SESSION IV

OVERVIEW OF DRUG EVALUATION AND CLASSIFICATION PROCEDURES

SESSION IV OVERVIEW OF DRUG EVALUATION AND CLASSIFICATION PROCEDURES

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

- Name the components of the Drug Evaluation and Classification program drug influence evaluation.
- State the purposes of each component.
- Describe the activities performed during each component.
- Correctly answer the "topics for study" questions at the end of this session.

A. Components of the Drug Evaluation and Classification (DEC) Procedure

The DEC procedure is a systematic and standardized method of examining a subject to determine:

(1) Whether the subject is impaired; and if so,

(2) Whether the impairment is caused by drugs or a medical condition; and if drugs,

(3) The category or combination of categories of drugs that are the likely cause of the subject's impairment.

It is a systematic process because it is based on a complete set of observable signs and symptoms that are known to be reliable indicators of drug impairment. A DRE never reaches a conclusion based on any one element of the evaluation, but instead on the totality of facts that emerge. These facts are obtained from careful observations of the subject's:

- appearance
- behavior
- performance of psychophysical tests
- eyes
- vital signs
- any other evidence

The evaluation is standardized because DRE officers perform it the same way every time. By conducting a systematic and standardized evaluation, you will help avoid mistakes and help promote and maintain professionalism and consistency among DREs. Perhaps most importantly, you will help secure the court's acceptance of your testimony.

The systematic and standardized evaluation is broken down into twelve major components or steps. The checklist on the next page lists the steps in the sequence in which they are performed. DREs refer to the checklist every time they conduct an evaluation.

Note: There may be cases in which the DRE is unable to complete each step of the evaluation due to circumstances beyond his or her control such as injury to the subject, uncooperativeness of the subject, or equipment failure. In such cases, the DRE may still be able to form an opinion based on the evidence that he/she is able to observe and document. (See State v. Cammack, 1997 WL 104913 (Minn. Ct, App. 1997) (DRE need not complete entire 12-step evaluation for opinion to be admissible so long as there is sufficient admissible evidence which supports the DRE's opinion.)

INTERNATIONAL ASSOCIATION OF CHIEFS OF POLICE
DRUG EVALUATION AND CLASSIFICATION PROGRAM
DRUG INFLUENCE EVALUATION CHECKLIST

_____ 1. Breath alcohol test

_____ 2. Interview of arresting officer

_____ 3. Preliminary examination and first pulse
(Note: Gloves must be worn from this point on.)

_____ 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

The 12-step drug influence evaluation procedure includes the following:

1. Breath Alcohol Test, to determine the subject's blood alcohol concentration (BAC).

   By obtaining an accurate and immediate measurement of BAC, the DRE can determine whether alcohol may be contributing to the subject's observable impairment, and whether the concentration of alcohol is sufficient to be the sole cause of that impairment.

   It is always possible that a person suspected of being under the influence of drugs other than alcohol may actually have consumed only alcohol. However, it is also very common to find that a subject has consumed alcohol and other drugs.

2. Interview of the Arresting Officer, to take advantage of the things that he or she may have seen or heard during earlier contact with the subject.

   Most arresting officers are not as knowledgeable about drugs as are DREs. The arresting officers may have uncovered some drug paraphernalia, or overheard the subject using drug related "street" terms, without recognizing their significance. A few minutes spent in a careful discussion with the arresting officer can alert the DRE to the most promising areas of investigation to be explored with the subject.

3. Preliminary Examination, which is a structured series of questions, specific observations and simple tests that provides the first opportunity to examine the subject closely and directly. **NOTE: to avoid infection, the DRE must wear gloves from this portion of the evaluation on.**

   One major purpose of the preliminary examination is to determine if the subject may be suffering from an injury or some other condition not necessarily related to drugs. Another major purpose is to begin systematically assessing the subject's appearance, behavior, etc. for signs of possible drug influence.

4. Examinations of the Eyes, which include Horizontal Gaze Nystagmus, Vertical Gaze Nystagmus and a check for Lack of Convergence.

   Nystagmus is caused by certain categories of drugs. Nystagmus is an involuntary jerking of the eyes as the eyes gaze to the side or as they are elevated. The presence of nystagmus, and the point at which it becomes observable, can shed light on the possible presence of those categories and the extent to which they may be affecting the subject.

The inability of the eyes to converge toward the bridge of the nose also gives evidence of the possible presence of certain categories of drugs.

5. Divided Attention Psychophysical Tests, which include the Romberg Balance; the Walk and Turn; One Leg Stand; and the Finger to Nose.

   The subject's performance of these tests produces articulable evidence of their psychophysical impairment. The specific errors of omission or commission may point toward the categories of drugs that are behind that impairment.

6. Vital Signs Examinations, which include systematic checks of the subject's blood pressure; pulse rate; and temperature.

   Certain categories of drugs may elevate blood pressure, pulse rate and raise the body temperature. Other drugs would have precisely the opposite effects. Vital signs as well as physical observations thus provide much valuable evidence of the presence and influence of a variety of drug categories.

7. Dark Room Examinations, which include systematic checks of the size of the pupils of the subject's eyes; the reaction of the pupils to light; and evidence of ingestion of drugs by nose or mouth.

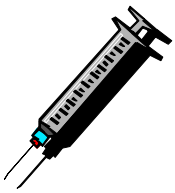
   Certain categories of drugs affect the eyes, and especially the pupils, in predictable ways. By examining the eyes under carefully controlled lighting conditions, important evidence of those drug categories may be obtained.

8. Examination for Muscle Tone

   Certain categories of drugs will cause the muscles to become rigid, while others may cause the muscles to become flaccid.

   Examination of a subject's muscle tone is done by checking their left arm, firmly grasping the upper arm and slowly moving down to determine whether the muscle tone is flaccid, near normal or rigid.

9. Examination for Injection Sites, e.g. via hypodermic needles.

   Users of certain categories of drugs routinely or occasionally ingest their drugs via injection. Evidence of needle use (scars, "tracks", etc.) may be found on veins along the neck, arms, legs, etc.

10. Subject's Statements and Other Observations.

    Based on the nine previous components of the drug influence evaluation, the DRE should have formed at least an articulable suspicion as to the category or categories of drugs that may be present. The DRE then can proceed, in full conformance with the subject's Miranda rights, to attempt to interview the subject concerning the drug or drugs involved.

11. Opinion of the Evaluator

Based on all of the evidence and observations obtained during the preceding ten steps, the DRE should be able to reach an informed opinion concerning:

- Whether the subject is under the influence of a drug or drugs; and if so,
- The category or combination of categories of drugs that is the probable cause of the subject's impairment.

These conclusions must be documented, along with a narrative summary of the observed facts that led to the conclusions.

