



Preliminary Training For Drug Evaluation and Classification Program

“The Pre-School”

January 2006 Edition

Instructor Manual



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**PRELIMINARY TRAINING
FOR DRUG EVALUATION AND CLASSIFICATION**

ADMINISTRATOR'S GUIDE

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A. Purpose of This Document

This Administrator's Guide provides an introduction to and an overview of the two-day course entitled "Preliminary Training for Drug Evaluation and Classification". 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). In some law enforcement agencies, these officers are known as Drug Recognition Technicians. The International Association of Chiefs of Police (IACP) have adopted "DRE" as the generic title for the persons who carry out this program.

A person who satisfactorily completes this Preliminary Training program is eligible for advancement to the second stage of DRE training, i.e., the seven-day classroom program in Drug Evaluation and Classification. The seven-day course commonly is called the "DRE School", to distinguish it from this two-day preliminary course (known as the "Pre-School"). Upon successful completion of the seven-day DRE School, the officer graduates to the final, or Certification Phase, of his or her training. The Certification Phase is conducted on-the-job: under the supervision of duly-authorized instructors, the DRE trainee conducts evaluations of persons actually under arrest on suspicion of drug impairment. The instructors evaluate the trainee's skill in conducting drug recognition examinations, and also evaluate his or her judgment in forming opinions as to the category or combination of categories of drugs causing the impairment evident in the suspects. And, the trainee's opinions are compared with the results of toxicological examinations, when they are available.

This Administrator's Guide is intended to facilitate planning and implementation of the Preliminary Training Program. The Guide overviews the two-day course of instruction and also overviews the documents that make up the curriculum package.

B. Overview of the Course

1. For Whom Is The Training Intended?

This course is designed for people who have been selected to serve as DREs. No one is permitted to enroll in the Pre-School unless he or she intend to proceed through the sub-sequent stages of training, and ultimately achieve certification as a DRE. The emphasis here should be kept on the concept of actual service as DREs. The skills that a DRE applies can be kept sharp only if they are frequently used.

There is no point in offering this training to someone who will not routinely and regularly evaluate drug-impaired suspects, since that person would quickly lose whatever competence he or she gained through the training. The DRE's job is not like riding a bicycle: one can and will forget how to do it properly unless he or she does it frequently. Agencies interested in this training should take special note that it is not desirable to send full-time instructors to this course, with the intent of having those instructors come home and teach others. Unless provisions are made to have those instructors actually work as DREs, their ability to serve competently as teachers of other DREs will vanish rapidly. It is far preferable to select trainees who will subsequently serve primarily as DRE practitioners, and who can be called upon part-time to serve as trainers.

Anyone selected as a DRE trainee must be fully competent with the Standardized Field Sobriety Tests (SFSTs), i.e., Horizontal Gaze Nystagmus, Walk and Turn, and One Leg Stand. No one can progress to the seven-day DRE School until he or she demonstrates proficiency with the three SFSTs.

2. What Is The Goal Of This Training?

The goal of this two-day Pre-School is succinct:

To prepare the student to participate successfully in his or her formal classroom training in the drug recognition process, i.e., the seven-day DRE School.

3. What Will The Students Get Out Of The Training?

As a result of successfully completing this Pre-School, the students will be better able to:

- (1) Define the term "drug" and name the seven categories.
- (2) Identify the twelve major components of the drug recognition process.
- (3) Administer and interpret the psychophysical tests used in the process.
- (4) Conduct the eye examinations used in the process.
- (5) Check the vital signs that are relevant to the process.
- (6) List the major signs and symptoms associated with each drug category.

(7) Describe the history and physiology of alcohol as a drug.

These are a subset of the competencies expected of DRE trainees by the completion of the seven-day DRE School; the Pre-School gives them a "head start" toward achieving those skills.

4. What Subject Matter Does The Course Cover?

The Pre-School covers concepts and skills that are fundamental to the DRE's job.

- A traffic safety-oriented definition of what constitutes a "drug" (i.e., Any substance which when taken into the human body can impair the ability of the person to operate a vehicle safely.
- Enumeration of seven distinct categories of drugs; the drug recognition process allows the DRE to identify which category or combination of categories is causing the impairment evident in a subject
- Demonstrations of and practice with four divided attention psychophysical tests that are used to assess impairment during a drug evaluation.
- Demonstration of and practice with the three eye examinations that provide cues of the possible presence of various drug categories.
- Demonstrations of and practice with checks of certain vital signs that point to the possible presence of various drug categories.
- A review of the major observable signs that distinguish the categories from each other.

5. What Activities Take Place During The Training?

Although a certain minimal amount of formal lectures are required, the course consists primarily of hands-on practice. Students repeatedly drill in the divided attention tests, the eye examinations and in performing checks of the vital signs. A controlled drinking exercise (involving volunteers who are not members of the class) provides an opportunity to practice assessing impairment on the divided attention tests.

6. How Long Does The Training Take?

The training encompasses approximately 13 and ½ hours of actual instruction. With breaks, this occupies two full training days.

C. Overview of the Curriculum Package

1. Instructor's Lesson Plans

The Instructor's Lesson Plans are a complete and detailed outline of what is to be taught in the Pre-School (i.e. the subject matter) and also of how it is to be taught (i.e., the instructional methods). The lesson plans are organized into modules. Each module corresponds to one of the course's ten sessions.

Each module consists of a cover page; an outline page; the lesson plans themselves; and copies of any visuals referenced in the lesson plans.

The cover page presents the session's title and the total time required to conduct the session.

The outline page presents the training objectives for the session, i.e. exactly what the student will be able to do as a result of successfully completing the session. The outline page also lists the major content segments of the session, as well as the principal instructional activities that take place during the session.

The lesson plans themselves are arrayed in a standard two-column format. The left-side column contains the outline of "content", or the subject matter to be taught. The right-side column outlines the "instructional notes", or how the content is to be taught.

The Instructor's Lesson Plans serve, first, to prepare the instructor to teach the course. He or she should review the entire set of plans, for all ten sessions, to become familiar with the content and learning activities and develop a clear understanding of how the course fits together. The instructor is expected to become thoroughly familiar with each lesson plan segment that he or she is assigned to teach; to prepare acetate copies of the visuals; to assemble all "props" and materials needed to deliver the lesson; and, to augment the instructional notes, as necessary and appropriate, to ensure that his or her own style and experience are applied to teaching the lesson.

Subsequently, the Instructor's Lesson Plans serve as an in-class reference document for the instructor, to help him or her maintain the sequence and pace of training.

It is worth emphasizing that the lesson plans are not speeches. Although the outlines of content and instructional notes are fairly detailed, those outlines are not to be read verbatim to the students. This training is intended to be a dynamic and highly interactive learning experience. It must not be permitted to degenerate into a series of mere lectures.

2. Visual Aids

Four kinds of audio-visual aids are employed in the Pre-School:

- o wallcharts
- o Dry erase board/flip-chart presentations
- o visuals, i.e. PowerPoint slides
- o video tape/DVD

The wallcharts are permanently displayed items. They consist of sketches with brief captions, intended to depict major themes and segments of the course. The wallcharts should be positioned high on the far left and right sides of the classroom's front wall where they will be visible without occupying the center of attention.

The dry erase board/flip-chart presentations are outlined in the "instructional notes" column of the lesson plans, and are self-explanatory.

The visuals are simple graphic and/or narrative displays that emphasize key points and support the instructor's presentations. In the "instructional notes", these are referred to as "visuals". Paper copies of all "visuals" are found at the end of each module.

The video tape/DVD is a portrayal of major components of the drug evaluation. This same tape is used in the 7-day DRE School.

D. General Administrative Requirements

1. Facility Requirements

The Pre-School requires a classroom with ample table/desk space for each student; an audio visual projector and screen; a video tape/DVD player and one or more monitors easily visible to all students; and, a chalkboard and/or flip-chart. The classroom must have sufficient open space to permit instructors to give full and unimpeded demonstrations of the divided attention tests; the eye examinations; and the checks of vital signs. And, the arrangement of the classroom must permit the students to have full view of these demonstrations.

Adequate space must be available to permit the students to practice the various tests and checks that the instructors demonstrate. The practice space may be a room separate from the classroom; a gymnasium often serves quite well for the practice segments.

The Alcohol Workshop also requires a separate room where the volunteers can do their drinking. Breath testing instruments and operators must be available to monitor the volunteers' BACs.

2. Instructor Qualifications

All faculty for the Pre-School must be duly certified DREs. The principal instructor, at least, must have completed DRE Instructor Training.

3. Class Size Considerations

This course is a highly participative learning experience. A significant amount of hands-on practice requiring close supervision and coaching takes place. Because of the nature of this training, the recommended maximum class size is 25 students. A more nearly ideal range would be 15 to 20.

4. Requirements For The Controlled Drinking Practice Sessions

Both the DRE Pre-School and DRE seven-day course require an alcohol workshop and the use of volunteer drinkers. The participation of volunteers who will consume carefully measured quantities of alcohol and submit to examinations administered by the students. Without these volunteers, students have no opportunity to practice administering the tests under reasonably realistic circumstances, or to practice interpreting test results. Drinking volunteers, then, are an essential resource for this training. But

they can be a difficult, even unpleasant, resource with which to work. Careful steps must be taken to insure that the volunteers contribute to a worthwhile learning experience, and suffer no harm themselves nor cause any harm to others.

The following criteria define who can be considered as drinking volunteers.

- o They cannot be members of the class.
- o They must be at least 21 years old.
- o They cannot have any history of alcoholism.
- o They cannot be known to suffer from any medical condition that may be exacerbated by alcohol (such as hypertension or diabetes).
- o They cannot be taking any medication (prescription or otherwise) that might interact with alcohol.
- o They must be in good physical health, and have no impairments of vision or limbs that might affect their performance of the Standardized Field Sobriety Tests.
- o They must be under 60 years of age, and less than 50 pounds overweight (conditions for which the standardized divided attention tests have not been validated).

Every volunteer drinker participating in the alcohol workshop must read and sign the "Statement of Informed Consent" before receiving any alcohol. The Course Administrator or a designated DRE Instructor will obtain the individual signatures from each of the volunteer drinkers prior to commencing the alcohol workshop.

Transportation must be provided for the volunteers to and from the training session. Under no circumstances may a volunteer be permitted to drive from the training session, regardless of his or her blood alcohol concentration at the time of departure. Volunteers should be released only into the custody of responsible, sober persons.

The practice sessions require a minimum of one drinking volunteer for every five students. A more desirable ratio is one volunteer for every three students. Thus, for a class of 25 students, at least 5 volunteers, and preferably 8 or 9 must participate in each session.

The effectiveness of the volunteers, as training resources, very much depends on their blood alcohol concentrations. If a volunteer's BAC is too low (i.e., below 0.06), he or she generally will provide a poor simulation of a typical DWI subject. If the BAC is too high (i.e., above 0.15), the volunteer's state of inebriation usually will be evident without standardized sobriety testing, and the learning experience will not contribute as effectively as possible to sharpening the students' detection skills.

Ideally, approximately half of the volunteers at any session should achieve peak BACs between 0.12 and 0.14 and the other half between 0.06 and 0.08. But this is very difficult to control. It is always preferable to err, if necessary, on the low side: it is better to fail to get volunteers as "high" as desired, rather than to get them too "high".

Volunteers should be instructed to refrain from eating two hours prior to their arrival at the training facility. Food in their stomachs may dramatically affect the absorption of alcohol into their bloodstreams, and significantly impede your ability to control the peak BACs they achieve.

Volunteers should be brought to the training facility two hours before the practice session is scheduled to begin. Each volunteer should be breath tested immediately upon arrival to verify that his or her BAC is zero.

The table below indicates the ounces of 80-proof distilled alcoholic beverage that volunteers should consume, in relation to their weight and the "target" peak BAC, during a three(3) hour interval to reach a target BAC of 0.12-0.14 percent.

**GUIDELINES FOR ACHIEVING TARGET BAC'S
DURING A THREE (3) HOUR INTERVAL**

Ounces of 80-Proof Alcoholic Beverage to Reach a B.A.C. of 0.12.

<u>Weight (Pounds)</u>	<u>MEN</u>	<u>WOMEN</u>
110	5	4
120	6	5
130	6	5
140	7	5
150	7	6
160	8	6
170	8	7
180	9	7
190	9	7
200	10	8
210	10	8
220	10	8
230	11	9
240	11	9
250	12	10

It is recommended that volunteers consume half of the total allocated amount of alcoholic beverage during the first hour following their arrival at the testing facility. They should refrain from drinking or smoking prior to any breath test.

NOTE: A volunteer may cease drinking at any time.

NOTE: No weapons should be present in the vicinity of any drinking volunteer.

Volunteers must be kept under constant supervision from the time of their arrival at the training facility. At least one instructor's aide must be present for every four volunteers. The aids must monitor the volunteers, serve their drinks, make sure that they comply with the schedule, and in general keep them under close observation.

NOTE: For a more complete description of Alcohol Workshop procedures, refer to the latest edition of the Student-Instructor's Manual for the DRE Instructor Training School, and specifically Unit Nine, "Planning and Managing an Alcohol Workshop".

International Association of Chiefs of Police

Drug Evaluation and Classification Program

Drug Influence Report Checklist

- _____ 1. Breath alcohol test
- _____ 2. Interview of arresting officer
(Note: Gloves must be worn from this point on.)
- _____ 3. Preliminary examination and first pulse
- _____ 4. Eye examinations
- _____ 5. Divided attention tests:
 - _____ Romberg balance
 - _____ Walk and turn
 - _____ One leg stand
 - _____ Finger to nose
- _____ 6. Vital signs and second pulse
- _____ 7. Dark room examinations and ingestion examination
- _____ 8. Check for muscle tone
- _____ 9. Check for injection sites and third pulse
- _____ 10. Interrogation, statements, and other observations
- _____ 11. Opinion of evaluator
- _____ 12. Toxicological examination

Thirty-Five Minutes

SESSION I
INTRODUCTION AND OVERVIEW

SESSION I INTRODUCTION AND OVERVIEW

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

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

CONTENT SEGMENTS

- A. Welcoming Remarks and Objectives
- B. Definition and Categories of Drugs

LEARNING ACTIVITIES

- o Instructor-Led Presentations

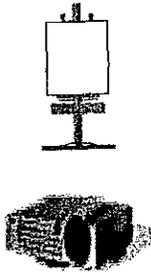
Aides	Lesson Plan	Instructor Notes
	INTRODUCTION AND OVERVIEW	
35 Minutes		
	A. Welcoming Remarks and Objectives	
		
10 Minutes		
I-1 (Title)	<ol style="list-style-type: none"> 1. Welcome to the Preliminary Training for the Drug Evaluation and Classification Program. 2. Instructor introductions. <ol style="list-style-type: none"> a. Principal instructor(s). b. Apprentice instructors. 3. Preliminary training goal: <p>To prepare the students to participate successfully in the 7-day Drug Recognition Expert school.</p> <ol style="list-style-type: none"> a. This two-day Preliminary School won't make you DREs. b. But it will make it easier for you to pass the 7-day DRE School and successfully complete your certification training. 4. Objectives of the Preliminary Training: 	<p>Display Session Title</p>
		<p>Instructors' names and students' names on tent cards.</p>
I-2 (Goal)		<p><u>Inform</u> the students of when and where their formal, seven-day DRE School will take place.</p>
		
I-3 (First 3 Objectives)		

Aides	Lesson Plan	Instructor Notes
 <p data-bbox="256 926 415 989">I-3B (Last 4 Objectives)</p> <p data-bbox="266 1879 444 1900">HS 172A R1/06</p>	<ol style="list-style-type: none"> <li data-bbox="557 352 959 415">a. Define "Drug" and name the seven categories. <li data-bbox="557 453 940 579">b. Identify the twelve components or steps in the DEC drug influence examination. <li data-bbox="557 621 927 747">c. Administer and interpret the Psychophysical Tests used by DRE's during the drug influence evaluation <li data-bbox="557 789 873 852">d. Check and measure a subject's vital signs. <li data-bbox="557 894 911 978">e. List the major signs and symptoms of each drug category. <li data-bbox="557 1020 946 1146">f. Conduct the eye examinations that are part of the drug influence evaluation. <li data-bbox="557 1188 927 1283">g. Describe the history and physiology of alcohol as a drug. <p data-bbox="516 1325 846 1346">5. Key point of emphasis:</p> <p data-bbox="565 1388 951 1482">This two-day school is only the first of three stages in your training as DREs.</p> <ol style="list-style-type: none"> <li data-bbox="565 1524 935 1587">a. Next will come the seven-day formal DRE school. <li data-bbox="565 1629 967 1755">b. After that will come at least several weeks of supervised on-the-job training known as the "Certification Phase". <p data-bbox="516 1797 967 1850">6. Preview of the remainder of the Pre-School.</p> <p data-bbox="824 1879 862 1900">I-4</p>	<p data-bbox="1008 1188 1377 1251">Solicit students' questions about the goal and objectives.</p> <p data-bbox="1008 1619 1341 1713">Solicit students' questions about the three stages of training.</p> <p data-bbox="1008 1787 1406 1850"><u>Briefly</u> outline the upcoming sessions of the school. Refer to</p>

Aides	Lesson Plan	Instructor Notes
<p style="text-align: center;">25 Minutes</p>	<p>7. Certification Progress Logs.</p> <p>B. Definition and Categories of Drugs</p> <p>1. What do we mean by the word "drug"?</p> <p>a. Alternative definitions, drawn from several sources.</p> <ul style="list-style-type: none"> o "A substance used as a medicine or in making medicines." o "A narcotic substance or preparation." o "A chemical substance administered to a 	<p>the wallcharts.</p> <p>Instruct students to open their manuals and remove the Certification Progress Log. Have students fill out the first line of the log, then collect it.</p> <p><u>Pose this question.</u> Solicit responses from several students</p> <p> Source: Webster's Seventh New Collegiate Dictionary, 1971 edition.</p> <p>Ask students: "Would you agree that <u>all</u> drugs are medicines or ingredients of medicines?" Ask students to name some substances they consider to be "drugs" that have no medicinal value.</p> <p> Source: Webster's. Ask students if they agree that all drugs are narcotics.</p> <p> Source: Random House College</p>

Aides	Lesson Plan	Instructor Notes
	<p>person or animal to prevent or cure disease or otherwise to enhance physical or mental welfare."</p> <ul style="list-style-type: none"> <li data-bbox="597 600 915 695">o "A habit-forming medicinal substance, especially a narcotic." <li data-bbox="597 1003 954 1163">o A substance taken by mouth, injected or applied locally to treat a disorder. (i.e., to ease pain) <li data-bbox="597 1205 976 1430">o A chemical substance introduced into the body to cause pleasure or a sense of changed awareness, as in the non-medical use of Lysergic Acid Diethylamide (LSD). <li data-bbox="597 1535 987 1694">o "Any substance, natural or artificial that by chemical nature alters the structure or function of a living organism." <li data-bbox="597 1736 987 1864">o "Any substance that, in small amounts, produces changes in the body, mind or both." 	<p>Dictionary, 1982 edition.</p> <p><u>Point out</u> that this definition seems to exclude any drug that is harmful or does not enhance welfare.</p> <p> Source: Random House</p> <p><u>Ask</u> students if they agree that all drugs are habit-forming. <u>Ask if, from an enforcement perspective</u>, they can think of any habit-forming substances they would not ordinarily consider to be a drug.</p> <p> Source: Medical Dictionary For The Non-professional, Barows Educational Series, Inc., Woodbury, NY. 1984</p> <p> Source: Los Angeles Police Department Drug Recognition Training, May 1986.</p> <p> Source: LAPD</p>
HS 172A R1/06	I-6	

Aides	Lesson Plan	Instructor Notes
 <p data-bbox="228 577 397 682">I-4 (Working Definition of Drug)</p> <p data-bbox="228 1858 418 1900">HS 172A R1/06</p>	<p data-bbox="451 336 876 409">2. A simple, enforcement-oriented definition of drugs.</p> <ul style="list-style-type: none"> <li data-bbox="576 441 958 609">o "Any substance, which, when taken into the human body, can impair the ability of the person to operate a vehicle safely." <p data-bbox="487 1039 950 1144">3. Within this simple, enforcement-oriented definition, there are seven categories of drugs.</p> <ul style="list-style-type: none"> <li data-bbox="535 1176 901 1270">a. Each category consists of substances that impair a person's ability to drive. <li data-bbox="535 1312 966 1480">b. The categories differ from one another in terms of <u>how</u> they impair driving ability and in terms of the <u>kinds</u> of impairment they cause. <li data-bbox="535 1711 966 1837">c. Because the categories produce different types of impairment, they generate different signs and symptoms. <p data-bbox="787 1858 836 1900">I-7</p>	<p data-bbox="974 504 1323 609">Working definition derived from the 1985 California Vehicle Code.</p> <p data-bbox="974 640 1372 808"><u>Point out</u> that this definition excludes many substances that ordinarily would be considered "drugs" by physicians, chemists, etc.</p> <p data-bbox="974 840 1356 1008">Emphasize that, as traffic law enforcement officers, the students' concern has to remain focused on substances that impair.</p> <p data-bbox="974 1312 1380 1669"><u>Note:</u> Emphasize that the DEC Program drug categories differ from those of the American Medical Association and the Drug Enforcement Administration because they categorize drugs on the basis of their <u>chemical structures</u>, while we categorize drugs on the basis of the <u>kinds of impairment</u> they produce.</p>

Aides	Lesson Plan	Instructor Notes
 <p data-bbox="264 1062 444 1125">I-5 (Depressants)</p> <p data-bbox="280 1881 456 1904">HS 172A R1/06</p>	<p data-bbox="557 352 971 583">d. With training and practice, you will be able to recognize the different signs of drug influence and determine which category is causing the impairment you observe in a suspect.</p> <p data-bbox="516 888 870 951">4. Central Nervous System Depressants.</p> <p data-bbox="570 1157 987 1283">a. The category of CNS Depressants includes some of the most commonly abused drugs.</p> <ul style="list-style-type: none"> <li data-bbox="618 1325 980 1451">o Alcohol - - the most familiar drug of all - - is abused by an estimated 40-50 million Americans. <li data-bbox="618 1486 997 1682">o It's estimated that 119 million Americans aged 12 or older reported being current drinkers of alcohol in 2002 (51.0 percent of the population) <li data-bbox="618 1724 997 1850">o In 2002, more than three million prescriptions were filled for over 500,000 different drugs in the <p data-bbox="837 1875 870 1898">I-8</p>	<p data-bbox="1008 615 1373 678"><u>Ask</u> students: "What are the seven categories of drugs?"</p> <p data-bbox="1008 716 1390 842"><u>Write</u> the names of the categories on the dry erase board or flip-chart as they are mentioned by the students.</p> <p data-bbox="1016 1150 1398 1245">Point out that Chloral hydrate sometimes is called "Mickey Finn" or "Knockout drops".</p> <p data-bbox="1024 1482 1365 1577">Source: National Survey on Drug Use and Health (NSDUH, 2003)</p> <p data-bbox="1024 1717 1422 1812">Source: National Center on Addition and Substance Abuse, Columbia University, 2005</p>

Aides	Lesson Plan	Instructor Notes
 <p data-bbox="233 1650 396 1707">I-6 (Stimulants)</p> <p data-bbox="233 1866 412 1892">HS 172A R1/06</p>	<p data-bbox="623 342 906 436">U.S.; 234 million for controlled prescription drugs.</p> <ul style="list-style-type: none"> <li data-bbox="578 478 954 638">o It is also estimated that in 2003 there were 6.3 million Americans age 12 or older using prescription drugs non-medically. <li data-bbox="529 680 935 840">b. Depressants slow down the operation of the central nervous system (i.e., the brain, brain stem and spinal cord). <ul style="list-style-type: none"> <li data-bbox="578 877 911 940">o cause the user to react more slowly. <li data-bbox="578 978 938 1041">o cause the user to process information more slowly. <li data-bbox="578 1079 867 1142">o relieve anxiety and tension. <li data-bbox="578 1180 899 1243">o induce sedation, drowsiness and sleep. <li data-bbox="578 1281 899 1407">o in high enough doses, CNS depressants will produce general anesthesia. <li data-bbox="578 1444 954 1507">o in very high doses, induce coma and death. <p data-bbox="488 1545 846 1608">5. Central Nervous System Stimulants</p> <ul style="list-style-type: none"> <li data-bbox="537 1745 951 1808">a. CNS Stimulants are a widely abused category of drugs. 	<p data-bbox="976 474 1317 569">Source: National Survey on Drug Use and Health (NSDUH, 2003)</p> <p data-bbox="980 1272 1349 1335">i.e. depress the brain's ability to sense pain.</p>

Aides	Lesson Plan	Instructor Notes
	<ul style="list-style-type: none"> o In 2000, there were an estimated 2.7 million chronic cocaine users and 3 million occasional cocaine users in the U.S. o The use and abuse of Methamphetamine continues to rise and has quickly become one of the major drugs of abuse. o Several million appear to use amphetamines. b. CNS Stimulants speed up the operation of the central nervous system, and of the various bodily functions controlled by the central nervous system. <ul style="list-style-type: none"> o cause the user to become hyperactive, extremely talkative. o speech may become rapid and repetitive. o heart rate increases. o blood pressure increases. o body temperature rises, user may become excessively sweaty. o induce emotional excitement, restlessness, irritability. o can induce cardiac arrhythmia (unstable 	<p>Source: Office of National Drug Control Policy (ONDCP) Cocaine Fact Sheet</p> <p>Note: Instructors may wish to local state Methamphetamine data here.</p> <p><u>Remind</u> students of well-known athletes and others who have</p>

Aides	Lesson Plan	Instructor Notes
 <p data-bbox="235 546 414 619">I-7 (Hallucinogens)</p> <p data-bbox="243 1858 430 1900">HS 172A R1/06</p>	<p data-bbox="625 336 901 441">beating of the heart), cardiac seizures and death.</p> <p data-bbox="487 472 722 514">6. Hallucinogens</p> <p data-bbox="535 640 966 808">a. Hallucinogens are also widely abused In recent years an increase in the abuse of both LSD and Ecstasy (MDMA) has been reported</p> <p data-bbox="535 840 917 976">b. It is estimated that approximately one million Americans abuse hallucinogens.</p> <p data-bbox="535 1008 974 1176">c. <u>Hallucinogens may create hallucinations.</u> That is, they may create apparent perceptions of things not truly present.</p> <p data-bbox="535 1207 966 1438">d. Hallucinogens may also create very distorted perceptions, so that the user sees, hears and smells things in a way quite different from how they really look, sound and smell.</p> <p data-bbox="535 1470 974 1837">e. Instead, hallucinogens cause the nervous system to send strange or false signals to the brain.</p> <ul style="list-style-type: none"> <li data-bbox="592 1638 974 1711">o produce sights, sounds and odors that aren't real. <li data-bbox="592 1743 974 1837">o induce a temporary condition very much like psychosis or insanity. <p data-bbox="787 1858 852 1900">I-11</p>	<p data-bbox="982 336 1356 367">died because of cocaine abuse.</p> <p data-bbox="982 672 1372 766"><u>Point out that LSD and Peyote</u> are only two examples of hallucinogens.</p>

Aides	Lesson Plan	Instructor Notes
 <p data-bbox="248 737 407 800">I-8 (Dissoc, Anesthetics)</p>	<p data-bbox="597 365 954 596">o can create a "mixing" of sensory modes, <u>for example</u> for example the user "hears colors", "sees music", "tastes sounds", etc., referred to as "Synesthesia."</p> <p data-bbox="505 632 854 663">7. Dissociative Anesthetics</p> <p data-bbox="553 835 954 1066">a. This category includes drugs such as PCP and it's analogs along with other drugs that generally inhibits pain by cutting off or "dissociating" the brain's perception of the pain.</p> <p data-bbox="553 1100 979 1297">b. PCP is considered to be by the medical community an hallucinogen. However, because of the symptomatology it presents; it is included in this category.</p> <p data-bbox="553 1367 979 1497">c. PCP is a synthetic drug, i.e., it does not occur naturally but must be produced in a laboratory-like setting.</p> <p data-bbox="553 1530 979 1629">d. PCP is similar to CNS depressants in that it depresses brain wave activity.</p> <ul style="list-style-type: none"> <li data-bbox="602 1667 899 1698">o slows down thought <li data-bbox="602 1703 899 1734">o slows reaction time <li data-bbox="602 1738 935 1770">o slows verbal responses 	<p data-bbox="997 365 1391 527"><u>Point out</u> that, with all of these false and distorted perceptions, the person under the influence of hallucinogens would be a very unsafe driver.</p> <p data-bbox="997 632 1391 730"><u>Point out</u> that this category used to be Phencyclidine (PCP) but was changed in 2005.</p> <p data-bbox="997 835 1391 997"><u>Point out</u> that the definition of Dissociative Anesthetic is contained in the Glossy of Terms in the DRE Pre-School Student Manual.</p> <p data-bbox="997 1136 1391 1329"><u>Point out</u> that people under the influence of PCP may exhibit a combination of the signs associated with hallucinogens, CNS stimulants and depressants.</p>

Aides	Lesson Plan	Instructor Notes
	<p>e. But PCP is similar to CNS stimulants in that it <u>activates</u> the parts of the brain that control emotions, the heart and the other autonomic systems.</p> <ul style="list-style-type: none">o heart rate increaseso blood pressure increaseso adrenalin production increaseso body temperature riseso muscles become rigid <p>f. And PCP is similar to hallucinogens in that it distorts or "scrambles" signals received by the brain.</p> <ul style="list-style-type: none">o sight, hearing, taste, smell and touch may all be distortedo user's perception of time and space may be distortedo user may become paranoid, feel isolated and depressedo user may develop a strong fear of and pre-occupation with deatho user may become unpredictably violent <p>g. PCP analogs include Ketamine, Ketalar, Ketajet, and Ketaset.</p>	

Aides	Lesson Plan	Instructor Notes
 <p data-bbox="256 468 399 527">I-9 (Narcotics)</p>	<p data-bbox="509 365 805 396">8. Narcotic Analgesics</p> <ul style="list-style-type: none"> <li data-bbox="558 428 959 491">a. There are two subcategories of Narcotic Analgesics. <ul style="list-style-type: none"> <li data-bbox="607 564 980 627">o Opiates are derivatives of opium <li data-bbox="607 663 967 858">o Synthetics are produced chemically in the laboratory. They are not in any way derived from Opium but produce similar effects <li data-bbox="558 894 964 1026">b. The word "Analgesic" means pain-killer. All of the drugs in this category reduce the person's reaction to pain. <li data-bbox="558 1062 976 1260">c. Heroin is the most commonly abused of the Narcotic Analgesics. It is estimated that approximately 2.5 million people have used heroin (lifetime). <li data-bbox="558 1295 992 1524">d. Heroin is highly addictive, and very expensive. <ul style="list-style-type: none"> <li data-bbox="607 1398 992 1524">o Many addicts support their habit by stealing property and converting it to cash. <li data-bbox="558 1560 992 1728">e. In addition to reducing pain, Narcotic Analgesics produce euphoria, drowsiness, apathy, lessened physical activity and sometimes impaired vision. <li data-bbox="558 1764 967 1860">f. Persons under the influence of Narcotic Analgesics often pass into a semi-conscious 	<p data-bbox="1008 695 1377 789"><u>Point out</u> that heroin, morphine and codeine are natural derivatives of opium.</p> <p data-bbox="1008 1125 1377 1188">Source: National Institute of Drug Abuse (NIDA), 2003</p> <p data-bbox="1008 1759 1406 1822"><u>Point out</u> that this condition is often called being "on the nod".</p>

