INTERPRETATION OF DRUG TEST RESULTS

Pat Pizzo, Director of Toxicology Alere Toxicology
WHO AM I

• Director of Toxicology at Alere Toxicology Laboratory
• In the field for 40 years
• Original training an experience was with the FBI crime laboratory in WDC.
• Qualified as an expert in Forensic Toxicology in 20 states
HARD AT WORK
MARIJUANA
THC Sources

• Marijuana
  * Hashish
  * Sinsemilla
  * Hash Oil

Prescription sources

  * Marinol
  * Sativex – Canada and UK only
MARIJUANA CLEARANCE

- HALF LIFE - 48 HRS
- SOCIAL USE – 5-7 DAYS
- MODERATE USE - 7-10 DAYS
- CHRONIC USE - 4-6 WEEKS
- PEAK LEVEL – 6-8 HRS mean value = 125 ng/ml
- EXPEDITE - WATER, EXERCISE
PASSIVE INHALATION

• NOT A REALITY
• REALISTIC - < 5 NG/ML SCREENING
• FORCED - < 15 NG/ML GCMS
• STATE LAWS - SOME STATES HAVE ADDRESSED THIS ISSUE
b) The term "marihuana" means all parts of the plant Cannabis sativa L., whether growing or not; the seeds thereof; the resin extracted from any part of such plant; and every compound, manufacture, salt, derivative, mixture, or preparation of such plant, its seeds, or resin- but shall not include the mature stalks of such plant, fiber produced from such stalks, oil or cake made from the seeds of such plant, any other compound, manufacture, salt, derivative, mixture, or preparation of such mature stalks (except the resin extracted there from), fiber, oil, or cake, or the sterilized seed of such plant which is incapable of germination.

FOR MORE ON THE TAX ACT AND RELATED TOPICS: http://www.druglibrary.org/schaffer/hemp/taxact/mjtaxact.htm
HEMP PRODUCTS

- NOT ALL PRODUCTS OR EVEN ALL LOTS WILL RESULT IN POSITIVES
- HEMP OIL - POSITIVE
- HEMP BEER - NEGATIVE
- SEEDY SWEETIES - POSITIVE
- AMMEND CORPORATE POLICIES TO ADDRESS HEMP PRODUCTS
MEDICAL MARIJUANA

- Raich v. Gonzales – Supreme court ruling upheld federal law allowing medical marijuana users to be charged with use.
- 14 states and DC currently allow the use of Medical marijuana. Oregon has 15,000 card carrying users.
- Can be prescribed for any reason at the discretion of the physician.
New Reason for Marijuana Positive

- Cannabis Vodka
- Not legal in the US
- Legal in Mexico and Canada
- Can it result in a Positive test?
Cannabis Ice Cream
• Flavors - TRIPle Chocolate Brownie Banannabis Foster and Straw-Mari Cheesecake
• Cost $15 per half pint
• Contains equivalent of 2-4 joints
Marijuana Bakeries

• Offer brownies or cookies
• Single dose up to X4 dose
• One X2 brownie $12.00
• One X2 cookie $10.00
Marijuana Soda’s
Marijuana Soda’s

• 35-65 mg THC/ bottle
• $10 - $15 dollars per bottle
• Available in California and Colorado
• Flavors similar to Dr. Pepper, grape, orange, lemon/lime and cola
Michigan Federal Court Ruling

- 2/11/11 - Lawsuit against Wal-Mart dismissed
- The federal Controlled Substances Act pre-empts MI state action
- The federal Americans with Disabilities Act pre-empts MI state action
- The Michigan Medical Marijuana Act (MMMA) does not confer any employment protections on medical marijuana users.
What is a Dilute Specimen

• When the Creatinine and the specific Gravity are low

• Creatinine <20 mg/dl and >2 mg/dl

• Specific Gravity <1.003 and >1.001
WHY DOES DILUTION WORK?

