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SESSION I

INTRODUCTION AND OVERVIEW

SESSION I INTRODUCTION AND OVERVIEW

Upon successfully completing this session, the student will be better able to:

- State the goals and objectives of the course.
- Define the term "drug" as it is used in the course.
- Name the seven categories of drugs and give at least one example of each category.

GOAL AND OBJECTIVES

Welcome to the Drug Evaluation and Classification (DEC) Program. This course is the first in a series of three training programs that, collectively, prepare police officers and other qualified persons to serve as Drug Recognition Experts (DREs).

Throughout this manual, the term "DRE" is used to designate an individual who is specially trained to conduct examinations of suspected drug impaired drivers. In some participating agencies, the term stands for "Drug Recognition Expert", in others it means "Drug Recognition Examiner", and in others, "Drug Recognition Evaluator". In addition, some agencies use the term "DRT" - "Drug Recognition Technician", and others use "DRS" - "Drug Recognition Specialist". All of these are acceptable and synonymous. But for the training program, the standard term is "DRE".

The Drug Evaluation and Classification (DEC) Program is a nationwide effort to deter impaired driving by increasing the likelihood that people who drive under the influence of drugs will be detected, caught, convicted and punished. The DEC program is sponsored by the U.S. Department of Transportation's National Highway Traffic Safety Administration (NHTSA). It is strongly supported by the International Association of Chiefs of Police (IACP), the Highway Safety offices of dozens of States, and by hundreds of law enforcement agencies. It is endorsed by the U.S. Department of Justice, the American Bar Association and the National Commission Against Drunk Driving, to name just a few supporters. It is based on techniques that were first developed by the Los Angeles Police Department. **But its ultimate effectiveness depends totally on people like you**. The men and women who are trained to serve as drug recognition experts (DREs) are the solid foundation of the DEC program. You and your brother and sister DREs are the ones who investigate suspected drug impaired drivers and obtain the detailed, convincing evidence that allows prosecutors to convict them. It may sound like a cliche, but this country <u>is</u> in a war against drug abuse. You are going to help us win it.

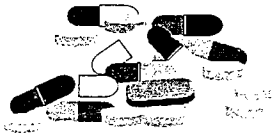
This is the <u>pre</u>liminary phase of your training. That's why we call it the PRE-School. Once you've successfully completed these two days, you will have begun to learn to do the things DREs need to do to diagnose drug impairment accurately. But you will only have just begun. You will still need to complete the next phase of training, the seven day DRE School, <u>and</u> the final phase of training, when you will conduct examinations of people actually arrested on suspicion of drug impairment. We call that final phase **certification training**, because once you have completed it you will receive your certificate as a DRE from the IACP. But right now, you still have a lot of training ahead of you.

Our goal for these first two days is pretty simple: **to prepare you to participate successfully in the seven-day DRE School**. Through your participation in lectures, discussions and -- most importantly -- hands-on exercises, we expect that you will be able to do seven things:

- Define the word "drug", as DREs use the term, and name the seven categories of drugs.
- Identify the twelve components, or steps, in the examinations that DREs conduct to diagnose a drug impaired suspect.
- Administer and interpret the psychophysical (or "divided attention") tests that DREs apply to suspects.
- Conduct the eye examinations that are part of the diagnosis.
- Check and measure a suspect's vital signs.
- List the major signs and symptoms of impairment for each drug category.
- Describe the history and physiology of alcohol as a drug.

We don't expect you to become perfect at doing these things by the end of the day tomorrow. You'll become even better at doing these and other things during the DRE School, and during certification training. But this PRE-School will help you get started.

1. <u>What is a "drug"</u>



The word "drug" means many things to many people. The word is used in a number of different ways, by different people, to convey some very different ideas.

Some sample definitions from dictionaries:

"A drug is a substance used as a medicine or in making medicines." (Webster's <u>Seventh New Collegiate Dictionary</u>, 1971)

This definition seems to exclude any substance that has no medicinal value. But there are many non-medicinal substances that regularly are abused. Model airplane glue is one such substance.

"A drug is a narcotic substance or preparation." (Also from Webster's). Clearly, not all drugs that are of concern to police officers are narcotics. Cocaine, for example, is very different from a narcotic.

"A drug is a chemical substance administered to a person or animal to prevent or cure disease or otherwise to enhance physical or mental welfare." (From Random House's College Dictionary, 1982)

Drug:

1. Substance taken by mouth, injected, or applied locally to treat a disorder (i.e., to ease pain).

2. A chemical substance introduced into the body to cause pleasure or a sense of changed awareness, as is the non-medical use of lysergic acid diethylamide (LSD).

   (From the Medical Dictionary for the non-professional, 1984)

Here again, anything that has no medicinal value apparently doesn't fit the dictionary notion of a "drug".

From your perspective as a traffic law enforcement officer, a non-medicinal concept of "drug" is needed. The definition we will use is adapted from the California Vehicle Code:

A drug is any substance, which when taken into the human body, can impair the ability of the person to operate a vehicle safely.

2. Categories of drugs

Within the simple, enforcement oriented definition of "drug" that we have adopted, there are seven broad categories. The categories differ from one to another in terms of how they affect people and in terms of the observable signs of impairment they produce.

Central Nervous System Depressants

This category includes a large number of different drugs. The most familiar drug of all--alcohol--is a central nervous system depressant. Depressants slow down the operation of the brain and other parts of the central nervous system.

Central Nervous System Stimulants

This category also includes a large number of drugs, all of which act quite differently from the depressants. Central nervous system stimulants impair by "speeding up", or over stimulating the brain. Cocaine is an example of a CNS stimulant.

Hallucinogens

This category includes some natural, organic substances, and some synthetic chemicals. All hallucinogens impair the user's ability to perceive the world as it really is. Peyote (which comes from a particular variety of cactus) is a naturally occurring hallucinogen. LSD is an example of a synthetic hallucinogen.

Phencyclidine

This category consists of the drug PCP and its various analogs (or "chemical cousins"). Originally developed for use as an anesthetic, PCP is a powerful drug that in some ways acts like a depressant, in other ways like a stimulant, and in still other ways like an hallucinogen.

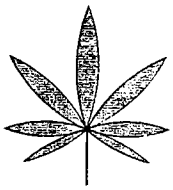
Narcotic Analgesics

This category includes the natural derivatives of opium, such as morphine, heroin, codeine and many others. The category also includes many synthetic drugs, such as demerol, methadone and others. All narcotic analgesics relieve pain (that is what "analgesic" means) and produce addiction.

Inhalants

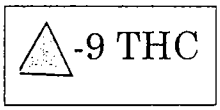
This category includes a large number of breathable chemicals, most of which are familiar household items that can be purchased without prescription. Indeed, most of the things that we call inhalants are not at all intended by their manufacturers to be used as drugs. The inhalants include such things as the volatile solvents found in glue, gasoline, paint thinner, etc; the aerosols found in spray cans, such as hair sprays, insecticides, and similar things; and, certain anesthetic gases, such as nitrous oxide and amyl nitrite.

Cannabis



This is the category that includes marijuana. Marijuana comes primarily from the leaves of certain species of Cannabis plants, weeds that grow readily all over the temperate zones of the earth. Hashish is another drug in this category, and consists of the compressed leaves from female Cannabis plants. The active ingredient in both Marijuana and Hashish is a chemical called delta-9 tetrahydrocannabinol, usually abbreviated THC.

There is also a synthetically produced form of THC known as marinol. It, too, is a member of the Cannabis category of drugs.



Each category of drugs produces a distinct set of observable effects. No two categories affect people in exactly the same way.

3. Frequency of drug use

No one knows with any appreciable degree of certainty how many Americans use drugs, or how frequently the various drugs are used. Estimates of drug use vary widely, and the estimates apparently depend on the kinds of people who were surveyed, where they were surveyed and the methods used. But all estimates agree that an appreciable segment of this country's population do use drugs.

Alcohol is the most familiar drug and is abused by an estimated 40 - 50 million Americans.

One statistic, in particular, suggests the potential magnitude of America's substance abuse problem: in one year, more than six million prescriptions were written for Valium, Librium and other so called minor tranquilizers. (Of course, some people had multiple prescriptions.)

Many substance abusers apparently routinely use more than one drug at a time. For example, some like to drink alcohol while smoking marijuana. Others prefer to use PCP by sprinkling it on marijuana cigarettes, or "joints". Some prefer their heroin mixed with cocaine.

The term "polydrug use" describes these and numerous other examples of drug combinations. The prefix "poly" derives from the Greek word for "many". People who routinely use drugs from two or more categories are polydrug users.

Polydrug use appears to be very common, at least among people involved in impaired driving incidents. For example, the National Highway Traffic Safety Administration and the LAPD conducted a careful study of blood samples drawn from nearly 200 suspected drug impaired drivers arrested in Los Angeles. Nearly three-quarters of those arrestees had two or more drug categories in their systems.

Because polydrug use is so common, it is highly likely that you will encounter suspects who are impaired by a combination of drug categories. Do not be fooled by the fact that a suspect may have a strong odor of alcohol beverage on his or her breath: other drugs often are taken in combination with alcohol.

When you come in contact with a polydrug user, you may observe a combination of effects, as the different drugs in his or her system affect the suspect in their various ways. The effects you observe may vary widely, depending on exactly what combination of drugs is involved, how much of each drug was ingested, and when they were ingested.

REVIEW QUESTIONS

Test your knowledge of the subject matter covered in this module by trying to answer the following questions. Answers are given on the next page.

1. What is a "drug" as the term is used in this course?

2. What are the seven major categories of drugs?

3. What kind (category) of drug is alcohol? What about cocaine? What about heroin?

4. How would you respond to someone who suggests that the "drug problem" basically occurs only in a few metropolitan areas, and doesn't apply to their community?

5. What category of drug is PCP classified? What about marijuana? What about valium?

6. What category of drug is methamphetamine? What about LSD? What about Peyote?

7. What does the term "polydrug use" mean?

Answers To Review Questions

1. For purposes of this training, "a drug is any substance which, when taken into the human body, can impair the ability of the person to operate a vehicle safely."

2. The seven categories are:
   Central Nervous System Depressants
   Central Nervous System Stimulants
   Hallucinogens
   Phencyclidine
   Narcotic Analgesics
   Inhalants
   Cannabis

3. Alcohol is a CNS depressant. Cocaine is a CNS stimulant. Heroin is a narcotic analgesic.

4. There might be some rare communities in this country that are free of the "drug problem", but they would be very rare indeed. A conservative estimate suggests that 40-50 million Americans regularly use drugs other than alcohol. These drugs routinely show up in the bodies of an appreciable number of crash involved drivers. Certainly, most American communities are not immune to the "drug problem".

5. PCP is Phencyclidine; that category consists only of PCP and its various analogs. Marijuana is Cannabis. Valium is a CNS depressant.

6. Methamphetamine is a CNS stimulant. LSD and peyote are Hallucinogens.

7. "Polydrug use" is the practice of using two or more drug categories at the same time, i.e., combining drugs.

SESSION II

OVERVIEW OF DRUG EVALUATION AND CLASSIFICATION PROCEDURES

SESSION II OVERVIEW OF DRUG EVALUATION AND CLASSIFICATION PROCEDURES

Upon successfully completing this session, the student will be better able to:

- Identify the twelve major components of the drug influence examination.
- Discuss the purposes of each component.

THE SYSTEMATIC AND STANDARDIZED PROCESS

You are going to become a DRE. What exactly is it that you will do?

You will conduct what amounts to detailed, physical diagnostic examinations of persons who have been arrested for impaired driving or similar offenses. Based on the information you obtain in the examination, you will form an expert opinion about three issues:

- Is the person, right now, impaired? In other words, would he or she be unable to operate a vehicle safely? And if you conclude that the person is impaired...

- Is the impairment due to an injury, illness or other medical complication, or is it drug-related? And if you conclude that the impairment is due to drugs...

- Which category, or combination of categories, of drugs is the most likely source of the impairment?

You will always conduct these diagnostic examinations in a controlled environment, typically at a precinct, jail intake station, troop headquarters or some other place where impaired drivers are brought for booking after arrest. You will not conduct the examination at roadside, because the measurements and observations you need to make cannot accurately be performed under roadside conditions.

In some cases, the people you examine will be drivers that you personally arrested. But it is likely that most of the time they will be persons arrested by other officers. You'll get involved in those cases because your special expertise as a DRE is needed to find out exactly what is wrong with the person in question. In other words, you will be called in to the precinct or jail or headquarters and asked to examine the suspect. Is the suspect on drugs, or under the influence of alcohol alone? Is the suspect sick, or perhaps emotionally disturbed? Most basically, is he impaired right now? It will largely be up to you to answer these questions.

The examination that you will conduct will be totally **systematic**. In other words, you will conduct an evaluation in a standardized and systematic manner. You will evaluate their appearance. You will assess the suspect's behavior. You will carefully measure and record the vital signs. You will make precise observations of the automatic responses and reactions of their eyes. You will administer carefully designed psychophysical tests that will allow you to evaluate the suspect's judgment, information processing ability, coordination and various other characteristics. In other words, you will systematically consider everything observable about the person that could indicate the influence of drugs.

The examination also will be totally **standardized**. You will do it exactly the same way, every time. You'll do it exactly the same way every other DRE does it. You won't ever leave anything out, and you won't ever add any tests or measurements that aren't part of the NHTSA and IACP approved set of tests and measurements. By conducting a standardized and systematic examination, you will help avoid mistakes. You will also help to promote and maintain professionalism among DREs. Perhaps most importantly, you will help secure the court's acceptance of your testimony.

The systematic and standardized examination breaks down into twelve major components, or steps. The checklist on the next page lists the steps in the sequence in which they are always performed. Even the very best DREs refer to the checklist every time they conduct an examination. Of course, one of the reasons why they are the best is because they do use the checklist, and so they avoid mistakes.

1. **The Breath Alcohol Test**

   When you are summoned to examine a suspect, the first question you will ask is "What's the suspect's BrAC?" You need to know the blood alcohol concentration because you must determine whether alcohol alone accounts for the impairment you observe. If the arresting officer has not already administered a breath test to the suspect, you will request that the test be given. Remember: Many of the suspects you examine will turn out to be under the influence of a combination of alcohol and other drugs.

2. **The Interview of the Arresting Officer**

   If you did not personally arrest the suspect, you will need to spend a few minutes with the arresting officer before you begin the physical examination. The arresting officer witnessed the driving, saw how the suspect reacted to the command to stop, interacted with the suspect at roadside, administered some field sobriety tests, and in general was exposed to a great deal of information bearing on the suspect's mental and physical condition. Very likely, the arresting officer won't be as knowledgeable about drugs as you are. It is possible that the arresting officer saw or heard something that could be a clue of drug use, but didn't recognize its significance. So you will draw the officer aside for a brief conversation. Ask about the suspect's driving: was it fast or slow? was the car drifting or swerving? was a collision involved, and if so, did the suspect suffer any apparent injuries? Ask about the suspect's behavior: what kind of attitude have they exhibited? How has the suspect responded to the officer's questions? Has the officer observed any unusual behaviors from the suspect and if so, what? Did the officer observe the suspect smoking or eating anything? Has the suspect used any unusual or unfamiliar words or expressions? Has the suspect admitted drinking or using drugs? Ask about any unusual or unfamiliar objects that might have been found in the suspect's possession.

3. The Preliminary Examination

The third step begins your extensive physical contact with the suspect. Make sure you are wearing protective gloves at this time. Your primary purpose at this time is to look for any evidence of a medical complication that would warrant terminating the examination and summoning medical assistance. You will ask the suspect a series of questions, and you will examine their eyes to determine if the pupils differ significantly in size, or if the eyes are unable to "track" together. You will also check for an estimation of the angle of onset of nystagmus at this point. This will assist you in making the decision whether the suspect is under the influence of alcohol alone. You will also take the first of three measurements of the suspect's pulse at this point. If you find evidence of a medical problem, you will terminate the examination, and seek competent medical help for the suspect if appropriate. Otherwise, you will proceed with the examination. This stage of the examination is commonly called the "fork in the road" as you will be deciding whether to continue with the evaluation at this point.

4. Examinations of the Eyes

This is the time when you will administer three tests of the suspect's eyes. The first is horizontal gaze nystagmus; that is the same test with which you are familiar from your training in standardized field sobriety testing. The test will be more precise for the DRE as you will be estimating the angle of onset of the nystagmus. The second test is vertical nystagmus, a related phenomenon that involves an up-and-down jerking of the eyes as they are elevated. The third test is lack of convergence, which assesses the suspect's ability to cross the eyes, to follow the movement of a stimulus toward the bridge of the nose.

Nystagmus is associated with three of the seven drug categories: Central Nervous System Depressants; Inhalants; and Phencyclidine. It may help you remember this if you call them the "**DIP**" drugs. If a person is under the influence of any of the DIP drugs, he or she usually will exhibit horizontal gaze nystagmus. And if the person is sufficiently impaired by a DIP drug, vertical nystagmus often will be visible. (Vertical nystagmus usually develops at a higher dosage of a DIP drug than does horizontal nystagmus.) But none of the other four drug categories will induce nystagmus. So a suspect might be very much under the influence of a Stimulant, Hallucinogen, Narcotic, or Cannabis, but no horizontal or vertical nystagmus will be visible in their eyes.

What about lack of convergence? First, the same drugs that produce nystagmus also produce lack of convergence. So, if a person is under the influence of any of the DIP drugs, they usually will be unable to cross the eyes. In addition, Cannabis produces lack of convergence. So when we check for lack of convergence, we try to remember the "**DIP-C**" drugs: any of those four will usually prevent the eyes from converging. The other three categories, Stimulants, Hallucinogens and Narcotics, will not produce lack of convergence.

5. **Divided Attention Psychophysical Tests**

At this stage of the examination you will collect the evidence that will solidly establish whether the suspect, right now, is impaired and can not operate a vehicle safely. We all know, and judges and juries know too, that safe driving demands that we are able to attend properly to many things at the same time. We have to be able to steer, control the accelerator, look for other traffic, identify stop signs and signal lights, and on and on. This means that we have to be able to **divide our attention** among all of the individual tasks that constitute driving a car. One thing that all drugs have in common is that they impair a person's ability to divide attention. Drugs simply make it very difficult for people to handle several tasks at the same time. As a DRE, you will administer four divided attention psychophysical tests to your suspects. The tests are called Romberg Balance, Walk and Turn, One Leg Stand, and Finger to Nose. Each test is designed to require the suspect to do two or more things at the same time. Some of these things are **physical** tasks, like walking or standing on one leg. Others are mental, or **psychological** tasks, such as recalling instructions, counting, or estimating the passage of time. (That's why we call these things **psychophysical** tests.) People who are impaired by drugs won't be able to perform these tests very well, and the mental and physical mistakes they make will go a long way toward convincing the judge or jury that they were in fact impaired.

6. **Examination of Vital Signs**

The sixth component of the drug evaluation and classification process requires you to make very precise measurements of the suspect's pulse rate, blood pressure and body temperature. Actually, you will measure the suspect's pulse rate at three different times: once during the preliminary examination, a second time during the vital signs examination, and a final time during the injection site examination of the suspect. In order to measure blood pressure, you will learn to use medical instruments, including a **stethoscope** and a **sphygmomanometer** (i.e., blood pressure cuff). For body temperature, you will use an electronic digital thermometer, always protected by a disposable mouthpiece.

The vital signs provide some very important clinical evidence of drug impairment. Two drug categories, i.e., the Depressants and the Narcotic Analgesics, usually lower the pulse rate, while the other five categories usually elevate the pulse. Depressants, Narcotic Analgesics and some Inhalants will usually lower blood pressure, while Stimulants, Hallucinogens, Phencyclidine, Cannabis and most Inhalants usually cause the blood pressure rise. Narcotic Analgesics usually cause the temperature to be lower than normal. Stimulants, Hallucinogens, Phencyclidine and some Inhalants usually elevate temperature. Depressants, Cannabis and other Inhalants typically don't affect body temperature.

7. Dark Room Examinations

At this point in the examination, you will take the suspect into a separate room. Depending on the policies established by your agency, you might handcuff the suspect at this time or request another officer to accompany you. The first thing you will do in the room is to obtain a estimate of the suspect's pupil size in room light. You will use an instrument called a **pupillometer** to do this. It is simply a cardboard or plastic card on which a number of dark circles appear. You will hold the pupillometer next to the suspect's eye, and you will locate the particular dark circle that is closest in size to the suspect's pupil, and you will record the size of that circle. You will do this first for the left eye, then for the right. Then, you will turn out the lights in the room. You and the suspect will remain in the dark for ninety seconds, this will allow your eyes to adapt to the darkness. You will then use a penlight to introduce different levels of illumination into the suspect's eyes. At first, a very low level of light will be used, just enough to allow you to see the pupils and obtain an estimate of their size. Next, you will shine light across the eyes, to illuminate them indirectly. Finally, you will shine the penlight directly into the suspect's eyes. In each level of illumination, you will hold the pupillometer up next to the eyes and obtain a numeric estimate of pupil size. Near the end of this examination, while you are directly illuminating the eyes, you will hold the light steadily on the eye for fifteen seconds, and observe how quickly the pupil reacts to the direct light. Pupil size and pupil reaction to light are affected by some, but not all of the drug categories. Narcotic Analgesics usually cause the pupils to become very **constricted**, i.e., smaller than normal. Stimulants and Hallucinogens typically cause the pupils to **dilate**, i.e., grow larger than normal. Cannabis often causes some dilation of the pupils, although usually not as severe as that caused by Stimulants or Hallucinogens. And, some but not all Inhalants cause dilation. On the other hand, Phencyclidine and Depressants usually don't affect the size of the pupils.

Before you leave the dark room, you will also use your penlight to illuminate the suspect's nasal area and mouth. The purpose of this is to check for any signs of ingestion in the oral or nasal area. Many times you will be able to observe evidence of ingestion of various drugs. Often you will spot debris or discoloration caused by "snorting", smoking or eating certain drugs. In some cases you might even find that the suspect has attempted to conceal drugs in the mouth, usually wrapped in small balloons or bits of foil and lodged between the gum and teeth. You will also be very close to the suspect and may detect odors on their breath.

8. **Examination for Muscle Tone**

After you leave the dark room, you will have the suspect sit down and place his or her arms on a table. Make sure you are wearing protective gloves, and "work" the muscles of the suspect's arms with your hands. Some drugs, i.e., Depressants and Narcotic Analgesics, often will cause the muscles to be very flaccid, or loose and rubbery. Others, such as Phencyclidine and possibly Stimulants and Hallucinogens, cause a rigid, stiff or tense feeling in the muscles.

9. **Examination for Injection Sites**

At the same time that you inspect the suspect's arms for muscle tone, you will carefully inspect the arms, the hands, the fingers, etc. for signs of recent or past hypodermic needle injections. Look for the characteristic scarring, or "track marks", of the habitual "hype". Search especially in and around tattoos and scabs. Feel with your fingers for "bumps" or welts that might be fresh injection marks. You will use an illuminating magnifying lens (called a **schematic light**) for a close visual inspection of possible injection sites.

When we think of drug use by hypodermic needle, we usually think primarily of Narcotic Analgesics, especially Heroin. But many people routinely inject other drugs. Cocaine and Methamphetamine for example, are often "shot", and hypodermic injection of certain Depressants, Phencyclidine and LSD is not unheard of.

10. **Suspect's Statements and Other Observations**

By this time, you have probably spent at least thirty minutes with the suspect, you have completed your physical examination, and have made note of any statements made by the suspect. If you have determined that the suspect is impaired, you should by now have a clear opinion of the category or combination of categories of drugs affecting the suspect. Interview the suspect in a way that conveys the fact that you already know what he or she has been doing.

For example, don't ask a question such as "have you been using any drugs tonight?" Instead, phrase the question in an assertive, confident manner. Suppose you believe that he or she is under the influence of Cannabis. You might begin the interview by asking "when did you smoke your last joint tonight?" If the suspect responds "I never said I smoked a joint", your response might be "we both know you've been smoking Marijuana; I can see it in your eyes, in your pulse, and in everything about you. Now, how many joints did you smoke, and when did you finish the last one?" Make sure that you carefully and accurately record the suspect's statements.

11. Opinions of the Evaluator

In the next to the last step of the evaluation process, you will document your conclusions. Remember: your job is to render an expert opinion about the condition of the suspect right now; it is not your function to speculate about their condition at the time of arrest, unless of course, you witnessed the arrest. IF YOU CONCLUDE THAT THE SUSPECT IS NOT NOW IMPAIRED, SAY SO. But if you conclude that the suspect is impaired, your opinion should be written in the following form:

> "In my opinion, (suspect's name) is under the influence of (category or combination), and is unable to operate a vehicle safely."