Aides	Lesson Plan	Instructor Notes
 <p data-bbox="233 884 383 947">I-10 (Inhalants)</p> <p data-bbox="233 1864 418 1890">HS 172A R1/06</p>	<p data-bbox="581 344 915 375">type of sleep or near-sleep.</p> <ul style="list-style-type: none"> <li data-bbox="581 411 948 474">o persons "on the nod" may be awakened easily. <li data-bbox="581 510 954 611">o they often are sufficiently alert to respond to questions effectively. <p data-bbox="537 646 954 743">g. Higher doses of Narcotic Analgesics can induce coma, respiratory failure and death.</p> <p data-bbox="492 779 662 810">9. Inhalants</p> <ul style="list-style-type: none"> <li data-bbox="537 846 964 947">a. Inhalants are fumes of certain substances that produce mind-altering results. <li data-bbox="537 982 964 1514">b. There are three sub-categories of inhalants: <ul style="list-style-type: none"> <li data-bbox="586 1079 932 1209">o Volatile Solvents (e.g., gasoline, glue, oil-based paint, cleaning fluids, paint remover, etc.) <li data-bbox="586 1245 951 1375">o Aerosols (i.e., the propellant gases in spray cans, e.g., hair sprays, insecticides, etc.) <li data-bbox="586 1411 959 1514">o Anesthetic Gases (e.g., nitrous oxide, ether, amyl nitrite, butyl nitrite, etc.) <li data-bbox="537 1549 938 1839">c. Different inhalants produce different effects. <ul style="list-style-type: none"> <li data-bbox="586 1646 932 1747">o many produce effects similar to those of CNS depressants. <li data-bbox="586 1782 943 1839">o a few produce stimulant like effects. <p data-bbox="792 1864 847 1890">I-15</p>	

Aides	Lesson Plan	Instructor Notes
 <p data-bbox="261 940 399 999">I-11 (Cannabis)</p>  <p data-bbox="272 1892 448 1915">HS 172A R1/06</p>	<ul style="list-style-type: none"> <li data-bbox="602 365 899 424">o some produce hallucinogenic effects. <li data-bbox="558 468 943 663">d. The inhalant abuser's attitude and demeanor can vary from inattentive, stuporous and passive to irritable, violent and dangerous. <li data-bbox="558 699 980 758">e. The abuser's speech will often be slow, thick and slurred. <p data-bbox="516 800 678 827">10. Cannabis</p> <ul style="list-style-type: none"> <li data-bbox="565 1031 980 1163">a. The category "Cannabis" includes the various forms and products of the <u>Cannabis Sativa</u> plant. <li data-bbox="565 1199 980 1360">b. The active ingredient in Cannabis products is the substance known as "Delta-9 Tetrahydrocannabinol", or "THC". <li data-bbox="565 1398 997 1493">c. Apart from alcohol, marijuana is one of the most commonly abused drugs in this country. <li data-bbox="565 1530 997 1793">d. Marijuana continues to be the most used illegal drug in the U.S.; nearly 69 million Americans over the age of 12 have used marijuana at least once. It is also estimated that there were 14.6 million users of marijuana in 2002. <p data-bbox="821 1885 878 1913">I-11c</p>	<p data-bbox="1008 1024 1406 1083">Write "Cannabis Sativa" on the dry erase board or flip-chart.</p> <p data-bbox="1008 1192 1360 1251">Write "Δ-9 THC" on the dry erase board or flip-chart.</p> <p data-bbox="1008 1524 1386 1583">Source: NIDA and Marijuana Addiction Facts.</p> <p data-bbox="1008 1661 1360 1755">Source: The Drug Abuse Warning Network (DAWN) Report, August 2003.</p>

Aides	Lesson Plan	Instructor Notes
 <p data-bbox="240 919 412 1016">I-12 (Frequency of Drug Use)</p>	<p data-bbox="534 348 959 512">e. Cannabis appears to interfere with the attention process. Drivers under the influence of marijuana often do not pay attention to their driving.</p> <p data-bbox="534 552 935 747">f. Cannabis also produces a distortion of the user's perception of time, an increased heart rate (often over 100 beats per minute) and a reddening of the eyes.</p> <p data-bbox="534 785 927 947">g. Marijuana is the most frequently reported drug in emergency department visits related to drug abuse in youth age 12 to 19.</p>	<p data-bbox="980 344 1370 512"><u>Point out</u> that divided attention Standardized Field Sobriety Tests usually disclose the best evidence of cannabis impairment.</p> <p data-bbox="980 781 1317 877">Source: The Drug Abuse Warning Network (DAWN) Report, August 2003.</p>
	<p data-bbox="461 984 797 1014">11. Frequency of Drug Use</p> <ul data-bbox="540 1052 967 1814" style="list-style-type: none"> <li data-bbox="540 1052 967 1148">o In 2003, 51 percent of persons age 12 or older (1.19 million) were current alcohol drinkers. <li data-bbox="540 1186 967 1478">o The exact number of prescription drug users in the U.S. is unknown. However, in 2003, the National Association of Chain Drug Stores (NACDS) reported that 3.14 billion scripts for prescription drugs were written in the U.S. <li data-bbox="540 1516 967 1682">o It is estimated that in 2003 there were 6.3 million Americans age 12 and older using prescription drugs non-medically. <li data-bbox="540 1719 967 1814">o 51% of students have tried an illicit drug by the time they finish high school 	<p data-bbox="980 1052 1386 1148">Source: National Survey on Drug Use and Health (NSDUH), 2003</p> <p data-bbox="980 1186 1386 1283">Source: National Survey on Drug Use and Health (NSDUH), 2003</p> <p data-bbox="980 1516 1386 1612">Source: National Survey on Drug Use and Health (NSDUH), 2003</p> <p data-bbox="980 1719 1386 1814">Source: National Association of Chain Drug Stores (NACDS), 2003</p>

Aides	Lesson Plan	Instructor Notes
	<ul style="list-style-type: none"> o 16.6% of drivers age 21 and older (30.7 million persons) admitted driving under the influence of alcohol or illicit drugs during the past year. o Approximately 2.4 million Americans began abusing prescription drugs within the past year. The average age of new users was 23.3 years. 	<p>Source: "Driving Under the Influence Among Adult Drivers", SAMHSA, 2005.</p>
	<p>12. Polydrug Use</p>	
	<ul style="list-style-type: none"> a. Though drug evaluation subjects may be under the influence of any one of the mentioned categories of drugs, it is not uncommon to find individuals who have taken several combinations of drugs. 	
	<p>Data being collected through the national DRE Database indicates that approximately 25% of all toxicology results indicate two or more drug categories.</p>	<p><u>Point out</u> that the Pacific Institute of Research and Evaluation (PIRE) maintains the national DRE data reporting system for the DEC Program and that DRE's will be encouraged to entry evaluation data into the website.</p>
	<ul style="list-style-type: none"> b. The term "polydrug" use refers to instances where the subject has ingested drugs from two or more drug categories. 	<p><u>Point out</u> that the drugs do not have to be actually ingested at exactly the same time.</p>
	<ul style="list-style-type: none"> c. Most controlled prescription drug abusers are poly-drug abusers. One study reported that approximately 75 percent of persons who abuse alcohol also abuse illicit drugs. 	<p>Source: "Under the Counter: The Diversion and Abuse of Controlled Prescription Drugs in the U.S.", National Center on Addiction and Substance Abuse, July 2005</p>

REVIEW QUESTIONS

Test your knowledge of the subject matter covered in this session 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?

For the purpose 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. What are the seven major categories of drugs?

CNS Depressants, CNS Stimulants, Hallucinogens, Dissociative Anesthetics, Narcotic Analgesics, Inhalants and Cannabis.

3. What kind (category) of drug is alcohol? What about Cocaine? What about Heroin?

Alcohol is a CNS Depressant. Cocaine is a CNS Stimulant. Heroin is a Narcotic Analgesic.

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?

There might be some rare communities in this country that are free from the "drug problem", but they would be rare indeed. A conservative estimate suggests that about 40-50 million Americans regularly use drugs other than alcohol. However, the exact number is not known.

5. What category of drug is PCP classified? What about Marijuana? What about Valium?

PCP belongs to the Dissociative Anesthetics category. Marijuana is Cannabis and Valium is a CNS Depressant.

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

Methamphetamine is a CNS Depressant. LSD and Peyote are Hallucinogens.

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

"Polydrug use" is the practice of ingesting drugs from two or more drug categories, i.e., combining drugs.

IACP

Drug Evaluation and Classification Certification Progress Log

Please Print	
Candidate's Name _____	_____
Agency _____	Phone () _____
Address _____	
City _____	State _____ Zip _____

Item or Step	Date Completed	Location	Authorized Signature	IACP DRE#	Agency
DRE Pre-School					
SFST Proficiency					
DRE School					
DRE School Final Exam					
Evaluation #1					
Evaluation #2					
Evaluation #3					
Evaluation #4					
Evaluation #5					
Evaluation #6					
Evaluation #7					
Evaluation #8					
Evaluation #9					
Evaluation #10					
Evaluation #11					
Evaluation #12*					
Certification Knowledge Exam					
C.V. Reviewed and Approved					
Completed the Minimum Number of Evaluations**					
Identify the Minimum Number of Drug Categories**					
"Rolling" Log Reviewed					
Toxicologies Consistent**					
Recommendations for Certification (Standard 1.15)			Authorized Signature	IACP DRE#	Date
I/We certify that this student satisfactorily met the IACP National Standards for the Drug Evaluation and Classification Program and is recommended for certification. (Standards 1.15)					
I recommend this student for certification. (Agency Coordinator – if applicable)					
I recommend this student for certification. (State Coordinator)					

*Please use reverse side to record additional evaluations if necessary.

**Please see reverse side for the exact language of these standards.

ATTACHMENT**DRUG EVALUATION AND CLASSIFICATION PROGRAM****GLOSSARY OF TERMS****ACCOMODATION REFLEX**

The adjustment of the eyes at various distances. Meaning the pupils will automatically constrict as objects move closer.

ADDICTION

The habitual, psychological, and physiological dependence on a substance beyond one's voluntary control.

ADDITIVE EFFECT

One mechanism of polydrug interaction. For a particular indicator of impairment, two drugs produce an additive effect if they both affect the indicator in the same way. For example, cocaine elevates pulse rate and PCP also elevates pulse rate. The combination of cocaine and PCP produces an additive effect on pulse rate.

AFFERENT NERVES

See "Sensory Nerves."

ALKALOID

A chemical that is found in, and can be physically extracted from, some substance. For example, morphine is a natural alkaloid of opium. It does not require a chemical reaction to produce morphine from opium.

ANALGESIC

A drug that relieves or allays pain.

ANALOG (of a drug)

An analog of a drug is a chemical that is very similar to the drug, both in terms of molecular structure and in terms of psychoactive effects. For example, the drug Ketamine is an analog of PCP.

ANESTHETIC

A drug that produces a general or local insensibility to pain and other sensation.

ANTAGONISTIC EFFECT

One mechanism of polydrug interaction. For a particular indicator of impairment, two drugs produce an antagonistic effect if they affect the indicator in opposite ways. For example, heroin constricts pupils while cocaine dilates pupils. The combination of heroin and cocaine produces an antagonistic effect on pupil size. Depending on how much of each drug was taken, and when they were taken, the suspect's pupils could be constricted, dilated or within the normal range of size.

ARRHYTHMIA

An abnormal heart rhythm.

ARTERY

The strong, elastic blood vessel that carries blood away from the heart.

ATAXIA

A blocked ability to coordinate movements. A staggering walk and poor balance may be caused by damage to the brain or spinal cord. This can be the result of trauma, birth defect, infection, tumor or drug use.

AUTONOMIC NERVE

A motor nerve that carries messages to the muscles and organs that we do not consciously control. There are two kinds of autonomic nerves, the sympathetic nerves and parasympathetic nerves.

AXON

The part of a neuron (nerve cell) that sends out a neurotransmitter.

BAC

(Blood Alcohol Concentration) - The percentage of alcohol in a person's blood.

BrAC

(Breath Alcohol Concentration) - The percentage of alcohol in a person's blood as measured by a breath testing device.

BLOOD PRESSURE

The force exerted by blood on the walls of the arteries. Blood pressure changes continuously, as the heart cycles between contraction and expansion.

BRADYCARDIA

Abnormally slow heart rate; pulse rate below the normal range.

BRADYPNEA

Abnormally slow rate of breathing.

BRUXISM

Grinding the teeth. This behavior is often seen in persons who are under the influence of cocaine or other CNS stimulants.

CANNABIS

1. One of the seven drug categories. Cannabis includes marijuana, hashish, hash oil and marinol.
2. Several species of plants from which marijuana and related products are made (e.g. Cannabis Sativa and Cannabis Indicia).

CARBOXY THC

A metabolite of THC (tetrahydrocannabinol).

CHEYNE-STOKES RESPIRATION

Abnormal pattern of breathing. Marked by breathlessness and deep, fast breathing.

CNS (Central Nervous System)

A system within the body consisting of the brain, the brain stem and the spinal cord.

CNS DEPRESSANTS

One of the seven drug categories. CNS depressants include alcohol, barbiturates, anti-anxiety tranquilizers and numerous other drugs.

CNS STIMULANTS

One of the seven drug categories. CNS stimulants include cocaine, the amphetamines, ritalin, preludin and numerous other drugs.

CONJUNCTIVITIS

An inflammation of the mucous membrane that lines the inner surface of the eyelids caused by infection, allergy or outside factors and may be bacterial or viral. Persons suffering from conjunctivitis may show symptoms in one eye only. This condition is commonly referred to as "pink eye", a condition that could be mistaken for the bloodshot eyes produced by alcohol or Cannabis.

CONVERGENCE

The "crossing" of the eyes that occurs when a person is able to focus on a stimulus as it is pushed slowly toward the bridge of his or her nose. (See also "Lack of Convergence".)

CRACK/ROCK

Cocaine base, appears as a hard solid form resembling pebbles or small rocks. It produces a very intense, but relatively short duration "high".

CURRICULUM VITAE

A written summary of a person's education, training, experience, noteworthy achievements and other information about a particular topic.

CYCLIC BEHAVIOR

A manifestation of impairment due to certain drugs, in which the subject alternates between periods (or cycles) of intense agitation and relative calm. Cyclic behavior, for example, sometimes will be observed in persons under the influence of PCP.

DELIRIUM

A brief state characterized by incoherent excitement, confused speech, restlessness and possible hallucinations.

DENDRITE

The part of a neuron (nerve cell) that receives a neurotransmitter.

DIACETYL MORPHINE

The chemical name for Heroin.

DIASTOLIC

The lowest value of blood pressure. The blood pressure reaches its diastolic value when the heart is fully expanded or relaxed (Diastole).

DIPLOPIA

Double vision.

DISSOCIATIVE ANESTHETIC

One of the seven drug categories. Includes drugs that inhibit pain by cutting off or "disassociating" the brain's perception of pain. PCP and its analogs are considered dissociative anesthetics.

DIVIDED ATTENTION

Concentrating on more than one task at a time. The four psychophysical tests used by DREs require the subject to divide attention.

DOWNSIDE EFFECT

An effect that may occur when the body reacts to the presence of a drug by producing hormones or neurotransmitters to counteract the effects of the drug consumed.

DRUG

Any substance, which when taken into the human body, can impair the ability of

the person to operate a vehicle safely.

DYSPNEA

Shortness of breath.

DYSMETRIA

An abnormal condition that prevents the affected person from properly estimating distances linked to muscular movements.

DYSPHORIA

A mood disorder. Feelings of depression and anguish.

EFFERENT NERVES

See "Motor Nerves".

ENDOCRINE SYSTEM

The network of glands that do not have ducts and other structures. They secrete hormones into the blood stream to affect a number of functions in the body.

EXPERT WITNESS

A person skilled in some art, trade, science or profession, having knowledge of matters not within the knowledge of persons of average education, learning and experience, he/she may assist a jury in arriving at a verdict by expressing an opinion on a state of facts shown by the evidence and based upon his or her special knowledge. (NOTE: Only the court can determine whether a witness is qualified to testify as an expert.)

FLASHBACK

A vivid recollection of a portion of an hallucinogenic experience. Essentially, it is a very intense daydream. There are three types: (1) emotional -- feelings of panic, fear, etc.; (2) somatic -- altered body sensations, tremors, dizziness, etc.; and (3) perceptual -- distortions of vision, hearing, smell, etc.

GARRULITY

Chatter, rambling or pointless speech. Talkative.

HALLUCINATION

A sensory experience of something that does not exist outside the mind, e.g., seeing, hearing, smelling or feeling something that isn't really there. Also, having a distorted sensory perception, so that things appear differently than they are.

HALLUCINOGENS

One of the seven drug categories. Hallucinogens include LSD, MDMA, peyote, psilocybin and numerous other drugs.

HASHISH

A form of Cannabis made from the dried and pressed resin of a marijuana plant.

HASH OIL

Sometimes referred to as "marijuana oil" it is a highly concentrated syrup-like oil extracted from marijuana. It is normally produced by soaking marijuana in a container of solvent, such as acetone or alcohol, for several hours and after the solvent has evaporated, a thick syrup-like oil is produced with a THC content usually 10% to 12%.

HEROIN

A powerful and widely-abused narcotic analgesic that is chemically derived from morphine. The chemical, or generic name of heroin is "diacetyl morphine".

HIPPUS

A rhythmic pulsating of the pupils of the eyes, as they dilate and constrict within fixed limits.

HOMEOSTASIS

The dynamic balance, or steady state, involving levels of salts, water, sugars, and other materials in the body's fluids.

HORIZONTAL GAZE NYSTAGMUS (HGN)

Involuntary jerking of the eyes occurring as the eyes gaze to the side.

HORMONES

Chemicals produced by the body's endocrine system that are carried through the blood stream to the target organ. They exert great influence on the growth and development of the individual, and that aid in the regulation of numerous body processes.

HYDROXY THC

A metabolite of THC (tetrahydrocannabinol).

HYPERFLEXIA

Exaggerated or over extended motions.

HYPERGLYCEMIA

Excess sugar in the blood.

HYPERPNEA

A deep, rapid or labored breathing.

HYPERPYREXIA

Extremely high body temperature.

HYPERREFLEXIA

A neurological condition marked by increased reflex reactions.

HYPERTENSION

Abnormally high blood pressure. Do not confuse this with hypotension.

HYPOGLYCEMIA

An abnormal decrease of blood sugar levels.

HYPOTENSION

Abnormally low blood pressure. Do not confuse this with hypertension.

HYPOTHERMIA

Decreased body temperature.

ICE

A crystalline form of methamphetamine that produces a very intense and fairly long-lasting "high".

INHALANTS

One of the seven drug categories. The inhalants include volatile solvents (such as glue and gasoline), aerosols (such as hair spray and insecticides) and anesthetic gases (such as nitrous oxide).

INSUFFLATION

See "snorting".

INTEGUMENTARY SYSTEM

The skin and accessory structures, hair and nails. Functions include protection, maintenance of body temperature, excretion of waste and sensory perceptions.

INTRAOCULAR

"Within the eyeball".

KOROTKOFF SOUNDS

A series of distinct sounds produced by blood passing through an artery, as the external pressure on the artery drops from the systolic value to the diastolic value.

LACK OF CONVERGENCE

The inability of a person's eyes to converge, or "cross" as the person attempts to focus on a stimulus as it is pushed slowly toward the bridge of his or her nose.

MARIJUANA

Common term for the Cannabis Sativa plant. Usually refers to the dried leaves of the plant. This is the most common form of the cannabis category.

MARINOL

A drug containing a synthetic form of THC (tetrahydrocannabinol). Marinol belongs to the cannabis category of drugs, but it is not produced from any species of cannabis plant.

METABOLISM

The sum of all chemical processes that take place in the body as they relate to the movements of nutrients in the blood after digestion, resulting in growth, energy, release of wastes and other body functions. The process by which the body, using oxygen, enzymes and other internal chemicals, breaks down ingested substances such as food and drugs so they may be consumed and eliminated. Metabolism takes place in two phases. The first step is the constructive phase (anabolism) where smaller molecules are converted to larger molecules. The second step is the destructive phase (catabolism) where large molecules are broken down into smaller molecules.

METABOLITE

A chemical product formed by the reaction of a drug with oxygen and/or other substances in the body.

MIOSIS

Abnormally constricted pupils.

MOTOR NERVES

Nerves that carry messages away from the brain, to the body's muscles, tissues, and organs. Motor nerves are also known as efferent nerves.

MYDRIASIS

Abnormally dilated pupils.

NARCOTIC ANALGESICS

One of the seven drug categories. Narcotic analgesics include opium, the natural alkaloids of opium (such as morphine, codeine, and thebaine), the derivatives of opium (such as heroin, dilaudid, oxycodone, percodan and hycodan), and the synthetic narcotics (such as demerol and numorphan).

NERVE

A cord-like fiber that carries messages either to or from the brain. For drug evaluation and classification purposes, a nerve can be pictured as a series of "wire-like" segments, with small spaces or gaps between the segments.

NEURON

A nerve cell. The basic functional unit of a nerve. It contains a nucleus within a cell body with one or more axons and dendrites.

NEUROTRANSMITTER

Chemicals that pass from the axon of one nerve cell to the dendrite of the next cell,

and that carry messages across the gap between the two nerve cells.

NULL EFFECT

One mechanism of polydrug interaction. For a particular indicator of impairment, two drugs produce a null effect if neither of them affects that indicator. For example, PCP does not affect pupil size and alcohol does not affect pupil size. The combination of PCP and alcohol produces a null effect on pupil size.

NYSTAGMUS

An involuntary jerking of the eyes.

"ON THE NOD"

A semiconscious state of deep relaxation. Typically induced by impairment due to heroin or other narcotic analgesic. The subject's eyelids droop and chin rests on the chest. Subject may appear to be asleep, but can be easily aroused and will respond to questions.

OVERLAPPING EFFECT

One mechanism of polydrug interaction. For a particular indicator of impairment, two drugs produce an overlapping effect if one of them affects the indicator but the other doesn't. For example, cocaine dilates pupils while alcohol doesn't affect pupil size. The combination of cocaine and alcohol produces an overlapping effect on pupil size: the combination will cause the pupils to dilate.

PALLOR

An abnormal paleness or lack of color in the skin.

PARANOIA

Mental disorder characterized by delusions and the projection of personal conflicts, that are ascribed to the supposed hostility of others.

PARAPHERNALIA

Drug paraphernalia are the various kinds of tools and other equipment used to store, transport or ingest a drug. Hypodermic needles, small pipes, bent spoons, etc. are examples of drug paraphernalia. The singular form of the word is "paraphernalium". For example, one hypodermic needle would be called a "drug paraphernalium".

PARASYMPATHETIC NERVE

An autonomic nerve that commands the body to relax and to carry out tranquil activities. The brain uses parasympathetic nerves to send "at ease" commands to the muscles, tissues and organs.

PARASYMPATHOMIMETIC DRUGS

Drugs that mimic neurotransmitters associated with the parasympathetic nerves. These drugs artificially cause the transmission of messages that produce lower blood pressure, drowsiness, etc.

PDR (Physician's Desk Reference)

A basic reference source for drug recognition experts. The PDR provides detailed information on the physical appearance and psychoactive effects of licitly-manufactured drugs.

PHENCYCLIDINE

A contraction of PHENYL CYCLOHEXYL PIPERIDINE, or PCP. Formerly used as a surgical anesthetic, however, it has no current legitimate medical use for humans.

PHENYL CYCLOHEXYL PIPERIDINE (PCP)

Often called "phencyclidine" or "PCP", it is a specific drug belonging to the Dissociative Anesthetics category.

PHYSIOLOGY

The study of living organisms and the changes that occur during activity.

PILOERECTION

Literally "hair standing up" or goose bumps. This condition of the skin is often observed in persons who are under the influence of LSD.

POLYDRUG USE

Ingesting drugs from two or more drug categories.

PSYCHEDELIC

A mental state characterized by a profound sense of intensified or altered sensory perception sometimes accompanied by hallucinations.

PSYCHOPHYSICAL TESTS

Methods of investigating the mental (psycho-) and physical characteristics of a person suspected of alcohol or drug impairment. Most psychophysical tests employ the concept of divided attention to assess a subject's impairment.

PSYCHOTOGENETIC

Literally "creating psychosis" or "giving birth to insanity". A drug is considered to be psychotogenic if persons who are under the influence of the drug become insane and remain so after the drug wears off.

PSYCHOTOMIMETIC

Literally "mimicking psychosis" or "impersonating insanity". A drug is considered to be psychotomimetic if persons who are under the influence of the drug look and act insane while they are under the influence.

PTOSIS

Droopy eyelids.

PULSE

The expansion and relaxation of the walls of an artery, caused by the surging flow of blood.

PULSE RATE

The number of expansions of an artery per minute.

REBOUND DILATION

A period of constriction followed by dilation with a change equal to or greater than 2 mm.

RESTING NYSTAGMUS

Jerking of the eyes as they look straight ahead.

SCLERA

A dense white fibrous membrane that, with the cornea, forms the external covering of the eyeball (i.e. the white part of the eye).

SENSORY NERVES

Nerves that carry messages to the brain from the various parts of the body, including notably the sense organs (eyes, ears, etc.). Sensory nerves are also known as afferent nerves.

SINSEMILLA

The unpollinated female cannabis plant, having a relatively high concentration of THC.

SFST

Standardized Field Sobriety Testing. There are three SFSTs, namely Horizontal Gaze Nystagmus (HGN), Walk and Turn and One Leg Stand. Based on a series of controlled laboratory studies, scientifically validated clues of alcohol impairment have been identified for each of these three tests. They are the only Standardized Field Sobriety Tests for which validated clues have been identified.

SNORTING

One method of ingesting certain drugs. Snorting requires that the drug be in powder form. The user rapidly draws the drug up into the nostril, usually via a paper or glass tube. Snorting is also known as insufflation.

SPHYGMOMANOMETER

A medical device used to measure blood pressure. It consists of an arm or leg cuff with an air bag attached to a tube and a bulb for pumping air into the bag, and a gauge for showing the amount of air pressure being pressed against the artery.

STETHOSCOPE

A medical instrument used for drug evaluation and classification purposes in order

to listen to the sounds produced by blood passing through an artery.

SYMPATHETIC NERVE

An autonomic nerve that commands the body to react in response to excitement, stress, fear, etc. The brain uses sympathetic nerves to send "wake up calls" and "fire alarms" to the muscles, tissues and organs.

SYMPATHOMIMETIC DRUGS

Drugs that mimic the neurotransmitter associated with the sympathetic nerves. These drugs artificially cause the transmission of messages that produce elevated blood pressure, dilated pupils, etc.

SYNAPSE (or Synaptic Gap)

The gap or space between two neurons (nerve cells).

SYNESTHESIA

A sensory perception disorder, in which an input via one sense is perceived by the brain as an input via another sense. An example of this would be a person "hearing" a phone ring and "seeing" the sound as a flash of light. Synesthesia sometimes occurs with persons under the influence of hallucinogens.

SYSTOLIC

The highest value of blood pressure. The blood pressure reaches its systolic value when the heart is fully contracted (systole), and blood is sent surging into the arteries.

TACHYCARDIA

Abnormally rapid heart rate; pulse rate above the normal range.

TACHYPNEA

Abnormally rapid rate of breathing.

THC (Tetrahydrocannabinol)

The principal psychoactive ingredient in drugs belonging to the cannabis category.

TOLERANCE

An adjustment of the drug user's body and brain to the repeated presence of the drug. As tolerance develops, the user will experience diminishing psychoactive effects from the same dose of the drug. As a result, the user typically will steadily increase the dose he or she takes, in an effort to achieve the same psychoactive effect.

TRACKS

Scar tissue usually produced by repeated injection of drugs, via hypodermic needle, along a segment of a vein.

VERTICAL GAZE NYSTAGMUS

An involuntary jerking of the eyes (up and down) which occurs as the eyes are held

at maximum elevation.

VOIR DIRE

A french expression literally meaning "to see, to say". Loosely, this would be rendered in English as "to seek the truth", or "to call it as you see it". In a law or court context, one application of voir dire is to question a witness to assess his or her qualifications to be considered as an expert in a matter pending before the court.

VOLUNTARY NERVE

A motor nerve that carries messages to a muscle that we consciously control.

WITHDRAWAL

This occurs in someone who is physically addicted to a drug when he or she is deprived of the drug. If the craving is sufficiently intense, the person may become extremely agitated and even physically ill.



Preliminary Training for Drug Evaluation and Classification Program

Preliminary Training For Drug Evaluation and Classification 1-1

Goal

To prepare the students to participate successfully in the 7-Day Drug Recognition Expert School



Preliminary Training For Drug Evaluation and Classification 1-2

Objectives

- Define the word "drug" as DREs use the term, and name the seven categories of drugs
- Identify the twelve components, or steps, used in the DEC drug influence evaluation to diagnose a drug impaired subject
- Administer and interpret the psychophysical (or "divided attention") tests used by DREs during the drug influence evaluation

Preliminary Training For Drug Evaluation and Classification 1-3A

Objectives

- Check and measure a subject's vital signs
- List the major signs and symptoms of impairment for each drug category
- Conduct the eye examinations that are part of the drug influence evaluation
- Describe the history and physiology of alcohol as a drug

Preliminary Training For Drug Evaluation and Classification 1-3B

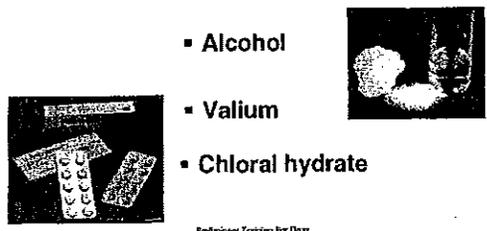
DRE Working Definition of "Drug"

"Any substance, which when taken into the human body, can impair the ability of the person to operate a vehicle safely."

Preliminary Training For Drug Evaluation and Classification 1-4

Central Nervous System Depressants

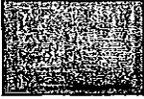
- Barbiturates
- Alcohol
- Valium
- Chloral hydrate



Preliminary Training For Drug Evaluation and Classification 1-5

Central Nervous System Stimulants

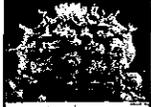
- Cocaine
- Amphetamines
- Methamphetamine



Preliminary Training For Drug Evaluation and Classification 16

Hallucinogens

- LSD
- Peyote
- Ecstasy



Preliminary Training For Drug Evaluation and Classification 17

Dissociative Anesthetics

- Phencyclidine (PCP)
- Ketamine
- Dextromethorphan (DXM)



Preliminary Training For Drug Evaluation and Classification 18

Narcotic Analgesics

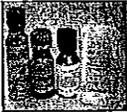
- Heroin
- Morphine
- Codeine



Preliminary Training For Drug Evaluation and Classification 19

Inhalants

- Paint
- Glue
- Nitrous Oxide



Preliminary Training For Drug Evaluation and Classification 1-10

Cannabis

- Marijuana
- Hashish



Preliminary Training For Drug Evaluation and Classification 1-11

Frequency of Drug Use

Estimates vary widely, however we do know that:

- Marijuana is the most used illegal drug with about 14.6 million users
- In 2004, 19.1 million Americans aged 12 years or older were current illicit drug users
- Approximately 6 million people were users of psychotherapeutic drugs taken non-medically (2004)



Source: National Survey on Drug Use and Health (NSDUH, 2004)

Preliminary Training For Drug Evaluation and Classification

E-12

Questions?

Preliminary Training For Drug Evaluation and Classification

Sixty Minutes

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 able to:

- o Identify the twelve major components of the DRE drug influence evaluation.
- o Discuss the purposes of each component.

CONTENT SEGMENTS

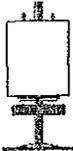
- A. Components of the Process
- B. Video/DVD Demonstrations

LEARNING ACTIVITIES

- o Instructor-Led Presentations
- o Video/DVD Presentations

Aides	Lesson Plan	Instructor Notes
 <p>60 Minutes</p>  <p>II-1 (Title)</p>  <p>II-2 (Objectives)</p>	<p>OVERVIEW OF DRUG EVALUATION AND CLASSIFICATION PROCEDURES</p>	<p>Display Session Title</p> <p>Briefly review the objectives, content and activities of this session.</p>
 <p>35 Minutes</p>	<p>A. Components of the Process</p> <ol style="list-style-type: none"> 1. The Drug Evaluation and Classification process is a standardized and systematic method of examining a subject to determine: <ol style="list-style-type: none"> a. Whether the subject is under the influence of a drug or combination of drugs. b. If the impairment is resulting from an injury, illness, or drug related. c. The category (or categories) of drugs that is (or are) the likely cause of the subject's impairment. 	

