above the 0.10 percent BAC legal limit could be reliably identified (Voas, 1983). Second- and third-generation PAS devices have been tested at checkpoints. Results indicate that officers who are using these devices, versus officers who are not using the devices, are able to detain more drivers at BACs of 0.05 to 0.09 percent and 0.10 percent and higher. These same officers are also able to let pass more drivers at BACs of 0.04 percent or lower (Jones and Lund, 1986; Ferguson et al., 1995; see also Preusser, 1994).

It has also been found that PAS screening devices can improve alcohol detection as part of normal patrol operations (Kiger et al., 1991). However, the currently available PAS devices are not well accepted by patrol officers (Leaf and Preusser, 1996). Such devices force the officer to be in closer proximity to the driver than is normal on a routine patrol stop. They require the officer to devote some level of concentration to the device at a time when the officer has several other things to be concerned with, including personal safety, being alone at night with an unknown driver and possibly passenger(s). Some PAS devices require that the officer devote one hand to their operation at a time when that hand might be better left free to reach for a weapon, should that become necessary.

Officer safety, security, and proximity to the driver are of somewhat less concern at sobriety checkpoints than on normal patrol. Checkpoint locations typically have good lighting and are well secured, and each officer has the support of several other officers during the operation. Also, the information provided by PAS devices is seen to be of greater value at checkpoints since the officer has had little opportunity to view on-road driving behavior.

Another potential technology, under development, is the use of a laser beam to detect alcohol. The beam is passed through the passenger compartment windows. If alcohol is present in the air of the compartment, then the beam will be modified in ways that can be detected. It is not known whether the practical effectiveness of this technology will eventually be demonstrated (Fell, 1998). In summary, direct chemical testing requiring the active cooperation of the driver is not conducted during the impaired driving investigation that occurs at the driver-side window. Still, PAS devices can be used to sample the exhaled breath of the driver. Currently available devices have been shown to improve officer efficiency at a checkpoint, both in terms of detaining more drivers who had been drinking and of not detaining drivers who have had no drinks or only one or two. PAS devices are not generally used for vehicle stops made while on patrol. Other technologies are currently under development.

FUTURE RESEARCH

The following are research topics that could be pursued in the future. The topics presented are not all-inclusive nor are they presented in sufficient detail for work to begin. Rather, the list is intended as a starting point for a more comprehensive discussion.

1. Persons missed as part of impaired driving screening at checkpoints are *not* a random sample of all drinking drivers at the checkpoints (see, e.g., Wells et al., 1997). Are there other cues, or would better use of current cues or some other procedures ensure detaining young people, women, and other persons who are more often missed?

2. Should HGN be used for initial screening while the driver is still seated in the vehicle?

3. Can we develop procedures for establishing reasonable suspicion and probable cause for Zero Tolerance violations or must they remain, primarily, a lesser included charge of DUI?

4. When, how, and with what procedures should an officer pursue a DUI interview following a crash? How are such interviews currently being pursued? What are the cues and what is the relative weight of each cue in reference to the driving actions related to crash occurrence?

5. Currently available PAS units were designed to distinguish between drivers who were at or above 0.10 percent BAC versus drivers who were below 0.10 percent. These units test a measured sample of air, collected at a precise distance from the driver while the driver is speaking, and calculate a numeric BAC value. Units for Zero Tolerance enforcement would have different characteristics. Their function would be to detect any alcohol without the requirement to calculate a specific value. Can Zero Tolerance units be designed? Similarly, can we design PAS units that will be better accepted by patrol officers?

6. Better driver screening procedures would presumably lead to more impaired driving arrests of nontraditional drinking driving suspects (e.g., more women and youths) and, again presumably, of suspects at BACs that are closer to the legal limit. Do the police really want to apprehend these “nontraditional” and “close to the limit” persons? Or would they rather spend their resources detecting and arresting the “falling down drunk?” If we want more nontraditional and Zero Tolerance arrests, will we have to build a better rationale for these types of enforcement actions?

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Comments on “Identification of Alcohol Impairment on Initial Interview”

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Police normally look at DWI detection in three phases. Phase one occurs when the vehicle is in motion and involves everything up to the point where we actually stop someone. Phase two entails face-to-face contact. Phase three is the prearrest screening, psychophysical testing, preliminary breath test (PBT), and so forth.

I had to think hard about the analogy Jack Stuster made about fishing and hunting in regard to officers out there on patrol, particularly because I was once an avid fisherman and hunter. Then I started looking for drunk drivers and speeders, and there really is a lot in common there. We also heard earlier about some of the unusual ways officers make contact with drivers, for example, the bucket of chicken left on the roof of the car. And when you think about it, problems with divided attention, or someone trying to do two things at one time, are often an indication of alcohol use. We see people all the time leaving articles of clothing on tops of cars and other things, or at night I used to see people driving down the road with the interior light on in the car. And believe it or not, 50 percent of the time they were drunk.

I also wanted to comment on the profile of drunk drivers used by police officers. It is true that years ago, when I came on the job, we were arresting only the 0.15 and 0.20 percent BAC drivers, and these were usually white males driving down the highway in old, probably 10–15-year-old, beat-up cars with dents all over them, at midnight or later in the evening. That is who we were arresting for drunk driving. Well, today that has really changed because, through our own experiences and training, we are recognizing that so many other people are drunk drivers and that we should be directing our efforts at everyone, not just one particular type of driver.

Another point I wanted to make is that traffic patrol, at least in the state police, is not considered to be a punishment in any way whatsoever. It is our job. And more and more local agencies are understanding that traffic patrol is a way not only to enforce traffic laws and catch DWIs but also to make criminal arrests. One of the programs that we are looking at in Maryland now is criminal interdiction. We are out on the highway stopping people for traffic violations, but we are also training our officers about what to look for once they get up to the car. And it is resulting in huge seizures, not only of drugs but of the cash involved with drugs, as well as guns, stolen vehicles, all kinds of different things. So, we are making some progress in that area, I am happy to say.

I wanted to make a comment about sobriety checkpoints too, because really checkpoints involve phase one and phase two DWI detection. When we set up a checkpoint, we are stopping everyone coming down the highway. The officers are trained to watch vehicles coming into the checkpoint, regardless of whether they turn away, run over our sign, or come through the checkpoint. Once we initially stop someone and the trooper or officer walks up to the driver’s window, we are now into phase two. So those two areas are now in play. Checkpoints—at least as far as we are concerned—are designed to be a deterrent. We do not operate checkpoints to arrest a lot of people. In fact, we would hope

that we do not arrest a lot of people, because we would prefer to deter people from driving drunk in the first place. And that is where we involve the media, public information campaigns, and that sort of thing. Typically, we are finding that in checkpoints in Maryland anyway, we make about 1 arrest for every 100 vehicles coming through the checkpoint.

Some of the areas where we have had checkpoints over the years suddenly do not qualify for checkpoints anymore, because the number of alcohol-related crashes, which is the basis upon which we select sites, have dropped below our limit. So we know that we are doing something right when drunk-driving crashes are not occurring in those areas anymore.

Now I want to comment on some of things mentioned as indicators of alcohol use. First of all, the odor of alcohol is not a particularly good basis for assessment, unless you really have an opportunity to smell. At sobriety checkpoints you have problems, you may have a breeze blowing through, or smoke from flares, things such as that. And sometimes it is very difficult to get close enough to get a good whiff of a driver's breath. So odor may not always be helpful, although if you do smell it, then you have an excellent cue. But it is getting to that point that is not so easy. Another thing, and I am going to hit on this a couple of times, is what appears to be either the increasing prevalence or our improved ability to detect drug-impaired drivers, who are obviously not going to have the odor of alcohol about them. If it is marijuana, perhaps there is an odor of marijuana on that person. If it is PCP, there may also be an odor, or if it is an inhalant, they may have an odor of whatever chemical they are inhaling, but the odor of an alcoholic beverage, or the lack of it, is not necessarily going to help us when it comes to drugs. So we also need to look into that area. The Drug Recognition Expert (DRE) program is going to be very important if we are ever going to do an adequate job in detecting drug-impaired drivers.

As for detecting alcohol with the passive alcohol sensor, the Attorney General in Maryland has decided not to let us use the sensors at this point. We have a PBT law, which explains that officers can use a preliminary breath test as a screening device, but that is it. We can mention the result in court and so can the defense, which they are obviously going to do if it is very low and so benefits them. The passive alcohol sensor is, I think, a very good tool if you can use it. A lot of officers, if they are going to use either the PBT or the passive alcohol sensor, will try to get up there and get a sample and if it is very low will automatically dismiss that person as not being an impaired driver. And to get back to drugs, they will not consider whether they have someone under the influence of a very common antidepressant drug, Valium for instance, which has the identical signs and symptoms as alcohol but without the odor. So we really have to consider that. The DREs are doing a good job in Maryland. I have looked at the results coming back from tests of drug-impaired drivers, and marijuana is the most common drug found. The second most common drug is depressants, Valium, Xanax, all kinds of barbiturates. And the impairment that these people are exhibiting is fairly substantial, so that, again, a lot of officers who stop these drivers will stick PBTs in their mouths.

All the procedures require you to look at three different clues—the inability of the eyes to smoothly track an object; nystagmus at maximum deviation, which is as far as the eye will turn to the side; and an angle of longest nystagmus prior to 45 degrees. So you look for all these clues, and we do pretty well at picking out the drunk drivers. I heard some discussion today about the use of nystagmus at roadside. There are some legal and constitutional concerns about doing a formal horizontal gaze nystagmus test at roadside

without prior suspicion. I guarantee you in Maryland you would probably have a problem. So what some officers are doing out there is, when we first walk up to a car we will stand just back from the door post so the driver has to kind of look out of the corner of his eye. We do it for safety, to keep the driver off balance, but guess what we are also looking at? Nystagmus and maximum deviation. And that will be our first little clue that maybe we need to look at this driver a little bit closer. And it really does work. This is an especially good technique with chronic alcohol abusers, those who are driving at 0.15 percent BAC and show little evidence of impairment when it comes to walking and turns and one-leg stands and things like that, because the test from what I have seen is not affected by tolerance of alcohol, that is, it is still going to be there.

The key to detection, at least in my opinion, is twofold. First of all, we have to train the officers. We have developed these wonderful training programs, which include a lot of Jack Stuster's work with phase one DWI detection. The problem is that all our officers are not getting this training. You would be surprised how many officers do not have the proper training. If they did, they would be able to detect drunk drivers much quicker and certainly at a better rate. How we can accomplish this, I am not sure. Some officers in some departments do not put a big emphasis on traffic patrol, especially local agencies. Big city police departments are so concerned about murders and other things that they are not getting the time they need for traffic work. What we are doing in the law enforcement community is trying to encourage them to do more with traffic control, recognizing that criminal activities are discovered in doing so.

And the second part is more contacts, as I mentioned earlier. The more vehicles that we can stop the better job we are going to do, the more opportunities we are going to have to detect those drunk and drugged drivers. To get back to checkpoints just for one more moment, in Maryland I have had some difficulties selling some of the local commanders on why we should use checkpoints. And here is the reasoning that I gave to them, which seemed to work. Let us say we take 10 patrol officers and we put them out on a saturation patrol for 4 hours. It is reasonable to assume that they would stop maybe 10 motorists during that 4 hours, so they have personally contacted, face to face, 100 drivers. That is pretty good, they are putting the fear of God in 100 drivers. Well, at the sobriety checkpoint we are going to take the same 10 officers and over that 3-4 hour time span we are going to stop 1,000 vehicles. So now we have personally contacted 1,000 drivers, and somewhere along the way I heard of something called the Rule of Forty. It says that for every person who hears or sees something, over time they will tell 40 other people. So perhaps we are contacting 40,000 people and getting the word out. Not only do you have a better chance of arresting drunk drivers when you contact more people, but deterrence will also come into play. You will be able to inform more people that we are out here, we are going to conduct sobriety checkpoints, our officers are trained. If you are not deterred in the first place and you are dumb enough to drive into our sobriety checkpoint, then chances are you are going to get caught and arrested.

Comments on “Identification of Alcohol Impairment on Initial Interview”

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As David Preusser notes, when a police officer approaches a vehicle for the first time he does so with some level of suspicion regarding impaired driving. This level of suspicion will vary depending on the circumstances leading up to the encounter. For example, if an officer on a routine or DUI patrol has observed a driver weaving all over the road or driving without headlights, he may already be expecting to encounter a driver who has been drinking. On the other hand, if the officer is manning a sobriety checkpoint there may be no, or very few, driving cues prior to the vehicle coming to a stop that would indicate impairment. In this instance, the officer has to determine very quickly whether the driver has been drinking based on the cues observable at the driver's window. It is during this critical encounter at the driver's window that the officer must decide whether to detain the driver for further testing or send him on his way. At sobriety checkpoints this decision, even for drivers with BACs of 0.10 percent or higher, is more often to send him on his way (Ferguson et al., 1995, Wells et al., 1997). Even for dedicated DUI patrols where driving behavior has been observed and DUI is suspected and is the primary reason for the stop, many impaired drivers are not detained for further testing (Lund and Jones, 1987). Moreover, drivers who are missed by the officers are not a random sample of the population of drinking drivers. These drivers are more likely to be female, younger, and driving without passengers (Voas and Williams, 1985; Wells et al., 1997).

In the United States, once a driver has been stopped, police officers must have a reasonable suspicion of alcohol involvement before proceeding with more detailed testing to make an arrest. Research has indicated there are some fairly reliable cues, both driving cues and cues observable at the window that, if seen, indicate impairment. According to Stuster (1997) some observable driving cues, such as weaving and driving with no lights on at night, indicate with probabilities of 0.3–0.9 that the driver is impaired. The post-stop cues, such as odor of alcohol, slurred speech, slow to respond to the officer, have even higher probabilities (0.86–0.97) that if detected a DUI arrest will ensue.

So why, if cues such as these are so reliable, are not more impaired drivers who are stopped by police officers detained for further testing? One possibility is that many impaired drivers are not exhibiting these behaviors or cues. Another possibility is that officers, particularly those at sobriety checkpoints where time is at a premium, are not recognizing what could be very subtle cues. What is needed is a quick-to-administer objective test that can determine whether the driver has been drinking, thus giving the officer reason to monitor for further cues. The passive sensor, a technology that has been available for a number of years, is one such device. Equipped with a pump that draws in a sample of the driver's exhaled breath mixed with ambient air, the sensor can provide an indication of whether the driver has been drinking, as well as approximate BAC (a higher reading indicates a higher BAC).

Research has repeatedly confirmed the effectiveness of these devices, particularly at sobriety checkpoints (Jones and Lund, 1986; Ferguson et al., 1995; Lund and Jones, 1987).

A recent study used data from the 1996 national breath survey, in which drivers were tested using the PASIII passive sensor as well as a preliminary breath-testing device, to determine the reliability of the device in detecting impaired drivers (Farmer et al., 1998). These results indicate that if a police officer were simply to obtain a sample of the driver's breath with the PASIII when first interviewing the driver at the window, detection rates for drivers with high and low BACs could be improved dramatically. For example, at BACs of 0.08 percent and higher, more than 60 percent of all drivers go undetected at checkpoints (Wells et al., 1997). With the passive sensor, using a criterion of three bars as an indication that further testing is warranted (this device uses a series of nine colored bars to indicate approximate alcohol concentration), only 37 percent of drivers with BACs of 0.08 percent or higher would be sent on their way. Likewise at BACs of 0.10 percent or higher, only about 25 percent of drivers would not be detained for further testing, compared with about 40–50 percent without the sensors. The sensors could also be used to great effect in detecting drivers with BACs less than 0.05 percent. Using a criterion of two bars, almost a third of drivers at these lower BACs could be identified.

In spite of results such as these, passive sensors are not well liked by police officers for reasons outlined by Leaf and Preusser (1996). If communities are to take seriously the challenge of enforcing 0.08 percent BACs and zero tolerance laws, then, as Stuster (1997) has pointed out, they will need more than driving and post-stop cues, which typically do a poor job of singling out impaired drivers with lower BACs.

The question we need to ask ourselves is whether we are really concerned about the large numbers of impaired drivers being missed. How well is it recognized among police officers that so many impaired drivers who already have been stopped by police are escaping the net? Finally, do we want to expend our resources on reducing the number of drivers who are missed, particularly when it comes to drivers with lower BACs?

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Identification of Impairment Outside the Vehicle: Field Sobriety Tests

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ABSTRACT

The Standardized Field Sobriety Test (SFST) battery includes three tests: horizontal gaze nystagmus (HGN), walk and turn, and one-leg stand. Following the 1970s research that identified these *best* tests, a training curriculum was developed by the National Highway Traffic Safety Administration (NHTSA). Officers in 50 states now have been trained under NHTSA guidelines with the SFSTs, which have been revalidated for 0.08 percent blood alcohol concentration. In data obtained during recent field studies with officers trained and experienced with the test battery, arrest decisions were found to be more than 90 percent correct. Defense attorneys vigorously oppose the admissibility of HGN testimony in DUI trials, and courts in 38 states have considered admissibility and related issues. The rulings are mixed but largely favorable. The SFSTs remain an important tool for alcohol enforcement.

INTRODUCTION

In 1939 the State of Indiana enacted the first statute in North America defining a DUI offense in terms of blood alcohol concentration (BAC), specifically 0.15 percent. Maine passed a similar law shortly thereafter. The precedent for this kind of legislation had been set by Norway in 1936. Although it now is difficult to determine whether in the United States those first statutory limits were enforced effectively, it is certain that at least two factors would have had an impact on the efforts that police officers brought to the task. Both the state-of-knowledge at that point in time about alcohol's effects on driving and the particular alcohol level set by the statute would have affected enforcement.

Intensive alcohol-and-driving research had not yet begun when Indiana passed the 0.15 percent law, which means there was substantially less information about the consequences of combining alcohol and drugs than is available in 1998. Assuming that the level sanctioned by the statute represented a consensus of legislators and citizens, if not scientists, it is likely that the lack of scientific data about the effects of lower BACs contributed to the point of view. The 0.15 percent level also set the stage for enforcement problems that it now appears were not fully recognized for several decades.

A law allowing driving with BACs up to 0.15 percent indisputably was a *drunk-driving* law and, as such, it limited traffic officers' alcohol enforcement responsibilities to the detection and arrest of drunk drivers. Although the state of being "drunk" has no precise scientific meaning, it typically is equated with obvious intoxication, and all but the tolerant drinker do indeed typically appear "drunk" at 0.15 percent. Retrospectively, it seems likely that enforcement practices were shaped for several decades by the belief that traffic officers would be able to easily recognize the obvious intoxication of drunk drivers.

Over time, however, research findings from the laboratory and from the field served to change both the duties and the needs of traffic officers. As accumulating data convincingly demonstrated impairment of driving skills at lower BACs, the definition of the problem shifted from *drunk driving* to *alcohol-impaired driving*. Legislators changed the laws, and traffic officers' responsibilities expanded beyond drunk drivers to encompass the detection and arrest of alcohol-impaired drivers. As a result of the shift, a decrease in the mean BAC of arrested drivers certainly could have been expected, but that expectation was thwarted. The mean BAC of arrested drivers remained at 0.17 percent even after 0.10 percent statutes had been enacted across the nation.

Officer proficiency played a role in that statistic. At the time, neither officers nor their departments uniformly viewed alcohol-impaired driving as a high priority area of enforcement, and resources were preferentially allocated to other areas that were seen as *real crimes*. The 0.17 percent mean BAC statistic itself is evidence that officers lacked the skills, and perhaps the will, to detect and arrest drivers with lower BACs. Although the statutes had been changed, the payoff for highway safety awaited effective enforcement, which in turn awaited changes in police department policies and training academy curricula. Beginning in the mid-1970s NHTSA launched field sobriety test research, which eventually would effect the needed changes in curricula.

SOBRIETY TEST RESEARCH

Early Laboratory Studies

Because early traffic safety literature is notably lacking in reports of standardized testing, the first large studies of sobriety tests, which were conducted by Finnish investigators during the 1970s, are of particular interest (Penttila, Tenhu, and Kataja, 1971, 1974). Their research reports serve as a kind of overview of the state of sobriety testing for that time, not only for Finland but for the United States as well. Notice in Tables 1 and 2 the similarity between the list of tests examined in Finland and the list of tests observed at roadside in the United States (Burns and Moskowitz, 1977). Although language differences produce somewhat different test names, the test categories are largely the same.

Clinical examinations of suspected drunken drivers in Finland were conducted by police surgeons, and the research reports indicate that testing was carried out with some degree of consistency (Penttila et al., 1971, 1974). In contrast, the testing conducted by police officers in the United States differed between agencies, between officers, and even between suspects (Burns and Moskowitz, 1977). Although officers' roadside test repertoires typically included some combination of balance, walking, finger dexterity, alphabet recitation, and/or miscellaneous maneuvers, there was little consistency either as to which tests were chosen or how the chosen ones were administered.

In general, the concept of *test standardization* had not yet entered either the curricula of law enforcement academies or the practices of officers on patrol. One exception to variability in testing that did occur was in connection with systems for videotaping the examination of suspects. To aid in the prosecution of drivers charged with DWI (or DUI),¹ agencies equipped a stationhouse room with cameras and

¹ Driving under the influence (DUI) and driving which intoxicated (DWI) are used interchangeably to mean driving with a BAC that violates the jurisdiction's *per se* or presumptive statute.

TABLE 1 Clinical Tests for Examining Suspected Drunken Drivers in Finland

Walking along a line
Walking test with eyes open
Walking test with eyes closed
Gait in turning
Romberg's test with eyes open
Romberg's test with eyes closed
Finger-finger test
Collecting small objects test
Orientation as to place
Orientation as to time
Ability to communicate
Counting backwards test
Quality of speech
Quality of behavior
Relaxation of inhibitions
Pulling oneself together
Nystagmus following movement of the eyes
Nystagmus after rotation
Time of nystagmus after rotation
Pupillary wideness
Pupillary reflex

SOURCE: Penttila, Tenhu, and Kataja (1974).

equipment for the purpose of making evidential records of breath testing and sobriety testing. Officers in those locations generally used the same tests and procedures for all suspects.

Southern California Research Studies

As part of a broader research program by NHTSA to address alcohol issues, the Southern California Research Institute (SCRI) conducted two large experiments for the specific purpose of identifying a *best* set of sobriety tests (Burns and Moskowitz, 1977; Tharp, Burns, and Moskowitz, 1981). The procedures of the two SCRI studies were similar; a summary follows.

As an initial effort, a list of candidate tests of sobriety was compiled by searching for alcohol-sensitive psychomotor tests, by broadly reviewing the test and measurement

TABLE 2 Sobriety Tests Observed at Roadside in the United States in 1975

Alcohol odor
Bloodshot eyes
Disheveled appearance
Slurred speech
Alphabet recitation
Backward counting
Backward subtraction
Finger to nose
Finger count
Hand pat
Modified position of attention
Pick up coins
Walk the line

literature as well the alcohol and traffic literatures, and by riding with and observing roadside activities of officers on traffic patrol in several states. The kind of test that could be considered was limited by both the unique requirements and the constraints imposed by roadside environments. The fundamental criterion of alcohol sensitivity was itself unusually difficult, given that officers rarely have information about the sober performance of the drivers they stop. Also, since a driver cannot be detained on suspicion for an unreasonable time period, only relatively brief tests were eligible. Tests requiring special conditions were ruled out, because the terrain and weather conditions of roadside stops usually are not subject to control. Tests that required bulky or complex apparatus were not considered, because they would not have been operationally acceptable to officers, nor would it have been feasible to recommend tests that required police departments to purchase costly equipment. Also, the performance demands of an alcohol-impairment test, by definition, cannot exceed the performance capabilities of an average person when he or she is not alcohol-impaired. Finally, to be acceptable to police officers, the attentional demands of administering the tests had to be simple enough that the safety of officer, suspects, and bystanders would not be compromised in any way.

An initial, relatively short list of candidate tests was compiled. Many of those were eliminated during pilot testing with the result that only six tests, together with four alternates, were identified for examination in a full-scale experiment. The six tests were horizontal gaze nystagmus (HGN), walk and turn (WAT), one-leg stand (OLS), finger-to-nose, finger count, and a paper-and-pencil tracing test. The alternate tests were Romberg (body sway), subtraction, counting backward, and letter cancellation.

More than 450 men and women, including light, moderate, and heavy drinkers, participated in the two experiments. In order for the sample to be representative of drivers commonly encountered by police officers, the only criteria applied to subjects were: ages 21 years or older, licensed drivers, and self-reported alcohol users. Police officers, 10 for each experiment, were recruited through local law enforcement agencies to serve as examiners. They were trained to administer and score the selected tests in a standardized manner during a single, four-hour session scheduled during the week prior to the officers' participation.

Subjects consumed alcohol beverages over a 90-minute period and reached measured BACs ranging from 0.00 percent to 0.15 percent. In the first experiment, officers administered six tests to each subject and recorded an arrest/don't arrest decision based on their observations of test performance. Analysis of the data identified HGN, WAT, and OLS as a best set of tests. A second experiment with essentially identical procedures was conducted for the purpose of further refining standardized administration and scoring of the recommended three-test battery. It is interesting to note that although the BAC limit in California was 0.10 percent at the time of the studies, analysis of the officers' decisions showed that the BAC at which they predominantly made arrest decisions was 0.08 percent.

Test selection for the first experiment took into account that physical impairments, which do not interfere with an individual's driving ability, may nonetheless preclude the examination of sobriety with tests of balance and walking. With a single exception, however, tests that did not require balance and walking did not meet criteria for inclusion in a battery. The exception was HGN, which requires only that the suspect move his or her eyes as directed. It is noteworthy too that although the officers lacked experience and

confidence with HGN, it emerged even during the early development of the SFST battery as the best index of alcohol.

Following a report of the second SCRI study, NHTSA personnel developed a scoring method, training guidelines, student and instructor manuals, and other training materials. The concept of stringent adherence to standardized testing was incorporated into all of these materials from the beginning and continues to be emphasized throughout training. Officers are taught exact procedures for verbal test instructions, test demonstrations, and scoring. In training programs under NHTSA guidelines, traffic officers in all 50 states have been trained to use the three tests, which now are known as SFSTs. The tests are also part of the Drug Recognition program's 12-step protocol for examining drivers suspected of drug impairments.

SFSTs for Low BACs

At the time of the field sobriety test research by SCRI, drivers were subject to arrest at 0.10 percent BACs. Thus, questions about valid tests for roadside use were raised anew by the enactment of laws specifying 0.08 percent for drivers in general, 0.04 percent for commercial drivers, and lower limits for youthful drivers. Again, NHTSA contract research addressed the issue. McKnight et al. (1995) conducted a laboratory study to develop sobriety tests for lower BAC limits and concluded the current SFSTs are as valid for 0.08 percent BAC as for 0.10 percent BAC. They also reported that HGN with modified scoring is valid for lower BACs.

Field Studies

Laboratory studies identified, standardized, and validated the battery of SFSTs, which have been widely accepted by law enforcement. It has been assumed that officers generally have had positive experience with the tests and believe their use leads to more correct decisions than would be possible otherwise. Until data were obtained from actual roadside decisions, however, the accuracy associated with the SFSTs was unknown.

The second SCRI laboratory study included a small field study, which was conducted in collaboration with deputies from the Los Angeles County Sheriff's Office. Due to the limited scope and duration of that study, it supported only very general conclusions, and questions about use of the SFSTs under real-world conditions remained largely unanswered.

Anderson et al. (1983) examined the feasibility of field use of the battery with a study in four jurisdictions. Based on officers' administrations of the test battery to DWI suspects, the investigators concluded that field data confirmed the findings from the SCRI laboratory studies. They reported that the battery was about as effective as preliminary breath testers (PBTs) in reducing false positive arrests, and they found gaze nystagmus to be the most powerful of the three tests. The findings from the study were weakened because officers' decisions could have been influenced by knowledge of BACs. In a majority of the cases, the alcohol levels measured with a PBT were known to the officers prior to arrests.

Findings reported from a field study of the SFSTs by the Vermont Alcohol Research Center are mixed but largely negative (Perrine et al., 1993). Study participants

were 361 drivers encountered at roadside and 119 dosed subjects. Four police officers, described as SFST experts, administered the tests to 185 subjects. Six Ohio police officers, described as having had NHTSA-specified training in SFST procedures, administered the tests to 93 subjects. The Ohio officers were further described as being or having been active in DUI enforcement. Research assistants tested 202 subjects.

The investigators concluded that well-trained, experienced, and highly motivated test administrators can use HGN with some accuracy at BACs of 0.05 percent, 0.08 percent, and 0.10 percent. They stated further that their data demonstrate limited validity for the battery, especially WAT and OLS, and they suggested that either the entire battery, or only WAT and OLS, be abandoned in favor of "chemical-based" enforcement.

If indeed the SFSTs cannot be shown to serve as valid and reliable indices of alcohol, then the current level of confidence vested in them by law enforcement and by some courts amounts to very serious error. In the interest of traffic safety, the findings of Perrine et al. (1993), which differ from those reported by other investigators, must be given careful attention.