12. Toxicological Examination, which is a chemical test or tests that can provide scientific, admissible evidence to substantiate the DRE conclusions.

B. General Guidelines For Interviewing The Arresting Officer

In most cases, the people you examine on suspicion of drug impairment will not be people whom you arrested. Some other officer usually will have had the first contact with the subject and will have made the arrest. The charge or charges of arrest may vary widely and may or may not involve a traffic related offense. In any event, the situation usually will be that the arresting officer (or someone else) recognizes that the subject may be impaired, has some reason to believe that drugs other than alcohol may be contributing to the impairment, and summons you to conduct an evaluation of the subject.

In a particular case, the arresting officer may happen to be quite knowledgeable about drugs and may have some very well informed suspicions as to what types of drugs the subject may be using. In another case, the arresting officer may not have the knowledge as to the kinds of drugs that may be involved. But in all cases there is the possibility that the arresting officer may have seen, heard, smelled or uncovered something that could be a significant clue of drug influence to a trained DRE. A few minutes spent in a careful, systematic interview of the arresting officer may supply the DRE with some very important insights as to the categories of drugs most likely to be found in the particular case at hand.

The key concept here is that the interview be systematic. The DRE shouldn't simply ask the arresting officer an open-ended question such as "What do we have here?" The arresting officer may not be sufficiently knowledgeable about drugs to recognize what is relevant and what is not. Instead, the DRE should inquire in a logical sequence as to the subject's behavior, statements and any physical evidence that may have been uncovered.

Inquiries concerning the subject's behavior

(1) Was the subject operating a vehicle?
(This may help to establish whether the implied consent law applies to this particular case, and also serve to identify whether potential traffic law violations may be relevant.)

(2) What vehicle/operator actions, maneuvers, etc. were observed?
(This may disclose evidence of impaired divided attention ability, relaxed inhibitions, etc.)

(3) Was there a crash?
(This can indicate whether the subject may have suffered injuries that could confound the drug evaluation.)

(4) Was the subject observed smoking, drinking or eating?
(All of these are common means of ingesting various drugs.)

(5) Was the subject inhaling any substance?
(Another common method of ingesting certain drugs.)

(6) How did the subject respond to the arresting officer's stop?
(Actions during the stopping sequence may also disclose indicators of impairment.)

(7) Did the subject attempt to conceal or throw away any items or materials?
(Such materials may have been drugs or drug-related paraphernalia.)

(8) What has been the subject's attitude and demeanor during contact with the arresting officer and have there been any changes?

(This information can be relevant to the DRE's own safety, and can also shed light on the kinds of impairment the subject may be experiencing.)

Inquiries concerning the subject's statements

(9) Has the subject complained of an illness or injury?
(An illness or injury could confound the drug evaluation, but could also suggest the effects of certain types of drugs.)

(10) Has the subject used any "street terms" or slang associated with drugs or drug paraphernalia? (Persons who use such terms are likely to be users of the

drugs to which the terms relate.) NOTE: The arresting officer might not recognize "street terms" for what they are. It may be useful to follow up this question by asking the officer whether the subject used any unusual or unfamiliar words or phrases.

(11) How has the subject responded to the arresting officer's questions? (Impairment may be evident, in a variety of ways, from the manner of the subject's responses.)

(12) Was the subject's speech slurred, slow, rapid, thick, mumbled, incoherent, etc? (Various types of drugs may affect speech in various ways.)

(13) What, specifically, has the subject said to the arresting officer? (Numerous utterances may shed light on the kinds of drug-related effects that the subject is experiencing.)

Inquiries Concerning Physical Evidence

(14) What items or materials were uncovered during the search of the subject and/or vehicle? (Even seemingly innocuous or familiar items may be recognized by trained DREs as being associated with possible drug use.)

(15) Were any smoking paraphernalia uncovered? (Even routine smoking items, such as commercially produced cigarettes, pipes, etc. may disclose evidence of drugs.)

(16) Was there any injection related material? (For example, such material could include needles, syringes, leather straps or rubber tubes used as tourniquets to help expose veins, bent spoons or bottle caps used in heating and dissolving drugs, etc.)

(17) Were there any balloons, plastic bags, small metal foil wrappings or any similar items? (These kinds of items frequently are used as drug containers.)

(18) What was the subject's blood alcohol concentration? (If an attempt to administer a breath test has not yet been made, the DRE should do so now.)

C. Overview of The Preliminary Examination

The preliminary examination of the subject consists of a series of questions; observations of the subject's face, breath and speech; an initial series of checks of the subject's eyes; and the first of three checks of the subject's pulse rate that will be made during the drug influence evaluation. As a safety precaution, officers should secure their weapons prior to beginning the evaluation.

The questions are a set of formal inquiries about any injuries or medical problems from which the subject may be suffering. Courts generally hold that these questions do not conflict with the subject's Miranda rights. However, you should be guided by your department's policy and procedure concerning the possible need to admonish the subject of those rights prior to posing these questions. The questions include:

- Are you sick or injured?
- Do you have any physical defects?
- Are you diabetic or epileptic?
- Do you take insulin?
- Are you under a doctor's or dentist's care?
- Are you taking medication?

Answers to these questions may disclose circumstances that could impede or confound the subsequent steps in the drug evaluation. The subject's answers, and the manner in which he or she answers, could also give evidence of the possible presence of certain types of drugs. If any affirmative responses are given, the DRE should ask appropriate follow up questions.

The observations of the subject's face, breath and speech are straight forward. Make note, for example, if the face appears flushed or pale, and if the subject appears to be perspiring. Any noteworthy odors of the breath should be recorded, such as alcoholic beverages; marijuana; or a chemical odor. If the subject's speech is in any way distorted, this too should be recorded.

The initial checks of the subject's eyes include some very important steps. One of these is the visual check for equal pupil size. Look at the subject's eyes to determine whether the pupils appear to be equal. If the pupils appear to be unequal, a further check will be necessary. This check is made by using a device called a "pupillometer", which has a series of small circles or semi-circles of various diameters. The diameter is measured and indicated in millimeters ("mm"). By holding the pupillometer alongside the subject's eye, you can determine which circle/semi-circle is approximately the same size as the pupil. You must check both pupils.

A second important check of the eyes is an assessment of the eyes' tracking ability. You should hold a pencil, penlight or similar object about 12 - 15 inches in front of the subject's nose, and move it smoothly to the subjects extreme left, and smoothly back to the extreme right, instructing the subject to follow the stimulus with their eyes only. Always make at least two complete passes in front of the subject's eyes. If the two eyes do not exhibit the same tracking ability, this too may indicate a possible head injury or medical problem.