Aides	Lesson Plan	Instructor Notes
	<p>2. The process is <u>systematic</u> in that it is based on a careful assessment of a variety of observable signs and symptoms that are known to be reliable indicators of drug impairment.</p>	<p><u>Write</u> on dry erase board or flip-chart: "A SYSTEMATIC PROCESS"</p>
	<p>a. Some of these observable signs and symptoms relate to the subject's <u>appearance</u>.</p>	<p><u>Write</u> "appearance" on dry erase board or flip-chart.</p>
	<p>b. Some of the signs and symptoms relate to the subject's <u>behavior</u>.</p>	<p><u>Write</u> "behavior" on dry erase board or flip-chart.</p>
	<p>c. Some relate to the subject's performance of carefully - administered <u>psychophysical tests</u>.</p>	<p><u>Write</u> "psychophysical testing" on dry erase board or flip-chart.</p>
	<p>o Drugs impair the subject's ability to control his or her mind and body.</p>	<p><u>Ask</u> students: "What does 'psychophysical' mean?"</p>
	<p>o Psychophysical tests can disclose that the subject's ability to control mind and body is impaired.</p>	<p><u>Point out</u> that "psychophysical" relates to the subject's <u>mind</u> (psyche) and <u>body</u> (physique).</p>
	<p>o The specific manner in which the subject performs the psychophysical tests may indicate the <u>type</u> of impairment from which the subject is suffering. In turn, this may indicate the category or categories of drugs causing the impairment.</p>	

Aides	Lesson Plan	Instructor Notes
  II-3 (Standard- ized and Systematic)	<p>d. Some of the observable signs and symptoms relate to <u>automatic responses</u> of the subject's body to the specific drugs that are present.</p> <p>e. <u>All</u> of these reliable indicators are examined and carefully considered before a judgment is made concerning what categories of drugs are affecting the subject.</p> <p>3. The process is <u>standardized</u> in that it is administered the same way, to every subject, by every drug recognition expert.</p> <p>a. Standardization helps to ensure that no mistakes are made.</p> <ul style="list-style-type: none"> o No examinations are left out. o No extraneous or unreliable "indicators" are included. <p>b. Standardization helps to promote professionalism among drug recognition experts.</p> <p>c. Standardization helps to secure acceptance in court.</p>	<p><u>Write</u> "automatic responses of the body" on the dry erase board or flip-chart.</p> <p><u>Ask</u> students: "Why is it so important to perform the drug evaluation and classification examination in exactly the same way, every time?"</p> <p>Probe to draw out all major reasons for standardization.</p>

Aides	Lesson Plan	Instructor Notes
 <p data-bbox="272 548 440 642">II-4 (DRE Report Face Sheet)</p>	<p data-bbox="521 478 922 573">4. The Drug Evaluation and Classification process has <u>twelve</u> components or steps.</p>	<p data-bbox="1019 1205 1390 1367"><u>Remind</u> students that many subjects who are under the influence of drugs other than alcohol <u>also</u> have alcohol in their bodies.</p>
 <p data-bbox="272 877 440 940">II-5 (Breath Alcohol Test)</p>	<p data-bbox="570 678 976 772">a. <u>Breath Alcohol Test</u> to determine Blood Alcohol Concentration (BAC).</p> <ul style="list-style-type: none"> <li data-bbox="618 814 959 1035">o The purpose of the breath test is to determine whether the specific drug, alcohol, may be contributing to the impairment observable in the subject. <li data-bbox="618 1077 976 1472">o Obtaining an accurate measurement of BAC enables the DRE to assess whether alcohol may be the sole cause of the observable impairment, or whether it is likely that some other drug or drugs, or other complicating factors are contributing to the impairment. 	
 <p data-bbox="272 1650 440 1734">II-6 (Interview of ... Officer)</p>	<p data-bbox="578 1507 976 1581">b. <u>Interview of the Arresting Officer.</u></p> <ul style="list-style-type: none"> <li data-bbox="626 1612 919 1770">o In most cases, the subjects you will examine will <u>not</u> be people that <u>you</u> arrested. <li data-bbox="626 1812 976 1934">o The arresting officer may have seen or heard things that would be valuable indicators of 	

Aides	Lesson Plan	Instructor Notes
 <p data-bbox="250 1083 407 1142">II-7 (Prelim. Exam)</p>	<p data-bbox="643 380 914 443">the kinds of drugs the subject has ingested.</p> <ul style="list-style-type: none"> <li data-bbox="597 485 938 674">o The arresting officer, in searching the subject, may have uncovered drug-related paraphernalia, or even drugs themselves. <li data-bbox="597 716 948 940">o The arresting officer also may be able to alert you to important information about the subject's behavior that could be very valuable for your own safety. <p data-bbox="548 982 927 1010">c. <u>Preliminary Examination.</u></p> <ul style="list-style-type: none"> <li data-bbox="597 1052 954 1209">o The preliminary examination is your first opportunity to observe the subject closely and directly. <li data-bbox="597 1251 943 1535">o A major purpose of the preliminary examination is to determine if the subject may be suffering from an injury or some other medical condition not necessarily related to drugs. <li data-bbox="597 1577 954 1906">o Another major purpose of the preliminary examination is to begin systematically assessing the subject's appearance, behavior and automatic bodily responses for signs of drug-induced impairment. 	<p data-bbox="995 1077 1383 1209"><u>Point out</u> that the preliminary examination begins the "hands on" with the subject. Use of protective gloves is imperative.</p> <p data-bbox="995 1245 1383 1503"><u>Analogy:</u> The preliminary examination is a "fork in the road." It can help you decide whether to continue with the drug examination, or to pursue a possible medical complication, or to proceed with a DWI (alcohol) case.</p> <p data-bbox="995 1577 1377 1766"><u>Emphasize</u> that the term "preliminary" does <u>not</u> imply "unimportant". Very valuable evidence often comes to light during the preliminary examination.</p>

Aides	Lesson Plan	Instructor Notes
 <p>II-8 (Eye Examinations)</p>	<ul style="list-style-type: none"> o The preliminary examination consists of a series of questions dealing with possible injuries or medical problems; observations of the subject's face, speech and breath; initial checks of the subject's eyes; and, an initial examination of the subject's pulse. o The initial examination of the eyes may reveal signs of injury or illness. A difference in pupil size of greater than 0.5 mm may indicate an injury or existing medical condition. <p>d. <u>Examinations of the Eyes.</u></p> <ul style="list-style-type: none"> o Certain drugs produce very easily observable effects on the eyes. <ul style="list-style-type: none"> - One of the most dramatic of these effects is <u>nystagmus</u>, which means an involuntary jerking of the eyes. - Persons under the influence of alcohol usually will exhibit <u>Horizontal Gaze Nys-tagmus</u>, which is an involuntary jerking of the eyes as the eyes turn toward the side. - Alcohol is not the 	<p><u>Emphasize</u> that courts generally accept these questions as not being in conflict with the subject's Miranda rights. However, the students must comply with their own departments' policies as to whether they should advise subjects of their Miranda rights before asking these questions.</p> <p><u>Ask</u> students: "What do we look for, in a subject's eyes, to determine if he or she may be under the influence of <u>alcohol</u>?"</p> <p>Probe, as necessary, to draw out the response "nystagmus".</p>

Aides	Lesson Plan	Instructor Notes
	<p>only drug that causes nystagmus.</p>	<p><u>Point out</u> that the examinations of the eyes will be covered in much greater depth subsequently.</p>
<p>II-9 (Divided Attention Tests)</p>	<p>e. <u>Divided Attention Psycho-physical tests.</u></p> <ul style="list-style-type: none"> o All drugs that impair driving ability will also impair the subject's ability to perform certain carefully-designed divided attention tests. o These tests are familiar to you in the context of examining <u>alcohol</u>-impaired subjects. o The same tests are very valuable for disclosing evidence of impairment due to drugs other than alcohol. 	<p><u>Ask</u> students: "What does 'divided attention' mean?"</p> <p><u>Probe</u>, as necessary, to draw out responses indicating the concept of "concentrating on more than one thing or task at a time".</p>
	<p>f. <u>Examinations of Vital Signs.</u></p> <ul style="list-style-type: none"> o Many categories of drugs affect the operation of the heart, lungs and other major organs of the body. o These effects show up during examination of 	<p><u>Point out</u> that students will have opportunities to practice administering these tests subsequently in the course.</p>

Aides	Lesson Plan	Instructor Notes
 <p data-bbox="248 1728 370 1822">II-12 (Muscle Tone)</p>	<ul style="list-style-type: none"> <li data-bbox="597 394 954 531">o We use a device called a <u>pupillometer</u> to estimate the size of the subject's pupils. <li data-bbox="597 1224 963 1486">o Other examinations are also conducted in the darkroom, using the penlight: i.e., examination of the nasal area and mouth for signs of drug use and for concealed contraband. <li data-bbox="557 1686 906 1759">h. Examination for <u>Muscle Tone</u>. <ul style="list-style-type: none"> <li data-bbox="605 1791 954 1917">o Certain categories of drugs can cause the user's muscles to become markedly tense, 	<p data-bbox="979 394 1385 657"><u>Exhibit</u> a pupillometer. <u>Point out</u> that the pupillo-meter has a series of circles or semi-circles of various sizes. By lining the circles or semi-circles up alongside the subject's pupil, the pupil's size can be determined.</p> <p data-bbox="979 688 1385 825"><u>Select</u> a student to step forward and demonstrate the measurement of the student's pupils.</p> <p data-bbox="979 856 1385 993"><u>Shine</u> the penlight directly into the student's eye, and again demonstrate the measurement of the pupils.</p> <p data-bbox="979 1024 1385 1182"><u>Demonstrate</u> that the two eyes "work together"; i.e., shine the penlight into one eye, and demonstrate that the pupil of the other eye also contracts.</p> <p data-bbox="979 1213 1385 1318"><u>Demonstrate</u> the examination of the student's nasal area and oral cavity.</p> <p data-bbox="979 1350 1385 1413"><u>Excuse</u> the student and thank him or her for participating.</p> <p data-bbox="979 1444 1385 1612"><u>Point out</u> that students will have several opportunities to practice conducting dark room examinations subsequently in the course.</p>

Aides	Lesson Plan	Instructor Notes
 <p data-bbox="272 884 451 978">II-13 (Exam for Injection Sites)</p>	<p data-bbox="662 411 781 438">and rigid.</p> <ul style="list-style-type: none"> <li data-bbox="613 478 959 638">o Evidence of muscle tone may come to light when the subject attempts to perform the divided attention test. <li data-bbox="613 678 976 840">o Evidence of muscle tone can also be observed when taking the subject's pulse and blood pressure. <p data-bbox="570 879 943 940">i. <u>Examination for Injection Sites.</u></p> <ul style="list-style-type: none"> <li data-bbox="621 980 938 1104">o Certain drugs are commonly injected by their users, via hypodermic needles. <li data-bbox="621 1144 971 1339">o Heroin is probably most commonly associated with injection, but several other types of drugs also are injected by many users. <li data-bbox="621 1379 967 1604">o Uncovering injection sites on a subject provides powerful evidence that he or she may be under the influence of specific types of drugs. <p data-bbox="581 1644 951 1705">j. <u>Suspect's statements and other observations.</u></p> <ul style="list-style-type: none"> <li data-bbox="634 1745 980 1936">o At this point in the examination, the trained DRE should have reasonable grounds to believe that the subject is under the 	<p data-bbox="1008 667 1390 800"><u>Point out</u> that examination for muscle tone will be covered in greater depth subsequently in the course.</p> <p data-bbox="1008 968 1373 1100">Ask students: "What drug is most often associated with injection via hypodermic needle?"</p>
 <p data-bbox="277 1650 464 1812">II-14 (Statements and Other Observations)</p>		

Aides	Lesson Plan	Instructor Notes
 <p>II-15 (Opinion of Evaluator)</p>	<p>influence of a drug or drugs.</p> <ul style="list-style-type: none"> o The DRE should also have at least an articulable suspicion as to the category or categories of drugs causing the impairment. o The DRE should proceed to interview the subject to confirm his or her suspicion/opinions concerning the drug or drugs involved. o The DRE must carefully record the subject's statements, and any other observations that may constitute relevant evidence of drug-induced impairment. <p>k. <u>Opinion of the Evaluator</u></p> <ul style="list-style-type: none"> o Based on all of the evidence and observations gleaned from the preceding <u>ten</u> steps, the DRE must reach an informed conclusion as to: <ul style="list-style-type: none"> - whether the subject is under the influence of a drug or drugs - if so, the probable category or categories of drugs 	<p>Point out that though the interview of the subject is the formal process of soliciting information about the subjects drug usage, any voluntary statements previously made during the evaluation should be noted and recorded.</p> <p><u>Emphasize</u> that any such interview can proceed only in conformance with formal admonition and strict observance of the subject's Constitutional rights.</p> <p><u>Point out</u> that the appropriate procedures for interviewing subjects vary with the probable category or categories of drugs involved.</p>

Aides	Lesson Plan	Instructor Notes
 <p data-bbox="272 951 451 1115">II-16 (Toxicological Examination)</p>  <p data-bbox="272 1381 435 1545">II-17 (Drug Influence Evaluation Checklist)</p>  <p data-bbox="277 1682 435 1713">25 Minutes</p>	<p data-bbox="703 405 857 468">causing the impairment</p> <ul style="list-style-type: none"> <li data-bbox="613 506 954 667">o The DRE must record a narrative summary of the facts forming the basis for his or her conclusions. <p data-bbox="570 810 951 842">1. <u>Toxicological Examination</u></p> <ul style="list-style-type: none"> <li data-bbox="618 873 979 1104">o The toxicological examination is a chemical test or tests designed to obtain scientific, admissible evidence to substantiate the DRE's conclusions. <li data-bbox="626 1140 984 1335">o Departmental policy and procedures must be carefully and completely followed in requesting, obtaining and handling the chemical sample. <p data-bbox="581 1371 954 1434">m. Review of Drug Influence Checklist</p> <p data-bbox="508 1570 902 1602">B. Video Demonstrations</p> <p data-bbox="508 1640 959 1703">Show the video of excerpts from the Drug Recognition Demonstration.</p> <p data-bbox="508 1734 992 1839">(NOTE: This is the 25-minute video segment that is shown in Session V of the 7-day DRE School.)</p> <p data-bbox="513 1871 971 1934">Solicit students' questions about the video demonstrations.</p>	<p data-bbox="1024 1161 1425 1293">Solicit students' comments and questions concerning this preview of the Drug Evaluation and Classification procedures.</p> <p data-bbox="1024 1360 1425 1493">Instruct students to turn to the Drug Influence Evaluation Checklist in Section II of their Student Manual.</p>

International Association of Chiefs of Police
Drug Evaluation and Classification Program

Drug Influence Report Checklist

- _____ 1. **Breath Alcohol Test**
- _____ 2. **Interview of Arresting Officer**
(Note: Gloves must be worn from this point on.)
- _____ 3. **Preliminary Examination and First Pulse**
- _____ 4. **Eye Examinations**
- _____ 5. **Divided Attention Tests:**
 - _____ Romberg Balance
 - _____ Walk and Turn
 - _____ One Leg Stand
 - _____ Finger to Nose
- _____ 6. **Vital Signs and Second Pulse**
- _____ 7. **Dark Room Examinations and Ingestion Examination**
- _____ 8. **Check for Muscle Tone**
- _____ 9. **Check for Injection Sites and Third Pulse**
- _____ 10. **Interrogation, Statements, and Other Observations**
- _____ 11. **Opinion of Evaluator**
- _____ 12. **Toxicological Examination**

REVIEW QUESTIONS

1. Study the drug influence evaluation checklist that appears on the preceding page , then put it aside, and list the twelve components of the drug influence evaluation in the sequence in which they are performed.

1. Breath Test 2. Interview with arresting officer 3. Preliminary examination 4. Eye examinations 5. Divided Attention tests 6. Vital Sign examinations 7. Dark Room 8. Muscle Tone Examination 9. Injection Sites 10. Suspect interview 11. DRE Opinion 12. Toxicology Examination

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

1. Romberg Test 2. Walk and Turn 3. One Leg Stand 4. Finger to Nose

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

Preliminary Examination

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

Sphygmomanometer and stethoscope

5. What is the name of the device used to estimate the size of the subject's pupils?

Pupillometer

6. Which categories of drugs usually cause nystagmus? Which usually cause Lack of Convergence?

**CNS Depressants, Inhalants, Dissociative Anesthetics
CNS Depressants, Inhalants, Dissociative Anesthetics, Cannabis**

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

**CNS Stimulants, Hallucinogens, Dissociative Anesthetics, Inhalants,
Cannabis, CNS Depressants, Narcotic Analgesics**

Session II - Overview of the Drug Evaluation and Classification Procedures



Preliminary Training For Drug Evaluation and Classification II-1

Objectives

- Identify the twelve major components of the DRE drug influence evaluation
- Discuss the purposes of each component

Preliminary Training For Drug Evaluation and Classification II-2

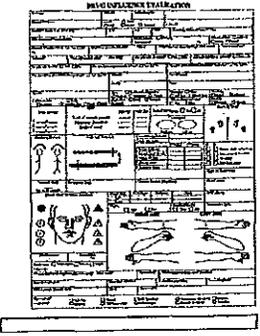
The Drug Influence Evaluation

A Standardized and Systematic Process



Preliminary Training For Drug Evaluation and Classification II-3

DRUG INFLUENCE EVALUATION



Preliminary Training For Drug Evaluation and Classification II-4

Step 1

Breath Alcohol Test



Preliminary Training For Drug Evaluation and Classification II-5

Step 2

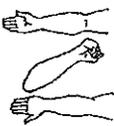
Interview of the Arresting Officer



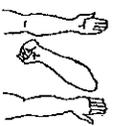
Preliminary Training For Drug Evaluation and Classification II-6

Step 9 Examination for Injection Sites

RIGHT ARM



LEFT ARM



ATTACH PHOTOS OF FRESH PUNCTURE MARKS



Preliminary Training For Drug Evaluation and Classification II-13

Step 10 Suspect's Statements and Other Observations

What medicine or drug have you been using? How much?		Time of use?	Where were the drugs used? (Location)	
Date/Time of Arrest	Time DRE Notified		Eval. Start Time	Time Completed
Officer Signature (Include Rank)		ID No.	Reviewed By	
Opinion of Evaluator: <input type="checkbox"/> Role Out <input type="checkbox"/> Alcohol <input type="checkbox"/> Stimulant <input type="checkbox"/> BWA <input type="checkbox"/> Ecstasy <input type="checkbox"/> Misdemeanor <input type="checkbox"/> Depressant <input type="checkbox"/> Hallucinogen <input type="checkbox"/> Narcotic Analgesic <input type="checkbox"/> Cannabis				



Preliminary Training For Drug Evaluation and Classification II-14

Step 11 Opinion of the Evaluator



Preliminary Training For Drug Evaluation and Classification II-15

Step 12 Toxicological Examination



Preliminary Training For Drug Evaluation and Classification II-16

Drug Influence Report Checklist

1. Breath alcohol test
2. Interview of arresting officer (Note: Gloves must be worn from this point on)
3. Preliminary examination and first pulse
4. Eye Examinations
5. Divided attention tests:
 - Romberg balance
 - Walk and turn
 - One leg stand
 - Finger to nose
6. Vital signs and second pulse
7. Dark room examinations and ingestion examination
8. Check for muscle tone
9. Check for injection sites and third pulse
10. Interrogation, statements and other observations
11. Opinion of evaluator
12. Toxicological examination

Preliminary Training For Drug Evaluation and Classification II-17

Questions?

Preliminary Training For Drug Evaluation and Classification

Ninety Minutes

SESSION III
THE PSYCHOPHYSICAL TESTS

SESSION III THE PSYCHOPHYSICAL TESTS

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

- o Administer the four divided attention tests used in the drug influence evaluation process.
- o Document the subject's performance of those tests.

CONTENT SEGMENTS

- A. Romberg Balance
- B. Walk and Turn
- C. One Leg Stand
- D. Finger to Nose

LEARNING ACTIVITIES

- o Instructor-Led Presentations
- o Student-Led Demonstrations
- o Hands-on Practice

Aides	Lesson Plan	Instructor Notes
  90 Minutes	<p>THE PSYCHOPHYSICAL TESTS</p> <p>Four divided attention psychological tests are administered in the DRE evaluation - Romberg Balance, Walk and Turn, One Leg Stand and Finger to Nose.</p>	Display Session Title
 III-1 (Title)	<p>The Walk and Turn and One Leg Stand as well as HGN have been scientifically validated by conducting controlled research to demonstrate their reliability. The Romberg Balance and Finger to Nose have not been subjected to that sort of scrutiny, however, if properly administered and recorded they are very credible evidence of impairment.</p>	<p><u>Point out</u> that throughout the evaluation process the evaluator must be cognizant of officer safety issues. Officer survival procedures should be observed as appropriate during the administration of the DRE drug influence evaluation.</p>
 III-2 (Objectives)	<p>A. Romberg Balance</p>	<p>Write "Romberg Balance" on dry erase board or flip-chart.</p>
 25 Minutes	<p>1. The Romberg Balance is the first divided attention test that is administered during the drug evaluation.</p>	<p>Demonstrate the stance required of the subject.</p>
  III-3 (Romberg Test)	<p>a. The test requires the subject to stand with the feet together and the head titled back slightly and with the eyes closed.</p> <p>b. The test also requires that the subject attempt to estimate the passage of thirty seconds; the subject must be instructed to open the eyes and tilt the head forward and say "stop" when they think thirty seconds has elapsed.</p>	<p>Emphasize that the DRE must not instruct the subject as to <u>how</u> they are supposed to estimate the passage of 30 seconds.</p>

Aides	Lesson Plan	Instructor Notes
	<p>c. The DRE must record how much time actually elapsed from the start of the test until the subject opened the eyes.</p> <p>d. If the subject continues to keep the eyes closed for 90 seconds, the DRE should stop the test and record the fact that it was terminated at 90 seconds.</p> <p>2. Administrative procedures and instructions. Verbal instructions should be given as follows:</p> <p>a. "Stand with your feet together, arms at your sides".</p> <p>b. "Watch me and listen while I give you the instructions for this test; don't start doing the test until I tell you to start". "Do you understand?"</p> <p>c. "When I tell you to start, I want you to tilt your head back slightly (demonstrate) and close your eyes."</p> <p>d. "Once you have closed your eyes I want you to remain in that position until you think that 30 seconds have gone by".</p>	<p>Point out that some drugs tend to "speed up" the subject's internal clock, so that the subject may open the eyes after only 10 or 15 seconds have gone by. Other drugs may "slow down" the internal clock, so that the subject keeps the eyes closed for 60 or more seconds. And, sometimes the drugs confuse the subject to the point where they won't remember to open the eyes until instructed to do so by the DRE.</p> <p>Two instructors should demonstrate the administrative procedures for Romberg Balance. One instructor will play the role of the DRE, the other the "suspect".</p> <p><u>Ask</u> the subject if he/she understands the instructions thus far. If the subject fails to maintain the starting position during your instructions, discontinue the instructions and direct the subject back to the starting position before continuing.</p> <p>Point out that the DRE should not close their eyes while demonstrating this test for safety reasons. <u>Emphasize this to the students.</u></p>

Aides	Lesson Plan	Instructor Notes
	<p>e. "As soon as you think 30 seconds have passed by, open your eyes and tilt your head forward and say 'stop'. "Do you understand the instructios?"</p> <p>f. When the subject opens their eyes ask them "How much time was that?"</p>	<p><u>Ask</u> the subject if he/she understands the instructions.</p> <p>Emphasize that the DRE must look at a watch as soon as the subject starts the test, and must record the actual amount of time that passes by until the subject opens his or her eyes.</p>
	<p>3. Instructor-led demonstrations.</p> <p>a. Instructor-to-instructor demonstrations.</p> <p>b. Instructor-to-student demonstration.</p>	<p>One instructor should administer a complete Romberg Balance test to another instructor.</p> <p>Solicit students' questions.</p> <p>Select a student to participate in the demonstration.</p> <p>The instructor should administer a complete Romberg Balance test to the student.</p> <p>Thank the student for his or her participation and solicit questions.</p>
	<p>4. Student-led demonstrations.</p>	<p>Select two students to conduct demonstrations.</p> <p>Have the first student administer the test to the second.</p> <p>Offer constructive criticism, as appropriate, about the student-administrator's demonstration.</p>

Aides	Lesson Plan	Instructor Notes
	<p>5. Recording results of the Romberg Balance test.</p> <ul style="list-style-type: none"> a. The major items that need to be recorded for the Romberg Balance test are: <ul style="list-style-type: none"> o the amount that the subject sways o the actual amount of time that the subject keeps the eyes closed. b. To record swaying, the DRE must estimate how many inches the subject sways, either front-to-back or left-to-right, or both. c. To record the subject's time estimate, simply write the number of seconds that the subject kept his or her eyes closed. <p>6. Hands-on practice.</p>	<p>Have the second student administer the test to the first, and offer appropriate constructive criticism.</p> <p>Thank the students for their participation and solicit questions.</p> <p>Instruct students to turn to the "Romberg Test Diagram" in their Student Manuals (the same diagram that appears on Visual III-3).</p> <p>Example: if the subject sways approximately two inches toward the left and approximately two inches toward the right, the DRE should write the number "2" on each side of the "stick figure" that shows left-to-right movement.</p> <p>Solicit students' questions.</p> <p>Assign students to work in pairs.</p> <p>Instruct teammates to practice administering the Romberg Balance test to each other.</p> <p>Monitor the practice and offer coaching and constructive criticism, as appropriate.</p>

Aides	Lesson Plan	Instructor Notes
 <p data-bbox="217 422 375 453">20 Minutes</p> 	<p data-bbox="435 348 727 380">B. Walk and Turn</p> <ol style="list-style-type: none"> <li data-bbox="467 411 889 548">1. Walk and Turn is the second divided attention test administered during the drug influence evaluation. <li data-bbox="467 579 914 716">2. The test is administered the same way that we have used it for Standardized Field Sobriety Testing purposes. <li data-bbox="467 747 862 821">3. Review of Walk and Turn administrative procedures. <ol style="list-style-type: none"> <li data-bbox="524 852 930 947">a. The test has two stages: the instructions stage and the walking stage. <li data-bbox="524 978 914 1178">b. During the instructions stage the subject must stand heel-to-toe, with the right foot ahead of the left foot, and keeping the arms at the sides. <li data-bbox="524 1314 943 1472">c. The subject must be told to take nine heel-to-toe steps up the line, to turn, and to return nine heel-to-toe steps down the line. <li data-bbox="524 1503 927 1640">d. You must demonstrate several heel-to-toe steps, and you must demonstrate the turn. <li data-bbox="524 1713 935 1839">e. The subject must be told to watch his or her feet while walking, and to count the steps out loud. 	<p data-bbox="959 401 1341 474">Write "Walk and Turn" on dry erase board or flip-chart.</p> <p data-bbox="959 495 1349 600">It is suggested a visible line be placed on the floor for use during the demonstration.</p> <p data-bbox="971 968 1365 1272">Demonstrate the stance that the subject must maintain during the instructions stage. If the subject fails to maintain the starting position during your instructions, discontinue the instructions and direct the subject back to the starting position before continuing.</p> <p data-bbox="984 1503 1382 1671">Demonstrate how the steps are to taken and demonstrate the turn. Emphasis that the DRE should not turn his/her back to the subject for safety reasons.</p> <p data-bbox="984 1703 1385 1860">If the subject stops or fails to count out loud or watch his/her feet, remind him/her to perform these tasks. This interruption will not effect the</p>

Aides	Lesson Plan	Instructor Notes
<p data-bbox="248 1591 391 1730">III-4 (Walk and Turn Test Diagram)</p> 	<p data-bbox="540 390 932 485">f. The subject must be told to keep the arms at the sides at all times.</p> <p data-bbox="540 527 948 621">g. The subject must be told not to stop walking until the test is completed.</p> <p data-bbox="500 659 906 722">4. Demonstrations of Walk and Turn.</p> <p data-bbox="540 758 862 821">a. Instructor-to-student demonstration.</p> <p data-bbox="540 1024 837 1087">b. Student-to-student demonstration.</p> <p data-bbox="505 1591 927 1654">5. Recording results of the Walk and Turn test.</p> <p data-bbox="553 1793 935 1921">a. We record the very same clues on this test that we use for Standardized Field Sobriety Testing purposes.</p>	<p data-bbox="987 390 1391 485">validity of the test and is essential for evaluating divided attention.</p> <p data-bbox="987 659 1391 722">Select a student to serve as the "suspect".</p> <p data-bbox="987 758 1391 821">Instructor should administer a complete Walk and Turn test.</p> <p data-bbox="987 856 1354 982">Thank the student for his or her participation and solicit questions about test administrative procedures.</p> <p data-bbox="987 1024 1391 1087">Select two students to conduct a demonstration.</p> <p data-bbox="987 1123 1391 1218">Have one student administer a complete Walk and Turn test to the other.</p> <p data-bbox="987 1255 1391 1350">Offer appropriate comments and constructive criticism about the test administration.</p> <p data-bbox="987 1388 1354 1482">Thank the students for their participation and solicit questions.</p> <p data-bbox="987 1591 1391 1749">Instruct students to turn to the "Walk and Turn Test Diagram" in their Student Manuals (the same diagram that appears on Visual III-4).</p> <p data-bbox="987 1793 1391 1921">Ask students: "What are the two clues that we might observe during the instructions stage of the Walk and</p>

Aides	Lesson Plan	Instructor Notes
	<p>b. Instructions stage clues:</p> <ul style="list-style-type: none"> o Failure to maintain balance (feet break away from the heel-to-toe stance) o Starting to walk too soon. <p>c. Walking stage clues:</p> <ul style="list-style-type: none"> o Stops walking o Misses Heel-To-Toe o Steps off line o Raises arms o Wrong number of steps o Turns improperly <p>d. During the walking stage clues will be marked in the following manner:</p> <ul style="list-style-type: none"> o On the lines indicate the number of times the clue occurred. Draw a slash mark at an angle in the direction the step was taken. <p>e. During the walking stage clues will be marked in the following manner:</p> <ul style="list-style-type: none"> o Indicate by a check the number of times the subject stops, misses heel to toe, steps off line, or raises arms. o Record the actual number of steps taken. 	<p>Turn test?"</p> <p>Ask students: "What are the six clues that we might observe during the walking stage?"</p>

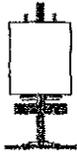
Aides	Lesson Plan	Instructor Notes
 20 Minutes	<ul style="list-style-type: none"> o If the subject stops walking a slash mark should cross between the feet and labeled with an "S". o If the subject steps of the line, indicate with a half of a slash mark at an angle in the direction the step was taken. o If the subject misses heel to toe, indicate with a slash mark between the feet and label with an "M". <p>6. Hands-on practice.</p> <p>C. One Leg Stand</p> <ol style="list-style-type: none"> 1. One Leg Stand is the third divided attention test 	<p>The "S" indicates "stopped"</p> <p>The "M" indicates "missed"</p> <p>Assign students to work in pairs. Instruct teammates to take turns administering the Walk and Turn test to each other.</p> <p>Note: It is not necessary that the teammate playing the role of the "suspect" actually carry out the walking stage of the test.</p> <p>The idea is to take turns practicing the proper way to give instructions for the test.</p> <p>Monitor the practice and offer coaching and constructive criticism, as appropriate.</p> <p>Write "One Leg Stand" on the dry erase board or flip-chart.</p>

Aides	Lesson Plan	Instructor Notes
	<p>administered during the drug influence evaluation.</p> <ol style="list-style-type: none"> 2. For drug evaluation purposes, One Leg Stand is given twice to the subject. <ol style="list-style-type: none"> a. First, the subject is required to perform the One Leg Stand while standing on the <u>left</u> foot. b. Next, they are required to perform the test while standing on the <u>right</u> foot. 3. Otherwise, One Leg Stand is used in the same fashion as in Standardized Field Sobriety Testing. 4. Review of One Leg Stand administrative procedures. <ol style="list-style-type: none"> a. The test has two stages, the instructions stage and the balance and counting stage. b. During the instructions stage the subject must stand with the feet together, arms at the side, facing the examiner. c. The subject must be told that they will have to stand on the <u>left</u> foot, and raise the right foot approximately 6 inches off the ground, with the right leg held straight and the raised foot parallel to the ground. 	<p>Write "given <u>twice</u>" on dry erase board or flip-chart.</p> <p>Note: The One Leg Stand is administered twice to test both the left and right legs to assist the DRE in making comparisons and identify potential medical conditions that may be present..</p> <p>Two instructors should be used for this demonstration, one as the "suspect" and the other as the examiner.</p> <p>Demonstrate the stance that the "suspect" is required to maintain.</p> <p>The examiner must demonstrate the one-leg stance.</p> <p>Emphasize that the subject must maintain the foot elevation throughout the test.</p> <p>If the subject lowers his/her</p>