It is important to include the phrase "unable to operate a vehicle safely." That is a key element of the offense with which the suspect will be charged. IT IS ALSO VERY IMPORTANT THAT YOUR OPINIONS REFER TO DRUG CATEGORIES, AND NOT TO SPECIFIC DRUGS. The sole exception is alcohol. Because you have administered a breath test to the suspect, you know whether or not alcohol is present. If the suspect has a positive BrAC, your opinion should always state that the suspect is under the influence of a combination of alcohol and some other category or categories. You know how much alcohol the suspect has in their system, but as far as other drugs are concerned, you do not have access to a chemical test when you form your opinion. Suppose you examine a suspect, and find that everything about them is consistent with impairment by a CNS Stimulant. And suppose the suspect admits to having shot up Cocaine, and suppose further that you find in their possession, a packet of white powder that resembles Cocaine. Despite all of this, your opinion will not mention Cocaine. Instead, you will write that the suspect "...is under the influence of a CNS Stimulant..." For all you know, the suspect may have thought it was Cocaine that they had injected, but in reality it was Methamphetamine. Do not go beyond the bounds of your expertise. Of course, in your narrative report you would document the suspect's admission of Cocaine use, and your recovery of a substance that appeared to be Cocaine.

12. The Toxicologic Examination

Your final responsibility will be to obtain the specimen that will be sent to the laboratory for chemical analysis. Follow the proper procedures of your lab and your department to determine the type of specimen (blood or urine) to be obtained, and to ensure proper control over the collection process, as well as to ensure proper handling, packaging and delivery of the specimen. Remember that some laboratories participating in this program want to receive a copy of the Drug Influence Evaluation face sheet along with the blood or urine specimen. Others may require a statement of the DRE's opinion. A copy of the face sheet appears on the next page.

REVIEW QUESTIONS

1. Study the checklist that appears near the beginning of this section, then put it aside, and list the twelve components of the Drug Evaluation in the sequence in which they are always performed.

2. Name the four divided attention psychophysical tests used to assess a suspect's impairment.

3. When is the first measurement of a suspect's pulse rate taken?

4. Name the two medical instruments that are needed to measure a suspect's blood pressure.

5. What is the name of the instrument used to estimate the size of the suspect's pupils?

6. Which categories of drugs usually produce **nystagmus**? Which usually produce **lack of convergence**?

7. Which categories usually **elevate** the pulse rate? Which usually **lower** the pulse rate?

SESSION III

THE PSYCHOPHYSICAL TESTS

SESSION III THE PSYCHOPHYSICAL TESTS

Upon successfully completing this session, the student will be better able to:

- Administer the four divided attention tests used in the Drug Recognition Process.
- Document the suspect's performance of those tests.

OVERVIEW OF THE TESTS

You will always use four divided attention psychophysical tests to evaluate the impairment of a drug suspect. These tests are **standardized**, in their administration, documentation and interpretation. That means that we always give exactly the same instructions to suspects when we use these tests; we always record the suspects' performance in a prescribed manner; and, we always look for a specific set of cues to determine to what extent the suspects are impaired.

The four tests are:

Romberg Balance
Walk and Turn
One Leg Stand
Finger to Nose

We have listed these tests in the sequence in which they must always be given.

Two of the tests, namely the Walk and Turn and the One Leg Stand, have been **scientifically validated**. That means that they were subjected to controlled research, involving hundreds of volunteer drinkers, in which it was demonstrated that they could reliably discriminate between impaired and unimpaired subjects. That same research program also demonstrated the scientific validity of horizontal gaze nystagmus for identifying alcohol impairment. The other two tests, Romberg Balance and Finger to Nose, have not been subjected to that sort of scientific scrutiny, so they have not been validated. But saying that they haven't been validated is **not** the same thing as saying they are invalid. Properly administered and recorded, Romberg Balance and Finger to Nose produce very important and very credible evidence of a suspect's impairment.

ROMBERG BALANCE

This test requires the suspect to stand with the feet together, the head tilted slightly back, the eyes closed, and estimate the passage of thirty seconds. When the suspect believes that the thirty seconds have passed, he or she is to tilt the head forward, open the eyes, and say "Stop".

Administrative Procedures

- Tell the suspect to stand straight with the feet together and the arms down at the sides.

- Tell the suspect to maintain that position while you give the instructions. Emphasize that he or she must not start the test until you say "begin".

- Ask the suspect if he or she understands so far.

- Tell the suspect that, when you tell them to, they must tilt their head back and close their eyes. DEMONSTRATE how the head should be tilted, but DO NOT CLOSE YOUR EYES while demonstrating.

- Tell the suspect that when you say "Start", they must keep their head tilted back with their eyes closed until they think that 30 seconds have gone by. DO NOT tell the suspect to "count to thirty seconds" or to use any other specific procedure to keep track of time. But on the other hand, DO NOT tell the suspect that they are <u>not allowed</u> to count to thirty seconds. SIMPLY SAY, "keep your head tilted back with your eyes closed until you think that thirty seconds have gone by".

- Tell the suspect that, when they think the 30 seconds have gone by, they must bring their head forward, open their eyes, and say "Stop" ± 5 seconds

- Ask the suspect if they understand.

- Look at your watch and pick a convenient time to start the test.

- Tell the suspect to tilt their head back and close their eyes.

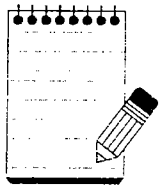
- Tell the suspect to begin.

- Keep track of time while the suspect performs the test.

- When the suspect opens the eyes, ask them "how much time was that?"

- If 90 seconds elapse before the suspect opens their eyes, stop the test.

Documenting the test



At the ends of the "arrows" above the "stick figures", record the number of inches of sway exhibited by the suspect. The "stick figure" that has only one arm and one leg is used to record front to back sway. The two armed and two legged figure is used for side to side sway.

Under "internal clock", record the actual number of seconds the suspect stood with their eyes closed.

Look and listen for the following:

- o suspect unable to stand still or steadily with the feet together
- o body tremors
- o eyelid tremors
- o muscle tone (either more rigid or more flaccid than normal)
- o any statements or unusual sounds made by the suspect when performing the test.

Document any of the above, or any other noteworthy observations, across the chest areas of the "stick figures", and elaborate as necessary on the reverse side of the Drug Influence Evaluation Face Sheet.

WALK AND TURN

This test should already be very familiar to you from your previous training. The test requires the suspect to stand in a heel to toe fashion with the arms at the sides while a series of instructions are given. Then, the suspect must take nine heel to toe steps along a straight line, turn in a prescribed manner, and take another nine heel to toe steps along the line. All of this must be done while counting the steps aloud and keeping the arms at the sides. The suspect must not stop walking until the test is completed.

Administrative Procedures

- o Tell the suspect to place their left foot on the line.
- o Tell the suspect to place the right foot on the line, in front of the left foot, with the heel of the right foot against the toe of the left. DEMONSTRATE the heel to toe stance.
- o Tell the suspect to put their arms down against their sides, and to keep them there throughout the entire test.

- o Tell the suspect that they are to maintain this position while you give the instructions. EMPHASIZE that the suspect must not start walking until you say to "begin".

- o Ask the suspect if they understand.

NOTE: If at any time while you are giving the rest of the instructions the suspect should break away from the heel to toe stance, stop giving instructions until they resume the stance.

- o Tell the suspect that, when you say to "begin", they must take nine heel to toe steps down the line, turn around, and take nine heel to toe steps up the line.

- o Tell the suspect that every time they take a step, the heel must be placed against the toe of the other foot. DEMONSTRATE several heel to toe steps.

- o Tell the suspect that, when the ninth step has been taken, leave the FRONT foot on the line, and turn around using a series of small steps with the other foot. DEMONSTRATE A PROPER TURN.

- o Remind the suspect that, after turning, they must take another nine heel to toe steps up the line.

- o Tell the suspect that they must watch their feet at all times, must count the steps out loud, and must keep their arms down at their sides.

- o Tell the suspect that, once they begin walking, not to stop walking until the test has been completed.

- o Ask the suspect if they understand.

- o Tell the suspect to "begin".

NOTE: If the suspect fails to either look at their feet or count their steps out loud, remind them to do so and note the occurrence on the evaluation form. These tasks are a part of the validated clues and must be performed to properly evaluate divided attention.

- Ask the suspect if they understand.

- Tell the suspect to "begin".

  NOTE: It is important that this test last for thirty seconds. You must keep track of time. If the suspect counts slowly, you will tell them to stop when thirty seconds have gone by, even if, for example, the suspect has only counted to "one thousand and twenty". On the other hand, if the suspect is counting rapidly, they may count to "one thousand and forty before the thirty seconds has gone by and you say to stop.

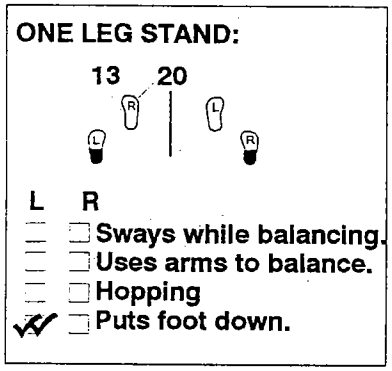
  Make sure you record the suspects' actual count in the thirty seconds.

  AFTER the suspect completes the test while standing on the left leg, allow him or her to relax for about ten seconds, then have the suspect put their feet together with the arms down at their side. Then ask the suspect if they recall the previous instructions. If the suspect does, tell them to repeat the test while standing on their right leg.

Documenting the test

Four validated clues of impairment have been identified for One Leg Stand:

- Sways while balancing
- Uses arms to balance
- Hopping
- Puts foot down



You will place check marks in or near the small boxes to indicate how many times you observed each of the clues. Of course, you will do this separately for the test on the left leg (L) and the test on the right (R). In addition, if the suspect puts the foot down during the test, you will record when it happened. To do this, write the count number at which the foot came down. For example, suppose that, when standing on the left leg, the suspect lowered the right foot at a count of "one thousand and thirteen", and again at "one thousand and twenty"; Your diagram should look like the sketch to the right. The suspect's actual count during the thirty seconds should be documented in the top area of the box above the foot the suspect was standing on.

You must also pay attention to the suspect's general appearance and behavior while he or she is performing this test. Take note of any body tremors or muscle tension that may be apparent. Listen for any unusual or "interesting" sounds or statements the suspect might make while the test is in process. Make sure that any such information is documented on the face sheet or in your narrative report.

FINGER TO NOSE

The Finger to Nose test means just that: the suspect is required to bring the tip of the index finger up to touch the tip of the nose. They will preform this test with their eyes closed and the head tilted slightly back, standing in a manner identical to that required for Romberg Balance (feet together and arms at their sides). The suspect will attempt this six times, three with each hand. You will instruct the suspect as to which hand to use for each attempt. You will **always** use this sequence when administering this test: "left...right...left...right...right...left".

Administrative Procedures

- Tell the suspect to place their feet together and to stand straight.

- Tell the suspect to place their arms down at their sides, make a fist with the index finger extended and rotate the palms forward.

- Tell the suspect that, when you say to "begin", they tilt their head back slightly and close their eyes. DEMONSTRATE how the head should be titled back, but DO NOT CLOSE YOUR EYES.

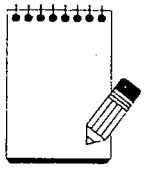
- Inform the suspect that you will instruct them to bring the tip of an index finger up to touch the tip of their nose. DEMONSTRATE how the suspect is supposed to move the arm and how they are supposed to touch the tip of the nose.

  NOTE: The arm is brought directly from the suspect's side to touch the tip of the nose.

- Tell the suspect that, as soon as they touch their finger to their nose, they must return the arm to their side.

- Tell the suspect that, when you say "right", they must move the right hand index finger to their nose; when you say "left", the suspect must move the left hand finger to their nose.

Documenting the test



Using the "footprints", you will record every instance where the suspect stopped walking, or stepped off the line. For a **stop**, draw a vertical line across the "toe" of the step at which the stop occurred and mark the line with an "S". For a **step off**, draw a line from the appropriate footprint at an angle in the direction in which the foot stepped. If the suspect fails to touch heel to toe, draw a vertical line across the "toe" where this clue was noted and mark the line with an "M".

Eight validated clues of impairment have been identified for the Walk and Turn test. Two of them apply while the suspect is standing heel to toe position and listening to the instructions:

- Cannot keep balance (i.e., suspect breaks away from the heel to toe stance);
- Starts too soon (i.e., suspect starts walking before you say "begin").

At the top of the checklist portion of the Walk and Turn segment of the Drug Influence Evaluation Face Sheet, you will record the numbers of times these two clues were observed while you were giving the instructions. For example, if the suspect breaks away from the heel to toe stance twice, put two check marks on the "Cannot keep balance" line.

The other six validated clues apply during the walking stage of the test. They are:

- Stops walking
- Misses heel to toe
- Steps off the line
- Raises the arms while walking
- Takes the wrong number of steps
- Turns improperly

In the checklist area, you will record the first five of those, separately for the first nine steps and the second nine. Beneath the footprint area, you will describe how the suspect turned. If they turned in the appropriate fashion, simply write "proper" in that space. But if the suspect "staggered to the left" or executed an "about face" turn or any turn other than a proper turn, write that description in the space.

If the suspect was unable to begin or complete the test, explain why. Usually, this will be due either to a physical infirmity that precludes the test entirely (e.g., "suspect has an artificial left leg") or to your decision to stop the test (e.g., "suspect nearly fell twice while attempting to stand for the instructions"). Whatever the case might be, some reason must be documented for a test that wasn't given or completed.

ONE LEG STAND

This test obviously requires the suspect to stand on one leg. The other leg is to be extended in front of the suspect in a stiff leg manner, with the foot held approximately six inches above the ground. The suspect is to stare at the elevated foot, and count out loud for thirty seconds, in this fashion: "one thousand and one, one thousand and two, one thousand and three, ..." until thirty seconds has elapsed. You will time the suspect as this test is performed, and will tell the suspect to stop when the thirty seconds has elapsed. The suspect will be required to perform this test **twice**, first standing on the left leg, then on the right.

Administrative Procedures

- Tell the suspect to stand with their feet together and the arms down at the sides.

- Tell the suspect to maintain that position while you give the instructions; emphasize that they should not try to perform the test until you say to "begin".

- Ask the suspect if they understand.

- Tell the suspect that, when you say to "begin", they must raise their **right** leg in a stiff legged manner, and hold the foot approximately six inches off the ground, with the toes pointed forward so that the foot is parallel with the ground.

- DEMONSTRATE the proper one legged stance.

- Tell the suspect that they must keep their arms at their sides and must keep looking directly at their elevated foot and count in the following fashion: "one thousand and one, one thousand and two, one thousand and three", and so on until told to stop.

- Ask the suspect if they understand.

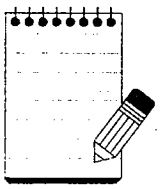
- Tell the suspect to "begin". MAKE SURE they tilt their head back and close their eyes. EMPHASIZE to the suspect that they must keep their eyes closed until you say to open them.

- Give the commands in EXACTLY this sequence:

  "left...right...left...right...right...left".

  MAKE SURE the suspect returns the arm to their side immediately after each attempt. PAUSE about two or three seconds between commands.

- After the sixth attempt, tell the suspect to open their eyes.



Documenting the test

Although the Finger to Nose test has not been scientifically validated, experience shows that persons who are impaired by alcohol or other drugs sometimes miss the tip of the nose and sometimes fail to use the proper finger. On the diagram, you will draw a line to indicate exactly where the finger tip "landed" on each attempt, and you will indicate which finger was actually used. In addition, be alert for body sway, body tremors, eyelid tremors, muscle tension, unusual or "interesting" sounds or statements and anything else worthy of note. Document all such observations on the face sheet or in your narrative report.

REVIEW QUESTIONS

1. List the four divided attention tests in the sequence in which they must be administered.

2. On which foot must the suspect stand the first time he or she performs the One Leg Stand?

3. How much time must the suspect estimate during the Romberg Balance?

4. List all of the scientifically validated clues of impairment for Walk and Turn.

5. List all of the scientifically validated clues of impairment for Finger to Nose.

6. What sequence of finger commands must you give for the Finger to Nose?

7. List all of the scientifically validated clues of impairment for Romberg Balance.

8. List all of the scientifically validated clues of impairment for One Leg Stand.

SESSION IV

THE EYE EXAMINATIONS

SESSION IV THE EYE EXAMINATIONS

Upon successfully completing this session, the student will be better able to:

- Administer tests of horizontal gaze nystagmus, vertical nystagmus and lack of convergence.
- Estimate pupil size.
- Relate the expected results of the eye examinations to the seven categories of drugs.

NYSTAGMUS AND LACK OF CONVERGENCE

Drug recognition experts obtain important evidence of the presence of certain drug categories from three examinations of the suspect's eyes:

- **Horizontal Gaze Nystagmus**
- **Vertical Nystagmus**
- **Lack of Convergence**

HORIZONTAL GAZE NYSTAGMUS (HGN) should already be familiar to you as a highly reliable field sobriety test for alcohol impairment. In fact, HGN not only is a powerful indicator of alcohol impairment, but it will also disclose impairment by any CNS Depressant other than alcohol, PCP or its analogs, and by most Inhalants. These three categories of drugs usually will produce HGN.

We test for HGN by checking each eye for three separate clues:

Check #1: Does the eyeball pursue, or track, smoothly?

Start with a stimulus (pencil, pen, penlight, etc.) held vertically in front of the suspect's face, above eye level and about 12 to 15 inches away from the suspect's nose. Tell the suspect to keep the eyes focused on the stimulus, to hold their head steady, and to follow the movement of the stimulus with their eyes only. Begin by moving the stimulus smoothly **to your right**, so that you will first check the suspect's **left** eye. Move the stimulus at a speed that requires about 1 to 2 seconds for the suspect's left eye to move all the way to the side. Then, bring the stimulus back toward the center at the same speed. Now keep moving the stimulus at the same speed all the way to your left, so that you can check the suspect's right eye. As soon as the suspect's right eye gets all the way to the side, bring the stimulus back to the center at the same speed. Just to give yourself a good chance to observe this clue, make it standard practice to conduct a second complete pass in front of both eyes, i.e., once again draw the left eye all the way to the side and back to the center, then take the right eye back out to the side and return it to the center.

While the eyeball is moving, you should examine it closely for signs of "a lack of smooth pursuit". If a person is not under the influence of a CNS Depressant or PCP or an Inhalant, their eyeballs should glide smoothly in the sockets, in much the same way that windshield wipers slide smoothly across the windshield when it is raining steadily. But if the person is under the influence of one of those three categories of drugs, their eyes will usually jerk noticeably as they move, similar to a wiper dragging across a dry windshield.

Check #2: Does the eyeball jerk distinctly when the eye is held at maximum deviation?

Once again, position the stimulus about 12 to 15 inches in front of the suspect's nose, and start to move it to your right. Draw the suspect's left eye as far as it can go to the side, then hold it there for four seconds. Someone under the influence of Depressants, PCP or Inhalants usually will exhibit a very distinct, pulsating jerkiness when the eye is held at maximum deviation. A slight, barely visible tremor of the eye **does not** constitute "distinct jerking" for our purposes.

Once you have assessed the condition of the left eye at maximum deviation, bring the stimulus over to your left and take the suspect's right eye to maximum deviation. Hold it there for four seconds, and determine whether or not distinct jerkiness is present.

Check #3: What is the angle of onset of the jerking?

When you use HGN as a field sobriety test of alcohol impairment, you are used to determining whether the jerking of the eye begins inside or outside a 45-degree arc of lateral deviation. As a DRE, you are going to have to be a bit more precise than that. Within certain limits, it is important for the DRE to estimate the actual angle at which the jerking first begins. We need to do this because it gives us a clue as to whether the suspect is impaired by alcohol alone, or by some combination of alcohol with another Depressant, PCP, or an Inhalant.

From the original research that led to the development and validation of HGN as a field sobriety test for alcohol, we know that there is an approximate statistical relationship between blood alcohol concentration (BAC) and the angle of onset of nystagmus. The relationship is expressed by this formula:

BA = 50 - ANGLE.

According to the formula, if the angle of onset were 40 degrees, then the "BA" would approximately equal 50 minus 40 or 10; that corresponds to a BAC of 0.10%. similarly, if the onset angle were 35-degrees, "BA" would be approximately 15, for a BAC of 0.15%.

It is important always to keep in mind that this formula expresses an average, approximate statistical relationship, **not a precise mathematical relationship**. Human beings, and their eyes, do not all react to alcohol or other drugs in exactly the same way. The formula may be reasonably accurate for some people, but much less accurate for others. The formula is **not** sufficiently accurate for us to use HGN to produce evidence of a specific BrAC, and courts routinely reject any attempt to do so. But the formula is of value to us as DREs because it can help us detect an evident gross disparity between the suspect's BrAC and the nystagmus that is observed.

For example, suppose you are called in to examine a suspect who has a BAC of 0.07%. Based on that alone, you'd expect to find the onset of nystagmus close to 40-to 45-degrees. But suppose you discover that the suspect's nystagmus begins at about 30-degrees. That would be inconsistent with the BrAC, and you would begin to think that this suspect might also have taken some other Depressant, PCP, or an Inhalant.

For DRE purposes, you will be expected to be able to estimate onset angle to the nearest 5 degree increment, over the range from 30 degrees to 45 degrees. If the suspect's eyes begin to jerk before they have moved to the 30 degree angle, you will not attempt to estimate the angle precisely, but will simply record that the suspect exhibits "immediate onset". But from 30 degrees on out, you will record a numeric estimate of onset, i.e., 30 degrees, 35 degrees, 40 degrees, or 45 degrees.

To determine the angle of onset, again position the stimulus about 12-15 inches from the suspect's nose and slowly move the stimulus toward your right. Watch the left eye closely for the first sign of jerking. When you think that you first see the eyeball jerk, stop moving the stimulus and hold it steady. Verify that the eye really is jerking: if it is not, start moving it again to your right until you see the jerking begin. Once you find the point of onset of jerking, estimate the angle, to the nearest 5 degrees. Then, repeat this procedure for the suspect's right eye. One final point about the nystagmus onset angle: don't forget that there are many drugs that **do not induce HGN**. For example, CNS Stimulants do not produce nystagmus; neither do Hallucinogens, Cannabis, or Narcotic Analgesics. Therefore, a suspect might be under the influence of, for example a combination of alcohol and cocaine, and their nystagmus onset angle would be completely consistent with the alcohol level alone.

VERTICAL NYSTAGMUS

Vertical nystagmus, like HGN, is a jerking of the eyeballs. But in the case of vertical nystagmus, the jerking occurs when the eyes are elevated, and the jerking of the eye is up and down.

Vertical nystagmus is associated with the very same drugs that induce horizontal gaze nystagmus. In other words, vertical nystagmus may be exhibited by someone who is under the influence of any CNS Depressant (including alcohol), PCP or its analogs, or an Inhalant. By the same token, vertical nystagmus, like HGN, is not produced by Stimulants, Hallucinogens, Cannabis or Narcotic Analgesics. Vertical nystagmus usually occurs under **higher** doses of Depressants, PCP or Inhalants. Therefore, it is not uncommon to encounter suspects who exhibit HGN, but do not show vertical nystagmus.

To check for vertical nystagmus, hold a stimulus horizontally in front of the suspect, about 12-15 inches in front of the suspect's nose. Direct the suspect to focus their eyes at a specific point on the stimulus. Instruct the suspect to hold their head steady and to follow the stimulus with their eyes only. Elevate the stimulus until the eyes are raised as far as possible and hold them at that position for four seconds. Observe the eyes closely to see whether any up and down jerking occurs. With vertical nystagmus, we do not attempt to identify an angle of onset: we simply record that vertical nystagmus is either "present" or "not present".

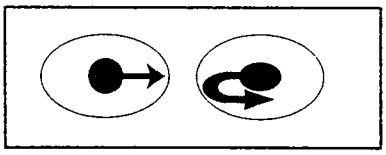
Remember: the mere fact that vertical nystagmus is present does not guarantee that the suspect is under the influence of some drug other than alcohol. Alcohol itself will induce vertical nystagmus, if the BrAC is high for that individual. And remember that there are many drugs that do not induce vertical nystagmus.