After assessing the subject's tracking ability, you can also perform a preliminary assessment of whether Horizontal Gaze Nystagmus is present in the subject's eyes. In particular, if the nystagmus or "jerking" is observed, an initial estimation of the angle of onset can be made. The approximate angle of onset may help to determine whether the subject has consumed some drug other than alcohol.

If there is a significant disparity between the nystagmus angle of onset, and what would be expected from the known BAC, the DRE should be alert to the possible presence of some other nystagmus causing drug.

The nystagmus angle of onset is one clue to consider in assessing whether drugs other than alcohol may be present. But it certainly is not the only clue to consider, and it is far from being the most important.

One final thing to be examined in the initial checks of the subject's eyes is the condition of the eyelids. Many drugs will cause the eyelids to droop, as the user exhibits a sleepy appearance. A drooping of one eyelid, but not the other, possibly signifies an injury or other medical problem. The medical, or technical, term for droopy eyelids is Ptosis.

The final element in the preliminary examination is the first check of the subject's pulse rate. Pulse rate is one of the vital signs that serve as very reliable indicators of the possible presence of certain categories of drugs. Pulse rate can also be affected by anxiety, and it is common for an arrested subject to experience anxiety while being examined by a police officer. Pulse rate is measured near the beginning of the drug influence evaluation, again during the middle, and finally near the end to allow the subject's anxiety to "settle down" before the last measurement.

D. Overview of the Examinations of the Eyes

Prior to administration of HGN, the eyes are checked for equal tracking (can they follow an object together) and equal pupil size. If the eyes do not track together, or if the pupils are noticeably unequal in size, the chance of medical disorders or injury may be present.

If the subject is wearing eyeglasses have them removed. Position the stimulus approximately 12-15 inches from the subject's nose and slightly above eye level. You may observe Resting Nystagmus at this time. Check the subject's eyes for the ability to track together. Move the stimulus smoothly across the subject's entire field of vision. Check to see if the eyes track the stimulus together or if one lags behind the other. If the eyes don't track together it could indicate a possible medical disorder, injury or blindness.

Next, check to see that both pupils are equal in size. If they are not, this may indicate a head injury, or some other complication.

DREs obtain important evidence of the presence of certain drug categories from three examinations of the subject's eyes:

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

HORIZONTAL GAZE NYSTAGMUS (HGN) should already be familiar to you as a highly reliable Standardized Field Sobriety Test for alcohol impairment. In fact, HGN not only is a powerful indicator of alcohol impairment, but it will also disclose impairment by CNS Depressants, Dissociative Anesthetics, and by most Inhalants. These three categories of drugs usually will cause HGN.

You should check for the following three clues of HGN in each eye:

Clue #1: Lack of Smooth Pursuit

Start with a stimulus (pencil, pen, penlight, etc.) held vertically in front of the subject's face, above eye level and approximately 12 to 15 inches away from the subject's nose. Tell the subject to keep his/her eyes focused on the stimulus, to hold their head still and to follow the movement of the stimulus with their eyes only.

Check the subject's left eye by moving the stimulus smoothly to the subject's extreme left, then smoothly all the way to his/her extreme right, then smoothly back to the extreme left and then back to the extreme right. The stimulus should be moved at a speed that requires approximately 2 seconds (between 1.5 and 2.5 seconds) to bring it from the center to the subjects extreme left, and approximately 4 seconds (between 3 and 5 seconds) to bring it from one side to the other. Two complete passes should be made in front of the eye: that is, from the center to left the side, back to the right side, back to the left side again, back to the right side, and finally back to the center.

While the eye is moving, you should examine it closely for signs of "a lack of smooth pursuit". If a person is not under the influence of a CNS Depressant, Inhalant, or a Dissociative Anesthetic (D.I.D. drugs), their eyes should glide smoothly in the sockets, in much the same way that windshield wipers slide smoothly across the windshield when it is raining steadily. But if the person is under the influence of one of those

three categories of drugs, their eyes will usually jerk noticeably as they move, similar to a windshield wiper dragging across a dry windshield.

Clue #2: Distinct and Sustained Nystagmus at Maximum Deviation

Continue with the stimulus about 12 - 15 inches in front of the subject's face, with the tip of the stimulus above eye level. Instruct the subject to keep his/her head still and follow the stimulus with their eyes. Move the stimulus all the way to the subject's left side, until the eye is turned to its maximum deviation. Hold the stimulus in that position for at least four seconds, and carefully observe the eye. Then, repeat the process with the stimulus at the subject's extreme right side. Persons under the influence of alcohol or other nystagmus causing drugs usually will exhibit a distinct, sustained, pulsating, very pronounced jerking when the eye is at maximum deviation. In order to consider this clue as "present", you must observe a clear, sustained and unmistakable jerking. A slight, barely visible tremor **does not** constitute "distinct jerking".

Clue #3: Angle of Onset

When you use HGN as a Standardized Field Sobriety Test of alcohol impairment, you are used to determining whether the jerking of the eye begins prior to 45 degrees. As a DRE, you are going to have to be a bit more precise than that. Within certain limits, it is important for the DRE to estimate the actual angle at which the jerking first begins. We need to do this because it gives us a clue as to whether the subject is impaired by alcohol alone, or by some combination of alcohol with another Depressant, an Inhalant, or a Dissociative Anesthetic.

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

BAC = 50 - Angle of Onset

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

It is important to keep in mind that this formula expresses an average, approximate statistical relationship, **not a precise mathematical relationship**. Humans (and their eyes) do not all react to alcohol or other drugs in exactly the same way. The formula may be reasonably accurate for some people, but much less accurate for others.

The formula is **not** sufficiently accurate for us to use HGN to produce evidence of a specific BAC, and courts routinely reject any attempt to do so. But the formula is of value to us as DREs because it can help us detect an evident gross disparity between the subject's BAC and the nystagmus that is observed.

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

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

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

VERTICAL GAZE NYSTAGMUS

Vertical Gaze Nystagmus, like HGN, is a jerking of the eyes. Vertical Gaze Nystagmus is an involuntary jerking of the eyes (up and down) which occurs when the eyes gaze upward at maximum elevation.

Vertical Gaze Nystagmus is associated with the very same drugs that cause Horizontal Gaze Nystagmus. In other words, Vertical Gaze Nystagmus may be exhibited by someone who is under the influence of any CNS Depressant (including alcohol), an Inhalant or a Dissociative Anesthetic such as PCP and its analogs. By the same token, Vertical Gaze Nystagmus, like HGN, is not produced by CNS Stimulants, Hallucinogens, Cannabis or Narcotic Analgesics. High doses for that individual of Depressants, Inhalants or a Dissociative Anesthetic usually cause Vertical Gaze Nystagmus. Therefore, it is not uncommon to encounter subjects who exhibit HGN, but do not exhibit Vertical Gaze Nystagmus.