The relevance of the VARC data specifically to use of the SFSTs by police officers is weakened somewhat by the inclusion of data for 202 (42 percent) administrations of the test battery by research assistants. Although the report describes "mandatory training" of the research assistants by SFST "experts," it is unclear whether their training was equivalent to that of police officers, that is, under NHTSA guidelines by certified SFST instructors. Also, following training, the proficiency of police officers typically shows a steep learning curve as they hone their newly acquired skills and develop confidence in their decisions based on the tests. Without information about the research assistants' total experience with test administration and the criteria applied to assess the adequacy of their testing skills, it is unknown whether the reported findings reflect deficiencies of the tests or deficiencies of the examiners.

Additional field data now are available. The question, "How accurate are the decisions made by experienced, skilled officers under roadside conditions when they rely on the SFSTs?" was addressed by two recent studies in which SFSTs were administered at roadside by traffic officers trained under NHTSA guidelines. As can be seen in the following, the data led to different conclusions than those of Perrine et al. (1993).

A study was conducted in collaboration with seven law enforcement agencies in the State of Colorado during the period February to July 1995 (Anderson and Burns, 1997). Trained and experienced officers were given refresher training by a certified instructor. The officers relinquished the PBTs commonly in their possession and agreed to use no roadside test other than the SFSTs throughout the study period. At the conclusion of data collection, they signed written certifications that they had complied with these and all other study conditions.

Observers were an important component of the study. A group of individuals associated with law enforcement either as sworn officers or civilian employees were trained in study procedures. They were assigned by random procedures to ride with the study officers and were present for 41 percent of the SFST administrations. They observed and reported whether officers adhered to study and testing procedures. They also requested and obtained breath specimens with preliminary breath testing instruments from drivers who performed the SFSTs but were not arrested. Drivers refused to provide

a breath specimen for 10 percent of the requests. These data permitted calculation of BAC estimates for released drivers.

The records, including breath or blood test results, were tracked, retrieved, and analyzed for all roadside stops that involved administrations of the SFSTs ($N = 305$). BACs supported 93 percent of the officers' arrest decisions. Under Colorado's two-tiered statute, 30 arrested drivers whose measured BACs were in the range 0.05 percent to 0.095 percent were charged with Driving While Alcohol Impaired (DWAI). The BACs of 133 arrested drivers were 0.10 percent or higher, and they were charged with Driving Under the Influence (DUI). Since drug evaluations were not conducted, there was no determination of impairment for the drivers whose BACs did not support an arrest.

Approximately one-third of the drivers who were released at roadside should have been arrested. The records for each of those cases were examined separately and as might be expected, it was found that lower BACs generated many of the release errors. Roughly two-thirds of the incorrectly released drivers were below 0.10 percent and, therefore, were subject to arrest under the lesser charge. A number of those were only slightly above 0.05 percent.

A second study was carried out in Florida in cooperation with the Pinellas County Sheriff's Office (Burns and Dioquino, 1997). The study procedures replicated those of the Colorado study. Again, the officers' decision were found to be largely correct. Breath test results supported 95 percent of the deputies' decisions to arrest and 82 percent of the decisions to release.

A third recent study conducted by Anacapa Science in collaboration with the San Diego Police Department also examined the validity of the SFSTs (Stuster and Burns, 1997). In this study, officers estimated whether a driver's BAC was above or below 0.08 percent or 0.04 percent, and their estimates were more than 90 percent correct.

HORIZONTAL GAZE NYSTAGMUS

HGN has been found to be the most sensitive and reliable test in the three-test battery. It has also been the most controversial. Although the entire SFST battery has been targeted repeatedly by court challenges in the State of Florida, challenges in other jurisdictions typically have been directed solely to HGN.

Nystagmus can be simply defined as a jerking motion of the eyeball (Aschan et al., 1956; Aschan, 1958; Richman and Jakobowski, 1994). The several types include those with a vestibular system origin (e.g., positional alcohol nystagmus, caloric nystagmus, post-rotational nystagmus) and those with a neural origin. Gaze nystagmus, or HGN, is the latter type and also is the only nystagmus recommended for use as a roadside test. It is evoked by causing the eyes to move in the lateral plane.

Three signs or characteristics of HGN are associated with the presence of alcohol, other CNS depressants, inhalants, or phencyclidine. They are (1) a lack of smooth pursuit, (2) a distinct jerking at maximum deviation of the eyes, and (3) an onset of jerking prior to a 45° angle of gaze (AOG). The procedures for observing a suspect's eyes for HGN include the following:

- Ensure that (1) the suspect can see the stimulus and (2) you can see the suspect's eyes;

- Observe each eye separately for the three HGN signs;
- Hold a stimulus object (pen, penlight, or finger) slightly elevated above the line of sight and approximately 15 inches in front of the suspect's face; and
- Score one point for one sign observed in one eye (three points per eye; possible six point total).

A total score of four points is evidence that the suspect's BAC is ≥ 0.10 percent.

The HGN examination to determine whether a suspect's eyes track smoothly begins with a stimulus held at center vision directly in front of the subject's face. The stimulus then is moved in a straight pathway to the extreme left, back to center, then to the extreme right and back to center. The movement can be repeated as necessary to confirm an observation. If an HGN-producing substance is present, the suspect's eyes will exhibit a jerky movement as they pursue the stimulus.

For examination of the second HGN sign, a stimulus is moved to the side to deviate the lateral position of the suspect's eyes as far as possible. Because the strain of the position may produce a slight tremor of the eyeball, the stimulus must be held at that position for approximately four seconds. The sign, jerking at maximum deviation, is scored only if it is distinct and persists for the entire four seconds.

The third sign is the AOG at the onset of the jerking movement. This important measure reflects the relationship of AOG to BAC. As the BAC rises, the jerking correspondingly occurs earlier, that is at a lesser angle of deviation. The required accuracy of observation dictates a slightly slower movement of the stimulus from the center position toward the periphery. A point is scored whenever the jerking movement occurs prior to a 45° AOG.

The medical literature about nystagmus as a sign of alcohol dates back at least several decades. A study by Lehti (1976) reported that the angle of gaze and BAC correlate highly significantly. Following the introduction of the SFSTs, investigators began to examine law enforcement's use of HGN. Goding and Dobie (1986), reported a study of 46 emergency room patients and 159 DWI suspects. They found no cases of BAC overestimation by gaze nystagmus and concluded that it is an effective tool for estimating BAC. They cautioned, however, that observations may be contaminated by the presence of other drugs.

Good and Augsburger (1986) examined 2,429 records of SFST administration by Ohio State Highway Patrol officers. All of the drivers were arrested, and the BACs of 2,223 (91.5 percent) were found to be 0.10 percent or higher. These investigators concluded that HGN is the most accurate roadside test of sobriety, and that it will enable police officers to make more informed arrest decisions.

Richman and Jakobowski (1994) examined the use of HGN by newly trained police officers. Thirty recruits were trained during a two-day course by NHTSA-certified instructors, experienced Massachusetts police officers, and state troopers. Each trainee then made HGN observations with seven subjects ($N = 210$ examinations) whose BACs ranged from 0.00 percent to 0.11 percent. From an analysis of pass/fail decisions, the investigators reported 87.78 percent sensitivity (correct failures) and 86.67 percent specificity (correct passes). In still another study, in which cognitive tests were evaluated in comparison to the SFST battery, nystagmus emerged as the best alcohol predictor followed by code substitution (Kennedy et al., 1994).

TABLE 3 Horizontal Gaze Nystagmus Court Rulings

Ruling	States (No.)
I. Evidentiary Admissibility	
A. HGN is not a novel scientific test. It is admissible as field test.	8
B. HGN is a scientific test	10
C. Scientific test followed by the state:	
1. <i>Frye</i> (general acceptance)	17
2. <i>Daubert</i> /FRE	12
3. Other	2
D. Inadequate basis to conclude that HGN meets scientific standard.	10
E. HGN does not meet scientific standard.	1
II. Purpose and Limits Of HGN	
A. Probable cause determination in criminal hearing.	10
B. Probable cause determination in civil hearing.	4
C. Evidence of impairment.	21
D. To quantify BAC.	0
E. Same evidentiary weight as other field tests.	10

SOURCE: National Traffic Law Center

The criminal defense community regularly publishes legal documents arguing against HGN (e.g., Cowan and Jaffee; Rouleau; Busloff, 1995). For the most part, these publications consist of legal arguments and interpretations of extant research. They have not reported additional research or new data.

A number of different legal issues and arguments, which may not be entirely understood by non-legal observers, are commonly advanced in court proceedings. As of June 1998, the admissibility of HGN evidence had been directly considered by courts in 38 states, and Table 3 briefly summarizes the decisions produced by those hearings and trials (Gould, 1998). Up-to-date summaries of HGN case law can be obtained from the National Traffic Law Center.²

CONCLUSIONS

Alcohol enforcement by traffic officers would be relatively easy if they needed to stop only those who commit obvious driving errors and to arrest only those who are obviously intoxicated. Since it may be the case, however, that alcohol impairment generates neither gross driving errors nor stereotypical drunk behavior, in reality an officer's task often is very difficult.

The SFSTs, in particular HGN, are important tools for an officer, *because* he must make an arrest or release decision within a few minutes of having stopped a vehicle. The decision cannot be delayed, and it *will* be made based on the sum of information available from observation, interrogation, and testing. Recent field studies indicate that arrest decisions made by officers trained and experienced with the SFSTs are more than 90 percent correct. It is instructive to further consider roadside activities and the decision process from the point of view of an officer.

² National Traffic Law Center, 99 Canal Center Plaza, Alexandria, VA 22314, (703) 549-4253.

- He stops a vehicle.
- His initial observations lead him to suspect alcohol impairment.
- He instructs the driver to get out of his vehicle, and he administers the SFSTs.
- If he decides to arrest, he transports the driver to a booking facility and obtains a BAC.
- If the BAC is measured by breath specimen, as it most often is, he knows immediately whether his roadside decision was correct or incorrect.

Given this kind of regular feedback, the widespread acceptance of the SFSTs constitutes compelling evidence of their validity. It is unlikely in the extreme either that an officer would continue to use, or that a law enforcement agency would permit continued use of, tests that repeatedly produce error. Handcuffing, transporting, and breath-testing a driver takes an officer off active patrol for a period of time. Whenever that driver then is found not to be alcohol-impaired, officer time has been wasted and a citizen has been inappropriately harassed.

The DUI defense community's vigorous efforts to keep testimony about the SFSTs out of court proceedings also speak to the issue. HGN continues to be targeted frequently as an admissibility issue. If the tests produce error, then testimony about them surely would be detrimental to prosecution. If that were occurring, it is unlikely that defense attorneys would exert legal time and effort to ban such testimony.

Perhaps it is most telling that opponents of the SFSTs have not offered alternative tests. Officers must make timely decisions about alcohol impairment based on whatever information is available to them at roadside. At the present time, no other set of tests has been shown to lead to better decisions. Unless and until laws, policies, and practices allow DUI charges to be filed based solely on chemical tests, continued use of the SFSTs appears to be the only and the best option.

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Comments on “Identification of Impairment Outside the Vehicle”

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Dr. Marcy Burns has provided an excellent summary of the development, application, and effectiveness of field sobriety tests. For the first three quarters of this century, police depended on observations that could be made by most adults. Police arrested individuals who were obviously intoxicated based on traditional signs such as staggering, slurred speech, incoherence, and loss of manual dexterity. When the breath test first came on the scene, the blood alcohol concentration (BAC) limit was 0.15, a level at which most drinkers will demonstrate some of these traditional signs of impairment. Once the BAC limits were reduced to 0.10 or 0.08, the police were required to adopt more refined observational techniques. The development of field sobriety tests has served well for this purpose. As Dr. Burns has noted, field studies of the accuracy of field sobriety tests have shown them to be valid when used by properly trained officers.

IMPAIRED DRIVERS MISSED BEFORE STANDARD FIELD SOBRIETY TESTS (SFSTs)

Not revealed by these studies, however, is the dark figure of the high BAC drivers who are not detected and, therefore, not subjected to sobriety testing. To be a candidate for sobriety testing, the suspect must have shown some unusual driving behaviors that caused the police to stop him or her. During the interview at the driver's window, the suspect must also appear to have consumed a significant amount of alcohol. Drivers who might be over the BAC limit but who do not meet both of these criteria cannot be required to leave the vehicle and submit to a sobriety test. The extent to which these two screening requirements result in missing high BAC drivers whose impairment is not readily apparent is demonstrated from research on the use of passive sensors at sobriety checkpoints (Lund and Jones, 1987; Ferguson et al., 1995) and in regular patrols (Taubenslag and Taubenslag, 1975). In general, half of the drivers in these studies with BACs over 0.10 were not detected. Thus, there is evidence that, at the current *per se* limits of 0.08 and 0.10, approximately one-half of the impaired drivers will be missed by an enforcement system that is based almost entirely on observations of driving, personal appearance, and motor behavior.

An example of how the current system is operating is provided by the state of California, which has had an 0.08 law since 1990 and boasts a reputation for strong enforcement. Despite this, the average BAC of drivers arrested for driving under the influence (DUI) by its well-equipped, highly trained state patrol in 1996 was 0.16, about the same as other large states, which vary from 0.13 to 0.18 (MADD, *Rating the States*, 1996). While 68.5 percent of the motorists in weekend nighttime roadside surveys who have BACs over 0.08 fall in the interval between 0.08 and 0.12, only 30.6 percent of those arrested fall into that interval. Thus, even the best enforcement organizations have a strong bias toward the high end of the BAC scale. Since crash risk is a function of BAC,

this bias can be defended. However, it clearly shows that our current system is considerably less efficient at the marginal BAC levels.

As noted, DUI enforcement techniques had to be refined when BAC limits were lowered from 0.15 to 0.10 or 0.08. Now, we are further challenged with the establishment of 0.04 limits for commercial drivers and 0.02 for underage drivers. At these lower levels, little or no behavioral impairment is to be expected. McKnight et al. (under review) have shown, however, as Dr. Burns has reported, that horizontal gaze nystagmus can still provide a useful indicator at a BAC of 0.04, providing the scoring is adjusted for the lower BAC limit. Because individuals at a BAC of 0.04 will show so few signs of impairment, McKnight demonstrated that the horizontal gaze nystagmus test could be administered while the driver is seated in the vehicle. Seated administration is important because, with a BAC of 0.04, without this test the officer might not have enough evidence to require that the suspect exit the vehicle for a field sobriety test. Clearly, at these low levels, behavioral observations are likely to be far less useful than at the 0.10 level. Effective enforcement is going to be dependent on a more aggressive use of alcohol sensors.

With the passage by all 50 states of the zero tolerance law, apprehending drivers younger than age 21 with any measurable amount of alcohol has become a national issue. When the National Highway Traffic Safety Administration (NHTSA, 1991) conducted a national survey of police officers as part of its report to Congress on BAC limits, considerable concern was expressed about enforcing low BAC limits of 0.04 to 0.06. Most police, however, felt that enforcing a zero level would be considerably easier since any evidence of drinking would be the basis for a citation. The extent to which the zero tolerance law will be enforced remains to be determined. Preusser et al. (1992) have identified several problems in enforcing drinking and driving laws with underage drivers beyond the detection of a low BAC that may reduce the number of citations issued under these laws. One likely complication is that while the law prohibits drinking *per se*, officers will continue to rely on finding impairment. They may continue to rely on field sobriety tests even though no measurable impairment can be expected in youths who have had one or two drinks. Of course, where the officer has evidence of drinking and plans to make a charge under the zero tolerance law, conducting a field sobriety test to determine whether the young person may be over the 0.08 limit or under the influence of drugs may be appropriate. But the results of the test should not influence the zero tolerance citation because that decision should be based on evidence of drinking and not on impairment.

PER SE LAWS VERSUS BEHAVIOR

The evaluation of a suspect's *behavior* using SFSTs strongly contrasts with the evidence supposedly required under current DUI driving laws. These are based on statutes that make a given BAC *illegal per se*. In principle, the driver's behavior is irrelevant under a *per se* law, which specifies that having a BAC at or above a specific level is the offense. Nominally, courts should not permit testimony regarding the appearance and behavior of the suspect since this is not relevant when a BAC is available. Of the 50 states having laws that limit the BAC while driving, only Massachusetts does not have a *per se* law.

It is ironic that in our legislatures we debate what level of BAC should be illegal, and we base our public information programs on the number of drinks required to arrive at

a given BAC. Yet, the process of apprehending impaired drivers in the field is almost entirely based on observation of a suspect's behavior. Sensitive, portable, handheld breath-test equipment has been available in the United States for the past 20 years. Several state and local police departments have been equipped with such preliminary breath testers, but they have used the devices only at the margins of the DUI enforcement process. Behavioral observations, no matter how skilled the observers, are subjective and have a larger error variance than the relatively precise measures that can be made using portable breath-test devices. What needs to be explained is why, in the presence of this technology, enforcement of DUI continues to rely almost entirely on observations of human behavior.

LIMITED USE OF PRELIMINARY SENSORS

While the field sobriety test is the principal means by which officers determine whether to make an impaired driving charge, many officers have been equipped with preliminary breath testers (PBTs). However, agency policies have frequently limited the use of these devices. Generally, the preliminary sensor is used only after the field sobriety test. One reason frequently given for this practice is the fear that knowledge of the BAC may bias the officer's judgment in scoring the SFST. Many departments also have a policy against the use of the preliminary sensor before the field sobriety test based on the argument that the officer will focus on the alcohol impairment and will ignore the possibility of drug impairment or become too reliant on the breath-test result and fail to collect sufficient behavioral data to support the charge in court.

A contrasting view of the use of preliminary sensors would consider that they could enhance the possibility of detecting drug-involved drivers. The occurrence of odd or impaired behavior in the absence of an elevated BAC should be an immediate tipoff to the officer that he or she has a drug or medical problem on his or her hands. When originally introduced, preliminary sensors were viewed as an aid to the officers in identifying drivers impaired by diabetic, epileptic, or heart problems rather than drinking.

The preliminary breath test needs to be given equal importance with sobriety testing in the apprehension process, and policies for when and how it is used should receive the same careful consideration and planning that have gone into the development of field sobriety tests.

DETECTION PROCEDURES AS A FUNCTION OF BAC

Table 1 presents an analysis of the enforcement procedures needed as a function of prohibited BAC level. At BACs greater than 0.15, detection through traditional signs of intoxication understandable to the general public and juries should be possible in all but the most alcohol-tolerant drinkers. At this level, the PBT principally provides the officer with a means of distinguishing those impaired by drugs or a medical problem. It is the region between 0.08 and 0.14 in which the SFSTs play the most important role in detecting and measuring impairment. Here the PBT plays an important role in detecting those tolerant drinkers who show little impairment on sobriety tests. In the 0.05 to 0.08 BAC region few behavioral signs are available for use by the police. With a few exceptions, the PBT becomes essential to establishing a basis for arrest, and the passive sensor can play an important, if not essential, role in identifying drinkers. Finally, in the 0.02 range, no

TABLE 1 Requirements for DUI Enforcement Based on Offender BAC

BAC	Vehicle Selection	Behavioral Signs	Field Alcohol Sensing
0.15 + above	Stop for cause	Gross signs of impairment	PBT useful to rule out drug involvement
0.08 - 0.14	Stop for cause and random stopping	Requires refined observations and training	Passives and PBTs important for detecting tolerant drinkers
0.05 - 0.07	Random stopping	Only modified horizontal gaze nystagmus and, perhaps, odor of alcohol useful	Passive sensing important PBT essential
0.02 - 0.04	Random stopping	Only circumstantial evidence such as open containers useful	Passive sensing essential PBT essential

behavioral signs should be expected. Citations must be based on circumstantial evidence or on an alcohol sensor.

TWO ENFORCEMENT SYSTEMS

While the presence of alcohol cannot be observed directly by the human senses, it can be accurately detected and measured with specialized equipment. Australia provides an example of primary or “chemistry-based” (Voas and Lacey, 1990) DUI enforcement. Drivers can be stopped at random and when stopped are required to provide a breath test. In addition to that primary system, Australia also employs a secondary or “behavior-based” system, in which the investigation is triggered by a driver’s error resulting in a crash or in being stopped for a traffic offense. In such cases, the officer may require a breath test at his discretion. While their program involves the use of both of these procedures, there is strong evidence that the primary system has produced the greatest reduction in alcohol-related crashes (Homel, 1988).

Like Australia, all but one of the U.S. states have *per se* laws that could permit primary or chemistry-based enforcement. In practice, we have only a secondary system in which two findings are required before a breath test can be used. There must be probable cause to stop a vehicle (a traffic offense or suspicious driving). Once stopped, there must be a basis for suspecting the driver is impaired even before the PBT can be used. There are, however, enforcement techniques that potentially provide the United States with a primary enforcement system like that in Australia. Random stopping (sobriety checkpoints) is legal in most states, and passive sensors, which do not constitute a search under the Fourth Amendment (Fields and Henricko, 1986), can be used to check every motorist stopped. The use of checkpoints has been shown to be effective (Levy, Shea, and Asch, 1989; Stuster and Blowers, 1995), and the use of passive sensors has been shown to increase the detection of over-the-limit motorists (Ferguson et al., 1995; Lund and Jones, 1987; Williams and Lund, 1984).

In the United States we have a need for both a primary and a secondary DUI enforcement system. We still need a secondary system to arrest dangerous drivers—speeders, reckless operators—and drivers in crashes, based on probable cause to stop the vehicle and observations of the driver’s behavior. What we must not lose sight of is that such secondary systems do not detect a large segment of the DUI offenders. We can see this happening when drivers without safety belts are not stopped in secondary law states. But the failure to detect and stop a drinking driver goes unnoticed. The SFST is a powerful tool for officers once they have stopped a vehicle and decide to invite the driver

out of the car for a test. We should not allow the observed 90 percent accuracy of the SFST for those tested, which Dr. Burns reports, to obscure the fact that the greatest limitation in the SFST is the number of high BAC drivers who are not tested because they do not show the signs of impairment that lead to testing.

PROPOSAL FOR PRIMARY OR CHEMISTRY-BASED ENFORCEMENT IN THE UNITED STATES

Primary DUI enforcement in the United States will only be possible in those states whose constitutions permit checkpoints. Currently, most checkpoints in the United States involve large numbers of officers and are conducted infrequently on holidays such as New Year's Day and the Fourth of July. Because of the large number of officers required to operate checkpoints, they are expensive and administratively difficult to organize. Since passive sensors are not used, half of the over-the-limit drivers passing through the checkpoint site are missed. When processing a large number of drivers, time is not taken to check driver's licenses and frequently safety belt nonuse is overlooked.

Based on current research, the optimal application of the chemistry-based enforcement method would be the frequent mounting of checkpoints once per week or at least twice per month as is done in North Carolina (Foss et al., 1997), Tennessee (Lacey et al., 1997), New Jersey (Levy et al., 1989), and Charlottesville, Virginia (Voas et al., 1985). To minimize costs, these checkpoints should be staffed by four to six officers; a small group of officers works as well as a large group of officers (Stuster and Blowers, 1995). Such operations are relatively inexpensive and can be mounted by relatively small communities or by one or two communities working together. Officers should be equipped with passive sensors so that they can apprehend 80 percent, rather than 50 percent, of the potential offenders. This not only increases the efficiency of the operation—officers at checkpoints with passive alcohol sensors will apprehend DUIs at a higher rate per officer hour than officers on patrol (Voas et al., 1985)—but also increases the credibility of these operations because fewer legally impaired drivers will get through the checkpoints. The efficiency of these primary DUI checkpoint operations can be further increased by checking for unlicensed drivers and for the use of safety belts. In checkpoints where driver's licenses are examined, many arrests are made of drivers who have been suspended as a result of a previous DUI conviction (Voas et al., 1985). Ross (1991) among others has argued that driver's license suspension is the most effective means of reducing the recidivism of DUI offenders. Thus, enforcing this sanction by apprehending suspended drivers is an important function of checkpoints.

Currently, secondary enforcement in the United States suffers from a limitation: Drivers who are alcohol tolerant do not display relatively gross driving impairment and, therefore, go undetected. A particular problem is the failure to detect more of the drinking drivers involved in crashes. Using passive sensors would increase the number of impaired drivers officers could detect at crash sites. If an officer stops a vehicle on suspicion of operator impairment, then he or she will usually require the SFST. However, many motorists are stopped for reasons other than suspect impairment. In such cases, as many as half of the impaired drivers will be missed (Taubenslag and Taubenslag, 1975). Requiring a PBT on everyone stopped by an officer would apprehend such offenders who are currently missed. The British Road Safety Act (which required a PBT for drivers in

crashes, drivers committing traffic violations, or drivers suspected of drinking) demonstrated the effectiveness of this procedure for reducing traffic crashes (Ross, 1984). Two states, Kansas and Nebraska, have legislation that permits the officer to require a breath test of a driver who commits a driving offense such as going through a red light or speeding. Behavioral-based enforcement in the United States could be significantly improved if states passed laws authorizing officers to use a PBT on all individuals who are involved in crashes or who commit traffic offenses. An evaluation of the extent to which these laws in Nebraska and Kansas have resulted in more effective DUI enforcement should be conducted.

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Comments on “Identification of Impairment Outside the Vehicle”

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INTRODUCTION

You have stopped a driver for a traffic violation or at a checkpoint. At the car window, you find enough suspicion of impairment to request that the driver step outside the car for further examination. What methods should you, a police officer, use to decide whether or not to arrest the driver for impaired driving? You have two basic strategies, which can be used separately or together. Behavioral methods observe and record the driver as he answers your questions and performs simple actions that you request. The usual procedure is to follow the Standardized Field Sobriety Tests (SFST). Chemical methods directly measure the alcohol in the driver’s breath to estimate his blood alcohol concentration (BAC), most commonly with a preliminary breath test (PBT) device.

Marcy Burns and Bob Voas have given excellent discussions of behavioral (SFST) and chemical (PBT) strategies, respectively. In a brief discussion I briefly summarize the strengths and weaknesses of these strategies, discuss how each fits into the framework of state impaired driving laws, provide my conclusions and recommendation on how each is best used, and point out the research needs implied by these conclusions.

BEHAVIORAL TESTS: SFST

SFST research, development, and use are discussed thoroughly in Marcy Burns’ paper. To summarize very briefly:

- The SFST consist of three behavioral tests: walk and turn, one-leg stand, and horizontal gaze nystagmus (HGN).
- The SFST were developed to determine whether a driver’s BAC exceeded 0.10 percent, the alcohol level most common in state impaired driving laws. Recent research has concluded that the SFST are equally valid at 0.08 percent BAC. With modified scoring, the SFST can be used at lower BACs.
- Field validation studies in California, Colorado, and Florida find that experienced police officers using the SFST typically have fewer than 10 percent false positives (drivers who fail the SFST but whose BAC level is less than 0.10 percent) and fewer than 20 percent false negatives (drivers who pass the SFST but whose BAC level is more than 0.10 percent).
- The SFST are used in all states and are taught routinely to patrol officers in all state police academies. I believe the most important issues presented by the SFST are:
 - Accuracy: Can the SFST be improved by using additional tests or by modifying the three current tests?
 - Consistency: How to assure that the approximately 400,000 patrol officers in the United States are proficient in using the SFST.
 - Legal challenges: How to assure that the SFST, particularly HGN, are accepted in court.

CHEMICAL TESTS: PBT

Alcohol does not affect every person identically, so behavioral tests never can estimate BAC levels completely accurately. Why not skip behavior and measure a driver's breath alcohol directly? PBTs were developed precisely to do this. Several models are available commercially. They cost between \$440 and \$745 apiece, are quite accurate (definitely more accurate than the SFST), and are generally reliable. Manufacturers estimate that approximately 100,000 PBTs currently are in use (Century Council, 1997).

Approximately half the states currently allow PBT evidence to be admitted in court, typically to establish that a police officer had probable cause to arrest a driver but not to establish the driver's BAC level (Fields, 1998).

PBTs present their own set of issues. I believe the most important are

- Cost: providing one to each patrol officer in a jurisdiction costs at least \$445 per officer, at a time when police agencies are chronically short of funds.
- Reliability: the PBT must work every time, even under difficult conditions at the roadside (hot or cold, wet or dry, after heavy use or after sitting unused for a long time).
- Acceptance by police: some officers are reluctant to use PBTs because they trust their own experience more than a machine or do not want to bother with another piece of equipment.
- Legal issues: courts must accept PBT evidence as part of the impaired driving arrest procedure.

WHICH METHOD TO CHOOSE?

Recall again your task: to decide whether or not to arrest the driver for impaired driving. If you arrest, you want a solid case leading to conviction. If your only issue were to find the best scientific evidence, your choice would be easy: PBTs are more accurate than SFST. But scientific evidence is not the same as legal evidence. To understand why, let us look briefly at impaired driving laws and court procedures.

IMPAIRED DRIVING LAWS: BEHAVIORAL VS. CHEMICAL

Under a "behavioral" law it is illegal to drive while impaired by alcohol or another drug. All states have such a law. A driver's BAC is only one piece of evidence used to establish impairment by alcohol. Under a "chemical" or *per se* law it is illegal to drive with a BAC exceeding a specified level. All states have a *per se* law for drivers under 21 with a BAC level of 0.02 or less, and all states except Massachusetts and South Carolina have a *per se* law for drivers age 21 and above at a BAC level of either 0.08 or 0.10.