LACK OF CONVERGENCE

In simplest terms, **lack of convergence** means an inability to cross the eyes. We start to check for lack of convergence by positioning the stimulus about 12 to 15 inches in front of the suspect's nose in the same position we use for the HGN test. Inform the suspect that you are going to move the stimulus around in a circle, then you are going to move it toward their face, and that you will actually touch the bridge of their nose with the stimulus. Make sure that the suspect knows this in advance, so that they do not become frightened during the test and jerk their head away.

Instruct the suspect to keep their head steady, and to follow the movement of the stimulus with the eyes only. Start moving the stimulus in a circle in front of the suspect's face, and observe the eyes to verify that the suspect is tracking the stimulus. Then, slowly move the stimulus in toward the bridge of the nose, holding the stimulus on the bridge of the suspect's nose for approximately one (1) second then remove the stimulus from the suspects' nose while observing the eyes. If the eyes manage to cross, i.e., if they both come together toward the nose, lack of convergence is "not present". But, if one eye drifts away toward the side instead of converging toward the bridge of the nose, lack of convergence is present.

We record the results of this test by diagraming the movement of the eyes. The diagram here shows an example: in this case, the suspect's **right eye** (the eye to our left, as we look at the suspect) converged to the nose, while the **left eye** started to converge, then drifted to the side.



Lack of convergence usually occurs with people who are under the influence of any drug that induces nystagmus. Thus, Depressants, PCP, and Inhalants usually will produce lack of convergence. Cannabis also will usually produce lack of convergence, even though it doesn't produce nystagmus. Other kinds of drugs, i.e., Stimulants, Hallucinogens and Narcotic Analgesics usually do not prevent the eyes from converging. But you should be aware that many people have difficulty crossing their eyes even when they are totally drug free. So it is not uncommon to find unimpaired individuals who exhibit lack of convergence.

ESTIMATING PUPIL SIZE

The **pupils of our eyes** continually adjust in size to accommodate different lighting conditions. When we are in a darkened environment, the pupils expand, or "dilate", to allow the eyes to capture as much light as possible. When the lighting conditions are very bright, the pupils shrink, or "constrict", to keep the eyes from being overloaded. This process of constriction and dilation normally occurs within certain limits. For most people, even under very bright light the pupils won't constrict much below a diameter of 3.0 millimeters (mm); and, even under very dark conditions, the pupils usually will only dilate to a diameter of not more than 6.5mm.

Many drugs, however, will affect the dilation or constriction of the pupils and may cause the pupil size to go outside this normal range of 3.0-6.5mm. CNS Stimulants and Hallucinogens, for example, usually will induce pupil dilation. Cannabis also may induce some dilation, as will certain (but not all) Inhalants. On the other hand, Narcotic Analgesics usually will cause the pupils to constrict. PCP and its analogs do not affect pupil size, and neither do most CNS Depressants. The exceptions are the Depressants **Methaqualone** (also known as Quaalude) and Soma, which induce pupil dilation.

We use an instrument called a **pupillometer** to estimate the size of the suspect's pupils. The standard DRE pupillometer has a series of dark circles, with diameters ranging from 1.0mm to 9.0mm, in half-millimeter increments. We hold the pupillometer alongside the suspect's eye, and move the pupillometer up or down until we locate the circle closest in size to the pupil.

We always estimate pupil size under four different lighting conditions:

- **room light**
- **near total darkness**
- **indirect light**
- **direct light**

The pupils are examined in room light prior to darkening the room. The last three of the pupil size estimations are made in a totally darkened room with the aid of a penlight. When we enter the dark room, we wait 90 seconds to allow the suspect's eyes and our own eyes to adapt to the dark. Then we proceed with the estimations.

Estimation under near total darkness Should Be larger Than First one

Completely cover the tip of the penlight with your finger or thumb, so that **only a reddish glow** and no white light emerges. Bring the glowing red tip up toward the suspect's left eye until you can just distinguish the pupil from the colored portion of the eye (iris). Continue to hold the glowing red tip in that position and bring the pupillometer up alongside the suspect's left eye and locate the circle that is closest in size to the pupil. Then repeat this procedure for the suspect's right eye.

Estimation under indirect light

Uncover the tip of the penlight, and shine it **across the suspect's left eye**, so that a shadow of the eye is cast on the side of the subjects' nose near the corner of the eye. Make sure that the light does not shine directly into the eye, but rather across it. Hold the penlight in that position, and bring the pupillometer up alongside the left eye. Locate the circle that comes closest in size to the pupil. Then repeat this procedure for the suspect's right eye.

Estimation under direct light

Leave the tip of the penlight uncovered, and bring the light from the side of the suspect's face and **shine it directly** into their left eye. Position the penlight so that it exactly illuminates the suspect's eye socket. Hold the penlight in that position for 15 seconds, and bring the pupillometer up alongside the left eye, and find the circle that is closest in size to the pupil. Then repeat this procedure for the suspect's right eye.

Pupil size estimations are recorded as the numeric value that corresponds to the diameter of the circle that is closest in size to the suspect's pupil in each lighting condition. The example shown here depicts pupils ranging from 5.0mm under direct light to 8.0mm under near total darkness. These would be considered dilated beyond the normal range.

Pupil Size	Room Light	Darkness	Indirect	Direct
Left Eye				
Right Eye				

The reaction of the pupils to light

When we conduct the direct light estimation of the pupil size, we also look for another clue of possible drug influence. That clue is the reaction of the pupils to light. With an ordinary sober person, the pupils will constrict fairly quickly when bright light enters the eye. We would expect to see some constriction within one second after the penlight is shined directly into the eye. Some drugs however, may affect the pupil's reaction to light. No category of drugs will speed up the reaction of the pupils, but some will slow it down. CNS Depressants and CNS Stimulants for example, will both slow the pupil's reaction. It may seem strange that Stimulants will do this, since we think of that type of drugs as "speeding things up", nevertheless they do slow the reaction. Under the influence of Narcotic Analgesics, you may observe little or no visible reaction of the pupils to direct light. This may be due to the fact that the drug constricts the pupils to the point where any further constriction isn't noticeable to your naked eye. Hallucinogens, PCP, and Cannabis usually don't affect the reaction of the pupils. Some Inhalants will slow pupillary reaction, but other Inhalants won't.

Relationship of the Eye Examinations to the Drug Categories

The table below indicates what we usually will find when we conduct the eye examinations of people who are under the influence of the seven categories. You should now be starting to see how the evidence gathered by a DRE fits together like the pieces of a jigsaw puzzle. Each category has its own unique set of clues. This will become even more evident when we consider the vital signs examinations in Session VI.

Drug Category	CNS Depressants	CNS Stimulants	Hallucinogens	PCP	Narcotic Analgesics	Inhalants	Cannabis
Horizontal Nystagmus	Present	None	None	Present	None	Present	None
Vertical Nystagmus	(high doses) Present	None	None	Present	None	(high doses) Present	None
Lack of Convergence	Present	None	None	Present	None	Present	Present
Pupil Size	Normal (1)	Dilated	Dilated	Normal	Constricted	Normal (3)	Dilated (4)
Reaction to Light	Slow	Slow	Normal (2)	Normal	Little or None Visible	Slow	Normal

(1) Soma and Quaaludes usually dilate pupils
(2) Certain psychedelic amphetamines cause slowing
(3) Normal, but may be dilated
(4) Pupil size possibly normal

One important word of caution: Although effects displayed in the table are what we will **usually** find when we examine persons impaired by various types of drugs, we may **not always** find them. Human beings differ from one another in many respects, including how they react to drugs. A DRE needs to remember that, when describing drug effects, it is best **"never to say never"** and **"always avoid saying always".**

At the end of this session,you will find a **template**, that will assist you in practicing your estimation of nystagmus onset angle. You will probably find it works best if you tape the template onto a sheet of cardboard, or photocopy it onto "hard stock". Position the template under the subject's nose, and "read" the angle of onset to the closest 5 degrees, beginning at thirty degrees and extending out to fifty. If the jerking begins before the eye travels to the 30-degree point, we call it **immediate onset**. If the jerking has not begun by the time the eye reaches the 50-degree mark, we say there is no onset, and we record the angle as **none**.

REVIEW QUESTIONS

1. Name the three clues of impairment associated with horizontal gaze nystagmus.

2. Complete this formula:

   BAC = 50 - ????

3. Which categories of drugs will **not** produce vertical nystagmus?

4. Which categories of drugs **usually will** induce lack of convergence?

5. Name the four lighting conditions under which a DRE makes pupil size estimations.

6. What is the normal range of pupil size?

7. Which categories of drugs will usually **slow down** the reaction of the pupils to light?

SESSION V

ALCOHOL WORKSHOP

SESSION V ALCOHOL WORKSHOP

Upon successfully completing this session, the student will be better able to:

- Administer the psychophysical tests and the eye examinations to persons who have consumed varying amounts of alcohol.
- Document the results of these tests and examinations.
- Accurately assess the extent of a person's alcohol impairment based on the tests and examinations.

The Alcohol Workshop is intended to allow you to practice the skills you have started to learn today. You will work in a team with one or two other students. You and your partners will have an opportunity to examine several people who have been drinking. Some of these people may have had relatively little to drink, and may not be noticeably impaired. Others may show definite evidence of impairment.

When your team receives a volunteer drinker, one of you will be designated as the **examiner** for that volunteer. The examiner will administer all tests and examinations to the volunteer. The tests and examinations always will consist of the following, in the sequence listed:

(1) First Pulse

(2) Horizontal Gaze Nystagmus (including estimation of onset angle to the nearest 5 degrees)

(3) Vertical Nystagmus

(4) Lack of Convergence

(5) Romberg Balance

(6) Walk and Turn

(7) One Leg Stand, standing on the left leg

(8) One Leg Stand, standing on the right leg

(9) Finger to Nose

(10) Pupil Size Estimation (in room light and direct light only)

(11) Third Pulse

Another member of your team will be designated as the **recorder** for that particular volunteer. The recorder will use the standard Drug Influence Evaluation face sheet to document the tests and examinations. In the "Arrestee's Name" block, write the volunteer drinker's name. The volunteer's age, sex and race will be entered in the appropriate spaces, as will the date and time of the examination.

Then starting approximately in the middle of the face sheet, the recorder will use the appropriate spaces to document the Pulse, HGN test, vertical nystagmus, and so on through the pupil size estimation and last pulse. If there is a third member of your team, they will be designated as the **coach**, and will assist the examiner to make certain that all tests are carried out correctly. As soon as the eleven examination procedures are completed, the examiner, recorder and coach will "put their heads together" and form an opinion about the volunteer's state of impairment. Your team will then be given a new volunteer to examine. At this point, you will switch roles. The student who had been the examiner becomes the coach; the former recorder becomes the new examiner; and, the former coach becomes the new recorder. This process will continue throughout the workshop.

Several copies of the Drug Influence Evaluation face sheet appear on the pages immediately following.

SESSION VI

EXAMINATIONS OF VITAL SIGNS

SESSION VI EXAMINATIONS OF VITAL SIGNS

Upon successfully completing this session, the student will be better able to:

- Define basic terms relevant to pulse rate and blood pressure measurements.
- Measure pulse rate.
- Measure blood pressure.
- Relate the expected results of vital signs examinations to the seven drug categories.

BASIC CONCEPTS FOR MEASURING PULSE RATE

Here are some important terms that we need to understand if we're going to do a good job of measuring a suspect's pulse rate:

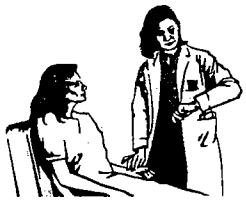
Pulse is the expansion and relaxation of an artery generated by the pumping action of the heart.

Pulse rate is the number of pulsations in an artery in one minute.

An artery is a strong, elastic blood vessel that carries blood from the heart to the body tissues.

A vein is a blood vessel that carries blood back to the heart from the body tissues.

When the heart contracts, it squeezes blood out of its chambers and sends the blood surging into the arteries. The surging blood pushes against the walls of the arteries, causing them to expand. If you know where to locate an artery (for example, in the crease of your wrist, just below the base of the thumb) and you press your finger tips onto the skin just above the artery, you will feel the artery expand each time blood surges through it. If you keep your finger tips on the artery and count the pulses that occur in one minute, you will determine your pulse rate.



The radial artery provides a convenient pulse point. The radial artery can be located in or near the natural crease of the wrist, on the side of the wrist next to the thumb. To use the radial artery pulse point, have the subject hold their arm straight out with the palm of the hand facing down. Place the tips of your index and middle fingers into the crease of the subject's wrist, near the base of the thumb and exert a slight pressure. Allow the subject's hand to droop down from gravity; this will tighten the pressure on your finger tips and aid you to feel the pulse.

The brachial artery provides another useful pulse point. It can be located in the crook of the arm, halfway between the center of the arm and the side of the arm closest to the body. To find the brachial artery pulse point, it usually helps to have the suspect extend the arm straight, or even to attempt to bend the elbow backwards slightly. That procedure pushes the brachial artery a bit closer to the skin making the pulse easier to feel.

The carotid artery can also provide pulse points. The carotid artery can be located in the neck. on either side of the Adam's apple.

Key points to keep in mind about measuring pulse rate:

- Don't use your thumb to feel someone's pulse. There is an artery in the thumb. If you apply pressure with the thumb, the "beat" you feel may be your own pulse, and not the subject's.

- If you use the carotid artery pulse point, don't apply pressure to both sides of the Adam's apple. Doing so can cut off the supply of blood to the brain.

- The standard procedure used by all DREs is to count the beats for thirty seconds, then multiply the results by 2 to obtain the number of beats per minute. **You will always follow that procedure**. Keep in mind that this procedure will always produce an even number; that is, you will never obtain a pulse rate measurement of 67, or 73, or 81, or any other odd number.

BASIC CONCEPTS FOR MEASURING BLOOD PRESSURE

Some important definitions:

Blood pressure is the force that the circulating blood exerts on the walls of the arteries. The blood pressure changes from instant to instant, as the heart contracts and relaxes.

Systolic pressure is the maximum or highest blood pressure. The blood pressure reaches its systolic value when the heart contracts and sends the blood surging into the arteries.

Diastolic pressure is the minimum or lowest blood pressure. The blood pressure reaches its diastolic value when the heart is fully expanded.
A sphygmomanometer is a device for measuring blood pressure. The major parts or components of a sphygmomanometer include:

- the compression cuff, which can be wrapped securely around the arm and which contains a rubber bladder that can be inflated with air.

- the pressure bulb, which can be squeezed to inflate the rubber bladder with air.

- the pressure control valve, which controls the inflation or deflation of the rubber bladder. To inflate the bladder, the pressure control valve must be twisted all the way to the right (clockwise). The pressure bulb can then be squeezed to pump air into the bladder. To deflate the bladder, the pressure control valve must be twisted to the left (counterclockwise). The more the valve is twisted to the left, the faster the bladder will deflate.

- the manometer, or pressure gauge, which displays the air pressure in the bladder.

- tubes, connecting the pressure cuff to the manometer and to the pressure bulb.

Blood Pressure is measured in units of millimeters of mercury. Sometimes this is abbreviated as "mmHg", where "mm" represents "millimeters" and "Hg" is the chemical symbol for the element mercury (from "Hydrargyrum", the Latin word for "mercury"). When the manometer or pressure gauge indicates that the pressure in the bladder is 120 mmHg, that means that the air in the bladder, if forced into a glass tube containing liquid mercury, would push the mercury up the tube to a height of 120 millimeters. Some sphygmomanometers actually have pressure gauges that consist of glass tubes containing mercury, with a ruler alongside the tube marked off in millimeters. Usually, aneroid pressure gauges are used. ("Aneroid" means "without fluid".)

When you measure and record blood pressure, it is not necessary to use the symbols "mmhg". Simply record the numbers.

The principles involved in measuring blood pressure are easy to understand. When the pressure cuff is wrapped around the upper arm (e.g., around the bicep) and inflated with air, the air pressure exerts a force on the arm. When the pressure in the bladder gets high enough, the arteries in the arm will be squeezed shut, and no blood will flow through the arteries. In this respect, the pressure cuff works just like a tourniquet.

When the pressure control valve is twisted to the left, air starts to escape from the bladder and the pressure on the arm (and on the artery) starts to drop. However, as long as the air pressure on the artery remains higher than the blood pressure in the artery, the artery will remain squeezed shut and no blood will flow.

Consider this question: what will happen when the air pressure on the artery drops to the point where it just equals the blood pressure in the artery?

At that point, the heart will again be able to push the blood through the artery, so the flow of blood will resume.

But the blood pressure is constantly changing from instant to instant. At one instant, the pressure will be at its maximum, or systolic value. Then the blood pressure drops, and a very short time later it will reach its minimum, or diastolic level. Then it climbs again and repeats the cycle over and over.

When the air pressure in the bladder drops to the point where it equals the systolic blood pressure, blood will be able to spurt through the artery each time the heart contracts. But an instant later, as the heart starts to expand and the blood pressure drops, the artery will squeeze shut again and the flow will stop.

If the air is allowed to continue to escape from the bladder, the air pressure eventually will fall to the point where it reaches the diastolic level. At that point, the blood pressure in the artery always will be equal to or higher than the air pressure on the artery, so the artery will stay open and blood will flow steadily. So the basic idea is simple:

To measure blood pressure, start by pumping up the bladder until the artery is squeezed completely shut and no blood flows.

Let the air pressure drop slowly until the blood just begins to spurt through the artery. When that happens, the pressure shown on the gauge will be equal to the systolic pressure.

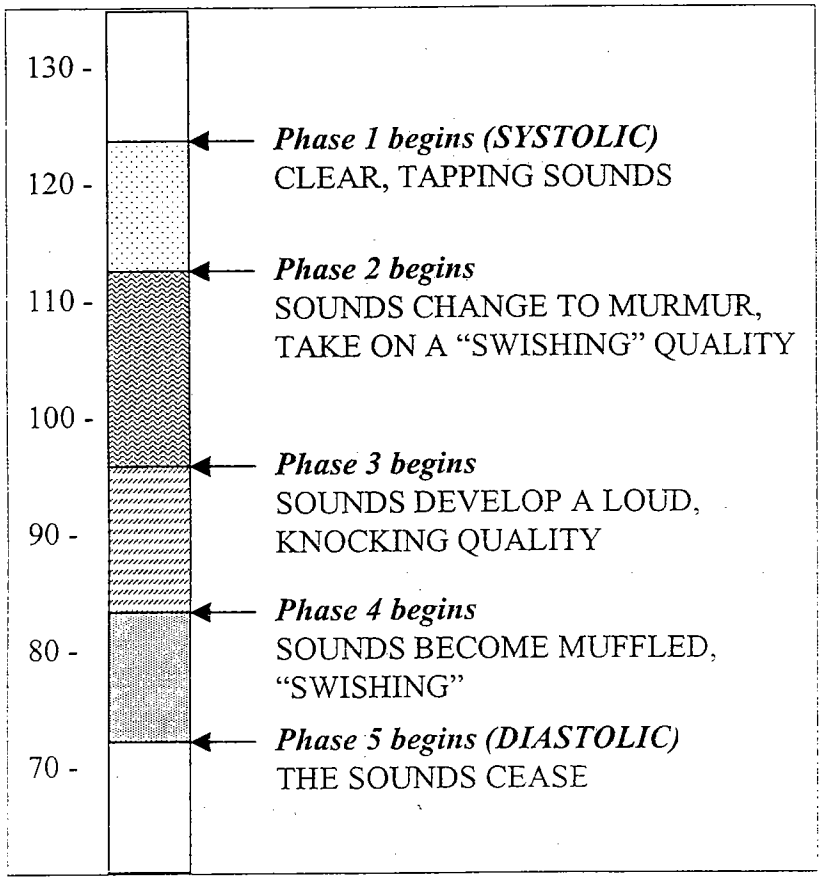
Continue to let the air pressure drop until the blood finally flows steadily through the artery. The pressure showing on the gauge at that time will be the diastolic pressure.

To determine when the blood starts to spurt, and when it starts to flow steadily, a stethoscope is needed. The stethoscope is applied to the skin, directly at the brachial artery pulse point. We will listen to the sounds that the blood makes when it starts to spurt through the artery, after we allow the pressure in the blood pressure cuff to drop.

When no blood is flowing through the artery, you will hear nothing through the stethoscope. But when the air pressure in the cuff falls to the systolic level, you will hear the blood begin to spurt. The sound you will hear starts as a clear tapping. This is the first phase of what are called the Korotkoff Sounds, a distinct series of sounds that are heard as the air pressure in the cuff drops from the systolic to the diastolic level.

As you continue to allow the air to escape from the cuff, the spurts of blood through the artery become steadily longer and the sounds change. They become fainter, and take on a swishing quality. They pass through a "knocking" phase, and then suddenly become muffled.

Eventually, when the air pressure drops to the diastolic level, the blood flows steadily and all sound ceases.



Step by step procedures for measuring blood pressure

(1) Position the cuff on the bicep so that the tubes extend down the middle of the arm.

(2) Wrap the cuff snugly around the bicep.

(3) Clip the manometer to the subject's sleeve, or to some other convenient location, so that you can observe the gauge easily.

(4) Twist the pressure control valve all the way to the right.

(5) Put the stethoscope earpieces in your ears. Make sure the earpieces are turned forward.

(6) Apply the stethoscope to the brachial artery pulse point.

(7) Rapidly inflate the bladder to a level high enough to squeeze the artery shut. Usually, a pressure of 180 will be sufficient.

(8) Twist the pressure control valve slightly to the left to allow the air to escape from the bladder slowly (pressure should drop at about 2 mmHg per second).

(9) Keep your eyes on the pressure gauge and listen for the Korotkoff Sounds.

   a. Record the systolic pressure when the first sound (clear, tapping) is heard.

   b. Record the diastolic pressure when the sounds cease.

MEASURING BODY TEMPERATURE

At the same time that a DRE measures a suspect's blood pressure, they will measure the suspect's body temperature. To do so, we use an electronic digital thermometer, **always protected by a disposable mouthpiece**. To take the temperature measurement, simply put the mouthpiece over the stem of the thermometer, turn the power switch on, and place the stem in the suspect's mouth under the tongue. The thermometer will "beep" when the measurement is completed. Remove the thermometer from the suspect's mouth and read the temperature on the digital display. MAKE SURE that you are wearing protective gloves when you remove and discard the mouthpiece after completing the temperature measurement.

NORMAL RANGES OF THE VITAL SIGNS

Human beings vary widely in their pulse rates, blood pressures and even body temperatures. Factors such as a person's physical fitness (or lack of it), heredity, illness, anxiety and many others will affect their vital signs. Nevertheless, there are ranges within which most peoples' vital signs will fall, most of the time. We call these the "normal ranges", and we use them to help distinguish drug impaired persons from unimpaired persons. The normal ranges we use for DRE purposes might not be the same ones doctors use to diagnose illness. Our ranges usually are a bit wider than the ones doctors use.

These are what all DREs use as the "normal ranges":

Pulse Rate: 60 to 90 beats per minute

Blood Pressure

Systolic: 120 to 140 mmHg

Diastolic: 70 to 90 mmHg

Body Temperature: 98.6° Fahrenheit plus or minus one degree

RELATING VITAL SIGNS TO THE DRUG CATEGORIES

The following indicates what we will usually find when we measure the vital signs of person who are under the influence of the various drug categories. BEAR IN MIND that these may not hold true in all cases: "never say never".

Drug Categories	CNS Depressants	CNS Stimulants	Hallucinogens	PCP	Narcotic Analgesics	Inhalants	Cannabis
Pulse Rate	Down (1)	Up	Up	Up	Down	Up	Up
Blood Pressure	Down	Up	Up	Up	Down	Up/Down (2)	Up
Body Temperature	Normal	Up	Up	Up	Down -3° or more	Up/Down/ Normal	Normal

(1) Quaaludes and ETOH may elevate

(2) Most inhalants usually elevate blood pressure. However, the relatively small subcategory of inhalants known as the anesthetic gases actually lower blood pressure. They do so by partially paralyzing the pumping action of the heart. The volatile solvents and aerosols elevate the blood pressure. However, all inhalants, including the anesthetic gases, usually elevate pulse rate.

