



Garden State CLE
 21 Winthrop Road • Lawrenceville, New Jersey 08648
 (609) 895-0046 fax- 609-895-1899
Atty2starz@aol.com

Video Course Evaluation Form

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Instructors: Poor Satisfactory Good Excellent

Materials: Poor Satisfactory Good Excellent

CLE Rating: Poor Satisfactory Good Excellent

Required: When you hear the bell sound, write down the secret word that appears on your screen on this form.

Word #1 was: _____ Word #2 was: _____

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What did you like most about the seminar?

What criticisms, if any, do you have?

I Certify that I watched, in its entirety, the above-listed CLE Course

Signature _____ Date _____

GARDEN STATE CLE LESSON PLAN

A 1.0 credit course

**FREE DOWNLOAD
LESSON PLAN AND EVALUATION**

DRUGS AND ALCOHOL IN YOUR BODY

With

**Richard Saferstein, PhD
Forensic Science Consultant**

And featuring

Robert Ramsey, Senior Instructor

Program description

World-renowned forensic expert Richard Saferstein, PhD. joins us for a 1 credit CLE that will explore how the body breaks down drugs and alcohol.

I. Introduction

- **Richard Saferstein, PhD.**
- **\$350 for review of a case and return 5 page checklist for review and \$100 for digital data review**

II. How much alcohol does a person have to drink to reach a certain level?

- **Widmark Factor**
 - **Based on body fat content**
 - **Dependent on gender of person**
- **Can also use Alco-calculator from Rutgers University**
- **Extrapolation**
 - **Civil litigation allows (dram shops)**
 - **Allowed in criminal – State v. Oriole**
 - **Long running program to do extrapolation calculations**

III. Means to analyze alcohol

- **Enzymatic approach**
 - **Used in hospitals**
 - **Chemical reaction that occurs**
 - **Hospital result – look at printout, look at logs whether machine was properly maintained, etc.**
 - **Analyzed as a serum: serum reading divided by 1.16 gives the whole blood alcohol**
 - **Range of 1.01 and 1.26 as opposed to 1.16 which is an average**
- **Infrared absorption approach**
 - **Alcotest 7110**
- **Electrochemical**
 - **Fuel cell**
 - **Electro-chemical is used for alcotest as well**
 - **Same as used in ignition interlock device**
 - **Road-side testers also use this method**
 - **No response to acetone**
 - **Diabetics produce more levels of isopropyl alcohol which will react with fuel cells and will at low levels react with infrared – watch for this**
- **Gas chromatography**
 - **Test blood samples – serum or whole blood**

- **Headspace gas chromatography**
- **Many points must be evaluated to insure that this test is working properly – calibrators tested with known controls to insure that machine is working throughout the day**
- **Not effected by diabetes or any other known diseases**

IV. Some issues dealing with 7110 breath test analyzer/infrared absorption

- **Worksheet A issues – being close to cut off and not meeting tolerance**
- **Tolerance – caselaw says .08 and .05 – good issue in borderline cases**
- **AIR – not valid for a number of reasons: wrong time, wrong dates**
 - **Inaccurate AIR will be an issue**
- **Fuel cell deterioration**
 - **Get repair records – may see that repairs were made after defendant's test which can lead to conclusion that fuel cell was not in proper working order at the time of the test**
- **Twenty Minute issue – review video and insure observation for 20 minutes**

V. Areas for Evaluation for Digital Data

- **New Standard Solution Control Failures**
- **AIR Control Failures**
- **No Two Minute Lockout**
 - **Between any two tests – not necessarily evidential tests**
- **Twenty Minute Observation**
- **You should always get the digital data**

VI. State Police Lab

- **Everything is documented for chain of custody**
- **Use a robot to analyze**
- **All done using computers to provide mathematical analysis**
- **Proficiency testing is no longer done which would measure the error in a GC testing**
- **Request past results of department of transportation proficiency tests to analyze errors of participating laboratories**

– review of tests provides standard deviation associated with a particular test protocol

VII. Presence of drugs in the blood

- Determine the presence of drugs/chemicals in blood
- When a drug enters the body it metabolizes – breaks down – so when testing you are dealing with the parent drug and then the metabolites that could have their own active potentials – meaning they have physiologically altering properties
 - For example: cocaine and its metabolite (benzo...) is not physiologically active
 - Must look at concentration of both in order to evaluate
- most of the evaluation in New Jersey does not quantify the effect of the metabolite – not the same in Pennsylvania
- some drugs stay in the system 2 days or more after ingestion so it will come up in testing but may not be effecting you as it would when just ingested
- urine can be used to find drugs and metabolites – means nothing – only means that person ingested within 48-72 hours – no correlation of any impairment from ingesting
- essentially there is no extrapolation possible with drugs
- databases that allow to look at numbers and come to some sort of estimation as to how drug effected person
- post-mortem drug result – post mortem distribution – drugs redistribute themselves throughout the body and the concentration that the ME is finding may not be the true concentration for the intake – cannot rely on post mortem drug results for certain drugs
- Two ways to screen for drugs:
 - Immunoassay
 - Test urine or blood – rapid screening procedures and non invasive but problem with metabolites remains and cannot equate urine/drug levels with impairment – need to confirm – GC/MS – mandated in NJ for admissibility of drug result
 - Gas chromatography-Mass Spectrometry
 - Without such a finding, there is no value in the readings
- In urine – long retention times for drugs (48-72 hours as a rule of thumb)