To check for Vertical Gaze Nystagmus, hold a stimulus horizontally in front of the subject, approximately 12-15 inches in front of the subject's nose. Direct the subject to focus his/her eyes at a specific point on the stimulus. Instruct the subject to hold his/her head steady and to follow the stimulus with their eyes only. Elevate the stimulus until the eyes are raised as far as possible and hold them at that position for a minimum of four seconds. Observe the eyes closely to see whether any up and down jerking occurs. With Vertical Gaze Nystagmus, we do not attempt to identify an angle of onset. Vertical Nystagmus is either present or not present. There is no drug that will cause Vertical Gaze Nystagmus that will not cause Horizontal Gaze Nystagmus.

Remember, the mere fact that Vertical Gaze Nystagmus is present does not guarantee that the subject is under the influence of some drug other than alcohol. Alcohol itself will cause Vertical Gaze Nystagmus, if the BAC is high for that individual. Remember that there are many drugs that do not cause Vertical Gaze Nystagmus.

LACK OF CONVERGENCE

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

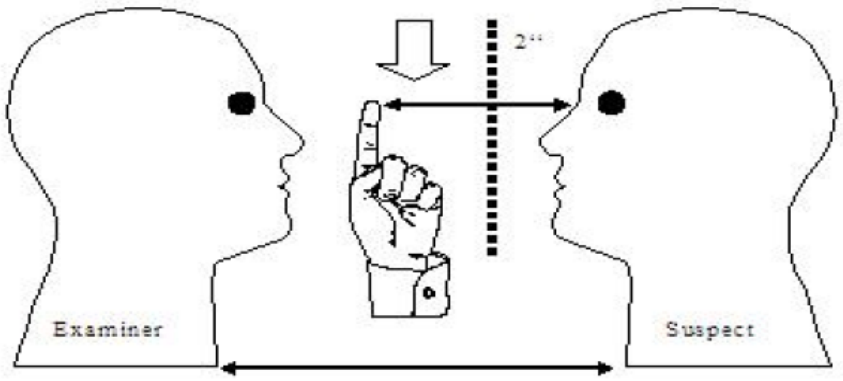
Instruct the subject to keep their head steady and to follow the movement of the stimulus with the eyes only.

Start moving the stimulus in a circle in front of the subject's face either clockwise or counterclockwise, and observe the eyes to verify that the subject is tracking the stimulus. Then move the stimulus to within approximately two inches of the bridge of the nose. Carefully observe the subject's eyes to determine whether both eyes converge on the stimulus.

Note: You should not touch the subject's nose nor come any closer than approximately two (2) inches from the bridge of the nose. Also, you should keep the stimulus high enough so that you can observe the eye movements, making sure the subject does not close his/her eyes to a point where you cannot observe them.

If the eyes are able to cross (converge) i.e. if they come together at a minimum of two inches (2") from the bridge of the nose, Lack of Convergence is "not present", But if one eye drifts away or outward toward the side instead of converging to the bridge of the nose or to the point of convergence (approximately 2 inches from the bridge of the nose), Lack of Convergence is "present". (Refer to the diagram on the next page).

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



If the subject cannot converge one or both eyes on the stimulus at approximately two inches from the bridge of the nose, then Lack of Convergence is "**present**"

We record the results of this test by diagramming the movement of the eyes as they come together and then at their final position when the stimulus is moved in to approximately two inches from the bridge of the nose.

Lack of Convergence usually occurs with people who are under the influence of any drug that causes HGN. CNS Depressants, Inhalants and Dissociative Anesthetics usually will cause Lack of Convergence. Cannabis also will usually cause Lack of Convergence, even though it doesn't cause HGN. Other kinds of drugs, i.e. CNS Stimulants, Hallucinogens and Narcotic Analgesics usually do not prevent the eyes from converging. You should be aware that many people have difficulty crossing their eyes even when they are totally drug free, and it is not uncommon to find unimpaired individuals who exhibit Lack of Convergence.

E. Review of the Divided Attention Psychophysical Tests

Four divided attention tests are administered to subjects during a drug influence evaluation.

<u>Romberg Balance</u>

The Romberg Balance test used by DRE's is a modified version of the original Romberg Balance test developed in the 19th Century.

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

Administrative Procedures

- Tell the subject to stand straight with his/her feet together and his/her arms down at their sides.
- Tell the subject to maintain that position while you give the instructions. Emphasize that he or she must not start the test until you say "begin".
- Ask the subject if he or she understands so far.
- Tell the subject that, when you tell them to, they must tilt their head back and close their eyes. DEMONSTRATE how the head should be tilted, but DO NOT CLOSE YOUR EYES while demonstrating.
- Tell the subject that when you say "Start", they must keep their head tilted back with their eyes closed until they think that 30 seconds have gone by. DO NOT tell the subject to "count to thirty seconds" or to use any other specific procedure to keep track of time. But on the other hand, DO NOT tell the subject that they are not allowed to count to thirty seconds. SIMPLY SAY, "keep your head tilted back with your eyes closed until you think that thirty seconds have gone by".
- Tell the subject that, when they think the 30 seconds have gone by, they must bring their head forward, open their eyes and say "Stop".
- Ask the subject if they understand.
- Look at your watch and pick a convenient time to start the test.
- Tell the subject to tilt their head back and close their eyes.
- Tell the subject to begin.
- Keep track of time while the subject performs the test.
- When the subject opens his/her eyes, ask them "how much time was that?"
- If 90 seconds elapses before the subject opens his/her eyes, stop the test.

Documenting the test

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

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

Look and listen for the following:

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

Document any of the above, or any other noteworthy observations, across the chest areas of the "stick figures", and elaborate as necessary on the reverse side of the drug influence evaluation face sheet.

Walk and Turn

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

For the DEC evaluation, this test requires a straight line long enough to allow the subject to take 12-15 heel-to-toe steps.

Procedures for Walk-and-Turn Testing

1. Instructions Stage: Initial Positioning and Verbal Instructions

   For standardization in the performance of this test, have the subject assume the heel-to-toe stance by giving the following verbal instructions, accompanied by demonstrations:

   - "Place your left foot on the line". Demonstrate.

- "Place your right foot on the line ahead of the left foot, with the heel of your right foot against the toe of left foot." Demonstrate.

- "Place your arms down at your sides." Demonstrate.

- "Maintain this position until I have completed the instructions. Do not start to walk until told to do so."

- "Do you understand the instructions so far?" (Make sure subject indicates understanding.)

2. Demonstrations and Instructions for the Walking Stage

Explain the test requirements, using the following verbal instructions, accompanied by demonstrations:

- "When I tell you to start, take nine heel-to-toe steps on the line, turn, and take nine heel-to-toe steps on the line back." (Demonstrate 3 heel-to-toe steps.)