In theory, PBT evidence alone should be sufficient to arrest and convict a driver under a *per se* law (of course, after the officer has sufficient justification to stop the driver in the first place and then to ask the driver to step out of his vehicle). In practice, it does not work this way. Courts in the United States are not willing to convict solely on the basis of chemical BAC evidence. At each step the arresting officer must collect behavioral evidence that the driver is indeed impaired. The evidence must be scientifically rigorous enough to withstand cross-examination. It also must be reasonable enough to convince a jury that it is related to driving impairment. The SFST were

developed precisely to meet this need for standardized, scientifically based procedures. The growth of *per se* laws has not changed this need.

Other countries' laws and practices differ. In Australia, Canada, and Sweden, for example, *per se* laws require only chemical evidence, and behavioral methods such as SFST simply are neither needed nor used. But in the United States, some form of SFST will be required for the foreseeable future.

Administrative license revocation (ALR) laws are one way in which many states have adapted to this legal requirement. Under an ALR law, the state motor vehicle administration suspends or revokes a driver's license if the driver's BAC exceeds the state's legal limit. It is a true chemical law. But the sanction is strictly administrative, not criminal. If the state wishes to prosecute the driver under its criminal impaired driving or *per se* laws, then behavioral evidence is needed.

The role of HGN in the SFST illustrates the relation between behavioral and chemical evidence in the United States. HGN measures involuntary jerking movements of a person's eye. HGN is highly correlated with alcohol impairment; in fact, HGN contributes almost all the SFST's predictive power. But HGN is the portion of the SFST that is challenged most frequently in court and has been disallowed by some courts. I believe this is because HGN has no apparent "face valid" connection to driving. It is not something the average judge or juror can understand directly, but rather appears to be "black magic" that must be accepted on the basis of testimony from expert scientists. HGN is even more indirect (or chemical) than BAC test evidence: judges and jurors know that driving performance decreases as BAC increases, but they may not know just from his BAC level that the arrested driver is sufficiently impaired that he is a danger on the road.

CONCLUSIONS AND RESEARCH NEEDS

I believe that behavioral evidence is here to stay in U.S. courts and that the SFST are critical to provide consistent and scientifically valid behavioral evidence. PBTs can be useful to supplement, but not to replace, the SFST. Thus the research and program challenges are to make the SFST used in the field as good as they can be. We do not need research to improve the SFST: Recent research has reviewed the tests, validated them at various BAC levels, and failed to find any improved tests. While HGN does most of the work, the other two tests add a bit to the predictive power and also help considerably in court.

I see two research and program needs: (1) Improve SFST abilities and standardization across 400,000 patrol officers through initial training and in-service refresher training and (2) continue to win acceptance for the SFST in court.

These needs are not traditional laboratory research; rather, they require things like distance learning and motivation on the one hand and legal strategy development and information transfer on the other hand. But they are critical to the continued use and acceptance of the SFST, which in turn are critical to the entire impaired driving arrest, conviction, and deterrence process.

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Evidence of Alcohol and Drug Impairment Obtained After Arrest

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Evidence of alcohol or drug impairment is an essential element of a criminal prosecution for driving while impaired (DWI) by alcohol or drugs. Such evidence, or the refusal to provide such evidence, also is essential in the administrative license sanction area. Evidence of impairment includes:

1. Chemical testing for alcohol or drugs (obtaining and analyzing blood, breath, or urine samples);
2. Observations of the driver including:
 - a. Physical condition, appearance, behavior, and
 - b. Physiological and behavioral tests indicating possible impairment; and
3. Statements by the driver admitting alcohol and or drug consumption and impairment.

Chemical testing for the presence and amount of alcohol or drugs in a driver's body is the most important type of evidence of impairment. However, when a driver refuses to provide such evidence, the prosecution of an individual for DWI is often limited to the other types of impairment evidence listed above. In this paper I will discuss post-arrest impediments to obtaining evidence of impairment of a driver arrested for driving while under the influence of alcohol or drugs, the dynamics and incidence of chemical test refusal, procedures for reducing the refusal rate or reducing the effectiveness of refusal in preventing a conviction for DWI, and the problems and possible solutions to the issue of obtaining chemical tests for impairment from injured drivers receiving treatment at emergency medical facilities after involvement in motor vehicle crashes.

IMPAIRMENT EVIDENCE BASED ON OFFICER'S OBSERVATION AND DRIVER'S ADMISSIONS

Officer's Observations of Indication of Impairment

An officer's observations of the indicia of alcohol or drug impairment corroborate any chemical tests of the amount of alcohol or drugs in a driver's body and, in the absence of such chemical tests, will be the only evidence (other than a driver's admissions) the state has to prove the charge of DWI. Standardized field sobriety tests have been developed that correlate highly with alcohol impairment (Burns, 1985). Such tests can be administered pre- or post-arrest. If obtained pre-arrest, they are used to establish probable cause to arrest as well as for substantive evidence of impairment. Such tests are voluntary, so there are no criminal or administrative consequences for refusing to submit to them. Generally, field sobriety tests are deemed to be non-testimonial, and consequently the driver does not have to be informed of his or her Fifth Amendment

rights to refuse such tests (Jaeckle, 1991; *Pennsylvania v. Muniz*, 1990). The court in *Muniz* did hold that the driver must be advised of his or her Fifth Amendment rights to remain silent if the driver is asked to make statements as part of the field sobriety test. The manner in which such tests are requested may increase the likelihood of the driver's agreeing to submit to them. See the refusal section of this paper and the discussion of methods of requesting implied consent tests. Field sobriety tests are frequently attacked in court based on the argument that the officer's interpretation of the performance of the test is subjective. One way to minimize this challenge is to videotape the performance of the field sobriety tests (Kuboviak and Quarles, 1998). There has been an increased use of videotaping by officers arresting individuals for DWI. The video camera is mounted in the police vehicle and records the driving conduct of the suspect, as well as the behaviors of the officer and the driver (including the driver's statements) after the vehicle has been stopped. Another challenge to field sobriety tests is that they are conducted on rough, uneven road or shoulder surfaces in poor lighting. Videotaping the field sobriety tests conducted at the scene of the stop could reduce or eliminate these challenges.

There is concern in some jurisdictions that videotaping can be a tool for the defendant if the videotape shows a driver who exhibits no signs of impairment while performing field sobriety tests. If such driver has submitted to an implied consent test, then the prosecutor should be prepared to call a toxicologist to present testimony at the trial about the development of tolerance by heavy drinkers. Frequently such drivers refuse testing because they are repeat offenders and know that they will test very high. Criminalizing implied consent test refusals, or allowing evidence of refusal as evidence in a criminal prosecution and adopting plate impoundment for repeat offenders and refusers, mitigates the effective defense of refusing an implied consent test and appearing nonimpaired on a videotape of field sobriety tests (see refusal section in this paper).

The admissibility of a driver's refusal to perform such tests is determined by case law in each state. For example, in Florida the courts have held that a driver's refusal to perform such tests was admissible in his criminal trial for DWI (*State v. Taylor*, 1995). The court held that such tests are not compelled and consequently not in violation of the driver's Fifth Amendment rights. The court further held that refusal to perform such tests can be an indication of a consciousness of guilt. Compare the Florida decision here with *State v. Whitehead*, 1990, and *Pennsylvania v. Muniz*, 1990, which held that interrogation questions not related to informing a driver of his or her implied consent rights, but that are asked during that process, are *not* admissible unless they are preceded by a *Miranda* warning.

Even if a driver refuses to submit to field sobriety tests, an officer can and should record observations of a driver's physical demeanor, speech, and behavior. The driver will be retrieving his or her driver's license from a wallet or purse, walking from his or her vehicle to a police vehicle and subsequently to a booking facility, and answering questions about identity and responding to a request to submit to an implied consent test. With proper training an officer can identify and record many indicia of alcohol or drug impairment by observing these behaviors.

Statements of Drivers Regarding Their Alcohol Consumption and Impairment

A driver's statements can furnish very important and inculpatory information about the amount of alcohol or drugs they have consumed and the degree to which that

consumption has affected their driving. The states vary in regard to whether a driver who is not formally under arrest for DWI, but who is being questioned in a police vehicle at the scene of a traffic stop, must be informed of his or her Fifth Amendment right to remain silent. A given state should evaluate the decisions of its appellate courts in this area and design an interrogation format that is consistent with its courts' decisions. After a driver has been arrested and taken to a law enforcement facility, the U.S. Supreme Court requires that a driver must be informed of his or her Fifth Amendment right not to answer such questions. However, many drivers, even after being informed of their right to remain silent, respond to such interrogation and furnish very inculpatory information (Cassell, 1996). Officers should be encouraged to interrogate suspected impaired drivers, using a series of prepared questions about alcohol consumption, the effect of such consumption on the driver's ability to operate a vehicle, and the existence of any physical or medical condition that would explain the failure to perform field sobriety tests or provide an adequate sample for a breath or urine test.

INVOLUNTARY CHEMICAL TESTS

Chemical tests for the presence and amount of alcohol and or drugs are usually obtained through an implied consent test request procedure. The typical implied consent law allows a driver to refuse such a test. However, in many, if not all, states, if the implied consent law is not invoked, a police officer can obtain an involuntary blood sample that can be analyzed for the presence and amount of alcohol or drugs. This type of test is typically obtained in serious motor vehicle crash cases, in which the investigating officer determines that a driver involved in such crash may have consumed alcohol or drugs prior to the crash. The investigating officer does not want to request an implied consent test because to do so would give the driver, involved in a serious injury-producing crash, the opportunity to refuse to submit to an evidentiary chemical test. The results of such involuntary tests are used to prosecute these drivers for felony-level DWI offenses. Taking an involuntary blood sample in the above situation is a seizure and as such is subject to the search and seizure restrictions of state and federal constitutional law. In *Schmerber v. California* (1966) the U.S. Supreme Court upheld this type of seizure, even in the absence of a warrant. The only limitations on the admissibility of such tests are that the officer obtaining the test must be able to articulate the probable cause basis for seeking such a test and, in most cases, the driver must be under arrest and the blood sample must be drawn consistent with forensic practices. These include the use of a non-alcohol based skin cleaning solution, preservation of the sample to prevent fermentation, and proper maintenance of the chain of custody of the sample (Van Berkomp, 1991). One criticism of obtaining this type of test is that, in the absence of an implied consent test request, the driver's license is subject to revocation only upon conviction of the criminal charge. This often outrages victims of these crashes because they observe the driver continuing to drive while the criminal case is pending. Minnesota has addressed this issue by amending its implied consent law to authorize an involuntary blood test after a driver has refused an implied consent test if the police officer has probable cause to believe the driver was involved in an injury-producing crash (see Minnesota Statute 169.123, Subdivision 4 (a)). Pursuant to this law a police officer at a crash scene can request an implied consent test and, if the driver refuses, issue a notice of revocation and then order an involuntary blood test, the result of which can be used to prosecute the driver criminally for the felony-level DWI crime.

Several states allow a *Schmerber* type of blood sample seizure even in non-accident DWI cases (see *State v. Sauer*, 1993, involuntary test allowed in noninjury DWI situation; *State v. Slaney*, 1995, involuntary test prohibited by statute in noninjury DWI situation). Some law enforcement agencies obtain a *Schmerber* involuntary blood test when they arrest a repeat DWI offender, even if there was no crash. The reasoning is that repeat DWI offenders frequently refuse to take an implied consent test. The typical penalty for refusing an implied consent test is license revocation. However, repeat DWI offenders frequently are currently revoked at the time of their repeat DWI arrest, so the threat of a license revocation is meaningless to them.

The repeat DWI offender often has developed a tolerance for alcohol and consequently exhibits fewer of the external signs of alcohol impairment than a non-chemically dependent driver. The repeat DWI offender also frequently refuses to submit to field sobriety tests. In this situation the state has little evidence of impairment with which to prosecute the repeat DWI offender. Law enforcement agencies, recognizing the difficulty of prosecuting this type of repeat offender, have more incentive to obtain a *Schmerber* involuntary blood test, the analysis of which is admissible in the prosecution of the repeat DWI offender. One possible challenge to the admissibility of an involuntary blood test taken from a repeat DWI offender would be that taking such a test only from repeat DWI offenders is a violation of state and federal constitutional provisions guaranteeing equal protection of the law. Law enforcement agencies should work with their prosecutors to develop a protocol that would allow them to obtain this type of involuntary chemical test for repeat DWI offenders. (See refusal section for a discussion of sanctions for refusal in addition to license revocation.)

VOLUNTARY NONIMPLIED CONSENT TESTS

In many states a police officer can obtain a voluntary non-implied consent evidentiary test from a suspected DWI driver (see *State v. Slaney*, 1995). A voluntary test involves a police officer asking a DWI driver if he or she will take a breath, blood, or urine test. No mention is made of any license revocation consequences for refusing to submit to such a test, and in fact there are none. If the driver refuses to take a voluntary test, then the officer may take an involuntary blood sample *if the jurisdiction allows one*. Voluntary test request situations arise when an officer does not have sufficient facts to request an implied consent test, and the driver has not been involved in an injury-producing crash. Police officers should be educated about the admissibility of such voluntary tests in their jurisdiction. Voluntary testing could, in some situations, be the only way in which an evidentiary test can be obtained.

EVIDENTIARY TESTS

In a criminal prosecution or administrative license revocation procedure for a DWI violation, the admissibility of an evidentiary test for the presence and amount of alcohol or a controlled substance is governed by the statutes, court decisions, and administrative regulation of each state (DWI evidentiary testing regulatory framework). In this section I will identify the numerous issues that have been raised in challenges to the admissibility of such tests. The focus will be on issues that arise in the test request and administration

process. Also discussed will be certain legal concepts and forensic principles that are part of many states' DWI evidentiary testing regulatory framework that impede or complicate the admission of evidentiary tests.

For a concise yet thorough discussion of the dynamics of chemical testing, including reference to some of the core issues about which states must make statutory policy decisions, see Dr. Lowell Van Berkomp's "Chemical Test Evidence in DWI Cases: Some Issues and Challenges." Every year throughout the nation court challenges to the accuracy of alcohol analysis number in the thousands, and many result in reversals because of the "failure of law enforcement agencies to adhere to the established technical or administrative procedures or to the necessary scientific safeguards" (Dubowski, 1986). Technical procedures are based on principles of testing that require testing to be accurate and reliable. Consequently, they cannot be streamlined very much, other than through the development of new or improved testing technology. Administrative procedures and statutory regulations can often be streamlined to reduce the time and complexity involved in obtaining an evidentiary test. There are two periodicals that collect and summarize court decisions involving all aspects of DWI. Included in these periodicals are decisions that address forensic and procedural issues regarding the admissibility of evidentiary test results in DWI criminal and administrative cases. Policy makers and researchers should refer to these journals on a regular basis to remain current on the significant issues related to evidentiary test admissibility. These two periodicals are the "Drinking Driving Law Letter," published by Clark Boardman and Callaghan, and the "Traffic Law Reports," published by Knehans-Miller Publications. The "Drinking Driving Law Letter" also includes short summaries of research articles in the broad area of alcohol, drugs, and driving, including chemical testing and the physiology of alcohol and alcoholism. A review of these periodicals indicates that the following issues are frequently raised in the admissibility of evidentiary testing in criminal and civil DWI cases.

Test Request Procedure

- Challenges to sufficiency of the grounds to request an implied consent test.
- Improper advising of implied consent rights and obligations.
- Confusion on part of driver regarding test submission and right to refuse.
- Confusion between implied consent rights and *Miranda* rights.
- Language barriers to understanding implied consent advice.
- Right to attorney before decision regarding test submission.
- Choice of test (see discussion below).
- Officer documentation necessary for admissibility of test.

Breath Tests

- Availability of testing devices.
- Availability of qualified operators.
- Observation period.
- Administrative regulation; non-compliance.
- Statutory regulation; non-compliance.
- Instrument maintenance, repair, calibration, and certification.

- Operator training and certification.
- Test instrument issues: instrument malfunction; deficient sample; substance in mouth; room air contamination; contaminated sample; radio frequency interference; margin of error; computer printer error; maintenance and repair defects; maintenance and repair records; lack of specificity of instrument for alcohol; correlation factor; calibration tests: simulator solution defects, age, and preparation certification; and failure to save breath sample.
 - Inability to provide breath sample (duty to detect; and duty to advise officer of inability).

Blood Tests

- Sample obtaining procedure (forensic test kits vs. medical sample; identity and nature of solution used to cleanse skin; training and qualification of blood drawer; and informing driver of blood drawer qualifications).
 - Sample preservation, handling, and transportation (including chain of custody).
 - Preservation and availability of sample portion for driver.
 - Obtaining medical records of blood test done for medical purposes after accident.
 - Analysis of blood sample for drugs when only alcohol test requested.
 - Interpretation of results (results given in wrong unit of measurement, weight, or volume; required presence of blood drawer at hearing/trial; required presence of blood analyzer at hearing/trial; and admissibility of sample draw procedure and analysis documentation).

Urine Tests

- Procedure for obtaining valid sample.
- Provision of test sample in private.
- Driver adulteration/contamination of sample.
- Sample preservation, handling, and transportation (including chain of custody).
- Preservation and availability of sample portion for driver.
- Medical condition; inability to give sample.
- Required presence of urine sample observer at hearing/trial.
- Required presence of urine analyzer at hearing/trial.
- Analysis of urine sample for drugs when only alcohol test requested.
- Interpretation of results (results given in wrong unit of measurement, weight, or volume; required presence of blood drawer at hearing/trial; required presence of urine analyzer at hearing/trial; and admissibility of sample draw procedure and analysis documentation).

Four Areas Generating Frequent Challenges to Admissibility of Evidentiary Test Results

Urine/Blood, Breath/Blood Conversion Ratio

In states that prohibit operation of a vehicle with a certain blood alcohol level, breath and urine test results must be converted to a blood alcohol concentration. The conversion

factor used in many states for breath to blood is 1 to 2100. That means that for 1 unit of alcohol in a person's breath, there are 2100 units of alcohol in the person's blood. This conversion factor is an average of a range between 1 to 1150 and 1 to 3000 (Dubowski, 1986). The current conversion ratio is now thought to be 1 to 2300 (Dubowski, 1986). An individual driver's conversion ratio can be anywhere within the above range and, consequently, the use of the 1 to 2100 conversion ratio has generated numerous evidentiary challenges to its accuracy in a given criminal prosecution. This argument is particularly effective in cases involving a driver with a low alcohol concentration. A simple solution to this problem, and one that many states have adopted, is to prohibit the operation of a motor vehicle with a certain amount of alcohol in a driver's blood, *breath or urine*. By including breath and urine as a prohibited condition, conversion is no longer necessary or even relevant (Dubowski, 1986, Van Berkorn, 1991). See also *People v. Ireland* (1995), wherein California's adoption of this statutory framework (blood, breath, or urine) was challenged and upheld. In *Ireland* the court acknowledged the tremendous number of hearings and amount of time taken up by court cases involving this issue.

Relation of Alcohol Concentration at Time of Test to Time of Driving

A substantial number of states require the prosecution to introduce evidence of the alcohol concentration (breath, blood, or urine) of the driver at the time of driving, even though the driver's alcohol concentration was measured some time after driving. This is difficult if not impossible to prove in many DWI prosecutions (Van Berkorn, 1991). In states that require this "relation back" evidence, drivers frequently argue that their alcohol concentration was below the state's legal limit at the time of driving even though their alcohol concentration was over the legal limit at the time of testing. If the driver's alcohol concentration was close to the legal limit at the time of testing, then this argument can be persuasive. The relation back requirement can and does result in acquittals or reversals. A simple solution to this impediment to convicting the impaired driver is the adoption of a DWI law that prohibits having an alcohol concentration over the state's legal limit within a certain time of driving (Van Berkorn, 1991). Minnesota's DWI law, Minnesota Statute 169.121 Subdivision 1 (e) and (f), includes this prohibition, (0.10 or more within two hours of driving), and it has effectively eliminated this issue from DWI prosecutions.

Driver's Right to an Independent Test

Many states' DWI laws allow a driver, while in custody, to obtain an "independent alcohol concentration test" after submitting to the state's evidentiary alcohol concentration test. A driver also has a constitutional right to obtain evidence of an exculpatory nature (*California v. Tombetta*, 1984). It is important to note that when law enforcement takes an *involuntary* blood test for any type of criminal investigation, including DWI, the suspect/defendant is not entitled to an independent test while in custody. The statutory right to an in-custody independent test was adopted in the early days of breath testing, when the breath-test devices were not perceived to be as accurate or reliable and could be manipulated such that the instrument could be made to read any breath alcohol level. Police-officer breath testing removed alcohol concentration testing

from the laboratory, where it was performed by medically trained personnel. There was a lack of trust in the accuracy of a forensic test procedure that was conducted by a non-scientist “layman” police officer. Consequently, an independent test right allowed the driver to obtain a traditional laboratory or medical-type alcohol concentration test that could be used for protection against the then-new non-laboratory testing that had significant criminal consequences. Currently, law enforcement-operated breath-testing instrumentation is highly reliable, accurate, and tamperproof (Dubowski, 1986). Even with the evolution and improvement of breath-testing devices few states have eliminated a driver’s right to an independent test. It appears that there is an increase in the demand for such tests in DWI cases, because it imposes additional duties on the arresting officer. The right to an independent test while in custody imposes complex burdens and issues on law enforcement officials. These include, but are not limited to, duty to advise of right, access to telephone to arrange test, duty to transport driver for test, access to the custody facility and driver by medical or laypersons, and duty to pay for an indigent driver’s independent test. A review of the appellate decisions in this area indicates that evidentiary tests are frequently suppressed because the police somehow interfered with the driver’s right to obtain an independent test. The need for an independent test is no longer necessary in light of the reliability, accuracy, and tamperproof nature of current breath testing. Portions of evidentiary blood and urine samples have been made available to drivers for many years. Technology exists that captures and preserves a portion of the driver’s breath during the state’s evidentiary breath test (Dubowski, 1986). The availability of such samples could mitigate a driver’s need for an independent test. It may be more time- and cost-effective for a state to adopt a breath, blood, and urine sample preservation program and to eliminate a driver’s statutory right to an independent test. This area needs further investigation and policy analysis.

Choice of Evidentiary Test Method

Some states require that the driver be given a choice of the type of implied consent evidentiary test he or she will take. This choice was adopted in the early period of implied consent laws and was based on two reasons. The first reason for allowing drivers this choice was that early breath-test devices were not as reliable, accurate, or tamperproof as current testing instruments. Also, as previously discussed in the section on the right to an independent test, non-laboratory layman alcohol testing was a new development in forensic evidence gathering and consequently was viewed with some skepticism by policy makers and the public. So, to protect the rights of driver/defendants who were requested to take a test, they were given the right to choose the type of test they would take. A second reason for allowing drivers this choice was that many people have a fear of needles—having a needle inserted into their arm is a psychologically and physically painful experience. In the early period of implied consent evidentiary testing, a blood test was perceived to be more accurate than the breath-test technology then in use. While the fear of needles continues to be present in many drivers, breath-testing technology is now very accurate, reliable, and tamperproof (Dubowski, 1986). Allowing a driver to choose the type of test he or she will take creates additional issues for law enforcement. These include, but are not limited to, increased time between driving and testing if a blood test is chosen (although this can be attenuated by the adoption of a DWI law that prohibits driving within a certain period of

testing, (see discussion of “relation back” evidence); the blood drawer and analyzer (if a blood test is chosen) become additional witnesses that the state must produce at trial; inaccuracy of urine tests, which create additional areas of challenge to drivers; cost to the state of drawing a blood sample; delay in obtaining sample analysis if a blood or urine test is chosen; and confusion and error on the part of the officer in properly informing of right to choice of test (resulting in evidentiary test suppression or reasonable refusal).

States that currently allow a choice of test should follow the lead of those states that have modified their DWI law so that the officer now chooses the test (which in most cases will be a breath test), and only if the officer chooses blood or urine does the driver have a choice of an alternative test.

IMPLIED CONSENT TEST REFUSAL

Implied consent test refusal is a serious problem in that refusers are significantly less likely to be convicted of DWI (Ross et al., 1995). Aggravating that problem is that refusal rates appear to increase with offense level (Ross et al., 1995). In all but a few states the only consequence for test refusal is license revocation. However, for a repeat offender whose license is already revoked, this consequence is meaningless. In this section I will discuss the effect of refusal on conviction rates, why drivers refuse, possible methods that can be implemented to reduce the rate of refusal, and which laws a state can adopt to reduce the effectiveness of refusing an implied consent test. I will not discuss what is deemed a refusal as defined by the statutes and courts of each state.

The rate of refusal to submit to an implied consent test varies from state to state. However, the national refusal rate appears to be approximately 20 percent, with some states experiencing refusal rates approaching 50 percent (Jones et al., 1991). Ross et al. (1995) examined the refusal dynamic in Minnesota in 1992. In addition to analyzing refusal and conviction data from the Minnesota Department of Public Safety, interviews were conducted with police, prosecutors, judges, defense attorneys, probation officers, and multiple DWI offenders. The study found that Minnesota’s overall refusal rate was approximately 25 percent, similar to the national average. Refusal had a significant effect on the likelihood of conviction for DWI. The study found that 75 percent of first offenders taking an implied consent test were convicted of a DWI-level offense, and 20 percent were convicted of a reduced non-DWI-related charge. Conviction in almost all cases was obtained by a guilty plea. Only 58 percent of first offenders refusing an implied consent test were convicted of a DWI-level offense, and 31 percent were convicted of a reduced non-DWI-related charge. Repeat DWI offenders taking an implied consent test had a DWI conviction rate of 87 percent and a reduced charge conviction rate of 4 percent. Repeat DWI offenders who refused an implied consent test had a DWI conviction rate of 76 percent and a reduced charge conviction rate of 7 percent.

Ross et al. attempted to identify why drivers refuse to take an implied consent test. They detected a significant difference in the rate of refusal between drivers arrested by the Minnesota State Patrol, with a 7 percent refusal rate, compared with a 22 percent refusal rate for all other police agencies in the state. State Patrol and other police officers who devoted all of their time to traffic enforcement were able to articulate methods and techniques they had developed to increase compliance with a request to submit to an implied consent test request. These techniques were related to reducing the fear and

antagonism that the arrested (and intoxicated or impaired) driver developed during the arrest process. Ross et al. called for further research into this dynamic. They believe that, if such techniques can be identified and taught to other law enforcement officers, refusal rates could be lowered. Ross's research also identified other refusal dynamics that would not be affected by changes in test request procedures by law enforcement officers. These dynamics involved drivers making a conscious choice to refuse based on the knowledge and/or belief that test submission increases the likelihood of a conviction in their case. The preceding statistics validate this belief. An additional dynamic was identified in test refusers who were characterized as fundamentally angry, hostile, and anti-social.

Even the adoption of more effective test request procedures will not totally eliminate refusal. There will be a significant part of the test request population who will always refuse. A state's DWI, implied consent, and motor vehicle registration laws can be changed to deal with this population. Criminalizing test refusal is a powerful and effective tactic. Alaska, Nebraska, Minnesota, and Ohio have adopted this type of law. The laws in these states authorize incarceration upon conviction for such an offense. New York has criminalized the refusal to submit to a preliminary breath test, and Rhode Island imposes a fine and "60 hours of public service" for refusing an evidentiary test. In essence, it becomes a separate DWI crime for a driver to refuse to submit to an implied consent test. The criminal penalty for refusing is the same as the penalty for a conviction for a substantive DWI offense. In addition, repeat offenders who refuse receive the same increased penalty for refusing as they would have received if they had been convicted of a substantive DWI offense.

Ross et al. studied the criminalization of test refusal in Minnesota. They found that while refusal rates did not decrease, *conviction rates did increase by about 5 percent*. Their interviews with police and prosecutors indicated that both groups strongly supported the new crime and believed that it "leveled the playing field" and was a significant and powerful tool that increased convictions. Prosecutors and judges also believed that the new crime decreased trials. This dimension was not studied by Ross et al. because there was no statewide data base that tracked the manner (trial or plea) in which DWI cases were resolved. It is important to note that at the time of the Ross study, the refusal crime only applied to repeat DWI offenders. Minnesota expanded the refusal crime to first offenders in 1991. It also important to note that in a state that criminalizes test refusal, an attorney, advising a driver suspected of DWI, *cannot advise that driver to refuse to take the test*.

While criminalizing implied consent test refusal may be controversial in that many people believe it is philosophically wrong to make it a crime to refuse to give the government evidence that it can then use to prosecute you, the crime is in essence no different than the crime of failing to file an income tax return. It is this author's strong opinion that states should criminalize implied test refusal, at least for repeat DWI offenders.

An additional reason for criminalizing test refusals is that by doing so the need for law enforcement officers to seek a *Schmerber* involuntary blood test is reduced or eliminated in non-accident DWI cases. The driver can be prosecuted for the crime of refusal, along with the crime of DWI (no test).