- Normal urine production is 1 ml/min
- Drink 1 liter of water and the urine production goes to 7.5 – 8.5 ml/min from 30 – 150 min post consumption
- Drink 2 liters of water and urine production peaks at 1 hr at 16ml/min and stays as high as 6 ml/min for 4.5 hrs
- Creatinine range on a random void – 100 – 200mg/dl
- Specific Gravity is the weight or mass of a given volume of a substance compared to water. Normal range = 1.010 – 1.025
THC - NEW VS. RESIDUAL – 50/15 NG/ML CUT OFF

- Positive test results separated by 1 month or more normally indicate new use.
- All results should be normalized: ngTHC/mg Creatinine
- A ratio of 1.5 or greater between sequential positive test results new use. This has a degree of certainty of 99% or greater. The longer the period between testing the higher the degree of certainty.
NEW RESEARCH STUDY

- Social user will clear THCA from the urine in 5 days using a 15 ng/ml cut off
- Social users will clear THCA from the system in 7 days using a 6 ng/ml cut off
- Research paper by Huestis, Smith and Barnes; JAT May/June 2009
Calculation

\[ \text{ng Drug} \times 100 = \frac{\text{ng Drug}}{\text{mg Creatinine}} \]

\[ \text{mg Creatinine} \]
NEW OR RESIDUAL

<table>
<thead>
<tr>
<th>Date</th>
<th>THCA ng/ml</th>
<th>Creatinine mg/dl</th>
<th>ng THCA/mg Creatinine</th>
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<td>118</td>
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<td>188</td>
<td>152</td>
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<tr>
<td>11/20/2006</td>
<td>483</td>
<td></td>
<td>341</td>
</tr>
</tbody>
</table>
NEW OR RESIDUAL

[Bar chart showing THCA levels and THCA/mg Creatinine for 6/14/2006 and 6/20/2006.]

Salvia Divinorum

• Historically used by religious healers
• Name means Divine Sage
• Initial Effect – Last 2-5- minutes
• Initial Effect – Hallucinations to uncontrollable laughter
• After Effect – Calm, clear thinking, improved mood and higher confidence
Salvia Divinorum - US STATES WITH LAWS

• Illegal – Schedule I – 14 states
  Delaware, Florida, Hawaii, Illinois, Kansas, Mississippi, Missouri, Nebraska, North Dakota, Ohio, Oklahoma, South Dakota and Virginia

• Legal for non Human consumption – 3 states
  Louisiana, North Carolina and Tennessee

• Legal for Adults: Illegal for Minors – 2 states
  California and Maine

• Illegal to manufacture, deliver or sell Salvinorin A but legal to Possess - 1 state
  Wisconsin
SPICE GOLD

- BAYBEAN
- BLUE LOTUS
- PINK LOTUS
- LION’S TAIL
- INDIAN WARRIOR
- DWARF SCULLCAP
- MACONHA BRAVA
- SIBERIAN MOTHERWORT
- VANILLA
- HONEY
SPICE GOLD

• WHAT DOES IT REALLY CONTAIN?
  Synthetic Marijuana
    HU 210, JWH-018 and CP47497
  What does it Cost $34.00 PLUS

Can we identify these compounds???
What could be in these products

- JWH-018
- JWH-073
- JWH-049
- JWH-081
- JWH-175
- JWH-199
- JWH-200
- JWH-398
- JWH-250
- JWH-015
- JWH-019
- Delta – 9 - THC
- HU-210
- CP-55940
- CP-47497-C7
- CP-47497-C8
- WIN-55212-2
- WIN-55212-3
- JWH-253/306
- JWH-362/246
- JWH-007/019
- Nabilone
- Analogues – V, VII, VIII and XVI
States with existing laws (3/25/11)

- Alabama
- Arkansas
- Georgia
- Illinois
- Iowa
- Kansas
- Kentucky
- Louisiana
- Michigan
- Missouri
- North Dakota
- Oregon
- Tennessee
- Virginia
- Texas – several cities
- Utah – City of Ogdon
States with laws pending (3/25/11)

- Alaska
- Idaho
- Nebraska
- New York
Federal Law 3/1/11

- Drug Enforcement Administration
- 21 CFR Part 1308
- [Docket No. DEA-345F]
- Schedules of Controlled Substances: Temporary Placement of Five Synthetic Cannabinoids Into Schedule I