Aides	Lesson Plan	Instructor Notes
 <p data-bbox="253 1696 391 1829">III-5 (One Leg Stand Test Diagram)</p>	<p data-bbox="548 464 922 590">d. The subject must be told that they must look at the elevated foot during the test.</p> <p data-bbox="548 699 951 926">e. The subject must be told that they will have to count out loud in the following manner: "one thousand-and one, one thousand-and two, one thousand-and-three" and so on until told to stop".</p> <p data-bbox="548 1297 932 1461">f. After the subject has completed the test on the left foot, they must be told to repeat the test on the right foot.</p> <p data-bbox="469 1598 911 1661">5. Recording results of the One Leg Stand.</p>	<p data-bbox="995 363 1268 426">foot, he/she should be instructed to raise it.</p> <p data-bbox="995 464 1393 663">Emphasize that the examiner should not look at his or her own foot while giving the instructions; for safety reasons, the examiner must keep the eyes on the subject at all times.</p> <p data-bbox="995 730 1360 831">After giving the instructions, the examiner should ask the "suspect" if they understand.</p> <p data-bbox="995 863 1377 963">Solicit students' questions about the administrative procedures for One Leg Stand.</p> <p data-bbox="995 999 1386 1262"><u>Point out</u> that the validation of the One Leg Stand was based on a thirty-second time period. Therefore, the DRE must keep track of the actual time the subject stands on each foot. When thirty seconds have passed, stop the test.</p> <p data-bbox="995 1297 1377 1461">Point out that the DRE should explain the instructions again prior to having the "suspect" perform the test on the right foot.</p> <p data-bbox="995 1598 1386 1761">Instruct students to turn to the "One Leg Stand Test Diagram" in their Student Manuals (the same diagram that appears on Visual III-5).</p>

Aides	Lesson Plan	Instructor Notes
	<p>a. For drug evaluation purposes, we use the same clues on the One Leg Stand that we use for Standardized Field Sobriety Testing.</p> <p>b. The One Leg Stand clues:</p> <ul style="list-style-type: none"> o Sways while balancing o Uses arms to balance o Hopping o Puts foot down <p>c. Indicate above the feet the number they were counting when they put their foot down.</p> <p>d. Check marks should be made to indicate the number of times the subject swayed, used arms for balance, hopped or put their foot down.</p> <p>e. The subjects actual count during the 30 seconds should be documented in the top area of the box above the foot on which the subject was standing.</p>	<p>Ask students: "What are the four clues of the One Leg Stand test?"</p>
	<p>6. Hands-on practice.</p>	<p>Solicit questions about documenting the results of the One Leg Stand.</p> <p>Assign students to work in pairs.</p> <p>Instruct teammates to take turns administering the One Leg Stand to each other.</p> <p>Note: It is not necessary that the student serving as the "suspect" actually stand on one foot for thirty seconds. The idea is to practice giving the instructions for the test.</p>

Aides	Lesson Plan	Instructor Notes
<p data-bbox="285 478 344 541"></p> <p data-bbox="253 562 407 590">25 Minutes</p> <p data-bbox="293 617 367 764"></p>	<p data-bbox="467 495 760 525">D. Finger to Nose.</p> <ol style="list-style-type: none"> <li data-bbox="505 562 927 659">1. The Finger to Nose is the final divided attention test used in the drug influence evaluation. <li data-bbox="505 695 943 856">2. Finger to Nose differs from the other three tests in that the examiner must continue to give instructions to the subject throughout the test. <li data-bbox="505 894 927 957">3. Administrative procedures for Finger to Nose. <ol style="list-style-type: none"> <li data-bbox="548 1062 935 1192">a. The subject must be told to stand with feet together, arms down at the sides, facing the examiner. <li data-bbox="548 1230 943 1392">b. The subject must be told to close his/her hands, rotate the palms forward and then to extend the index fingers from the closed hands. <li data-bbox="548 1461 943 1623">c. The examiner must tell subject that they will be asked to touch the tip of the index finger to the tip of the nose. <li data-bbox="548 1661 938 1791">d. The examiner must demonstrate to the subject how they are expected to touch the fingertip to the nose. 	<p data-bbox="984 359 1360 455">Monitor the practice and offer appropriate coaching and constructive criticism.</p> <p data-bbox="984 562 1357 625">Write "Finger to Nose" on dry erase board or flip-chart.</p> <p data-bbox="984 894 1377 1024">Two instructors should serve in this demonstration, one as the examiner and the other as "suspect".</p> <p data-bbox="984 1062 1284 1125">The examiner should demonstrate the stance.</p> <p data-bbox="984 1360 1369 1423">Demonstrate the proper extension of the index fingers.</p> <p data-bbox="984 1661 1377 1854">Demonstrate the movement of the fingertip to the nose by standing at an angle to the "suspect" so that he/she can see the proper method for touching the nose.</p>

Aides	Lesson Plan	Instructor Notes
	<p>e. The "suspect" must be told that he/she will be given a series of commands, i.e., "left, right, etc." to indicate which fingertip is to be brought to the tip of the nose.</p> <p>f. The examiner must tell the subject that they are expected to return the arm to the side immediately after touching the fingertip to the nose.</p> <p>g. The "suspect" must be told to tilt the head back slightly and to close the eyes, and keep them closed until the examiner says to open them.</p> <p>h. The test is <u>always</u> given in the following sequence of commands:</p> <ul style="list-style-type: none"> o left o right o left o right o right o left <p>4. Instructor-led demonstrations.</p> <p>a. Instructor-to-instructor demonstration.</p>	<p>Demonstrate: "When I say 'right', touch the tip of your right index finger to the tip of your nose."</p> <p>Note: the subject's head should be tilted back in the same fashion as in the Romberg Balance test.</p> <p>The examiner should demonstrate the stance with head tilted back, arms at the sides with index fingers extended. <u>Remind the students that they should not close their eyes during the instructions for safety reasons.</u></p> <p>Write the sequence on dry erase board or flip-chart.</p> <p>Solicit students' questions concerning administrative procedures for Finger to Nose.</p> <p>One instructor should give a complete demonstration of Finger to Nose, using another instructor as the "suspect".</p>

Aides	Lesson Plan	Instructor Notes
	<p>b. Instructor-to-student demonstration.</p> <p>5. Student-led demonstrations.</p> <p>6. Recording results of the Finger to Nose test.</p> <p>a. The results of Finger to Nose test are recorded by drawing a "map" showing where the fingertips landed on each attempt.</p> <p>b. A line should be drawn to the appropriate triangle to indicate where the subject touched their nose.</p>	<p>Select a student to serve as the "suspect" and administer a complete Finger to Nose test to that student.</p> <p>Thank the student for his/her participation and solicit questions about the demonstrations.</p> <p>Select two students and have them take turns administering Finger to Nose to each other.</p> <p>Offer appropriate comments and constructive criticisms about the students' administration of the test.</p> <p>Thank the students for their participation and solicit questions from the class.</p> <p>Instruct students to turn to the "Finger to Nose Test Diagram" in their Student Manuals (the same diagram that appears on Visual III-4).</p> <p>Suggestion: If the DRE draws the line from the place where the subject touches to the triangle it enables them to draw a straighter line.</p> <p>Solicit questions about recording the results of Finger to Nose.</p>

III-6
(Finger to
Nose Test
Diagram)

Aides	Lesson Plan	Instructor Notes
	7. Hands-on practice.	<p>Assign students to work in pairs.</p> <p>Instruct teammates to take turns administering Finger to Nose to each other.</p> <p>Note: It is not necessary for the teammate who is the "suspect" to carry out the test completely.</p> <p>Monitor the practice and offer appropriate coaching and constructive criticism.</p>

REVIEW QUESTIONS

1. List the four divided attention test in the sequence in which they are administered in the drug influence evaluation.

1. Romberg 2. Walk and Turn 3. One Leg Stand 4. Finger to Nose

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

Left

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

30 seconds

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

1. Loses Balance During Instructions 2. Starts too soon 3. Stops while walking 4. Steps off line 5. Wrong number of steps 6. Does not touch heel to toe 7. Raises arms for balance 8. Incorrect turn

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

None

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

Left, Right, Left, Right, Right, Left

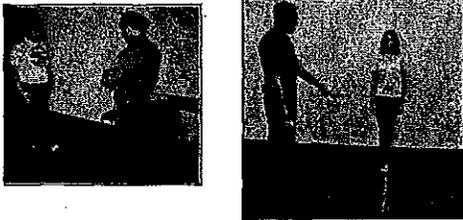
7. List all of the scientifically validated clues of impairment for Romberg Balance.

None

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

1. Raises arms for balance 2. Puts foot down 3. Hops 4. Sways while balancing

Session III - Psychophysical Tests



Preliminary Training For Drug Evaluation and Classification III-1

Objectives

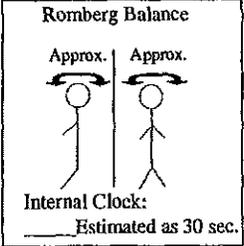
- Administer the four divided attention tests used in the drug influence evaluation process
- Document the subject's performance of those tests

Preliminary Training For Drug Evaluation and Classification III-2

Romberg Balance Test Diagram

Romberg Balance

Approx. Approx.

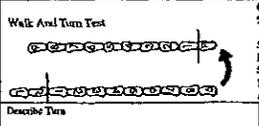


Internal Clock:
_____ Estimated as 30 sec.

Preliminary Training For Drug Evaluation and Classification III-3

Walk and Turn Test Diagram

Walk And Turn Test



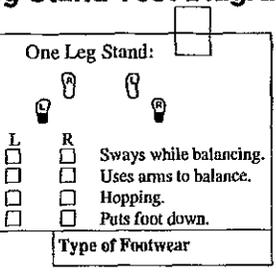
Describe Turn _____

Current Loop balance		
Starts too soon		
Slope Walking	1st Step	2nd Step
Minus Heel-Toe		
Steps Off Line		
Balance Arms		
Actual Steps Taken		
Cannot Do Test (explain)		

Preliminary Training For Drug Evaluation and Classification III-4

One Leg Stand Test Diagram

One Leg Stand:



L	R	
<input type="checkbox"/>	<input type="checkbox"/>	Sways while balancing.
<input type="checkbox"/>	<input type="checkbox"/>	Uses arms to balance.
<input type="checkbox"/>	<input type="checkbox"/>	Hopping.
<input type="checkbox"/>	<input type="checkbox"/>	Puts foot down.

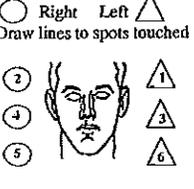
Type of Footwear _____

Preliminary Training For Drug Evaluation and Classification III-5

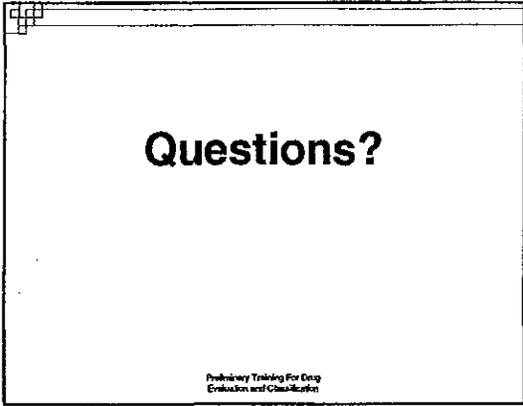
Finger to Nose Test Diagram

○ Right Left △

Draw lines to spots touched



Preliminary Training For Drug Evaluation and Classification III-6



Ninety Minutes

SESSION IV
THE EYE EXAMINATIONS

SESSION IV THE EYE EXAMINATIONS

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

- o Administer tests of Horizontal Gaze Nystagmus, Vertical Gaze Nystagmus and Lack of Convergence.
- o Estimate pupil size.
- o Relate the expected results of the eye examinations to the seven categories of drugs.

CONTENT SEGMENTS

- A. Purposes of the Eye Examinations
- B. Procedures and Clues
- C. Demonstrations
- D. Relationship of Drug Categories to the Eye Examinations

LEARNING ACTIVITIES

- o Instructor-Led Presentations
- o Instructor-Led Demonstrations
- o Hands-on Practice

Aides	Lesson Plan	Instructor Notes
 90 Minutes	<p>THE EYE EXAMINATIONS</p>	<p>Display Session Title</p>
 IV-1 (Title)		
 IV-2 (Objectives)	<p>A. Purposes of the Eye Examinations</p>	<p>Briefly review the content, objectives and activities of this session.</p>
15 Minutes 	<p>1. The principal purpose of all of the eye examinations is to obtain articulable facts indicating the presence or absence of specific categories of drugs.</p>	
 IV-3 (Eye Exams)	<p>a. Certain drug categories usually cause the eyes to react in specific ways.</p> <p>b. Other drug categories usually do not cause those reactions.</p>	
HS 172A R1/06	IV-3	

Aides

Lesson Plan

Instructor Notes

2. The tests of Horizontal Gaze Nystagmus (HGN) and Vertical Gaze Nystagmus (VGN) provide important indicators of the drug categories that may or may not be present.

- a. If HGN is observed, it is likely that the subject may have taken a CNS Depressant, PCP or it's analog, an Inhalant, or a combination of those.
- b. If VGN is observed, the implication may be that the subject took PCP (or an analog), or fairly large doses of depressants or inhalants (for that individual).
- c. By comparing the subject's blood alcohol concentration with the angle of onset of HGN, it may be possible to determine that alcohol is or is not the sole cause of the observed nystagmus.

d. The consistency of onset angle and BAC can be compared using the following formula:

$$\text{BAC} = 50 - A$$



Point out that it is very unlikely that a subject would exhibit Vertical Gaze Nystagmus without also exhibiting HGN.

Clarification: If the angle of onset is significantly inconsistent with the BAC, the implication may be that the subject has also taken PCP or an Inhalant, or some CNS Depressant other than alcohol, or that the subject may have a medical condition.

Write the formula on the dry erase board or flip-chart.

Explanation:

BAC = 100 x blood alcohol
(e.g., if blood alcohol is 0.10,
BAC = 10)

A = onset angle (in degrees)

Example: If onset angle is 35 degrees, then
BAC = 50 - 35 = 15.

Aides	Lesson Plan	Instructor Notes
	<p>e. Keep in mind that this formula is only a statistical approximation. It is <u>not</u> an exact relationship for all subjects at all times.</p> <p>f. The only purpose of comparing BAC and the angle of onset is to obtain a gross indication of the possible presence of another Depressant, Inhalants, or PCP.</p> <p>g. A DRE is expected to be able to estimate the angle of onset of nystagmus to the nearest 5 degree increment, over the range from 30 to 45 degrees.</p> <ul style="list-style-type: none"> o If the subject's eyes begin to jerk before they have moved to the 30 degree mark, you will not attempt to estimate the angle precisely, but will record they exhibit "immediate onset". o From 30 degrees on out, you will record a numeric estimate of onset. <p>3. The check for <u>Lack of Convergence</u> can provide another clue as to the possible presence of Depressants, Inhalants, or PCP.</p>	<p>The corresponding blood alcohol concentration would be approximately 0.15.</p> <p><u>Emphasize this point:</u> The formula can easily be "off" by 0.05 or more, even though the subject has consumed no drug other than alcohol.</p> <p><u>Emphasize</u> that many other facts will also be considered that will help to determine whether Depressants, Inhalants or PCP may be present.</p>

Aides	Lesson Plan	Instructor Notes
 <p data-bbox="263 1339 409 1369">50 Minutes</p>  <p data-bbox="263 1642 360 1738">IV-4 (HGN Clues)</p> <p data-bbox="263 1864 451 1894">HS 172A R1/06</p>	<p data-bbox="516 373 945 466">4. Lack of Convergence is also an indicator of the possible presence of Cannabis.</p> <p data-bbox="516 571 945 697">5. The checks of <u>pupil size and reaction to light</u> provide useful indicators of the possible presence of many drug categories.</p> <p data-bbox="565 772 945 970">a. Depressants, CNS Stimulants, Inhalants and Narcotic Analgesics will usually cause the pupils to react very slowly or not at all to light.</p> <p data-bbox="565 1003 945 1096">b. CNS Stimulants and Hallucinogens usually will cause the pupils to dilate.</p> <p data-bbox="565 1138 945 1230">c. Narcotic Analgesics will usually cause the pupils to constrict.</p> <p data-bbox="483 1272 873 1302">B. Procedures and Clues</p> <p data-bbox="516 1339 945 1495">1. Prior to the administration of the HGN test, the eyes are checked for equal tracking, resting nystagmus, and equal pupil size.</p> <p data-bbox="516 1642 945 1768">2. Horizontal Gaze Nystagmus test consists of <u>three separate checks</u>, administered independently to each eye.</p> <p data-bbox="808 1864 863 1894">IV-6</p>	<p data-bbox="1003 373 1408 529"><u>Point out</u> that a DRE might begin to suspect the presence of cannabis if Lack of Convergence was observed but no HGN was observed.</p> <p data-bbox="1003 571 1408 726">Point out that in addition to signs of drug use, checks of the pupil size and reaction to light may reveal signs of injury or existing medical conditions.</p> <p data-bbox="1003 1138 1408 1230">Solicit students' comments and questions concerning the purposes of the eye examinations.</p> <p data-bbox="1003 1339 1408 1600"><u>NOTE:</u> If the eyes do not track together, or if the pupils are noticeably unequal in size, the chance of a medical disorder or injuries causing the nystagmus may be present. Resting Nystagmus may also be observed at this time.</p> <p data-bbox="1003 1642 1408 1797">Remind the students that the HGN test is done exactly the same as in the SFST training and that the DRE start with the "suspects" left eye first.</p>

Aides	Lesson Plan	Instructor Notes
 <p data-bbox="240 569 347 695">IV-4A (Lack of Smooth Pursuit)</p>	<p data-bbox="537 365 943 428">a. The first check is for "lack of smooth pursuit".</p> <ul style="list-style-type: none"> <li data-bbox="586 470 919 596">o Position the stimulus approximately 12 to 15 inches in front of subject's nose. <li data-bbox="586 764 919 869">o Hold the tip of the stimulus slightly above the subject's eye level. <li data-bbox="586 911 935 1037">o Instruct the subject to hold the head still and follow the stimulus with the eyes only. <li data-bbox="586 1079 935 1331">o Move the stimulus smoothly, all the way to the subject's left, then all the way to the right, then back again all the way to the left, then once again all the way back to the right. 	<p data-bbox="980 470 1357 554"><u>Select</u> a student, and demonstrate the first check of HGN on that student.</p> <p data-bbox="980 764 1367 869"><u>Point out</u> that this procedure insures that the eyes will be open wide and easy to observe.</p> <p data-bbox="980 1079 1373 1268"><u>Point out</u> that we begin by checking the subject's left eye, then we immediately check the right eye. And, we make at least two complete passes in front of both eyes.</p> <p data-bbox="980 1310 1367 1436"><u>Demonstrate</u> two complete passes in front of the eyes, using the student-volunteer as your test subject.</p> <p data-bbox="980 1478 1357 1562"><u>Emphasize:</u> For standardization, we always begin by checking the left eye.</p> <p data-bbox="980 1604 1357 1772"><u>Point out</u> that the stimulus should moved at a speed that requires approximately two seconds to bring it from the center to side.</p>
HS 172A R1/06	IV-7	

Aides	Lesson Plan	Instructor Notes
 <p data-bbox="240 468 407 562">IV-4B (Distinct...At Maximum)</p>	<p data-bbox="540 394 938 531">d. The second check is for "distinct <u>and sustained</u> nystagmus at maximum deviation".</p> <ul style="list-style-type: none"> <li data-bbox="589 562 873 636">o Again position the stimulus as before. <li data-bbox="589 667 927 898">o Move the stimulus all the way to the subject's left side and hold it there so that the subject's eye is turned as far to the side as possible. <li data-bbox="589 930 938 1098">o Hold the eye at that position for a minimum of 4 seconds, to check carefully for any jerking that may be present. <li data-bbox="589 1129 932 1297">o Then, move the stimulus all the way to the subject's right side, and hold it there for a minimum of 4 seconds. <p data-bbox="540 1329 938 1434">e. With this cue, the examiner looks for <u>distinct and sustained</u> jerking.</p> <ul style="list-style-type: none"> <li data-bbox="589 1465 938 1591">o A slight or barely visible tremor is not sufficient to consider this cue present. <li data-bbox="589 1623 906 1696">o A definite, strong jerking must be seen. 	<p data-bbox="984 363 1367 468"><u>Select</u> a student and demonstrate the second check of HGN on that student.</p> <p data-bbox="984 531 1344 636"><u>Note:</u> Remind students that the nystagmus must be both <u>distinct and sustained</u>.</p> <p data-bbox="984 730 1344 835"><u>Remind</u> students that we always start by checking the subject's left eye.</p> <p data-bbox="984 1161 1367 1297"><u>Remind</u> students that, as soon as we have finished checking the left eye, we immediately repeat the check on the right.</p> <p data-bbox="984 1623 1367 1791"><u>Point out</u> that for HGN to be considered present, a distinct and sustained jerking must be present for a minimum of four seconds.</p>

Aides	Lesson Plan	Instructor Notes
 <p data-bbox="272 1003 386 1098">IV-4C (Angle of Onset)</p> <p data-bbox="272 1856 454 1879">HS 172A R1/06</p>	<p data-bbox="565 499 954 632">f. Students' initial practice of the check for distinct and sustained nystagmus at maximum deviation.</p> <p data-bbox="565 867 922 961">g. The final check is for the "angle of onset". The formula is $BAC = 50 - A$.</p> <ul style="list-style-type: none"> <li data-bbox="613 1003 963 1062">o Position the stimulus as before. <li data-bbox="613 1104 963 1266">o <u>Slowly</u> move the stimulus to the subject's left side, carefully watching the eye for the first sign of jerking. <li data-bbox="613 1308 922 1465">o When you think that you see the eye jerk, stop moving the stimulus and hold it perfectly still. <li data-bbox="613 1507 963 1566">o Verify that the eye is, in fact, jerking. <li data-bbox="613 1734 946 1833">o Once you have established that you have located the point of on- <p data-bbox="808 1856 876 1879">IV-10</p>	<p data-bbox="1011 369 1385 464">Excuse the student-volunteer and thank him/her for participating.</p> <p data-bbox="1011 506 1369 663"><u>Instruct</u> students to work in pairs, taking turns checking each other's eyes for distinct and sustained nystagmus at maximum deviation.</p> <p data-bbox="1011 705 1409 831"><u>Monitor</u>, coach and critique the students' practice. Allow this practice to continue for only about 2 minutes.</p> <p data-bbox="1011 999 1401 1094"><u>Select</u> a student and demonstrate the third check of HGN on that student.</p> <p data-bbox="1011 1503 1401 1692"><u>Point out</u> that, if the eye is <u>not</u> jerking, it will be necessary to resume moving the stimulus slowly to the side, again observing for the first sign of jerking.</p> <p data-bbox="1011 1734 1401 1766"><u>Exhibit</u> a template if available.</p>

Aides	Lesson Plan	Instructor Notes
	<p>set, estimate the angle.</p> <ul style="list-style-type: none"> o Then, repeat this procedure on the subject's right eye. <p>h. Students' initial practice of angle of onset estimation.</p>	<p><u>Point out</u> that angle estimation simply requires practice.</p> <p><u>Point out</u> that the template will be used during practice. Excuse the student-volunteer and thank him or her for participating.</p> <p><u>Instruct</u> students to work in pairs, taking turns estimating angles of each other's eyes.</p> <p><u>Instruct</u> students that they are to try to draw their partners' eyes to 3 different angles: 30°; 35°; 40°</p> <p>Students will check their accuracy using the template.</p> <p><u>Monitor</u>, coach and critique the students' practice.</p> <p>Allow this practice to continue for only about 3 minutes.</p> <p><u>INSTRUCTOR PLEASE NOTE:</u> In their previous training in HGN, some students may have been taught to look for all 3 clues in one eye, and then to check the other eye for all 3 clues. There is nothing wrong with that procedure, from either a scientific or legal perspective. As DREs however, we expect them to switch from eye to eye as they "work through" the three clues. There are two</p>

Aides	Lesson Plan	Instructor Notes
 <p data-bbox="266 1606 446 1711">IV-5 (Vertical Gaze Nystagmus)</p> <p data-bbox="266 1858 446 1890">HS 172A R1/06</p>	<p data-bbox="519 1606 966 1711">2. The <u>Vertical Gaze Nystagmus</u> test is very simple, and consists of a single check.</p> <p data-bbox="568 1732 966 1837">a. Position the stimulus <u>horizontally, approximately</u> 12 to 15 inches in front of</p>	<p data-bbox="1006 367 1209 399">reasons for this:</p> <p data-bbox="1006 430 1404 672">(1) Standardization: we want all DREs to work in the same way; the "left eye/right eye" switching procedure is simply the standard approach that we have adopted.</p> <p data-bbox="1006 703 1404 1375">(2) Medical Complications: DREs must always be alert to the possibility of a medical complication, such as a stroke, brain tumor or other injury to the brain. These kinds of injuries often will cause the two eyes to behave quite differently from one another. For example, the left eye might jerk noticeably while the right eye tracks smoothly. By always immediately comparing the performances of the two eyes, the DRE might more quickly spot the possibility of a medical complication.</p> <p data-bbox="1006 1396 1364 1543"><u>NOTE:</u> NHTSA modified its SFST training courses to conform to this "left/right" procedure in 1989.</p> <p data-bbox="1006 1596 1404 1701"><u>Select</u> a student and demonstrate the Vertical Gaze Nystagmus test on the student.</p>

Aides	Lesson Plan	Instructor Notes
 <p data-bbox="269 810 418 905">IV-7 (LOC Procedures)</p>	<p data-bbox="565 373 824 401">cross his or her eyes.</p> <ol data-bbox="565 443 971 1835" style="list-style-type: none"> a. Position the stimulus approximately 12 to 15 inches in front of the subject's nose in the same position we use for the HGN test. b. Inform the subject that you are going to move the stimulus around in a circle in front of his/her face and to follow the stimulus with his/her eyes only. c. Inform the subject that you will move the tip of the stimulus in toward the bridge of his or her nose. d. Point out to the subject that he or she will have to keep their head steady and try to cross the eyes in order to keep the eyes focused on the stimulus as it moves in toward the nose. e. Start to move the object slowly in a circle. f. Verify the subject is tracking the stimulus. g. Move the stimulus to within approximately two inches of the bridge of the nose. Carefully observe the subject's eyes to determine 	<p data-bbox="1013 407 1403 506"><u>Point out</u> in simplest terms, Lack of Convergence means an inability to cross the eyes.</p> <p data-bbox="1013 674 1403 772"><u>Point out</u> that the stimulus can be moved either clockwise or counterclockwise.</p> <p data-bbox="1013 940 1403 1171">Emphasize that it is important that the subject be aware of what will happen so that he or she will not flinch or become frightened when you move the stimulus toward his or her face.</p> <p data-bbox="1013 1213 1403 1312"><u>Point out that you will not actually touch the subject's nose.</u></p> <p data-bbox="1013 1375 1403 1537"><u>Point out</u> that this initial circular motion helps to verify that the subject has focused on the stimulus and is able to track it.</p> <p data-bbox="1013 1675 1403 1801"><u>Point out</u> not to actually touch the nose and not go any closer than approximately two inches from the bridge of the nose.</p>
HS 172A R1/06	IV-14	

Aides	Lesson Plan	Instructor Notes
 <p data-bbox="261 541 423 667">IV-8 (Normal Convergence Response)</p>	<p data-bbox="602 373 951 436">whether both eyes converge on the stimulus.</p> <p data-bbox="553 474 927 636">h. In a normal non-impaired subject, the eyes should come together (converge) and remain converged for one second.</p> <p data-bbox="553 674 956 835">i. If the eyes do not converge or remain converged on the stimulus for one second, then Lack of Convergence is present.</p> <p data-bbox="553 1104 946 1203">j. Students' initial practice of the test for Lack of Convergence.</p>	<p data-bbox="1000 474 1365 636"><u>Point out</u> that convergence response in most people is a distance of approximately 2 inches from the bridge of the nose.</p> <p data-bbox="1000 674 1382 940"><u>Point out</u> that many normal non-impaired people cannot converge to the bridge of the nose. Moving the stimulus within two inches of the nose provides a better indicator of lack of convergence attributed to drug impairment.</p> <p data-bbox="1000 1104 1382 1203"><u>Point out</u> to keep the stimulus high enough so that eye movement can be observed.</p> <p data-bbox="1000 1241 1373 1339">Excuse the student-volunteer and thank him or her for participating.</p> <p data-bbox="1000 1377 1398 1507">Instruct students to work in pairs, taking turns testing each other's eyes for Lack of Convergence.</p> <p data-bbox="1000 1545 1393 1602"><u>Monitor</u>, coach and critique the students' practice.</p> <p data-bbox="1000 1640 1382 1703">Allow this practice to continue for only about 2 minutes.</p>
HS 172A R1/06	IV-15	

Aides	Lesson Plan	Instructor Notes
 <p data-bbox="256 554 363 680">IV-9 (Drugs Causing LOC)</p>	<p data-bbox="553 384 878 478">k. Drug categories which usually cause lack of convergence include:</p> <ul data-bbox="602 520 951 646" style="list-style-type: none"> • CNS Depressants • Inhalants • Dissociative Anesthetics • Cannabis 	<p data-bbox="997 621 1395 747"><u>Point out</u> that our eyes continually adjust to accommodate different lighting conditions.</p>
 <p data-bbox="256 919 407 1014">IV-10 (Estimating Pupil Size)</p>	<p data-bbox="472 751 808 783">4. Estimation of pupil size.</p> <p data-bbox="553 821 954 915">a. We use a device called a pupillometer to estimate the size of the subject's pupil.</p>	<p data-bbox="997 783 1395 846">Emphasize the measurement is an "estimate".</p> <p data-bbox="997 884 1370 978"><u>Select</u> a student and demonstrate pupil size estimation using the student.</p>
<p data-bbox="261 1875 440 1896">HS 172A R1/06</p>	<p data-bbox="553 1220 959 1413">b. The DRE pupillometer has a series of circles or semi-circles, with diameters ranging from 1.0 mm to 10.5 mm, in half-millimeter increments.</p> <p data-bbox="553 1455 938 1650">c. The pupillometer is held alongside the subject's eye, and moved up and down until the circle or semi-circle closest in size to the pupil is located.</p> <p data-bbox="553 1755 954 1850">d. The pupil size estimations are recorded as the numeric value that corresponds to</p> <p data-bbox="797 1875 862 1896">IV-16</p>	<p data-bbox="997 1083 1292 1115"><u>Exhibit</u> a pupillometer.</p>

Aides	Lesson Plan	Instructor Notes
	<p>the diameter of the circle or semi-circle closest in size to the subject's pupil in each lighting condition.</p> <p>e. Students' initial practice of pupil size estimation.</p>	<p>Select a student from the class and demonstrate how the pupil size is estimated.</p> <p>Upon completion, excuse the student-volunteer and thank him/her for participating.</p> <p><u>Instruct</u> students to work in pairs, taking turns estimating each other's pupils.</p> <p><u>Monitor</u>, coach and critique the students' practice. Allow this practice to continue for only about 2 minutes.</p> <p><u>Tell</u> the students to record on paper the pupil sizes of their partners.</p> <p>Ask the students how many found partners with different-sized pupils (i.e., one pupil larger or smaller than the right). Point out that it is not too uncommon to find people whose pupils differ by as much as one-half millimeter, but the larger differences are more unusual.</p> <p><u>Tabulate</u> the pupil size estimates made by the students, on the flip-chart using the following sizes:</p>