REVIEW QUESTIONS

1. Where is the radial artery pulse point?

2. Why should you never attempt to feel a subject's pulse with your thumb?

3. Does an artery carry blood to the heart or from the heart?

4. What does the symbol "Hg" represent?

5. What is diastolic pressure?

6. When do the Korotkoff Sounds begin?

7. Name and describe the major components of a sphygmomanometer.

8. Which of the seven categories of drugs generally will cause pulse rate to be elevated?

9. What is the normal range of body temperature?

10. For how long must a DRE count the beats to obtain a measurement of pulse rate?

11. What is the normal range of pulse rate?

12. Which categories of drugs usually lower body temperature?

13. What is the normal range for the higher value of blood pressure? What is the normal range for the lower value?

SESSION VII

OVERVIEW OF SIGNS AND SYMPTOMS

SESSION VII OVERVIEW OF SIGNS AND SYMPTOMS

Upon successfully completing this session, the student will be better able to:

- Give examples of specific drugs belonging to each of the seven categories.
- Describe the major signs and symptoms of impairment associated with each category.

REVIEWING YOUR KNOWLEDGE

You are just at the very beginning of your training as a DRE, but you've already learned quite a bit. By this time you are much more familiar with drugs and their effects than are most police officers. You are also vastly more knowledgeable about these things than are most of the general public.

Let's test your knowledge.

On the numbered lines below, try to write the names of the seven drug categories. Try to list them in the same sequence that we have always presented them in this class. Don't worry right now about the boxes to the right of each line. We'll get back to those later.

(1) CNS Depressant

(2) CNS Stimulant

(3) Hal

(4) PCP

(5) Narcotic Analgesics

(6) Inhalants

(7) Cannabis

How did you do? You should have come up with the following list:

(1) CNS Depressants
(2) CNS Stimulants
(3) Hallucinogens
(4) Phencyclidine (or, simply PCP is acceptable)
(5) Narcotic Analgesics
(6) Inhalants
(7) Cannabis

If you came up with a different set of categories, or if you listed the categories in a different sequence, go back and modify your list so that it conforms to the one above.

Now you are going to return to the previous page, and in the boxes write the names of some specific drugs that belong to each category. You should be able to identify at least two examples for each category. For most categories, you should be able to name three or four examples. Go ahead and do that.

For your final review exercise, fill in the boxes in the chart below by writing what we will usually find when we examine suspects for the major indicators of drug impairment.

CATEGORIES

INDICATORS	Depressants	Stimulants	Hallucinogens	PCP	Narcotic Analgesics	Inhalants	Cannabis
HGN							
Vertical Nystagmus							
Lack of Convergence							
Pupil Size							
Reaction to Light							
Pulse Rate							
Blood Pressure							
Body Temperature							

SESSION VIII

ALCOHOL AS A DRUG

SESSION VIII ALCOHOL AS A DRUG

Upon successfully completing this session, the student will be better able to:

- Describe a brief history of alcohol.
- Identify common types of alcohol.
- Describe the physiologic processes of absorption, distribution and elimination of alcohol.
- Describe dose response relationships that impact on alcohol's impairing effects.

A BRIEF OVERVIEW OF ALCOHOL

Alcohol is the most abused drug in the United States

"Alcohol" is the name given to a **family** of closely related and naturally occurring chemicals. Each of the chemicals that is called an "alcohol" is made up of molecules that contain a single oxygen atom and varying numbers of hydrogen and carbon atoms. The simplest alcohol has only one carbon atom and four hydrogen atoms. The next alcohol has two carbons and six hydrogens. The third alcohol has three carbons and eight hydrogens. This is how the alcohols differ from one another, the next one in the "chain" has one more carbon and two more hydrogen atoms than the one before.

All of these alcohols are molecularly very similar and produce similar effects. The alcohols all produce intoxicating effects when ingested into the human body. However, only one of them can be ingested in substantial quantities without causing death, blindness or other devastation to the human body.

The ingestible alcohol is known as ethyl alcohol, or **ethanol**. It's chemical abbreviation is ETOH. The "ET" stands for "ethyl" and the "OH" represents the single oxygen atom and one of the hydrogen atoms bonded together in what chemists refer to as the "hydroxy radical". Ethanol is the variety of alcohol that has two carbon atoms. Two of ethanol's best known analogs are methyl alcohol (or **methanol**), commonly called "wood alcohol", and isopropyl alcohol (or **isopropanol**), also known as "rubbing alcohol".

Ethanol is what interests us, because it is the kind of alcohol that features prominently in impaired driving. Ethanol is beverage alcohol, the active ingredient in beer, wine, whiskey, liquors, etc. Ethanol production starts with **fermentation**. That is a kind of decomposition in which the sugars in fruit, grains and other organic materials combine with yeast to product the chemical we call ethanol. This can occur naturally, as yeast spores in the air come into contact with decomposing fruit and grains. However, most of the ethanol in the world didn't ferment naturally, but was produced under human supervision.

When an alcoholic beverage is produced by fermentation, the maximum ethanol content that can be reached is about 14%. At that concentration, the yeast dies and the fermentation stops. Obtaining a higher ethanol content requires a process called **distillation**. This involves heating the beverage until the ethanol "boils off", then collecting the ethanol vapor. It is possible to do this because ethanol boils at a lower temperature than does water.

Distilled spirits is the name we give to high ethanol concentration beverages produced by distillation. These include rum, whiskey, gin, vodka, etc. The ethanol concentration of distilled spirits usually is expressed in terms of **proof**, which is a number corresponding to twice the ethanol percentage. For example, an 80 proof beverage has an ethanol concentration of 40 percent.

Over the millennia during which people have used and abused ethanol, some standard size servings of the different beverages have evolved. Beer for example, is normally dispensed in 12-ounce servings. Since beer has an ethanol concentration of about four percent, the typical bottle or can of beer contains a little less than one-half ounce of pure ethanol. A standard glass of wine has about four ounces of liquid. Wine is about 12 percent alcohol, so the glass of wine also has a bit less than one-half ounce of ethanol in it. Whiskey and other distilled spirits are dispensed by the "shot glass", usually containing about one and one-quarter ounce of fluid. At a typical concentration of forty percent ethanol (80-proof), the standard shot of whiskey has approximately one-half ounce of ethanol. Therefore, as far as alcoholic contents are concerned, **a can of beer, a glass of wine and a shot of whiskey are all the same**.

PHYSIOLOGIC PROCESSES

Ethanol is a Central Nervous System Depressant. It doesn't affect a person until it gets into their central nervous system, i.e., the brain, brain stem and spinal cord. Ethanol gets to the brain by getting into the blood. In order to get into the blood, it has to get into the body.

There are actually a number of different ways in which ethanol can get into the body. It can be **inhaled**. Ethanol fumes, when taken into the lungs, will pass into the bloodstream and a positive blood alcohol concentration (BAC) will develop. Prolonged breathing of fairly concentrated fumes would be required to produce a significantly high BAC. Ethanol can also be **injected** directly into a vein. It would then flow with the blood back to the heart where it would be pumped first to the lungs and then to the brain. Ethanol can also be **inserted** as an enema and pass quickly from the large intestine into the blood. But none of these methods are of any practical significance, because alcohol is almost always introduced into the body orally, i.e., by drinking.

Absorption

Once the ethanol gets into the stomach, it has to move into the blood. The process by which this happens is known as **absorption**. One very important fact that pertains to alcohol absorption is that alcohol doesn't have to be digested in order to move from the stomach to the blood. Another very important fact is that alcohol can pass directly through the walls of the stomach. These two facts taken together, mean that under the right circumstances, absorption of alcohol can be accomplished fairly quickly. The ideal circumstance for rapid absorption is to drink on an empty stomach.

When the alcohol enters the empty stomach, about 20 percent of it will make its way directly through the stomach walls. The remaining 80 percent will pass through the base of the stomach and enter the small intestine, from which it is readily absorbed into the blood. Because the body doesn't need to digest the alcohol before admitting it into the bloodstream, the small intestine will be open to the alcohol as soon as it hits the stomach.

But what if there is food in the stomach? Suppose the person has had something to eat shortly before drinking, or eats food while drinking; will that affect the absorption of alcohol?

Yes it will. Food has to be at least partially digested in the stomach before it can pass to the small intestine. When the brain senses that food is in the stomach, it commands a muscle at the base of the stomach to constrict and cut off the passage to the small intestine. This muscle is called the **pylorus**, or pyloric valve. As long as the pylorus remains constricted, little or nothing will move out of the stomach and into the small intestine. If alcohol is in the stomach along with the food, the alcohol will also remain trapped behind the pylorus. Some of the alcohol trapped in the stomach will begin to break down chemically before it ever gets into the blood. In time, as the digestive process continues, the pylorus will begin to relax and some of the alcohol and food will pass through. The overall effect will be to slow the absorption significantly. Because the alcohol only slowly gets into the blood, and because the body will continue to process and eliminate the alcohol that does manage to get in there, the drinker's BAC will not climb as high as it would have if they had drunk on an empty stomach.

Distribution

Once the alcohol moves from the stomach into the blood, it will be distributed throughout the body by the blood. Alcohol has an affinity for **water.** The blood will carry the alcohol to the various tissues and organs of the body and will deposit the alcohol in them in proportion to their water contents. Brain tissue has a fairly high water content, so the brain receives a substantial share of the distributed alcohol. Muscle tissue also has a reasonably high water content, but fat tissue contains very little water. Thus, very little alcohol will be deposited in the drinker's body fat. This is one factor that differentiates alcohol from certain other drugs, notably PCP and THC, which are very soluble in fat.

The affinity of alcohol for water, and its lack of affinity for fat, helps explain an important different in the way alcohol affects women and men. Pound for pound, the typical female's body contains a good deal less water than does the typical man's. This is because women have additional adipose (fatty) tissue, designed in part to protect a child in the womb. A Swedish pioneer in alcohol research, E.M.P. Widmark, determined that the typical male body is about 68% water, the typical female only about 55%. Thus, when a woman drinks, she has less fluid -- pound for pound -- in which to distribute the alcohol. If a woman and a man who weighed exactly the same drank exactly the same amount of alcohol under the same circumstances, her BAC would climb higher than his. When we couple this to the fact that the average woman is smaller than the average man, it becomes apparent that a given amount of alcohol will usually cause a higher BAC in a woman than it usually will in a man.

Elimination

As soon as the alcohol enters the blood stream, the body starts trying to get rid of it. Some of the alcohol will be directly expelled from the body chemically unchanged. For example, some alcohol will leave the body in the breath, urine, sweat, tears, etc. However, only a small portion (about 2-10%) of the ingested alcohol will be directly eliminated in this manner.

Most of the alcohol a person drinks is eliminated by **metabolism.** Metabolism is a process of chemical change. Alcohol reacts with oxygen in the body and changes through a series of intermediate steps, into carbon dioxide and water. The carbon dioxide and water are then directly expelled from the body.

Most of the metabolism of alcohol in the body takes place in the liver. An enzyme known as **alcohol dehydrogenase** acts to speed up the reaction of alcohol with oxygen. The speed of the reaction varies somewhat from person to person, and even from time to time for any given person. On the average, a person's blood alcohol concentration, after they reach their peak value, will drop by about 0.015% per hour. For example, if the person reaches a maximum BAC of 0.15%, it will take about ten hours for that person to eliminate all of the alcohol.

For the average sized male, a BAC of 0.015% is equivalent to about two-thirds of the alcohol content of a standard drink (i.e., about two-thirds of a can of beer, or glass of wine or shot of whiskey). For the average sized female, that same BAC would be reached on just one-half of a standard drink. So the typical male will eliminate about two-thirds of a drink per hour, while the typical female will burn up about one-half of a drink in that hour.

We can control the rate at which alcohol enters our bloodstream. For example, we can gulp down our drinks, or slowly sip them. We can drink on an empty stomach, or we can take the precaution of eating before drinking. We can choose to drink a lot, or a little. But once the alcohol gets into the blood, there is nothing we can do to affect how quickly it leaves. Coffee won't accelerate the rate at which our livers metabolize alcohol. Neither will exercise, deep breathing or a cold shower. We simply have to wait for the process of metabolism to move along at its own speed.

SYMPTOMATOLOGY OF ALCOHOL

The following chart reflects the anticipated signs and symptoms associated with alcohol influence and impairment.

		ALCOHOL
HGN	→	present
VERT NYST	→	(high doses) present
LACK CONV	→	present
PUPIL SIZE	→	normal
RCTN- LIGHT	→	slow
PULSE RATE	→	up
BLOOD PRESS	→	up/down normal
TEMP	→	normal

DOSE-RESPONSE RELATIONSHIPS

People sometimes ask, "how 'high' is 'drunk'?" What is the "legal limit" for "drunk driving"? How much can a person drink before they become "impaired"?

There is no simple answer to these or similar questions, except to say that **any** amount of alcohol will affect a person's ability to drive to some degree. It is true that the laws of nearly all States establish a BAC limit at which it is explicitly unlawful to operate a vehicle. In most cases, that "limit" is either 0.08% or 0.10% BAC. **But every State also makes it unlawful to drive when "under the influence" of alcohol**, and the law admits the possibility that a particular person may be under the influence at much lower BACs.

How much alcohol does someone have to drink to reach these kinds of BACs? As we've already seen, it depends on how much time the person spends drinking, whether the person is a man or a woman, how large the person is, whether the drinking takes place on an empty stomach and on certain other factors. But let's take as an example a 175-pound man. If he drinks two beers, or two shots of whiskey, in quick succession on an empty stomach, his BAC will climb to slightly above 0.04%. Two more beers will boost him above 0.08%. One more will push him over 0.10%. In one respect, it doesn't take very much alcohol to impair someone: "a couple of beers" can do it. But when we contrast alcohol with virtually any other drug, we find that impairment by alcohol requires a vastly larger dose than does impairment by the others. Consider exactly what a BAC of 0.10% means. Blood alcohol concentration is expressed in terms of the "number of **grams** of alcohol in every **100 milliliters** of blood". When we find that a person has a BAC of 0.10%, that means that there is one-tenth (0.10) of a gram of alcohol in any given 100 milliliter sample of their blood. One-tenth of a gram is equal to one hundred milligrams (a milligram is one-thousandth of a gram). So, at a BAC of 0.10%, the person has 100 milligrams of alcohol in every 100 milliliters of blood, or exactly one milligram per milliliter.

Now, one milligram isn't much, compared to weights we're used to dealing with. A gram is only about one-thirtieth of an ounce, or about one five-hundredth of a pound. Since a milligram is only one-thousandth of a gram, one milligram is about one five-hundred-thousandth of a pound. Put this another way: **it takes about half a million milligrams to make just one pound**. We definitely consider a person to be impaired by alcohol if they have only a single milligram of it in every milliliter of his blood.

But what about other drugs? For things like THC, morphine, PCP, LSD and so on, we don't deal with concentrations of milligrams per milliliter of blood. Instead, we speak in terms of **nanograms** per milliliter. And it takes **one million nanograms to make a milligram**. So a person who has a BAC of 0.10% has one million nanograms of the drug ETOH (ethyl alcohol), in every milliliter of their blood.

Now consider someone who is impaired by Marijuana, specifically by its active ingredient, THC. Let's compare the amount of THC to ETOH it would take to impair a person. If we could extract the pure ethanol from five bottles of beer, we would have about two and one-half ounces of ETOH. This amount would be enough to impair one average sized man, assuming he gulped it all down at once. But if we had two and one-half ounces of pure THC, we'd have enough THC to impair ten thousand average sized men.

LSD provides an even more startling example of this key difference between alcohol and other drugs. LSD impairs at very low concentrations. Researchers have concluded that if we had that same two and one-half ounces, but this time of pure LSD, we could impair one million people.

REVIEW QUESTIONS

1. Name three different chemicals that are **alcohols**. Which of these is **beverage alcohol**, intended for human consumption? What is the chemical symbol for beverage alcohol?

2. What is the name of the chemical process by which beverage alcohol is produced **naturally**? What is the name of the process used to produce **high-concentration** beverage alcohol?

3. Multiple Choice: "Blood alcohol concentration is the number of _____ of alcohol in every 100 milliliters of blood."

   A. grams
   B. milligrams
   C. nanograms

4. True or False: Pound-for-pound, the average woman contains more water than does the average man.

5. What do we mean by the "proof" of an alcoholic beverage?

6. Every chemical that is an "alcohol" contains what three elements?

7. True or False: Most of the alcohol that a person drinks is absorbed into the blood via the small intestine.

8. What is the name of the muscle that controls the passage from the stomach to the lower gastrointestinal tract?

9. True or False: Alcohol can pass directly through the stomach walls and enter the bloodstream.

10. Multiple Choice: Suppose a man and a woman who both weigh 160 pounds arrived at a party and started to drink at the same time. And suppose that, two hours later, they both have a BAC of 0.10%. Chances are ....

   A. he had more to drink than she did.
   B. they drank just about the same amount of alcohol.
   C. he had less to drink than she did.

11. In which organ of the body does most of the metabolism of the alcohol take place?

12. What is the name of the enzyme that aids the metabolism of alcohol?

13. Multiple Choice: Once a person reaches his or her peak BAC, it will drop at a rate of about _____ per hour.

   A. 0.025%
   B. 0.015%
   C. 0.010%

14. Multiple Choice: If a person has a blood alcohol concentration of 0.10%, then there are _____ nanograms of alcohol in every milliliter of his or her blood.

   A. one million
   B. one hundred thousand
   C. ten thousand
   D. one thousand
   E. one hundred

15. True or False: It takes about thirty minutes for the average 175-pound man to "burn off" the alcohol in one 12-ounce can of beer.

SESSION IX

PREPARING FOR THE DRE SCHOOL

SESSION IX PREPARING FOR THE DRE SCHOOL

Upon successfully completing this session, the student will be better informed of the logistic and other arrangements necessary for participation in the seven day DRE school.

THINGS YOU WILL NEED AT THE DRE SCHOOL

1. Your **Certification Progress Log**, that you received at the beginning of this school. Your instructors will collect it from you at the start of the DRE School and return it to you at the completion of the school.

2. A **Physician's Desk Reference**. Each student should have access to this very important resource and ideally own a personal copy. One possible money saving suggestion: Contact a local hospital, especially the emergency room staff, to see if they have a year old PDR that they would be willing to give you.

3. Your DRE "**kit**": penlight, pupillometer, sphygmomanometer, stethoscope, schematic light, digital thermometer with disposable mouthpieces, and protective gloves.

4. Notepaper, pens and pencils.

You will not need to take this book to the DRE school. At the start of the school, you will receive a new and much more detailed student's manual that serves as the text for the school.

THINGS TO DO PRIOR TO THE DRE SCHOOL

You might still be wondering why there is a time gap between this PRE-School and the DRE school. Why don't we immediately go to the next stage of training? The answer is that you need time for additional study, and especially additional practice, to get ready for the next school. Here is what we recommend that you do to make sure of your continuing success. If your curriculum is one that has combined the Pre-school and 7 day school, you will want to ensure you are proficient in these areas as soon as possible.

- Make sure that you are fully proficient with the standardized field sobriety tests (SFSTs). That means Horizontal Gaze Nystagmus, the Walk and Turn and the One Leg Stand. Maybe you're still a bit "rusty" with those tests. If so, practice with them diligently in the days ahead. The second line of your Certification Progress Log requires an instructor to attest that you are proficient with the SFSTs. NO ONE CAN BE ADMITTED TO THE DRE SCHOOL UNTIL AN INSTRUCTOR HAS SIGNED OFF ON THAT LINE. If you feel that you **are** already proficient with them, ask an instructor for sign off at the completion of this PRE-School.

- Study this manual again. Be sure that you really know the drug categories and the major indicators of impairment that we associate with each category. Make sure that you can correctly answer all of the Review Questions that appeared at the end of Session I, II, III, IV, VI and VIII. Try the "Challenge Quiz" that appears in the final session of this manual; it is intended to give you a head start toward what you'll learn in the DRE school.

- In your field contacts with suspected impaired drivers, start using some of the procedures you've learned here. Obviously, you need to use the three SFSTs every time you suspect a driver of alcohol impairment. But start testing these suspects for vertical nystagmus and lack of convergence, too. Use the Romberg Balance and Finger To Nose tests.

- Practice the eye examinations and vital signs examinations. Many students find that the most difficult DRE procedures to master are the darkroom estimations of pupil size and the blood pressure measurement. Enlist the help of your family and friends. Get together with other officers who will also attend the DRE school and practice these procedures together. This will also give you a chance to coach one another.

- Be sure your calendar is clear for the DRE school. Obviously, unforeseen emergencies can arise that would pull you away from a portion of the school. That can't be totally avoided. But the fact remains that NO ONE CAN GRADUATE FROM THE DRE SCHOOL UNTIL THEY HAVE COMPLETED EVERY SEGMENT OF IT. That is a requirement established by the International Association of Chiefs of Police, and is fully endorsed by the National Highway Traffic Safety Administration. If you are unavoidably called away from class one day, you must return as soon as you can. Your instructors will make a note of your absence, and will try to offer an opportunity for an after hours tutoring session to cover what you missed. But suppose you are unable to take advantage of the opportunity. You could continue in the school, and pass the final knowledge examination, but you would not graduate from DRE school until you make up the missing segment. The most important implication of this requirement is that now is the time to clear up any **foreseeable** scheduling conflicts you might have. Notify your supervisor that your presence is required at <u>all</u> portions of the school, and make sure that your supervisor knows the dates and times of your classes. Contact the prosecuting attorneys who are handling pending cases that involve you and schedule your court appearances for times other than during this training.

Do the same thing with Motor Vehicle Department officials who may be handling driver's licensing hearings in which you may be involved. In the event that there is some absolutely unavoidable reason for an absence from class of which you are aware in advance, notify the senior instructor for the DRE school as soon as possible, so that arrangements for remedial tutoring can be made.

- This is also a good time for you to begin preparation of your professional resume. This resume will be used throughout your career as a DRE and will be continually updated as your knowledge and experience grows. A worksheet for the resume is provided on the following page.

RESUME WORKSHEET

Formal Education

High School

College

Specialized College / Vocational Courses

Formal Professional Training

Academy

Specialized Police Training

Other Specialized / Professional Training

Relevant Experience

Job Experience (Law Enforcement)

Other Job related Experiences

Drug Enforcement / Evaluation Experience

Court Qualifications

Outside Readings - (relative to the DRE program)

SESSION X

CONCLUSION OF THE PRELIMINARY TRAINING

SESSION X CONCLUSION OF THE PRELIMINARY TRAINING

Upon successfully completing this session, the student will have:

- Demonstrated his or her knowledge of the concepts covered during the school.
- Offered anonymous comments and criticisms concerning the training.

A CONCLUSION THAT IS REALLY A BEGINNING

A high school graduation ceremony is often called the "Commencement". At first glance, that's a peculiar word to use: referring to the conclusion of high school as a "beginning". Of course, what this traditional term means is that the end of high school marks the beginning of a radically new phase in the person's life: the beginning of a job, college, military service, or whatever.

You have just concluded a school. And this conclusion really **is** a beginning. You are not a DRE yet. In fact, you have a long way to go. But you have begun the process. You now know the things you need to know to **start** learning how to do the DRE's job. You now have skills that set you apart from the average police officer, and these new skills give you the foundation for developing even more impressive skills in the weeks and months ahead.

You are beginning what we trust will be one of the most interesting learning experiences of your life. You'll find it challenging; there's no doubt about that. You will have to become very knowledgeable about complex and fairly technical concepts, facts and principles. You'll have to become proficient with some pretty impressive equipment and with some pretty elaborate procedures. You'll have to develop a degree of expertise that will prove unmistakable in court. Getting there will be long, hard work. But you've already shown that you are up to it. And once you've made it, you will be something that fewer than one percent of police officers will ever be: a DRE, certified by the International Association of Chiefs of Police and recognized by the U.S. Department of Transportation, National Highway Traffic Safety Administration.

On the following pages is something that we hope will help you get there. It tests your knowledge of virtually everything a DRE needs to know. Obviously, we don't expect that you could score 100% on the quiz right now; we don't even expect that you could achieve a passing grade. But you might be surprised to see how much you **do** know already. Give it a try now, then check the answer key at the end of the book to see how you've done. The answer key has been designed to serve as a teaching vehicle, to help you learn as you go along. After you've had a chance to study this manual again, give the "Challenge Quiz" another shot, just before you begin the DRE school; see if you don't do much better the second time. Take the "Challenge Quiz" with you to the DRE school and try it again after the first several days of the school. You probably will want to try it one final time, just before the end of the school. Use it as both a learning experience and as a means of keeping track of your progress in learning.