Federal Law

• The substances are 1-pentyl-3-(1-naphthoyl)indole (JWH-018), 1-butyl-3-(1-naphthoyl)indole (JWH-073), 1-[2-(4-morpholinyl)ethyl]-3-(1-naphthoyl)indole (JWH-200), 5-(1,1-dimethylheptyl)-2-[(1R,3S)-3-hydroxycyclohexyl]-phenol (CP-47,497), and 5-(1,1-dimethyloctyl)-2-[(1R,3S)-3-hydroxycyclohexyl]-phenol (cannabicyclohexanol; CP-47,497 C8 homologue).
UNPUBLISHED STUDY

• 6 – Test subjects
• Pre study drug screen test all negative for THCA
• Spice Gold, MoJo and K-2
• Specimens collected in 6-8 hr range and 1st specimen next morning
• All negative on screen at 50 ng/ml cut off
• K-2 positive on GC/MS for THCA at 3 and 9 ng/ml
• All test subjects got high. Most impact from MoJo and K-2
Are positives being detected?

• Georgia drug court system sent 1000 samples in for analysis and had a 15% positive rate

• NLCP Survey indicates the 6 labs providing data had positive rates of 2% - > 50% with an average of 20.5%
CAN THESE COMPOUNDS BE TESTED IN URINE?

• Yes – LC/MS/MS methods
• Cost – at least $50 per sample
• NLCP Survey – 6 labs testing
• Include JWH-018, JWH-017, JWH-200, CP-47,497 and CP-47,497 C8
• Does include metabolites
Lab Analysis

• Most labs perform one LC/MS/MS analysis.
• One test does not meet legal requirements (Frey or Daubert challenge)
• Second test on a separate aliquote must be requested at an additional charge
CAN THESE COMPOUNDS BE TESTED IN ORAL FLUID?

- Redwood Toxicology
- LC/MSMS
- JWH-018, JWH-073 and JWH-250 parent drug in oral fluid
- Cost — Contact Redwood Toxicology
WHAT WILL CAUSE A POSITIVE MARIJUANA

• SCREENING
  1. Protonix, Nexium
  2. Aids medications
  3. NSAID
  4. Prilosec

  GC/MS
  1. Marijuana/Marinol
COCAINE FACTS

- Cocaine is a white powder that is usually snorted but can be injected.
- Free Basing – purifying cocaine prior to injecting.
- Crack – A form of freebasing - white to tan solid called rocks.
- Cocaine is used in hospitals usually topically.
- Medical problems – destruction of the nasal septum and lungs.
- Cocaine cost $80 - $100 per gram.
- Crack cost $5 - $20 per rock.
- Crack produces a faster high than cocaine.
- Cocaine high last 20 – 40 minutes.
- Crack high last 5 -12 minutes.
COCAINE FACTS

• Cocaine – takes 6 months to two years for a user to become addicted
• Crack – 95% of users are psychologically addicted after the first use
• Street names – coke, blow, snow, nose candy
• Central nervous system stimulant
• What’s it feel like - no need for food or sleep
• First used by Incas in 2500BC
• Sigmund Freud first recommended its use to treat morphine and alcohol addiction
• Sherlock Holmes was a cocaine user
• 1800 added to wines received rave reviews from Pope Pius X and the Grand Rabbi of France
NEW FEDERAL CUT OFF LEVELS

• Effective October 2010
• Cocaine Screening – 150 ng/ml
• Benzoylcegonine - 50 ng/ml

Will this impact the defense approach???
PASSIVE INHALATION

- CONTROLLED STUDIES
  - DR. ED CONE - 22-123NG/ML GC/MS
- REPORTS FROM ER
  - POSITIVES DETECTED ON INFANTS AND CHILDREN NO CONTROL OF INTRODUCTION OF DRUG.
    BELIEVED TO BE PASSIVE COULD BE ORAL, FORCED INHALATION, OR ABSORPTION
DERMAL ABSORPTION