- "When you turn, keep the front foot on the line, and turn by taking a series of small steps with the other foot, like this." (Demonstrate).

- "While you are walking, keep your arms at your sides, watch your feet at all times and count your steps out loud."

- "Once you start walking, don't stop until you have completed the test."

- "Do you understand the instructions?" (Make sure subject indicates understanding.)

- "You may begin."

NOTE: If the subject fails to either look at his/her feet or count their steps out loud, remind them to do so and note the occurrence on the evaluation form.

Note: There may be times when the subject will have to be reminded that step "one" is the first step taken from heel-to-toe position.

Documenting the test

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

vertical line across the “toe” where this clue was noted and mark the line with an “M”.

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

- Cannot keep balance. (i.e. feet break away from the heel to toe stance);
- Starts too soon (i.e. subject starts walking before told to do so).

At the top of the checklist portion of the Walk and Turn segment of the drug influence evaluation face sheet, you will record the numbers of times these two clues were observed while you were giving the instructions. For example, if the subject breaks away from the heel to toe stance twice, put two check marks on the "Cannot keep balance" line.

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

- Stops while walking
- Does not touch heel to toe (by more than ½ inch)
- Steps off the line
- Uses arms to balance
- Improper turn
- Incorrect number of steps

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

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

One Leg Stand

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

Procedures for One-Leg Stand Testing

1. Instructions Stage: Initial Positioning and Verbal Instructions

Initiate the test by giving the following verbal instructions, accompanied by demonstrations.

- "Please stand with your feet together and your arms down at the sides, like this." (Demonstrate)
- "Do not start to perform the test until I tell you to do so."
- "Do you understand the instructions so far?" (Make sure subject indicates understanding.)

2. Demonstrations and Instructions for the Balance and Counting Stage

Explain the test requirements using the following verbal instructions, accompanied by demonstrations:

- "When I tell you to start, raise your (right/left) leg, approximately six inches off the ground, foot parallel to the ground." (Demonstrate one leg stance.)
- "You must keep both legs straight and your arms at your side."
- "While holding that position, count out loud in the following manner: "one thousand one, one thousand two, one thousand three, until told to stop." (Demonstrate a count, as follows: "one thousand one, one thousand two, one thousand three, etc." Officer should not look at his foot when conducting the demonstration - OFFICER SAFETY.)
- "Keep your arms at your sides at all times and keep watching the raised foot."
- "Do you understand?" (Make sure subject indicates understanding.)
- "You may begin."

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

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

AFTER the subject completes the test while standing on the left leg, have him/her

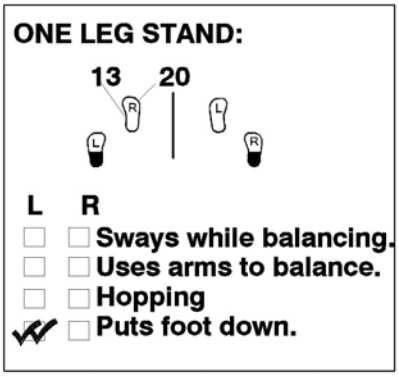
put their feet together with their arms down at their side. Repeat the instructions and ask the subject if they understand. Have him/her perform the test while standing on the right leg.

Documenting the test

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

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

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



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

<u>Finger to Nose</u>

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

Administrative Procedures

- Tell the subject to place his/her feet together and to stand straight.

- Tell the subject to place his/her arms down at their sides, close their hands with the index finger extended and rotate the palms forward.

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

- Inform the subject that you will instruct them to bring the tip of an index finger up to touch the tip of their nose. DEMONSTRATE how the subject is supposed to move the arm and how he/she is supposed to touch the tip of their nose.

  NOTE: The arm is brought directly from the subject's side in front of the body touching the tip of their nose with the tip of their index finger.

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

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

- Ask the subject if they understand.

- Tell the subject to "begin". MAKE SURE he/she tilts his/her head back and closes their eyes. EMPHASIZE to the subject that he/she must keep their eyes closed until you say to open them.

- Give the commands in EXACTLY this sequence:

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

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

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

Documenting the test

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

F. Overview of the Vital Signs Examinations

The three vital signs examined during the drug influence evaluation are pulse rate; blood pressure; and body temperature. They are covered in some detail in Session VII of this training program. For the time being, some simple definitions are sufficient:

Pulse rate is the number of expansions that occur in an artery in one minute. Each time the heart "beats" (or contracts) it sends a surge of blood through the arteries. These surges can easily be felt if you place your finger tips over an artery and apply slight pressure. All you have to do to measure pulse rate is to feel the surges while looking at a wristwatch, and count the number of surges that occur in thirty seconds, then multiply by two.

Blood pressure is the force exerted by blood on the walls of the arteries. A person's blood pressure constantly changes from instant to instant. When the heart contracts, and sends the blood surging through the arteries, the blood pressure reaches its highest value. This is called the **systolic** pressure. As the heart expands, the surge of blood slows, and the pressure drops.

When the heart is fully expanded, the blood pressure falls to its lowest level. This is called the **diastolic** pressure. Then, the heart starts to contract and the pressure rises again. The blood pressure continuously rises and falls, cycling between the systolic and diastolic values, as the heart beats.

Measurement of blood pressure requires a special instrument called a <u>sphygmomanometer</u>. A stethoscope is also needed.

Body temperature is measured by using an oral thermometer.

G. Overview of the Dark Room Examinations

Estimating Pupil Size

The pupils of our eyes continually adjust in size to accommodate different lighting conditions. When we are in a darkened environment, the pupils expand or “dilate”, to allow the eyes to capture as much light as possible. When the lighting conditions are

very bright, the pupils shrink, or "constrict", to keep the eyes from being overloaded. This process of constriction and dilation normally occurs within limits.

We use a device called a **pupillometer** to estimate the size of the subject's pupils. 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. We hold the pupillometer alongside the subject's eye, and move the pupillometer up or down until we locate the circle or semi-circle closest in size to the pupil.

Pupil size estimations are recorded as the numeric value that corresponds to the diameter of the circle or semi-circle that is closest in size to the subject's pupil in each lighting condition.

We estimate pupil size under three different lighting conditions:

- **Room Light**
- **Near Total Darkness**
- **Direct Light**

1. Estimation of Pupil Size Under Room Light

The pupils are examined in room light prior to darkening the room. Since room lighting conditions can vary considerably and often cannot be controlled, the range of pupil sizes may vary.

Have the subject look straight ahead at a point or location behind the DRE and slightly above the subject's eye level. Care should be taken to ensure the subject is not staring at a light source. Position the pupillometer along side the eye to ensure an accurate estimation.