THE CHALLENGE QUIZ

1. For each of the listed drugs, write the drug category to which it belongs on the line provided.

   A. _____Xanax
   B. _____Secobarbital
   C. _____Thorazine
   D. _____Chloral Hydrate
   E. _____Valium

2. The phenomenon known as **synesthesia** is most commonly associated with ...

   A. Hallucinogens
   B. Phencyclidine
   C. Narcotic Analgesics
   D. CNS Depressants
   E. CNS Stimulants

3. **Morphine** can best be described as ...

   A. an analog of Opium
   B. an Opiate
   C. synthetic Opium
   D. a heroin withdrawal symptom
   E. a metabolite of Opium

4. The sub-category of Inhalants known as the **Anesthetic Gases** is unique because it usually produces ...

   A. Reddened sclera
   B. Lowered pulse rate
   C. Constricted pupils
   D. Lowered blood pressure
   E. Elevated blood pressure

5. The technical term for **constricted pupils** is ...

   A. orbytitis
   B. optosis
   C. miosis
   D. lumenesis
   E. astygosis

6. For each of the listed drugs, write the category to which it belongs on the line provided.

   A. _____Desoxyn
   B. _____Darvon
   C. _____Dilaudid
   D. _____Demerol
   E. _____Diazepam

7. The technical term for an **abnormally slow** pulse rate is ...

   A. Myocardia
   B. Hystocardia
   C. Bradycardia
   D. Dypsocardia
   E. Tachycardia

8. For purposes of the DRE examination, the "normal range" of adult human pupil size is ...

   A. 3.0-6.5
   B. 3.5-6.5
   C. 2.5-6.0
   D. 3.5-6.0
   E. 3.0-6.0

9. Suppose you examine a suspect that you know is under the combined influence of PCP and Cocaine, and you observe that the suspect exhibits horizontal gaze nystagmus. This is an example of ...

   A. The Null Effect
   B. An Overlapping Effect
   C. A Synergistic Effect
   D. An Additive Effect
   E. An Antagonistic Effect

10. For each of the listed drugs, write the category to which it belongs on the line provided.

    A. _____Psilocybin
    B. _____Phenobarbital
    C. _____Peyote
    D. _____Preludin
    E. _____Phenyl Cyclohexyl Piperdine

11. Suppose a person has a BAC of 0.10%. Then, the person has _____ of alcohol in every 100 milliliters of blood.

    A. one gram
    B. one million nanograms
    C. one-tenth of a gram
    D. one milligram
    E. ten milligrams

12. Which of the following **usually will** produce horizontal gaze nystagmus? (Check all that apply)

    A. THC
    B. LSD
    C. MDMA
    D. ETOH
    E. PCP

13. For purposes of the DRE examination, the normal range of adult human pulse rate is ...

    A. 70-90
    B. 60-80
    C. 70-100
    D. 60-100
    E. 60-90

14. Persons under the influence of CNS Stimulants often exhibit **bruxism**. This means ...

    A. goose bumps
    B. short attention span
    C. rapid speech
    D. leg and arm tremors
    E. grinding the teeth

15. Suppose you examine a suspect that you know is under the combined influence of Marijuana and Methamphetamine, and you find that the suspect's pulse rate is 102. This is an example of ...

    A. A Synergistic Effect
    B. An Additive Effect
    C. The Null Effect
    D. An Antagonistic Effect
    E. An Overlapping Effect

16. For each of the listed drugs, write the category to which it belongs on the line provided.

    A. _____Numorphan
    B. _____Hycodan
    C. _____Fentanyl
    D. _____Thebaine
    E. _____Dilaudid

17. The **Afferent Nerves** are also known as the _____ Nerves.

    A. Sensory
    B. Sympathetic
    C. Parasympathetic
    D. Motor
    E. Autotrophic

18. Which of the following usually will be true in a suspect who is under the influence of Xanax? (Check **all** that usually will be true)

    A. Blood pressure will be lowered
    B. Eyes will <u>not</u> be able to converge
    C. Pupil size will be within the normal range
    D. Horizontal gaze nystagmus will be present
    E. Body temperature will be within the normal range

19. Another word for "nerve cell" is ...

    A. Axon
    B. Dendrite
    C. Neuron
    D. Synapse
    E. Ergon

20. The pulse point that is located in the crease of the wrist nearest the thumb is called the _____ pulse point.

    A. Brachial
    B. Radial
    C. Carotid
    D. Femoral
    E. Diurnal

21. Which of the following drugs is (or are) a combination of two **different** categories? (Check **all** that apply)

    A. Methamphetamine Sulfate
    B. Percobarb
    C. Amosecobarbital
    D. Diacetyl Morphine
    E. Amyl Nitrite

22. For each of the listed drugs, write the category to which it belongs on the line provided.

    A. _____Nitrous Oxide
    B. _____Toluene
    C. _____Isopropanol
    D. _____Chlordiazepoxide
    E. _____Alprazolam

23. The technical term for an **abnormally rapid** pulse rate is ...

A. Myocardia
B. Hystocardia
C. Bradycardia
D. Dypsocardia
E. Tachycardia

24. Suppose you examine a suspect that you know is under the combined influence of Heroin and Cocaine, and you find that the suspect's pulse rate is 72. This is most likely caused by ...

A. An Antagonistic Effect
B. The "downside" of Cocaine
C. A Synergistic Effect
D. An Overlapping Effect
E. The Null Effect

25. Every chemical that is called an "alcohol" is composed of carbon, oxygen and ...

A. Nitrogen
B. Hydrogen
C. Potassium
D. Sodium
E. Glucose

26. The **Efferent Nerves** are also known as the _____ Nerves.

A. Autonomic
B. Sensory
C. Sympathetic
D. Motor
E. Autotrophic

27. Which of the following is (or are) **not** a scientifically validated clue of impairment for the One Leg Stand test? (Check **all** that apply)

A. Swaying
B. Failing to count out loud
C. Raising the foot less than six inches
D. Raising the arms at least six inches
E. All of the above **are** validated clues of impairment

28. How many carbon atoms does a molecule of **ethanol** have?

A. one
B. two
C. three
D. four
E. five

29. When taking a blood pressure measurement, we use the stethoscope to listen to the _____ Sounds.

A. Kasparoff
B. Korkonoff
C. Korotkoff
D. Katkoroff
E. Kopkoroff

30. Narcotic Analgesics usually will produce ... (Check **all** that usually will be produced)

A. Lack of Convergence
B. Eyelid tremors
C. Muscle rigidity
D. Lowered pulse rate
E. Constricted pupils

31. Persons who are under the influence of Heroin often will exhibit **ptosis.** This means ...

A. Shallow breathing
B. Droopy eyelids
C. Raspy voice
D. Ulcerated sores
E. Dry mouth

32. Which of the following usually will produce **dilated pupils**? (Check **all** that apply)

A. MPTP
B. LSD
C. ETOH
D. STP
E. MDMA

33. For each of the listed drugs, write the category to which it belongs on the line provided.

A. _____Biphetamine
B. _____Dronabinol
C. _____Flurazepam
D. _____Methaqualone
E. _____Ritalin

34. Suppose you examine a suspect that you know is under the combined influence of Methaqualone and Biphetamine, and you find that the suspect's pupils are 7.5mm in room light. This is an example of ...

A. An Additive Effect
B. The Null Effect
C. A Synergistic Effect
D. An Antagonistic Effect
E. An Overlapping Effect

35. Where is the **Carotid** pulse point located?

A. On the wrist
B. In the neck
C. On the bicep
D. On the forearm
E. At the crook of the arm

36. **"Starting too soon"** is a scientifically validated clue of impairment for which of the following tests? (Check **all** that apply)

A. Romberg Balance
B. Walk and Turn
C. One Leg Stand
D. Finger to Nose
E. It is not a scientifically validated clue for any of the tests

37. Experiences such as **"seeing sounds"** and **"smelling colors"** are known as ...

A. Dysphoria
B. Synesthesia
C. Cytogenesia
D. Symphysia
E. Cymphasia

38. Suppose a suspect exhibits all of the following: BAC of 0.00%; no horizontal or vertical nystagmus; the eyes do converge; pupils of both eyes are 2.0mm in room light, 2.5 in near-total darkness, and 1.5 in both indirect and direct light; pulse rate is 54 on all three measurements; blood pressure is 116/66; noticeable sway on the Romberg Balance test, with a time estimate of 42 seconds; unable to keep balance for Walk and Turn instructions; unable to perform One Leg Stand.

    In your opinion, this suspect is ...

    A. Under the influence of a CNS Depressant
    B. Suffering from a medical complication
    C. Under the combined influence of Cannabis and an Hallucinogen
    D. Under the influence of a Narcotic Analgesic
    E. Under the combined influence of a Narcotic Analgesic and Cannabis

39. Persons under the influence of Cocaine usually exhibit **mydriasis**, which means ...

    A. lack of appetite
    B. dilated pupils
    C. ulcerated nostrils
    D. sensation of "crawling" skin
    E. eyelid tremors

40. The proper sequence of commands for the **Finger to Nose** test is ...

    A. Left, Right, Right, Left, Left, Right
    B. Left, Right, Left, Right, Right, Left
    C. Left, Right, Right, Left, Right, Left
    D. Left, Left, Right, Left, Right, Right
    E. Left, Right, Left, Left, Right, Left

41. How many **distinct** scientifically validated clues of impairment have been identified for the Finger to Nose test?

    A. Eight
    B. Six
    C. Four
    D. Two
    E. None

42. Which of the following is (or are) not one of the six **sub-categories** of CNS Depressants? (Check **all** that apply)

    A. Natural Alkaloids
    B. Anti-Anxiety Tranquilizers
    C. Anti-Psychotic Tranquilizers
    D. Non-Barbiturates
    E. Anti-Depressants

43. Consider the following situation: A long-time stimulant abuser "shoots up" a drug he believes is Cocaine. Two hours later, he is examined by a DRE who finds that the pulse rate is 74, the blood pressure is 128/82. The body temperature is 98.6, and the pupils are 5.5 in near-total darkness and 3.5 in direct light. The suspect performs reasonably well on the divided attention tests and exhibits no nystagmus or lack of convergence. The suspect appears calm, and frequently yawns.

    What is the most likely explanation for this situation?

    A. The suspect has developed a high tolerance to Cocaine
    B. The effects of the Cocaine have already worn off
    C. What he **thought** was Cocaine was actually a "speedball" (combination of Cocaine and Heroin)
    D. The effects of the Cocaine have not yet started to be felt
    E. What he thought was Cocaine was actually a placebo (i.e., a harmless substance that does not impair)

44. **Sinsemilla** belongs to which category of drugs?

    A. Hallucinogens
    B. Cannabis
    C. CNS Depressants
    D. CNS Stimulants
    E. Narcotic Analgesics

45. The part of a nerve cell that **receives** a neurotransmitter is called the ...

    A. Neuron
    B. Axon
    C. Ergon
    D. Dendrite
    E. Synapse

46. Suppose you examine a suspect that you know is under the combined influence of Heroin and Xanax, and you find that the blood pressure is 110/66. This is an example of ...

A. The Null Effect
B. An Additive Effect
C. A Synergistic Effect
D. An Overlapping Effect
E. An Antagonistic Effect

47. How many **distinct** scientifically validated clues of impairment have been identified for the One Leg Stand test?

A. Eight
B. Six
C. Four
D. Two
E. None

48. The effects of impairment from Morphine and Demerol are the same with the exception of...

A. Demerol will not cause miosis
B. Morphine will not cause ptosis
C. Morphine will not usually cause lowered pulse
D. Demerol will induce nystagmus
E. The effects are the same

49. Cocaine is to "Crack" as Methamphetamine is to ...

A. "Love Boat"
B. "Ecstasy"
C. "Acid"
D. "Ice"
E. "Sherm"

50. How many **distinct** scientifically validated clues of impairment have been identified for the Walk and Turn test?

A. Eight
B. Six
C. Four
D. Two
E. None

ANSWERS TO THE CHALLENGE QUIZ: AN EXERCISE IN INDEPENDENT STUDY

1. **For each of the listed drugs ...**

All five of the listed drugs are CNS Depressants. The first and last of them, Xanax and Valium, are examples of **Anti-Anxiety Tranquilizers**, one of the six subcategories of the CNS Depressants. You'll also hear chemists refer to Xanax, Valium and other similar drugs as the Benzodiazepines; they are a very popularly prescribed group of drugs used (and abused) by many people trying to cope with stress and anxiety. The second drug listed, Secobarbital, is a member of the subcategory known as the **Barbiturates**. The members of this group derive from Barbituric Acid. A tip-off that you're dealing with one of them is the fact that their names usually end in "-barbital" (e.g., secobarbital, amobarbital, phenobarbital, etc.). Thorazine, the third one listed, is a powerful CNS Depressant that belongs to the subcategory known as **Anti-Psychotic Tranquilizers**. They are also sometimes called the "major tranquilizers" to distinguish them from the Anti-Anxiety (or "minor") tranquilizers. Thorazine and the others in this group are prescribed for persons who have very serious mental and emotional problems. you probably won't encounter them too often, since patients receiving Anti-Psychotic Tranquilizers usually are institutionalized. The fourth drug listed, Chloral Hydrate, is the second oldest CNS Depressant (only alcohol is older). Chloral Hydrate is an example of the subcategory called the **Non-Barbiturates**. Drugs in this group are prescribed for pretty much the same purposes as are the Barbiturates, and produce the same effects, but are chemically distinct from the Barbiturates. Chloral Hydrate, by the way, is the infamous "knock out" drops so popular in spy movies. Put some Chloral Hydrate in a person's beer, wine or whiskey glass and you'll produce an additive effect with the alcohol that will usually knock him out. Used in that way, Chloral Hydrate is sometimes called a "Mickey Finn", after a British prize fighter of the mid-19th Century, who was famous for his knock out punch.

There are two other subcategories of CNS Depressants that aren't represented in this list of five drugs. One of them is the **Anti-Depressants**. It seems strange to say that there is a group of Depressants known as the Anti-Depressants, but you must understand that is it Psychological Depression that they are "anti". To avoid this confusion of terms, the Anti-Depressants are sometimes also called the Mood Elevators. The final subcategory of Depressants is the **Combinations**. These are drugs formed by combining the members of the other five subcategories.

2. **The phenomenon known as synesthesia ...**

The correct answer is (A), **Hallucinogens**. Synesthesia refers to a "scrambling" of sensory input to the brain, and Hallucinogens often cause this. For example, the Hallucinogen user may look at a friend's bright red shirt, and suddenly seem to smell the fragrance of roses. Or, he or she might hear a telephone ring, and every time the bell sounds, "see" a brilliant flash of lightning. We'll encounter this word again, in Question #37 of the "Challenge Quiz".

3. **Morphine can best ...**

The correct answer is (B), an Opiate. Narcotic analgesic drugs are divided into two subcategories. The Opiates, which are derived from Opium, and the synthetics. The synthetics do not derive from opium in any way, but are classified as Narcotic Analgesics based on the symptoms they produce. Methadone and Demerol are other examples of a synthetic Narcotic Analgesic. Codeine and Heroin are other examples of Opiates.

4. **The sub-category of Inhalants known as the Anesthetic Gases ...**

This was covered in the PRE-School. The correct answer is (D), **lowered blood pressure**. Other subcategories of Inhalants (the Volatile Solvents and the Aerosols) elevate blood pressure.

Do you recall why the Anesthetic Gases produce lower blood pressure? We'll give the answer on the next page.

5. **The technical term for constricted ...**

The correct answer is (C), **miosis**. The other four possible answers are meaningless gibberish -- nonsense terms that we concocted.

By the way, do you know the technical term that is the opposite of miosis? In other words, what is the technical term for dilated pupils? We'll get to it in Question #39.

6. **For each of the listed drugs ...**

Those five drugs all start with the letter D, but they're not all from the same family. Desoxyn is a prescriptive form of Methamphetamine, so it is a CNS Stimulant. The next three, Darvon, Dilaudid and Demerol, are all Narcotic Analgesics. Darvon and Demerol are both synthetic Narcotics; they do not derive from Opium. Dilaudid, on the other hand, is an Opiate; it is produced by chemically treating Morphine. This sort of makes Dilaudid Heroin's "brother", since they have the same "mother" (Morphine). In fact, Dilaudid is sometimes called "drugstore Heroin". The last drug listed, Diazepam, is the generic name for the drug Valium; so, it is a CNS Depressant.

7. **The technical term for an abnormally slow pulse ...**

The correct answer is (C), **Bradycardia**. How about its opposite? What is the technical term for an abnormally fast pulse? It's **Tachycardia**, the word given in answer (E). These words derive from the Greek for heart (cardia), slow (Brady) and fast (tach). The other three possible answers listed are either nonsense terms that we've made up, or terms that have no relevance to a DRE.

Remember the follow-up to Question #4, from the previous page? The Anesthetic Gases lower blood pressure because they partially paralyze the pumping action of the heart. So the heart pumps faster (pulse goes up) in an effort to send enough blood to the brain, but it pumps more weakly (blood pressure goes down).

8. **... the "normal range" of ... pupil size ...**

This was covered in the PRE-School. The only acceptable answer is (A), **3.0-6.5**.

9. **Suppose you examine a suspect that ...**

This is an opportunity to introduce some concepts concerning drug combinations. Think about what PCP and Cannabis usually do individually, as far as horizontal gaze nystagmus is concerned. PCP usually **does** produce it, and usually there will be a very distinct jerking of the eyeball. Cannabis does not produce HGN. But Cannabis doesn't "cure" HGN, either. It would be ridiculous for someone who's been smoking PCP to suddenly say, "Whoa! I'll bet my eyes are bounding like crazy right now! I'd better smoke some grass to calm them down, so the police won't spot me!" He could smoke marijuana until he passed out, and it wouldn't matter: as long as the PCP is in his system at a high enough dose to impair, his eyes will continue to exhibit nystagmus. And that is precisely the situation identified in Question #9.

When we have this kind of a situation, i.e., someone has taken a combination of drugs, one of which produces an effect (like HGN) while the other doesn't, we call it an **Overlapping Effect**. So the correct answer here is (B). Cannabis takes no action, as far as nystagmus is concerned. But PCP takes an action: it produces HGN. In this instance, PCP's action **overlaps** the lack of action by Cannabis.

But suppose we change Question #9. Suppose instead of HGN, we say the suspect "exhibits lack of convergence". Well, PCP by itself usually produces lack of convergence. And Cannabis by itself produces lack of convergence. So the combination will usually produce lack of convergence! In this case, PCP takes an action, and Cannabis takes the same action. As far as lack of convergence is concerned, the combination of PCP and Cannabis produces an **Additive Effect**. That is, they add their individual actions toward a common goal, in this case, it is the goal of producing lack of convergence.

Now, let's change Question #9 again. This time, let's focus on "reaction of the pupils to light". That is one indicator of impairment that PCP doesn't affect. Cannabis also doesn't affect how quickly the pupils respond to light. Neither drug, individually, will slow down the pupils' reaction. So ... neither will the two drugs in combination. Here we have a case where PCP takes no action, and Cannabis also takes no action. We call this the **Null Effect**.

Let's look at all of our major indicators of impairment, and see what we will expect to find due to the combination of PCP and Cannabis.

IMPAIRMENT INDICATOR	PCP USUALLY	CANNABIS USUALLY	TYPE OF COMBINED EFFECT	SO USUALLY WE WILL SEE
Horizontal Gaze Nystagmus	**present**	none	OVERLAPPING	**present**
Vertical Nystagmus	**present**	none	OVERLAPPING	**present**
Lack of Convergence	**present**	**present**	ADDITIVE	**present**
Pupil Size	normal	**dilated(1)**	OVERLAPPING	**dilated(1)**
Reaction to Light	normal	normal	NULL	**normal**
Pulse Rate	**UP**	**UP**	ADDITIVE	**UP**
Blood Pressure	**UP**	**UP**	ADDITIVE	**UP**
Body Temperature	**UP**	normal	OVERLAPPING	**UP**

(1) Possibly normal

The chart makes it clear that PCP and Cannabis, in combination, produce a series of Overlapping and Additive Effects, and one Null Effect, on the major indicators of impairment.

Our possible answers to Question #9 included two more new terms. One of these is **Antagonistic Effect**. The combination of PCP and Cannabis doesn't give us an opportunity to illustrate this, so let's try a different combination. Suppose we examine a person who's taken Heroin and Cocaine (i.e., a so-called "speedball"). What are we going to find when we examine the size of that person's pupils?

Cocaine usually dilates pupils; Heroin usually constricts them. So as far as pupil size is concerned, Cocaine takes one action while Heroin takes an opposing, or antagonistic, action. The two drugs struggle against each other, one trying to draw the pupils out, the other trying to shut them down.

Which one is going to win? It's really not possible to say. It depends on many factors: How much of each drug did the person take? How long ago did he or she take them? How tolerant is the person to each drug? Three outcomes are possible at any given moment:

(1) Maybe, right now, the Cocaine is the dominant drug in the suspect's system. So maybe we'll see some dilation, but maybe not as much as the Cocaine ordinarily will produce.

(2) Or maybe, at this moment, the Heroin is more powerful. So possibly we'll see some constriction, although maybe less than the Heroin would produce if the Cocaine weren't there.

(3) It is even possible that, at this particular moment, the effects of the Cocaine and the Heroin are fairly evenly balanced.

In that case, the pupils might be within the normal range of size!

When we have a combination of drugs that produces an **Antagonistic Effect** on some indicator of impairment, it is simply impossible to predict what we will find when we examine that indicator.

One other possible answer was listed for Question #9: Synergistic Effect. That is a term used by some researchers and physicians who study drug effects. They use the term to describe a sort of "super-additive" effect, in which the person's reaction to a drug combination is somehow much more than would be expected from his or her reaction to the two drugs separately. There is little doubt that this type of reaction occurs. Emergency room physicians can attest to the numerous cases in which persons have suffered fatal or near fatal reactions to combinations of alcohol and barbiturates, for example, when the amounts of the individual drugs in the persons' systems were far below typically dangerous levels. However, the word "synergistic" conveys the notion that we can somehow quantify this super-additive reaction, e.g., "two plus two equals ten". Since the DRE's ability is limited to observing and recording reactions, and not to quantifying them, the concept and term Synergistic Effect has no place in the Drug Evaluation and Classification Program.

10. **For each of the listed drugs ...**

Psilocybin and Peyote are Hallucinogens; the former derives from a species of mushroom, the latter from a species of cactus. Phenobarbital is a CNS Depressant, and specifically a Barbiturate (remember that "-barbital" at the end of the name). Preludin is a CNS Stimulant. Phenyl Cyclohexyl Piperidine of course has the initials "PCP", and that's exactly what it is; the more commonly-used name "Phencyclidine" is actually a contraction of Phenyl Cyclohexyl Piperidine.

11. **If a person has a BAC ...**

This was covered in the PRE-School. Remember the definition: "Blood Alcohol Concentration is the number of grams of alcohol in every 100 milliliters of blood." So if a person has a BAC of 0.10%, that means there is 0.10 gram of alcohol in 100 milliliters of his or her blood. And of course, 0.10 gram is the same thing as one-tenth of a gram, so the correct answer is (C).

What about the other answers? One million nanograms (Answer B) is one million times one-billionth of a gram, which is the same as one-thousandth of a gram, or one milligram. Ten milligrams (Answer E) is ten times one thousandth of a gram, or one-hundredth of a gram. So only Answer © is correct.

12. **Which of the following usually will produce horizontal ...**

Remember that only three of the seven categories produce HGN: CNS Depressants, Phencyclidine and Inhalants. THC, of course, is the active ingredient in Cannabis, so it will not produce HGN. LSD is probably the best known Hallucinogen; it also will not produce HGN. MDMA is another Hallucinogen, sometimes known as "Ecstasy"; so it, too, won't produce HGN. But **ETOH** is ethyl alcohol, the most commonly-used CNS Depressant. It will usually produce HGN. And **PCP** is Phencyclidine, another drug that usually produces HGN. So the two correct answers are (D) and (E).

13. **... the normal range of ... pulse rate ...**

The correct answer, of course, is (E): 60 to 90 beats per minute.

14. **Persons under the influence of ...**

All five of the things listed are commonly associated with impairment by CNS Stimulants. The term bruxism is simply a medical expression for the last item listed, i.e., "grinding the teeth".

15. **Suppose you examine a suspect ...**

You might want to refer back to the discussion of Question #9, and the four types of drug combination effects: Null, Overlapping, Additive and Antagonistic.