• BASELT-5 MG FREE BASE APPLIED TO SKIN RESULTED IN GC/MS LEVEL 55 - 9 NG/ML 12 TO 84 HRS AFTER EXPOSURE

• FREDERICK-2 MG COCAINE HCL APPLIED TO SKIN RESULTED IN 100 - 200 NG/ML 3 HRS AFTER EXPOSURE

• ELSOHLY-HANDS AND MONEY IMMERSED IN 70% COCAINE POWDER RESULTED IN LOW LEVEL POSITIVES. (< 150 ng/ml)
COCA TEA

- Health Inca Tea – each tea bag contains 20mg of cocaine.
- Can the use of coca teats cause a positive urine drug screen? Yes
RED BULL COLA

• Made with coca-leaf extract
• Health Institute in Germany found 0.13 mcg of cocaine per can
• Germany prohibited sales in 6 states and may recommend a nation-wide ban
Bath Salts – MDPV (methyleneoxypyrovalerone)

- Inhaled
- Stimulant similar to cocaine
- Illegal in UK
- Associated with several deaths
- Compulsive use
- NOT FOR HUMAN CONSUMPTION
If you are not looking to purchase in bulk, 1 kg or more right now, please give us your email address and we will forward it to a company that purchases from us and provides free samples and sells smaller amounts, and they will email you a product and price list which shows which chemicals are available as free samples. They offer Free 1 gram Samples.

Did someone say Free Sample.? Yes they have promotion on several chemicals (Methylone, Butylone, Mephedrone, Ethylone, 5-Methyl-MDA, MDPV, 4-FMP, 4-FA "FLUX") for a 1 Gram Free Sample to new customers. Customer must pay shipping and handling cost. Only 1 Sample per customer.
STATES THAT HAVE BANNED BATH SALTS (3/25/11)

- Louisiana
- North Dakota
- Florida
- Kentucky
- Virginia
- City of Huntington, West Virginia

- U.S. Senator Charles Schumer of New York proposing a federal rule to give MDPV schedule 1 status
Pending Legislation to Ban Bath Salts  (3/25/11)

- Kansas
- Missouri
- Mississippi
- City of Wilkes-Barre, Pennsylvania
CAN IT BE TESTED?

• Redwood Toxicology - Contact them for pricing
• Panel P81 – MDPV and Mephedrone
• Panel P80 – MDPV, Mephedrone, Bytylone, BZP, Cathinone, Ethylone, MBDB, mCPP, MDMA, MDEA, MDA, Methcathinone, TFMPP and Methylone
• NMS – Contact for information
What will cause a Positive COCAINE

• SCREENING
  1. Cocaine
  2. Benzoylecgonine
  3. Coca ethylene
  4. Ecgonine

  GC/MS
  1. Benzoylecgonine
NARCOTICS
NARCOTICS

Naturally Occurring → Synthetic → Street drugs → Naturally Occurring
NATURALLY OCCURRING OPIATES

• MORPHINE – Prescription medications Astramorph PF, Oramorph SR, Infumorph solution, Duramorph, MSIR MS Contin, Roxanol and Morphine Sulfate. Nonprescription medications contain opium which will be detected as morphine in urine: Amogel PG, Ciabismul, Donnagel-PG, Infantol Pink, Kaodene with Paregoric, Paregoric and Quiagel PG.

• OPIUM – Non-prescription medications Amogel PG, Ciabismul, Donnagel-PG, Infantol Pink, Kaodene with Paregoric, Paregoric and Quiagel PG.

• HEROIN – Illicit drug obtained from the opium poppy which is native to Turkey.

• CODEINE – Non Prescription medication Kaodene with Codeine
NATURALLY OCCURRING OPIATES

 SOURCES OF MORPHINE

MORPHINE

CODEINE

HEROIN

POPPY SEEDS
PERILOUS PASTRIES

- HIGHEST MORPHINE - 11,571 NG/ML
- HIGHEST CODEINE - 4,861 NG/ML
- LONGEST DETECTION - 72+ HRS
- MOST STUDIES INDICATE CONCENTRATIONS OF 200 - 3000NG/ML
- CLEARANCE - 24 HRS
Metabolism of Opiates

- Heroin
- Codeine
- Dihydrocodeine
  - Hydrocodone
  - Hydromorphone
  - Oxycodone
  - Oxymorphone
- 6-AM
- Morphine
SYNTHETIC or SEMI-SYNTHETIC OPIATES