Another response to test refusal that states can adopt to reduce the effectiveness of refusing to submit to an implied consent test is to adopt some form of vehicle

immobilization for repeat DWI offenders who fail or who refuse to submit to an implied consent test. Repeat DWI offenders continue to drive after their license is revoked for an implied consent or DWI incident (Ross and Gonzales, 1988). Thus the increased revocation period for refusing an implied consent test has little effect on this group. However, if the vehicle driven by the DWI offender is immobilized because the driver refused the test, driving a vehicle will be much more difficult. Research has shown that plate impoundment, a form of vehicle immobilization, reduces overall DWI recidivism by approximately 25 percent, with the reduction in recidivism decreasing as the number of prior offenses is increasing (Rodgers, 1994). Vehicle immobilization will be politically and philosophically easier for a state to adopt than criminalizing test refusal. In fact, there is a significant trend among the states to adopt vehicle sanctions for repeat DWI offenders. One form of vehicle immobilization, plate impoundment, is a low-cost, easily implemented vehicle sanction that does not burden law enforcement or the courts. States desiring to reduce the effectiveness of implied consent test refusal should consider adopting this law.

Another response to refusal that states can adopt is to authorize, by statute, the admission into evidence of a driver's test refusal in the criminal trial for DWI. Juries frequently question why there is no chemical test in a DWI refusal criminal trial. If such evidence is not admissible, then they are left to speculate that the police may have failed to offer one. In those cases, the driver argues to the jury that he or she was not impaired and that there is little or no evidence of impairment. If evidence of test refusal is admissible, then the prosecutor can cross-examine the defendant about why he or she refused, if the defendant now claims he or she was not impaired.

OBTAINING BLOOD SAMPLES FROM INJURED DRIVERS

In this section I will discuss the problem of drivers injured in DWI-related crashes who avoid prosecution for that crime. NHTSA estimates that in 1996 there were 3,511,000 traffic injuries and, of those, 321,000 involved alcohol (NHTSA, 1996). An analysis of the traffic and criminal records of injured drivers admitted to trauma centers who were determined to have consumed alcohol before or while driving indicates that very few (some studies show charging rates as low as 5 percent) were ever charged with a DWI offense (Runge et al., 1996; *ICADTS Reporter*, 1996; Lillis et al., 1996). The research indicated that the more severe the injury, the less likely the driver was to be charged. Runge and Lillis identified several factors that contributed to this low charging rate. These include the focus of the investigating officer on arranging emergency medical services for the injured vehicle occupants at the scene of the crash, the severity of a driver's injuries reducing or eliminating an officer's ability to detect signs of alcohol consumption and impairment, emergency room personnel's reluctance to interrupt treatment to obtain a forensic blood sample pursuant to a law enforcement request, and physician-patient medical privilege and data privacy laws that prohibit emergency room personnel from contacting a law enforcement agency to notify the agency of the presence of an impaired driver (Runge et al., 1996; *ICADTS Reporter*, 1996; Lillis et al., 1996). When an investigating officer detects signs of alcohol consumption on the part of a driver injured at the scene of a motor vehicle crash, an involuntary blood sample can subsequently be obtained at the request of that officer (see previous discussion of

involuntary blood samples). The core problem is that in crashes with severe injuries, crash scene detection of alcohol consumption is difficult if not impossible. The involvement of alcohol is first detected at the trauma center where the injured driver is receiving treatment. Alcohol consumption or impairment is detected at the trauma center based on the odor of alcohol, physiological or behavioral signs of impairment, or a medical blood alcohol test. Runge reports that at the Charlotte, North Carolina, trauma center all patients are required to have a blood alcohol determination. The compliance rate with this requirement is 85 percent. At the trauma center, even if the emergency room personnel wanted to notify a law enforcement officer of the presence of an impaired driver, the medical privilege data privacy laws of approximately 40 states prohibit such contact and disclosure (Wherry, 1996). Absent a physician-patient medical privilege, emergency room or trauma center personnel could contact law enforcement officials who could then either request a forensic blood sample or subpoena the medical blood test results for use in a criminal prosecution (see *State v. Haselman*, 1993; *People v. Menssen*, 1994; results of blood test taken for medical purposes admissible at DWI trial).

The following steps can be taken by a state that desires to increase the prosecution rate of alcohol-impaired injured drivers.

First, modify the state's physician-patient medical privilege law to allow medical personnel to report the presence and identity of persons, injured in motor vehicle crashes, who exhibit signs of alcohol or drug impairment or whose diagnostic blood alcohol test indicates the presence of alcohol. Three states have such laws: Pennsylvania has had such a law for many years, and Hawaii and Illinois recently amended their physician-patient medical privilege laws to allow disclosure. The permissive reporting statutory language should apply to all persons injured in car crashes, not just to drivers. Emergency room personnel will know the nature and cause of the person's injuries but will not know if the injured person was the driver. In most cases the law enforcement officer investigating the crash will have that information, at least to a probable cause level sufficient to request a *Schmerber* involuntary blood test. The amendment of a state's physician-patient medical privilege law to allow or to require such reporting is opposed by many members of the medical community, based on a concern that they want to be caregivers not police officers in regard to their patients. They are also concerned that the injured person may be less likely to seek medical treatment if the person knew that his or her treatment provider could or is required to report the person to a law enforcement agency. On the other hand, many emergency room and trauma center personnel are frustrated when they are unable to report to law enforcement a person injured in a car crash caused by that person's own alcohol consumption and abuse.

Second, establish procedures and communication protocols for use by emergency room and trauma center personnel to identify an alcohol- or drug-impaired crash victim and to notify law enforcement of the presence of such an injured individual. Having these procedures in place will increase the likelihood and efficiency of their use. Even with a right to notify law, absent established identification and notification procedures, emergency room and trauma center personnel may be reluctant to notify law enforcement because of a perception that such a process may be time-consuming, interfere with the delivery of medical services, and require numerous court appearances.

Third, educate law enforcement in the areas of the extent of alcohol involvement in crashes and the current low rates of charging these drivers. Training could also include improved procedures to increase the identification of an injured driver's alcohol

impairment. The availability and use of passive alcohol sensors could increase the identification of such drivers.

SUMMARY

Evidence of impairment is crucial in a DWI prosecution. This paper has identified areas in which problems occur in obtaining that type of evidence and also changes that can be adopted or implemented that can reduce or eliminate those problems.

Procedures for obtaining non-chemical test-type evidence of impairment need to be developed, standardized, and taught to law enforcement. Observations of drivers, field sobriety tests, interrogation of drivers, and videotaping of these forms of evidence-gathering can provide prosecutors with valuable evidence of impairment, and, in cases where the driver refuses to submit to a chemical test, the only evidence of impairment.

Involuntary and voluntary non-implied consent chemical tests can be a viable process for obtaining chemical tests for impairment.

Training and education need to be increased to reduce the incidence of test operator error that often results in the suppression of chemical tests for impairment.

Test refusal is a significant problem in this country. States can adopt statutory measures, including criminalization of test refusal, vehicle immobilization, and the admission of test refusal into evidence to reduce the effectiveness of implied consent test refusal. Research is needed in the area of the test request process to identify methods that can reduce the refusal rate.

In the area of evidentiary chemical testing states should modify their DWI Laws to

1. Prohibit driving with a given breath or urine or blood alcohol concentration and thus eliminate the necessity to introduce conversion evidence;
2. Allow the test-requesting officer to select the type of test the driver must take;
3. Prohibit having a given alcohol concentration within two hours of the time of driving and thus eliminate the necessity of introducing relation back evidence.
4. Eliminate the right of a driver to request an independent test while in custody.

Injured impaired drivers are seldom charged with DWI. Physician-patient medical privilege laws should be amended to allow emergency room and trauma center personnel to report persons injured in car crashes who exhibit indicia of alcohol or drug consumption and/or impairment to law enforcement agencies.

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Comments on “Evidence of Alcohol and Drug Impairment Obtained After Arrest”

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The 1998 TRB Committee Conference heard a variety of papers that examined the problems and issues in detecting and convicting drivers using alcohol and other drugs. The paper by Steve Simon presented a thorough review of the chemical and/or behavioral evidence required for successful prosecution of a DWI arrest. Successfully deterring drivers from using toxic substances while driving requires them to believe such behaviors will be detected and punished by law enforcement. Before discussing the issues raised by Steve Simon about the acquisition of impairment evidence, let us first examine the current success rate of the legal system in prosecuting alcohol driving arrests.

The following discussion uses data from the annual reports of the California DUI Management system. In the latest report (Tashima and Helander, 1996), DUI conviction rates were 73 percent overall for the 231,696 arrests in 1993 and the 206,583 arrests in 1994. An additional 9 percent of the 1993 arrests resulted in alcohol-related reckless driving convictions. A further 2.4 percent of the arrests had convictions for offenses other than DUI or reckless driving. Thus, approximately 85 percent of the original 1993 DUI arrest population received convictions according to state records.

What occurred with the other 15 percent who were arrested but apparently not convicted? This issue was examined in 1993 (Tashima and Helander, 1993), when a random sample was obtained of 1,000 DUI nonconviction arrests from 1990, as reflected in the state master file. Detailed pursuit of these non-convicted arrests determined that 37 percent had actually *been* convicted, but the records failed to be transmitted to the state. Another 33 percent of the non-convicted arrests failed to appear at court. This would equate to roughly 5 percent of the original arrestee population. It is believed to include drivers departing the state and thus avoiding subsequent court warrants. From the sample of non-convicted arrestees, only 6 percent were found not guilty, or less than 1 percent of the original arrestee population. Other reasons for non-conviction include felony imprisonment, death, etc.

Thus, of the more than 200,000 California drivers arrested annually, less than 1 percent were found not guilty.

Participants at the TRB Conference suggested that not all states were as successful as California in prosecuting DUI arrestees. However, at least for California, DUI prosecution has a strikingly successful conviction rate. DUI prosecution is certainly more successful than most prosecutions for activities such as robbery or murder. Few DUI arrestees are actually dismissed as not guilty.

I concur with Steve Simon that attention should continue to be paid to proper development of evidence. But at this time in California apparently the procedures in effect are capable of sustaining a high rate of court convictions. It would appear that for California greater emphasis should be placed on determining the reasons for the failure of roughly 5 percent of the arrestees to appear in court.

Based on the above, I would argue that the deterrence value of DUI convictions is not hindered by an already high conviction rate. Estimates at the conference suggest there are still more than 500 DUI occurrences for every DUI arrest. If there is an insufficient degree of DUI deterrence remaining in California, then the reason for the lack of deterrence should be sought in other areas. Incidentally, the less than 1 percent of arrestees who managed to avoid conviction in court contests also were subjected to strong negative reinforcements, including the cost of their attorneys.

These comments do not take away from Steve Simon's excellent suggestion for improving the evidence gathered for DUI convictions in contested cases. Certainly the best and simplest evidentiary evidence is the automated alcohol breath tester with its ease of usage and resistance to tampering. Because of problems of variability in obtaining behavioral evidence of impairment, passage of *per se* laws requiring only breath or blood samples represents a great contribution in improving the DUI conviction rate. Refusal to provide body fluid specimens, including breath, perhaps can be best dealt with as a separate offense whose punishment is equivalent to DUI conviction.

Steve Simon emphasizes the importance of behavioral signs of impairment being observed by officers, especially when body fluid samples are difficult to obtain. However, in a Southern California Research Institute study (Tharp et al., 1981) breath samples were obtained from drivers stopped and interviewed by police officers for possible infractions. The study reported that officers released more drivers with blood alcohol concentrations (BACs) above 0.10 percent than they detected and arrested. This result is similar to the Wells et al. (1997) study at random sobriety checkpoints. The results of the preceding two studies, as well as others, suggest that it is the problem of detecting and arresting DUI offenders rather than the problem of convicting them that is hindering the deterrence effects of law enforcement.

It is not only police officers who have difficulty observing evidence of impairment or intoxication in drivers with blood alcohol levels above the legal limit. In 1932, Widmark reported on more than 500 drivers in Sweden arrested for possible driving under the influence of alcohol. Sweden required these drivers to be independently examined by physicians in police stations on a seven-item behavioral test battery. Only at a BAC level above 0.14 percent was it at or above 50 percent probability that a driver would be evaluated as under the influence. It required a BAC level above 0.26 percent before 100 percent of drivers were declared under the influence.

Urso (1981) had patients in a Pittsburgh hospital emergency room graded by physicians on simple behavioral tests leading to a judgment of intoxicated or not intoxicated. Just before emergency room discharge, blood samples were obtained. The patients considered sober who had alcohol present had a mean BAC level of 0.272 percent. The highest BAC in an individual considered not intoxicated was 0.54 percent. Thus, the failure of police to identify behavioral evidence of intoxication is a universal problem for subjective evaluation of alcohol influence and is not limited to any profession. Clearly, in both Sweden and America, trained physicians were no better than police at making the determination. Legislation that permitted DUI convictions based on *per se* BAC levels were a major step forward in increasing the rate of DUI convictions for arrestees. It obviated the difficulty of judging behavioral signs of alcohol impairment. This statement should not cast doubt on the efficacy of the DOT-approved sobriety test. Administered by

adequately trained police officers, the test produces evidence of impairment in 85 to 90 percent of individuals in the 0.08–0.10 percent range. Even greater success rates occur at higher BACs. However, one has to have a properly administered sobriety test. Simple observation of random behavior is not a successful substitute. Moreover, even these behavioral tests will never be as successful as the breath testers, given the existence of *per se* laws.

From a systems analysis viewpoint, given the current high efficiency of the existing court system in convicting DUI offenders, at least in California, prime emphasis should be placed on bringing more drivers into the court system by improving methods for detecting the presence of alcohol impairment.

One suggestion that would greatly enlarge the alcohol driving arrest rate would be to require, and I repeat, require officers to breath-test all drivers involved in two categories of events or behaviors.

The first category of events is all drivers involved in collisions. The National Safety Council (1995) estimated 20 million drivers were involved in collisions in 1994. If all collision-involved drivers were breath tested, based on Allsop's 1966 analysis of the Grand Rapids data, I estimate apprehending an additional roughly 700,000 drivers above the legal limit.

A second category of behaviors that would lead to breath testing would be if a driver committed one of the 5 leading traffic infractions identified in NHTSA's studies of driving behaviors associated with drinking drivers (e.g., see Harris, 1980).

Adopting laws requiring officers not to depend on their imperfect behavioral assessment of drivers, but to administer breath tests for crash involvement or traffic infractions, will do more to increase the deterrence of law enforcement than any improvement, desirable as it may be, of the already efficient court conviction rate of DUI arrestees.

Legal scholars, such as Steve Simon, should surely be able to defend the required breath testing for drivers committing traffic infractions or being involved in traffic collisions as meeting the constitutional requirement for probable cause.

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Comments on “Evidence of Alcohol and Drug Impairment Obtained After Arrest”

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VIDEOTAPING

Videotaping driving behavior and field sobriety tests has unquestionable evidentiary value for the obviously impaired driver. But it may be a trap for the unwary when used on drivers exhibiting subtle signs of impairment. If a tape contains unambiguous evidence of impairment, then one would expect that it would discourage even the most aggressive defendant from going to trial. However, if the tape does not contain evidence of obvious impairment, at best, it will be useless to the prosecution; at worst, it will become evidence for the defense.

In his paper, Steve Simon notes the possibility that videotape evidence can be useful to the defense. He suggests that toxicologists should be prepared to testify that experienced drinkers can, and often do, show little or no outward signs of impairment even at high blood alcohol concentrations. This is a reasonable response to a very real problem, but it raises its own problems. After all, the defendant is being charged with a driving offense, not with being an experienced drinker. How is the state going to show the defendant is an experienced drinker? And if the state raises the “experienced drinker” issue, will not juries expect it to demonstrate that the defendant is such a drinker?

There are other policy concerns with regard to the use of videotape equipment. A recent study by the National Highway Traffic Safety Administration notes that officers with video equipment often use it selectively because they do not want ambiguous evidence for the defense to exploit (Jones et al., 1998). If videotape use becomes widespread, then officers will be faced with two equally unacceptable alternatives. They can tape the subtly impaired driver, thereby collecting defense evidence, or they can use it selectively only on obviously impaired drivers. The latter course invites the defense to argue that the lack of videotape evidence suggests impairment cues were not present. The availability of videotape equipment could discourage officers from pursuing the drivers who do not appear to be obviously impaired.

If we significantly increase the percentage of impaired drivers who are detected and prosecuted, then we should carefully consider the unintended consequences of the use of videotapes, especially with regard to the subtly impaired driver.

RECOMMENDATIONS

Simon makes four excellent recommendations for improving chemical test laws:

- Amend *per se* laws to specify the offense is driving with a prohibited breath, blood, or urine concentration, thereby eliminating the need to express evidence from breath or urine tests in terms of blood alcohol concentrations;
- Permit officers to choose the test to be given;

- Prohibit relation back evidence; and
- Eliminate the right to independent testing while in custody.

If *per se* laws are constitutional, a successful challenge to the first recommendation is difficult to imagine. Creative lawyers could undoubtedly assert constitutional problems with the remaining recommendations, but they would be unlikely to succeed.

These recommendations have a common theme. They all simplify overly complex laws. For reasons that are beyond the scope of this workshop, DUI/DWI laws have become exceptionally and unnecessarily complicated. Their complexity has erected substantial barriers to effective enforcement.

Any measure that simplifies the burden on police in collecting and preserving evidence should be given careful consideration. Efforts that complicate the process, even if undertaken for a legitimate purpose, should be pursued with extreme caution.

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Issues in the Detection of Drugs Other Than Alcohol

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ABSTRACT

Driving under the influence of drugs is common among those arrested for DUI, and it is less frequently detected, discouraged, or treated when compared with drunk driving. The various scientific and technical parameters that have restrained prevention/deterrence strategies to deal with drugged driving are discussed in detail. To prevent drug-related traffic accidents, law enforcement officials must be able to detect drivers under-the-influence of drugs as they routinely do now with alcohol detection devices. The availability of technologically advanced on-site drug-testing devices that are capable of providing immediate, accurate, and reliable results provides a unique opportunity to effectively apply this technology in traffic safety and in the enforcement of drugs and driving laws.

BACKGROUND

Drug abuse affects morbidity and mortality in a variety of ways. Among the unrecognized casualties are dead and injured individuals in vehicular accidents caused by or associated with operating a motor vehicle under the influence of illegal drugs. Evidence gathered over the past 50 years has established a direct relationship between increasing blood alcohol concentrations (BAC) in drivers and increasing risk of motor vehicle accident (Council on Scientific Affairs, 1986). As a result, over the past 10 years major initiatives in the United States focusing on driving under the influence of alcohol (DUI) have seen a significant reduction in accidents/deaths due to alcohol intoxication (*MMWR*, 1997; NHTSA, 1997). To some extent this success is due to the fact that biochemical devices used to assess breath-alcohol-concentration are widely available, are relatively inexpensive, and are used universally by law enforcement agencies to determine DUI and enforce the associated laws. Unfortunately, until recently there have been no similar devices available to test for illegal drugs.

PREVALENCE OF DRUGGED DRIVING

In comparison with the alcohol literature, relatively little information is available regarding the true incidence and prevalence of illegal drug use in reckless driving and driving accidents. Breath-alcohol testing technology has established a scientifically sound estimation of the prevalence of alcohol use among reckless drivers (Dubowski, 1992). The principal problem with estimating "drugged" drivers has been the relative unavailability of

drug detection devices to test for illegal drugs. In general, such testing devices were limited to highly specialized forensic laboratories (Turk et al., 1974).

Some data have emerged over the past 20 years, however, which give insight as to the extent of the problem (Willette and Walsh, 1983). Lundberg et al. (1979) reported that the presence of psychoactive drugs other than, or in addition to, alcohol was common in a pooled sample of 765 persons with driving behavior problems in Nevada and California. Williams et al. (1985) reported on a "high risk" sample of 440 young male auto drivers killed in California traffic accidents in which blood specimens collected from these drivers indicated 70 percent contained alcohol and more than 40 percent contained other drugs. Soderstrum et al. (1988) found that of 1,023 patients admitted to The Maryland (Baltimore) Shock-Trauma Unit, 34.7 percent had very recently used cannabis (i.e., greater than 2ng/ml tetrahydrocannabinol in serum) and 33 percent had BAC's greater than 100mg/dL. Marzuk et al. (1990) examined postmortem blood and urine of motor vehicle fatalities in New York City (1984–87) and found that at least one in four dead drivers (ages 16–45) had used cocaine within 48 hours of death. Marzuk et al. detected either cocaine metabolites, alcohol, or both in 56 percent of those killed in fatal traffic accidents in New York City.

In a collaborative effort between the National Institute on Drug Abuse (NIDA) and the National Transportation Safety Board (NTSB) (Crouch et al., 1993), an investigation of fatal-to-the-driver trucking accidents was conducted in eight states over a one-year period. Comprehensive drug screens on blood specimens collected from 168 fatally injured truck drivers indicated that one-or-more drugs were detected in 67 percent of the drivers and 33 percent of the drivers had detectable blood concentrations of psychoactive drugs or alcohol. The most prevalent drugs were cannabinoids and ethanol (each found in 13 percent of the dead drivers); cocaine was found in 8 percent of the cases, and amphetamine-like substances in 7 percent.

In an early evaluation of "on-site" immunoassay technology conducted in Memphis, Tennessee (Brookoff, 1994), individuals arrested for reckless driving who were not apparently impaired by alcohol (had no odor of alcohol or tested negative by breath analysis or both) were tested using a rapid immunoassay urinalysis test for marijuana and cocaine at the scene of the arrest with 59 percent testing positive (18 percent for both drugs, 33 percent for marijuana alone, and 20 percent for cocaine alone). However, when the specimens were reanalyzed in a forensic laboratory, results indicated that the particular on-site device used had produced unacceptably high false positive and false negative results for marijuana. Walsh et al. and Buchan et al. (1997, 1998) recently evaluated four on-site devices for use by police officers in testing DUI suspects. In addition to determining the feasibility of using these devices, one of the specific aims of the project was to determine the extent to which potentially impairing drugs are found in drivers who fail to pass a roadside sobriety test. More than 300 urine specimens were collected from DUI suspects. Each specimen was analyzed on each of four devices and then sent on to a commercial laboratory [certified by the U.S. Department of Health and Human Services (HHS) for forensic drug testing] for reanalysis by immunoassay screen and GC/MS confirmation. The data indicated that 26 percent of the total specimens (78/303) were confirmed positive by GC/MS in the HHS-certified laboratory for one or more illegal drugs. Of those individuals who were able to pass the breathalyzer test (i.e., BrAc < 0.08), 41 percent tested positive for one or more illegal drugs.

Studies evaluating “drugged” driving have primarily used blood or urine to make prevalence estimates. Neither of these specimens can produce an unqualified estimate of the prevalence of “drug-impaired drivers” due to the complexities of the pharmacokinetics and pharmacodynamics of most drugs. The interpretation of drug concentrations in biological fluids, especially with regard to behavioral effect, requires some knowledge about the dose, the route of administration, the pattern or frequency of drug use, and the dispositional kinetics (distribution, metabolism, and excretion) of the drug. This information is rarely available in a forensic situation (Hawks and Chiang, 1987). The decline in blood/plasma concentrations of a drug depends on the disposition of the drug in the body, and the disposition kinetics vary considerably across individuals. In urine the drug concentration also depends on dispositional kinetics and can be even more variable than that in blood or plasma because the urine volume and the urinary pH (which can effect drug elimination) may vary considerably. Interpreting the meaning of either drug/metabolite concentration in a single biological specimen (either blood or urine) with reference to impaired driver performance is therefore an extremely difficult task. The variables involved create a sufficiently great range of possible interpretations to render any specific interpretation questionable, other than that the individual has used a specific drug in the immediate past (days) (Hawks and Chiang, 1987). These complicated interacting pharmacokinetic/pharmacodynamic relationships have restricted the establishment of specific levels of drug concentrations that could be interpreted as evidence of impairment either in blood, plasma, or urine (NIDA Consensus, *JAMA*, 1985).

DRUGS AND DRIVING BEHAVIORAL RESEARCH

A large number of laboratory and simulator studies have been conducted examining the effects of drugs on the behavioral skills required for driving (e.g., Moskowitz, 1985; Smiley, 1981, Robbe and O’Hanlon, 1993). A detailed description of this research is beyond the scope of this paper. In general, the behavioral research literature indicates that drugs can affect driving skills in many ways. The magnitude of the drug effect on behavior is dependent on a variety of factors, including drug, dose, age, sex, weight of the subject, prior experience with the drug, behavioral tolerance, etc. (Transportation Research Board, National Research Council Report, 1993).

DRUG EVALUATION AND CLASSIFICATION RESEARCH

Another line of research has been the development of “Drug Evaluation and Classification” (DEC) programs designed to provide training for law enforcement officers to recognize physiological and behavioral symptomatology associated with recent drug use. The Los Angeles Police Department (LAPD) developed and implemented such a program, and by the early 1980s the Department was using “Drug Recognition Evaluations” (DREs) to evaluate those suspected of driving under the influence of drugs. The DRE consists of a standardized 12-component evaluation process that provides careful observation of the suspect’s appearance, behavior, performance of psychophysical and neurological tests, and vital signs. Those failing the DRE are required to provide blood or urine for toxicological evaluation. In 1984 the National Highway Traffic Safety Administration (NHTSA) and NIDA (Bigelow et al., NHTSA Report # DOT HS-806-

753, 1985) sponsored a laboratory evaluation of the DRE program at Johns Hopkins University, which showed that the LAPD DREs were very accurate in identifying subjects under the influence of drugs and were in most cases able to identify the class of drug (> 91 percent). A subsequent field evaluation conducted by NHTSA (Compton, R., NHTSA Report # DOT HS-807-012, 1986) in Los Angeles showed the DREs were 94 percent correct when they judged that a suspect had used drugs (other than alcohol) and were able to correctly identify the drug class in 87 percent of the cases. These successful evaluations led NHTSA to develop and standardize a curriculum in collaboration with the LAPD, and in 1987 NHTSA began to sponsor the training of police in other jurisdictions via a program administered by the International Association of Chiefs of Police. The training time required for the 3-part DRE curriculum is close to 80 hours, including a two-day preschool, and 56 hours of classroom work, plus on-the-job training. Because of the time and expense involved in the current training, the nationwide prevalence of certified DRE officers is limited.

In 1992, NHTSA conducted an evaluation (Preusser et al., NHTSA Report #DOT HS 808-058, 1992) of the impact of the DEC program on enforcement and adjudication in 11 police agencies in five states. Results varied considerably across the different police agencies. While most of the DRE drug opinions were confirmed by chemical tests and most of the confirmed suspects were convicted, the absolute number of DRE evaluations were significantly fewer than predicted. Across the eleven sites evaluated (AZ, CA, CO, NY, and TX) only 3–4 percent of all DWI suspects were identified as candidates for a DRE evaluation. Based on various prevalence studies, this 3–4 percent range clearly underrepresents the total number of drugged drivers, but since most drug use is in combination with alcohol these numbers are reasonably consistent with drug only (no alcohol) findings. Unfortunately, most state laws do not provide for additional penalties when drugs are found in addition to illegal levels of alcohol. Therefore, if the suspect fails the breath-alcohol test, law enforcement officers have little reason to pursue whether drugs are present in the DUI suspect.

The NHTSA DRE study did find that peak activity in these drug recognition programs occurred in the first year or so after training, with declining activity thereafter. Various rationale were posited for this finding but nothing conclusive was determined. One could hypothesize that the lack of immediate toxicology feedback to reinforce the DRE (i.e., by having to send the specimens off to a crime lab and wait weeks for results) dampened the officers' enthusiasm and limited the effectiveness of the drug recognition program.

IDENTIFYING BEHAVIORAL CUES THAT CAN DISTINGUISH ALCOHOL FROM OTHER DRUG USE

While a significant amount of behavioral research has been conducted on the effects of drugs on driving skills, no specific behavioral cues have been established to distinguish drug use from alcohol intoxication. In a recent evaluation of the DEC program designed to validate the DEC evaluation variables and to determine the accuracy of the DRE, Heishman et al. (1986) found that certain subsets of the DRC evaluation variables could predict the presence of specific drugs (e.g., marijuana, cocaine) more accurately than the entire DEC evaluation. However, most of these variables were physiological indices (e.g.,

nystagmus, increased blood pressure and pulse rate, pupil dilation) rather than behavioral. In a recent study of DUI suspects (Buchan et al., 1998) an attempt was made to correlate positive drug test results with driving behaviors as listed in the arrest report. The only cues that appeared in high frequency with positive drug tests were "weaving" and having been in a "crash."

DRUG TESTING TECHNOLOGY

Over the past 15 years workplace drug testing has expanded exponentially. In the transportation field the U.S. Department of Transportation (DOT) has issued regulations for the airline, maritime, trucking, railroad, pipeline, mass transit, and other transportation industries requiring testing for those employees in specified safety-sensitive occupations (pilots, engineers, truck drivers, etc.) These regulations cover nearly 8 million transportation workers. With regard to nonregulated driving, most states have the legal means (established in implied consent) to require drivers suspected of driving under the influence of drugs to submit to a drug test, but it is rarely used, primarily because crime-lab testing is typically not practical within the scope of existing workloads and priorities. The significant volume of workplace testing in the United States has created a market for sensitive, efficient, and cost-effective devices that could be used on-site for rapid analysis.