The suspect has a pulse rate of 102; that is an elevated pulse. What will marijuana (Cannabis) usually do to the pulse rate? What will methamphetamine (Stimulant) usually do to pulse rate?

Both of those drugs usually elevate pulse rate. So what we have is an **Additive Effect** (Answer B).

16. **For each of the listed drugs ...**

All five of the listed drugs are Narcotic Analgesics. Thebaine, Hycodan and Dilaudid, are **Opiates**. The other two listed drugs, Numorphan and Fentanyl, are **Synthetic Narcotics**.

17. **The Afferent Nerves are ...**

The two subdivisions of the nervous system are best known as the **sensory** nerves and the **motor** nerves. The sensory nerves carry messages to the brain, e.g., from the eyes, the ears, pain sensors, etc. The motor nerves carry messages away from the brain, to the muscles, the lungs, the heart, etc. The sensory nerves tell the brain about things that affect the body; the motor nerves are the tools the brain uses to effect its control over the body. For these reasons, the sensory nerves are also known as the **Afferent** nerves (Answer A), while the motor nerves are known as the Efferent nerves.

18. **Which of the following usually will be true ...**

The key thing to remember is that Xanax is a CNS Depressant. If a person is under the influence of a Depressant, we usually will see lowered blood pressure; eyes unable to converge; pupils that are within the normal range of size; horizontal gaze nystagmus is present; and, body temperature within the normal range. In other words, **all** of the listed answers are correct.

19. **Another word for "nerve cell" is ...**

Nerves are the things that carry messages between the brain and the body's muscles, tissues, organs, etc. A simple way of depicting a nerve is to imagine that it consists of a string of small "wire" segments, separated from each other by narrow gaps. Messages to and from the brain can be thought of as electrical impulses that run along the wire segments. When the electrical impulse reaches the end of a wire segment, it triggers the release of chemicals that flow across the gap to the next wire segment. When the chemicals reach the next wire segment, the electrical impulse is generated, and runs along the wire to its end, where once again chemicals are passed across to the next wire. Thus, nerves carry messages by means of a series of electrical and chemical transmissions.

In this simple model, the "wire segments" are nerve cells; the technical name for a nerve cell is **neuron**. So, the correct answer to this question is (C). At one end of each neuron or nerve cell is a receptacle where the chemical messenger is stored for release to the next cell. That storage-and-release area is called the axon. At the other end of the nerve cell we find a receptacle that receives the chemical messenger from the previous cell. That receiving area is called the dendrite. The gap between two neurons is called the synapse, or synaptic gap. The fifth answer listed, "ergon", is a nonsense word that we've made up.

20. **The pulse point that is located ...**

The **radial pulse point** (Answer B) is the one we find In the crease of the wrist nearest the thumb.

21. **Which ... is a combination of two different categories ...**

The drug **percobarb** is a combination of percodan (a Narcotic Analgesic) and a barbiturate (CNS Depressant), and so is a combination of two different categories. So Answer (B) is correct. Methamphetamine Sulfate is a CNS Stimulant; Diacetyl Morphine is the generic name for Heroin, a Narcotic Analgesic; Amyl Nitrite is an Inhalant, and specifically an anesthetic gas; Amosecobarbital is a combination of two barbiturates (Amobarbital and Secobarbital), both of which, of course, are CNS Depressants. So of the five drugs listed, only percobarb is a combination of different categories.

22. **For each of the listed drugs ...**

Nitrous Oxide is an Inhalant, and is probably the most widely abused anesthetic gas. Toluene is also an Inhalant, and is an active ingredient in many volatile solvents. Isopropanol is an alcohol, and therefore a CNS Depressant; it is also known as "rubbing alcohol". Chlordiazepoxide is the generic name for Librium, and Alprazolam is the generic name for Xanax; both are anti-anxiety tranquilizers, and therefore are CNS Depressants.

23. **The technical term for an abnormally rapid pulse ...**

The correct answer is (E), **Tachycardia**. It may help you remember this if you recall that your car or motorcycle tachometer measures how rapidly the engine is turning over. The exact opposite, i.e., an abnormally slow pulse rate, is called Bradycardia. The other three possible answers listed for this question are either nonsense terms that we have made up, or quasi-medical terms that have no relevance to a DRE.

24. **Suppose you examine ... the combined influence of Heroin and Cocaine ...**

The suspect's pulse rate is 72, which is well within the normal range. But we know that he or she is under the combined influence of Heroin and Cocaine. Heroin (like all Narcotic Analgesics) usually lowers pulse rate. Cocaine (like all CNS Stimulants) usually elevates pulse rate. The delicate "balancing act" that produced the normal pulse rate is due to the **Antagonistic Effect** (Answer A) between these two drugs.

25. **Every chemical that is ... "alcohol" ...**

Every "alcohol" is made up of carbon, oxygen and **hydrogen** (Answer B).

26. **The Efferent Nerves ...**

Remember the discussion of Question #17: The **Motor Nerves** (Answer D) are also known as the Efferent Nerves. Actually, two of the other answers listed could be considered partly correct: The Autonomic Nerves (Answer A) are a sub-classification of Motor Nerves; and, the Sympathetic Nerves (Answer C) are a sub-sub-classification. So both of those are Efferent Nerves, too. But only the Motor Nerves, as a complete group, encompass all of the Efferent Nerves.

The Sensory Nerves, you will recall, are known as the Afferent Nerves. The fifth possible answer, "Autotrophic", is a nonsense word.

27. **Which of the following is ...**

Four clues of impairment have been scientifically validated for the One Leg Stand test:

- Swaying
- Raising the Arms
- Hopping
- Putting the Foot Down

Therefore, neither "Failing to Count Out Loud" (Answer B) nor "Raising the Foot Less than Six Inches" (Answer C) is a **validated** clue of impairment. However, this doesn't mean you should ignore these behaviors. If the suspect stops counting out loud, you must remind him or her to do so: it is one of the elements of the test that are designed to divide the suspect's attention. If he or she doesn't raise the foot high enough, the test will be easier than it should be, so you must tell the suspect to raise it higher.

28. **How many carbon atoms ...**

Ethanol is the type of alcohol that has **two** carbon atoms in its molecule (Answer B).

29. **... we use the stethoscope to listen to the ...**

The correct spelling is **Korotkoff** (Answer C).

30. **Narcotic Analgesics usually will ...**

The correct answers are (D) and (E), **Lowered pulse rate** and **Constricted pupils**. Lack of Convergence would not be expected to be observed, since that indicator of impairment associates with the "DIP-C" drugs (Depressants, Inhalants, PCP and Cannabis). Eyelid tremors are often observed with Cannabis and Stimulants, but not with Narcotic Analgesics. And, Narcotic Analgesics usually induce muscle flaccidity, not muscle rigidity.

31. **Persons who are under the influence of Heroin ...**

Heroin abusers often will exhibit all of the characteristics listed in this question. One of those characteristics, **"droopy eyelids"**, is also known by the medical term ptosis.

32. **Which of the following ... dilated pupils?**

The "alphabet soup" of possible answers includes two drugs that won't dilate the pupils; they are MPTP (a synthetic Narcotic Analgesic) and ETOH (ethyl alcohol, a CNS Depressant). The other three listed drugs are all Hallucinogens, and all usually will dilate the pupils. So the correct answers are **LSD**, **STP** and **MDMA**.

33. **For each of the listed drugs ...**

Biphetamine is a **CNS Stimulant**; the "-phetamine" in its name is a pretty good tip-off that it is one of the amphetamine family. Dronabinol is synthetic THC, so it is an example of **Cannabis**; another name for Dronabinol is "Marinol". Flurazepam is one of the Benzodiazepines, so it is a **CNS Depressant**; it also goes by the trade name "Dalmane". Methaqualone is another **CNS Depressant**, and it is a special one at that. Unlike the vast majority of Depressants, Methaqualone usually dilates the pupils and causes elevated pulse rate. Ritalin is a **CNS Stimulant**.

34. **Suppose you examine a suspect ...**

At 7.5mm, the suspect's pupils are dilated. We know that he or she is under the combined influence of a Stimulant (Biphetamine) and a Depressant (Methaqualone). Of course, Stimulants usually produce dilated pupils, but Depressants usually don't affect pupil size. **But here we have an exception.** As we saw in the last question, Methaqualone is a very special Depressant, because it dilates the pupils. So what we have is two drugs that both dilate the pupils, producing an **Additive Effect** (Answer A). It is interesting to note that, had this been a combination of Biphetamine and any other Depressant, we would probably still see dilated pupils, but it would be due to an Overlapping Effect, rather than an Additive Effect.

35. **Where is the Carotid ...**

As you know from the PRE-School, the Carotid pulse point is **in the neck**.

36. **"Starting too soon" is a scientifically ...**

This is one of the eight scientifically validated clues of impairment for **Walk and Turn**, so Answer (B) is correct. One Leg Stand has four scientifically validated clues, but none of them comes into play until the suspect actually is told to start performing; therefore, "starting too soon" is irrelevant with that test. Neither Romberg Balance nor Finger to Nose have **any** scientifically validated clues.

37. **Experiences such as "seeing sounds" ...**

This sort of weird mixing of senses is often found with persons under the influence of Hallucinogens. It is almost as if a stimulation of one sense (e.g., hearing) triggers a message to the brain that travels along the wrong sensory nerve and produces the perception of a different sense (e.g., sight). So perhaps the hallucinogen abuser "sees" a brilliant flash of fireworks every time he hears a nearby telephone ring. He might be heard to say something like,"Man, look at that phone explode! It's beautiful!"

The scientific or medical term for this sort of experience is **synesthesia**, so Answer B is correct. The other possible answers listed are either medical terms of no relevance to a DRE, or nonsense words that we've made up.

38. **Suppose a suspect exhibits ...**

Often, the best way for a DRE to proceed with a diagnosis is to **rule out** as many categories as possible. We know the BAC is 0.00%, so **alcohol** cannot be contributing to this suspect's impairment. We see no nystagmus, so **Depressants, Inhalants and PCP** are not reasonable candidates as the source of this person's impairment. Pulse rate and blood pressure are both lower than normal, and pupils are not dilated -- in fact, they are constricted; those facts argue against **Stimulants, Hallucinogens or Cannabis**. What's left? Narcotic Analgesics. Now, are the facts in evidence consistent with that category? Narcotic Analgesics usually produce:

- no nystagmus
- no lack of convergence
- constricted pupils
- lowered pulse rate
- lowered blood pressure
- "sloppy" performance of divided attention tests

It is clear that the best available explanation for all of the facts is that the suspect is under the influence of a Narcotic Analgesic. So you should choose Answer D.

But wait a minute: Answer E also includes Narcotic Analgesics. Isn't it possible that this suspect has taken a Narcotic Analgesic, but has also smoked some marijuana? Isn't it possible that he or she is under the influence of a combination of Narcotic Analgesics and Cannabis?

Yes, it is possible. If you were to obtain a urine sample from this suspect, it would not be too surprising to find that it tests positive for both Narcotic Analgesics and Cannabis. But as a DRE, it is **not** your job to try to predict or guess what the chemist will find in the urine or blood. Your job is to determine if the suspect is impaired right now, and if so, to identify the most likely cause of that impairment. And in the facts presented to you, there is nothing at all that suggests Cannabis. There is nothing that cannot be explained on the basis of a Narcotic alone. As a DRE, you must always strive to identify the simplest and most believable explanation for the impairment you observe.

In formulating your opinion, never go "out on a limb". Mention only the category or categories that you can confidently identify in the facts at hand.

The urine specimen drawn from this suspect could contain many things. Maybe he or she smoked a marijuana joint several hours before being arrested, then shot up a "speedball" (combination of Heroin and Cocaine). Then, after waiting an hour or two, he drove a car, was stopped and arrested, and brought to you. It is very likely, depending on the circumstances, that the effects of the marijuana and Cocaine had worn off by the time you examined him, but the Heroin was still active in his system. If so, when you saw him, he was under the influence of a Narcotic Analgesic, but not under the influence of Cannabis or a Stimulant. Of course, the urine will probably test positive for all three drugs, because the chemist will find evidence that the suspect used them recently. **This doesn't mean that you "missed" in your diagnosis of this suspect!** Far from it: the urine test corroborated your conclusion. You said he was under the influence of a Narcotic Analgesic, and the chemist confirmed that he had that kind of drug in his system.

39. **Persons under the influence of Cocaine ...**

Cocaine usually will produce all of the characteristics listed in this question. One of them, **"dilated pupils"**, is also known by the medical term mydriasis.

So we've finally answer the question we hinted about in Question #5.

40. **The proper sequence of commands ...**

The only acceptable answer is (B): **Left, Right, Left, Right, Right, Left.**

41. **How many distinct scientifically ...**

As we have observed in the answers to some previous questions, the Finger to Nose test has never been scientifically validated. Hence, it has **no** scientifically validated clues of impairment. The correct answer is (E).

But remember: Saying that the test has not been validated does not at all mean that it is invalid. Properly administered, it will supply very important evidence of suspect's impairment.

42. **Which of the following is ...**

Way back in the response to Question #1 we listed the six sub-categories of CNS Depressants. Four of those six appear in the possible answers to Question #42:

B. Anti-Anxiety Tranquilizers
C. Anti-Psychotic Tranquilizers
D. Non-Barbiturates
E. Anti-Depressants

One of the possible answers, **Natural Alkaloids**, is <u>not</u> a sub-category of CNS Depressants. So the correct answer to this question is (A).

43. **Consider the following situation: A long-time ...**

Two key factors in this scenario steer us toward the most logical answer: (1) the person "shot up" the drug, i.e., injected it into a vein via hypodermic needle; and, (2) he was not examined by the DRE until two hours had elapsed.

Cocaine is a very fast acting drug, especially when it is smoked or injected. The user, even a long-time user, experiences a "rush" within seconds, and the vital signs and pupils begin to exhibit the influence of the drug almost immediately. Therefore, possible answers (A) and (D) are very implausible. Cocaine is also a rapidly dissipating drug, i.e., its effects don't last very long. The user "comes down" from the high fairly quickly, usually within 30 to 60 minutes after injecting. It is very likely that two hours after "shooting up" the user's vital signs and pupils would have returned to normal. The agitation and extreme alertness associated with this drug also would likely have disappeared by that time, and the user might even appear drowsy. In other words, **the drug's effects would have worn off** (Answer B). Odds are good that this is the best explanation for the situation described.

But what about the other two possible answers listed? First, isn't it possible that the person actually shot up a "speedball", and we're seeing normal vital signs and pupils because of the antagonistic effects of the two drugs?

That really isn't very likely. On the one hand, the Cocaine probably would have worn off by this time, as we've already mentioned. That would leave the Heroin still active in the system. Unlike Cocaine, Heroin very likely would still be affecting the user two hours after injecting, so we'd probably see depressed vital signs and constricted pupils, and some definite impairment on the divided attention tests. But none of that is evident here.

How about the final possibility: Could the person have unwittingly injected a placebo, and experienced no impairment at all? We cannot altogether eliminate that possibility, because the subject really doesn't exhibit either clinical or psychophysical indicators of impairment. Maybe this fellow was cheated by his dealer, and shot up nothing but sugar or talcum powder, and never got a "rush". But that seems less likely than the explanation given in Answer (B). This person, after all, is a long-time abuser. He's learned quite a few things about the drugs he uses, and probably knows how to recognize the real stuff when he sees it. Remember: DREs always try to find the simplest, most logical explanation for the facts they observe.

44. **Sinsemilla belongs to which ...**

Sinsemilla (a Spanish word meaning "without seeds") is a particular variety of the Cannabis Sativa plant. Marijuana produced from Sinsemilla usually has a very high concentration of THC.

So the correct answer is (B).

45. **The part of a nerve cell that receives ...**

Back in Question #19, we discussed a simplified concept of nerves, and identified some of the technical terms used for the various parts of the nervous system. One of the terms that we did not define at that time was neurotransmitter. That is the technical expression for the "chemical messengers" that flow across the gap (synapse) between two nerve cells (neurons). One end of the neuron is designed to send out the neurotransmitter, toward the next nerve cell. That end is called the Axon. The other end of the neuron is designed to receive the neurotransmitter from the previous nerve cell. That end is called the **Dendrite**. So the correct answer to this question is (D).

46. **Suppose you examine a suspect ...**

This suspect has a below the normal range blood pressure. Heroin (a Narcotic Analgesic) usually causes lowered blood pressure. Xanax (a CNS Depressant) also usually causes lowered blood pressure. So as far as blood pressure is concerned, these two drugs tend to produce the same effect. That situation is called the **Additive Effect** (Answer B).

Bonus Question: Do you recall the generic, or chemical, names for the drugs we call Heroin and Xanax? (Answer on the next page)

47. **How many distinct scientifically validated clues ...**

One Leg Stand was submitted to scientifically controlled experimentation during the 1970's. The results of the experimentation disclosed that One Leg Stand, along with Walk and Turn and Horizontal Gaze Nystagmus, can reliably discriminate between alcohol-impaired and non-impaired subjects. **Four** validated clues of impairment were identified for One Leg Stand:

- o Sways while balancing
- o Uses arms to balance
- o Hopping
- o Puts foot down

So the correct answer is (C).

48. **The effects of impairment from Morphine and Demerol are the same with the exception of..**

Both Morphine and Demerol are Narcotic Analgesics. Morphine is an Opiate and Demerol is a synthetic. Since both drugs belong to the same category, the observed effects of impairment would be the same. The correct answer is (E).

49. **Cocaine is to "Crack" as Methamphetamine is to ...**

Cocaine is a CNS Stimulant. "Crack" is one form in which Cocaine is "packaged". "Crack" is Cocaine, in a highly pure, crystalline form. "Crack" users place the small, hard bits of drug in pipes and apply flame to them, usually via butane lighters. The "Crack" chunks don't actually burn, but rather melt and vaporize. The user draws the nearly pure Cocaine vapor into the lungs, where it quickly moves to the arteries, and to the brain.

Methamphetamine is also a CNS Stimulant. Is there a highly pure, crystalline from of methamphetamine that can be abused in much the same manner as "Crack"?

Yes there is, and it is best known by the Street name **"Ice"**. Just as "Crack" is Cocaine, "Ice" is Methamphetamine. It shares the characteristics of other forms of Methamphetamine, just as "Crack" has the characteristics of Cocaine. The impairment produced by "Ice" is very similar to the impairment produced by "Crack", with one significant difference: the "Ice" high lasts a lot longer. "Crack" is an especially rapidly dissipating form of Cocaine; the impairment experienced often will last less than thirty minutes. The "Ice" smoker will often stay high for several hours.

The other possible answers listed in Question #49 are all Street names for various drugs and combinations. "Love Boat" is a popular name for marijuana laced with PCP; "Ecstasy" is the Hallucinogen MDMA; "Acid" is LSD, another Hallucinogen; and, "Sherm" is used to denote the **Sherman** brand of mentholated cigarette, laced with PCP.

50. **How many distinct ...**

For Walk and Turn, **eight** clues have been shown to discriminate reliably between alcohol impaired and non-impaired subjects. Two of these apply while the suspect is standing in a heel to toe fashion, listening to the instructions:

- o Cannot keep balance
- o Starts too soon

The other six clues come into play after the instructions are completed and the suspect begins to walk:

- o Stops walking
- o Misses touching heel to toe
- o Steps off line
- o Raises arms
- o Wrong number of steps
- o Turns improperly

Course Location _____ Date _____

Preliminary Training For Drug Evaluation And Classification
Student's Critique Form

A. Course Objectives

Please indicate whether you feel that you personally achieved the following course objectives.

	Yes	No	Not Sure
Can you define the term "drug" and name the seven drug categories?			
Can you identify the twelve major components of the Drug Recognition Process?			
Can you administer and interpret the psychophysical tests used in a drug evaluation?			
Can you conduct the eye examinations used in the evaluations?			
Can you check the vital signs used in the evaluation?			
Can you list the major signs and symptoms associated with each drug category?			
Can you describe the history and physiology of alcohol as a drug?			

B. Course Activities

Please rate how helpful each workshop session was for you personally. Also, please rate the quality of instruction (subject knowledge, instructional techniques and learning activities). Use a scale from 1 to 5 where: 5=Excellent, 4=Very Good, 3=Good, 2=Fair, 1=Poor.

	Session/ Activity	Quality
Overview of Drug Evaluation and Classification Procedures		
The Psychophysical Tests		
The Eye Examinations		
Alcohol Workshop		
Examination of Vital Signs		
Overview of Signs and Symptoms		
Alcohol as a Drug		
Preparing for the DRE School		

C. Course Design

Please indicate your own personal feeling about the accuracy of each statement.

	Agree	Disagree	Not Sure
1. I wish we had more practice with drinking volunteers.			
2. There was too much "bull throwing" in this course.			
3. I now have a much better idea as to what the Drug Recognition Process is all about.			
4. The course was at least one-half day too long.			
5. I got a great deal of practical, useful information from this course.			
6. I'm still pretty confused as to what the Drug Recognition Process is all about.			
7. I think I could do a pretty good job conducting a drug evaluation right now, without additional training.			
8. This course should have been at least one-half day longer.			
9. We spent too much time with the volunteer drinkers session.			
10. Some of the practice sessions in this course were dragged out a bit too much.			
11. I don't think that our instructors were as well prepared as they should have been.			
12. This course was a good review, but it really didn't teach me anything new.			
13. I am very glad that I attended this course.			
14. The instructors seemed to be more interested in practicing their teaching skills than in seeing to it that we learned what we were supposed to learn.			
15. I would have to say that this course was not quite as good as I expected it to be.			

D. Suggestions for Deletion and Additions

If you absolutely had to cut four hours out of this course, what would you delete or shorten?

If you could add four hours to this course, how would you spend the extra time?

E. Ratings of the Course and the Instructors

On a scale from 1 (=very poor) to 5 (=excellent), please give your opinion of the course as a whole.

The course as a whole: _____

On a scale from 1 (=very poor) to 5 (=excellent), please give your opinion of each instructor.

Instructor	Rating

F. Final Comments and Suggestions

Please offer any final comments that you wish to make.

The International Standards of the Drug Evaluation and Classification Program

A Product of

The DEC Standards Revision Subcommittee of the Technical Advisory Panel of the IACP Highway Safety Committee

Revised June 2, 1999

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EXECUTIVE SUMMARY

Since 1984, the National Highway Traffic Safety Administration (NHTSA) has supported the Drug Evaluation and Classification Program. The program which was initially developed by the Los Angeles, California, Police Department, was validated through both laboratory and field studies conducted by Johns Hopkins University. In 1987, the Highway Safety Committee of the International Association of Chiefs of Police (IACP) was requested by NHTSA to participate in the development and national expansion of the program. As the program grew, it became apparent that in order to ensure continued success, nationally accepted standards needed to be established. These standards, which establish criteria for the selection, training and certification of drug recognition experts, helped to ensure the continued high level of performance of the Drug Evaluation and Classification Program. In 1988, NHTSA asked the IACP and its Highway Safety Committee to develop this system of nationally accepted standards.

In March of 1989, the IACP and NHTSA sponsored a meeting at the Transportation Safety Institute in Oklahoma City, Oklahoma. Persons invited to this meeting included experienced drug recognition experts, instructors, curriculum specialists, toxicologists, prosecutors and training administrators. The participants met in working groups to reach consensus concerning the many issues relating to the Drug Evaluation and Classification Program and to develop recommended minimum standards to the Highway Safety Committee. The standards were drafted and presented to the committee for review at its mid-year meeting in June 1989. In addition, the committee agreed to name a Drug Evaluation and Classification Technical Advisory Panel to assist and advise the committee concerning technical aspects relating to the operation of the program.

The Highway Safety Committee, by resolution, adopted the *Interim National Standards of the Drug Evaluation and Classification Program*. The standards were subsequently approved by the voting membership of the IACP. The standards were adopted on an interim basis pending the outcome of an evaluation of the effective-ness of the program to be performed by NHTSA. In October 1992, the standards were officially approved and adopted. Revisions and updates are periodically made to the standards.

Presented in this document are standards specifying the requirements for certification and recertification of DREs and DRE instructors; standards for decertification and reinstatement; and standards for agency participation. Also, for those agencies participating in the program, a set of administrative guidelines is provided.

These standards, when adopted by other countries, will be administered pursuant to their political structure.

DEFINITIONS

Associate Instructor: Persons not certified as DREs but who possess knowledge, expertise or credentials deemed valuable to the program may be designated as associate instructors for the Drug Evaluation and Classification Program.