Aides	Lesson Plan	Instructor Notes
	<p>f. We estimate pupil size under three (3) different lighting conditions:</p> <ul style="list-style-type: none"> • Room Light • Near Total Darkness • Direct Light 	<p>8.5 or larger _____ 8.0 _____ 7.5 _____ 7.0 _____ 6.5 _____ 6.0 _____ 5.5 _____ 5.0 _____ 4.5 _____ 4.0 _____ 3.5 _____ 3.0 _____ 2.5 or smaller _____</p>
<p>IV-11 (Three Lighting Conditions)</p>	<p>Different testing conditions create different demands on the autonomic nervous system, including the pupil.</p>	<p><u>Point out</u> that the "normal" range of pupil size in room light is 2.5 to 5.0 mm.</p>
	<p>g. Examining the pupils in three different lighting conditions is similar to examining other clinical indicators, i.e., pulse or blood pressure in different conditions.</p>	<p><u>Instructor Note:</u> The In-Direct Light estimation was removed from the DRE protocol in 2003 after research determined it had no direct correlation to impairment.</p>
<p>IV-12 (Testing Conditions)</p>	<p>1. Estimation of pupil size under Room Light</p>	<p><u>Point out</u> that the human pulse and blood pressure can vary depending on whether the person is standing, resting, or running.</p>
<p>HS 172A R1/06</p>	<p>IV-18</p>	

Aides	Lesson Plan	Instructor Notes
	<p>a. Pupils are examined in Room Light prior to darkening the room.</p> <p>2. Estimation of pupil size under Near Total Darkness and Direct Light.</p> <p>a. The final two pupil size estimations are made with the use of a penlight in a near totally darkened room.</p> <p>b. Prior to estimating the pupil sizes, we darken the room and wait 90 seconds to allow the subject's eyes and our own to adapt to the dark.</p> <p>c. For the estimation under near total darkness, completely cover the tip of the penlight with your finger or thumb, so that only a reddish glow and no white emerges.</p> <p>d. Bring the glowing red tip up toward the subject's left eye until you can distinguish the pupil from the colored portion of the eye (iris).</p> <p>e. Position the pupillometer alongside the pupil (left eye first) and locate the circle or</p>	<p><u>Demonstrate this.</u></p>
HS 172A R1/06	IV-19	

Aides	Lesson Plan	Instructor Notes
	<p>semi-circle that is closest in size to the pupil.</p> <p>f. Repeat the procedure for the subject's right eye.</p> <p>g. For the estimation under <u>direct light</u>, completely uncover the tip of the penlight, bring the light from the side of the subject's face, directly into the eye and hold it there for 15 seconds.</p> <p>h. Bring the pupillometer up alongside the left eye, and find the circle <u>or semi-circle</u> that is closest in size to the pupil.</p> <p>i. Repeat the procedure for the right eye.</p> <p>5. Normal sizes for the pupil.</p> <p>a. Since we estimate pupil size under three different lighting conditions; Room Light, Near Total Darkness,</p>	<p><u>Select</u> a student to participate in demonstrations of darkroom pupil measurements.</p> <p><u>Demonstrate</u> this.</p> <p>Emphasize that the penlight should be positioned so that the beam just "fits" or approximately fills the eye socket.</p> <p><u>Point out</u> that during this examination the DRE should look closely for Hippus or Rebound Dilation.</p>
HS 172A R1/06	IV-20	

Aides	Lesson Plan	Instructor Notes
 <p data-bbox="237 552 363 646">IV-13 (Research Values)</p> <p data-bbox="237 1835 418 1860">HS 172A R1/06</p>	<p data-bbox="630 348 924 443">and Direct Light, the range of pupil sizes will vary.</p> <p data-bbox="537 485 911 548">6. Basic Concepts Relative to Interpreting Pupil Sizes.</p> <p data-bbox="583 585 938 911">a. It is important to understand a few basic concepts relative to interpreting pupil sizes. Understanding these concepts will allow DRE's to better understand the relationship of pupil size to impairment</p> <p data-bbox="583 951 938 1682">b. Mean Values and Average Ranges: Scientifically validated studies were conducted to determine normative values for pupil size in non-impaired persons. These studies show what one would expect a person to exhibit when their pupil sizes are checked under different lighting conditions. Sometimes average means "in the middle", or sum of all numbers divided by the number in a particular group. What we use for interpretation purposes are "average ranges" of pupil sizes.</p> <p data-bbox="583 1719 930 1814">c. As a DRE, you will be making your decision of impairment based on</p> <p data-bbox="776 1835 841 1860">IV-21</p>	<p data-bbox="980 1356 1365 1549"><u>Point out</u> that when all of the study subjects were tested, the majority (approximately 88%) of the "normal" non-impaired people fell within the "average ranges."</p>

Aides	Lesson Plan	Instructor Notes
 <p data-bbox="272 993 407 1052">IV-14 (Research)</p>  <p data-bbox="272 1625 436 1684">IV-15 (Room Light)</p>	<p data-bbox="662 352 967 583">clinical, psychophysical, and behavioral indicators. This includes using pupil sizes as one of the factors in determining that impairment.</p> <p data-bbox="618 625 967 947">d. With many people, even under very bright light, the pupils won't constrict much below a diameter of 2.5 mm, and even under near total dark conditions, the pupils usually only dilate to a diameter of not more than 8.5 mm.</p> <p data-bbox="618 1024 967 1182">e. Studies have indicated there are significant differences between the average pupil size in these three conditions.</p> <p data-bbox="667 1224 967 1486">Consequently, the use of three distinct pupil size ranges for each of the different testing conditions may be more useful to determine impairment vs. non-impairment.</p> <p data-bbox="574 1625 967 1787">1. <u>Room Light</u> is approximately 4.0 mm with an average range of normal sizes ranging from 2.5 to 5.0 mm.</p>	<p data-bbox="1016 1024 1403 1287"><u>Point out:</u> That although there are several studies that indicate these pupil sizes are "for the majority of normal, non-impaired people", there is one study in particular that specifies the average size and ranges:</p> <p data-bbox="1016 1325 1373 1518">"An Evaluation of Pupil Size Standards Used By Police Officers for Detecting Drug Impairment" JAOA, March 2004, Richman, McAndrew, Decker & Mullaney.</p>
HS 172A R1/06	IV-0	

Aides	Lesson Plan	Instructor Notes
 <p data-bbox="233 562 386 655">IV-16 (Near Total Darkness)</p>	<p data-bbox="529 357 922 520">2. <u>Near Total Darkness</u> is approximately 6.5 mm with an average range of normal pupil sizes ranging from 5.0 to 8.5 mm.</p>	
 <p data-bbox="233 829 406 892">IV-17 (Direct Light)</p>	<p data-bbox="529 693 922 856">3. <u>Direct Light</u> is approximately 3.0 mm with an average range of normal pupil sizes ranging from 2.0 to 4.5 mm.</p> <p data-bbox="581 955 933 1192">d. Many drugs, however, will affect the dilation or constriction of the pupils and many cause the pupil size to go outside these normal ranges.</p> <p data-bbox="487 1228 933 1354">6. The check of the pupil's <u>reaction to light</u> takes place at the same time as the test of pupil size under direct light.</p> <p data-bbox="535 1396 933 1522">a. Observe the subject's pupil size as the penlight is aimed at the side of the subject's face.</p> <p data-bbox="535 1585 917 1722">b. As you bring the beam of light directly into the subject's eye, note how the pupil reacts.</p> <p data-bbox="535 1753 917 1816">c. Under ordinary conditions, the pupil should react very</p>	<p data-bbox="974 955 1356 1081"><u>Point out</u> that specific drug categories and their relationship to pupil sizes will be covered later.</p> <p data-bbox="974 1491 1299 1554"><u>Demonstrate</u> this using a student-volunteer.</p> <p data-bbox="974 1690 1209 1722"><u>Demonstrate</u> this.</p>
HS 172A R1/06	IV-23	

Aides	Lesson Plan	Instructor Notes
<p data-bbox="321 1499 380 1562"></p> <p data-bbox="277 1654 431 1682">15 Minutes</p> <p data-bbox="277 1854 456 1881">HS 172A R1/06</p>	<p data-bbox="618 350 932 447">quickly, and <u>constrict</u> noticeably when the light beam strikes the eye.</p> <p data-bbox="570 485 954 646">d. Under the influence of certain categories of drugs, the pupil's reaction may be very sluggish, or there may be no constriction at all.</p> <p data-bbox="570 684 959 781">e. Students' initial practice in measuring the pupil's reaction to light.</p> <p data-bbox="496 1419 797 1446">C. Demonstrations</p> <p data-bbox="529 1484 922 1547">1. Demonstrate equal tracking and equal pupil size.</p> <p data-bbox="529 1719 932 1782">2. Demonstration of Horizontal Gaze Nystagmus.</p>	<p data-bbox="1016 350 1382 447">Point out that pupillary reaction to light should occur within one second.</p> <p data-bbox="1016 518 1382 615">Excuse the student-volunteer and thank him/her for participating.</p> <p data-bbox="1016 686 1390 846"><u>Instruct</u> the students to work in pairs, taking turns shining the light into each other's eye and observing the pupil's reaction.</p> <p data-bbox="1016 884 1390 1050"><u>Remind</u> students to position the penlight so that the beam exactly "fits" the eye socket when the beam is brought directly into the eye.</p> <p data-bbox="1016 1087 1409 1150"><u>Monitor</u>, coach and critique the students' practice:</p> <p data-bbox="1016 1188 1390 1251">Allow the practice to continue for only about 2 minutes.</p> <p data-bbox="1016 1289 1409 1386"><u>Solicit</u> students' comments and questions concerning the eye examinations.</p> <p data-bbox="1016 1719 1365 1782"><u>Select</u> two students to come before the class.</p>

Aides	Lesson Plan	Instructor Notes
	<p>a. Check for lack of smooth pursuit.</p> <p>b. Check for distinct and sustained nystagmus at maximum deviation.</p> <p>c. Estimation of the angle of onset.</p> <p>2. Demonstration of Vertical Gaze Nystagmus and Lack of Convergence.</p>	<p><u>Instruct</u> one student to demonstrate the administration of HGN to the other student.</p> <p><u>Coach</u> and critique the student-administrator's performance.</p> <p><u>Make sure</u> that the student-administrator checks both eyes.</p> <p>When the student-administrator has completed the HGN test, <u>instruct</u> the student-administrator to draw the student-subject's eye to an angle of 35 degrees. <u>Check</u> the accuracy of this estimate, using the template.</p> <p>Excuse the two students and thank them for participating.</p> <p><u>Select</u> two other students to come before the class.</p> <p><u>Instruct</u> one student to check the other for Vertical Gaze Nystagmus.</p> <p><u>Coach</u> and critique the student-administrator's performance.</p> <p><u>Instruct</u> the second student to check the eyes of the first student for Lack of Convergence.</p> <p><u>Coach</u> and critique the student-administrator's performance.</p> <p>Excuse the two students and thank them for participating.</p>

Aides	Lesson Plan	Instructor Notes
 <p data-bbox="272 1493 378 1619">IV-18 (Normal Ranges Recap)</p> <p data-bbox="272 1858 451 1879">HS 172A R1/06</p>	<p data-bbox="521 352 964 449">3. Demonstration of pupil size estimation and test for reaction to light.</p> <p data-bbox="570 489 964 552">a. Pupil size estimation under room light.</p> <p data-bbox="570 789 930 852">b. Darkroom estimations of pupil size.</p> <ul style="list-style-type: none"> <li data-bbox="618 892 906 919">o near total darkness <li data-bbox="618 926 805 953">o direct light <p data-bbox="570 1423 919 1520">g. To review, the normal ranges for non-impaired people are:</p> <p data-bbox="618 1556 971 1652">Room Light: 4.0 mm with an average range of 2.5 - 5.0 mm.</p> <p data-bbox="618 1688 954 1785">Near Total Darkness: 6.5 mm with an average range of 5.0 - 8.5 mm.</p>	<p data-bbox="1016 352 1369 415"><u>Select</u> two other students to come before the class.</p> <p data-bbox="1016 489 1352 585"><u>Instruct</u> one student to estimate the other's pupils under room light.</p> <p data-bbox="1016 621 1414 684"><u>Coach</u> and critique the student-administrator's performance.</p> <p data-bbox="1016 789 1395 919"><u>Instruct</u> the second student to demonstrate how to perform the dark room estimations of pupil size.</p> <p data-bbox="1016 955 1414 1018"><u>Coach</u> and critique the student-administrator's performance.</p> <p data-bbox="1016 1054 1406 1184"><u>Point out</u> that assessment of the pupil's reaction to light takes place in conjunction with the direct-light estimation.</p> <p data-bbox="1016 1220 1385 1283">Excuse the two students and thank them for participating.</p> <p data-bbox="1016 1520 1406 1684"><u>Solicit</u> students' comments and questions concerning the demonstrations of the eye examinations and the pupil size ranges.</p>

Aides	Lesson Plan	Instructor Notes
 <p data-bbox="269 615 423 642">10 Minutes</p> 	<p data-bbox="591 344 943 436">Direct Light: 3.0 mm with an average range of 2.0 - 4.5 mm.</p> <p data-bbox="464 478 846 573">D. Relationship of Drug Categories to the Eye Examinations</p> <ol style="list-style-type: none"> <li data-bbox="500 743 922 842">1. Three of the seven drug categories normally will cause Horizontal Gaze Nystagmus. <ol style="list-style-type: none"> <li data-bbox="500 877 927 1010">a. CNS Depressants, Inhalants and Dissociative Anesthetics, including PCP and its analogs, normally will cause HGN. <li data-bbox="464 1146 932 1209">b. The other four categories normally will not cause HGN. <li data-bbox="500 1247 927 1808">2. Any drug that will cause HGN also will cause Vertical Gaze Nystagmus, if a high enough dose of the drug is taken. <ol style="list-style-type: none"> <li data-bbox="545 1415 932 1640">a. So, Depressants, Inhalants and Dissociative Anesthetics, including PCP and its analogs, can all cause Vertical Gaze Nystagmus at higher doses for that individual. <li data-bbox="545 1682 932 1808">b. But if a drug will not cause HGN, then it also will not cause Vertical Gaze Nystagmus. 	<p data-bbox="987 478 1377 611">Note: Draw the Matrix at the end of this session on the dry erase board or flip-chart at the outset of this segment.</p> <p data-bbox="987 743 1352 842">Ask the students which drug categories normally induce HGN.</p> <p data-bbox="987 877 1349 1073">Along the "HGN" line on the matrix, write "PRESENT" under the columns for Depressants, Dissociative Anesthetics and "YES" for Inhalants.</p> <p data-bbox="987 1146 1360 1209">Write "NONE" on the "HGN" line under the other columns.</p> <p data-bbox="987 1415 1365 1541">Along the "VERT NYST" line, write "PRESENT" under the columns for those three categories.</p> <p data-bbox="987 1682 1341 1776">Write "NONE" for "VERT NYST" under the other four columns.</p>

Aides	Lesson Plan	Instructor Notes
	<p>3. All drugs that cause nystagmus also will cause the eyes to be unable to converge.</p> <p>a. Therefore, Depressants, Inhalants and Dissociative Anesthetics, including PCP and its analogs, usually will cause Lack of Convergence.</p> <p>b. Interestingly, there is one category of drug that does not cause nystagmus but that does usually cause Lack of Convergence.</p> <p>c. Cannabis usually does cause lack of convergence, even though it does not cause nystagmus.</p> <p>d. The other three categories do not cause a Lack of Convergence.</p> <p>4. An interesting and important fact is that the drugs that cause nystagmus usually don't affect pupil size, and the drugs that don't cause nystagmus usually do affect pupil size.</p> <p>a. CNS Stimulants and Hallucinogens usually cause the pupils to become larger or "dilated".</p> <p>b. Cannabis may cause the pupils to dilate.</p>	<p>Write "PRESENT" along the "LACK CONV" line under the columns for those three categories.</p> <p>Ask students which category that is.</p> <p>Write "PRESENT" along the "LACK CONV" line under "CANNABIS".</p> <p>Write "NONE" along the line under the remaining three columns.</p> <p>Write "DILATED" along the "PUPIL SIZE" line under the columns for CNS Stimulants and Hallucinogens.</p> <p>Write "DILATED" under the "CANNABIS" column; however, explain they frequently may also be NORMAL.</p>
HS 172A R1/06	IV-28	

Aides	Lesson Plan	Instructor Notes
	<p>c. Narcotic Analgesics usually cause the pupils to become smaller or "constricted".</p> <p>d. Dissociative Anesthetics and most Inhalants tend to leave pupil size in the normal ranges.</p> <p>e. CNS Depressants also usually leave the pupils near normal.</p> <p>f. However, there are some exceptions, i.e., depressant drugs that usually <u>dilate</u> the pupils.</p> <p>g. Methaqualone, or "Quaaludes" and Soma usually cause pupil dilation.</p> <p>5. Generally, the pupillary reaction to light is either slowed by the effect of the drug or the pupil reacts normally. The most significant exception is the effect caused by Narcotic Analgesics. Though there is always some reaction to light, in <u>live</u> subjects, the constricted pupil caused by narcotic analgesics makes it difficult to perceive a change in the pupil size.</p>	<p>Write "CONSTRICTED" under the "NARCOTICS" column.</p> <p>Write "NORMAL" under the columns for Dissociative Anesthetics and Inhalants. BUT POINT OUT THAT SOME INHALANTS WILL CAUSE PUPIL DILATION.</p> <p>Write "NORMAL" under the "DEPRESSANT" column.</p> <p>Ask students which depressants causes pupil dilation.</p> <p>Put an asterisk (*) next to the "NORMAL" in the "DEPRESSANT" column, and write "*Methaqualone and Soma dilate pupils" under the matrix.</p> <p>Solicit students' questions and comments.</p>

Aides	Lesson Plan	Instructor Notes
	<p>a. CNS Depressants and CNS Stimulants usually cause a slowed reaction to light.</p> <p>b. With Hallucinogens, Dissociative Anesthetics and Cannabis the pupillary reaction to light is usually normal.</p> <p>c. Due to the constricted nature of the pupils when under the influence of Narcotic Analgesics, it is difficult to perceive a reaction to light. As a result we list reaction to light for Narcotic Analgesics as "little or none visible".</p> <p>d. Inhalants may cause a slowed reaction or the pupils may react normally depending on the substance used.</p>	<p>Write "SLOW" under the columns for CNS Stimulants and Depressants.</p> <p>Write "NORMAL" under the columns for Hallucinogens, Dissociative Anesthetics and Cannabis.</p> <p>Write "LITTLE OR NONE VISIBLE" under Narcotic Analgesics.</p> <p>Write "SLOW" in the column for inhalants and explain that this is only a general rule.</p>

	DEPRESS	STIMULS	HALLUCS	D/A	NARCOTS	INHALS	CANNABIS
HGN	_____	_____	_____	_____	_____	_____	_____
VGN	_____	_____	_____	_____	_____	_____	_____
LACK CONV.	_____	_____	_____	_____	_____	_____	_____
PUPIL SIZE	_____	_____	_____	_____	_____	_____	_____
RCTN- LIGHT	_____	_____	_____	_____	_____	_____	_____

REVIEW QUESTIONS

1. Name the three clues of impairment associated with Horizontal Gaze Nystagmus.

1. Lack of smooth pursuit 2. Distinct and sustained nystagmus at maximum deviation 3. Onset of nystagmus prior to 45 degrees

2. Complete this formula:

BAC = 50 - ????
Angle of onset

3. Which categories of drugs will not cause Vertical Gaze Nystagmus?

CNS Stimulants, Hallucinogens, Narcotic Analgesics, Cannabis

4. Which categories of drugs usually will cause Lack of Convergence?

CNS Depressants, Inhalants, Dissociative Anesthetics, Cannabis

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

Room light, Near total darkness, Direct light

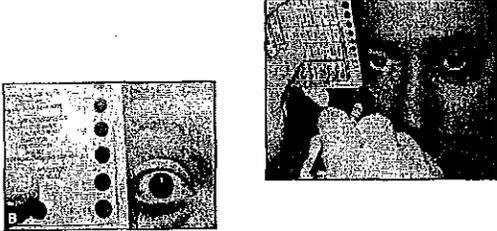
6. What is the normal range of pupil size for room light?

2.5-5.0 mm

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

CNS Depressants, CNS Stimulants, Inhalants

Session IV - The Eye Examinations



Preliminary Training For Drug Evaluation and Classification IV-1

Objectives

- Administer tests of Horizontal Gaze Nystagmus, Vertical Gaze Nystagmus and Lack of Convergence
- Estimate pupil size
- Relate the expected results of the eye examinations to the various categories of drugs

Preliminary Training For Drug Evaluation and Classification IV-2

The Eye Examinations



Preliminary Training For Drug Evaluation and Classification IV-3

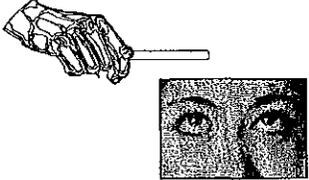
Three Clues of Horizontal Gaze Nystagmus

- Lack of Smooth Pursuit
- Distinct and Sustained Nystagmus at Maximum Deviation
- Angle of Onset



Preliminary Training For Drug Evaluation and Classification IV-4

Vertical Gaze Nystagmus



Preliminary Training For Drug Evaluation and Classification IV-5

Lack of Convergence



Preliminary Training For Drug Evaluation and Classification IV-6

LOC Testing Procedure

- Begin by moving the stimulus in a circle in front of the subject's face
- Observe the eyes to verify that the subject is tracking the stimulus
- Slowly move the stimulus in toward the bridge of the nose

Examiner Subject

Preliminary Training For Drug Evaluation and Classification IV-7

Normal convergence is a distance approximately two inches (2") from the bridge of the nose

- If the eyes converge (cross) when the stimulus is approximately two inches from the bridge of the nose, the Lack of Convergence is "not present"
- Lack of convergence is present if the subject's eyes do not come together and cross as they track and stay aligned on the stimulus

Preliminary Training For Drug Evaluation and Classification IV-8

Drug Categories That Induce LOC

The following drug categories usually will induce Lack of Convergence:

- CNS Depressants
- Inhalants
- Dissociative Anesthetics
- Cannabis

Preliminary Training For Drug Evaluation and Classification IV-9

Estimating Pupil Size

Preliminary Training For Drug Evaluation and Classification IV-10

THREE TESTING CONDITIONS FOR PUPIL SIZE ESTIMATIONS

- Direct Light
- Room Light
- Near Total Darkness Light

Preliminary Training For Drug Evaluation and Classification IV-11

These **THREE TESTING CONDITIONS** create Different Demands on the Autonomic Nervous System including the Pupil

We **ALSO** know that ... There are **THREE CONDITIONS** For Other Clinical Indicators

Preliminary Training For Drug Evaluation and Classification IV-12

Recent Research for Normal Values

- **Mean or Average :**
 - ✓The average value of a given set of findings
- **Average Range: (1.5 Standard Deviation)**
 - ✓The range of data in which 88% or greater of the findings are included

Prerequisite Training For Drug Evaluation and Classification IV-13

Updated Values – Where did they come from specifically related to DRE?

An evaluation of pupil size standards used by police officers for detecting drug impairment

nhtsa "People Saving People"

An evaluation of pupil size standards used by police officers for detecting drug impairment

John S. Erickson, D.D., Kathleen Collins McAndrew, M.S.N., Anne M. Donald, Doctor, and Stephen C. Lindner, R.L.D., Ph.D.

nhtsa "People Saving People"

Prerequisite Training For Drug Evaluation and Classification IV-14

Room Light	
6.0 mm	0.06%
7.5 mm	0.45%
7.0 mm	1.12%
6.5 mm	1.79%
6.0 mm	0.89%
5.5 mm	3.35%
.....	
.....	
.....	
2.5 mm	5.38%
2.0 mm	0.89%
1.5 mm	0.00%

Room Light is approximately 4.0 mm with an average range of normal pupil sizes ranging from 2.5 to 5.0 mm.

88% of normal fall within the range of 2.5 to 5.0 mm. In fact, the percentage that falls within 3.5 to 4.5 mm is more than half (61%) of the people.

Prerequisite Training For Drug Evaluation and Classification IV-15

Near Total Darkness	
10 mm	0.00%
9.5 mm	0.22%
9 mm	4.80%
8.5 mm	6.92%
8 mm	3.92%
7.5 mm	11.04%
7 mm	14.07%
6.5 mm	15.17%
6 mm	15.02%
5.5 mm	10.07%
5 mm	0.33%
4.5 mm	4.47%
4 mm	1.79%
3.5 mm	1.00%
3 mm	0.00%

Near Total Darkness is approximately 6.5 mm with an average range of normal pupil sizes ranging from 5.0 to 8.5 mm.

About 88% of normals fall within the range of 5.0 to 8.5 mm. In fact, the percentage that falls within 6.0 to 7.0 mm is almost 42 percent of the people.

Prerequisite Training For Drug Evaluation and Classification IV-16

Direct Light	
6 mm	2%
5.5 mm	3%
5 mm	4%
.....	
.....	
.....	
3 mm	0%

Direct Light is approximately 3.0 mm with an average range of normal pupil sizes ranging from 2.0 to 4.5 mm

88% of normal fall within the range of 2.0 to 4.5 mm. In fact, the percentage that falls within 3.0 to 4.0 mm is almost 69 percent of the people.

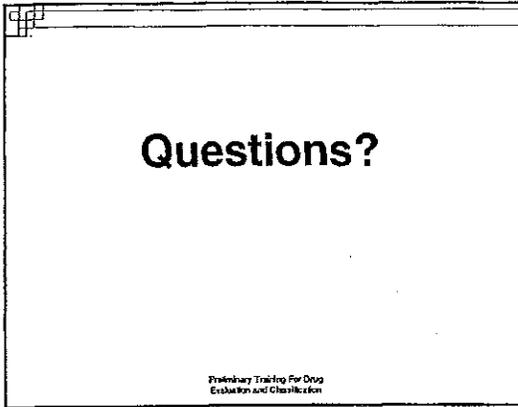
Prerequisite Training For Drug Evaluation and Classification IV-17

Normal Pupil Size Ranges Recap



- ✓ Room Light: 4.0 mm with average range of 2.5 – 5.0 mm
- ✓ Near Total Darkness: 6.5 mm with average range of 5.0 – 8.5 mm
- ✓ Direct Light: 3.0 mm with average range of 2.0 – 4.5 mm

Prerequisite Training For Drug Evaluation and Classification IV-18



Two Hours

SESSION V
ALCOHOL WORKSHOP

SESSION V ALCOHOL WORKSHOP

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

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

CONTENT SEGMENTS

- A. Assignments and Procedures
- B. Testing
- C. Feedback and Discussion
- D. Alcohol Workshop Checklist

LEARNING ACTIVITIES

- o Hands-on Practice
- o Student-led Presentations

Aides	Lesson Plan	Instructor Notes
	<p>ALCOHOL WORKSHOP</p>	<p>Display Session Title</p>
<p>120 Minutes</p> 		<p>Discuss the objectives of the Alcohol Workshop.</p>
<p>V-1 (Title)</p>		
 <p>V-2 (Objectives)</p>		<p>INSTRUCTOR NOTE: The main emphasis of the alcohol workshop is to evaluate the student's proficiency in the administration of SFST's.</p>
 <p>15 Minutes</p>	<p>A. Assignments and Procedures</p>	
	<ol style="list-style-type: none"> 1. Team assignments. <ol style="list-style-type: none"> a. One member will be an examiner and will complete all portions of the exam. b. One member will be the recorder and document the findings of the examination on the evaluation form. c. All others in the group will observe/coach. d. Each team member will conduct at least one complete examination. 	<p>Group the participants into teams. The number of students in each team is determined by dividing the total number of students by the total number of volunteer drinkers. Example: if there are 23 students and 7 volunteer drinkers, form five teams of three members and two teams of four members.</p> <p>(NOTE: All volunteer drinkers must read and sign the "Statement of Informed Consent" form prior to receiving any alcohol.)</p>
<p>HS 172A R1/06</p>	<p>V-3</p>	

Aides	Lesson Plan	Instructor Notes
  <p data-bbox="256 789 412 884">V-3 (Testing Procedures)</p>	<p data-bbox="532 348 867 415">2. Explanation of testing procedures.</p> <p data-bbox="591 453 964 579">a. Each team will conduct the following sequence of tests and examinations on each volunteer:</p> <ul style="list-style-type: none"> <li data-bbox="646 621 959 684">o HGN (record angle of onset in each eye) <li data-bbox="646 722 873 785">o Vertical Gaze Nystagmus <li data-bbox="646 823 964 848">o Lack of Convergence <li data-bbox="646 886 922 911">o Romberg Balance <li data-bbox="646 949 894 974">o Walk and Turn <li data-bbox="646 1012 964 1075">o One Leg Stand (standing on left leg) <li data-bbox="646 1113 932 1218">o One Leg Stand (standing on right leg) <li data-bbox="646 1255 889 1281">o Finger to Nose <p data-bbox="591 1453 943 1545">b. Teams will record the results of each test and examination.</p> <p data-bbox="591 1583 943 1780">c. Upon completing the test and examinations, the team members will record their best estimate as to the volunteer's BAC.</p>	<p data-bbox="1003 453 1398 546">Write the sequence of tests and examinations on dry erase board or flip-chart.</p> <p data-bbox="1003 621 1398 814">Emphasize that the team will administer each test only <u>once</u> to each volunteer, e.g., only one member of a team will administer the HGN test to a particular volunteer.</p> <p data-bbox="1003 852 1398 978">Emphasize that the tests and examinations are to be given in the order listed for all volunteers.</p> <p data-bbox="1003 1617 1344 1680">Solicit questions about the testing procedures.</p> <p data-bbox="1003 1717 1386 1780">Hand out test recording forms to the teams.</p>
HS 172A R1/06	V-4	

Aides	Lesson Plan	Instructor Notes
 75 Minutes	B. Testing	<p>Monitor the testing to ensure compliance with the procedures.</p> <p>Always allow a team to complete the full sequence of tests and examinations before sending the volunteer to another team.</p> <p>Offer coaching and constructive criticism as appropriate.</p>
 30 Minutes	C. Feedback and Discussion	<p>Transcribe on the board the matrix found at the end of this session to be completed during the discussion phase of the workshop.</p> <p>For each volunteer, select <u>one</u> team to report in detail on each test and examination administered to that volunteer.</p> <p>Call upon students to report their best estimates as to that volunteer's BAC.</p> <p>Inform the students of the results of that volunteer's breath tests.</p> <p>Continue this process until all volunteers have been reported upon.</p> <p>Solicit students' questions and comments.</p>

Drinker's Name	Below .05	.05 - .09	.10 - .14	.15 or Greater

Session V - Alcohol Workshop



Preliminary Training For Drug Evaluation and Classification V-1

Objectives

- 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

Preliminary Training For Drug Evaluation and Classification V-2

Testing Procedures

- Horizontal Gaze Nystagmus (record onset angle in each eye)
- Vertical Gaze Nystagmus
- Lack of Convergence
- Romberg Balance
- Walk and Turn
- One Leg Stand (on left foot)
- One Leg Stand (on right foot)
- Finger to Nose

Preliminary Training For Drug Evaluation and Classification V-3

Three Hours

SESSION VI
EXAMINATIONS OF VITAL SIGNS

SESSION VI EXAMINATIONS OF VITAL SIGNS

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

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

CONTENT SEGMENTS

- A. Purposes of the Examinations
- B. Procedures and Cues
- C. Demonstrations
- D. Normal Ranges of Vital Signs
- E. Relationship of Drug Categories to the Vital Signs Examinations
- F. Practice

LEARNING ACTIVITIES

- o Instructor-Led Presentations
- o Instructor-Led Demonstrations
- o Hands-on Practice

