Beating a Drug Test: Is it Possible?
- Adulteration/Substitution
- Dilution
- Masking
Incidental Exposure
Matrix Testing
Examining the Excuses
Internet Resources
Q&A
BEATING A DRUG TEST

Is it possible?
ADULTERATION

- Nationwide product distribution
  - Internet
  - Smoke shops or “head shops”
  - Mail order / magazine advertisements

- Offer next-day delivery with money-back guarantees

- Disseminate misinformation to perpetuate myths about drug testing

- Make exaggerated and unsubstantiated claims as to the efficacy of their products
COMMON METHODS

- Physical Tampering - Additives
- Specimen Substitution
- Devices
COMMERCIAL ADDITIVES

- Acids
- Surfactants
- Fixatives
- Oxidants
HOUSEHOLD PRODUCTS

- Acids
- Surfactants
- Oxidants
SPECIMEN SUBSTITUTION

- Dehydrated urine
- Non-urine liquids
- Also used in devices
DEVICES

- Concealed beneath clothing
- Utilizes dehydrated drug-free urine
- Maintains proper urine temperature with heating pads or digital heating packs
- Typically sold to males; may include prosthetic penis
- Typically very expensive / single use only
THE URINATOR - $149.95

- A digitally controlled, battery operated, heating element with cloth pouch
- Dr. John’s FamousPee Pee
- Car adapter
VAGINAL INSERTS
THE WHIZZINATOR - $139.95

- 1 Whizzinator Touch
- 4 Heat Packs
- 1 Syringe
- 1 Freeze Dried Synthetic Urine Sample
- 1 Instruction Manual

https://www.youtube.com/watch?v=UMnl37OqQHU
VISUAL MONITORING

Female Restroom

- One way mirror to view collection
- Bluing agent in toilets
- No hot water
- No chemicals in area
- Remove excessive clothing
- No items allowed in restroom

Male Restroom
URINE DILUTION

In vivo dilution is the most common method employed to circumvent a drug test.

Principle:
The ingestion of copious amounts of fluids prior to providing a urine sample in order to induce polyuria and ultimately lower the concentration of drugs in the bladder below the detectable limit.
EFFECTS OF WATER LOADING

Urine Production Rate After Water Loading

L. Kadehjian 2005, Baldes and Smirk, 1934 Macallum and Benson, 1909
MASKING

- Ingesting a particular substance that disguises (or masks) the traces of drug and/or metabolites in the urine sample which means that they can't be detected by drug testing.

- Also referred to as a cleansing agent.
NIACIN (VITAMIN-B3)

- Common myth – Niacin helps cleanse toxins from the body. There is no evidence of its effectiveness.
- Vitamin B / B-complex vitamins make your urine appear yellow in an attempt to disguise dilution.
- Prior to creatinine testing, sample validity was based on the color of the urine.
ZINC SULFATE

• Rumored to bind to THC and excreted as a solid in the stool. No evidence to support this claim.
• May cause oliguria – decreased urine output, working against the donor!
• 2011 study showed interference with ELISA tests for cocaine, methamphetamine and THC
CREATINE

- Creatine supplements
- Red meat diet
- Attempt to increase creatinine metabolite to mask urine dilution
- Studies suggest that the creatine/creatinine ratio remains relatively balanced

*Clinical Chemistry February 2000 vol. 46 no. 2 295-297
TRADITIONAL DIURETIC SUPPLEMENTS

- Water Pills
- Herbal Teas
- Herbal Nutrients and Supplements

- No proof of cleansing the body
- Natural diuretics
GOLDEN SEAL TEA

- Available in tablet, powder, and teabag form
- One of the most venerable myths, with some historical effectiveness
- Turns urine a brown color - Known to interfere with TLC methodology
- Diuretic
HOUSEHOLD PRODUCTS

- Vinegar
- Pickle Juice
- Bleach
- Drano

- Attempt to alter urine pH
COMMERCIAL PRODUCTS

• Carbo Shakes
• Detox Drinks
• Capsules
• Gel Caps
• Fizz-Tablets

• Contain natural diuretics
15. Can a hair test be beaten/adulterated?
At this time there are no known successful commercial adulterants for hair tests and the recommended use of normal hair care products/procedures (shampoos, dyes, permanents, relaxers, bleaches) do not have a significant effect on results. The effects of these products were reviewed by the FDA as part of our 510(k) clearances.

*Omega Laboratories FAQ
TYPES OF EXPOSURE

- Sexual intercourse with a drug user
- Touching a contaminated surface
- Inhaling second-hand smoke
- Consuming products cooked with alcohol
- Hand Sanitizer
- Mouthwashes
CUTOFF LEVELS

- Regulated standards observed by SAMHSA, CLIA, CAP
- Set to eliminate positive results due to incidental exposure
- Reports will indicate cutoff levels for screening and confirmation testing
MATRIX TESTING

The Variables
SAMPLE MEDIA

Various sample media types available to implement a drug abuse monitoring program...