Blood Alcohol Concentration (BAC): A person's blood alcohol concentration indicates the grams of alcohol per 100 milliliters of blood. For example, a BAC of 0.10% means that there is one-tenth of a gram of alcohol in 100 milliliters of the person's blood.

Candidate DRE: An individual in the process of achieving certification as a drug recognition expert. To achieve certification, a person must successfully complete a training program consisting of

An IACP/NHTSA-approved SFST training course of instruction
A two-day IACP/NHTSA-approved DRE preschool
A seven-day IACP/NHTSA-approved DRE school
On-the-job field certification

Candidate DRE Instructor: An individual in the process of achieving certification as a DRE instructor. To achieve certification, a DRE must successfully complete the IACP/NHTSA-approved DRE instructor training, conduct a minimum of two hours of DRE training, and witness two drug evaluations.

Course Manager: An individual who ensures that each training event follows the standardized curriculum and evaluates the training event to identify ways to improve it. The course manager represents the National Highway Traffic Safety Administration and the International Association of Chiefs of Police and resolves issues with the content and/or delivery of the training.

DRE Coordinator: The appropriate DRE coordinator will be one of the following:

Agency Coordinator: The person designated within each department or agency responsible for maintaining program records, ensuring maintenance of program standards and conducting training and certification sessions within the agency. Responsibility for this function may rest with one individual, in the case of a small or closely coordinated effort, or may be decentralized among several people throughout the agency. If there is no designated agency coordinator, the appropriate DRE coordinator shall be the state coordinator.

State Coordinator: In each of the states in which the Drug Evaluation and Classification Program has been implemented under the auspices of the National Highway Traffic Safety Administration, an individual has been designated to act as the statewide coordinator for the DEC Program. The duties of the position generally include but are not limited to

1. Acting as an information clearinghouse and central communication point for the program within the state.
2. Assisting in coordinating training and other support activities for all agencies participating in the program within the state.
3. Coordinating the assignment of instructors in response to requests for service from federal and other sources.

The Governor's Office of Highway Safety shall be responsible for designating the state coordinator. If there is no designated state coordinator, the appropriate DRE coordinator shall be the TAP regional coordinator, who shall assume the duties and responsibilities as described above.

TAP Regional Coordinator: One DRE from each of the four regions, as established by the Division of State and Provincial Police, is appointed by the IACP Highway Safety Committee Chair to serve on the Technical Advisory Panel.

DRE Instructor: Individuals who, having been trained and certified as drug recognition experts, receive further training and experience instructing within the Drug Evaluation and Classification Program. Certified instructors will usually be certified DREs with experience in performing drug evaluations and in providing testimony in court in the area of drug recognition. Certified instructors are responsible for observing, evaluating and verifying the performance of candidate DREs.

Criminal Justice Agency: For purposes of these standards, a criminal justice agency is any organization, funded by public monies, that is involved in the apprehension, prosecution, adjudication of public miscreants; or in the incarceration, detention, supervision or control of said miscreants following apprehension, prosecution and/or adjudication.

Drug: For purposes of the Drug Evaluation and Classification Program, a drug is any substance that, when taken into the human body, can impair the ability to operate a motor vehicle safely. Note that this is not necessarily a strict medical definition.

Drug Evaluation: A process of systematically examining a person suspected of being under the influence of a drug, for the purpose of ascertaining what category of drugs (or combination of categories) is causing the person's impairment. A trained DRE can identify, with a high degree of reliability, the distinguishing signs and symptoms of seven broad categories of drugs.

Drug Evaluation and Classification Technical Advisory Panel: This group was formed to assist the Highway Safety Committee of the International Association of Chiefs of Police on specific matters relating to the Drug Evaluation and Classification Program. These matters include the revision of the approved training curriculum, review and approval of proposed alternative training programs, and other matters relating to the technical aspects of the DEC Program.

Drug Recognition Expert (DRE): An individual who has successfully completed all phases of training requirements for certification established by the International Association of Chiefs of Police and the National Highway Traffic Safety Administration.

Highway Safety Committee: A standing committee of the IACP that addresses highway safety issues.

Horizontal Gaze Nystagmus (HGN): A loss of the normal control of the eyes observed as an involuntary jerking occurring when a person attempts to follow as stimulus with the eyes and/or looks to the left or right side.

Impairment: One of the several terms used to describe the degradation of mental and/or motor abilities necessary for safely operating a motor vehicle.

Implied Consent: Every state has enacted a version of an Implied Consent law, which serves to encourage persons arrested for DWI to submit to a chemical test to determine blood alcohol content. Many states also allow for the testing of blood, breath or urine for the presence of drugs and/or alcohol. The concept of implied consent is that the state views the suspect as already having agreed to take the test, as a condition of operating a vehicle in the state. The typical wording of an implied consent law is as follows: "Any person who operates a motor vehicle upon the public highways of this state shall be deemed to have given consent to a chemical test or tests for the purpose of determining the alcohol (or drug) content of his or her blood, when arrested for any act alleged to have been committed while the person was operating a vehicle while under the influence of alcohol (or any drug)."

The law further provides that, if the arrestee nevertheless refuses to submit to the chemical test, he or she will not be forced to submit, but the driver's license will be suspended or revoked.

IACP Staff: With grant assistance from the National Highway Traffic Safety Administration, the Division of State and Provincial Police of the IACP has agreed to develop standards and assist in managing the certification process for the Drug Evaluation and Classification Program. As part of this agreement, the IACP will perform necessary staff and coordination functions for the program. The staff of the Division of State and Provincial Police is responsible for maintaining records for the program and will coordinate certification and recertification processes.

Instructor Trainer: An experienced DRE instructor who conducts instructor training courses and who must be knowledgeable of and have audited all phases of the Drug Evaluation and Classification training program and must be fully conversant with the student and instructor manuals.

Intoxication: One of the several terms used to describe the degradation of mental and/or motor skills and other faculties due to ingestion of alcohol or other drugs.

NHTSA: The National Highway Traffic Safety Administration, within the United States Department of Transportation that exercises primary responsibility for coordinating federal efforts to ensure the safe design and operation of motor vehicles.

Standardized Field Sobriety Tests: The Standardized Field Sobriety Tests include three tests that were developed and validated through a series of controlled experiments supported by research grants from NHTSA. The three tests include Horizontal Gaze Nystagmus (HGN); Walk and Turn (WAT); and One Leg Stand (OLS).

The HGN test is described elsewhere in these definitions.

Walk and Turn and One Leg Stand are *divided attention tests.* As such, they require the suspect to concentrate on more than one thing at a time.

The training course developed by IACP and NHTSA, "DWI Detection and Standardized Field Sobriety Testing," is a program designed to train traffic enforcement officers to administer the sobriety tests. The training includes two approved alcohol workshops. During these workshops, students practice administering the test battery. In order to complete the course satisfactorily, students must pass a written examination and demonstrate proficiency in administering the field sobriety test battery.

STANDARDS FOR THE
DRUG EVALUATION AND CLASSIFICATION PROGRAM

I. Standards for Certification as a Drug Recognition Expert

The standards in this section specify the criteria that must be met prior to an individual's being certified as a drug recognition expert (DRE). These criteria outline the knowledge and skills required to be considered for training, as well as the knowledge and proficiencies required for final certification.

The currently approved curriculum involves a three-phase training process. Prior to beginning the training program, students are required to be trained in and demonstrate proficiency in the use of the IACP/NHTSA-approved standardized field sobriety tests, including the horizontal gaze nystagmus test. Phase I of the drug recognition training consists of a two-day (16-hour) preschool. During this preschool, students are taught the definition of the term "drug" as it is used in the Drug Evaluation and Classification Program, and become familiar with the techniques of the drug evaluation. Students also begin to learn the techniques and procedures for evaluating persons suspected of drug impairment.

Phase II of training is a seven-day (56-hour) classroom program during which stu-dents receive detailed instruction in the techniques of the drug evaluation examina-tion as well as in physiology, the effects of drugs and legal considerations. Upon completion of this phase of training, the student must pass a comprehensive written examination before proceeding to Phase III of training, the field certification.

The field certification portion of training follows completion of the classroom training and is conducted at periodic intervals for the next sixty to ninety days. During this portion of the training, students, under the direction of certified instructors, evaluate subjects suspected of being impaired by drugs other than alcohol. After participating in and documenting the results of at least twelve drug evaluations and completing a comprehensive examination, the student is certified as a drug recognition expert.

1.1 In order to be considered for certification as a drug recognition expert, a person shall be in the employ and under the direct control of a public criminal justice agency or institution involved in providing training services to officers of law enforcement agencies.

Commentary: At the discretion of the agency head or administrator, and with the consent of the training body, other persons may audit or observe any or all portions of the DRE training. Persons attending the course as auditors or observers shall not be eligible for certification.

Persons pursuing certification as drug recognition experts for the purpose of instructing in the Drug Evaluation and Classification Program must meet all requirements for certification and recertification in order to maintain their standing as DREs or DRE instructors.

1.2 The candidate DRE must have experience in preparing comprehensive investigative reports and in providing detailed court testimony.

Commentary: The technical nature of the drug evaluation process and the need to provide detailed and accurate documentation of findings and conclusions requires proficiency in preparing reports. Candidate DREs should have demonstrated the ability to investigate, document and prepare detailed reports of incidents such as major traffic crashes or criminal violations. In addition, DREs must be able to provide court testimony concerning their methods and results, as well as their training and qualifications.

1.3 All DRE candidates must attend and complete the IACP/NHTSA-approved course of instruction in Standardized Field Sobriety Testing, or an equivalent curriculum approved by the IACP Highway Safety Committee and Technical Advisory Panel. They shall demonstrate proficiency in the use of Standardized Field Sobriety Tests, to the satisfaction of a DRE instructor, by the conclusion of the IACP/NHTSA DRE Pre-school or a school meeting Standard 1.2 above.

Commentary: The drug evaluation process requires that the contribution of alcohol to observed impairment be determined. The National Highway Traffic Safety Administration has developed, and the IACP has adopted, the Standardized Field Sobriety Test procedure in conjunction with immediate breath testing, as a means of identifying the alcohol-impaired driver. If the effects of alcohol are determined not to be the sole cause of impairment, the officer can begin the evaluation process to determine what other causes may be responsible.

In order to conform to the IACP/NHTSA model curriculum, SFST training must contain the specified number of hours and include at least two approved alcohol workshops. In addition, the training must instruct students in the administration of the horizontal gaze nystagmus, walk and turn, and one leg stand tests.

Each agency should ensure that candidates submitted for DRE training have had adequate time prior to beginning the training program to develop and to demonstrate proficiency in the use of SFST/HGN or allow for refresher training in these techniques as necessary.

1.4 All DRE candidates must attend and complete the IACP/NHTSA DRE Pre-school or an IACP-recognized equivalent prior to progressing to Phase II, the DRE School.

1.5 Prior to attending phase II of the DRE training, the candidate shall have met the learning objectives for phase I of the training program, the IACP/NHTSA-approved DRE preschool. The candidate shall be able to

1. Define the term "drug" as it is used in the DEC Program;
2. Name the seven drug categories identified in the DRE training program;
3. Measure vital signs, including blood pressure, pulse and body temperature;
4. Show familiarity with the 12-step drug recognition evaluation process;
5. Demonstrate proficiency in the administration of the Standardized Field Sobriety Tests, including Horizontal Gaze Nystagmus;
6. Show familiarity with the administration of the eye examinations, including pupil size, vertical nystagmus and lack of convergence.

These learning objectives are generally met through completion of Phase I, the DRE preschool. However, agencies have the latitude to determine the best means of ensuring that candidate DREs meet the prerequisites. The agency must verify, through the application process to the instructor responsible for delivering the training, that a candidate meets all requirements. Each candidate DRE will be required to demonstrate the knowledge and skills outlined.

Administrative guidelines and suggested application forms containing the necessary information will be provided by IACP staff to agencies and training institutions.

1.6 The candidate DRE shall complete an approved classroom training course which shall, at minimum, achieve the learning objectives as stated in the IACP-approved training curriculum.

Commentary: The National Highway Traffic Safety Administration and the International Association of Chiefs of Police have developed a classroom training course that, when completed, qualifies the student to proceed to the field certification portion of the training program. Because of differences in the type and level of training for officers in the detection of the impaired subject, agencies should determine the most effective means of providing classroom training in drug recognition. However, in order to maintain the credibility and integrity of the certification program, agencies that use a training program other than that currently approved by the IACP, must have the alternative curriculum approved by the IACP Technical Advisory Panel as meeting learning objectives. In addition, the Technical Advisory Panel will be responsible for providing periodic updates and modifications to the IACP training curriculum.

1.7 All candidate DREs shall attend and complete all classroom portions of an approved DRE curriculum prior to progressing to Phase III (the field certification phase) of the training. This shall include satisfactorily completing all assignments and required examinations. Students shall not be permitted to "test out" of portions of the training, nor shall they be permitted to attend only those classes that they have not previously completed.

Commentary: Class sessions missed should be made up prior to the final exam.

1.8 In order to complete satisfactorily the classroom portion of the training and proceed to field certification, candidate DREs must complete an IACP-approved final examination with a score of not less than eighty percent (80%). Candidates scoring less than 80% on the final examination may be retested one time, under the supervision of a certified DRE instructor. The retest shall be completed not less than fifteen nor more than thirty days following the completion of the classroom training.

Commentary: Upon satisfactory completion of the examination, the candidate may then proceed to field certification. The examination used to retest the candidate shall be an IACP-approved examination and shall not have been administered to the candidate previously. If the candidate does not achieve a passing score on reexamination, the candidate must retake the classroom portion of the training and pass the knowledge examination before proceeding further in the certification process.

1.9 Upon completion of the field certification phase of training, the candidate must demonstrate the ability to conduct a complete drug evaluation in an approved sequence and appropriately document and interpret the results. The candidate must also be able to document the findings of the evaluation and demonstrate proficiency in interviewing techniques.

Commentary: One of the primary factors in the success of the Drug Evaluation and Classification Program has been the emphasis upon a standardized approach to the drug recognition process. The training stresses the importance of a systematic, structured approach to performing the drug evaluation. This includes completing all portions of the evaluation in the appropriate sequence. Upon conclusion of an evaluation the DRE reviews the results of all tests, examinations and observations; documents the findings; and draws a conclusion based on the totality of the evidence.

1.10 To be considered for certification as a drug recognition expert, the candidate must satisfactorily complete a minimum of twelve (12) drug evaluations, during which the candidate must encounter and identify subjects under the influence of at least three of the drug categories as described in the DRE training program. All three drug categories must be supported by toxicology.

Of the evaluations required for certification, the candidate shall administer at least six evaluations. The candidate may observe the remaining evaluations. Certification training evaluations will be conducted in accordance with the current procedures and guidelines established in the DECP training curricula.

All evaluations, either administered or observed, and documented for certification purposes, shall be observed and supervised by at least one certified DRE instructor.

Commentary: Ideally, a drug evaluation will be performed by no more than two persons: the evaluator and one observer. At no time should more than four persons participate in an evaluation, as the results of the evaluation may be influenced by the distraction caused by a large number of persons observing the process.

1.11 Prior to completing the certification phase of training, the candidate DRE must demonstrate the ability to draw correct conclusions consistent with observed physiological signs and symptoms. In addition, the conclusions must be supported by the findings of a forensic toxicology laboratory. No candidate DRE shall be certified as a drug recognition expert unless blood, urine, or other appropriate biological samples are obtained and submitted from at least nine (9) subjects whom the candidate DRE has examined for certification purposes. These may include subjects for whom the candidate DRE served as the examination recorder or observer as well as those subjects directly evaluated by the candidate DRE. Further, the candidate DRE cannot be certified unless the opinion concerning the drug category or categories affecting the subject is supported by forensic toxicological analysis seventy-five percent (75%) of the time, or in at least seven (7) of the nine (9) samples submitted for certification purposes. For purposes of this standard, a candidate DRE's opinion is supported if the toxicological analysis discloses the presence of at least one drug category named by the candidate DRE. In the event that the candidate DRE has concluded that three or more categories of drugs are involved, at least two categories must be supported by toxicology results.

Commentary: Successful and uniform application of this standard places important forensic toxicological requirements on the program. First, the blood or urine specimen must be obtained as soon as possible after the arrest so that the contents of the sample refer to the subject's status at the time of the offense. Second, the sample must be properly sealed, stored, transported to the forensic toxicology laboratory and analyzed in a timely fashion to maintain the integrity of the specimen. Third, the drug recognition examination should be conducted as soon as possible after the offense so that the results of the evaluation accurately refer to the subject's status at the time of the offense. Fourth, the laboratory should use its full powers of analysis and detection to attempt to identify each category named by a candidate DRE; in some cases this may require the laboratory to modify its routine screening and confirmation procedures. Finally, the laboratory must complete its report on the samples as soon as possible and provide a copy of the report to the arresting officer, DRE or candidate DRE submitting the sample. It is the submitting officer's responsibility to provide a report to each DRE or candidate DRE who participated in the evaluation.

Although the candidate DRE must complete a minimum of twelve (12) drug evaluations (standard 1.10), standard 1.11 requires only 75 percent of those to include a biological sample. This allows for those cases in which a biological sample is unavailable, such as when a subject refuses or cannot provide one. In those cases when an evaluation is not supported by forensic toxicology, a certified DRE instructor should ensure that the candidate DRE's opinion was based on observable signs and symptoms consistent with the opinion.

1.12 Prior to concluding field certification training, the candidate shall satisfactorily complete an approved "Certification Knowledge Examination." The examination shall be administered and the results reviewed by at least one certified instructor. The examination shall only be administered after the candidate has completed not less than three drug evaluations.

Commentary: The "Certification Knowledge Examination" consists of a comprehensive written examination followed by a detailed interview with the reviewing instructor(s). As stated previously, certification is based on the evaluation by the instructor(s) of the skills and abilities of the candidate rather than on the completion of a specified set of tasks. The purpose of the examination and interview is to aid the instructor(s) in evaluating the candidate's qualifications, performance and general abilities.

The examination should be administered when, in the judgment of the reviewing instructor(s), the candidate has demonstrated proficiency in conducting, evaluating and documenting results of the drug evaluation process.

1.13 The candidate DRE shall complete the field certification phase of training within six months following completion of the classroom training, unless the time limit is extended by the appropriate DRE coordinator.

Commentary: Under normal circumstances, a candidate not completing field certification within the prescribed time period will be dropped from the program. However, a reevaluation of the candidate's qualifications and the reasons for non-completion may be conducted by the appropriate DRE coordinator to determine whether or not circumstances exist that indicate that the candidate should continue in the program.

1.14 By the time the candidate DRE has completed field certification training, the candidate shall have prepared a résumé which shall reflect the candidate's training and experience in drug recognition. The résumé shall include a complete log of all evaluations in which the candidate has participated.

Commentary: In order to be accepted as a credible witness, the drug recognition expert must be able to document and articulate a body of information concerning training, qualifications and experience in the field of drug evaluation and classification. Toward this end, candidates are instructed in the importance and proper preparation of a professional résumé.

1.15 When the candidate DRE has satisfactorily completed all requirements of the classroom and field certification portions of training, at least two certified DRE instructors who have observed the candidate during the field certification process will verify that the candidate meets all requirements for certification as a drug recognition expert.

Commentary: The certification process relies in large part on the judgment of the instructor(s) as to the abilities and performance of the candidate. Experience has shown that in many cases, particularly those in which a candidate's qualifications may be in question, the opinion of a second instructor as to readiness for certification is of value. In addition, the use of a second instructor to evaluate the candidate may overcome any bias, either for or against a candidate. For these reasons, each candidate must be evaluated by at least two instructors prior to becoming certified as a DRE.

1.16 Following completion of certification requirements, copies of all documents, including test results, evaluation logs and drug evaluation reports shall be forwarded to the agency DRE coordinator who shall forward all documents to the state coordinator. The state DRE coordinator shall forward the names and copies of certification progress logs of the DREs they have certified as having successfully completed all phases of the DRE training program. The IACP will then credential each applicant and will register him as a certified drug recognition expert.

Commentary: The IACP staff shall maintain current listings of persons certified as drug recognition experts. Upon notification that a person has met all requirements, staff shall complete and forward to the state coordinator a certificate indicating that he meets all requirements of the Drug Evaluation and Classification Program as a drug recognition expert. The state coordinator shall forward these documents to the agency which, in turn, will present them to the DRE.

II. Standards for Certification as Drug Recognition Expert Instructor

Because of the highly technical nature of the functions performed by the drug recognition expert, only persons experienced in the techniques of drug evaluation should instruct in the Drug Evaluation and Classification Program. In general, these instructors will be certified drug recognition experts with experience in performing drug evaluations and in providing testimony in court in the area of drug recognition. However, persons who possess specialized skills or credentials may be utilized to teach certain parts of the training course as associate instructors. Dedicated, qualified instructors are critical to the continued success of the Drug Evaluation and Classification Program.

Certified instructors are responsible for observing, evaluating and verifying the performance of candidate DREs throughout the training and certification process. In addition, certified instructors must provide periodic update training to DREs already certified.

Also addressed in this section are standards for the use of instructor trainers in the program. These individuals are responsible for the training of DRE instructors.

2.1 Only persons certified as drug recognition experts may be certified as DRE instructors.

Commentary: Persons not certified as DREs but who possess knowledge, expertise or credentials deemed valuable to the program may be designated as associate instructors for the Drug Evaluation and Classification Program. Persons who might be considered for such designation may include medical professionals, attorneys and others who possess knowledge in a designated field of expertise. Associate instructors must be familiar with the Drug Evaluation and Classification Program and fully conversant with the lesson plans for their assigned blocks of instruction. Classes taught by associate instructors shall be taught in cooperation with certified DRE instructors to ensure consistency.

Each associate instructor should provide to the state coordinator a biographical sketch to be included in the file of approved instructional staff. The biographical sketch shall include those segments of the training curricula that the associate instructor is qualified to teach.

2.2 A DRE desiring to become an instructor in the Drug Evaluation and Classification Program shall make written application to the agency coordinator. The agency coordinator will ensure that the candidate meets all requirements to become an instructor and will refer the application to the state coordinator.

Commentary: The agency head shall verify to the training provider that a candidate instructor meets all prerequisites to enter DRE instructor training. Prerequisites may also include any state, local or agency requirements specified for instructors within the jurisdiction. The state coordinator shall provide to requesting agencies the administrative guide and sample application forms for candidate instructors.

2.3 The candidate shall satisfactorily complete the IACP/NHTSA-approved Drug Evaluation and Classification Instructor Training Program, or an approved equivalent, which shall include both knowledge and practical examination of candidate instructors.

Commentary: This requirement does not preclude states or local jurisdictions from placing additional requirements on persons wishing to teach in the local law enforcement community.

2.4 Upon satisfactory completion of the IACP-approved classroom portion of training or completion of an equivalent program, the student shall be designated as a candidate instructor for purposes of completing instructor certification. To complete instructor certification, the candidate instructor must teach for a minimum of two hours in the classroom portion of an approved drug recognition training program; and supervise the administration of not less than two drug evaluations performed by candidate DREs during certification training.

The candidate instructor's progress shall be monitored and evaluated by at least one certified DRE instructor.

Commentary: The National Highway Traffic Safety Administration and the IACP have developed a training curriculum for instructors in the Drug Evaluation and Classification Program. The learning objectives for this program emphasize specific techniques for teaching the specialized information contained in the drug recognition training program.

The Technical Advisory Panel shall be responsible for reviewing and evaluating alternative training programs submitted by agencies. Those programs meeting or exceeding the approved learning objectives for instructor training shall be deemed "equivalent." This does not preclude agencies or states from adopting more stringent standards.

2.5 Upon satisfactory completion of instructor training, copies of all documentation, including instructor progress logs, examination scores and instructor evaluations, shall be forwarded to the appropriate DRE coordinator. The agency DRE coordinator will forward these documents to the state coordinator who shall certify that they have successfully completed all phases of DRE instructor training. The IACP will then credential each applicant and will register him as a certified DRE instructor.

Commentary: The IACP staff will maintain a current register of persons certified as instructors in the Drug Evaluation and Classification Program. Upon notification that a person has met all requirements, the staff shall complete and forward to the state coordinator a certificate indicating that he/she meets all requirements as a DRE instructor. The state coordinator shall forward these documents to the agency who, in turn, will present them to the DRE instructor.

The administrative guidelines shall provide sample forms for necessary progress logs and certification documents.