Aides	Lesson Plan	Instructor Notes
 <p data-bbox="256 554 423 583">180 Minutes</p>  <p data-bbox="256 751 402 781">VI-1 (Title)</p>  <p data-bbox="256 955 402 1018">VI-2 (Objectives)</p>  <p data-bbox="256 1119 391 1148">5 Minutes</p> <p data-bbox="256 1837 440 1866">HS 172A R1/06</p>	<p data-bbox="472 346 862 409">EXAMINATIONS OF VITAL SIGNS</p> <p data-bbox="472 1052 773 1115">A. Purposes of the Examinations</p> <ol data-bbox="508 1150 959 1812" style="list-style-type: none"> <li data-bbox="508 1150 959 1245">1. The vital signs that are relevant to the drug evaluation and classification process include: <ol data-bbox="557 1287 789 1381" style="list-style-type: none"> <li data-bbox="557 1287 727 1316">a. Pulse rate <li data-bbox="557 1318 789 1348">b. Blood pressure <li data-bbox="557 1350 764 1379">c. Temperature <li data-bbox="508 1419 959 1514">2. Different types of drugs affect these vital signs in different ways. <ol data-bbox="557 1556 927 1812" style="list-style-type: none"> <li data-bbox="557 1556 927 1650">a. Certain drugs tend to "speed up" the body and <u>elevate</u> these vital signs. <li data-bbox="557 1717 927 1812">b. Other drugs tend to "slow down" the body and <u>lower</u> these vital signs. <p data-bbox="805 1837 854 1866">VI-3</p>	<p data-bbox="1000 447 1263 476">Display Session Title</p> <p data-bbox="1000 919 1383 1014">Briefly review the content, objectives and activities of this session.</p> <p data-bbox="1000 1287 1365 1350"><u>Point out</u> these vital signs on the wallchart.</p> <p data-bbox="1000 1549 1333 1686"><u>Clarification</u> o pulse may quicken o blood pressure may rise o temperature may rise</p> <p data-bbox="1000 1717 1341 1812"><u>Clarification</u> o pulse may slow o blood pressure may drop</p>

Aides	Lesson Plan	Instructor Notes
 <p data-bbox="245 779 399 806">75 Minutes</p>  <p data-bbox="245 978 394 1073">VI-3 (Pulse Definitions)</p> <p data-bbox="248 1864 428 1892">HS 172A R1/06</p>	<p data-bbox="495 443 938 604">3. Systematic examination of the vital signs gives us much useful information concerning the possible presence or absence of various categories of drugs.</p> <p data-bbox="464 642 837 669">B. Procedures and Cues</p> <p data-bbox="495 842 883 869">1. Measurement of pulse rate.</p> <p data-bbox="545 909 922 1035">a. <u>Pulse</u> is the expansion and relaxation of an artery generated by the pumping action of the heart.</p> <p data-bbox="545 1108 932 1203">b. <u>Pulse rate</u> is the number of pulsations in an artery per minute.</p> <p data-bbox="545 1245 946 1339">c. An <u>artery</u> is a strong, elastic blood vessel that carries blood away from the heart .</p> <p data-bbox="545 1381 938 1476">d. A <u>vein</u> is a blood vessel that carries blood back to the heart.</p> <p data-bbox="545 1518 946 1612">e. When the heart contracts, it squeezes blood out of its chambers into the arteries.</p> <p data-bbox="545 1654 906 1707">f. The surging blood causes the arteries to expand.</p> <p data-bbox="545 1749 938 1843">g. By placing your fingers on the skin next to an artery and pressing down, you can</p> <p data-bbox="792 1864 846 1892">VI-4</p>	<p data-bbox="987 373 1292 401">o . temperature may fall</p> <p data-bbox="987 443 1377 604"><u>Point out</u> that for purposes of standardization, the pulse and blood pressure readings will be obtained using the left arm if at all possible.</p> <p data-bbox="987 1108 1382 1203"><u>Point out</u> that pulse rate is equal to the number of contractions of the heart per minute.</p> <p data-bbox="987 1738 1386 1833"><u>Emphasize:</u> The "surge" can be felt as the blood is squeezed from the heart through an</p>

Aides	Lesson Plan	Instructor Notes
 <p data-bbox="240 863 331 953">VI-4 (Radial Artery)</p>	<p data-bbox="581 354 899 420">feel the artery expand as the blood surges through.</p> <p data-bbox="534 457 932 621">h. By keeping your fingers on the artery and counting the number of pulses that occur in one minute, you will measure the pulse rate.</p> <p data-bbox="534 659 899 783">i. Pulse is easy to measure, once you locate an artery close to the surface of the skin.</p> <p data-bbox="534 856 927 921">j. One convenient pulse point involves the radial artery.</p> <ul style="list-style-type: none"> <li data-bbox="586 959 938 1123">o 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. <li data-bbox="586 1161 935 1226">o Hold your left hand out, with the palm down. <li data-bbox="586 1264 943 1455">o Place the tips of your right hand's index finger and middle finger into the crease of your left wrist, and exert a slight pressure. <li data-bbox="586 1493 924 1558">o Allow your left hand to curl downward. <li data-bbox="586 1596 906 1682">o You should be able to feel the pulse in your radial artery. 	<p data-bbox="984 354 1333 420"><u>artery</u>. The pulse cannot be felt in a <u>vein</u>.</p> <p data-bbox="984 457 1377 552"><u>Demonstrate this</u>, by holding your fingers on your own radial artery.</p> <p data-bbox="984 959 1377 1024"><u>Point to</u> the radial artery pulse point on your own wrist.</p> <p data-bbox="984 1161 1211 1188"><u>Demonstrate this</u>.</p> <p data-bbox="984 1264 1211 1291"><u>Demonstrate this</u>.</p> <p data-bbox="984 1493 1211 1520"><u>Demonstrate this</u>.</p> <p data-bbox="984 1593 1377 1717"><u>Ask</u> students whether they can feel their pulses. <u>Coach</u> any students who have difficulty in locating the pulse.</p>
HS 172A R1/06	VI-5	

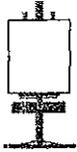
Aides	Lesson Plan	Instructor Notes
 <p data-bbox="256 499 373 598">VI-5 (Brachial Artery)</p>	<p data-bbox="552 361 954 430">k. Another pulse point involves the brachial artery.</p> <ul style="list-style-type: none"> <li data-bbox="600 466 945 697">o The brachial artery can be located in the crook of the arm, halfway between the center of the arm and the side of the arm closest to the body. <li data-bbox="600 730 950 793">o Hold your left hand out, with the palm up. <li data-bbox="600 829 938 1029">o Place the tips of your right hand's index and middle fingers into the crook of your left arm, close to the body, and exert a slight pressure. <li data-bbox="600 1064 917 1159">o You should be able to feel the pulse in your brachial artery. <p data-bbox="552 1234 941 1297">l. Another pulse point involves the carotid artery.</p> <ul style="list-style-type: none"> <li data-bbox="600 1333 933 1459">o The carotid artery can be located in the neck, on either side of the Adam's apple. <li data-bbox="600 1564 961 1726">o Place the tips of your right hand's index and middle fingers alongside the right side of your "Adam's Apple". 	<p data-bbox="998 361 1360 430"><u>Point to</u> the brachial artery pulse point in your own arm.</p> <p data-bbox="998 466 1360 598"><u>Instruct</u> students to roll up their sleeves, if necessary, to expose their brachial artery pulse points.</p> <p data-bbox="998 730 1226 760"><u>Demonstrate</u> this.</p> <p data-bbox="998 829 1226 858"><u>Demonstrate</u> this.</p> <p data-bbox="998 1064 1393 1192"><u>Ask</u> students whether they can feel their pulses. <u>Coach</u> any students who have difficulty locating the pulse.</p>
 <p data-bbox="256 1470 430 1528">VI-6 (Carotid Artery)</p>	<p data-bbox="552 1234 941 1297">l. Another pulse point involves the carotid artery.</p> <ul style="list-style-type: none"> <li data-bbox="600 1333 933 1459">o The carotid artery can be located in the neck, on either side of the Adam's apple. <li data-bbox="600 1564 961 1726">o Place the tips of your right hand's index and middle fingers alongside the right side of your "Adam's Apple". 	<p data-bbox="998 1333 1377 1396"><u>Point out</u> the carotid artery pulse point on your own neck.</p> <p data-bbox="998 1564 1226 1593"><u>Demonstrate</u> this.</p>

Aides	Lesson Plan	Instructor Notes
	<ul style="list-style-type: none"> o You should be able to feel the pulse in your carotid artery. m. Basic Do's and Don'ts of measuring pulse. <ul style="list-style-type: none"> o <u>Don't</u> use your thumb to apply pressure while measuring a subject's pulse. o If you use the carotid artery pulse point, don't apply pressure to both sides of the Adam's Apple: this can cut off the supply of blood to the brain. o When measuring the pulse rate, use 30 seconds as the standard time interval. n. Students' initial practice at measuring pulse rate. 	<p><u>Ask</u> students whether they can feel their pulses. <u>Coach</u> any students who have difficulty locating the pulse.</p> <p><u>Point out</u> that there is an artery located in the thumb. If you apply pressure with the thumb, you may be actually measuring your own pulse instead of the subject's.</p> <p><u>Point out</u> that pulse rate is always expressed as "beats per minute". If you count the beats during an interval of 30 seconds, you must double the result to obtain the pulse rate. The pulse reading should not be an odd number.</p> <p><u>Instruct</u> students to work in pairs, taking turns measuring each other's pulse.</p> <p><u>Tell</u> students to record on paper their partner's pulse rates.</p> <p><u>Monitor</u>, coach and critique the students' practice.</p>

Aides

Lesson Plan

Instructor Notes



VI-7
(Blood
Pressure
Definitions)

HS 172A R1/06

2. Measurement of blood pressure.

- a. Blood pressure is the force that the circulating blood exerts on the walls of the arteries.
- b. Blood pressure changes constantly as the heart contracts and relaxes.
- c. Blood pressure reaches its maximum as the heart contracts and sends the blood surging through the arteries. This is called the systolic pressure.

VI-8

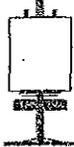
Allow the practice to continue for only about 5 minutes.

Print the following lists on the dry erase board or flip-chart:

50 or less _____ 76-78 _____
 52-54 _____ 80-82 _____
 56-58 _____ 84-86 _____
 60-62 _____ 88-90 _____
 64-66 _____ 92-94 _____
 68-70 _____ 96-98 _____
 72-74 _____ 100 or more _____

Tabulate the numbers of students whose pulse rates were in each of the listed intervals.

Point out that the "normal range" of pulse rate is 60-90 beats per minute.

Aides	Lesson Plan	Instructor Notes
	<p>d. Blood pressure reaches its minimum when the heart is fully expanded. This is called the <u>diastolic</u> pressure.</p> <p>e. It is always necessary to measure and record <u>both</u> the systolic and diastolic blood pressure.</p> <p>f. The device used for measuring blood pressure is called a <u>sphygmomanometer</u>.</p> <p>g. The sphygmomanometer has a special cuff that can be wrapped around the subject's arm and inflated with air pressure.</p> <p>h. As the pressure in the cuff increases, the cuff squeezes tightly on the arm.</p> <p>i. When the pressure gets high enough, it will squeeze the artery completely shut.</p> <p>j. Blood will cease flowing through the brachial artery. And, since the brachial artery "feeds" the radial</p>	<p><u>Remind</u> students that "systolic" is the higher number, "diastolic" the lower number.</p> <p><u>Memory aid:</u> <u>Systolic:</u> "S" for "Superior" <u>Diastolic:</u> "D" for "Down"</p> <p><u>Write</u> "SPHYGMOMANOMETER" on the dry erase board or flip-chart.</p> <p><u>Exhibit</u> a sphygmomanometer.</p> <p><u>Select</u> a student to come before the class. Have the student sit in a chair facing the class, and roll up a sleeve (if necessary) to expose the left bicep.</p> <p>Wrap the cuff around the student-volunteer's arm and inflate it.</p> <p><u>Ask</u> the student-volunteer whether they can feel the pressure of the cuff.</p> <p><u>Ask</u> students: "What artery is located in the crook of the arm?" (Point to that location on the student-volunteer's arm).</p> <p><u>Release</u> the pressure in the cuff on the student-volunteer's arm.</p>
HS 172A R1/06	VI-9	

Aides	Lesson Plan	Instructor Notes
	<p>artery, blood will also cease flowing through the radial artery.</p> <p>k. If we <u>slowly</u> release the air in the cuff, the pressure on the arm and on the artery will start to drop.</p> <p>l. Eventually, the pressure will drop enough so that blood will once again start to flow through the artery.</p> <ul style="list-style-type: none"> o Blood will start flowing in the artery once the pressure <u>inside</u> the artery equals the pressure <u>outside</u> the artery. o The two pressures will become equal when the air pressure in the cuff drops down to the <u>systolic</u> pressure. o When that happens, blood will spurt through the artery each time the heart contracts. 	<p><u>Ask</u> students: "How far must the pressure in the cuff drop before the blood can start to squeeze through the artery?"</p> <p><u>Ask</u> students: "What would happen if we allowed the pressure in the cuff to drop down to the <u>systolic</u> level, and held the air pressure at that level?"</p> <p><u>Point out</u> that the blood would spurt through the artery each time the heart <u>contracted</u>, but would cease flowing when the heart <u>expanded</u>.</p>

Aides	Lesson Plan	Instructor Notes
 <p data-bbox="248 999 396 1062">VI-8 (BP Basics)</p> <p data-bbox="248 1850 435 1873">HS 172A R1/06</p>	<ul style="list-style-type: none"> <li data-bbox="594 562 943 758">o Once the air pressure in the cuff drops down to the <u>diastolic</u> level, the blood will flow continuously through the artery. <li data-bbox="548 863 932 926">m. Overview of procedures for measuring blood pressure. <ul style="list-style-type: none"> <li data-bbox="594 961 932 1157">o Apply enough air pressure to the cuff to cut off the flow of blood through the artery. (Approximately 180 mmHg) <li data-bbox="594 1230 954 1425">o Slowly release the air pressure until the blood just begins to spurt through the artery: that level will be the <u>systolic</u> pressure. <li data-bbox="594 1461 954 1656">o Continue to release the air pressure until the blood flows continuously through the artery: that level will be the <u>diastolic</u> pressure. <p data-bbox="792 1850 857 1873">VI-11</p>	<p data-bbox="992 359 1365 527"><u>Ask</u> students: "How far down must the air pressure in the cuff drop before the blood will flow through the artery <u>continuously</u>?"</p> <p data-bbox="992 961 1386 1192"><u>Demonstrate</u>, using the student-volunteer (apply pressure to the cuff). As DREs we usually inflate the cuff until the manometer shows a reading of approximately 180 mmHg.</p> <p data-bbox="992 1230 1370 1293">Slowly release the pressure in the cuff.</p> <p data-bbox="992 1331 1386 1457"><u>Emphasize</u> that the pressure should drop at approximately 2 mmHg per second. (5 sec for each 10 mm drop)</p> <p data-bbox="992 1692 1370 1818"><u>Ask</u> students: (1) "How can we tell when the blood starts to spurt through the artery?"</p>

Aides	Lesson Plan	Instructor Notes
 <p data-bbox="248 1787 391 1850">VI-9 (Korotkoff)</p> <p data-bbox="248 1871 431 1894">HS 172A R1/06</p>	<p data-bbox="544 548 878 642">n. We can <u>listen</u> to the spurting blood, using a <u>stethoscope</u>.</p> <ul style="list-style-type: none"> <li data-bbox="592 684 946 779">o Apply the stethoscope to the skin directly above the artery. <li data-bbox="592 821 911 915">o Apply pressure to the cuff, enough to cut off the flow of blood. <li data-bbox="592 957 946 1079">o When no blood is flowing through the artery, we hear <u>nothing</u> through the stethoscope. <li data-bbox="592 1121 946 1215">o Slowly release the air from the cuff, letting the pressure start to drop. <li data-bbox="592 1257 938 1379">o When we drop to the systolic pressure, we start to hear a <u>spurting</u> sound. <li data-bbox="592 1421 946 1543">o As we continue to allow the air pressure to drop, the surges of blood become steadily longer. <li data-bbox="592 1585 946 1707">o When we drop to the diastolic pressure, the blood flows steadily and all sounds cease. <p data-bbox="544 1749 946 1812">o. The sounds that we listen to are called <u>Korotkoff Sounds</u>.</p>	<p data-bbox="992 380 1382 510">(2) "How can we tell when the blood is flowing continuously through the artery?"</p> <p data-bbox="992 615 1268 642"><u>Exhibit</u> a stethoscope.</p> <p data-bbox="992 684 1292 747"><u>Demonstrate</u>, using the student-volunteer.</p> <p data-bbox="992 810 1300 873"><u>Inflate</u> the cuff on the student-volunteer's arm.</p> <p data-bbox="992 1115 1325 1142"><u>Release</u> the air in the cuff.</p> <p data-bbox="992 1314 1382 1377"><u>NOTE:</u> This begins as a clear, tapping sound.</p> <p data-bbox="992 1440 1365 1545"><u>NOTE:</u> The sounds take on a swishing quality, and become fainter.</p> <p data-bbox="992 1577 1365 1671">Excuse the student-volunteer and thank him or her for participating.</p> <p data-bbox="992 1745 1382 1839">Named after Dr. Nikolai Korotkoff, a Russian physician who introduced the method of</p>

Aides	Lesson Plan	Instructor Notes
 <p data-bbox="245 1356 402 1451">VI-10 (Sphygmo- manometer)</p>	<p data-bbox="591 352 914 422">They are divided into five (5) phases.</p> <ul style="list-style-type: none"> <li data-bbox="591 457 906 621">o Phase 1 - the first appearance of clear, tapping sounds that gradually increase in intensity. <li data-bbox="591 657 951 785">o Phase 2 - the sounds change to a murmur and take on a swishing quality. <li data-bbox="591 821 951 984">o Phase 3 - the sounds develop a loud, knocking quality (not quite as clear as the Phase 1 sounds). <li data-bbox="591 1020 951 1148">o Phase 4 - the sounds suddenly become muffled and again have a faint swishing quality. <li data-bbox="591 1184 906 1253">o Phase 5 - the sounds cease. <p data-bbox="548 1325 906 1394">p. Familiarization with the sphygmomanometer.</p> <ul style="list-style-type: none"> <li data-bbox="591 1520 919 1619">o The <u>compression cuff</u> contains an inflatable rubber bladder. <li data-bbox="591 1654 951 1787">o A tube connects the bladder to the <u>manometer</u>, or pressure gauge. 	<p data-bbox="992 352 1370 422">determining blood pressure in 1905.</p> <p data-bbox="992 457 1382 556"><u>Point out</u> that the beginning of Phase 1 corresponds to the systolic pressure.</p> <p data-bbox="992 1184 1382 1283"><u>Point out</u> that the beginning of Phase 5 corresponds to the diastolic pressure.</p> <p data-bbox="992 1318 1382 1482"><u>Hand out</u> stethoscopes and sphygmomanometers (one per each student is desirable. At a minimum, there should be one for every four students).</p> <p data-bbox="992 1520 1349 1619"><u>Point out</u> the components of the sphygmomanometer on Visual VI-10.</p> <p data-bbox="992 1654 1395 1751"><u>Clarification:</u> The manometer displays the air pressure inside the bladder.</p>
HS 172A R1/06	VI-13	

Aides	Lesson Plan	Instructor Notes
	<ul style="list-style-type: none"> o Another tube connects the bladder to the <u>pressure bulb</u>, which can be squeezed to inflate the bladder. o The <u>pressure control valve</u> permits inflation of the bladder and regulates the rate at which the bladder is deflated. <ul style="list-style-type: none"> - To <u>inflate</u> the bladder, the pressure control valve must be twisted all the way to the right. - When the valve is twisted all the way to the right, air can be pumped <u>into</u> the bladder, but no air can escape <u>from</u> the bladder. - To <u>deflate</u> the bladder, twist the valve to the left. - The more the valve is twisted to the left, the faster the bladder will deflate. q. Details of blood pressure measurement. <ul style="list-style-type: none"> o Position the cuff on the bicep so that the tubes extend down the middle of the arm. 	<p><u>Demonstrate</u> this.</p> <p><u>Select</u> a student to serve as a blood pressure subject. Demonstrate the procedures using the student.</p>
<p>VI-11 (Details of BP)</p>	<p>VI-14</p>	
<p>HS 172A R1/06</p>		

Aides	Lesson Plan	Instructor Notes
	<ul style="list-style-type: none"> o Wrap the cuff snugly around the bicep. o Clip the manometer (pressure gauge) on the subject's sleeve, so that it is readily viewable. o Twist the pressure control valve all the way to the right. o Put the stethoscope earpieces in your ears. o Place the diaphragm or bell of the stethoscope over the brachial artery. o Rapidly inflate the bladder to approximately 180 mmHg. o Twist the pressure control valve slightly to the left to release the pressure slowly. o Keep your eyes on the gauge and listen for the Korotkoff sounds. 	<p><u>Make sure</u> the earpieces are turned forward, i.e., toward the nose.</p> <p><u>Emphasize</u> the need to release the pressure <u>slowly</u>. If the pressure drops too fast, the needle will sweep down the gauge too quickly to be read accurately. The pressure should be released at a speed that takes one second for the needle to move a single gradation (i.e., 2 millimeters of mercury) on the gauge.</p> <p><u>Point out</u> that the needle on the pressure gauge generally will "bounce" slightly when blood starts to spurt through the artery.</p> <p>Excuse the student and thank him or her for participating. <u>Solicit</u> students' questions</p>

Aides	Lesson Plan	Instructor Notes
<p data-bbox="250 1755 399 1854">VI-12 (Measuring Temp)</p> <p data-bbox="250 1877 431 1898">HS 172A R1/06</p>	<p data-bbox="545 821 894 884">r. Do's and Don'ts of blood pressure measurement:</p> <ul style="list-style-type: none"> <li data-bbox="594 919 951 1150">o If you inflate the bladder and then need to repeat the measurement, wait at least three minutes to allow the subject's artery to return to normal. <li data-bbox="594 1188 951 1381">o Hold the bell of the stethoscope with your fingers; don't slide it under the cuff: that will distort the measurement. <p data-bbox="545 1419 935 1482">s. Students initial practice at measuring blood pressure.</p> <p data-bbox="500 1686 927 1717">3. Measurement of temperature.</p> <ul style="list-style-type: none"> <li data-bbox="545 1755 946 1818">a. Temperature is measured orally using a thermometer. 	<p data-bbox="993 386 1360 417">concerning these procedures.</p> <p data-bbox="993 453 1377 583"><u>Point out that "normal" values of blood pressure are:</u> Systolic 120 - 140 Diastolic 70 - 90</p> <p data-bbox="993 621 1360 783"><u>Note, however, that "normal" people can have significantly different blood pressures: there is wide variation in human blood pressure.</u></p> <p data-bbox="993 919 1360 1115"><u>Point out that if difficulty is encountered in hearing the Korotkoff sounds, try having the subject raise his/her arm and clench the fist to allow blood flow back to the heart.</u></p> <p data-bbox="993 1419 1369 1650">If at least one sphygmomanometer and stethoscope are available for every two students, instruct students to practice in pairs. Otherwise, assign students to practice in teams of 3 or 4 members.</p> <p data-bbox="993 1755 1154 1787"><u>Exhibit this.</u></p>



Aides	Lesson Plan	Instructor Notes
<p style="text-align: center;">  15 Minutes </p> <p style="text-align: center;">HS 172A R1/06</p>	<p style="text-align: center;">Lesson Plan</p> <p>b. Make sure that a fresh disposable mouthpiece is used each time.</p> <p>c. Ensure that the subject does not take any hot or cold liquids by mouth prior to taking the temperature.</p> <p>C. Demonstrations</p> <p>1. Pulse rate measurement demonstrations.</p> <p style="padding-left: 20px;">a. Radial artery pulse point.</p> <p style="padding-left: 20px;">b. Carotid artery pulse point.</p> <p>2. Blood pressure measurement demonstrations.</p>	<p><u>Point out</u> that the "normal" range for body temperature taken orally is 98.6 degrees +/- 1 degree.</p> <p>Solicit students' comments and questions concerning this overview of procedures and cues.</p> <p><u>Point out</u> that hot and cold liquids immediately prior to the temperature examination may effect the result.</p> <p><u>Select</u> two students to come before the class.</p> <p><u>Instruct</u> the first student to measure the second's pulse using the radial artery pulse point. (<u>Simultaneously</u>, the instructor should measure the subject's pulse using a carotid artery pulse point).</p> <p><u>Instruct</u> the second student to measure the first's pulse using the carotid artery pulse point. (<u>Simultaneously</u>, the instructor should measure the subject's pulse using a radial artery pulse point.)</p> <p>Excuse the two students and thank them for participating.</p> <p><u>Select</u> two other students to come before the class.</p>
	VI-17	

Aides

Lesson Plan

Instructor Notes



IV-13
(Normal
Ranges of
Vital Signs)



15 Minutes

HS 172A R1/06

D. Normal Ranges of Vital Signs

1. Normal human vital signs vary between individuals. However, the DEC program has identified a set of "normal" ranges for each of the three vital sign examinations used in the drug influence evaluation process. The ranges used in the DEC program are normally a bit wider than those used by the medical profession. DEC normal ranges:
 - a. Pulse rate:
60 to 90 beats per minute
 - b. Blood Pressure:
Systolic: 120 - 140 mmHg
Diastolic: 70 - 90 mmHg
 - c. Body Temperature: 98.6 degrees, plus or minus 1 degree.

E. Relationship of Drug Categories to the Vital Signs Examinations.

Instruct the first student to measure the second's blood pressure.

Have the students reverse roles.

Excuse the two students and thank them for participating.

Remind students that the "normal" ranges identified for the DEC program have been established through years of research and with medical input. However, normal ranges may vary from individual to individual and are normally a little wider than those used by the medical profession.

Note: Draw the Matrix (at the end of this session) on the dry erase board or flip-chart at the outset of this session.

VI-18

Aides

Lesson Plan

Instructor Notes



1. All seven categories of drugs ordinarily will affect pulse rate and blood pressure.
2. Two of the categories usually will lower pulse and blood pressure.
 - a. Narcotic Analgesics usually lower pulse and BP.
 - b. So do CNS Depressants. Some exceptions include ETOH, Soma and Quaaludes.
3. The other five categories all tend to elevate pulse rate.
4. Most of the drug categories that elevate pulse rate also elevate blood pressure.
 - a. CNS Stimulants, Hallucinogens, Dissociative Anesthetics and Cannabis all usually cause blood pressure to rise.
 - b. The vast majority of Inhalants -- namely, the volatile solvents and the aerosols -- also elevate blood pressure.
 - c. But the remaining small group of Inhalants -- the anesthetic gases -- actually lower the blood pressure.
 - d. So for Inhalants, we can say

Ask the students which categories will lower pulse rate and blood pressure.

Write "DOWN" on the pulse and blood pressure lines under the columns for Depressants (with the footnote except ETOH and Quaaludes) and Narcotics. Instructor's Note: According to the Physician's Desk Reference, one of the adverse reactions to Soma is Tachycardia.

Write "UP" on the pulse line under the five remaining columns.

Write "UP" on the blood pressure line for those four categories.

Remind students that the anesthetic gases include such things as nitrous oxide, amyl nitrite and ether.

Write up/down with the

Aides	Lesson Plan	Instructor Notes
	<p>about the effect on blood pressure is that it will be up or down.</p> <p>5. Three of the categories usually will cause the body temperature to rise.</p> <p>a. The drug PCP and its analogs from the Dissociative Anesthetics category usually increases body temperature; PCP users have been known to remove their clothing to cool down.</p> <p>b. CNS Stimulants and Hallucinogens also will usually increase body temperature.</p> <p>6. The effect of Inhalants on body temperature depends on the specific substance that is inhaled.</p> <p>a. Some inhalants may cause temperature to increase or be down.</p> <p>b. But other inhalants may leave the temperature near normal.</p> <p>7. One category usually causes body temperature to be lowered.</p> <p>a. Narcotic Analgesics usually lower body temperature.</p> <p>8. The remaining two categories</p>	<p>footnote - down with anesthetic gases, up with volatile solvents and aerosols on the blood pressure line under the Inhalants column.</p> <p>Ask students which categories usually cause an elevation in body temperature.</p> <p>Write "UP" on the "TEMP" line under the Dissociative Anesthetics column.</p> <p>Write "UP" on the "TEMP" line for CNS Stimulants and Hallucinogens.</p> <p>Write "up/down/or normal" on the "TEMP" line for Inhalants.</p> <p>Ask students which category usually lowers temperature.</p> <p>Write "DOWN" on the "TEMP" line for Narcotics.</p> <p>Write "NORMAL" on the</p>

Aides	Lesson Plan	Instructor Notes
 <p>70 Minutes</p>	<p>usually do not affect temperature.</p> <p>F. Practice</p> <ol style="list-style-type: none"> 1. Assignments and procedures. <ol style="list-style-type: none"> a. Team assignments. b. Explanation of practice procedures: <ol style="list-style-type: none"> o Teammates will take turns measuring each other's pulse rate and blood pressure. o Each student will write down every measurement he or she makes and the time at which the measurement was made. o Whichever member of the team is not engaged in taking the measurement or in serving as the "suspect" will act as a coach and offer appropriate constructive criticism to his or her teammate. o Practice will continue until each student has taken at least three complete pulse and blood pressure measurements on both 	<p>"TEMP" line for Depressants and Cannabis.</p> <p>Solicit students' questions and comments.</p> <p>Group the students into teams of three (3) members each. Each team must have at least one blood pressure kit.</p> <p>Solicit questions about the</p>

Aides	Lesson Plan	Instructor Notes
	<p>teammates.</p> <p>2. Testing (students testing students).</p>	<p>practice procedures.</p> <p>Monitor the practice to ensure compliance with the procedures.</p> <p>Offer coaching and constructive criticism as appropriate.</p>

	DEPRESS	STIMULS	HALLUCS	D/A	NARCOTS	INHALS	CANNABIS
PULSE	_____	_____	_____	_____	_____	_____	_____
BLOOD PRESS	_____	_____	_____	_____	_____	_____	_____
TEMP	_____	_____	_____	_____	_____	_____	_____

REVIEW QUESTIONS

1. Where is the radial artery pulse point?

Crease of the wrist

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

You can mistakenly measure your own pulse

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

Away from the heart

4. What does the symbol "Hg" represent?

Mercury (Hydrargyrum)

5. What is diastolic pressure?

The pressure when the heart relaxes

6. When do the Korotkoff Sounds begin?

At the systolic level when the blood begins to spurt through the brachial artery

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

Compression Cuff, Pressure bulb, Manometer, Pressure control valve, Tubes

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

CNS Stimulants, Hallucinogens, Dissociative Anesthetics, Inhalants, Cannabis

9. What is the normal range of body temperature?

98.6 +/- 1 degree

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

30 seconds

11. What is the normal range of pulse rate?

60-90 bpm

12. Which categories of drugs usually lower body temperature?

Narcotic Analgesics

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

120-140/70-90

Session VI - Examinations of Vital Signs



Preliminary Training For Drug Evaluation and Classification VI-1

Objectives

- 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 various categories of drugs

Preliminary Training For Drug Evaluation and Classification VI-2

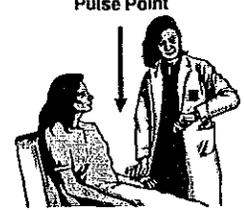
Definitions Concerning "Pulse"

- **PULSE**
The expansion and relaxation of an artery generated by the pumping action of the heart.
- **PULSE RATE**
The number of pulsations in an artery per minute.
- **ARTERY**
A strong, elastic blood vessel that carries blood from the heart to the body tissues.
- **VEIN**
A blood vessel that carries blood back to the heart from the body tissues.

Preliminary Training For Drug Evaluation and Classification VI-3

Radial Artery

Radial Artery Pulse Point



Preliminary Training For Drug Evaluation and Classification VI-4

Brachial Artery

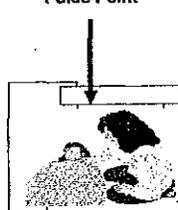
Brachial Artery Pulse Point



Preliminary Training For Drug Evaluation and Classification VI-5

Carotid Artery

Carotid Artery Pulse Point



Preliminary Training For Drug Evaluation and Classification VI-6

Definitions Concerning "Blood Pressure"

- **Blood Pressure**
The force that the circulating blood exerts on the walls of the arteries.
- **Systolic Pressure**
The maximum blood pressure, reached as the heart contracts.
- **Diastolic Pressure**
The minimum pressure, reached when the heart is fully expanded.