Within the past three years new technologically advanced immunoassay drug-testing devices have been developed for use with urine specimens. These devices are capable of rapid accurate and reliable results "on-site" and provide a unique opportunity to effectively apply this technology in traffic safety and in the enforcement of drugs and driving laws.

As the market for drug testing continues to expand, financial incentives are driving the development of more sophisticated technology that is easier to use, more sensitive, and more specific. Many diagnostic manufacturers are conducting developmental research on new products using alternative specimens and technologies.

A variety of specimens can be assayed for drugs (e.g., urine, blood, sweat, saliva, hair). Each specimen is unique, and each offers different patterns of information about drug use over time. Figure 1 illustrates the relationship between drug effects and the detection periods in various specimens. Each specimen has strengths and weaknesses about the level of information that can be gained about drug use. Because the urinalysis drug testing methodology is well established, urine has become the standard by which other technologies are being compared. Drugs and drug metabolites are detectable in urine for several days after the drug has been used. Not only can the time window for detection overlap with intoxication, impairment, and being "under the influence" but it can also extend beyond these states of behavioral impairment. Therefore, while a positive urine test is solid proof of drug use within the past few days, it cannot be used by itself to prove behavioral impairment.

Blood testing: In terms of attempting to relate drug concentrations to behavioral impairment, blood is probably the specimen of choice. Blood has been used in some epidemiology studies; however, because of the invasiveness of the procedure and the inability of forensic toxicologists to agree on behaviorally toxic plasma concentrations little or no work has been done recently with blood.

Saliva testing: In comparison with urinalysis, saliva offers different information regarding the recency of drug use. Detection times for drugs in saliva are roughly similar

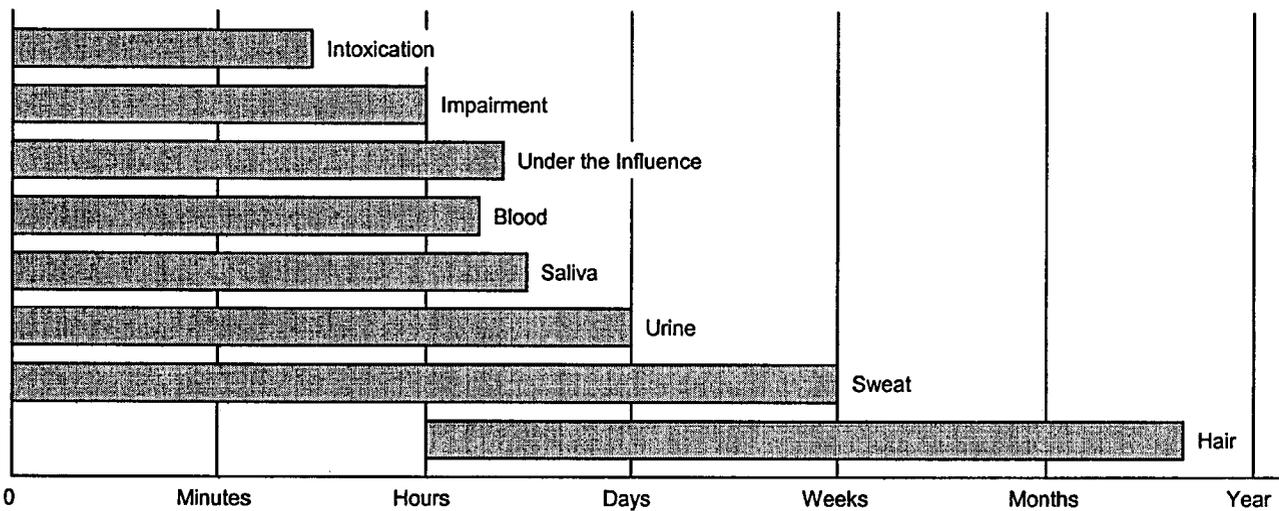


FIGURE 1 Drug Effects and Detection Periods (From E. J. Cone, Addiction Research Center, NIDA)

to that in blood (approximately 4–24 hours). Collection of saliva is generally considered less invasive than either blood or urine and can be an excellent matrix to tie recent drug use with behavioral impairment. The negative side of saliva testing is that testing must be done in a laboratory, specimen collection can be easily contaminated, and the methods for assaying saliva for most drugs of abuse are still in the developmental stages (A cocaine assay has recently been approved by the Food and Drug Administration (FDA), and Opiate and PCP assays are under review; however, no assay for THC is available.). These assays are being developed by STC Technologies (Bethlehem, PA) for use with the OraSure Oral Collection Device manufactured by Epiteo, Inc. (Beaverton, OR). At this time, no nationally established standard methods for saliva drug testing or any certification programs are currently available. However, rapid on-site saliva tests for alcohol are available and have been approved by the FDA. Some on-site alcohol devices have been included by NHTSA on their conforming products listing as suitable for use as screening test devices in the DOT workplace testing programs.

Sweat testing: Sweat-testing methods have recently been approved by the FDA, which include a sweat patch collection device. This patch is designed to collect drugs of abuse from human skin. The patch can be worn for periods up to several weeks, followed by removal and laboratory analysis. This device can measure cumulative drug use over time. The manufacturer (PharmChem Labs, Menlo Park, CA) is developing a patch for workplace usage, which could generate a sweat sample in a 20-minute period. Such a device could provide for the detection of recent drug use, although the detection time window for drugs in sweat has not yet been clearly established. The cons of sweat testing include the high variability of results among individuals, due to the low concentrations of analytes detectable in sweat.

Hair testing: While the technology for assaying hair for drugs of abuse has progressed somewhat over the past 15 years, there remain many unresolved issues (e.g., it remains unclear how drugs actually enter the hair). Because hair only grows at a rate of about one-half inch per month, it is not suitable for the detection of recent use. Therefore, it is highly unlikely that hair could serve as a viable specimen in DUI-drug testing.

Urine testing: At this writing it appears that the most viable method for accurate and reliable drug testing is urinalysis. Laboratory-based urine testing for drug of abuse is widely available, and HHS certifies laboratories for forensic drug testing. The DOT regulations require the use of these federally certified labs. Currently, HHS has nearly 80 labs in the program that are cumulatively processing about 70,000 specimens per day at an average cost in the range of \$8–20, depending on the volume.

On-site urine testing: Some of the most recent advances in drug testing have been the developments in the on-site testing products. There are at least 17 rapid on-site immunoassay devices currently available on the commercial market. These devices have been designed primarily for workplace testing. In a recent evaluation (Walsh et al., 1997) four of these devices were evaluated for use by police officers in testing DUI suspects. Each of the on-site immunoassay devices worked well, although there were differences in the ease of handling and complexity of the test. The authors concluded that several of these devices were quite suitable for use as screening devices and that law enforcement officers were capable of learning to use these devices in a very skilled manner when properly trained.

ISSUES IN THE DETERMINATION OF "DRIVER IMPAIRMENT" DUE TO DRUGS AND "DRIVING UNDER THE INFLUENCE OF DRUGS"

I believe that with the prevalence of illegal drug use in the nation, driving under the influence of drugs in addition to alcohol has become a significant public health problem. As noted by others (Saylor et al., 1992), driving under the influence of drugs is common among those arrested for DUI and is less frequently detected, discouraged, or treated when compared with drunk driving. In fact, most state laws do not provide for additional penalties when drugs are found in addition to illegal levels of alcohol. Therefore, if the suspect fails the breath-alcohol test, law enforcement officers have little reason to pursue whether drugs are present in the DUI suspect. As a result of the growing body of evidence of illegal drug use by drivers, a number of states (AZ, GA, IL, MN, RI, UT and IN) have enacted *per se* laws that generally imply that drug concentrations in body fluids can be used as evidence of being "under the influence" of a drug (Lewis and Buchan, 1998). Under such statutes individuals can be found guilty of "driving under the influence" if he or she was operating a motor vehicle while any illicit drugs were present in his or her system. The concept of "driving under the influence" creates an important legal distinction between proving that observed driver impairment is due to taking a drug (causal relationship) and proving that observed impaired driving behavior was associated with specified concentrations of drug/metabolite in the individual's body fluids.

For more than 20 years the scientific community has been aware of this growing problem of drugged driving but has been reluctant to make strong recommendations because of the complexities of assaying drugs in body fluids and interpreting the results. The 1985 NIDA consensus report (*JAMA*, 1985) concluded that little is known and more research is needed. The NIDA report did lay out a blueprint for research that could lead to the development of prevention/intervention strategies:

In order to establish that use of a drug results in impairment of driving skills and to justify a testing program to respond to this hazard, certain facts must be available. 1. The drug can be demonstrated in laboratory studies to produce a dose-related impairment of skills associated either with driving or with related psychomotor functions. 2. Concentrations of the drug and/or its metabolites in body fluids can be accurately and quantitatively measured and related to the degree of impairment produced. 3. Such impairment is confirmed by actual highway experience. 4. Simple behavioral tests, such as can be done at the roadside by police officer with modest training, can indicate the presence of such impairment to the satisfaction of the courts. 5. A range of concentrations of the drug can be incorporated in laws relating to impaired driving as *ipso facto* evidence.

Nearly 15 years have passed since the NIDA conference and while we now have much of the recommended information, we still do not have all the answers. The problems of individual differences and the variability in the pharmacokinetics/ pharmacodynamics of most drugs make it virtually impossible to tie drug specific drug concentrations to behavioral impairment.

I do not believe that this gap in our knowledge base is sufficient reason to continue to ignore the problem. To prevent drug-related traffic accidents, law enforcement officials must be able to detect drivers under the influence of drugs as they

routinely do now with alcohol detection devices. The availability of technologically advanced on-site drug-testing devices that are capable of providing immediate accurate and reliable results provides a unique opportunity to effectively apply this technology in traffic safety and in the enforcement of drugs and driving laws. The routine availability of drug testing for DUI and of DRE officers could be used as powerful prevention tools to detect and deter drugged driving behavior.

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Comments on “Issues in the Detection of Drugs Other Than Alcohol”

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In reflecting on the paper by Dr. Walsh and in addressing the issues of this workshop, I would like to focus on drugs other than alcohol. With respect to *illicit* drugs I would like to discuss in brief some recent developments in Europe (particularly in Belgium), where new legislation has been proposed to prosecute drivers with measurable amounts of illicit drugs and/or metabolites in their system. With respect to *licit* drugs, it is clear that they have been excluded in most discussions so far, and also in Dr. Walsh’s paper. This is probably because no one actually knows what to do with them, especially in establishing a basis for criminal prosecution. I will comment a little more on prevention in the case of medicinal drugs, although this is somewhat beyond the scope of this workshop.

Dr. Walsh has presented a clear overview of problems that will be encountered in discussing issues related to illicit drugs. He does not cover licit drugs to the extent that we can discuss them with background information similar to that he has given on illicit drugs. Some of Dr. Walsh’s conclusions are the same for both categories of drugs, such as

1. The interpretation of the meaning of either drug and/or metabolite concentrations in a single biological specimen (either blood or urine) with reference to impaired driver performance.
2. The variety of factors that determine the magnitude of the drug’s effect on behavior (including dose, sex, body weight, prior experience, development of tolerance).
3. The lack of provisions for additional penalties in most laws when drugs are found in addition to alcohol, and the impact this has on the efforts of law enforcement officers to look for drugs other than alcohol in cases where alcohol was found positive.
4. The fact that recent technological developments provide us with advanced drug testing devices for use “on-site,” in particular for drug screening in urine. Dr. Walsh presented only a few devices that include licit drug testing, such as for benzodiazepines and tricyclic antidepressants.

In general, we have limited knowledge on the prevalence of drugs other than alcohol in road traffic. Most reports deal with small sample sizes taken from selected driver populations and do not reflect the general driver population. Without discussing the methodological issues dealing with the selection of driver populations (general, suspected of DUI of drugs, collision-involved), one can estimate that the prevalence of illicit drug use in the general driver population will fall (at least in Europe) in the range of 1–5 percent, whereas the prevalence of licit drugs affecting driving performance will be higher (5–15 percent). The illicit drugs of interest at this moment in Europe seem to be cannabis and opiates (not in particular cocaine, found in many studies in the United States), followed by amphetamines. For the licit drugs, benzodiazepines are predominantly found, whereas tricyclic antidepressants are much-less detected. Looking at the data for populations of drivers suspected of driving under the influence of drugs

and for collision-involved drivers, there are no clear differences reported. However, larger variations exist (10–70 percent) depending upon the selection of drivers included in the samples. For example, in Norway the police force seems to be focused very much on drugs other than alcohol, which causes large differences in prevalences of drug use among drivers in comparing the results from various Nordic countries (De Gier, 1998).

The use of the combination of drugs and alcohol in the general driver population revealed major differences while looking at licit and illicit drug use in one large-scale German roadside survey (Krüger et al., 1995). The prevalence of the combination of licit drugs and alcohol was extremely low (only one case), whereas high prevalence was detected for the combination with illicit drugs (44 percent). Similarly, a high prevalence of combined use was found in other driver populations (drivers suspected of DUI of drugs and collision-involved drivers) in a few other large-scale European studies. Although these studies do not all separate licit and illicit drug use, one has to conclude that the combination of drugs with alcohol is one of great concern in terms of traffic safety. This topic has not been discussed by Dr. Walsh. The importance of the synergistic interaction of alcohol and drugs has been stressed by several experts, both in the fields of epidemiology and experimental human psychopharmacology. If mortality was taken as the outcome variable, then Belgian researchers recently indicated a relative risk of 3.56 in the combined positive group, in which a mere additive effect would theoretically have led to a relative risk of 1.60 (Meulmans et al., 1997). Furthermore, it has been suggested that alcohol and cannabis use in combination carries a greater risk potential than either of them alone, in both epidemiological research (Terhune et al., 1992) and experimental research (Robbe and O'Hanlon, 1998).

These conclusions allow me to address the first of my three major comments for further discussion. If we know this greater risk potential on one hand and we still have problems deciding on drug levels for prosecution on the other, then why do we not consider a lower legal BAC level (e.g., 0.02 percent instead of 0.05 percent, which is the legal limit in most European countries for those drivers who are screened positive for alcohol and drugs)? If we can extrapolate the conclusions of the German roadside survey, this will primarily affect the drivers using illicit drugs, since none of the drivers who were found positive for benzodiazepines in the German study showed positive screening results for alcohol as well. Maybe patients using these drugs are more aware of the potential risks of using their medication together with alcohol. The approach to lowering the legal limit might also contribute in part to eliminating the concern of Dr. Walsh. In his paper he indicated clearly that the lack of immediate penalties when drugs are found with low blood alcohol levels will limit the effectiveness of law enforcement and diminish the enthusiasm of officers who are aware of problems with drugs other than alcohol and driving.

My second comment for discussion is the redefinition of the concept of "driving under the influence." The road traffic laws in Belgium and Germany will be changed soon: not impairment, but the presence of the drug in the system has to be proved for prosecution. The two countries have in fact decided in favor of the zero tolerance option, but only for illicit drugs. Experts did not have to argue about "impairment levels" but just to decide on specified concentrations regarding analytical "cut-off" values. The detection process starts with the screening of urine samples for drugs, followed by confirmation in blood tests.

My third and last comment for discussion concerns licit or medicinal drugs and the concept of "illegal drug use," a terminology frequently used by Dr. Walsh in his paper. If a drug is prescribed by a physician in treating a medical condition, how can we speak about illegal drug use? The patient's use of a drug can only be considered "illegal" in cases in which the prescribing physician has forbidden the patient to drive, for example, during a certain period of time. The rationale for this advice to the patient is given by Neutel (1995), from Canada. He performed a pharmacoepidemiological study and revealed an extremely high risk of accident involvement the first two weeks (more than a 10-fold increase during the first week, and a 5- to-6-fold increase the second week) of using a first prescription for a benzodiazepine tranquilizer or hypnotic. If we could enforce prescribing physicians and dispensing pharmacists to act in accordance with knowledge from Neutel's study, then we could decrease the number of traffic injuries and fatalities. In addition, more prevention is possible if we can change their practices toward the use of safer or the least-impairing alternatives (which do exist in the major therapeutic classes). These preventive measures could better serve the search for solutions than discussions of how to tie specific drug concentrations to behavioral impairment as part of the detection process. The research needs in the area of pharmacoepidemiology are fairly simple to fulfill in those countries where drug exposure data and accident data can be linked. The results will convince the public and the policy makers that prevention and better pharmaceutical care are feasible options in addressing the solutions for the drug-and-driving problem. Interventions at the start of a drug treatment will probably be more effective than emphasizing the prosecution issues after impaired driving is detected, caused by medication prescribed without legal provisions.

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Comments on “Issues in the Detection of Drugs Other Than Alcohol”

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Mike Walsh has just provided a fairly comprehensive overview of the issues involved in detecting drug-impaired drivers, acquiring evidence that a driver is impaired or under the influence of drugs other than alcohol, and collecting evidence for the successful prosecution of drug-impaired drivers. I would like to discuss briefly what I see as the immediate research needs in the area of detecting and sanctioning the drug-impaired driver and present some preliminary results of a survey we did on drug-impaired driving in the United States.

DETECTING DRUG-IMPAIRED DRIVERS

There is a clear need for better methods of detecting drug-impaired drivers. While the nature and extent of the highway safety problem due to drugs other than alcohol are less well documented than we might like, there is ample evidence that it is a serious problem on our roads. Survey (self-report) data, incidence studies, trauma center data, and other studies all indicate that many drivers drive while under the influence of drugs. These drivers are often impaired, and as a result they get into crashes. Yet, there are virtually no scientifically sound tools available to law enforcement to help them detect the drug-impaired driver.

I think it is obvious to everyone that the current approach used to detect the drug-impaired driver can be fairly characterized as the “not-alcohol approach.” By this I mean that there is no systematic approach to detecting the drug-impaired driver other than by default when a law enforcement officer has eliminated alcohol as a probable cause of a driver’s impairment. When an officer begins to develop a suspicion that a motorist is impaired, as the result of observed driving behavior, behavior after the motorist has been stopped, or the result of a roadside sobriety test, the natural inclination is to think the impairment is due to alcohol. Only when additional evidence is accumulated, typically as a result of a breath-alcohol test that is incompatible with the observed impairment, does the officer realize the impairment is due to some other reason. At this point attention is turned to drugs other than alcohol.

It appears that there has been enough information accumulated through research over the last decade to make it feasible to develop driving and behavioral cues for detecting driving impairment due to drugs other than alcohol. This information needs to be carefully reviewed with an eye to developing practical tools, similar to those that have been developed and validated for alcohol, that assist law enforcement officers to detect impairment by the other major categories of drugs.

LEGAL ISSUES IN PROSECUTING DRUG-IMPAIRED DRIVERS

It is clear that we are unlikely to be able to deal with the drug-impaired driving problem in the same fashion we have taken with alcohol. For all the reasons Mike mentioned in

his paper, it is unlikely we will have an analog to a simple BAC test, with known concentrations of a metabolite clearly related to driving impairment any time soon, if ever, for most drugs.

Thus, we need to recognize that a different approach is necessary to deal with the drug-impaired driver. I wish I could lay out for you today in full detail what this approach should be, but I cannot. However, I think the outline of what form their approach will take, in part, is becoming apparent. There will be a clear difference in the way legal and illegal drugs are treated. Driving while under the influence of illegal drugs can be prohibited, and in fact has been in a number of states. These laws do not reference impairment. Evidence is still needed that the driver was under the influence of the drug, but there is no need to relate drug concentration to impairment. More widespread adoption of these "under the influence" laws is needed. They greatly simplify the job of the police officer, toxicologist, and prosecutor.

This approach will not work for the legal, yet potentially impairing drugs. This includes many sedatives, depressants, and stimulants, among other prescription and non-prescription drugs. Drivers showing obvious signs of impairment that is not clearly due to alcohol or illegal substances, who are under the influence of drugs, should be in violation of the law. This is an area that needs work.

Other issues that need to be addressed include the elimination of one-test laws that many states currently have in their statutes. These laws, under implied consent provisions, limit the state to requesting a single test of a body fluid. Alcohol is by far the single most prevalent drug impairing motorists. It is logical for a police officer to conduct an alcohol test first; it is most likely to be positive and is easier and cheaper to conduct. However, when the alcohol test result is negative or incompatible with the observed impairment, the option of testing for other impairing substances should be available. The recent development of onsite screening tests using urine offers considerable promise in providing the police with fairly quick and reliable evidence of drug use. The potential benefits of more widespread use of these on-site screening tests need to be looked at carefully.

PRELIMINARY HIGHLIGHTS FROM THE 1996 NATIONAL HOUSEHOLD SURVEY ON DRUG ABUSE

I would now like to share with you some preliminary results from a nationally representative survey that investigated the prevalence and patterns of drug use among drivers in the United States. This information concerns *illicit* drug use and driving and is derived from data collected in the 1996 National Household Survey on Drug Abuse's "Driving Behaviors Module." The driving behaviors module was developed and incorporated into the 1996 National Household Survey on Drug Abuse through a collaborative effort between the Substance Abuse and Mental Health Services Administration (SAMHSA) and the National Highway Traffic Safety Administration.

The driving behavior module was designed to measure the frequency of driving within two hours of illicit drug and/or alcohol use, and the circumstances of these events. It covered the use of only certain, highly prevalent illegal drugs, including marijuana, cocaine, tranquilizers, sedatives, and stimulants. The respondents were 11,847 persons, age 16 or older, who reported driving within the past 12 months. These respondents represent more than 166 million drivers in the United States.

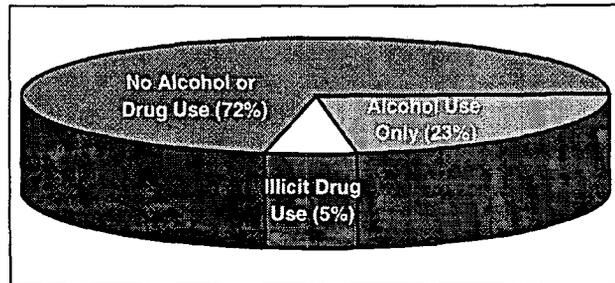


FIGURE 1 Distribution of drivers ages 16 and older by whether they drove within two hours of substance use in past year. Source: SAMHSA, NHSDA, 1996

The results of this survey showed that approximately 5 percent (representing approximately 8.9 million drivers) reported driving within two hours of illicit drug use in the past year (see Figure 1). Twenty-three percent (representing approximately 38 million drivers) reported driving after alcohol use, but never after using drugs other than alcohol. Drivers who drove within 2 hours of illicit drug use were younger than drivers who did not drive within two hours of using alcohol or drugs (see Figure 2); were more likely to be male (see Figure 3); more likely to be single (see Figure 4); and more likely to be unemployed. When compared with drivers who drove within two hours of alcohol use only (and the overall driving population), a higher percentage of those reported driving after illicit drug use were young, single, had an annual income less than \$10,000, were male (compared with all drivers), and were unemployed (compared with all drivers). The full results of this survey should be released sometime this fall.

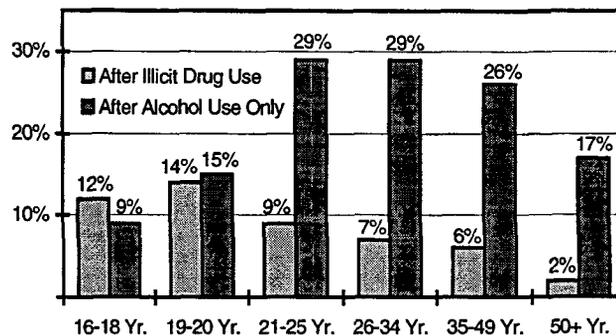


FIGURE 2 Distribution of drivers ages 16 and older who drove within two hours of substance use by age and substance used. Source: SAMHSA, NHSDA, 1996

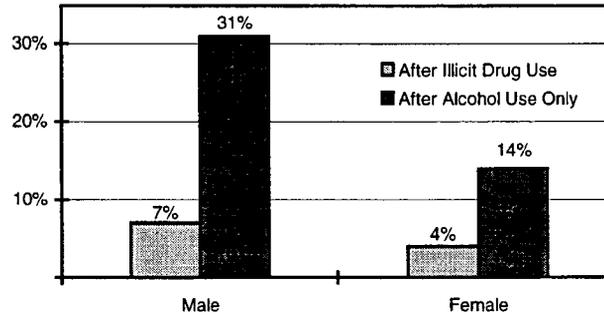


FIGURE 3 Percentage of drivers ages 16 and older who drove within two hours of substance use by gender.
Source: SAMHSA, NHSDA, 1996.

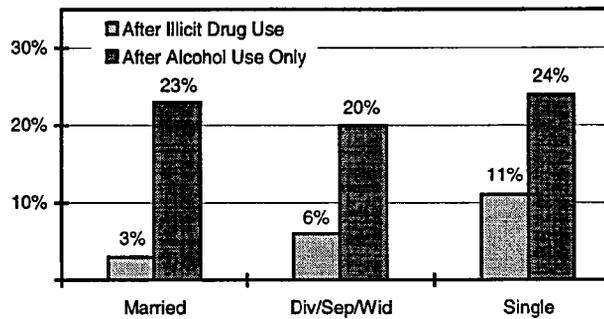


FIGURE 4 Percentage of drivers ages 16 and older who drove within two hours of substance use by marital status.
Source: SAMHSA, NHSDA, 1996.

Prosecuting and Adjudicating DWI Detection Evidence

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ABSTRACT

Defendants and their attorneys challenge criminal and administrative sanctions by asserting noncompliance with each requirement of statute or rule and by violating state and federal constitutional provisions. Peace officers need thorough instruction in the applicable law governing apprehension, investigation, arrest, and testing, as well as training to detect impaired drivers, preserve evidence, record observations, and prepare for trial. Among disincentives to increased enforcement efforts are lack of public support, lack of support from the leadership in some communities, and officers' perceptions that laws are too complicated to understand and administer and that procedures are unduly time-consuming. Enforcement efforts and results can be enhanced by better use of existing technology and simplification of statutory provisions and procedures, along with continued efforts to educate the public to be less tolerant of impaired drivers and more willing to intervene to prevent driving by the impaired or to call the police when an impaired person insists on driving.

HOW IS DETECTION EVIDENCE CHALLENGED?

Introduction

After officers have completed the detection and investigatory stages of a DWI case,¹ the case moves to the next stage: administrative or judicial hearings in administrative driver's license revocation² and criminal proceedings. Here the typical challenge is based upon a claim that the evidence sought to be used was obtained "illegally," whether in violation of state statute or state and federal constitutional requirements. As states have increased the sanctions for DWI offenses, there has been an observable increase in the willingness of drivers to devote more resources to contesting those sanctions, and an increase in the number of attorneys and forensic experts offering their services to those drivers.

¹ Because the term "DWI" is well understood nationally and internationally, that abbreviation will be used herein instead of the various abbreviations used in a number of states to track the precise language of their statutes such as OWI, OMVUI, DUIL, DUI, UBAL, etc. However, there are some who consider "DWI" to be legally insufficient to give notice to a person as to what offense is charged. See, e.g., *State v. Raley*, 86 N.M. 190, 192, 521 P.2d 1031, 1033 (N.M. App. 1974) (the only known abbreviation of "D.W.I." legally is "died without issue").

² While some distinguish between implied consent driver's license revocations for test refusals and "administrative driver's license revocations" for those who submit to testing that discloses prohibited levels of alcohol and other drugs, both groups of cases are lumped together for purposes of this paper.

Statutory Challenges

Because the statutes of the 50 states vary in so many specific details, no attempt is made here to catalog the possible *statutory* challenges under the laws of each state. Because of the explosion in appellate litigation of DWI-related issues in recent decades, references here are largely limited to Minnesota cases. One common requirement in many states in the past has been that an arrest could be made only if the offense was committed in the officer's "presence."³ In Minnesota, for example, there have been challenges based on proof that the officer who requested a test under the implied consent law was a "peace officer" as defined in the implied consent law;⁴ on whether a bulldozer being operated on private property was a "motor vehicle" to which the implied consent law applied;⁵ on whether the "physical control" provisions applied to the conduct involved;⁶ on whether the Implied Consent Advisory form must be read in the squad car at the scene of arrest or at the location where the test will be administered;⁷ on whether a Minnesota officer may follow a driver injured in a Minnesota accident to a Fargo, North Dakota hospital, invoke the Minnesota implied consent law in North Dakota, and obtain a test in North Dakota;⁸ on whether an interpreter must be provided for a driver who speaks only Japanese or is deaf;⁹ on whether the officer offered the driver a choice of testing as prescribed in the statute;¹⁰ on whether the driver has the right to demand a blood test instead of a breath test;¹¹

³ See, e.g., *State v. Cormican*, 292 Minn. 505, 195 N.W.2d 586 (1972). In Minnesota, the "misdemeanor presence rule" was repealed in 1984, and arrests have been authorized on "probable cause" alone since then.

⁴ See *State, Dept. of Highways v. Halvorson*, 288 Minn. 424, 181 N.W.2d 473 (1970).

⁵ See *Ruzic v. Commissioner of Public Safety*, 455 N.W.2d 89 (Minn. Ct. App. 1990) (question answered in the affirmative).