- **Retention time for THC in blood – for social users (2-6 hours); for chronic users (24 hours or longer) – effects are only there for 2-4 hours so not necessarily under the influence**
- **Retention time for Carboxy-THC (inactive metabolite of marijuana) – 24 hours or more in blood; 72 hours or more in urine – has no effect on you – so no evidentiary meaning**
- **Retention Times for Cocaine – in blood (6-9 hours after intake); Benzoyllecgonine (inactive metabolite) can be found 24 hours or more in blood; in urine – cocaine (up to 12 hours) and Benzoyllecgnonine (48-72 hours)**
- **For a particular person who is tested the following results were found: Blood tested and result was just benzoyllecgnonine; and urine was tested and only cocaine was found = person did not have cocaine within 9 hours of sampling because no cocaine in blood but cocaine in urine**
- **Cocaine rebound effect is not part of DRE program**
- **Urine results**
 - **Urine is a pooled specimen over time**
 - **Primarily detect metabolites**
 - **Longer window of detections**
 - **Little quantitative interpretative value**
 - **Essentially no extrapolation is possible to find out when person took drug**
- **Drug Recognition Expert (DRE) Program**
 - **Breath test to determine BAC**
 - **Preliminary assessments of the subject's speech, breath, appearance, demeanor, behavior, etc;**
 - **Psychophysical evaluations of the subject, based on divided attention tests**
 - **Examinations of the subject's vital signs**
 - **Inspections of the subject's arms, neck, nasal area, oral cavity, etc. for signs of drug ingestion**
- **DRE process can suggest the presence of the following seven broad categories of drugs:**
 - **Central nervous system depressants**
 - **Central nervous system stimulants**
 - **Hallucinogens**
 - **Dissociative anesthetics**
 - **Inhalants**
 - **Narcotic analgesics**

- **Cannabis**
- **DRE program**
 - **It must be recognized that the DRE program is not designed to be a substitute for toxicological testing**
 - **What is required to prove drug intoxication is a coordinated effort and the production of competent data from both the DRE and the forensic toxicologist**
- **No case that substantiates the DRE conclusions – no Frye test or scientific reliability in DRE testing but there is a certification program now**

VIII. Bonus Material

- A. What is forensic toxicology?**
 - **The study or the ability to study the human body for the presence of drugs or poisons**
 - **Will undertake an analysis of blood or urine to determine what foreign drug or poison was present in the body**
- B. What is the legal blood alcohol limit for driving in the US?**
 - **For all states in the US the level is .08 percent**
 - **Per se level – level is the only thing that the state has to prove in order to convict for drinking and driving**
- C. How long is alcohol detectable in a person's body?**
 - **Depends on how much have drunk**
 - **Per se level is .08 percent – most people will eliminate alcohol at the rate of .015 percent per hour**
 - **How long to eliminate all alcohol depends on how much you drank**
- D. How does a forensic toxicologist analyze a person's breath to determine alcohol levels?**
 - **Tested with breath test – either at the time of the stop (portable breath test devices brought to roadside) or blood sample can be taken or more comprehensive breath test can be done at police department**
 - **Breath test can correlate breath alcohol with blood alcohol – breath test can provide information equivalent to a blood test for alcohol**
- E. What methods does a law enforcement officer use to test blood alcohol level?**

- **When driver is stopped as suspected of DWI, look at demeanor and then will administer standard field sobriety tests outside of car**
- **If officer still feels sufficient evidence of DWI, then administer portable breath test – and if reading .08 percent or greater arrest will be made**
- F. What methods does a forensic toxicologist use to test blood alcohol level?**
 - **Test by breath and test by blood**
 - **If blood – then tested by gas chromatography for the presence of alcohol**
 - **Gas chromatograph separates alcohol from other components of the blood and quantifies the amount of alcohol present in the blood**
- G. How does a forensic toxicologist test hair for drugs?**
 - **When take a drug, a portion of that drug becomes attached to the root structure of the hair**
 - **As time goes on and the hair grows the drug remains embedded in the hair**
 - **Hair can be extracted for drugs and tested**
 - **Can detect presence of drugs in hair long after intake of drug**
- H. What are common poisons a forensic toxicologist looks for in CSI?**
 - **Carbon monoxide, cyanide, and thallium**