After checking both the left and right eye, turn off the lights and wait 90 seconds to allow your eyes and the subject's eyes to adapt to the dark.

2. Estimation of Pupil Size 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 light emerges. 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). Continue to hold the glowing red tip in that position and bring the pupillometer up alongside the subject's left eye and locate the circle/semi-circle that is closest in size to the pupil. Then repeat this procedure for the subject's right eye.

3. Estimation of Pupil Size Under Direct Light

Leave the tip of the penlight uncovered and bring the light from the side of the subject's face and shine it directly into their left eye. Position the penlight so that it

illuminates and approximately fills the subject's eye socket. Hold the penlight in that position for 15 seconds with the pupillometer up alongside the left eye, and find the circle/semi-circle that is closest in size to the pupil. Then repeat this procedure for the subject's right eye. While observing the eye for the 15 seconds with the pupillometer in position, you should also check for rebound dilation.

The definition for rebound dilation is available in the glossary and will be covered in depth later in this school.

While checking the pupil size under direct light, you must evaluate the pupil's reaction to light. If a person is not under the influence of any drug, his or her pupils should constrict within one second when the penlight's beam strikes the eye directly. But certain categories of drugs may cause the constriction to occur more slowly, or perhaps not to occur at all.

Two other activities conducted in the darkroom are the examination of the nasal area and the examination of the oral cavity. In both cases, you must look closely for signs of drug use, or even for traces of a drug or concealed quantities of drugs.

Tell the subject to tilt their head back. Shine the penlight directly into the nostrils. Look for traces of drugs or other materials in the nasal passages. Also check for redness and scarring or abrasions that might indicate repeated "snorting" of certain drugs.

Tell the subject to open their mouth wide. Shine the penlight directly into the mouth. Shine the beam around the inside of the mouth to illuminate all areas.

Look for residual quantities of drugs and for unusual coloring of the inside surfaces of the mouth (e.g. green or reddish coloring). Look near the gums for small balloons, bags, tissue or foil wrappings, or other small containers of drugs. Tell the subject to elevate their tongue, and look under the tongue for debris, or other evidence of ingestion.

Three important things should be kept in mind about the dark room examinations. First, a second officer should always accompany you and the subject into the dark room, as a safety precaution. Second, no weapons should be taken into the darkroom. Third, after entering the dark room, no examination should begin for 90 seconds, to allow your eyes, and the subject's to adjust to the darkness.

H. Examination of Muscle Tone

To begin the examination of the muscle tone start with the subject's left arm, firmly grasping the upper arm and slowly moving down. The muscle will appear flaccid, normal or rigid to the touch. Then check the right arm in the same manner.

I. Examination for Injection Sites

Persons who frequently inject drugs often develop lengthy scars, called "tracks", from repeated injections into the same vein. Fresh injection sites often can be found at the end of a "track". Many times, a fresh injection site will not be easily visible to the naked eye. Therefore, a DRE should search for injection sites by touch, running the fingers along such places as the neck, forearms, wrists, back of hands, or other subjected areas of injection. When a possible injection site is located, a ski light can be used to provide a magnified and illuminated visual inspection. The third pulse is taken by the DRE in this step.

Hypodermic needles are sized according to gauge. The gauge of a needle is a measurement of its inside diameter. The gauge number represents how many needles of that size would be needed to equal one inch. For example, a 24 gauge needle has an inside diameter of 1/24th of an inch; a 10 gauge needle has an inside diameter of 1/10th of an inch. Therefore, the higher gauge, the smaller the diameter of the needle.

J. Subject Statements

The DRE should be aware that often during the evaluation process, subject's may make numerous spontaneous, incriminating statements. These statements should be documented. DRE's should check to make sure that the subject has been appropriately advised of his/her Miranda rights. DRE's should ask additional probing questions as appropriate.

K. Opinion of DRE

By this point in the evaluation, the DRE should have formed an opinion of the category or categories of drugs responsible for any observed impairment. This opinion is based on the totality of the evaluation.

L. Obtaining a Toxicological Sample

The process of obtaining toxicological samples will vary depending upon individual state implied consent statutes. The laws of your state will dictate what samples can be taken, i.e. urine, blood, saliva and/or breath. The containers for these samples will also vary depending on the type of test used and the laboratory that will do the analysis. A department or agency policy should delineate how each sample should be taken. You will need to become familiar with and follow your department's policies and procedures governing toxicological sample collection, handling, shipment, be taken. You will need to become familiar with and follow your department's policies and procedures governing toxicological sample collection, handling, shipment, etc. Consideration should be given to witnessing the sample being obtained, chain of custody for the evidence, preservation and the return of the analysis by the laboratory.

M. A Brief Overview of Toxicology

1. Introduction

The information in this section is intended to provide a basic understanding of chemical testing for drugs that a DRE needs to have to appreciate fully the role of toxicology in this program. As much as possible, the information has been kept non-technical. It will not be covered in depth in class, but you are expected to be familiar with what is given in this manual.

2. Some Key Concepts

DEFINITION: Toxicology is the study of poisons and their effects on living organisms. For DRE purposes, the "poisons" in question are drugs, and in some cases the metabolites of drugs. A toxicologist analyzes physical specimens such as blood and urine for drugs and drug metabolites.

A metabolite, for DRE purposes, is a chemical substance derived from a drug, and that is formed by the action of the body upon that drug. It is important to be aware that some metabolites are themselves psychoactive. That is to say, some metabolites cause impairment: Therefore, a metabolite may also be a drug. It is also important to know that it may be the metabolite, and not the original or "parent" drug that is detected in the laboratory. In some instances, finding a particular metabolite allows the chemist to conclude with certainty that a specific drug was ingested, even though the methods and equipment available to the lab can't detect that drug itself. Finding the metabolite is good, scientific evidence that the drug was there.

3. Limitations of Toxicology

Toxicology has some important limitations. One limitation is that, with the exception of alcohol, toxicology cannot produce "per se" proof of drug impairment. That is, the chemist can't analyze the blood or urine and come up with a number that "proves" the person was or wasn't impaired. For alcohol alone, the chemist can do that, or at least come very close to doing it.

But alcohol is a special drug. Chemically speaking, the alcohol molecule is very simple compared to the molecules of other drugs. Alcohol's metabolites don't impair. Scientists have had many opportunities to study alcohol's effects under carefully controlled experimental conditions. The scientific community has a relatively clear understanding of how alcohol works on the body and brain.