⁶ See, e.g., *State, Dept. of Public Safety v. Junczewski*, 308 N.W.2d 316 (Minn. 1981) (legislature intended statute to be given broadest possible application and effect); *State v. Woodward*, 408 N.W.2d 927 (Minn. Ct. App. 1987) (driver standing by rear bumper of her car, which had a flat tire; claimed someone else drove it there); *Abeln v. Commissioner of Public Safety*, 413 N.W.2d 546 (Minn. Ct. App. 1987) (driver asleep in driver's seat of vehicle, with dead battery, was in physical control); *Short v. Commissioner of Public Safety*, 422 N.W.2d 40 (Minn. Ct. App. 1988) (person asleep in driver's seat of bar parking lot, key in ignition, claiming he entered vehicle solely to use car phone, was in physical control); *Berns v. Commissioner of Public Safety*, 355 N.W.2d 493 (Minn. Ct. App. 1984) (driver in driver's seat, removed keys and put them on floor by passenger's feet to avoid being in physical control, was in physical control); *Dufrane v. Commissioner of Public Safety*, 353 N.W.2d 705 (Minn. Ct. App. 1984) (driver asleep in driver's seat, key never found, was in physical control).

⁷ See *Rohlik v. Commissioner of Public Safety*, 400 N.W.2d 791 (Minn. Ct. App. 1987) (rejecting claim that officer was required to read the form in the squad car at the scene of arrest rather than at the hospital); *Bird v. Commissioner of Public Safety*, No. C7-97-1090 (Minn. Ct. App. Feb. 3, 1998) (unpublished) (rejecting claim that it was improper to read the advisory in the squad car at the scene of the arrest).

⁸ See, e.g., *State v. Torgerson*, 453 N.W.2d 698 (Minn. 1990) (question answered in affirmative); *Boland v. Commissioner of Public Safety*, 520 N.W.2d 487 (Minn. Ct. App. 1994) (same).

⁹ See, e.g., *Yokoyama v. Commissioner of Public Safety*, 356 N.W.2d 830 (Minn. Ct. App. 1984) (need not provide interpreter or advisory warnings in Japanese); *Warner v. Commissioner of Public Safety*, 498 N.W.2d 285 (Minn. Ct. App. 1993) (making interpreter available for deaf driver is desirable, but not essential and should not interfere with evidence gathering).

¹⁰ See, e.g., *State, Department of Highways v. McWhite*, 286 N.W.2d 468, 176 N.W.2d 285 (1970) (must offer blood test); *Haugen v. Commissioner of Public Safety*, 389 N.W.2d 222 (Minn. Ct. App. 1985) (must offer choice between blood and urine tests if either is offered); *Workman v. Commissioner of Public Safety*, 477 N.W.2d 539 (Minn. Ct. App. 1991) (need not offer choice of alternative test unless first offer is refused). See also *Moe v. Commissioner of Public Safety*, 574 N.W.2d 96 (Minn. Ct. App. 1998) ("due process" does not require that driver be given a choice of tests).

¹¹ See, e.g., *Forrest v. Commissioner of Public Safety*, 366 N.W.2d 371 (Minn. Ct. App. 1985); *Carlson v. Commissioner of Public Safety*, 357 N.W.2d 391 (Minn. Ct. App. 1984), both answering the question in the negative.

and on whether the officer violated the statutory right to an additional or independent test,¹² among others.

The most obvious conclusion from reading the cases in Minnesota and other states is that the more requirements the legislature imposes in a statute, the greater the likelihood of an error that provides an opportunity for challenge. The most obvious remedies are (1) to simplify statutory requirements and eliminate those that are unnecessary or counterproductive, and (2) to provide additional training to officers so that they fully understand the requirements they must meet.¹³

Challenges Under State Constitutions

In recent years, appellate courts in a number of states have chosen to exercise their authority to provide greater protection to DWI suspects under the state constitution than is available under the Constitution of the United States of America. The motivations can involve either a fundamental ideological disagreement with the decisions of the U.S. Supreme Court or simply the personal views of individual members of an appellate court. The principal advantage of resorting to the state constitution is that a state supreme court is the *final* authority in its interpretation, effectively insulating the decision from an appeal to the U.S. Supreme Court.

Thus, while the U.S. Supreme Court held that states are free to use sobriety checkpoints and that the court will not second-guess the decisions of state authorities as to the relative effectiveness of various strategies in detecting DWI offenders,¹⁴ the Minnesota Supreme Court imposed a requirement that the state prove the checkpoints to be more effective than traditional roving patrols and held the checkpoint in question to be in violation of the state constitution.¹⁵

Although DWI suspects have no federal constitutional right to consult with an attorney before deciding whether to submit to testing under the implied consent statute,¹⁶ the Minnesota Supreme Court recognized such a right under the state constitution.¹⁷

¹² See, e.g., *State v. Streitz*, 276 Minn. 242, 150 N.W.2d 33 (1967) (no duty to place call for driver); *Frost v. Commissioner of Public Safety*, 348 N.W.2d 803 (Minn. Ct. App. 1984) (officer need not talk to doctor regarding arrangements for test, or keep driver in custody until doctor arrives); *Hager v. Commissioner of Public Safety*, 382 N.W.2d 907 (Minn. Ct. App. 1986) (officer need not transport driver to hospital for test); *Theel v. Commissioner of Public Safety*, 447 N.W.2d 472 (Minn. Ct. App. 1989) (officer must not discourage driver from attempting to arrange for additional test).

¹³ In May 1998, this writer and fellow presenter Steven Simon attended a meeting in Minneapolis between state troopers, deputy sheriffs from several counties, police officers from numerous jurisdictions, prosecutors and legislators, organized by MADD, in which the loudest complaint of the officers was that the Minnesota laws had become so complex and involved so much paperwork and court time that it was very difficult for officers to comply with every requirement no matter how hard they tried. Some officers have expressed so much frustration with following such complex requirements that they, or their colleagues, have given up actively looking for DWI violators and are dealing only with those too obvious to ignore.

¹⁴ See *Michigan Department of State Police v. Sitz*, 496 U.S. 444, 110 S.Ct. 2481 (1990).

¹⁵ See *Ascher v. Commissioner of Public Safety*, 519 N.W.2d 183 (Minn. 1994). However, in *Ascher v. Commissioner of Public Safety*, 527 N.W.2d 122 (Minn. Ct. App. 1995), *review denied* (Minn. Mar. 21, 1995) (“*Ascher II*”), the court held that the evidence obtained in that unconstitutional sobriety checkpoint could be used to cancel the same driver’s license for violating the total abstinence restriction under which he had previously regained driving privileges.

¹⁶ See *Nyflot v. Commissioner of Public Safety*, 369 N.W.2d 512 (Minn. 1985); *Prideaux v. State, Dept. of Public Safety*, 310 Minn. 405, 247 N.W.2d 385 (1976); *State v. Palmer*, 291 Minn. 302, 191 N.W.2d 188 (1971).

¹⁷ See *Friedman v. Commissioner of Public Safety*, 473 N.W.2d 828 (Minn. 1991).

Also, while the U.S. Supreme Court has held that no Fourth Amendment “seizure” has occurred when a suspect is fleeing officers until the person either is touched by the pursuing officers or has submitted to their show of authority,¹⁸ the Minnesota Supreme Court has held that merely commanding the suspect to stop is sufficient to constitute a “seizure.”¹⁹

When such a decision adversely affects DWI enforcement, law enforcement must adjust and adapt unless the situation is one in which there is a realistic possibility of a constitutional amendment,²⁰ or law enforcement must wait until there is either a change in the membership of the court or a carefully prepared test case—or both—to revisit the question.

Initial Contacts and the Fourth Amendment

The Fourth Amendment prohibits “unreasonable” searches and seizures. Thus, if defense counsel can convince the court that an unreasonable search or seizure has occurred, the charges are most likely to be dismissed. As a result, there is a considerable body of case law on questions such as whether the initial contact between an officer and a suspect involved a “search” or “seizure.” If the officer seized the driver, the prosecution must be prepared to justify the seizure and demonstrate that it was “reasonable.” However, if no seizure occurred, no justification is required: the Fourth Amendment does not forbid officers from walking along a street or through a parking lot looking into every vehicle, or from engaging in ordinary conversations with anyone in the vehicle or standing on the sidewalk.

Approaching Stopped Vehicles

Generally, it is not a seizure to approach a person or vehicle in a public place. Thus, if an officer approaches people sitting in a parked vehicle and then observes open alcohol containers in the vehicle or other contraband, the act of approaching the people is not a seizure, and the seizure that follows the observation of evidence of criminal activity is justified.²¹ However, if the officer, instead of getting out of the squad car and approaching the person, summons the person to the squad car, a seizure has occurred.²²

Likewise, if an officer responding to a call inadvertently blocks a vehicle’s future movement, then no seizure occurs.²³ However, if an officer intentionally parks his squad car in a position that prevents the vehicle from moving, then a seizure occurs.²⁴

¹⁸ See *California v. Hodari*, 499 U.S. 621, 111 S.Ct. 1547 (1991).

¹⁹ See *Welfare of E.D.J.*, 502 N.W.2d 779 (Minn. 1993).

²⁰ Thus, when the court held, in *State v. Hamm*, 423 N.W.2d 379 (Minn. 1988), that six-person juries in misdemeanor and gross misdemeanor cases violated the state constitution, although statutes have provided for six-person juries since the 1851 Territorial Statutes, the bill to amend the constitution—which easily passed and was overwhelmingly approved at the next election—was introduced *before* the decision was issued—suggesting that someone at the court tipped someone at the legislature of the impending decision, which would provide the necessity for the legislation. Incidentally, Mr. Hamm was tried again for DWI with a 12-person jury and was convicted.

²¹ See, e.g., *State v. Alesso*, 328 N.W.2d 685 (Minn. 1983); *State v. Vohnoutka*, 292 N.W.2d 756 (Minn. 1980).

²² See *State v. Day*, 461 N.W.2d 404 (Minn. Ct. App. 1990).

²³ See *Erickson v. Commissioner of Public Safety*, 415 N.W.2d 698 (Minn. Ct. App. 1987) (officers answering a call about persons disrupting a wedding party parked their squad cars in the driveway, blocking egress, and entered the building to discover that their suspects were now seated in a car they had inadvertently blocked in the driveway).

²⁴ See, e.g., *Klotz v. Commissioner of Public Safety*, 437 N.W.2d 663 (Minn. Ct. App. 1989); *State v. Sanger*, 420 N.W.2d 241 (Minn. Ct. App. 1988).

In a number of jurisdictions, there are cases that refer to the “community caretaker function” of the police officer, under which officers offer help to citizens in an infinite number of circumstances.²⁵ While Minnesota decisions have not used the term, it has long been recognized as a legitimate basis of police contacts with individuals. Thus, police may stop to check on a vehicle stopped along the highway to see if the occupants need assistance.²⁶

Because police have a duty to investigate motor vehicle crashes, no further justification is needed to approach crash scenes and get information from drivers and witnesses.

Stopping Moving Vehicles

It is a seizure for an officer to stop a moving vehicle, and that seizure must be justified. One formulation is that the officer must have a particularized and objective basis for suspecting the particular person who has been stopped of criminal activity.²⁷ The Minnesota Supreme Court has long adhered to another formulation, articulated in *People v. Ingle*, 36 N.Y.2d 413, 420, 369 N.Y.S.2d 67, 74, 330 N.E.2d 39, 44 (1975):²⁸

It should be emphasized that the factual basis required to support a stop for a “routine traffic check” is minimal. An actual violation of the Vehicle and Traffic Law need not be detectable. For example, an automobile in a general state of dilapidation might properly arouse suspicion of equipment violations. All that is required is that the stop be not the product of mere whim, caprice, or idle curiosity. It is enough if the stop is based upon “specific and articulable facts which, taken together with rational inferences from those facts, reasonably warrant [the] intrusion.” *Terry v. Ohio*, 392 U.S. 1, 21, 88 S.Ct. 1868, 1880, 20 L.Ed.2d 889, 906 (1968).

Obviously, if the officer observes an actual traffic violation, the stop is *almost* always justified.²⁹ Thus, it is now well established that even if an officer uses a minor

²⁵ See, e.g., *State v. Smith*, 4 Neb. App. 219, 540 N.W.2d 374 (1995) (under appropriate circumstances a law enforcement officer may be fully justified in stopping or contacting a vehicle to provide assistance as part of the officer’s “community caretaker function” without needing any reasonable basis to suspect criminal activity, citing *Cady v. Dombrowski*, 413 U.S. 433, 93 S.Ct. 2523 (1973)); *State v. Halfmann*, 518 N.W.2d 729 (N.D. 1994) (officer was acting in a community caretaker capacity when he stopped behind the defendant’s stopped car, turned on amber warning lights, approached the defendant and questioned her; there was no “stop” for Fourth Amendment purposes); *State v. Ellenbecker*, 464 N.W.2d 427 (Wis. App. 1990) (police officer’s stop to assist a motorist stopped on the road with hood raised is not an “investigatory stop” requiring suspicion of illegal activity).

²⁶ See, e.g., *State v. Compton*, 293 N.W.2d 372 (Minn. 1980). See also *Paulson v. Commissioner of Public Safety*, 384 N.W.2d 244 (Minn. Ct. App. 1986); *Kozak v. Commissioner of Public Safety*, 359 N.W.2d 625 (Minn. Ct. App. 1984); *Blank v. Commissioner of Public Safety*, 358 N.W.2d 441 (Minn. Ct. App. 1984).

²⁷ See, e.g., *State v. Kvam*, 336 N.W.2d 525 (Minn. 1983), citing *United States v. Cortez*, 449 U.S. 411, 101 S.Ct. 690 (1981) and *Delaware v. Prouse*, 440 U.S. 648, 99 S.Ct. 1391 (1979).

²⁸ See, e.g., *State v. Johnson*, 444 N.W.2d 824 (Minn. 1989); *Marben v. Commissioner of Public Safety*, 294 N.W.2d 697 (Minn. 1980); *State v. Barber*, 308 Minn. 204, 241 N.W.2d 476 (1976); *State v. McKinley*, 305 Minn. 297, 232 N.W.2d 906 (1975).

²⁹ See, e.g., *State v. Bissonette*, 445 N.W.2d 843 (Minn. Ct. App. 1989) (failure to signal turn even if no other vehicle is near enough to create a danger); *Holm v. Commissioner of Public Safety*, 416 N.W.2d 473 (Minn. Ct. App. 1987) (failure to dim headlights); *Daly v. Commissioner of Public Safety*, 405 N.W.2d 489 (Minn. Ct. App. 1987) (illegal honking); *State v. Pierce*, 347 N.W.2d 829 (Minn. Ct. App. 1984) (loud muffler). However, Minnesota is one state that has made seat belt law violations a “secondary violation” rather than a “primary violation,” and a stop may not be made solely on the basis of a seat belt violation. See *State v. Fiebke*, 554 N.W.2d 755 (Minn. Ct. App. 1996).

offense as a “pretext” for seeking evidence of a more serious offense, the Constitution is not offended.³⁰ However, in those states in which Indian reservations are located, depending upon the status of a particular reservation, the state may or may not be able to enforce traffic laws against members of Indian tribes on Indian lands.³¹

A stop can be valid even if the officer does not actually *see* the violation, but observes facts from which the officer can reasonably infer that the violation occurred.³² Likewise, an officer may stop a vehicle seen near the scene of a reported crime to “freeze the situation” even without information linking the crime to *any* vehicle.³³ An officer may also validly stop a vehicle seen at unusual times in an area with a history of criminal activity or a potential for criminal activity.³⁴

An officer who reasonably suspects that the driver of a vehicle does not have a valid driver’s license can validly stop the vehicle,³⁵ even if the suspicion later proves to be mistaken.³⁶ Likewise, suspicion that the vehicle’s registration has expired justifies a stop.³⁷ However, in Minnesota, where certain egregious DWI offenders have their license plates impounded but special series registration plates can be issued to allow family members with valid licenses to drive, mere operation of a vehicle with special plates does entitle officers to stop the vehicle to make certain that the person driving is

³⁰ See, e.g., *Whren v. United States*, 116 S.Ct. 1769 (1996); *State v. Everett*, 472 N.W.2d 864 (Minn. 1991); *State v. Battleson*, 567 N.W.2d 69 (Minn. Ct. App. 1997).

³¹ See, e.g., *State v. Stone*, 572 N.W.2d 725 (Minn. 1997) (Minnesota’s laws regarding speeding (Minn. Stat. § 169.14 (1996)); driver licensing (Minn. Stat. §§ 171.02, 171.27 (1996)); vehicle registration (Minn. Stat. § 168.09 (1996)); seat belt use (Minn. Stat. § 169.686 (1996)); child restraint seats (Minn. Stat. § 169.685, subd. 5 (1996)); motor vehicle insurance (Minn. Stat. § 169.797 (1996)); and proof of insurance (Minn. Stat. § 169.791 (1996)) are civil/regulatory for purposes of Public Law 280 and may not be enforced); *State v. Robinson*, 572 N.W.2d 720 (Minn. 1997) (underaged alcohol consumption law may be enforced, but failure to yield to emergency vehicle may not be enforced). While the perceived distinction is between “civil/regulatory” laws and “criminal” laws, it is rather difficult to discern a test by which one determines which traffic laws are civil/regulatory and which are criminal, because nearly all traffic laws exist to regulate human behavior by imposing criminal penalties for misconduct.

³² See *Berge v. Commissioner of Public Safety*, 374 N.W.2d 730 (Minn. 1985) (from speed of vehicle, officer inferred that driver could not have stopped at stop sign screened from view by vegetation).

³³ See, e.g., *Applegate v. Commissioner of Public Safety*, 402 N.W.2d 106 (Minn. 1987) (vehicle leaving parking lot of apartment complex where burglary was reported to be in progress); *Purnell v. Commissioner of Public Safety*, 410 N.W.2d 439 (Minn. Ct. App. 1987) (vehicle leaving area of reported assault stopped on suspicion that perpetrators, victim or witnesses might be inside); *State v. Giebenhain*, 374 N.W.2d 573 (Minn. Ct. App. 1985) (stop of vehicle seen near a building where volunteer fireman heard a noise and mistakenly reported a possible burglary).

³⁴ See, e.g., *State v. Fish*, 280 Minn. 163, 159 N.W.2d 786 (1968) (stop of vehicle emerging from parking lot of closed rural bar at 2:30 a.m.; burglary reported after stop); *State v. Clifford*, 273 Minn. 249, 141 N.W.2d 124 (1966) (stop to see why driver was circling a closed business at 3:30 a.m.); *State ex rel. Ogg v. Tahash*, 273 Minn. 187, 140 N.W.2d 692 (1966) (stop of car emerging from small-town alley at 2:00 a.m. to see who they were and what they were doing). See also *Olmscheid v. Commissioner of Public Safety*, 412 N.W.2d 41 (Minn. Ct. App. 1987) (stop of vehicle on dead-end road near closed businesses in early morning hours).

³⁵ See, e.g., *State v. Pike*, 551 N.W.2d 919 (Minn. 1996) (officer can reasonably assume registered owner is driving unless there is information to the contrary); *State v. Duesterhoeft*, 311 N.W.2d 866 (Minn. 1981) (deputy sheriff reasonably assumed registered owner was driving and, based on month-old information, was still under revocation). Although the opinion in *Duesterhoeft* does not mention it, the deputy sheriff has advised this writer that the vehicle was a pickup with a “topper,” making it impossible to see who was driving.

³⁶ See *City of St. Paul v. Vaughn*, 306 Minn. 337, 237 N.W.2d 365 (1975) (vehicle validly stopped in mistaken belief that driver was the actual driver’s brother, who was under suspension).

³⁷ See *State v. Delaney*, 406 N.W.2d 584 (Minn. Ct. App. 1987) (vehicle with faded-looking temporary registration permit in window).

driving lawfully.³⁸ Driving conduct that is not inherently “illegal” can also justify a stop.³⁹ Evasive driving conduct that suggests that the driver is trying to avoid any contact with law enforcement can justify a stop.⁴⁰

Many investigatory stops are initiated by citizen complaints to police officers. Citizen informants are presumed to be reliable whether anonymous or identified. Thus, when the citizen describes an actual violation, the officer is justified in making an investigatory stop even if the described violation is not observed by the officer.⁴¹ However, if the informant is anonymous, and the “tip” itself does not describe a violation but merely arouses suspicion of a “possible drunk driver,” the officer needs more information to justify the stop.⁴² Some appellate judges view anonymous citizen complaints with great suspicion and appear to apply a presumption that any complaint by an anonymous citizen is unreliable.⁴³

The DWI Detection Guide

Two decades ago, the National Highway Traffic Safety Administration (NHTSA) commissioned a study to identify and evaluate the types of driving conduct that led to DWI arrests. The researchers studied thousands of DWI arrest reports from agencies in various parts of the country, and came up with more than three hundred types of driving conduct. Because speeding is too common among sober drivers to be useful in discriminating the drunk from the sober, speeding was eliminated as a possible “cue” to DWI violations. NHTSA ultimately developed a list of twenty types of driving conduct that were most likely to involve a driver with an alcohol concentration of 0.10 percent or more.⁴⁴

³⁸ See *State v. Greyeagle*, 541 N.W.2d 326 (Minn. Ct. App. 1995). The opinion suggested that the result might be different if the legislature provided that operation of a vehicle with special series registration plates implied consent to be stopped and checked out at any time. In 1997, the legislature enacted a new Minn. Stat. § 168.0422 (Supp. 1997), which provides: “A peace officer who observes the operation of a motor vehicle within this state bearing special series registration plates issued under section 168.041, subdivision 6, or 168.042, subdivision 12, may stop the vehicle for the purpose of determining whether the driver is operating the vehicle lawfully under a valid driver’s license.” As of this writing, the appellate courts have not had occasion to rule on the validity of this provision.

³⁹ See, e.g., *State v. Ellanson*, 198 N.W.2d 136 (Minn. 1972) (weaving in lane); *State v. Engholm*, 290 N.W.2d 780 (Minn. 1980) (vehicle traveling very slowly and weaving in lane); *State v. Wicklund*, 295 Minn. 402, 205 N.W.2d 509 (1973) (slow moving vehicle with youthful-looking passengers suggested possible curfew violation).

⁴⁰ See, e.g., *State v. Johnson*, 444 N.W.2d 824 (Minn. 1989) (driver made eye contact with trooper, promptly turned down a dead-end road, and was stopped when he came out to find out why he sought to avoid police contact); *State v. Petrick*, 527 N.W.2d 87 (Minn. 1995) (driver immediately turned into a driveway and turned off lights before coming to a stop upon spotting officer’s squad car).

⁴¹ See, e.g., *Marben v. State, Dept. of Public Safety*, 294 N.W.2d 697 (Minn. 1981) (trooper stopped vehicle on basis of CB radio complaint from truck driver on I-94 that vehicle behind him had been tailgating him for about 70 miles; no tailgating seen); *State v. Davis*, 393 N.W.2d 179 (Minn. 1986) (officer stopped vehicle on basis of complaint from person that driver of specific vehicle had just run a red light); *City of Minnetonka v. Shepherd*, 420 N.W.2d 887 (Minn. 1988) (gas station attendant called to report driver of specific vehicle was intoxicated; no bad driving seen).

⁴² See *Olson v. Commissioner of Public Safety*, 371 N.W.2d 552 (Minn. 1985) (sheriff’s dispatcher reported 911 call of “possible drunk driver” in specific vehicle; no bad driving seen).

⁴³ See, e.g., *State v. Hjelmstad*, 535 N.W.2d 663, 666 (Minn. Ct. App. 1995) (“the trial court’s analysis misses a fundamental point from which our analysis must start, that being the credibility of the informant.”).

⁴⁴ See Harris, Howlett and Ridgeway, *The Visual Detection of Driving While Intoxicated*, Project Interim Report: Identification of Visual Cues and Development of Detection Methods. Anacapa Sciences, Inc., for Department of Transportation, National Highway Traffic Safety Administration, January 1979. (NHTSA Technical Reference No. HS 805 051; NTIS No. PB 80 108 327); Harris, Dick, Casey and Jarosz, *The Visual Detection of Driving While Intoxicated*, Final Report: Field Test of Visual Cues and Detection Methods. Anacapa Sciences, Inc., for Department of Transportation, National Highway Traffic Safety Administration, April 1980 (NHTSA Technical Reference No. HS 805 620; NTIS No. PB 81 133 522).

The final listing of cues was published and distributed to law enforcement agencies by NHTSA.⁴⁵ The twenty categories of driving conduct shown to be the most likely cues to DWI violations are

1. Turning with wide radius;
2. Straddling center of lane marker;
3. Appearing to be drunk;
4. Almost striking object or vehicle;
5. Weaving;
6. Driving on other than designated roadway;
7. Swerving;
8. Speed more than 10 mph below speed limit;
9. Stopping without cause in traffic lane;
10. Following too closely;
11. Drifting;
12. Tires on center or lane marker;
13. Braking erratically;
14. Driving into opposing or crossing traffic;
15. Signaling inconsistent with driving actions;
16. Slow response to traffic signals;
17. Stopping inappropriately (other than in lane);
18. Turning abruptly or illegally;
19. Accelerating or decelerating rapidly; and
20. Headlights off.

Probable Cause for Arrest

Absent a statutory requirement that a peace officer can arrest only for violations committed in the officer's presence, DWI arrests may be made upon probable cause or some synonymous term.⁴⁶ "Probable cause" is essentially a reasonable belief,⁴⁷ based upon an evaluation of the facts as they appear to an experienced police officer at the time.⁴⁸ It can be based on the collective knowledge of all officers of one or more agencies, even if the officer making the actual arrest does not possess all of the necessary information.⁴⁹

Courts are also to apply an objective standard to the review of an officer's probable cause determinations, based upon the totality of the circumstances and the recognition that trained law-enforcement officers are permitted to make "inferences and deductions that might well elude an untrained person,"⁵⁰ and that "great deference" should be given to the

⁴⁵ See *Guide for Detecting Drunk Drivers at Night*, National Highway Traffic Safety Administration, U.S. Department of Transportation (DOT HS 805 711, 2nd ed. January 1982).

⁴⁶ See, e.g., *State v. Harris*, 295 Minn. 38, 202 N.W.2d 878, 881 (1972) ("The phrase 'reasonable and probable grounds' is synonymous with the phrases 'reasonable cause' and 'probable cause.'").

⁴⁷ See *Id.*, 202 N.W.2d at 880.

⁴⁸ See, e.g., *State v. Carey*, 296 Minn. 214, 207 N.W.2d 529 (1973); *State v. Stewig*, 281 Minn. 331, 161 N.W.2d 673 (1968).

⁴⁹ See, e.g., *McLaughlin v. State*, 291 Minn. 277, 190 N.W.2d 867 (1971); *Rancour v. Commissioner of Public Safety*, 355 N.W.2d 462 (Minn. Ct. App. 1984); *State v. Jensen*, 351 N.W.2d 29 (Minn. Ct. App. 1984).

⁵⁰ See *State v. Kvam*, 336 N.W.2d 525 (Minn. 1983) (quoting from *United States v. Cortez*, 449 U.S. 411, 418, 101 S.Ct. 690, 695 (1981)).

officer's judgment.⁵¹ Since the "totality of the circumstances" is the proper test for probable cause, a court *must*, of necessity, consider *all* evidence available to the officer, even if it would not normally be admissible to prove the offense itself, such as so-called "hearsay" evidence.⁵² Because the standard for review is objective, it is not necessary that the officer believe that probable cause exists⁵³ or express the opinion that probable cause existed.⁵⁴

Generally, the controversies involve whether the officer has probable cause to believe that the person was driving, operating or physically controlling the vehicle, or "under the influence" of alcohol or other drugs, etc. Driving, like any other element, can be proved by circumstantial evidence⁵⁵ or admissions,⁵⁶ as well as by the officer's direct observation.

Because individuals vary widely in their reactions to alcohol and to other drugs, there are many possible symptoms or clues to impairment. In Minnesota, the courts have rejected the claim that some particular "laundry list" of symptoms is necessary to prove impairment and have held that even *one* physical indicator can be sufficient.⁵⁷ However, there must be at least one physical indicator of alcohol use.⁵⁸ Not even the odor of an alcoholic beverage is an indispensable element, even though usually present.⁵⁹

⁵¹ See *State v. Olson*, 342 N.W.2d 638 (Minn. Ct. App. 1984).

⁵² Technically, hearsay evidence is evidence of an out-of-court statement that is offered to prove the truth of *the matter asserted* and does not apply to an out-of-court statement offered to prove that the officer had a reasonable basis for believing that the suspect committed the offense charged. See, e.g., Minn. R. Evid. 801(c). However, some courts prefer to use the term "hearsay" for all out-of-court statements, and to hold that "reliable hearsay" is admissible to prove probable cause. See, e.g., *Andersen v. Commissioner of Public Safety*, 410 N.W.2d 17 (Minn. Ct. App. 1987); *Edwards v. Commissioner of Public Safety*, 381 N.W.2d 27 (Minn. Ct. App. 1986); *Schlemme v. Commissioner of Public Safety*, 363 N.W.2d 781 (Minn. Ct. App. 1985).