- alphaprodine (Nisentil®)
- hydromorphone (Dilaudid®)
- oxymorphone (Numorphan®)
- hydrocodone (Hycodan®, Lorcet-HD®, Vicodin®)
- dihydrocodeine (Synalgos®)
- oxycodone (Percodan®, Percocet®, Tylox®)
- propoxyphene (Darvon®)
- methadone (Dolophine®)
- meperidine (Demerol®)
- fentanyl (Duragesic®, Sublimaze®)
- pentazocine (Talwin®)
- buprenorphine (Buprenex®, Subutex®)
SIGNIFICANCE OF MORPHINE
POSITIVE RESULTS

• Morphine > 15,000 – Federal guidelines indicate this is a level where an MRO can assume abuse.

• Codeine with a lower level morphine – EX Codeine = 2659 ng/ml morphine = 1574 ng/ml This usually indicates morphine is present as a metabolite of the codeine
SIGNIFICANCE OF MORPHINE POSITIVE RESULTS

• Low level of codeine and very high level of morphine – Ex Codeine 352 ng/ml Morphine 25879 ng/ml This is an indication the morphine is not present due to codeine metabolism and is from the use of morphine or heroin

• Morphine positives <2000 – Difficult to interpret - could be poppy seed, heroin, morphine or residual traces of morphine from the metabolism of codeine,
ELIMINATION OF CODEINE AND MORPHINE
SIGNIFICANCE OF 6-AM

• Heroin – half life in blood – 2-6 min
• 6-AM – half life in blood – 6-25 min
• 6-AM - elimination half life in urine 10 minutes
• 6-AM – only 45% of a 70 mg Heroin does was recovered in the urine and only 1.3% was as 6-AM
• 6-AM – If present you can say beyond question of a doubt the offender used Heroin
• 6-AM – If absent it does not mean the offender did not use Heroin
• 6-AM – Effective 10/1/2010 automatic on all federally mandated drug test.
OPANA - OXYMORPHONE

- Released in extended release form July 2006
- Very powerful semi-synthetic opioid analgesic
- Available from 5 – 40 mg dose
- 6-8 times more potent than morphine
- Medical Examiners Offices are reporting a dramatic increase in overdose cases from Oxymorphone since July 2006
- Oxymorphone is the natural metabolite of Oxycodone
- Increase in Oxymorphone positives in urine drug analysis
- Highly addictive
CHEESE

• STARTER HEROIN – HEROIN MIXED WITH TYLENOL PM (ACETAMINOPHEN AND DIPHENDRYAMINE)
• TARGETED MARKET MIDDLE AND HIGH SCHOOL
• HIGHLY ADDICTIVE – CREATES EUPHORIA, DISORIENTATION, SLEEPINESS AND HUNGER
• WITHDRAWAL COULD BEGIN AS SOON AS 12 HOURS AFTER DISCONTINUATION OF USE
• POPULAR IN THE WEST AND SOUTHWEST
FENTANYL

• Approximately 4 times more powerful than morphine
• Duragesic patch – Favorite form of abuse – eaten
• Fentanyl Lollipops – Target children
SYRUP AND SODA

- Also know as Sizzurp, Purple Drank and Lean
- Mixture of Promethazine and Codeine cough syrup, Jolly Ranchers and Sprite
- Popularized in rap culture particularly Houston
- Texas, Louisiana, Mississippi and Florida are reporting an increase in misuse and deaths
- Effect – Euphoria and impaired motor skill

• + 

= Sizzurp
What will cause a Positive OPIATES

• SCREENING
  1. High levels of imipramine
  2. High levels of (Ranitidine) Zantac
  3. Cough suppressants
  4. Benzodiazepines
  5. Very high levels of Meperidine

  GC/MS
  1. Codeine, Morphine, Hydrocodone, Hydromorphone and Oxycodone
AMPHETAMINES

AMPHETAMINE

METHAMPHETAMINE

OVER THE COUNTER

MDMA

MDA
NEW FEDERAL CUT OFF LEVELS AND NEW DRUGS

• Amphetamine screen = 500 ng/ml
• Amphetamines confirmation = 250 ng/ml
• Amphetamines will include—amphetamine, methamphetamine, MDMA, MDE and MDEA
METHAMPHETAMINE

• **1919**: Methamphetamine is first synthesized.