These statements generally can't be made about other drugs. Drugs are metabolized in complex ways, and sometimes the metabolites are also drugs. Some drugs can be stored in the body's tissues, so that even after the drug has cleared from the blood, it's still in the body and brain and still causing

impairment. Apart from post-mortem studies of lethal levels, there haven't been routine opportunities to correlate drug concentrations with degrees of impairment. Ethical concerns limit our ability to study illegal drugs, especially at "street" dosages. It is difficult to replicate in the laboratory the drug combinations, methods of ingestion and drug purities characteristic of "street" use. Even if it were possible to study individual drug concentrations and their relationships to impairment in depth, the practice of polydrug use and the myriad of different combinations seen on the street would make that information of little practical use. Finally, many laboratories simply don't perform quantitative analyses to determine the drug concentrations, but only determine qualitatively the presence of the drugs. The reasons for avoiding quantitative analysis include the facts that it is costly, time consuming, and may be beyond the capability of the equipment available to the lab. Also, if urine is the specimen preferred by or submitted to the lab, quantitative analysis is less important, because it doesn't lend itself to clear interpretation. In short, chemistry basically cannot supply the "magic number" of impairment for drugs.

Another limitation of toxicology is that it doesn't provide evidence of the time at which the drug was ingested. Therefore, they will not be able to provide direct evidence of the subject's condition at the time of arrest. In some instances, it is possible that a "positive" chemical test reflects drugs that the subject took long before being arrested, and that were metabolized and no longer causing impairment prior to his or her arrest.

4. Toxicology's Roles in this Program

Exactly what are the roles that toxicology plays in this program? First and foremost, toxicology is **the twelfth step in the drug influence evaluation**.

A DRE doesn't complete the evaluation until they either obtain a specimen from the subject, or formally document the fact that the subject refused to submit to the toxicological test. It is important that the court be aware that toxicology is the final step of the evaluation. It follows the formation of the DRE's opinion; the opinion is not based on the results of the toxicological analysis. Similarly, the arrest, booking and charging of the subject are not based on the toxicological analysis, and must be supported by other, solid evidence. The DRE expects that toxicology will **support or corroborate the opinion** that they have formed. A toxicological analysis supports the opinion by confirming the presence of a particular drug that is consistent with the DRE's opinion. The concentration at which the drug is present shouldn't be an issue, because it isn't possible to relate concentration to "impairment" with any degree of reliability.

DREs also need to understand that sometimes the toxicological analysis will <u>not</u> confirm the DRE's opinion. The DRE needs to be honest enough to admit

that, when that happens, it may be because their opinion is incorrect. The drug influence evaluation isn't an exact science. Drugs affect different people in different ways. In this program, we "never say never", and we "always avoid saying always".

But sometimes, the toxicology doesn't corroborate a DRE's opinion even though the opinion is correct. The lab's instruments, personnel and analytical methods are not infallible. There are certain drugs that a particular laboratory simply may not test for, and there are others that can't be "seen" unless they are present at fairly high concentrations.

To corroborate DREs' opinions, toxicology performs two kinds of analyses: **screening and confirmation.** Screening tests are easier, cheaper and faster than confirmatory tests. Confirmatory tests are more sensitive and more specific than screening tests. In loose terms we can say that a positive screening test means "it looks like this sort of drug is there". A positive confirmatory test means "this particular drug is definitely there".

Confirmatory tests employ methods different from those of the screening tests. The confirmatory test is designed to provide absolute proof of a drug's presence, or at least as close to absolute as science can come. Confirmatory tests usually are required if the case goes to trial. DREs should be aware that, to cut down on costs, some labs do not conduct the confirmatory tests unless the case is <u>going to go to trial</u>. If this is the policy of your laboratory, you must provide the toxicologist with as much advanced notice of the trial date as possible, so he or she can perform the confirmatory analysis in a timely manner.

Suppose the screening test is positive, but the confirmatory test is not positive; what does that mean? Here again, DREs need to admit that it may mean that the drug isn't there. Some "screens" will react to substances other than psychoactive drugs. The screening tests are not absolutely indicative of drug presence; if they were, there would be no need for a confirmatory test.

Failure to confirm a drug does not necessarily mean that the "screen" was inaccurate. Every analytical procedure has a "detection" threshold; that is the lowest quantity or concentration of the drug that the instrument can possibly detect. Above that is the "quantification" threshold; that is the lowest concentration that can be numerically determined by the instrument. Standard laboratory procedure calls for establishing a third level, called the <u>"cut-off</u>" level, which usually is set slightly **above** the "quantification" threshold. Typically, the laboratory's report for the confirmatory test will read "not detected" unless the drug is found at a concentration greater than or equal to the "cut-off" level. But in fact, the drug could be present, at a somewhat lower concentration.

Then why don't laboratories simply lower their "cut-off" levels, if they really want to support their DREs? The reason is that the laboratory needs to preserve its scientific validity. If it loses that, the testimony of its toxicologists will be worthless. There are definite limits to the accuracy of chemical equipment and procedures. If the cut-offs are set too low, "false positives" will result (i.e. reports of "drug found" when it isn't really there). The lab won't be able to defend its reports scientifically, so it won't be able to support the DREs at all. Still, it is important for DREs and State and agency DRE coordinators to consult with their toxicologists to try to reach agreement concerning optimum cut-offs, that do not compromise scientific integrity but at the same time provide adequate support to this program.

Fundamentally, toxicology's role in this program is **corroborative**. The observations of the arresting officer, and the observations, measurements and estimates of the DRE provide the best proof of the subject's impairment.

Toxicological analysis provides scientific corroboration that the subject actually ingested a drug. In some cases, the analysis may also provide scientific support for the allegation that the subject was impaired. In addition toxicologists can provide expert witness testimony on the analytical procedures used and the results of that testing, the prevalence of the drug in epidemiological studies, and information from peer reviewed and published scientific literature. This may include case reports, laboratory studies of controlled drug dosing, driving simulator studies or actual on-the-road driving studies. All of this information can be used together to support the observations made by the DRE and subsequently their opinions of impairment. Toxicology also plays an important role in on-going studies to document the validity of this program, in monitoring the work of individual DREs and in assessing the progress students are making during their certification training.

5. Blood or Urine: Which is Better?

Blood and urine are the most common specimens used for toxicology analysis. If we have a choice, which should we pick?

The answer is, it depends. The laws of your State, the policies and procedures of your department, the particular condition of your subject, the equipment and procedures available to your laboratory and possibly the drug categories you believe are causing the subject's impairment will all have a bearing on the choice. **There is no single perfect or "best" specimen.** It is not possible to say that blood is better or that urine is better. Each has advantages and disadvantages.

Some advantages of blood:

- The presence of a drug in blood more reliably indicates recent use than does the presence of the drug in urine. Urine tests may produce "positive" results weeks after the drugs were used. This is much less likely to happen with blood tests. Thus a positive blood test is more contemporaneous with drug impairment.