- Urine, Oral Fluid, and Hair most common
- Blood and Sweat - uncommon

Each media type has its advantages/disadvantages
HAIR FOLLICLE

- **Pros**
  - Effective baseline test – Unknown drug use history
  - Adulteration difficult

- **Cons**
  - Not useful for routine monitoring
  - Usage period broad / cannot be pin-pointed
  - Head hair may not be available
  - Limited Test menu
  - Potential issue with treated hair / debatable
  - Expensive
ORAL FLUID

**Pros**
- Effective field collection
- Same gender collection not necessary
- Difficult to adulterate

**Cons**
- Short detection period
- Ineffective for THC Detection
- Limited test menu
- Moderate cost
URINE

- **Pros**
  - Good detection period
  - Large sample size
  - Industry standard
  - Long history of legal acceptance
  - Inexpensive

- **Cons**
  - Requires visually observed collection to avoid adulteration
  - Potential for specimen dilution
# DETECTION PERIODS

<table>
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<tr>
<th>Media</th>
<th>Approximate Detection Period</th>
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<tbody>
<tr>
<td>Urine</td>
<td>24-72 hours</td>
</tr>
<tr>
<td>Oral Fluid</td>
<td>12-36 hours / 6-8 hours THC</td>
</tr>
<tr>
<td>Hair</td>
<td>Head hair: 14-90 days prior</td>
</tr>
<tr>
<td></td>
<td>Body hair: 30-365 days prior</td>
</tr>
<tr>
<td>Blood</td>
<td>8-36 hours</td>
</tr>
<tr>
<td>Sweat</td>
<td>1-4 weeks (period patch is worn)</td>
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COMPARING RESULTS

- Results from different samples collected the same day may not correlate.
  - Hair vs. Urine
  - Oral Fluid vs. Urine

- Point of Care vs. Lab-based Testing
  - Different Cutoff Levels
  - Higher potential for false positives
  - Subjective
  - Package Insert
EXAMINING THE EXCUSES

Are they legitimate?
THC

- “I’m overweight so THC stays in my system longer”.
  - Chronic users should test negative after approximately 21-24 days
  - 99% of chronic users will test negative after 6 weeks

- “I use hemp products”.
  - Stalk, seeds and oil from *Cannabis sativa plants*
  - Contains little to no psychoactive THC

- “I have a prescription for Marinol (dronabinol)”.
  - Synthetic cannabis
  - Will test positive for marijuana
AMPHETAMINES

- “I am positive because of my Albuterol inhaler”. 
  - This is not an amphetamine

- “I use a Vick’s inhaler”. 
  - Contains L-methamphetamine 
  - D vs. L isomer test recommended

- “I had a bad cold and took Sudafed”. 
  - Pseudoephedrine can test positive on screening test
OPIATES

- “I am positive for opiates because of my methadone”.
  - Synthetic Opioids will not test positive for opiates
    - Methadone
    - Buprenorphine
    - Tramadol
    - Fentanyl
    - Meperidine

- “I tested positive because I ate a poppy seed bagel”.
  - Possible morphine in or on the seeds
  - Problematic at the 300 ng/mL cutoff
INTERNET RESOURCES
# ACCURACY

| Authority       | Is it clear who is responsible for the contents of the page?  
|                | Is there a way of verifying the legitimacy of the organization, group, company or individual?  
|                | Is there any indication of the author’s qualifications for writing on a particular topic?  
|                | Is the information from sources known to be reliable?  
| Accuracy        | Are the sources for factual information clearly listed so they can be verified in another source?  
|                | Is the information free of grammatical, spelling, and other typographical errors?  
| Objectivity     | Does the content appear to contain any evidence of bias?  
|                | Is there a link to a page describing the goals or purpose of the sponsoring organization or company?  
|                | If there is any advertising on the page, is it clearly differentiated from the informational content?  

TASC

MYTH BUSTERS  | 4/28/15  | 41
## ACCURACY

<table>
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<th>Currency</th>
<th>Are there dates on the page to indicate when the page was written, when the page was first placed on the Web, or when the page was last revised?</th>
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<tr>
<td>Coverage</td>
<td>Are these topics successfully addressed, with clearly presented arguments and adequate support to substantiate them? Does the work update other sources, substantiate other materials you have read, or add new information? Is the target audience identified and appropriate for your needs?</td>
</tr>
<tr>
<td>Appearance</td>
<td>Does the site look well organized? Do the links work? Does the site appear well maintained?</td>
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RELIABLE RESOURCES

- Drugs.com
  - Enter medication
  - Active ingredient
  - Side Effects
- Drugfreeaz.org
- SAMHSA.gov
  - Substance Abuse and Mental Health Services Administration
  - http://store.samhsa.gov/facet/Substances
Spice, Bath Salts, and Behavioral Health

Spice (synthetic cannabinoids) and bath salts (synthetic cathinones) refer to two groups of designer drugs that have increased in popularity in recent years. These substances are created with analogs of commonly used illicit drugs. An analog is one of a group of chemical compounds that are similar in structure and pharmacology. This Advisory provides introductory information about spice and bath salts for behavioral health professionals who treat people with mental illness, substance use disorders, or both. It is not meant to

Spice

Spice, also known as herbal incense, is dried, shredded plant material treated with a cannabinoid analog. Although labels on spice products will list the ingredients as “natural” psychoactive plant products, chemical analyses show that their active ingredients are primarily synthetic cannabinoids added to the plant material. These synthetic analogs function similarly to the active ingredient in marijuana, Delta-9-tetrahydrocannabinol (Δ9-THC).
Q & A
THANK YOU
For viewing this presentation