Preliminary Training For Drug Evaluation and Classification

VI-7

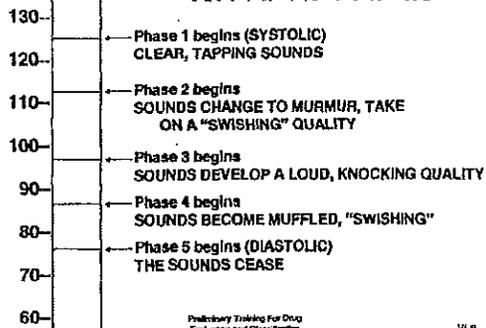
The Basics of Blood Pressure Measurement

- Apply enough air pressure to cut off the flow of blood through the artery.
- Slowly release the air, about 2 mmHg per second, until the blood just begins to spurt through the artery: **THAT WILL BE THE SYSTOLIC PRESSURE.**
- Continue to release the air until the blood flows continuously: **THAT WILL BE THE DIASTOLIC PRESSURE.**

Preliminary Training For Drug Evaluation and Classification

VI-8

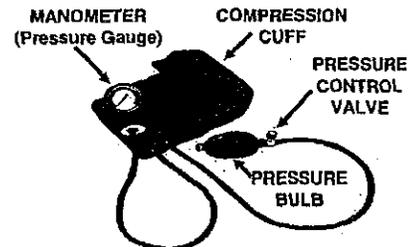
Korotkoff Sounds



Preliminary Training For Drug Evaluation and Classification

VI-9

Sphygmomanometer



Preliminary Training For Drug Evaluation and Classification

VI-10

Details of Blood Pressure Measurement

1. Position cuff on bicep so that tubes extend down middle of arm
2. Wrap cuff snugly around bicep
3. Clip manometer to the subject's sleeve or in a location to easily see the gauge
4. Twist pressure control valve all the way to the right
5. Put stethoscope earpieces in your ears
6. Apply the stethoscope to the brachial artery pulse point
7. Rapidly inflate bladder to a level high enough to squeeze the artery shut. (Normally 180)
8. Twist the pressure control valve slightly to the left (pressure should drop at 2 mmHg per second)
9. Keep your eyes on the gauge and listen for the Korotkoff sounds

Preliminary Training For Drug Evaluation and Classification

VI-11

Measuring Body Temperature

- Oral thermometer recommended
- Always use protective disposable mouthpiece
- Position thermometer under the subject's tongue
- Have subject refrain from talking when measuring temperature
- Refrain from letting subject drink hot or cold fluids immediately prior to measuring temperature



Preliminary Training For Drug Evaluation and Classification

VI-12

Normal Ranges of Vital Signs
DRE "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 degrees Fahrenheit plus or minus one degree

Primary Training For Drug Evaluation and Classification VI-13

Questions?

Primary Training For Drug Evaluation and Classification

Seventy-Five Minutes

SESSION VII
OVERVIEW OF SIGNS AND SYMPTOMS

SESSION VII OVERVIEW OF SIGNS AND SYMPTOMS

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

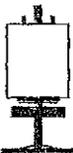
- o Give examples of specific drugs belonging to the seven drug categories.
- o Describe the major signs and symptoms of impairment associated with each category.

CONTENT SEGMENTS

- A. CNS Depressants
- B. CNS Stimulants
- C. Hallucinogens
- D. Dissociative Anesthetics
- E. Narcotic Analgesics
- F. Inhalants
- G. Cannabis
- H. Wrap-Up

LEARNING ACTIVITIES

- o Interactive Discussions

Aides	Lesson Plan	Instructor Notes
	<p>OVERVIEW OF SIGNS AND SYMPTOMS</p>	
<p>75 Minutes</p>		<p>Display Session Title</p>
		
<p>VII-1 (Title)</p>		
		
<p>VII-2 (Objectives)</p>		<p>Briefly review the content, objectives and activities of this session.</p>
		<p>Note: Prior to the start of this session, draw the matrix found at the end of this session on the dry erase board or flip-chart.</p>
	<ol style="list-style-type: none"> 1. Sign: An observable or detectable indicator of drug influence. (i.e., dilated pupils, vital signs) 2. Symptom: A subjective indicator of drug influence that is reported by the drug-impaired subject. (i.e., "I feel nauseous.") 	<p>Frequently the term "objective symptoms" is used in law enforcement to refer to "signs".</p>
	<p>A. CNS Depressants</p>	
<p>10 Minutes</p>	<ol style="list-style-type: none"> 1. Central Nervous System Depressants is a category that includes many different drugs. 	<p>Ask students to name some examples of CNS Depressants. Make sure that the examples given include alcohol, some barbiturates and some tranquilizers.</p>
<p>HS 172A R1/06</p>	<p>VII-3</p>	

Aides	Lesson Plan	Instructor Notes
	<p>2. Indicators of CNS Depressant influence found in eye exams.</p> <p>a. HGN usually will be present.</p> <p>b. Vertical Gaze Nystagmus may be present, especially with high doses (for that individual) of Depressants.</p> <p>c. Under the influence of Depressants, Lack of Convergence usually will be present.</p> <p>d. Depressants usually do not affect pupil size; therefore, Depressants usually leave the pupils near normal in size.</p> <ul style="list-style-type: none"> o But some specific Depressant drugs do affect pupil size. o Methaqualone (Quaaludes) and Soma usually cause the pupils to dilate. <p>e. Depressants generally will cause pupillary reaction to light to be sluggish.</p>	<p>Ask students: "Do depressants cause Horizontal Gaze Nystagmus?"</p> <p>Write "Present" on the "HGN" line for Depressants.</p> <p>Ask: "Do Depressants cause Vertical Gaze Nystagmus?"</p> <p>Write "Present" on the "VERT NYST" line for Depressants. Denote in parentheses above "(High Doses)".</p> <p>Ask: "Do Depressants cause the eyes to be unable to converge?"</p> <p>Write "Present" on the "LACK CONV" line for Depressants.</p> <p>Ask: "How do Depressants affect pupil size?"</p> <p>Write "Normal" on the "PUPIL SIZE" line for Depressants.</p> <p>Ask: "What are the Depressants that affect pupil size?"</p> <p>Put a (1) next to "Normal" and write "Common exceptions: Soma and Quaaludes " below the matrix.</p> <p>Write "Slow" on the "RCTN-LIGHT" line for Depressants.</p>

Aides	Lesson Plan	Instructor Notes
<p style="text-align: center;"></p> <p>10 Minutes</p>	<p>3. Indicators of CNS Depressant influence found in checks of the vital signs.</p> <p>a. Depressants usually lower pulse rate.</p> <ul style="list-style-type: none"> o But some specific Depressant drugs may elevate the pulse. o Methaqualone (Quaaludes) and alcohol may cause an elevation in pulse rate. <p>b. Depressants usually lower blood pressure.</p> <p>c. Depressants usually leave temperature near normal.</p> <p>B. CNS Stimulants</p> <p>1. The category called Central Nervous System Stimulants includes many drugs.</p> <p>2. Indicators of CNS Stimulant influence found in eye exams.</p> <p>a. HGN will not be present.</p>	<p>Ask: "How do Depressants affect pulse rate?"</p> <p>Write "Down" on the "PULSE" line for Depressants.</p> <p>Ask: "What are the Depressants that may elevate pulse rate?"</p> <p>Put a (2) next to "Down" and write "Quaaludes and ETOH may elevate" below the matrix.</p> <p>Ask: "How do Depressants affect blood pressure?"</p> <p>Write "DOWN" on the "BLOOD PRESS" line for Depressants.</p> <p>Ask: "How do Depressants affect body temperature?"</p> <p>Write "Normal" on the "TEMP" line for Depressants.</p> <p>Solicit students' questions about CNS Depressants.</p> <p>Ask students to name some examples of CNS Stimulants. Make sure the examples include cocaine and some amphetamines.</p> <p>Ask students: "Do CNS Stimulants cause Horizontal Gaze Nystagmus?"</p> <p>Write "None" on the "HGN"</p>

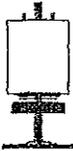
Aides	Lesson Plan	Instructor Notes
		line for CNS Stimulants.
		Ask: "Do CNS Stimulants cause Vertical Gaze Nystagmus?"
	b. Vertical Gaze Nystagmus will not be present.	Write "None" on the "VERT NYST" line for CNS Stimulants.
		Ask: "Do CNS Stimulants cause the eyes to be unable to converge?"
	c. Under the influence of CNS Stimulants, the eyes should still be able to converge; therefore, <u>lack</u> of convergence will <u>not</u> be present.	Write "None" on the "LACK CONV" line for CNS Stimulants.
		Ask: "How do CNS Stimulants affect pupil size?"
	d. CNS Stimulants usually cause the pupils to dilate.	Write "Dilated" on the "PUPIL SIZE" line for CNS Stimulants.
	e. We have seen that CNS Depressants effect pupillary reaction; similarly, CNS Stimulants may cause a slowing in the pupillary reaction to light.	Write "Slow" on the "RCTN-LIGHT" line for CNS Stimulants.
	3. Indicators of CNS Stimulant influence found in checks of vital signs.	Ask: "How do CNS Stimulants affect pulse rate?"
	a. CNS Stimulants usually increase pulse rate.	Write "Up" on the "PULSE" line for CNS Stimulants.
		Ask: "How do CNS Stimulants affect blood pressure?"

Aides	Lesson Plan	Instructor Notes
 10 Minutes	<p>b. CNS Stimulants usually increase blood pressure.</p> <p>c. CNS Stimulants usually elevate body temperature.</p> <p>d. Though not directly related to the vital signs, the evaluator may find the subjects muscle tone to be rigid with possible body tremors. A grinding of the teeth, referred to as "bruxism", may also be noticed.</p>	<p>Write "Up" on the "BLOOD PRESS" line for CNS Stimulants.</p> <p>Ask: "How do CNS Stimulants affect body temperature?"</p> <p>Write "Up" on the "TEMP" line for CNS Stimulants.</p> <p>Point out that, as shown on the matrix, the signs of Stimulant influence are almost exactly opposite to the signs of Depressant influence.</p> <p>Solicit students' questions about CNS Stimulants.</p>
	<p>C. Hallucinogens</p> <p>1. Hallucinogens include some naturally occurring substances as well as some synthetic drugs.</p> <p>2. Indicators of Hallucinogen influence found in eye exams.</p> <p>a. HGN will not be present.</p> <p>b. Vertical Gaze Nystagmus will not be present.</p>	<p>Ask students to name some hallucinogenic drugs. Make sure the examples include some natural Hallucinogens as well as some synthetics.</p> <p>Ask students: "Do Hallucinogens cause Horizontal Gaze Nystagmus?"</p> <p>Write "None" on the "HGN" line for Hallucinogens.</p> <p>Ask: "Do Hallucinogens cause Vertical Gaze Nystagmus?"</p> <p>Write "None" on the "VERT NYST" line for Hallucinogens.</p>

Aides	Lesson Plan	Instructor Notes
	<p>c. Under the influence of Hallucinogens, the eyes should still be able to converge; therefore, <u>lack</u> of convergence will <u>not</u> be present.</p> <p>d. Hallucinogens usually cause the pupils to dilate.</p> <p>e. Normally Hallucinogens do not effect pupillary reaction to light.</p> <p>o However, psychedelic amphetamines will cause a slowing in the pupillary reaction.</p> <p>3. Indicators of Hallucinogen influence found in checks of vital signs.</p> <p>a. Hallucinogens usually increase pulse rate.</p> <p>b. Hallucinogens usually increase blood pressure.</p> <p>c. Hallucinogens usually elevate body temperature.</p>	<p>Ask: "Do Hallucinogens cause the eyes to be unable to converge?"</p> <p>Write "None" on the "LACK CONV" line for Hallucinogens.</p> <p>Ask: "How do Hallucinogens affect pupil size?"</p> <p>Write "Dilated" on the "PUPIL SIZE" line for Hallucinogens.</p> <p>Write "Normal" on the "RCTN-LIGHT" line for Hallucinogens.</p> <p>Put a (3) next to "Normal", and write psychedelic amphetamines cause slowing.</p> <p>Ask: "How do Hallucinogens affect pulse rate?"</p> <p>Write "Up" on the "PULSE" line for Hallucinogens.</p> <p>Ask: "How do Hallucinogens affect blood pressure?"</p> <p>Write "Up" on the "BLOOD PRESS" line for Hallucinogens.</p> <p>Ask: "How do Hallucinogens affect body temperature?"</p> <p>Write "Up" on the "TEMP" line for Hallucinogens.</p> <p>Point out that, as shown on the matrix, the major signs of</p>
HS 172A R1/06	VII-8	

Aides	Lesson Plan	Instructor Notes
<p style="text-align: center;">  10 Minutes </p> <p>HS 172A R1/06</p>	<p style="text-align: center;">D. Dissociative Anesthetics</p> <ol style="list-style-type: none"> 1. The category called Dissociative Anesthetics consists of the drug PCP, its various analogs and Dextromethorphan. <ol style="list-style-type: none"> a. An 'analog' of PCP is a drug that is a 'chemical first cousin' of PCP; that is, it is a drug that has a slightly different molecular structure from that of PCP, but produces the same effects as PCP. 	<p>Hallucinogen influence are identical to the major signs of Stimulant influence.</p> <p>If we only had these major signs to go by, it would be impossible to distinguish between someone under the influence of CNS Stimulants from someone under the influence of Hallucinogens.</p> <p>Point out that, in their seven-day DRE School, the students will learn of more subtle indicators that help to distinguish Hallucinogen influence from Stimulant influence. But emphasize that it <u>is</u> often difficult to distinguish between these two categories.</p> <p>Solicit students' questions about Hallucinogens.</p> <p>Ask students: "What does 'analog' mean in this context?"</p>

Aides	Lesson Plan	Instructor Notes
	<p>b. One of the most popular analogs of PCP is the drug called Ketamine.</p> <p>c. Ketamine is a legally-manufactured (but controlled) drug that is used as an anesthetic in some surgical applications.</p> <p>d. Some other analogs of PCP include <u>Ketalar, Ketaset and Ketajet.</u></p> <p>e. Dextromethorphan is a drug found in numerous over-the-counter substances.</p> <p>2. Indicators of the Dissociative Anesthetic drug PCP and its analogs influence found in eye exams.</p> <p>a. HGN usually will be present, and often with a very early onset with the drug PCP.</p> <p>b. Vertical Gaze Nystagmus usually will be present.</p>	<p>Write "Ketamine: An analog of PCP" on the dry erase board or flip-chart.</p> <p><u>Point out that</u> Dextromethorphan, also known as DXM is a widely abused substance and is easy to obtain.</p> <p>Ask students: "Do Dissociative Anesthetics cause Horizontal Gaze Nystagmus?"</p> <p>Write "Present" on the "HGN" line for Dissociative Anesthetics.</p> <p>INSTRUCTOR NOTE: Both HGN and VGN were noted in various DRE evaluations conducted on persons impaired by DXM. Research has also confirmed HGN in persons impaired by DXM.</p> <p>Ask: "Do Dissociative Anesthetics cause Vertical Gaze Nystagmus?"</p> <p>Write "Present" on the "VGN" line for Dissociative</p>
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Aides	Lesson Plan	Instructor Notes
	<p>c. Lack of Convergence usually will be present.</p> <p>d. Dissociative Anesthetics do not normally affect pupil size; therefore, a person under the influence of a Dissociative Anesthetic, such as PCP usually will have pupils that are near normal in size.</p> <p>e. Dissociative Anesthetics normally will not effect pupillary reaction to light.</p> <p>3. Indicators of Dissociative Anesthetic influence found in checks of vital signs.</p> <p>a. Dissociative Anesthetics usually increases pulse rate.</p> <p>b. Dissociative Anesthetics usually elevates blood pressure.</p>	<p>Anesthetics.</p> <p>Ask: "Do Dissociative Anesthetics cause the eyes to be unable to converge?"</p> <p>Write "Present" on the "LACK CONV" line for Dissociative Anesthetics.</p> <p>Ask: "How does Dissociative Anesthetics affect pupil size?"</p> <p>Write "Normal" on the "PUPIL SIZE" line for Dissociative Anesthetics.</p> <p>INSTRUCTOR NOTE: Actual DRE evaluations conducted on persons impaired by DXM resulted in pupils in the normal ranges.</p> <p>Write "Normal" on the "RCTN-LIGHT" line for this category.</p> <p>Ask: How do Dissociative Anesthetics affect pulse rate?"</p> <p>Write "Up" on the "PULSE" line for this category.</p> <p>Ask: "How do Dissociative Anesthetics affect blood pressure?"</p> <p>Write "Up" on the "BLOOD PRESS" line for this category.</p>
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Aides	Lesson Plan	Instructor Notes
 10 Minutes	<p>c. PCP and its analogs usually elevate body temperature. Dextromethorphan may or may not rise temperature.</p> <p>E. Narcotic Analgesics</p> <ol style="list-style-type: none"> 1. Narcotic Analgesics include some natural derivatives of opium as well as some synthetic drugs. 2. Indicators of Narcotic Analgesic influence found in eye exams. <ol style="list-style-type: none"> a. HGN will not be present. b. Vertical Gaze Nystagmus will not be present. c. Under the influence of Narcotics, the eyes should 	<p>Ask: "How do Dissociative Anesthetics affect body temperature?"</p> <p>Write "Up" on the "TEMP line for this category.</p> <p>Point out that PCP tends to produce the <u>eye</u> indicators associated with Depressants, and the <u>vital sign</u> indicators associated with CNS Stimulants or Hallucinogens.</p> <p>Solicit students' questions about Dissociative Anesthetics.</p> <p>Ask students to name some examples of Narcotic Analgesics. Make sure the examples include some natural opiates as well as some synthetics.</p> <p>Ask students: "Do Narcotics cause Horizontal Gaze Nystagmus?"</p> <p>Write "None" on the "HGN" line for Narcotics.</p> <p>Ask: "Do Narcotics cause Vertical Gaze Nystagmus?"</p> <p>Write "None" on the "VGN" line for Narcotics.</p> <p>Ask: "Do Narcotics cause the eyes to be unable to converge?"</p>

Aides	Lesson Plan	Instructor Notes
	<p>still be able to converge; therefore, <u>Lack</u> of Convergence usually is <u>not</u> present.</p>	<p>Write "None" on the "LACK CONV" line for Narcotics.</p>
	<p>d. Narcotic Analgesics usually cause a very noticeable constriction of the pupils.</p>	<p>Ask: "How do Narcotics affect pupil size?"</p>
	<p>e. Though there is always some reaction to light, the constricted pupils caused by Narcotic Analgesics make it nearly impossible to perceive a change in pupil size. However, when observed it will generally be little or none visible.</p>	<p>Write "Constricted" on the "PUPIL SIZE" line for Narcotics.</p> <p>Write "Little or None Visible" on the "RCTN-LIGHT" line for Narcotics.</p>
	<p>3. Indicators of Narcotic Analgesic influence found in checks of vital signs.</p>	<p>Ask: "How do Narcotics affect pulse rate?"</p>
	<p>a. Narcotics usually lower pulse rate.</p>	<p>Write "Down" on the "PULSE" line for Narcotics.</p>
	<p>b. Narcotics usually lower blood pressure.</p>	<p>Ask: "How do Narcotics affect blood pressure?"</p>
	<p>b. Narcotics usually lower blood pressure.</p>	<p>Write "Down" on the "BLOOD PRESS" line for Narcotics.</p>
	<p>c. Narcotics usually lower body temperature.</p>	<p>Ask: "How do Narcotics affect body temperature?"</p>
	<p>c. Narcotics usually lower body temperature.</p>	<p>Write "Down" on the "TEMP" line for Narcotics.</p>
		<p>Point out that Narcotics and Depressants tend to produce</p>

Aides	Lesson Plan	Instructor Notes
 10 Minutes	<p>F. Inhalants</p> <ol style="list-style-type: none"> 1. The category of Inhalants includes a wide variety of gases and fumes that have the power to intoxicate. 2. Not all Inhalants affect their users in exactly the same way. <ol style="list-style-type: none"> a. There is probably less consistency in the signs and symptoms of Inhalants than there is with any other category. b. When we talk of the signs and symptoms of Inhalants, we often must qualify our statements. c. For example, we may say that a particular effect will be observed "<u>for most Inhalants</u>". 3. Indicators of Inhalant influence found in eye exams. <ol style="list-style-type: none"> a. With <u>most</u> Inhalants, HGN usually will be present. 	<p>similar indicators in the vital signs, but very different indicators in the eyes.</p> <p>Solicit students' questions about Narcotic Analgesics.</p> <p>Ask students to name some commonly abused Inhalants.</p> <p>Ask students: "Do Inhalants cause HGN"</p> <p>Write "Present" on the "HGN" line for Inhalants.</p>
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Aides	Lesson Plan	Instructor Notes
	<p>b. With most Inhalants, Vertical Gaze Nystagmus may be present, especially with large doses.</p>	<p>Ask: "Do Inhalants cause Vertical Gaze Nystagmus?"</p>
	<p>c. Under the influence of Inhalants, Lack of Convergence usually will be present.</p>	<p>Write "Present" on the "VGN" line for Inhalants. Denote in parentheses above "(High Doses)".</p> <p>Ask: "Do Inhalants cause the eyes to be unable to converge?"</p>
	<p>d. The effect of Inhalants on pupil size depends on the particular substance inhaled.</p>	<p>Write "Present" on the "LACK CONV" line for Inhalants.</p>
	<ul style="list-style-type: none"> o Most Inhalants usually leave the pupils near normal in size. o Some Inhalants may cause pupil dilation. 	<p>Ask: "How do Inhalants affect pupil size?"</p>
	<p>e. Depending on the substance used, Inhalants may cause a slowed reaction to light or the pupils may react normally. However, the most frequently observed effect will be a sluggish reaction to light.</p>	<p>Write "Normal" on the "PUPIL SIZE" line for Inhalants.</p>
	<p>4. Indicators of Inhalant influence found in checks of vital signs.</p>	<p>Put a (4) next to "Normal", and write "Normal, may be dilated." below the matrix.</p>
		<p>Write "Slow" on the "RCTN-LIGHT" line for Inhalants.</p>
		<p>Ask: "How do Inhalants affect pulse rate?"</p>

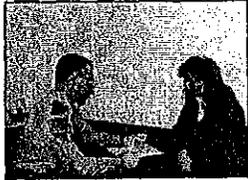
Aides	Lesson Plan	Instructor Notes	
 10 Minutes	<p>a. Inhalants usually elevate pulse rate.</p> <p>b. Most Inhalants usually elevate blood pressure, but some lower blood pressure.</p> <p>c. The effects of Inhalants on temperature depend on the particular substance inhaled.</p>	<p>Write "Up" on the "PULSE" line for Inhalants.</p> <p>Ask: "How do Inhalants affect blood pressure?"</p> <p>Write "Up/Down" on the "BLOOD PRESS" line for Inhalants. Put a (5) Next to "Up/Down" and write down with "Anesthetic Gases and "UP" with "Volatile Solvents and Aerosols".</p> <p>Ask: "How do Inhalants affect body temperature?"</p> <p>Write "Up/Down/or Normal" on the "TEMP" line for Inhalants.</p> <p>Solicit students' questions about Inhalants.</p>	
	<p>G. Cannabis</p>	<p>1. Indicators of Cannabis influence found in eye exams.</p> <p>a. HGN will not be present.</p> <p>b. Vertical Gaze Nystagmus will not be present.</p> <p>c. Under the influence of</p>	<p>Ask students: "Does Cannabis cause Horizontal Gaze Nystagmus?"</p> <p>Write "None" on the "HGN" line for Cannabis.</p> <p>Ask: "Does Cannabis cause Vertical Gaze Nystagmus?"</p> <p>Write "None" on the "VERT NYST" line for Cannabis.</p> <p>Ask: "Does Cannabis cause the eyes to be unable to converge?"</p> <p>Write "Present" on the "LACK</p>
	<p>HS 172A R1/06</p>	<p>VII-16</p>	

Aides	Lesson Plan	Instructor Notes
	<p>Cannabis, Lack of Convergence will be present.</p> <p>d. Under the influence of Cannabis, the pupils may be dilated or possibly normal in size.</p> <p>e. The pupillary reaction to light will appear normal when under the influence of Cannabis.</p> <p>2. Indicators of Cannabis influence found in checks of vital signs.</p> <p>a. Cannabis usually elevates pulse rate.</p> <p>b. Cannabis usually elevates blood pressure.</p> <p>c. Cannabis usually leaves temperature near normal.</p>	<p>CONV" line for Cannabis. Point out that Cannabis is the only category that causes Lack of Convergence but does not cause nystagmus.</p> <p>Ask: "How does Cannabis affect pupil size?"</p> <p>Write "Dilated" on the "PUPIL SIZE" line for Cannabis.</p> <p>Put a (6) next to "Dilated", and write "Possibly normal".</p> <p>Write "Normal" on the "RCTN-LIGHT" line for Cannabis.</p> <p>Ask: "How does Cannabis affect pulse rate?"</p> <p>Write "Up" on the "PULSE" line for Cannabis.</p> <p>Ask: "How does Cannabis affect blood pressure?"</p> <p>Write "Up" on the "BLOOD PRESS" line for Cannabis.</p> <p>Ask: "How does Cannabis affect body temperature?"</p> <p>Write "Normal" on the "TEMP" line for Cannabis.</p> <p>Solicit students questions about Cannabis.</p>
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Aides	Lesson Plan	Instructor Notes
 5 Minutes	H. Wrap-Up	<p>Point out that the matrix summarizes the major signs of drug influence that are examined by DREs. But emphasize there are other signs that a DRE considers in reaching a determination as to the category or combination of drugs affecting a particular subject.</p> <p>These additional signs will be covered in depth during the seven-day DRE School. Solicit students' questions.</p>

	<u>DEPRESS</u>	<u>STIMULS</u>	<u>HALLUCS</u>	<u>D/A</u>	<u>NARCOTS</u>	<u>INHALS</u>	<u>CANNABIS</u>
HGN _____	_____	_____	_____	_____	_____	_____	_____
VGN _____	_____	_____	_____	_____	_____	_____	_____
LACK CONV _____	_____	_____	_____	_____	_____	_____	_____
PUPIL SIZE _____	_____	_____	_____	_____	_____	_____	_____
RCTN- LIGHT _____	_____	_____	_____	_____	_____	_____	_____
PULSE RATE _____	_____	_____	_____	_____	_____	_____	_____
BLOOD PRESS _____	_____	_____	_____	_____	_____	_____	_____
TEMP _____	_____	_____	_____	_____	_____	_____	_____

Session VII - Overview of Signs and Symptoms



Preliminary Training for Drug Evaluation and Classification

VI-1

Objectives

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

Preliminary Training for Drug Evaluation and Classification

VI-2

One Hour and Thirty Minutes

SESSION VIII
ALCOHOL AS A DRUG

SESSION VIII ALCOHOL AS A DRUG

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

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

CONTENT SEGMENTS

- A. A Brief Overview of Alcohol
- B. Physiological Processes
- C. Dose-Response Relationships
- D. Questions for Review

LEARNING ACTIVITIES

- o Instructor-led Presentations
- o Oral Quiz

Aides	Lesson Plan	Instructor Notes
 	<p style="text-align: center;">ALCOHOL AS A DRUG</p>	<p>Display Session Title</p>
<p>90 Minutes</p> 		<p>Briefly review the objectives, content and learning activities of this session.</p>
<p>VIII-1 (Title)</p>		<p>POSE this question to the class: "This is a course on <u>drug</u> impairment recognition; why do we have a session on <u>alcohol</u>?"</p>
 <p>VIII-2 (Objectives)</p>		<p>GUIDE the students' responses to bring out these and other appropriate points:</p>
		<p>(1) Alcohol is a drug, and in fact is the most commonly abused drug.</p> <p>(2) As DREs, the students will often encounter persons who are under the combined influence of alcohol and some other drug.</p> <p>(3) <u>Point out:</u> By understanding the basic fundamental concepts of how alcohol effects the body, students will gain a better understanding of the concept of how drugs effect the body.</p>
 <p>HS 172A R1/06</p>	<p style="text-align: center;">VIII-3</p>	

Aides	Lesson Plan	Instructor Notes
25 Minutes	A. A Brief Overview of Alcohol	Clarification: All of the "alcohols" are chemicals that impair driving ability.
	1. The word "alcohol" refers to a number of distinct but similar chemicals.	Clarification: Most "alcohols" are highly toxic, and will cause blindness or death if consumed in significant quantities. Only one is intended for human consumption.
VIII-3 (Alcohol)	a. Each of the chemicals that is called an "alcohol" is composed of the three elements: hydrogen, carbon, and oxygen.	ASK STUDENTS: What are the names of some of the chemicals that are "alcohols"?
	b. Each of the "alcohols" is a <u>drug</u> within the scope of our definition.	
	c. But only one can be tolerated by the human body in substantial quantities.	
	2. Three of the more commonly-known "alcohols" are Methyl, Ethyl and Isopropyl.	
	a. Methyl Alcohol, also known as Methanol, or "wood alcohol".	
	b. Ethyl Alcohol, also known as Ethanol, or "beverage alcohol".	EMPHASIZE: Ethanol is the only kind of alcohol that humans can tolerate in significant quantities.
		
VIII-4 (Some Types)		
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Aides	Lesson Plan	Instructor Notes
	<p>c. Isopropyl Alcohol, also known as Isopropanol, or "rubbing alcohol".</p> <p>3. Ethanol is the kind of alcohol on which we will focus, because it is the only type intended for human consumption.</p>	
<p>VIII-5 (Ethanol)</p>	<p>a. Ethanol is the active ingredient in beer, wine whiskey and other alcoholic beverages intended for drinking.</p>	<p>Instructor, for your information: The "ET" represents "ethyl", and the "OH" represents an oxygen atom and hydrogen atom, bonded together in what the chemists refer to as the "hydroxy radical". All alcohols have an hydroxy radical in their molecules.</p>
	<p>b. Like all "alcohols", ethanol is composed of hydrogen, carbon and oxygen.</p>	<p><u>Selectively reveal the first part only.</u></p>
<p>VIII-5 (ETOH)</p>	<p>c. Chemists use a number of different symbols to represent ethanol.</p>	<p>Instructor, for your information: The "ET" represents "ethyl", and the "OH" represents an oxygen atom and hydrogen atom, bonded together in what the chemists refer to as the "hydroxy radical". All alcohols have an hydroxy radical in their molecules.</p>
	<p>d. We will stick with the symbol "ETOH".</p>	<p><u>Selectively reveal the first part only.</u></p>
<p>VIII-6 (Production)</p>	<p>4. Ethanol has been around for a long time. People drank it long before they learned to write.</p>	<p><u>Selectively reveal the first part only.</u></p>
<p>HS 172A R1/06</p>	<p>VIII-5</p>	

Aides	Lesson Plan	Instructor Notes
	<p>a. In fermentation, spores of yeast, carried by the wind, come in contact with fruit or grain that has fallen to the ground.</p> <p>b. Sugars in the fruit or grain chemically react with the yeast, and produce ethanol.</p> <p>6. Of course, today we don't sit around waiting for the wind to bring yeast to fallen fruit: Most fermentation takes place on purpose, under controlled conditions.</p> <p>7. Through the process of fermentation, we can produce a beverage that has, at most, about 14% ethanol.</p> <p>a. When the ethanol concentration reaches 14%, the yeast die, so fermentation stops.</p> <p>b. If we want to have a higher concentration ethanol beverage, we have to use another step in the production.</p> <p>8. Distillation is the process used to produce a higher concentration of ethanol.</p> <p>a. In distillation, a fermented beverage is heated to the point where the ethanol begins to boil.</p>	<p>POINT OUT that humans almost certainly first encountered ethanol that had been produced accidentally in this fashion.</p> <p>ASK STUDENTS: "Why can't fermentation produce a higher ethanol concentration than 14%?"</p> <p>Reveal the lower part of visual.</p> <p>POINT OUT that ethanol starts to boil at a lower temperature than does water.</p>
<p>VIII-6 (Distillation)</p>	<p>VIII-6</p>	
<p>HS 172A R1/06</p>		

Aides	Lesson Plan	Instructor Notes
	<p>b. The ethanol vapor is collected and allowed to cool until it turns back into a liquid.</p> <p>c. By repeating the process of heating the liquid and collecting and cooling the vapors, higher and higher concentrations of ethanol can be produced.</p> <p>d. Ethanol beverages that are produced by distillation are called distilled spirits.</p> <p>9. Over the centuries in which people have produced ethanol, some standard sized servings of different beverages have evolved.</p>	<p>ASK STUDENTS to name some "distilled spirits" (e.g., whiskey; vodka; gin; rum; etc.)</p>
<p>VIII-7A (Standard - Beer)</p>	<p>a. Beer is usually served in 12-ounce cans or bottles. Since beer averages an ethanol concentration of four percent, a can or bottle contains a bit less than one-half ounce of pure ethanol.</p>	<p><u>Reveal only the "beer" part.</u></p>
	<p>b. Wine typically is served in a four-ounce glass. At an ethanol concentration of 12 percent, the glass of wine also has just a bit less than one-half ounce of pure ethanol.</p>	<p>Reveal the "wine" part of visual.</p>
<p>VIII-7B (Standard - Wine)</p>	<p>c. Whiskey and other distilled spirits are dispensed in a "shot" glass, which usually contains one and one-quarter ounces of liquid.</p>	<p>Reveal the "whiskey" part of visual.</p>
<p>HS 172A R1/06</p>	<p>VIII-7</p>	

Aides	Lesson Plan	Instructor Notes
 <p data-bbox="250 953 409 1016">VIII-9 (Absorption)</p>	<p data-bbox="594 348 935 445">brought into the lungs, and some molecules will pass into the blood.</p> <p data-bbox="548 485 943 646">c. It could also be inserted as an enema and ingested by quickly passing from the large intestine into the blood.</p> <p data-bbox="548 821 935 947">d. But the vast majority of times that alcohol gets into the body, it gets there via drinking.</p> <p data-bbox="501 989 943 1085">4. Once the alcohol is in the stomach, it will take two routes to get into the blood.</p>	<p data-bbox="992 348 1360 478">alcohol fumes for a prolonged period of time in order to develop a significant blood alcohol concentration.</p>
 <p data-bbox="250 1220 358 1247">VIII-9A</p>	<p data-bbox="548 1121 943 1247">a. One interesting thing about alcohol is that it is able to pass directly through the stomach walls.</p> <p data-bbox="548 1289 935 1451">b. Under normal conditions, about 20% of the alcohol a person drinks gets into the blood by diffusing through the walls of the stomach.</p>	<p data-bbox="992 1121 1292 1184">POINT to that "route of passage" on visual.</p>
 <p data-bbox="250 1619 358 1646">VIII-9B</p>	<p data-bbox="548 1486 943 1682">c. But most of the alcohol usually passes through the base of the stomach into the small intestine, from which it passes quickly into the blood.</p>	<p data-bbox="992 1486 1292 1549">POINT to that "route of passage" on visual.</p>
HS 172A R1/06	VIII-9	

Aides

Lesson Plan

Instructor Notes



VIII-9C

5. Another interesting thing about alcohol is that it does not have to be digested before it can move from the stomach to the small intestine.

a. When a person eats food, the food must remain for a time in the stomach.

b. Acids and enzymes in the stomach must begin to break down the food to prepare it to pass to the lower portion of the gastrointestinal track.

c. While the initial digestive process is underway, a muscle at the base of the stomach will constrict, and shut off the passage to the small intestine.

d. That muscle is called the pylorus, or pyloric valve.