⁵³ See *State v. Speak*, 339 N.W.2d 741 (Minn. 1983).

⁵⁴ See *State v. Driscoll*, 427 N.W.2d 263 (Minn. Ct. App. 1988); *Sarb v. Commissioner of Public Safety*, 362 N.W.2d 405 (Minn. Ct. App. 1985).

⁵⁵ See, e.g., *State v. Pieschke*, 295 N.W.2d 580 (Minn. 1980) (Pieschke identified as the driver by two of his three companions but denied driving; companions all changed their stories at trial; Pieschke's conviction affirmed). See also *State v. Hunt*, 356 N.W.2d 801 (Minn. Ct. App. 1984) (Hunt claimed wife was driving at time of accident); *Vertina v. Commissioner of Public Safety*, 356 N.W.2d 412 (Minn. Ct. App. 1984) (Vertina found lying next to his crashed motorcycle with broken leg; suggested someone else may have been driving; while the appeal was pending, Vertina was charged again—when he crashed another motorcycle and broke the same leg).

⁵⁶ See, e.g., *Johnson v. Commissioner of Public Safety*, 366 N.W.2d 347 (Minn. Ct. App. 1985); *Steinberg v. State, Dept. of Public Safety*, 357 N.W.2d 413 (Minn. Ct. App. 1984); *Hewitt v. Commissioner of Public Safety*, 352 N.W.2d 75 (Minn. Ct. App. 1984).

⁵⁷ See, e.g., *State v. Hicks*, 301 Minn. 350, 222 N.W.2d 345 (1974); *Holtz v. Commissioner of Public Safety*, 340 N.W.2d 363 (Minn. Ct. App. 1983).

⁵⁸ See *Musgjerd v. Commissioner of Public Safety*, 384 N.W.2d 571 (Minn. Ct. App. 1986) (trooper dealing with motorcyclist who crashed and severely injured leg on windy night did not look closely for signs of alcohol use, ultimately inferred from circumstances of unexplained crash in good weather on good road late at night that alcohol must be involved; asked second trooper to get a blood test; and second trooper was not able to get close enough to driver in operating room to check for odor of alcoholic beverage, etc.).

⁵⁹ See *State v. Graham*, 176 Minn. 164, 222 N.W. 909 (1929) (DWI conviction affirmed although all seven prosecution witnesses admitted that they did not smell the odor of an alcoholic beverage on Graham's breath). See also *Johnson v. State, Dept. of Public Safety*, 351 N.W.2d 2 (Minn. 1984) (citizen who observed driver park after striking another vehicle and then walk unsteadily into a restaurant could reasonably believe the driver to be under the influence even if never close enough to see bloodshot eyes, hear speech, or smell breath). This can be important in cases where there is other evidence to suggest alcohol impairment but where cold winds or a bad cold prevent the officer from detecting the odor of an alcoholic beverage—and in cases where the officer has no sense of smell, a rather unusual handicap. Thus, in *State v. Jensen*, 351 N.W.2d 29 (Minn. Ct. App. 1984), the officer who stopped the driver released him when the officer's stuffed-up nose prevented him from smelling the odor of an alcoholic beverage, but a DWI arrest was then made by a second officer whose nose was in better working order.

While field sobriety tests are not required, they are a useful aid in detecting impaired drivers. Field sobriety tests, including the horizontal gaze nystagmus (HGN) test are properly admitted as evidence of impairment.⁶⁰ There is no requirement that a *Miranda* warning be given before administering field sobriety tests⁶¹ or when asking “general on-the-scene questions” at the scene of an accident or traffic stop.⁶²

In addition, a variety of portable breath test (PBT) instruments are available to perform roadside preliminary screening tests. Some statutes limit the evidentiary use of such tests. The original rationale for those limitations appears to have been the questionable reliability of the instruments available at the time statutes were first enacted to expressly authorize and encourage the use of the new technology. Later generations of instruments are so greatly improved that there seems to be little reason to continue the limitations on evidentiary use, especially since there are no such limitations on the use of officer’s observations. Thus, in Minnesota, the statute has been amended to expressly authorize the use of PBT evidence in implied consent litigation, civil actions arising from the use of a motor vehicle, minor consumption cases, and cases involving enforcement of total abstinence restrictions.⁶³

In Minnesota, it is not necessary to offer either the calibration records of the PBT or testimony from the person who calibrated the instrument to have the results admitted.⁶⁴

“Investigatory Detention” vs. “Arrest”

A temporary investigatory detention does not necessarily constitute an arrest, even though the person is not “free to go,” where the duration of the detention is “reasonable” under all of the circumstances. Thus, detaining two robbery suspects in the back of separate squad cars for 61 minutes, during which time the suspects’ shoes were taken and matched with footprints at the crime scene, did not constitute an arrest.⁶⁵ Likewise, when a lone trooper trying to deal with several people at the scene of a traffic fatality detained the driver for approximately two hours while investigating the incident, and then decided to “arrest,” had not illegally arrested the driver.⁶⁶ The distinction between “investigatory

⁶⁰ See, e.g., *State v. Klawitter*, 518 N.W.2d 577 (Minn. 1994). The Iowa Supreme Court stated, in rejecting objections to the use of HGN test evidence, that “[a]t the outset we note that the principal obstacle to the admissibility of the horizontal gaze nystagmus test may be its pretentiously scientific name. Though cumbersome, the test’s title is quite descriptive.” *State v. Murphy*, 451 N.W.2d 154, 156 (Iowa 1990).

⁶¹ See *Butler v. Commissioner of Public Safety*, 348 N.W.2d 827 (Minn. Ct. App. 1984). In *Baribeau v. Commissioner of Public Safety*, No. CO-87-1883 (Minn. Ct. App. Apr. 19, 1988) (unpublished), the court refused to follow the contrary Colorado decision in *People v. Carlson*, 677 P.2d 310 (Colo. 1984).

⁶² See, e.g., *State v. Perkins*, 353 N.W.2d 557 (Minn. 1984) (*Miranda* generally does not apply to temporary investigative detentions); *Steinberg v. State, Dept. of Public Safety*, 357 N.W.2d 413 (Minn. Ct. App. 1984); *State v. Kline*, 351 N.W.2d 388 (Minn. Ct. App. 1984). One illustration of how much information an officer can elicit at a crash scene is *State v. Taylor*, 437 P.2d 853 (Ore. 1968), in which the officer obtained admissions that it was Taylor’s car, he was driving, where he was going, that he had been drinking, what he drank, how much he drank, where he drank, when he started, and that he did not presently know where he was.

⁶³ See Minn. Stat. § 169.121, subd. 6 (1996). The statute does not address other common uses of PBT instruments, such as by officers seeing if a passenger is sober enough to drive the car away after the driver has been arrested, by hospitals and detox facilities screening incoming patients, or by schools trying to exclude persons using alcohol from attending school dances.

⁶⁴ See, e.g., *Steele v. Commissioner of Public Safety*, 439 N.W.2d 427 (Minn. Ct. App. 1989); *Lundquist v. Commissioner of Public Safety*, 411 N.W.2d 608 (Minn. Ct. App. 1987).

⁶⁵ See *State v. Moffatt*, 450 N.W.2d 116 (Minn. 1990).

⁶⁶ See *Kirsch v. Commissioner of Public Safety*, 440 N.W.2d 147 (Minn. Ct. App. 1989).

detention” and “arrest” can be important because of questions as to whether the officer had probable cause at the time the arrest occurred, and when the situation became a “custodial arrest” requiring a *Miranda* warning before further questions.⁶⁷

Arrests Outside the Officer’s Jurisdiction

In Minnesota, it is well settled that officers may arrest DWI violators outside their jurisdictions, whether after a pursuit⁶⁸ or when the officer is outside his jurisdiction in the course of duty.⁶⁹ This is true even if the officer has to cross a state line, whether pursuing a violator⁷⁰ or following an injured driver to a hospital in a neighboring state.⁷¹ Recently a citizen’s arrest in Burnsville, Minnesota, by an off-duty Eau Claire, Wisconsin, officer who followed a driver from the Mall of America to her residence and detained her until a Burnsville officer could take over, was held to be proper.⁷²

Warrantless Arrests in Dwellings

Because a person cannot defeat an arrest that was initiated in a public place by retreating into a dwelling,⁷³ officers may pursue traffic offenders into a residence.⁷⁴ Likewise, a consensual entry into a home permits an in-home arrest.⁷⁵ “Exigent circumstances” also permit nonconsensual entry into a dwelling.⁷⁶ However, absent “hot pursuit,” consent or “exigent circumstances,” a nonconsensual entry into a dwelling is generally considered a violation of the Fourth Amendment’s prohibition against unreasonable searches and seizures.⁷⁷

⁶⁷ Generally, a *Miranda* warning is required only for a “custodial interrogation,” and the brief roadside questioning of a motorist detained for a routine traffic stop is not a custodial interrogation even if the person is seated in the squad car and is not free to leave immediately. See, e.g., *Berkemer v. McCarty*, 468 U.S. 420, 104 S.Ct. 3138 (1984); *State v. Herem*, 384 N.W.2d 880 (Minn. 1986); *City of Burnsville v. Marsylla*, 349 N.W.2d 829 (Minn. 1984).

⁶⁸ See, e.g., *Windschitl v. Commissioner of Public Safety*, 355 N.W.2d 146 (Minn. 1983) (Springfield officer checking city cemetery outside city limits pursued driver seen exiting cemetery after hours).

⁶⁹ See, e.g., *State v. Bunde*, 556 N.W.2d 917 (Minn. Ct. App. 1996) (city officer several miles outside city observing traffic violation); *Shull v. Commissioner of Public Safety*, 398 N.W.2d 11 (Minn. Ct. App. 1986) (Wabasha County deputy observed violation in Olmsted County); *Bounds v. Commissioner of Public Safety*, 361 N.W.2d 145 (Minn. Ct. App. 1985) (Wadena County deputy in Todd County).

⁷⁰ See, e.g., *Piotrowski v. Commissioner of Public Safety*, 453 N.W.2d 689 (Minn. 1990) (Moorhead, Minnesota officer pursuing semaphore violator into Fargo, North Dakota); *Moelter v. Commissioner of Public Safety*, 456 N.W.2d 270 (Minn. 1990) (Stillwater, Minnesota officer pursuing violator into Wisconsin); *State v. Ault*, 453 N.W.2d 699 (Minn. 1990) (North Dakota officer pursuing violator into Minnesota); *Swapinski v. Commissioner of Public Safety*, 368 N.W.2d 322 (Minn. Ct. App. 1985) (Wisconsin officer pursuing violator into Minnesota); *State v. Sellers*, 350 N.W.2d 460 (Minn. Ct. App. 1984) (same).

⁷¹ See, e.g., *State v. Torgerson*, 453 N.W.2d 698 (Minn. 1990) (Moorhead, Minnesota, officer arrested and obtained test at hospital in Fargo, North Dakota); *Boland v. Commissioner of Public Safety*, 520 Minn. Ct. App. 1994) (Minnesota officer investigating Minnesota accident could invoke the Minnesota statute and procedures to obtain test at hospital in Fargo).

⁷² See *Lamoureux v. Commissioner of Public Safety*, No. C6-97-1999 (Minn. Ct. App. Apr. 28, 1998) (unpublished).

⁷³ See, e.g., *United States v. Santana*, 427 U.S. 38, 96 S.Ct. 2406 (1976). See also *Costillo v. Commissioner of Public Safety*, 416 N.W.2d 730 (Minn. 1987).

⁷⁴ See, e.g., *State v. Paul*, 548 N.W.2d 260 (Minn. 1996); *State v. Koziol*, 338 N.W.2d 47 (Minn. 1983). See also *Steinbrenner v. Commissioner of Public Safety*, 413 N.W.2d 557 (Minn. Ct. App. 1987); *Pahlen v. Commissioner of Public Safety*, 382 N.W.2d (Minn. Ct. App. 1986).

⁷⁵ See, e.g., *Carlin v. Commissioner of Public Safety*, 413 N.W.2d 249 (Minn. Ct. App. 1987); *Overline v. Commissioner of Public Safety*, 406 N.W.2d 23 (Minn. Ct. App. 1987); *Pesterfeld v. Commissioner of Public Safety*, 399 N.W.2d 605 (Minn. Ct. App. 1987).

⁷⁶ See, e.g., *State v. Storvick*, 428 N.W.2d 55 (Minn. 1988) (vehicular homicide case).

⁷⁷ See, e.g., *State v. Olson*, 436 N.W.2d 92 (Minn. 1989). See also *Pullen v. Commissioner of Public Safety*, 412 N.W.2d 780 (Minn. Ct. App. 1987); *Krause v. Commissioner of Public Safety*, 358 N.W.2d 481 (Minn. Ct. App. 1984).

Post-Arrest Testing

The administration of blood, breath, urine, or other "chemical tests" for alcohol and other drugs is a search and seizure. In *Rochin v. California*, 342 U.S. 165, 72 S.Ct. 205 (1952), the Court concluded that pumping the stomach of a drug offense suspect who had swallowed the evidence was a search, which shocked the conscience and thereby violated the Fourth Amendment. However, in *Breithaupt v. Abram*, 352 U.S. 432, 77 S.Ct. 408 (1957), the Court concluded that the withdrawal of blood samples was such a common medical procedure that taking blood samples for alcohol testing was not shocking to the judicial conscience and did not offend the Fourth Amendment. However, it was not until *Schmerber v. California*, 384 U.S. 757, 86 S.Ct. 1826 (1966), that the Court established that taking body samples for alcohol testing was not a Fifth Amendment "self-incrimination" issue, but a Fourth Amendment "search and seizure" issue. The sample sought is physical evidence, not "testimonial" evidence, and may be taken without a warrant and without consent where there is probable cause to believe that the person committed a DWI violation and that the sample will provide evidence to support or refute the charge.

Meanwhile, before *Schmerber*, concern that alcohol testing involved Fifth Amendment concerns led to early requirements that test evidence be admissible only if "voluntarily" obtained. Since few DWI suspects were clamoring to be tested, efforts were made to find ways to induce cooperation in the testing process. New York devised the "implied consent" concept, by which drivers, by the very act of operating a motor vehicle, implied consent to testing if arrested for DWI, with a loss of driving privileges as a sanction for noncompliance. Other states soon followed suit and, by 1973, with federal encouragement, Illinois became the 50th state to enact an implied consent law.

However, if the DWI suspect *submitted* to testing, there would be no loss of driving privileges until and unless the person was convicted of the DWI violation. In 1976, Minnesota became the first state to use the implied consent mechanisms to revoke driving privileges of DWI suspects who submitted to tests disclosing an alcohol concentration of 0.10 percent or more. With federal encouragement, this mechanism has been adopted by more than half the states.

By now, the statutory approaches of the 50 states are so varied in the details that no attempt is made in this paper to address the various means by which test evidence is secured and produced in court. Requirements can be rigid or flexible, depending on jurisdiction and the most recent decisions of the legislatures and appellate courts. From the perspective of enhancing enforcement activities, it appears that the public interest in traffic safety is best served by flexible and non-rigid requirements.

Minnesota is one state that has adopted the more flexible approach. When "chemical test" evidence was first authorized by statute in 1957, it had to be "voluntarily" obtained. After the implied consent law was enacted in 1961, the test had to be obtained either voluntarily or pursuant to the implied consent law. In 1984, those restrictions were eliminated so that any relevant test evidence would be admissible if obtained pursuant to the implied consent law or any other method permissible under the Constitution. Even before those amendments, the courts had held that a nonconsensual blood test obtained from a driver involved in a fatal crash under authority of *Schmerber* was admissible in a

regular DWI proceeding.⁷⁸ As presently worded, the statute expressly authorizes the admission of “evidence of the presence or amount of alcohol, controlled substances, or hazardous substances in the person’s blood, breath, or urine as shown by an analysis of those items,”⁷⁹ authorizes the admission of evidence that the person refused to submit to testing,⁸⁰ and clearly states the nonrestrictive policy of the legislature:⁸¹

The preceding provisions do not limit the introduction of any other competent evidence bearing upon the question of whether the person violated this section, including tests obtained more than two hours after the alleged violation and results obtained from partial tests on an infrared breath-testing instrument. A result from a partial test is the assurance obtained by analyzing one adequate breath sample, as defined in section 169.123, subdivision 2b, paragraph (b).

The “partial test” refers to a single *adequate* sample in a breath test administered using an Intoxilyzer 5000 running Minnesota’s test procedure, which requires two adequate samples in a single test sequence. The “any other competent evidence” has resulted in approval of the admission of the results of a single *deficient* sample⁸² and of the observations of a doctor treating an injured driver.⁸³ The express authorization of results of tests administered more than two hours after driving has resulted in the use of tests taken as many as 11½ hours after driving.⁸⁴

Disincentives to Arrest and Charge

Apart from the relatively low risk of apprehension resulting from the paucity of enforcement resources available to deal with the total number of impaired drivers on the roads each day and night, in some areas there are additional considerations that operate as a disincentive to vigorous law enforcement.⁸⁵

⁷⁸ See *State v. Aguirre*, 295 N.W.2d 79 (Minn. 1980).

⁷⁹ See Minn. Stat. § 169.123, subd. 2(a) (1996).

⁸⁰ See Minn. Stat. § 169.121, subd. 2(c) (1996). Before *South Dakota v. Neville*, 459 U.S. 553, 103 S.Ct. 916 (1983), held that admission of evidence in a DWI case that the driver refused testing did not violate Fifth Amendment privileges, Minnesota case law forbade any such evidence. See *State v. Andrews*, 297 Minn. 260, 212 N.W.2d 863 (1973). In 1982, the legislature amended the statute to permit evidence of the absence of any test, without any comment or explanation for the absence of a test, with an instruction that no inferences were to be drawn from the absence of test evidence. This was upheld in *State v. Willis*, 332 N.W.2d 180 (Minn. 1983). *Neville* was decided before *Willis*, and led some judges to urge that *Andrews* be immediately overruled. The majority declined to decide an issue that was not technically before the court, and the matter has never been raised since: within 24 hours of the *Neville* decision, several bills were introduced in the legislature to expressly authorize admission of evidence of test refusals, and the law was so amended. While the U.S. Supreme Court has not had to revisit the issue, the Court of Appeals has stated that *Andrews* is no longer controlling law and has no precedential value. See *Connor v. Commissioner of Public Safety*, 386 N.W.2d 242, 245 (Minn. Ct. App. 1986); *Abe v. Commissioner of Public Safety*, 374 N.W.2d 788, 790 (Minn. Ct. App. 1985). Since then, the Court of Appeals has also rejected the claim that evidence of test refusals violates a state constitutional privilege against self-incrimination. See *State v. Berge*, 464 N.W.2d 595 (Minn. Ct. App. 1991).

⁸¹ See Minn. Stat. § 169.121, subd. 2(f) (1996).

⁸² See *State v. Kieley*, 413 N.W.2d 886 (Minn. Ct. App. 1987).

⁸³ See *State v. Kunz*, 457 N.W.2d 265 (Minn. Ct. App. 1990).

⁸⁴ See *State v. Jensen*, 482 N.W.2d 238 (Minn. Ct. App. 1992).

⁸⁵ The observations in this section are drawn from 25 years of working with police officers and prosecutors throughout Minnesota, and from discussions with colleagues in other jurisdictions whose experience suggest that these problems are by no means unique to Minnesota.

If local public opinion does not support vigorous law enforcement, then one cannot expect officers to remain highly motivated to look for impaired drivers. In Minnesota, there have been counties where jurors in DWI cases have routinely acquitted suspects because they felt that police have no business interfering as long as nobody was seriously injured while, in an adjacent county, jurors were so hostile to DWI violators that nobody at the courthouse could recall a jury ever coming in with a not guilty verdict—until one acquittal in recent years. In a jurisdiction where local opinion opposes vigorous enforcement, one cannot expect officers to persist in vigorous enforcement.

If local leadership is uncommitted to enforcement, then the problem for the officer is compounded. In the low-enforcement county referred to in the previous paragraph, the mayor of one community was quoted in the media as stating that an alcohol-related triple fatality crash following a wedding was just an unfortunate accident, and that the people in the community did not believe the driver should be charged with vehicular homicide.⁸⁶ In several small towns, the city fathers and mothers have fired police officers who actually sought to enforce DWI and other traffic laws, expressing the position that such heavy-handed enforcement (i.e., stopping people exceeding the speed limit by 15 miles per hour) might be fine in the sinful Twin Cities, but it was unacceptable in their virtuous small towns and might drive business from local merchants to competitors in other communities. In one community, an officer was fired after he committed the offense of arresting one of the mayor's close friends for DWI.⁸⁷ One sheriff did not want any DWI suspects booked into his jail and would promptly order his jailers to release them as soon as they called him.⁸⁸ After a repeat DWI offender who happened to be a personal friend of another sheriff had his license administratively revoked, the sheriff sent a memo forbidding his deputies to report any cases to the Department of Public Safety until they were reviewed by himself or his chief deputy (his son and successor as sheriff) to see if some other disposition would not be more appropriate. In another county, the sheriff was not interested in DWI enforcement and made it clear that the State Patrol was not welcome in his county except to write accident reports on I-90 and U.S. 75. For years, his county was one of three that produced fewer than 10 DWI convictions per year—and the other two had populations below 10,000. In one Twin Cities suburb, an officer who ignored the unwritten law that one does not arrest hometown residents saw the police chief retaliate by first forbidding him to take suspects to a neighboring city for breath tests and then having him repeatedly rewrite his "unsatisfactory" reports. Seeing the handwriting on the wall, the officer applied for a new job in Minneapolis, where he has been working ever since.⁸⁹

⁸⁶ One police officer working in that community later advised this writer that the mayor did not speak for as many people as he thought. Ultimately, the driver pleaded guilty to three counts of vehicular homicide on the day his jury trial was to begin.

⁸⁷ The officer sued for wrongful discharge, won an award in excess of \$200,000, and went to work as an officer for another community.

⁸⁸ One officer complained that when he stopped a speeder on the way back to his city, he looked up to see the DWI suspect he had just booked into the jail riding by and laughing.

⁸⁹ That officer was the arresting officer in *State, Dept. of Public Safety v. Wiehle*, 287 N.W.2d 416 (Minn. 1979), in which a driver arrested after a hit-and-run crash went into convulsions due to a drug overdose before a formal test request could be made. He rushed him to the hospital, returned to the police station for a blood kit, and had the doctor draw the sample. The implied consent statute did not, at that time, authorize taking tests from unconscious drivers. His resourceful solution to the problem was approved by the U.S. Supreme Court, and the statute was subsequently amended to expressly authorize that procedure.

The influence of leadership also appears when one compares the approach and results in Kandiyohi County, about a hundred miles west of the Twin Cities, with those of its neighboring county to the south. The populations are quite similar in size and makeup, but the Kandiyohi County sheriff made DWI enforcement a priority, while his colleague did not. The result was that the Kandiyohi deputies looked for DWI violators, and found them easily, while their colleagues to the south seemed to be unable to find DWI violators unless they crashed into the squad cars.

Overall, continued public education efforts seem to have paid off in several respects. Fewer communities seem prepared to tolerate DWI offenders, and a number of those in leadership positions referred to above have been replaced.

In Minnesota, every legislative session since 1971 has revisited the DWI problem, sometimes with several bills. In the past decade, the various proposals have tended to be combined into an omnibus DWI bill attempting to address the DWI laws applicable to motor vehicles, watercraft, ATVs, aircraft, etc. As of the 1997 amendments, the total package has become so complicated that it is very difficult for anyone to really “get a handle” on what charges and sanctions apply to a particular offender. Several defense attorneys, prosecutors, and judges have devised and circulated their own charts in an effort to provide a quick reference. Despite having looked at the same statutory language, their outlines differ from each other. At a recent meeting between legislators, prosecutors, and law enforcement officers, an officer presented a copy of the driving record of a person he had recently arrested to a legislator and challenged the legislator to determine whether the offense was a misdemeanor, gross misdemeanor, or enhanced gross misdemeanor, whether plates would be impounded or the vehicle forfeited, whether the suspect could be released to a sober party or must be jailed until maximum bail had been posted, etc.

When the statute becomes so complex that judges and prosecutors must scratch their heads in puzzlement in attempting to apply the statute, the problem is even more acute for the officer, who must decide *now* and cannot put off the decision for hours, days, or weeks while an assistant or law clerk researches the question. Thus, at the aforementioned meeting, the officers strongly supported making the statute more simple, so that all concerned can understand and apply it more easily.

Another major complaint of officers is the complexity and amount of paperwork involved in even routine DWI arrests, let alone those involving recidivists. At the same meeting mentioned above, the officer emphatically illustrated his point by presenting the legislator with a series of about 15 documents the officer had to fill out dealing with every facet of the arrest, field sobriety tests, implied consent testing, vehicle inventories, plate impoundment, authority to detain, etc. Some of the same data—name, address, date of birth, driver’s license number, date of incident, time, etc.—had to be duplicated on form after form. The forms do not have a common design, and must be filled out by hand, one by one, sometimes taking several hours.

Because each department may design its own forms, there can be significant differences that make it more difficult and time-consuming for a judge or a lawyer to deal with cases initiated by dozens of municipalities, the sheriff’s office, and the state patrol. Officers strongly favor finding ways to simplify the paperwork by reducing the number of forms, making the design more consistent and easy to follow, and automating the forms. Some officers have access to computerized forms which, if they can type reasonably well,

both speed up the process and provide a more legible product. This is one area where statewide coordination between agencies could result ultimately in greatly reducing the time needed to complete the paperwork in individual cases.

Another common complaint of officers is the number of hearings that officers must be prepared to attend—only to have them rescheduled at the last minute if anyone other than the officer has a conflict or to have the charge dismissed if the officer fails to appear for any reason, even if it is because the officer is on the witness stand in the courtroom next door. When an officer shows up for the sixth time, ready to testify on what would otherwise be a day off, and the matter is postponed again, even enthusiastic officers may become discouraged. If the officer also works nights, the repeated disruption of sleep and work schedules imposes a toll that leads some officers to either quit looking for impaired drivers or simply refuse to appear repeatedly for 9:00 a.m. hearings after working all night. Using the given capabilities of computers, it would seem possible for court administrators to coordinate court schedules with work schedules so that officers doing traffic enforcement at night can get a morning's sleep and appear in court in the afternoon, while officers working days can appear for court in the morning.

HOW DO VIOLATORS AVOID CONSEQUENCES?

Witnesses Failing to Appear

Officers commonly complain that, if the suspect repeatedly fails to appear, the matter is rescheduled and a bench warrant issued for the suspect's arrest. However, when prosecution witnesses fail to appear just once, the charge is simply dismissed. In Minnesota, when implied consent law driver's license revocation hearings are held in the courts, the common reason that the violator avoids the consequences mandated by the statute is that one or more essential witnesses fail to appear.

In some cases, the witness has not received notice of the hearing, a problem that can be addressed by examining notification systems to ensure that notices actually get to the witnesses.⁹⁰ In each case where a witness fails to appear, a check should be made to determine why that happened, and efforts should be made to find ways to prevent that problem in the future. Thus, when some medical personnel refused to appear in response to letters requesting their presence, formal subpoenas enforceable by the contempt power of the court secured their attendance at subsequent hearings.⁹¹

Insufficient Police Training

While full-time traffic officers tend to be relatively well trained, when laws become too complex, even the most diligent and best-trained officers may not be able to remember to look for and document all elements necessary for a successful case. General patrol

⁹⁰ This writer has had a number of cases in which a police department assured the prosecution that the officer had received the notice only to find out, too late, that somebody merely put the notice in the officer's box at the station—while the officer was on vacation.

⁹¹ In one Ramsey County case some years ago, a physician refused to appear in court. The judge sent the sheriff's deputies to arrest him, and he was brought back to the courtroom, protesting loudly, in handcuffs. The judge informed him: "Doctor, you have to understand that medicine is not the only game in town."

officers, who do not have as much training in DWI enforcement, have a greater problem knowing what to look for, how to find it, and how to document it. In some cases, the officer may lack even rudimentary training in what to look for and may be unable to find evidence to establish probable cause for arrest.

The obvious remedy is additional training. Most officers are interested in improving their knowledge and skills and welcome the opportunity to get additional training so that they can avoid making mistakes that bring the prosecution to an unsuccessful conclusion.

Inability of Officers to Adequately Articulate What Is Known

Some cases are lost because an officer is unable to articulate on the witness stand information actually in his or her possession. Thus, even though time of day, day of the week, and location form a part of the officer's consideration in investigating a suspected DWI violation, many officers forget to articulate that the improper driving conduct was observed as the driver left the parking lot of a bar at bar closing time on a weekend night. This is sometimes due to inexperience and lack of training, a problem that can be remedied by experience and additional training.

Gaps in Written Reports

A common defense tactic is to ask the officer if he or she is trained to write complete and accurate reports, containing "everything important" they know about the case. If the officer answers in the affirmative the attorney may put on a time-consuming show asking about details never mentioned in testimony or in the reports. If the officer answers in the affirmative and testifies to details the officer recalls but did not include in the report, then the questions can become more hostile, suggesting that the officer is embellishing or fabricating.