- The collection of a blood specimen usually occurs under a greater degree of supervision. When providing a urine specimen, a subject may have an opportunity to dilute or contaminate the specimen, or even substitute some other fluid for it.

- Quantitative analysis of urine specimens provides information of essentially no value. Quantitative analysis of drugs in blood **may** help to corroborate impairment.

Some advantages of urine:

- Urine is usually easier to obtain. Subjects often are more willing to supply urine, and medical personnel need not be present to collect it.

- Urine analysis is less expensive than blood analysis.

- Drug concentrations usually are higher and thus easier to detect in urine than in blood.

- Some drugs clear very quickly from the blood. The time delay from the initial traffic stop to the collection of the blood sample may impede the laboratory's ability to corroborate the DREs opinion. But drugs usually remain detectable in the urine for longer periods of time.

6. What DREs Can Do To Optimize Laboratory Corroboration

DREs can help the lab help them by following a few simple reporting procedures. First, make sure that you **advise the lab what drug category(s) you believe are present** when you submit the urine or blood specimen.

Many labs request a copy the DRE report along with the specimen. The report assists in ensuring that targeted and appropriate testing is performed. All labs need to know the kinds of drugs that may be present, because that information can help the toxicologist determine if he or she needs to extend testing beyond the standard "menu" of screening procedures. Also make sure you **tell the lab**

what drugs the subject admitted taking, and also let them know **what drugs you found in the subject's possession**.

Probably the most important advice for a DRE who wants maximum support from the lab is to **talk to the toxicologists**. Find out what kind of specimen (blood or urine) they prefer to receive. This will vary from lab to lab, and possibly from case to case. Ask the toxicologists for instruction and find out if they would like to receive a copy of your report along with the specimen. Make sure you understand what the laboratory report means. Establishing a regular dialogue with the lab is essential for maintaining the support system this program demands.

Finally, DREs need to be aware of and sympathetic to the laboratory's limitations. DREs are not infallible, and neither are laboratories. All labs have "chemical blind spots", i.e. drugs for which no routine detection procedures or suitable instruments are available. Many labs, for example, find it very difficult to detect or confirm THC in blood specimens, or to find LSD in either urine or blood. In addition, most laboratories are not well equipped to screen for certain anti-psychotic drugs or for some of the narcotic analgesics. DREs need to know that these limitations are a fact of life. They should not be a cause for disagreement between the DRE and the lab.

DRUG INFLUENCE EVALUATION

Evaluator	DRE No.	Rolling Log No.	
Recorder/Witness	Crash: ☐ None ☐ Fatal ☐ Injury ☐ Property		Case #
Arrestee's Name (Last, First MI)	DOB	Sex / Race	Arresting Officer (Name, ID No.)
Date Examined/Time/Location	Breath Results: ☐ Refused Instrument # %		Chemical Test ☐ Refused ☐ Urine ☐ Blood
Miranda Warning Given: ☐ Yes ☐ No By:	What have you eaten today? When?	What have you been drinking? How much?	Time of last drink?
Time now?	When did you last sleep? How long?	Are you sick or injured? ☐ Yes ☐ No	Are you diabetic or epileptic? ☐ Yes ☐ No
Do you take insulin? ☐ Yes ☐ No	Do you have any physical defects? ☐ Yes ☐ No		Are you under the care of a doctor or dentist? ☐ Yes ☐ No
Are you taking any medication or drugs? ☐ Yes ☐ No	Attitude:		Coordination:
	Breath:		Face:
Speech:	Eyes: ☐ Reddened Conjunctiva ☐ Normal ☐ Bloodshot ☐ Watery	Blindness: ☐ None ☐ Left Eye ☐ Right Eye	Tracking: ☐ Equal ☐ Unequal
Corrective lens: ☐ None ☐ Glasses ☐ Contacts, if so ☐ Hard ☐ Soft	Pupil size: ☐ Equal ☐ Unequal, (explain)	Able to follow stimulus: ☐ Yes ☐ No	Eyelids: ☐ Normal ☐ Droopy

Pulse and time	HGN	Left Eye	Right Eye	Vertical Nystagmus ☐ Yes ☐ No	One Leg Stand
1. ____/____	Lack of smooth pursuit	____	____	Convergence	
2. ____/____	Maximum deviation	____	____	Right eye / Left eye	
3. ____/____	Angle of onset	____	____		

Romberg Balance	Walk and Turn test				
	Cannot keep balance				
	Starts too soon:				
		1st Nine	2nd Nine		
	Stops walking				
	Misses heel to toe				
	Steps off line				
	Raises arms				
	Actual # steps				

L	R	
☐	☐	Sways while balancing
☐	☐	Uses arms to balance
☐	☐	Hopping
☐	☐	Puts foot down

Type of footwear:

Internal clock	Describe Turn	Cannot do test (explain)	Nasal area:
Est. as 30 seconds			

Draw lines to spots touched

Pupil Size	Room Light	Darkness	Direct
Left			
Right			

Rebound dilation ☐ Yes ☐ No

Oral cavity:

Reaction to Light:

RIGHT ARM **LEFT ARM**

Blood pressure	Temperature
____/____	____ °f

Muscle tone: ☐ Near normal ☐ Flaccid ☐ Rigid

Comments:

What medication or drug have you been using? How much?	Time of use?	Where were the drugs used? (location)	
Date/Time of Arrest	Time DRE Notified	Evaluation Start Time	Time Completed
DRE signature (Include rank)	ID #	Reviewed by:	

Opinion of evaluator: ☐ Rule Out ☐ Medical ☐ Alcohol ☐ CNS Depressant ☐ CNS Stimulant ☐ Hallucinogen ☐ Dissociative Anesthetic ☐ Narcotic Analgesic ☐ Inhalant ☐ Cannabis

Topics for Study

1. Give three important reasons for conducting drug evaluation and classification evaluations in a standardized fashion.

2. What are the twelve major components of the drug evaluation process?

3. How many times is pulse rate measured during the drug evaluation and classification evaluation?

4. Are the diameters of a pupillometer's circles/semi-circles indicated in centimeters, millimeters or micrometers?

5. What formula expresses the approximate statistical relationship between blood alcohol concentration and nystagmus onset angle?

6. Which of the seven categories of drugs ordinarily do not cause nystagmus?

7. How many heel-to-toe steps is the subject instructed to take, in each direction, on the Walk and Turn test?

8. What period of time is the subject required to estimate during the Romberg Balance test?

9. What is systolic pressure?

10. What is the name of the instrument used to measure blood pressure?

11. Name the four validated clues of the One Leg Stand test.

12. Name the eight validated clues of the Walk and Turn test.

13. Suppose you have two hypodermic needles, one is 14 gauge, the other is 20 gauge. Which needle has the smaller inside diameter?