6. Since alcohol doesn't have to be digested, the pylorus does not constrict when alcohol enters the stomach.

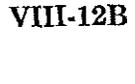
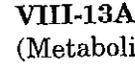
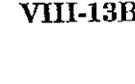
a. If we drink on an empty stomach, the pylorus stays wide open.

b. The alcohol will pass immediately through the base of the stomach, into the small intestine, and quickly move into the bloodstream.

POINT to the pylorus on the visual.

Aides	Lesson Plan	Instructor Notes
 <p>VIII-10B (Basic Principle)</p>	<p>a. Alcohol is attracted to water. The blood will deposit the alcohol in all the parts of the body where water is found.</p> <p>b. Parts of the body that have a lot of water will receive a lot of alcohol.</p> <p>c. Parts of the body that have only a little water will receive little alcohol.</p>	<p>Now reveal lower part of visual.</p>
 <p>VIII-11 (Which Parts ..)</p>	<p>10. Which parts of the body have a lot of water?</p> <p>a. The brain b. The liver c. Muscle tissue d. The kidney</p>	<p>POSE this question, and solicit responses from students. Then, display the <u>first part</u> of visual.</p>
 <p>VIII-11A</p>	<p>11. Which parts contain very little water?</p> <p>a. Bones b. Fatty tissue</p>	<p>POSE this question and solicit responses from students. Then, display the <u>second part</u> of visual.</p>
 <p>VIII-11B</p>	<p>12. The muscle tissue will receive a relatively high proportion of the alcohol that a person drinks.</p>	<p>POINT to "muscle tissue" on visual.</p>
 <p>VIII-11C</p>	<p>13. The fatty tissue will receive very little of the alcohol.</p>	<p>POINT to "fatty tissue" on visual.</p>
HS 172A R1/06	VIII-12	

Aides	Lesson Plan	Instructor Notes
 <p data-bbox="245 590 375 688">VIII-11D (The average..)</p>	<p data-bbox="500 422 922 621">14. Here is an interesting and significant difference between men and women: pound-for-pound, the average male has much more water in his body than the average female.</p> <ul style="list-style-type: none"> <li data-bbox="548 722 922 821">a. The female body has more fatty tissue than does the male body. <li data-bbox="548 856 948 989">b. Pound-for-pound, the average female has more fat and less muscle than does the average male. <li data-bbox="548 1024 922 1188">c. Since fatty tissue has very little water, the average female, pound-for-pound, has less water than the average male. <li data-bbox="548 1224 938 1388">d. This means that the average woman has fewer places in her body in which to deposit the alcohol she drinks. <p data-bbox="500 1423 954 1587">15. The woman's blood alcohol concentration will be higher than the man's, because she has less water in which to distribute the alcohol.</p> <p data-bbox="500 1654 938 1753">16. As soon as alcohol gets into the body, the body begins working to get rid of it.</p>	<p data-bbox="987 422 1383 485">NOW REVEAL the last part of visual.</p> <p data-bbox="987 520 1360 619">ASK students to suggest <u>why</u> this significant difference exists.</p> <p data-bbox="987 722 1365 886">Clarification: the female's extra fatty tissue serves as a "shock absorber" and thermal insulator to protect a baby in the womb.</p> <p data-bbox="987 1224 1383 1451">ASK STUDENTS: Suppose a woman and a man who weigh exactly the same drink exactly the same amount of alcohol under exactly the same conditions. Who will reach the higher BAC?</p> <p data-bbox="987 1486 1383 1619">Solicit students' comments and questions about the distribution of alcohol in the body.</p> <p data-bbox="987 1654 1333 1717"><u>Reveal only the top part</u> of visual.</p>
 <p data-bbox="245 1759 423 1822">VIII-12 (Elimination)</p> <p data-bbox="245 1858 435 1885">HS 172A R1/06</p>	<p data-bbox="776 1858 862 1885">VIII-13</p>	

Aides	Lesson Plan	Instructor Notes
 VIII-12A (Direct ...)	a. Some alcohol is simply expelled directly from the body, i.e., on the breath, in the sweat, in urine, etc.	Reveal the <u>middle part</u> of visual.
 VIII-12B	b. Relatively little of the alcohol we drink is directly expelled from the body.	Clarification: Only about 2-10% of the alcohol we consume is directly excreted in the breath, urine, etc.
 VIII-12B	c. The body eliminates most of the alcohol by chemically breaking it down.	ASK STUDENTS: What organ in the body is primarily responsible for chemically breaking the alcohol down?
 VIII-13A (Metabolism)	d. The liver is primarily responsible for breaking down, or metabolizing, the alcohol.	Reveal the <u>bottom part</u> of visual. Clarification: Some metabolism of alcohol also takes place in other parts of the body, including the brain. But the liver does the vast majority of the job.
 VIII-13A (Metabolism)	17. Metabolism of alcohol actually consists of a slow, controlled burning of the alcohol.	Reveal the <u>first "bullet"</u> of visual.
 VIII-13B	a. In the burning process, the alcohol combines with oxygen.	Reveal the <u>second "bullet"</u> .
 VIII-13B	b. The liver has an enzyme called alcohol dehydrogenase, which helps to speed up the reaction of oxygen with the alcohol.	Clarification: The enzyme does not react with the alcohol itself, but simply makes it easier for the oxygen to react with the alcohol. The technical term for something that helps a chemical reaction while not
HS 172A R1/06	VIII-14	

Aides	Lesson Plan	Instructor Notes
	<p>c. The reaction of alcohol with oxygen ultimately produces carbon dioxide and water, which can be directly expelled from the body.</p>	<p>itself taking part in the reaction is a catalyst.</p> <p>Alcohol dehydrogenase is a catalyst for the metabolism of alcohol.</p>
VIII-13C	<p>d. The speed with which the liver burns alcohol varies from person to person, and will change from time to time for any particular person.</p>	<p>Reveal the <u>third</u> "bullet".</p> <p>Reveal the <u>final</u> "bullet".</p>
	<p>e. BUT ON THE AVERAGE: Due to metabolism, a person's BAC will drop by about 0.015 per hour.</p>	<p>POSE this problem to the class:</p>
VIII-13D	<p>18. For the average male, a BAC of 0.015 is equal to the alcohol content of about two-thirds of a "standard drink".</p> <p>a. i.e., about two-thirds of a can of beer.</p>	<p>Suppose a person reaches a peak BAC of 0.15. How long will it take for his or her body to eliminate all of the alcohol?</p>
HS 172A R1/06	VIII-15	<p>Answer: ten hours [0.15-(X hours)(0.015/hour) X = 10]</p>

Aides	Lesson Plan	Instructor Notes
	<p>b. Or about two-thirds of a glass of wine, or two-thirds of a shot of whiskey.</p> <p>19. For the average woman, a BAC of 0.015 is equal to the alcohol content of only one-half of a "standard drink".</p> <p>a. So the average male can "burn up" about two-thirds of a drink in an hour.</p> <p>b. But the average female can only burn up about one-half of a drink in an hour.</p> <p>c. In other words: Suppose a person gulps down a can of beer, or a glass of wine, or a shot of whiskey; if the person is an average man, it will take him about an hour and one-half to burn up that alcohol; if the person is a woman, it will take her about two hours.</p> <p>20. How can we speed up the metabolism of alcohol?</p> <p>a. We can't speed it up.</p> <p>b. Drinking coffee won't help.</p> <p>c. A cold shower won't help.</p> <p>d. Exercise won't help.</p> <p>21. Our livers take their own sweet time burning the alcohol.</p>	<p>POSE this question to the class.</p> <p>Solicit students' comments and questions about the elimination of alcohol from the body.</p>
HS 172A R1/06	VIII-16	

Aides

Lesson Plan

Instructor Notes



10 Minutes



C. Symptomatology of Alcohol

ALCOHOL

HGN	--->	<u>present</u>
VGN	--->	<u>(high dose) present</u>
LACK CONV	--->	<u>present</u>
PUPIL SIZE	--->	<u>normal</u>
RCTN- LIGHT	--->	<u>slow</u>
PULSE RATE	--->	<u>down</u>
BLOOD PRESS	--->	<u>down</u>
TEMP	--->	<u>normal</u>

1. Indicators of Alcohol influence found in Eye Exams.

- a. HGN will be present.

- b. Vertical Gaze Nystagmus may be present, especially with high doses (for that individual) of alcohol.

Note: Prior to the start of this session, draw the following chart on the dry erase board or flip-chart.

Point out that ETOH may elevate the pulse rate in lower BAC levels.

Ask students: "What category of drugs is alcohol most closely associated?"

Write "Present" on the "HGN" line.

Ask: "Does Alcohol cause Vertical Gaze Nystagmus?"

Write "Present" on the "VGN" line. Denote in parentheses "(High Doses)".

Aides	Lesson Plan	Instructor Notes
	<p>c. Under the influence of alcohol, Lack of Convergence frequently will be present.</p> <p>d. Alcohol does not affect pupil size; therefore, alcohol usually leaves the pupils normal in size.</p> <p>e. Alcohol will cause pupillary reaction to light to be sluggish.</p> <p>2. Indicators of alcohol influence found in checks of vital signs.</p> <p>a. Pulse rate will normally be down. However, some subjects have been found to have elevated pulse rates at lower BACs..</p> <p>b. Blood pressure response to alcohol will normally be down.</p> <p>c. Alcohol usually leaves temperature near normal.</p>	<p>Ask: "Does alcohol cause the eyes to be unable to converge?"</p> <p>Write "Present" on the "LACK CONV" line.</p> <p>Ask: "How do Depressants affect pupil size?"</p> <p>Write "Normal" on the "PUPIL SIZE" line.</p> <p>Write "Slow" on the "RCTN-LIGHT" line.</p> <p>Ask: "How does alcohol affect pulse rate?"</p> <p>Write "Down" on the "PULSE" line. Refer to matrix exception for pulse.</p> <p>Ask: "How does Alcohol affect blood pressure?"</p> <p>Write "Down" on the "BLOOD PRESS" line.</p> <p>Ask: "How does alcohol affect body temperature?"</p> <p>Write "Normal" on the "TEMP" line.</p> <p>Solicit students' questions about the signs and symptoms of alcohol.</p>
HS 172A R1/06	VIII-18	

Aides	Lesson Plan	Instructor Notes
	<p>D. Dose-Response Relationships</p>	(Reveal only the question at the top)
<p>20 Minutes</p>	<p>1. What does "Blood Alcohol Concentration" mean?</p>	Solicit students' responses.
	<p>a. Blood alcohol concentration means the number of grams of pure ethanol that are found in every 100 milliliters of a person's blood.</p>	Reveal the middle part of visual.
<p>VIII-14A (BAC)</p>	<p>b. A gram is a measure of weight; it takes almost 500 grams to make a pound.</p>	Instructor, for your information: It actually takes 454 grams to make a pound.
	<p>c. A milliliter is a measure of volume. It takes about 500 milliliters to make a pint.</p>	Example: A 12-ounce can of beer has about 350 milliliters.
<p>VIII-14B</p>	<p>d. The so-called "illegal limit" of BAC is 0.08 in all states.</p>	Reveal the bottom part of visual.
	<p>e. If a person has a BAC of 0.08, it means there is 0.08 grams (g) of ethanol in every 100 milliliters (ml) of his/her blood.</p>	Point out that in 2005, all 50 states have adopted 0.08 BAC.
<p>VIII-14C</p>		<p><u>Point out</u> that BAC results are reported in a variety of units. Two common variations are milligrams/milliliters and percent. There are 1000 milligrams (mg) in one gram; therefore, 0.08 grams equals 80 milligrams (mg) and a BAC of 0.08 would be reported as 80 mg of ethanol/100 ml of blood.</p>
<p>HS 172A R1/06</p>	<p>VIII-19</p>	

Aides	Lesson Plan	Instructor Notes
	<p>2. How much alcohol does a person have to drink to reach a BAC of 0.08?</p> <ol style="list-style-type: none"> a. Take an average male weighing 175 pounds and in reasonably good physical shape. b. Assume he does his drinking on an empty stomach. c. He would have to gulp down about 4 or 5 cans of beer, or 4 or 5 glasses of wine, or five shots of whiskey in a fairly short period of time to reach 0.08 BAC. d. In terms of pure ethanol, that would amount to just about two and one-half fluid ounces, or about two shot glasses. e. If these two shot glasses were filled with pure ethanol, we would have just enough of the drug to bring an average man to a BAC of approximately 0.10. f. So answer this: Does it take a <u>lot</u> of ethanol to impair a person, or only a <u>little</u>? <p>3. In one respect, it certainly doesn't take much ethanol to impair: Just two full shot glasses will more than do the trick for a full-sized man.</p>	<p>Percent means parts of 100.</p> <p>POSE this question to the class.</p> <p>DISPLAY two standard-sized shot glasses, filled with water.</p> <p>HOLD up the two shot glasses while posing the next question.</p> <p>Solicit students' responses to the question.</p> <p>HOLD up the glasses again.</p>
HS 172A R1/06	VIII-20	

Aides	Lesson Plan	Instructor Notes
	4. BUT COMPARED TO OTHER DRUGS, it takes an enormous quantity of ethanol to cause impairment.	
VIII-15A (Grams...)	5. In order to compare ethanol to other drugs, we have to review some more units of weight.	Reveal only the first "bullet".
	a. We're already familiar with the gram. It weighs only about one five-hundredth of a pound.	Now reveal the second "bullet".
VIII-15B	b. The milligram is much lighter still; it takes one thousand milligrams to make a gram.	Instructor, for your information: The prefix "milli" derives from the latin word mille, meaning one thousand.
	c. That means it takes nearly five hundred thousand milligrams to make a pound.	Now reveal the third "bullet".
VIII-15C	d. If one gram is equal to one thousand milligrams, then one-tenth of a gram is equal to one hundred milligrams.	Clarification: 100 is one-tenth of 1,000.
	e. So a person with a BAC of 0.10 has 100 milligrams of ethanol in every 100 milliliters of his or her blood.	Now reveal the remainder of visual.
VIII-15D	VIII-21	
HS 172A R1/06	VIII-21	

Aides	Lesson Plan	Instructor Notes
 VIII-16A (More on ...)	f. That is exactly the same as saying there is one milligram of ethanol in every one milliliter of blood.	Reveal only the first "bullet".
 VIII-16B	6. Here is a new term: the nanogram. a. It takes a million nanograms to make a milligram.	Now reveal the parenthetic sentence on visual.
 VIII-16C	c. And that means that it takes almost five hundred billion nanograms to make a single pound.	Now reveal the second "bullet" on visual.
 VIII-16D	d. So if a person's BAC is 0.10, he or she has one million nanograms of pure ethanol in every milliliter of blood.	Now reveal the question at the bottom of visual.
 VIII-17A (Drug ...)	7. What kinds of concentrations of other drugs does it take to produce impairment? 8. IT IS MOST IMPORTANT to understand that we cannot state exact correspondences between alcohol concentrations and other drug concentrations.	<u>Don't</u> solicit responses to this question; it is purely rhetorical.
HS 172A R1/06	VIII-22	

Aides	Lesson Plan	Instructor Notes
 <p data-bbox="250 835 376 865">VIII-17B</p>	<p data-bbox="548 365 941 659">a. For example, we can say that someone with a blood alcohol concentration between 0.05 and 0.10 will exhibit significant impairment, because there is a large body of scientific research that backs up that statement.</p> <p data-bbox="548 701 941 890">b. So we can say that research shows that significant impairment will be found, with alcohol, at concentrations of 500,000 to one million nanograms per milliliter.</p> <p data-bbox="548 932 941 1163">c. But we can't say exactly how much cocaine, or THC, or morphine or any other drug it would take to produce exactly the same impairment that we would find at 0.10 BAC.</p> <p data-bbox="548 1205 941 1331">d. In part, this is because we do not have extensive scientific research for most other drugs.</p> <p data-bbox="548 1373 941 1499">e. But also it is because many other drugs do not impair in the same way that alcohol impairs.</p> <p data-bbox="509 1625 941 1835">9. Nevertheless, based on the available research, it is possible to make some general statements about drug concentrations that can safely be said to induce significant</p>	<p data-bbox="997 701 1354 764">POINT to the <u>alcohol</u> line on visual.</p> <p data-bbox="997 1373 1386 1583">EXAMPLE: Unlike alcohol, some other drugs (such as THC and PCP) readily deposit in fatty tissue, and may continue to cause impairment even after they have cleared from the blood.</p>
HS 172A R1/06	VIII-23	

Aides	Lesson Plan	Instructor Notes
 <p>VIII-17C</p>	<p>driving impairment.</p> <p>a. First example: Amphetamines</p> <p>b. Researchers agree that if we had two shot glasses full of pure amphetamine, we'd have enough to impair as many as ten thousand people.</p>	<p>Reveal the <u>Amphetamine</u> line on visual.</p> <p>HOLD UP the two shot glasses again.</p> <p>ASK STUDENTS: What if these shot glasses were full of pure THC, the active ingredient in Cannabis?</p>
 <p>VIII-17D</p>	<p>c. Second example: Cannabis</p> <p>d. Available evidence suggests that if these two little glasses were full of pure THC, we'd have enough drug to impair as many as twenty thousand people.</p>	<p>Reveal the <u>Cannabis</u> (THC) line on visual.</p> <p>ONCE AGAIN, hold up the two shot glasses.</p> <p>ASK STUDENTS: But what if these glasses were full of pure LSD?</p>
 <p>VIII-17E</p>	<p>e. Many researchers believe that significant impairment results from very low LSD concentrations.</p> <p>f. If these two glasses contained pure LSD, we could impair up to one million people.</p> <p>10. What does all this mean?</p> <p>a. First, it means that, compared to alcohol, most other drugs are <u>very</u> powerful: A little goes a very long way.</p> <p>b. Second, it means that laboratories may be stretched to</p>	<p>Reveal the <u>LSD</u> line on visual.</p> <p>NOTE: This is a rhetorical question.</p> <p>Example: A person who is "only" carrying one fluid ounce of LSD (hold up one shot glass) would be capable of impairing "only" the entire population of, say, Wyoming.</p>

Aides	Lesson Plan	Instructor Notes
	<p>the limits of their technologic capabilities when we send them samples and request certain drug analyses.</p> <p>c. All analytic techniques have detection thresholds, i.e., minimum concentrations of drugs that must be present if a scientific confirmation of the presence of the drug is to be obtained.</p> <p>d. If the concentration of the drug is less than the detection threshold, the laboratory simply will not be able to confirm that the drug is present.</p> <p>e. The problem is that some people will be significantly impaired at drug concentrations that are <u>below</u> the lab's detection threshold.</p> <p>f. What this means is that a DRE sometimes examines a subject, concludes correctly that he or she is under the influence of a certain drug category, perhaps even obtains an admission from the subject that he has taken a drug, gets a toxicological sample and sends it off to the lab, ONLY TO HAVE THE LAB REPORT BACK THAT "NO DRUGS WERE FOUND".</p> <p>11. When this happens to you -- and it will -- it is important that you don't let yourself become</p>	

Aides	Lesson Plan	Instructor Notes
<p>HS 172A R1/06</p>	<p>discouraged.</p> <ol style="list-style-type: none"> a. As a DRE, all you are expected to do is the best that you <u>can</u> do, given the tools available. b. You will never become perfect in your diagnosis of drug impairment. c. There will be times when you will "miss" the fact that a subject is impaired. d. And there may times when you will conclude that a subject is under the influence of a drug when, in fact, he or she isn't. e. We rely on the laboratory to corroborate our opinions, to help make sure that an innocent person is not punished because of an honest mistake in judgment on our part. f. The problem is that the laboratory isn't perfect either: The toxicologists won't always be able to corroborate your opinion, even though your opinion is accurate. 	<p>SOLICIT students' comments and questions about dose-response relationships involving alcohol and other drugs.</p>

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?

Answers: Methyl, Ethyl and Isopropyl (or Methanol, Ethanol and Isopropanol or Wood Alcohol, Beverage Alcohol and Rubbing Alcohol). Ethanol is the beverage intended for human consumption. The four letter chemical symbol for alcohol is ETOH.

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?

Answers: Fermentation. Distillation.

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

- A. grams
- B. milligrams
- C. nanograms

Answer: Correct answer is A, "grams"

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

Answer: False. The average woman actually has a good deal less water, pound for pound, than the average man. She has about 55% water, he is about 68% water.

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

Answer: "Proof" means twice the ethanol percentage of the beverage. For example, 80 proof vodka is 40% ethanol.

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

Answer: The three elements common to all alcohols are carbon, hydrogen and oxygen.

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

Answer: The statement is true. Under normal conditions, about 80% of the ethanol in the stomach will pass through the pyloric valve into the small intestine, from which it will quickly move into the bloodstream.

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

Answer: The muscle is called the pylorus, or pyloric valve.

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

Answer: The statement is true. Usually, about 20% of the ethanol a person drinks diffuses through the stomach walls to enter the blood.

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.

Answer: "A", more to drink.

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

Answer: The liver is where most metabolism takes place.

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

Answer: Alcohol dehydrogenase is the enzyme that serves as a catalyst for alcohol's metabolism in the liver.

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

Answer: "B", 0.015 percent. (But remember, this is an average value, with wide variations among individuals).

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

Answer: "A", one million

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.

Answer: The statement is false. The average 175 pound man will need more like ninety minutes to metabolize the alcohol.

Session VIII – Alcohol As A Drug



Preliminary Training For Drug Evaluation and Classification VIII-1

Objectives

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

Preliminary Training For Drug Evaluation and Classification VIII-2

Alcohol

A family of closely-related chemicals whose molecules are made up of hydrogen, carbon and oxygen.

Preliminary Training For Drug Evaluation and Classification VIII-3

Some Types of Alcohol

METHYL ALCOHOL
(Methanol)

ETHYL ALCOHOL
(Ethanol)

ISOPROPYL ALCOHOL
(Isopropanol)

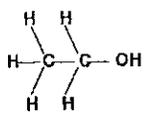
Preliminary Training For Drug Evaluation and Classification VIII-4

Ethanol

Ethyl Alcohol
(Intended for human consumption)

Chemical Symbols

ETOH
 C_2H_5OH



Preliminary Training For Drug Evaluation and Classification VIII-5

Production of Ethanol

- **FERMENTATION**
Yeast combines with sugars from fruit or grains in a chemical reaction that results in ETOH
- **DISTILLATION**
Fermented beverage is boiled at a controlled temperature to extract and concentrate the ethanol fumes

Preliminary Training For Drug Evaluation and Classification VIII-6

Standard-Sized Drinks

- 
CAN OF BEER
 12 ounces of fluid @ 4% alcohol equals 0.48 ounces of pure alcohol
- 
GLASS OF WINE
 4 ounces of fluid @ 12% alcohol equals 0.48 ounces of pure alcohol
- 
SHOT OF WHISKEY (80-Proof)
 1 and 1/4 ounces @ 40% alcohol equals 0.50 ounces of pure alcohol

Preliminary Training For Drug Evaluation and Classification VII-7

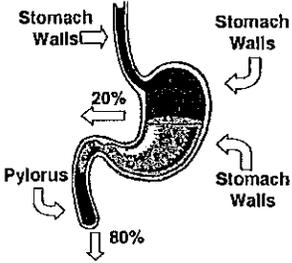
Alcohol is a CNS Depressant



Alcohol Is The Most Abused Drug In The United States

Preliminary Training For Drug Evaluation and Classification VII-8

Absorption of Alcohol



Stomach Walls → 20%
 Pylorus → 80%

Getting the ethanol out of the stomach and into the blood

Preliminary Training For Drug Evaluation and Classification VII-9

Distribution of Alcohol

Getting the ethanol into the body's tissues and organs

Basic Principle:
 Ethanol goes wherever it finds water

Preliminary Training For Drug Evaluation and Classification VII-10

Which parts of the body have lots of water?

The BRAIN The LIVER MUSCLE Tissue

Which parts don't?

Bones FATTY Tissue

The average male is 68 percent water
 The average female is only 55 percent water

Preliminary Training For Drug Evaluation and Classification VII-11

Elimination of Alcohol

Getting the ethanol out of the body:

Direct Excretion:
 Breath, sweat, tears, urine, etc.

Metabolism:
 Primarily in the liver

Preliminary Training For Drug Evaluation and Classification VII-12

Metabolism in the Liver

- The liver burns the ethanol (i.e., causes a chemical reaction of ethanol with oxygen)
- The process is aided by an enzyme called alcohol dehydrogenase
- The ultimate products of the chemical reaction are carbon dioxide and water
- Due to metabolism, the average person's BAC drops by about 0.015 per hour

Preliminary Training For Drug
Evaluation and Classification

VII-13

Blood Alcohol Concentration

What does it mean?

BAC is the number of grams of alcohol found in 100 milliliters of the person's blood.

Example

If a person has a BAC of .08, it means there is 0.08 grams of ethanol in every 100 milliliters (ml) of his or her blood.

Preliminary Training For Drug
Evaluation and Classification

VIII-14

Grams, Milligrams and Nanograms

- A "gram" is pretty light (it takes almost 500 grams to make one pound)
- One gram is equal to one thousand milligrams.
- One-tenth of a gram therefore is equal to one hundred milligrams.

So if a person has a BAC of 0.10, he or she has 100 milligrams of alcohol in every 100 milliliters of blood. That is the same as one milligram in every milliliter.

Preliminary Training For Drug
Evaluation and Classification

VII-15

More on Grams and Nanograms

- One milligram is equal to one million nanograms. (A nanogram is very light: it takes almost 500 billion of them to make a pound.)
- A person whose BAC is 0.10 has one million nanograms of alcohol in every milliliter of blood.

How does alcohol compare with other drugs?

Preliminary Training For Drug
Evaluation and Classification

VIII-18

Drug Concentrations Typically Associated With "Significant" Impairment

DRUG	NANOGRAMS per MILLILITER
ALCOHOL	500,000 to 1,000,000
AMPHETAMINES	100 to 300
THC	50 to 100
LSD	1 to 2

Preliminary Training For Drug
Evaluation and Classification

VIII-17

Questions?

Preliminary Training For Drug
Evaluation and Classification

Thirty Minutes

SESSION IX
PREPARING FOR THE DRE SCHOOL

SESSION IX PREPARING FOR THE DRE SCHOOL

Upon successfully completing this session the student will be informed of the logistical and other arrangements necessary for their participation in the seven day DRE School.

SESSION IX GUIDE

Review the following points with the students:

- a. Dates of the seven-day school
- b. Location of the school
- c. Dress code
- d. Materials that the students should bring to the school
- e. Transportation arrangement (if applicable)
- f. Lodging arrangements (if applicable)
- g. Recreational facilities and opportunities (if appropriate)

Tell the students to open their manuals to Session IX. Point out that a detailed description of "Things you will need at the DRE School" is presented there. Also point out that some very important suggestions of "things to do prior to the DRE School" are given there. Emphasize that the students will be expected to be fully prepared when they come to the school. This is also a good time for the students to begin preparation of their professional Curriculum Vitae (C.V.). A worksheet for the C.V. is provided on the following page and is located in Session IX of the DRE student manual.

DRE CURRICULUM VITAE (C.V.) 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 DEC program)

Session IX -- Preparing for the DRE School



Preparatory Training For Drug Evaluation and Classification IX-1

Objectives

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

Preparatory Training For Drug Evaluation and Classification IX-2

Seven-Day DRE School

- Dates
- Location
- Dress Code
- Material Needed
- Transportation
- Lodging
- Other

Preparatory Training For Drug Evaluation and Classification IX-3

Forty-Five Minutes

SESSION X
CONCLUSION OF THE PRELIMINARY TRAINING

SESSION X CONCLUSION OF THE PRELIMINARY TRAINING

Upon successfully completing this session the student will have:

- o Demonstrated his or her knowledge of the concepts covered during the DRE Pre-School.
- o Offered anonymous comments and criticisms concerning the school.

CONTENT SEGMENTS

- A. Post-Test and Critique
- B. Certificates and Dismissal

LEARNING ACTIVITIES

- o Written Examinations

Aides	Lesson Plan	Instructor Notes
 45 Minutes	CONCLUSION OF THE PRELIMINARY TRAINING	Display Session Title
 X-1 (Title)		
 X-2 (Objectives)		Briefly review the content, objectives and activities of this session.
 35 Minutes	A. Post-Test and Critique <ol style="list-style-type: none"> 1. Post-test 2. Critique 3. Review of Post-test 	<p>Hand out copies of the post-test. Allow about 15 minutes for students to complete the test.</p> <p>Hand out copies of the Student's Critique Form.</p> <p>Allow about 15 minutes for students to complete the critique.</p> <p>Go over the post-test questions. Limit this review to 10 minutes. Instruct the students to retain the Pre-School post-test as a study guide for the upcoming DRE School.</p> <p>Collect the completed critiques.</p>
HS 172A R1/06	X-3	

Aides**Lesson Plan****Instructor Notes****10 Minutes****B. Certificates and Dismissal**

Hand out certificates of course completion.

Hand back the students' Certification Progress Logs, after making sure that an instructor has signed the Pre-School line on each log. Remind the students that they must bring the progress logs with them to the DRE School.

Tell the students to open their manuals to Session X. Point out the "Post Test" that is given there. Emphasize that the "Post Test" is a very useful study device that will help them get ready for the DRE School. Urge them to take the "Test" as a self-study exercise at least once between now and the start of the school.

Thank the students for their participation.

Session X – Conclusion of the Preliminary Training



Preliminary Training For Drug Evaluation and Classification X-1

Objectives

- Demonstrate knowledge of the concepts covered during the training
- Offer anonymous comments and criticisms concerning the school

Preliminary Training For Drug Evaluation and Classification VII-2

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.