One way to address the issue is to train officers to write more detailed reports and insist that they do so. However, to the extent that this adds to the burden of paperwork, this insistence may have the net effect of discouraging enforcement efforts.

Another way to address the issue—suggested to this writer by a judge and former prosecutor—is to train officers to answer in the negative when asked if they are trained to include everything important in their reports. When prepared to answer that the officer does not attempt to record everything important and cannot anticipate what some other person might later consider important, then the report is simply a summary or outline of the events to refresh the officer's memory at trial.⁹²

Of course, the more complete the report is, the more helpful it is to the prosecutor. Additionally, the defense attorney is more likely to conclude that the officer and prosecutor are well prepared and that a resolution short of trial is advisable. As a result, the officers who write the most detailed reports are likely to spend less time sitting around the courthouse waiting to testify.

⁹² The judge advised that when he prosecuted a case against an attorney he knew would ask an infinite number of questions about facts *not* involved in the case, he had the officer prepared to disagree that the report was intended to contain "everything important." The cross-examination, which had been anticipated to go for two hours, came to an abrupt end.

Lack of Preparation by Witnesses And Prosecutors

Whether one is preparing a wall to receive a new coat of paint, preparing the soil to start a new garden, or preparing for trial, better preparation produces better results. In some police departments, officers show up for hearings without any copies of their reports, unable to recall the facts of the case until they have read the reports, and expect the prosecutor to provide reports at the time of hearing. Needless to say, such haphazard preparation is not calculated to produce a high rate of success. Other officers come with their reports, have read and reread the reports, and are thoroughly prepared to describe what happened.

Likewise, prosecutors who put in little effort into preparation cannot expect to have as good results as those who prepare thoroughly. Not only should the prosecutor become very familiar with the facts recorded by the officer, but the prosecutor should also look for gaps in the evidence and communicate with the officer to seek answers. The number of unpleasant surprises can be significantly reduced with adequate communication.

Negative Judicial Attitudes

Fortunately, the majority of judges are quite conscientious in the performance of their duty to apply the law fairly. However, certain individual judges may be indifferent to legitimate public concerns about traffic safety and, in some cases, hostile to accepted enforcement procedures.⁹³ Where the judge is open to persuasion, better preparation may overcome insufficient familiarity with the law or moderate bias. Where the judge is very biased, contemptuous of the appellate courts and unwilling to follow the law, the prosecution must be prepared to remove that judge or to appeal decisions in cases where an appeal is possible. Beyond that, it may be possible to have other judges help rein in a "loose cannon," and call the attention of the public to the judge's unwillingness to follow the law—especially when the judge faces election.

Statutory "Loopholes"

The more complex a law and the more requirements that are imposed on the officer, the more chances there are for an officer to slip up and make a mistake by which the violator can escape the consequences of misconduct. While some of the requirements may be constitutional imperatives, others are not.

Although in Minnesota the DWI law has applied throughout the state rather than being limited to "streets and highways" since 1937, the language of the implied consent law once limited its application to streets and highways, precluding its use when the driver was found in a private parking lot.⁹⁴ That limitation was soon removed, and since then the statute has applied in all places where the DWI law applies: every square inch of the state.

⁹³ One judge advised this writer that it was his view that it was his function as a judge to find ways to circumvent the statutes. Another judge, when advised that the prosecutor was obligated to enforce the law the legislature enacted, blurted "why did they pass such a damn foolish law?" Others, more subtle, can simply resolve factual issues against the prosecution secure in the knowledge that credibility questions are essentially immune to any risk of reversal on appeal.

⁹⁴ See *State, Dept. of Public Safety v. Halverson*, 292 Minn. 468, 194 N.W.2d 573 (1972).

In Minnesota, for several years there have been separate DWI/Implied Consent laws for most motor vehicles, snowmobiles and all-terrain vehicles, motorboats, and aircraft. While the legislature has been making them more uniform, it has not yet simply had one law cover all such vehicles. This leads to some anomalies and potential problems. For example, the statutory definition of “peace officer”—the person who may invoke the authority of the implied consent law—varies from statute to statute. Thus a conservation officer employed by the Department of Natural Resources (DNR) would be a “peace officer” if the vehicle is a snowmobile, ATV or motorboat, but not if the vehicle is a pickup truck or car. The DNR officer can still make the DWI arrest but lacks the authority to make the test request.⁹⁵ Of the several Indian reservations located in Minnesota, the Mille Lacs Band has made agreements with the state that has led to their officers being recognized as having all the authority of a municipal police force working closely with both the local sheriff’s departments and the state patrol. Mille Lacs Band officers may invoke the Minnesota implied consent law, but officers employed by other reservations or by the Bureau of Indian Affairs may not. Likewise, officers of various federal agencies can arrest for a DWI violation, at least as “citizens,” but they are not “peace officers” for the purposes of the implied consent law.

Likewise, the information required by statute to be provided to the suspect has differed depending on the type of vehicle involved. This can present problems when an officer arrests a drunken pilot for flying under the influence of alcohol and, because no aircraft Implied Consent Advisory form is available, uses the standard form used for drivers of cars, trucks, and other land vehicles. Does the reading of the “wrong” advisory form require suppression of all evidence resulting from the test request?

Other problems can arise when statutory amendments change the information required, and the officer uses an outdated form. Is it fatal that the form did not contain the precise information required by the amended law?

In Minnesota, there is a special statutory restriction regarding the choice of tests. The officer gets to choose what test to offer, but if that choice is either the blood test or the urine test, no action may be taken against the person for refusing the blood test unless an alternative test was also offered. Likewise, no action may be taken against the person for refusing the urine test unless an alternative test was also offered. If the officer forgets to offer an alternative test, there is no test—and no driver’s license revocation. Furthermore, the person cannot be charged with the separate crime of refusing to submit to testing under the implied consent law.

At one time, the statutory language required that a blood test be offered in all cases.⁹⁶ The argument was then made that it was fatal to offer a choice of all three available tests at once, instead of offering an alternative test only after the blood test was refused, a claim rejected by the court.⁹⁷ Likewise, the court rejected the contention that

⁹⁵ At one time, the definition of peace officer included those employed by a “municipality,” but the license revocation was rescinded because the officer was employed by a “township” and, thus, was not a peace officer. See *State, Dept. of Highways v. O’Connor*, 289 Minn. 243, 183 N.W.2d 574 (1971). At the time, while part-time untrained officers could wear a badge, carry a gun, and make a DWI arrest, only a full-time officer with special training in traffic law was authorized to make the test request. See *State, Dept. of Highways v. Halvorson*, 288 Minn. 424, 181 N.W.2d 473 (1970). Those particular restrictions are long gone, but the statutes have not yet been broadened to include all law enforcement personnel who may arrest for criminal offenses.

⁹⁶ See *State, Dept. of Highways v. McWhite*, 286 Minn. 468, 176 N.W.2d 285 (1970).

⁹⁷ See *State, Dept. of Highways v. Cornelius*, 289 Minn. 521, 184 N.W.2d 779 (1971).

because all three tests were theoretically “available,” the officer must offer all three statutory tests rather than a blood test and one alternative test.⁹⁸ Currently, if the officer offers only a blood test, or only a urine test, there is no problem unless the person refuses to submit to that test.⁹⁹

In each state, there are probably features that provide “loopholes” or opportunities for mistakes. In some states, there are very rigid requirements on how test evidence is obtained or handled, or on how test evidence is presented in court. This can involve such matters as requiring a specific number of seals on a blood test kit or requiring documentary evidence in every case that a breath test operator is qualified to administer the test instead of simply having the operator testify to his or her qualifications. Whether there are six or seven seals on a blood test kit does not appear to have any genuine bearing on the question of whether the sample is what it purports to be or whether the analysis of the sample produced a reliable result. Likewise, requiring documentary proof of an operator’s qualifications in every case would appear to be a waste of judicial time and resources, offering evidence on matters about which there can be little serious dispute.

RECOMMENDATIONS FOR CHANGE

Employing Existing Technology

In some departments, only a few officers are equipped with radar or laser speed measurement instruments. Because illegally high or unusually low speeds are quite frequently associated with DWI arrests, equipping more officers with newer models of radar or laser instruments can help increase the number of DWI arrests, as well as generally aid enforcement of the speed laws.

Equipping squad cars with video cameras and officers with tape recorders can also be helpful. Those devices provide a neutral silent witness that is very persuasive and may resolve or eliminate potential factual disputes. Some officers do not like them because (a) if the officer does not do a good job, there will be a record of it, and (b) suspects with high tolerance may not look as impaired as HGN and other evidence indicates. The former objection seems to be an excuse for those who do not aspire to doing the best possible job. The latter objection seems to have some validity. Some persons with high tolerance may not manifest the physical indicia of alcohol use that laypersons might expect to see.¹⁰⁰ Likewise, the videotape is not likely to be of that much assistance in showing how a suspect performed on an HGN test, what the eyes looked like, or what the breath smelled like. Unless the equipment is of top quality and used

⁹⁸ See *State v. Boland*, 299 Minn. 198, 217 N.W.2d 491 (1974).

⁹⁹ See *Workman v. Commissioner of Public Safety*, 477 N.W.2d 539 (Minn. Ct. App. 1991).

¹⁰⁰ In the early 1970s, Minneapolis officers arrested a “high iron” worker who tested about .30 alcohol concentration but, when asked to “walk the line” on camera, did so perfectly—on his hands. About a decade ago, this writer encountered a woman who resolved two DWI cases and an implied consent case before Judge L. W. Yost in McLeod County. She and her attorney sat around a conference table with the judge, this writer, and two other prosecutors. She did not manifest any physical indicia of alcohol impairment. When she stepped outside to confer with her attorney, a Hutchinson police sergeant who was present stated, “I know her, and I don’t think she’s straight right now.” All present were of the view that he was completely mistaken, and that she was stone cold sober. However, during the pre-sentence investigation, an Intoxilyzer test produced a reading of 0.22 alcohol concentration, and investigation disclosed that she was drinking Listerine by the quart for its alcohol content.

properly, the videotape may not even clearly show the items officers look for in field sobriety tests or what was said. However, on balance, the best officers appear to favor the use of those devices and can effectively use videotape and audiotape to collect and preserve valuable evidence.¹⁰¹ Using these devices during test requests can also be very helpful in documenting that the officer gave all required information, properly vindicated all of the suspect's rights, and bent over backward to be reasonable, while the suspect was either abusive or feigning cooperation with the testing process. In cases where the suspect goes on the offensive and accuses the officers of sexual misconduct or police brutality, the tapes can be invaluable aids in defeating such accusations.¹⁰²

Portable breath test instruments are also very helpful to officers in detecting impaired drivers, especially those with high tolerance who do not look obviously impaired. It would be helpful if each officer on patrol had a portable breath test instrument in the squad car so that it would not be necessary to summon some other officer to the scene who has one—or release the driver because the officer does not have a portable breath test instrument and cannot readily borrow one. Equipping each officer would also tend to reduce the likelihood of having to call an extra witness to testify about the portable breath test.

With more officers being equipped with computers, a certain amount of data entry can be automated, reducing the time that an officer must spend completing reports. Driver's licenses can have magnetic stripes containing identification data that can be read by computers, eliminating the need to manually enter each item repeatedly on numerous forms.

In addition, officers whose squad cars are equipped with mobile data terminals can run registration and record checks on the fly, enabling an officer to run checks on many vehicles per hour. These checks can lead to the apprehension of many drivers whose licenses have been revoked—and who may turn out to be intoxicated.

Improved Training in Detection of Impaired Drivers

In every department, continual efforts should be made to train officers in detection techniques and to update that training periodically.

As a starting point, each officer should become familiar with sources of information such as the DWI Detection Guide published by NHTSA. Experienced

¹⁰¹ For example, when officers track down a hit-and-run DWI suspect at home, those who grant consent to the officer's entry commonly insist at the time of trial that there was no consent whatever, confident that it is their word against that of the officer. Since the state has a relatively high burden of proof as to the legality of the warrantless entry, their altered recollections can result in the exclusion of critical evidence and the dismissal of charges. However, this writer had one case where an Edina officer turned on his tape recorder before knocking on the door, and taped the subsequent conversation with the suspect and his wife. When the suspect, an inebriated lawyer, kept yelling that the officer had "no jurisdiction," the tape clearly showed his wife telling him "But honey, I invited him in"—twice. This eliminated the anticipated challenge to the warrantless entry.

¹⁰² For example, in *Pastuszak v. Commissioner of Public Safety*, No. CX-88-1383 (Minn. Ct. App. Jan. 10, 1989) (unpublished), the driver claimed his refusal was reasonable because he was in excruciating pain from a broken leg. In 25 minutes of videotape, he showed no signs of pain, but demonstrated extreme rage, screaming obscene insults at all officers, threatening to sue the officers for millions, refusing to listen to the test request, kicking at the door when they left him alone in the room to cool off, refusing to cooperate with paramedics called to check out his "broken leg," etc. This writer has been advised of another situation in which a defense attorney who believed his client's story of police brutality, preserved on tape, came before a judge to express his great outrage, only to have the prosecutor produce a videotape instead of audiotape. The videotape showed the suspect hurling himself at walls and screaming "don't hit me!" as the officers watched.

officers should also share tips on detection methods, some of which may not be readily apparent to a casual observer.¹⁰³

Officers should also be trained to systematically gather their evidence. It is helpful to be consistent in one's procedures in case after case so that defense counsels have less opportunity to create a "reasonable doubt" as to what the officer did in any particular case. The fact that the officer consistently does certain things in a certain manner or sequence enhances the officer's credibility and the probative value of that officer's testimony.

The use of standardized field sobriety testing can be very helpful. Jurors whose legal education has come from television, movies, and folklore are aware that field sobriety tests exist and expect to hear such evidence. If the officer does not perform them, then jurors may find defense arguing that the officer is not interested in taking the time to thoroughly investigate in the search for truth but merely in running up arrest numbers. It is helpful if the officer can explain that field sobriety tests are normally administered, but that they were not administered in this case because (a) the suspect refused to perform them; (b) the suspect was so uncooperative and violent that it was unsafe and pointless to attempt to administer them; (c) the suspect was so obviously intoxicated that it would have been risking injury to attempt to administer them; (d) weather or road conditions at the scene made it unsafe to attempt the tests; or because there was some similar justification for going forward without field sobriety tests. Officers who rely too heavily on the HGN test or the portable breath test, and who do not take the time to do the full battery of tests, should be encouraged to administer the full battery.

Where an alcohol/drug influence report form is used, the officer should take the time to document as much evidence of impairment as possible, whether it is the standard alcohol-related investigation or a drug recognition evaluation investigation.

Where tests are administered, officers should be trained in the proper methods for collecting and preserving blood and urine samples and for administering breath tests and should be discouraged from taking shortcuts. If the officer has followed procedures to the letter, then the credibility of the test evidence is enhanced, and it is less likely that a defense attorney may be able to convince jurors of the existence of reasonable doubt.

Better Training in Avoiding Pitfalls

Where laws are complex, officers need training in the fine points so that they can avoid mistakes in applying the statute that may destroy the case against the violator.

In Minnesota and other states where DWI suspects have a right to consult with counsel before deciding whether to submit to testing, it is important that officers be adequately trained in what the courts require to vindicate that right.¹⁰⁴

¹⁰³ Trooper Richard Steffen, now a major in the Minnesota State Patrol, demonstrated one of his techniques to this writer during a 1974 ridealong. The trooper would take up a position in an adjacent lane on the freeway, slightly behind the target vehicle, and look at the motion of the front tire. If there were numerous minor steering corrections—even if the vehicle was not noticeably weaving—he would stop the vehicle because his experience showed that impaired drivers commonly make numerous tiny corrections in their efforts to compensate for their impairment. The investigation that followed the stop repeatedly showed his articulated suspicion to be correct.

¹⁰⁴ In Minnesota, this is complicated by the fact that the appellate courts refuse to provide any "bright line" standards to guide officers, prosecutors, and judges as to how much time the suspect must be allowed, making it impossible for an officer to be certain that what is done will be considered sufficient by the courts. See *Kuhn v. Commissioner of Public Safety*, 488 N.W.2d 838 (Minn. Ct. App. 1992) (the standard is one of "reasonableness" under the specific circumstances of the case).

Where there is a recognized constitutional or statutory right to additional testing, officers need to be adequately trained as to the nature, extent, and limitations of that right. They need to be trained as to what they must and must not do.

Officers also need training in properly reporting the results of their investigations and in putting as much detail as possible into the reports. The more detailed the reports are, the more likely the suspect is going to simply plead guilty instead of attempting to challenge the charge in court.

Officers also need training in what sort of “tricks” to expect on cross-examination, and how best to deal with them. For example, breath test operators are well advised not to be gulled into testifying as experts on matters about which they have insufficient knowledge. Officers in general should be trained to avoid being led into agreeing that their reports contain all important observations, which gives the defense attorney a chance to question at great length about all the things that might conceivably happen in a DWI case that do not appear in the reports of this case.

Simplifying Procedures

In every jurisdiction, procedures should be reexamined periodically to find ways to streamline and simplify them to reduce the time required to process a DWI arrest. How many forms must be completed, how much information each must contain, how the information is to be entered, are all fertile areas for simplification. How courts handle DWI cases, how they attempt to coordinate schedules with police work and sleep hours, and how officers are notified of hearing dates are all areas in which it should be possible to reduce the number of times each person must appear.

Simplifying Statutes

Where annual legislative attention has produced a plethora of complex and sometimes inconsistent provisions that are difficult for officers, prosecutors, and judges to understand and apply, the complications tend to be counterproductive. The simpler the statutes, the easier they will be for all to understand and apply, which will increase the likelihood that officers will make an extra effort to step up enforcement activity, decrease the likelihood of court challenges, and accelerate the handling of those cases that must be tried.

Setting Priorities with Limited Resources

There are few jurisdictions, if any, with surplus financial resources available to finance every demand for increased enforcement efforts. Those concerned with the DWI problem must deal with the reality that the same citizen on the street who favors locking up every violator and throwing away the key will balk at being asked to pay taxes to build the necessary cell blocks. Accordingly, those who seek increased DWI enforcement must compete for attention and resources with those whose priorities are in other areas of enforcement. They must be prepared to make a convincing case based more on facts than on mere outrage.¹⁰⁵

Educating the Public

Ultimately, the greatest reduction in the annual toll of death, injury, and destruction wrought by impaired drivers will probably come from continued efforts to educate the public to be less tolerant of impaired drivers. Nationwide efforts by government, MADD, RID, SADD, and other groups in recent decades to educate the public have reduced public tolerance for driving while impaired. More people now consider driving while impaired to be unthinkable and adjust their behavior accordingly. More people are prepared to intervene to persuade impaired persons not to drive, to take away keys and, if necessary, to call the police. Increasingly, drivers equipped with cellular phones are prepared to call 911 to report DWI offenders and to follow the offenders until officers can intercept and stop them. Even bar personnel are prepared to call the police to stop an impaired patron from driving. With these kinds of efforts, one can expect further improvements.

Thus, continued attention by legislatures, government agencies, citizen groups and the media can increase general deterrence of DWI activity. Public and peer pressure may also increase specific deterrence of DWI activity of those who are irresponsible enough to assume a right to drive while impaired, and of those who are unimpressed by the risk and the consequences of apprehension.

Increasing *accurate* public information and understanding of the DWI laws can also have a salutary effect. Potential jurors are drawn from the public. The better informed they are, the less likely they are to act on erroneous assumptions, and the more likely to reach appropriate conclusions.

While nobody has yet found a method to persuade all potential impaired drivers to avoid needless risks of death, injury, and property damage for themselves and others, continued reductions in the annual toll of driving while impaired are attainable. Even modest improvements can produce nationwide savings of thousands of lives, tens of thousands of debilitating injuries, and hundreds of millions of tax and insurance dollars.

¹⁰⁵ For example, in preparation for a conference in Colorado, this writer collected figures from Colorado and Minnesota for the total number of deaths classified as "homicides" and for those attributed to alcohol-related crashes. In both states, year after year for the 10-year period examined, drunk drivers killed more people than those using guns, knives, poisons, and other means of homicide. Commonly, drunk drivers killed about twice as many as all "murderers." Conversations with colleagues around the country suggest that similar patterns exist in nearly every jurisdiction. Armed with such evidence, one can make a stronger case that since the victims are equally dead and their survivors equally bereft—quite apart from permanent injuries and property damage—that it is in the public interest to devote at least as many resources to DWI enforcement as to homicide investigation.

Comments on “Prosecuting and Adjudicating DWI Detection Evidence”

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Mr. Watne has done an excellent job in his paper of indicating how labyrinthine and mind-boggling driving while impaired (DWI) arrest and adjudication systems are and how vulnerable they are to circumvention by determined offenders and their defense attorneys. After reading the paper, I could only wonder if anyone *ever* is successfully prosecuted. Law enforcement officers, in particular, are required to make Talmudic decisions about the appropriate grounds for stopping a motorist, when a stop becomes a seizure, who to hold and who to release, whose license plates to impound, etc. All these decisions must be made under time pressures and often in adverse circumstances with obstreperous suspects. After an arrest is made, the officer's work continues, with little help from the system and many frustrating and unreasonable rules. Forms must be filled out and court appearances made, with little regard for efficiency or for other demands on the officer's time. After all these efforts, there is still a chance that a weak prosecutor or a judge with a bad attitude can negate the officer's best efforts. This is a discouraging picture, indeed.

In the face of this discouragement, it is essential to keep one thought in mind: The most important effect of enforcement is its power to *deter* dangerous and destructive behavior. Detection, apprehension, and punishment are secondary goals that contribute to public safety to the degree that they help to maintain a credible threat that deters offense. Of course, in the interests of justice, we want to see offenders punished appropriately. Incapacitation (through the loss of the driving privilege, vehicle, or freedom) helps prevent further offenses. Also, officers' morale and enthusiasm for enforcement are difficult to maintain if their efforts seem constantly to be thwarted. But we as experts and law enforcement leaders, as well as line officers, should never lose sight of the fact that the most important contributor to deterrence is enforcement. Strategies that amplify deterrence (e.g., extensive media coverage of enforcement campaigns) have the greatest potential to improve safety.

Clearly, however, both the public's safety and its sense of justice would be well served by improvements in the system. Mr. Watne has pointed out a number of important areas that can be streamlined and restructured. He has made some excellent suggestions that I will comment on here.

It is obvious that the report-writing, record-keeping, and retrieval systems are ridiculously antiquated. This major area of difficulty could be addressed with currently available hardware and software. A 17-year-old clerk at a 7-Eleven store can swipe my credit card and know immediately if it is valid and if I am over my credit limit before he sells me a bag of Doritos. There seems no reason why a police officer should not have immediate access to the status of a driver's license when a drinking driver has been apprehended. Similarly, tax preparation software can be purchased for \$29.95 that poses a series of straightforward questions to the taxpayer, performs the necessary calculations, and then prints the correct numbers on whatever tax forms are needed. There seems to be

no reason why similar programs could not be used for arrest reports so that clear, legible reporting could be done with one simple process. In addition, a report format could be printed for use in court appearances. This would obviate the kind of problem pointed out by Mr. Watne in which officers sometimes are disorganized or incomplete in their testimony.

Mr. Watne points out a second major area of difficulty in the skills, performance, attitudes, and interpretations of the individuals involved in the adjudication process. Breakdowns can occur anywhere in this process, from the inability of an officer to testify clearly and succinctly up to the realization that an offender happens to be a buddy of the mayor. Mr. Watne notes the need for additional training to help alleviate some of these failures. This is a very important tool that often is underused. Regardless of how good the training is, however, any time a system depends on the performance, judgment, and goodwill of individual actors, the potential for system breakdown is great.

To the degree that all aspects of the DWI arrest and penalty process are supported by well-designed systems that operate automatically, fewer breakdowns will occur. A first step, of course, is that a major penalty be imposed administratively. Minnesota was the first state to adopt administrative license revocation and should be commended for this pioneering effort. Administrative penalties have much less potential for deliberate or accidental circumvention. For example in Louisiana, prior to the imposition of administrative license revocation, only 56 percent of drivers arrested with blood alcohol concentrations of 0.10 percent or greater were convicted of DWI. After the law was changed, almost 90 percent of these arrested drivers received a license penalty.

Clearly, the administrative system should be strengthened and streamlined as much as possible. For example, some states minimize the grounds for appeal of a license penalty. Some states carry out the appeals process by mail rather than requiring personal appearances by law enforcement officers. If the opportunities for individual failures to cause system failures are minimized, then the the system is likely to run more efficiently.

Finally, and perhaps most important, Mr. Watne makes the excellent point that the support of the local community is essential if law enforcement agencies and courts are to be successful in enforcing driving-while-impaired laws. Many of the most egregious failures in the system would be less likely if there were strong community norms against driving while impaired, attitudes that support vigorous enforcement and prosecution, and strong citizen advocacy to bring pressure when necessary. Organizations like Mothers Against Drunk Driving have used tools such as court watches to excellent effect. Their continued vigilance is needed to ensure that the progress that has been made is not undermined. Public outrage can be easily engendered by stories of the multiple offender who wipes out a family as they walk to church. The officials who have played a role in such tragedies can be brought to account. The specter of such an event should haunt every judge and prosecutor and should guide their actions. It is only with an active, motivated, and aggressive citizenry that we can ensure that individuals and agencies act in the best interests of public safety.

Comments on “Prosecuting and Adjudicating DWI Detection Evidence”

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In his paper “Prosecuting and Adjudicating DWI Detection Evidence,” Joel Watne provides a richly detailed, yet concise, account of the various challenges to virtually every phase of the DWI case, from initial encounter by the officer to trial by jury.

At times he provides a glimpse into the inner workings of the judge, either at the trial or appellate level. He also provides us with many judges’ decisions after all the facts, arguments, evidence, and personal biases have been weighed, considered, and, at times, disregarded.

The concept of apprehending drivers who are either DWI or *per se*, testing them, and bringing them to trial seems relatively straightforward and simple. As explained in Watne’s paper, we know that is not the case in some jurisdictions.

Defense lawyers’ creativity in challenging DWI cases is not on the wane. Arguments made today would have seemed ludicrous 10 years ago. What is surprising is that some of those arguments are successful. I do not say this as a criticism of the defense bar. I expect attorneys to challenge when it is proper to do so. I also expect them to require the state to jump through every hoop in order to secure a conviction. Our love of freedom and the high regard we place on personal liberty demand it.

With the myriad of challenges based upon constitutional grounds, or challenges made to specific statutes, adjudication has become so complex that police officers are expected not only to perform their duties in a professional and competent manner but also to be well versed in the intricacies of constitutional law, behavioral and physiological science, psychology, and human relations.

In addition, the police officer must be able to successfully undergo trial by fire in the courtroom. Never forget that the goal—albeit a short-term one—of the officer and also of the prosecutor is conviction, whether by plea or by trial.

How do we assist the officer and the prosecutor in reaching this goal and the long-term goal of deterrence? In his paper Joel Watne provides suggestions for improvement. I would like to stress two general suggestions: simplification and education.

If one peruses the DWI statutes in the various states, not only will one find lack of uniformity but also a complexity that defies comprehension at times. I have had to read and reread statutes before I have had any hope of comprehending them—much less applying them. I then have had the daunting task of making those statutes intelligible to a jury.

Education must not only be provided to police officers but also to judges, prosecutors, lawyers, and the public. Great strides have been made but much more needs to be done.

I look at the adjudication issue from a narrow perspective. I not only look at it as a trial judge but I also try to look at it as a juror. Our goal should be to get from point A, initial stop, to point B, adjudication, in the most efficient and successful manner possible. Keep in mind that successful does not always mean conviction.

If the law and procedures employed by the officer are straightforward and comprehensible, then jurors will be better able to decide the case. A frequent complaint I hear after a trial is that the juror did not understand a certain procedure or that an instruction was too confusing. Unfortunately, the instructions have to track the statute fairly closely to pass muster with the Court of Appeals.

I would like to add a suggestion not mentioned by Mr. Watne: the creation and use of standardized alcohol influence reports. These reports would greatly assist an officer in the field and also in the courtroom. The officer would not have to rely on memory or practice to ask important questions at the scene but would be prompted by the report. The answers to the questions would serve to bolster his or her "reasonable stop" and could be used in the courtroom to enhance that officer's credibility at trial; in my experience, they have proved invaluable. Many cases come to trial after many months, and an officer's memory could have had a chance to fade or to blur. With a standardized report, the officer could testify that the questions were asked and answered at the scene, and the report would memorialize the conversation the officer had with the accused. One of the strategies used by prosecutors at the trial is to convince the jury that the officer could not possibly remember details of a conversation he or she had with the defendant months or years ago. If the report is available in the courtroom, with testimony that the answers were recorded at the scene, this argument is severely weakened.

Keep in mind that some things will always be out of our control, namely, community standards, prosecutors' goals, and the foibles of judges. With a concerted effort toward educating the public, police officers, judges, and prosecutors, we will continue to make progress in the DWI adjudication arena. Unfortunately, Americans seem to have a short memory. Vigilance and continued emphasis on the dangers of drinking and driving are needed in order to further the current trend of reducing deaths caused by drinking and driving.

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