2.6 To ensure the proper conduct and delivery of the approved curriculum, all training sessions conducted as part of the Drug Evaluation and Classification Program shall be coordinated by a certified DRE instructor who has previously instructed. All classes taught by associate or candidate instructors shall be supervised directly by a certified DRE instructor.

Commentary: To ensure that all training classes are conducted in accordance with applicable standards, it is recommended that the instructor coordinating the training program have a minimum of one-year experience as a drug recognition expert instructor.

2.7 An instructor trainer shall have demonstrated proficiency as an instructor.

2.8 An instructor trainer must be knowledgeable of and have audited all phases of the Drug Evaluation and Classification training program and must be fully conversant with the student and instructor manuals.

Commentary: An instructor trainer must present evidence of the satisfactory completion of the NHTSA/*IACP* Instructor's Development Course or equivalent. Instructor trainers must be familiar with the Drug Evaluation and Classification Program and fully conversant with the lesson plans for their assigned blocks of instruction. To ensure consistency, classes taught by instructor trainers shall be taught in cooperation with certified DRE instructors.

Each instructor trainer shall provide to the appropriate DRE coordinator a biographical sketch to be included in the file of approved instructional staff. The biographical sketch shall include those segments of the training curricula that the instructor trainer is qualified to teach.

The state coordinator should maintain a record of persons qualified as instructor trainers in the Drug Evaluation and Classification Program.

2.9 The course manager shall perform four duties: planning and preparation, on-scene course management, data collection, and reporting. These responsibilities involve the following:

1. Assigning instructors, and verifying in advance that the training is conducted in the standardized manner and that it is properly evaluated;
2. Ensuring at the training site that all necessary conditions exist to maximize the students' ability to learn;
3. Collecting certain data following every training event and forwarding it to the host state coordinator; and
4. Preparing a comprehensive report following every training event.

III. Standards for Recertification

Recertification is necessary to ensure that DREs and DRE instructors maintain proficiency. Just as the standards in the previous sections have outlined the criteria for original certification, the standards outlined in this section are required to ensure that professional integrity is maintained throughout the recertification process.

3.1 The following records concerning certification and recertification shall be maintained:

Individual DRE/ DRE Instructor	Copies of all drug evaluations Evaluation logs Resume Certification and recertification progress logs Certificates
Agency DRE Coordinator	Copies of evaluation logs Certification progress logs Copies of certificates Instructor ratings and summaries of student critiques Records of classes taught by each instructor
State DRE Coordinator and/or IACP Staff	Copies of evaluation logs (optional) Certification progress logs File of certified DREs and instructors Recertification information

Commentary: Guidelines for the retention of pertinent records concerning the program operation help to ensure integrity of the program and provide valuable information for purposes of statistics and court verification of training. Other records as deemed appropriate by local agencies or certification commissions may be required of the individual DRE or the appropriate DRE coordinator.

3.2 DREs shall be required to renew their certificates of continuing proficiency every two years. A one-year grace period following the lapse of certification may be allowed for those not meeting recertification standards. During the grace period, the DRE may be rectified without having to repeat the original certification process.

3.3 The state coordinator shall be notified of those DREs in need of recertification at least six months prior to the expiration of the certificates. The state DRE coordinator shall forward to the IACP staff required documentation indicating the completion of recertification requirements. The staff will issue new cards when requirements are met.

Commentary: In the absence of a state coordinator, the TAP regional coordinator will perform these functions.

3.4 A DRE shall demonstrate continuing proficiency by

Performing a minimum of four (4) acceptable evaluations since the date of last certification, all of which shall be reviewed and approved by a certified DRE instructor and one (1) of which shall be witnessed by a certified DRE instructor. These evaluations may be performed on subjects suspected of drug and/or alcohol impairment or during classroom simulations; and Completing a minimum of eight hours of recertification training since the date of the DRE's most recent certification, which may alternatively be presented in two sessions of no less than four hours, and which shall be consistent with any IACP standards for such training; and Presenting an updated resume and rolling log to the appropriate coordinator or his/her designee for review.

Commentary: All coordinators are responsible for maintaining the integrity of the program, and the appropriate coordinator, consistent with this responsibility, is encouraged to withhold recertification for, or refer for remediation, any DRE whose rolling log indicates an unacceptable level of accurate evaluations, as indicated by toxicology results.

3.5 When a DRE has completed all requirements for recertification, a certified DRE instructor shall verify to the appropriate DRE coordinator that minimum recertification requirements have been met.

3.6 A certified instructor shall maintain instructor certification so long as DRE certification is maintained.

Commentary: An instructor may be decertified for cause, such as for conducting substandard instructional programs, and still maintain certification as a DRE.

IV. Standards for Decertification of Drug Recognition Experts and Instructors

The standards in this section outline the circumstances and procedures for decertifying individual DREs or DRE instructors. In order to ensure that standards of performance are maintained, a means is needed for removing from the roles of the program those persons unable to meet the criteria of competence and professionalism. The responsibility for maintaining program standards lies with the agency and the appropriate DRE coordinator. It shall be incumbent upon all DRE coordinators to ensure that certified DREs meet approved standards for conduct and qualifications.

4.1 Decertification shall occur when a DRE or DRE instructor fails to meet minimum standards and requirements for certification or recertification, or demonstrates evidence of poor performance, inconsistent findings, or other substantiated acts on the part of the DRE that reflect discredit upon the Drug Evaluation and Classification Program.

Commentary: All DREs are responsible for maintaining and forwarding to the appropriate DRE coordinator information regarding required training or experience. If such information is not provided in a timely manner, certification will lapse.

Local agencies and licensing/certification bodies may, at their discretion, establish certification and decertification criteria to conform to local laws or rules. Nothing in these standards should be construed to overrule local authority in establishing standards no less stringent for the performance of officers in this area or to prevent an agency from following internal disciplinary or administrative personnel procedures.

4.1.1 Before decertification is finalized, a DRE or DRE instructor will be given written notice by the initiating DRE coordinator of the reasons for decertification. The subject of the action shall have the opportunity for a written or an oral response to the initiating DRE coordinator.

4.2 Requests for voluntary decertification will be honored when submitted by a DRE or DRE instructor to the section IACP staff and with approval of the agency appropriate DRE coordinator.

4.3 Cases involving poor performance or inconsistent findings shall be referred to the agency appropriate DRE coordinator for investigation, recommendation and action.

4.4 Certification of a DRE shall not terminate as long as the DRE meets the requirements of Standards 1.1 and 4.1.

4.5 The state DRE coordinator, upon the recommendation of the agency DRE coordinator or based on substantiated independent knowledge shall initiate the decertification process against a DRE or DRE instructor. The state coordinator shall inform the IACP staff of all decertification actions. In instances where these complaints have not been resolved by the appropriate coordinator, these complaints will be referred to the state's Governor's Office of Highway Safety for resolution.

V. Standards for Reinstatement of a Decertified Drug Recognition Expert

The standards in this section outline the procedures for reinstating a previously decertified DRE and/or DRE instructor.

5.1 An individual can be reinstated as a DRE when the following conditions are met:

(1) The applicant must pass the 100-item exam (same as that given at the end of the DRE school, or the make-up exam) as witnessed by a certified DRE instructor, with a score of at least 80%.

(2) The applicant must complete four (4) hands-on drug evaluations within a one-year period from the date of request to be reinstated.

(3) The applicant's eligibility and reinstatement as a DRE is reviewed and approved by the DRE's agency and the agency, state, and TAP regional DRE coordinators, where applicable.

5.2 An individual can be reinstated as a DRE instructor when the following conditions are met:

(1) The applicant meets conditions 5.1 and is reinstated as a DRE.

(2) The applicant's eligibility and reinstatement as a DRE instructor is reviewed and approved by the DRE's agency and the agency, state, and TAP regional DRE coordinators, where applicable.

Commentary: In many instances, a DRE certification lapses through no fault of the DRE due to transfers, promotions, etc., and recertification requirements have not been met. In many cases a DRE may want to reapply DRE skills with a new assignment. IACP suggests that a written request for reinstatement to the program come from the applicant to the appropriate coordinator, through the proper agency channels. A form is provided by the IACP to DEC state and TAP regional coordinators for the purpose of reinstatement. All coordinators are cautioned to conduct a thorough check on the cause of the applicant's decertification and reason for application for reinstatement.

VI. Standards for Agency Participation

Since 1986, the National Highway Traffic Safety Administration has endeavored to expand the Drug Evaluation and Classification Program. In an effort to contain costs, ensure the most efficient use of resources and maintain a high probability of program success, NHTSA developed site selection criteria to be used in assessing potential suitability of sites. Factors such as demographics, favorable legislation, agency operations and system support for the program are considered in evaluating potential sites for the implementation of the Drug Evaluation and Classification Program.

It is recognized that law enforcement agencies, in considering the implementation of new traffic enforcement programs, must be aware of both short- and long-term costs that are involved. In order for the program to achieve maximum results, the Drug Evaluation and Classification Program requires that agencies commit considerable resources long term to the detection and apprehension of the drug-impaired driver.

6.1 A DEC Program site should be a state, a political subdivision of a state, or a group of subdivisions.

Commentary: Experience has shown that a DEC Program will take firm root only if the resources to support the program are concentrated in a relatively small geographical area, such as a major city or county. Given that these new sites will begin operations with a small cadre of DREs, a community-focused DEC Program will allow the DREs to respond quickly to the location(s) where drug-impaired drivers might be taken for processing. By concentrating its forces, the program can ensure that a qualified DRE is available at any time or place needed. The concentrated focus of a community-based program allows the DREs ample opportunity to conduct evaluations and maintain skills at peak proficiency.

6.2 A proposed program site should be able to produce enough drug-impaired driving arrests to (1) justify the expense of training the DREs, and (2) provide enough evaluation opportunities for DREs to maintain proficiency.

Commentary: Studies indicate that up to 40 percent of the persons arrested for impaired driving are actually under the influence of drugs, either alone or in combination with alcohol. Thus, a site should produce an adequate number of DUI arrests annually per DRE to provide ample drug evaluation opportunities.

6.3 Prior to implementation of a DEC Program, a site should be located in a state with an implied consent law that

> Explicitly allows the chemical test sample to be analyzed to determine the presence and/or concentration of drugs other than alcohol;

Explicitly indicates that the "consent" applies to multiple tests, i.e., that the person is "deemed to have given consent to a test or tests of blood, breath or urine"; and

Empowers the arresting officer and/or the law enforcement agency to select the types of chemical tests to be taken, rather than giving the suspect the option of choosing the tests.

In the absence of an implied consent law, a site must certify that the above three criteria are met and apply to the Technical Advisory Panel for consideration for acceptance to the program.

Commentary: It is pointless to evaluate drivers for drug-induced impairment unless those found to be so impaired can be prosecuted successfully. The requirements for multiple chemical tests are essential because both a breath test and blood or urine tests are integral components of the drug recognition process. In addition to implied consent legislation, the effectiveness of DEC programs is greatly enhanced by legislation that

Allows the fact of a suspect's refusal to submit to the chemical test to be introduced as evidence in court; and

Makes it an offense to drive under the influence of any drug.

6.4 At least eighty percent (80%) of a participating agency's traffic law enforcement officers must be fully trained and proficient in the use of the IACP/NHTSA-approved standardized field sobriety tests, including the horizontal gaze nystagmus test.

Commentary: It is recommended that the agency's SFST training program is consistent with the IACP/NHTSA model curriculum. In particular, the training must contain the specified number of hours and include at least two approved alcohol workshops.

6.5 Participating agencies must maintain accurate and timely records of

- Alcohol and drug-related arrests and convictions;
- Alcohol and drug offense processing time;
- All toxicological examinations; and
- All drug recognition evaluations to include documenting and collecting of basic data which includes, but is not limited to, the name and age of arrestee, date of arrest, sex, the DRE opinion, and the name of evaluator.

Commentary: In order to evaluate critically the effectiveness of the Drug Evaluation and Classification Program, it is necessary that, at a minimum, the above records be maintained. In addition to evaluation purposes, the records may prove beneficial in establishing program validity for court purposes. The IACP and NHTSA has endorsed a data collection software program which DECP states are encouraged to use.

6.6 Participating agencies should have the capability to establish centralized booking or processing of all DUI arrestees.

Commentary: The ideal situation is one in which all persons arrested for DUI are taken to a single location for processing. One or two DREs could then be stationed at that location to ensure prompt access to all suspects apprehended for drug-impaired driving. However, it is feasible for a jurisdiction to have a few centralized processing facilities as long as there are enough DREs to staff them adequately and enough DUI arrests to ensure that the DREs conduct frequent evaluations.

6.7 Each location where DRE evaluations are conducted must have adequate facilities, including

A room sufficiently large to permit unobstructed administration of the Standardized Field Sobriety Tests;

A separate room that can be completely darkened for the eye examination;

Storage space for test data forms, reference documents, blood pressure kits, etc;

Access to breath testing equipment producing on-the-spot results; and

Facilities and materials for collecting blood and/or urine samples.

Commentary: Because of the unique requirements of the DEC Program, it is sometimes more economical for several agencies within a site to share DUI processing facilities. Other desirable characteristics for a DUI processing facility include

Adequate holding cells for arrestees;

Separate interrogation and report writing areas that provide privacy from the general prisoner population; and

Testing facilities that are out of main traffic patterns and allow the drug evaluation process to be performed without interruption or distraction.

6.8 Participating agencies must have access to laboratories that are capable of identifying the presence of the most commonly abused drugs when these drugs are present in sufficient concentrations to produce impairment.

Commentary: Ideally, the laboratories will also be able to identify the concentration of these drugs. In any case, the accuracy of the chemical analysis should be consistent with state-of-the-art drug testing. In other words, screening tests are not sufficient; a jurisdiction should be able to produce a confirmatory analysis. Although either blood or urine samples are acceptable, it is best if the jurisdiction has the ability to test both.

6.9 All agencies and states interested in participating in a Drug Evaluation and Classification Program must have the following endorsements:

The state governor's representative for highway safety;

The chief elected official of each political subdivision to be included in the site;

The commanding officer of each participating law enforcement agency;

The administrative judge of each court that tries people arrested for DUI within the jurisdiction;

The chief prosecuting attorney for each court in the jurisdiction; and

Representatives of any other agencies that would be involved in covering the costs of developing and sustaining the DEC Program.

DRUG EVALUATION AND CLASSIFICATION PROGRAM
ADMINISTRATIVE GUIDELINES
INTERNATIONAL ASSOCIATION OF CHIEFS OF POLICE

With grant assistance from the National Highway Traffic Safety Administration (NHTSA), the International Association of Chiefs of Police has developed certification standards and administers the Drug Evaluation and Classification Program. Under these administrative guidelines, it will be the responsibility of the individual and all coordinators to ensure that specific requirements of the standards are met. The staff at the IACP will be responsible for maintaining records, issuing certificates of completion, coordinating certain training-related events and maintaining and updating training materials as required.

The following procedures have been developed by the staff of the International Association of Chiefs of Police for use by agencies participating in the Drug Evaluation and Classification Program and wishing to certify drug recognition experts and instructors in their employ.

Obtaining certification as a drug recognition expert or DRE instructor ensures that an individual meets minimum requirements for training and experience as established by the IACP and the IACP Technical Advisory Panel. The Drug Evaluation and Classification Administrative Guidelines accompany the *International Standards of the Drug Evaluation and Classification Program.*

For the certification process to operate efficiently, it is recommended that coordinators at the agency, ~~and~~ state, and regional levels be identified. The responsibilities of the coordinators may include reviewing the qualifications of the candidate DREs, supplying required documentation that minimum standards have been met, and maintaining individual and program records. The coordination functions may be performed by one person or may be divided among several persons, as operational needs demand.

1. Notification of Candidate Drug Recognition Experts

When an individual has completed all agency application requirements for admission for training as a drug recognition expert, the agency shall provide the following information to the appropriate coordinator:

1. Candidate's name
2. Mailing address
3. Sponsoring agency
4. Social security number
5. Verification that candidate has satisfactorily completed a NHTSA/*IACP*-approved course in Standardized Field Sobriety Testing

In addition, the appropriate DRE coordinator shall provide the above information to the agency or individual responsible for providing training to ensure that all students meet prerequisites prior to the beginning of the training phase:

State program coordinators shall forward to the IACP staff the above information on all candidate DREs at the following address:

International Association of Chiefs of Police
Division of State and Provincial Police
515 North Washington Street
Alexandria, VA 22314

2. Obtaining Certification as a Drug Recognition Expert

All candidates for certification under the International Drug Evaluation and Certification Program must demonstrate completion of all requirements specified in Section I of the *International Standards of the Drug Evaluation and Classification Program*. Each candidate's progress toward meeting certification requirements shall be documented on the "Certification Progress Log," which shall be supplied to all appropriate DRE coordinators by the IACP staff. Each candidate shall be responsible for maintaining a certification progress log.

Completion of each step in the certification process shall be verified by the signature of at least one certified DRE instructor. Final recommendation for certification must be verified by the signatures of two certified instructors. Upon completion of all certification requirements, copies of the certification progress log shall be forwarded to the agency DRE coordinator and to the state coordinator. The state coordinator shall verify all information on the certification *progress* log and ensure that all entries are correct. The state coordinator shall forward to the IACP staff a copy of each candidate's completed certification progress log.

Upon receipt of the completed certification progress log, the IACP staff shall ensure that all necessary information is complete. Upon verifying that the information is complete, the IACP staff shall forward to the DRE state or TAP regional coordinator a certificate of completion and an identification card signifying that the candidate has met or exceeded all requirements for certification as a drug recognition expert. In the event that proper documentation is not provided, notification will be sent to the state coordinator indicating the specific reasons(s) for non-qualification.

The IACP staff shall maintain records of all certified DREs. Each record will contain the following information:

1. Name
2. Social Security Number
3. Department/agency
4. Mailing address

5. Telephone number
6. Dates of all events specified on the progress log
7. Name(s) of instructors verifying completion of training events
8. Date certificate is awarded
9. Date certification expires

3. Obtaining Certification as DRE Instructor

Candidates for certification as DRE instructors must demonstrate that they meet all requirements specified in Section II of the *International Standards of the Drug Evaluation and Classification Program*. The candidate instructor's progress toward completing certification requirements shall be documented on the form, "DRE Instructor's Certification Progress Log," which shall be supplied by IACP staff to all appropriate DRE coordinators. The individual candidate DRE instructor shall be responsible for maintaining the log.

Completion of each step in the instructor certification phase shall be verified by at least one certified DRE instructor. Upon completion of all certification requirements, copies of the DRE instructor's certification progress log shall be forwarded to the agency DRE coordinator and to the state DRE coordinator. The state DRE coordinator, after verifying that all information on the logs is complete and accurate, shall forward copies of all completed instructors' certification progress logs to the IACP staff.

Upon receipt of the instructor certification progress log, the IACP staff shall verify that all information on the log is complete. Upon verification, the IACP staff shall forward to the state coordinator a certificate of completion signifying that the candidate meets or exceeds all requirements of the Drug Evaluation and Classification Program as a DRE instructor. The IACP staff shall send notification to the state coordinators that the instructor has been certified. In the event that the instructor does not meet all requirements for certification, notification will be sent to the state coordinators indicating the specific reason(s) for non-qualification.

The IACP staff will maintain records of all certified DRE instructors. Each record will contain the following information:

1. Name
2. Social Security Number
3. Department/agency
4. Mailing address
5. Telephone number
6. Dates of all training events specified in the progress log
7. Name(s) of instructors verifying completion of training events
8. Date certificate was awarded
9. All pertinent information relating to the instructor's experience and credentials

Drug recognition expert instructors shall maintain certification as long as DRE certification is maintained. State coordinators will maintain a list of persons designated as associate instructors or as instructor trainers for the Drug Evaluation and Classification Program. In order that the list for instructors and associate instructors may be kept current and, therefore, of use to the participants, agencies hosting DRE training events (pre-schools, DRE training, instructor schools) should provide the state coordinator a list of all instructors and their instruction assignments.

4. Procedures for Recertification of Drug Recognition Experts and DRE Instructors

As specified in Section III of the *International Standards of the Drug Evaluation and Classification Program*, all drug recognition experts must be recertified every two years following original certification. DRE instructors shall maintain their instructor certification as long as DRE certification remains in effect. All applicable recertification standards for DREs shall apply to DRE instructors.

The following process will be utilized to ensure timely notification and compliance with recertification requirements:

1. Eighteen (18) months following the date of original certification, the IACP will send a renewal advisory notice to state DRE coordinators.

2. The DRE shall forward to his state coordinator evidence of completion of all recertification requirements as well as a recertification form signed by his agency coordinator. The state coordinator, after signing the recertification form, will forward a copy to IACP staff.

3. Upon notification that a person has met all requirements under section III of the *International Standards of the Drug Evaluation and Classification Program,* IACP staff shall issue a card recertifying the DRE for a period of two years.

In the event that information verifying completion of recertification requirements is not received by the IACP staff prior to the expiration of certification, the IACP staff will notify the state coordinators that certification has expired. Following expiration of certification, the DRE may renew certification without penalty for a period of one year by providing proof of completion of recertification requirements. A decertified DRE wishing to be reinstated following the expiration of the one-year grace period must complete all training and certification requirements enumerated in Section V of the *International Standards of the Drug Evaluation and Classification Program.*

5. Decertification of Drug Recognition Experts

Decertification of a drug recognition expert may take place if one or more of the following conditions exist:

1. The requirements as enumerated in Section III of the *International Standards of the Drug Evaluation and Classification Program* are not met by the individual DRE, allowing certification to lapse.

2. A DRE voluntarily requests decertification.

3. There is evidence of poor performance, inconsistent findings, or other acts on the part of the DRE that reflect discredit upon the Drug Evaluation and Classification Program.

In the case of a lapse of certification, the procedures in Section 4 of the Administrative Procedures shall be followed.

A DRE wishing to be decertified shall submit a written request through the appropriate agency and state coordinators to the IACP staff. Upon receipt of approval of the request by the state DRE coordinator, IACP staff shall remove the name of the individual from the list of certified DREs.

Agency DRE coordinators shall monitor the performance of DREs within their agencies and shall investigate complaints arising from their activities in the drug evaluation area. When, in the opinion of the agency coordinator, and with the approval of the agency head or his designee, a DRE's actions warrant decertification, the agency shall notify the state coordinator that the DRE is no longer certified within that agency.

Nothing in this procedure should be construed as to prevent an agency from following internal disciplinary or administrative personnel procedures. The IACP staff will maintain records of all decertified DREs and the reason(s) for decertification.

6. Approval of Drug Recognition Training Curricula

The National Highway Traffic Safety Administration (NHTSA) and the International Association of Chiefs of Police (IACP) have developed a course of instruction to train police officers in the techniques of drug recognition. This course of training has been adopted by the IACP as the minimum training requirement for certification for DREs and DRE instructors. NHTSA and IACP are responsible for revising and updating the DRE training curricula.

The course of instruction adopted by the IACP requires a total of seventy-two hours of classroom instruction followed by field certification during which a candidate must participate in a minimum of twelve drug evaluations. In the course of the required drug evaluations, a candidate must encounter and correctly identify subjects under the influence of at least three different categories of drugs. The complete requirements for certification as a DRE are enumerated in Section I of the *International Standards of the Drug Evaluation and Classification Program.*

In recent years, several training programs have been developed by police agencies and commercial training institutions with the aim of training individuals to detect persons impaired by drugs. A number of agencies currently utilize portions of the NHTSA/IACP approved program or variations of it in teaching officers the techniques of detecting the drug-impaired driver.

Section I of the *International Standards of the Drug Evaluation and Classification Program* requires that a candidate for certification complete "...an approved classroom training course which shall, at minimum, achieve the learning objectives as stated in the IACP approved training curriculum." The Highway Safety Committee of the IACP is charged with overseeing the operation and development of the Drug Evaluation and Classification Program. In order to maintain the high standards of the program, the committee has established the Technical Advisory Panel. Responsibilities of this panel, appointed by the IACP Highway Safety Committee, include the review of proposed alternative training programs to determine whether or not course content and learning objectives are consistent with approved standards.

Organizations wishing to submit proposed training curricula for review and approval as equivalent programs for the purpose of certifying individuals as drug recognition experts shall submit lesson plans, visual aids and any other required materials to the IACP staff. The IACP staff will submit the proposed course to the Technical Advisory Panel for evaluation. Courses that meet applicable standards and learning objectives shall be termed as equivalent courses. Completion of said courses shall qualify the candidate for certification as a DRE.