• **1936**: The first reported misuse of amphetamines occurs by student subjects in a research project at University of Minnesota testing effects of the drug. Once exposed to the drug, students were seeking and using the drug outside the research study.

• **1940's**: Methamphetamine is regularly issued to Japanese soldiers.

• **1950's**: Earliest record of intravenous methamphetamine use; American soldiers in Japan and Korea report injecting heroin and methamphetamine ("Speedballing").

• **1963**: Illicitly manufactured methamphetamine first appears in California.

• **2002**: 5.3% of Americans aged 12 and over say that they have used methamphetamine at some point in their lives. 0.3% say they have used it in the past month.
D-METHAMPHETAMINE

- CRYSTAL METH, CRANK, ICE
- CNS STIMULANT
- HIGHLY ADDITIVE
- CLEARENCE 24-48 HRS
- METABOLITE-AMPHETAMINE
- LEGAL SOURCES-DESOXYN, and DIDREX
L-METHAMPHETAMINE

- Sources – Selegiline and Vicks stick inhaler
- Identify – D/L isomer analysis
- Performed on request for methamphetamine positives
- Positive = < 20% D-Methamphetamine
AMPHETAMINE

• Prescribed for ADD and weight control
• Metabolite of Methamphetamine
• Must be present to report a positive methamphetamine
• Routine Panel – At least 200 ng/ml amphetamine
MDMA

• MDMA, XTC, ECSTASY, ADAM, X
• STIMULANT AND HALLUCINOGENIC
• LEGAL IN EUROPE 1914
• SCHEDULE I IN U.S.
• 3,4-METHYLENEDIOXY METHAMPHETAMINE
• RAVE PARTIES - TEENS AND YOUNG ADULTS
MDMA

• THE HUG DRUG - EMPATHY FOR OTHERS, REDUCES INHIBITIONS
• DEHYDRATION - DRINK WATER
• “SHORT CIRCUIT” SIGNAL TO BRAIN CONTROLLING TEMPERATURE
• TEETH GRINDING - PACIFIERS
• SUPPRESS NEED TO EAT OR SLEEP
• OD-HYPERTHERMIA BODY TEMPS OF 107-109
• SIMILAR DRUGS MDA AND MDEA
• GREAT BRITAIN – Because animal studies have indicated that MDMA increases extra cellular levels of the chemical messengers serotonin and dopamine, researchers are investigating the use of MDMA in various treatment regiments.
MDA

• Psychedelic, stimulant recreational drug
• Appeared around 1963-1964
• Reported that MDA was the Mellow Drug of America in the 60”s
• 3,4- Methylenedioxyamphetamine
MDEA

- Psychedelic, stimulant recreational drug
- Street name EVE
- Hyperthermia associated with use
- 3,4-methylenedioxy-N-ethylamphetamine
OTC

Red Bull

Coca-Cola

Allergy Medicine

EPHEDERA5

Energy and Endurance*
Thermogenesis*
Weight Loss*
Mental Clarity*
ENERGY DRINKS

• Contain Caffeine
• Hard to tell which have alcohol
• Sell those with and without alcohol side by side in store
BURBON & COKE VS. ENERGY DRINK

- Caffeine = 13 mg
- Alcohol = 0.6 oz

- Caffeine = 87 mg
- Alcohol = 1.12 oz
STRAWBERRY METHAMPHETAMINE

• BRIGHT PINK IN COLOR WITH A STRAWBERRY FLAVOR
• KNOW AS STRAWBERRY QUICK
• STARTED IN CALIFORNIA AND MOVING EAST
• TAGETED MARKET MIDDLE AND HIGH SCHOOL
• IF THEY START YOUNG THEY WILL BE LONG-TIME BUYERS
Khat or Qat

• Contains an alkaloid called cathinone
• Amphetamine like stimulant
• cathinone – Schedule I
• Can be tested but few labs offer this drug
• Cost – Around $50 - $150 per specimen
Mephedrone or Drone

- Derived from cathinone
- Sold on internet as plant feeder
- Amphetamine like stimulant
- Causing deaths in UK
- Still not regulated in the U.S. but can be considered as a schedule 1 under the Analogue act
VYVANSE

- Recently released to treat Attention-Deficit/Hyperactivity Disorder (ADHD)
- Lisdexamfetamine dimesalate
- Rapidly absorbed from the GI track and converted to D-amphetamine
- Urine drug screen for someone on this drug would result in a positive for D-amphetamine
- Abuse Potential: High
What will cause a Positive AMPHETAMINES

• SCREENING
  1. Over the counter cold and cough medications
  2. Prescription Meds – allergy, weight control, ADD, and cold/cough
    GC/MS – Didrix, Desoxyn, and Deprenyl
      1. Amphetamine
      2. Methamphetamine
      3. MDMA/MDA/MDE
PHENCYCLIDINE
PHENCYCLIDINE

- PCP-Angel dust, rocket fuel
- Commercial use as equine anesthetic
- Produces hallucinations, violent hostility, acute anxiety, paranoia, and a feeling of impending doom
- Inexpensive and easy to make
- Not a popular drug of abuse

PCP is most commonly sold as a powder (left) or liquid (center) and applied to a leafy material, such as oregano (right), which is then smoked.
What will cause a Positive PCP

• SCREENING
  1. Diphenhydramine (Benadryl)
  2. Dextromethorphan (DM in cough medications.
  3. Effexor – antidepressant

  GC/MS
  1. Phencyclidine
Metabolism of Benzodiazepines
Metabolism of Benzodiazepines

Alprazolam  
Xanax

a-Hydroxyalprazolam

Lorazepam  
Ativan
PIPERAZINE DESIGNER DRUGS

• BZP, TFMPP, MDBP AND MeOPP
• Schedule 1
• Several states have placed BZP in schedule I: Iowa, Tennessee, Wyoming, Mississippi, Louisiana, Idaho, Colorado, Illinois, Indiana, Kansas, Missouri, Oklahoma and Nebraska.
• Few commercial labs in US are testing for these compounds
Psychedelic Amphetamines

• DEA shows 20 seizures between 2004 and 2009
• 13 states
• DOM, DOB, DOI, 2C-1 and 2C-B the main drugs
• Schedule 1
• Phenethylamines and Tryptamines
Psychedelic Phenethylamine

• Have been around since the 1980’s
• 2C-E – common name Europa – recently responsible for several deaths in the US.
• Also have 2C-C,D,I,P and 2C-T2,T4, T7 and T21.
Comments from users

- **DOB** – I turned into a lizard
- **DOI** – Jesus Christ shook my roof, tore it open and began speaking to me
- **DOM (STP)** – Fluid colors rippled across the surface. Objects squished and breathed
Desperate for a HIGH?

- Sonoran Desert Toad
- Hallucinogenic compound secreted on the skin
  - 5-MeO-DMT
  - 5 methoxy-N,N-dimethyl tryptamine
FDA web site

- [http://www.fda.gov/Drugs/ResourcesForYou/Consumers/BuyingUsingMedicineSafely/MedicationHealthFraud/ucm234539.htm](http://www.fda.gov/Drugs/ResourcesForYou/Consumers/BuyingUsingMedicineSafely/MedicationHealthFraud/ucm234539.htm)

- Information on drugs found in products you can purchase on the internet.
Examples of Information

- **Sexual Enhancers** – contain either compounds chemically similar to sildenafil (Viagra) or actually contain sildenafil
  - Passion Coffee
  - Black Ant

- **Weight Loss Products** – contain sibutramine
  - Celerite Slimming Tea
Where to Get More Information

• **Web sites**
  
  • www.erowid.org
  
  • www.dot.gov/ost/dapc
  
  [www.drugfreeworkplace.gov](http://www.drugfreeworkplace.gov)
  
  www.RTI.org/forensiced

• **E-mail**
  
  • Pat Pizzo – pat.pizzo@alere.com
Where to Get More Information

• BOOKS
  • Disposition of Toxic Drugs and Chemicals in Man
THANK YOU