Youth and Drug-Facilitated Sexual Assault (DFSA)

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Federal Office of Civil Rights
Disclosures/Conflicts of Interest & Disclaimer

• No financial relationships to disclose or Conflicts of Interest (COIs) to resolve.
Objectives

• Define DFSA and prevalence
• Describe substances currently used in drug-facilitated sexual assault
• Describe our medical approach when DFSA is suspected
• Describe Utah Toxicology Lab’s testing ability
"Who Are You" Campaign
“Mickey Finns”

• Chicago bartender in 1903
  – The Lone Star Saloon

• Spiked patrons’ drinks with *chloral hydrate*
  – Patron incapacitated and escorted to back room
    • Robbed... then dumped in an alley

• Shortly became a slang term for “knock-out drops”
What is Drug Facilitated Sexual Assault (DFSA)?

- U.S. Dept of Justice
  - Administration of anesthesia-type drug to render a victim physically incapacitated or helpless and thus incapable of giving or withholding consent.
    - Drug-Induced Rape Prevention and Punishment Act of 1996

- In academic literature...
  - **Voluntary or involuntary** ingestion of a drug by a victim that results in an act of sexual activity without verbal consent (as perceived by individual giving consent)

Types of DFSA

• Proactive
  – Intentionally administering drugs/EtOH to victim
  – Intent is to make sex easier to obtain


Types of DFSA

• Proactive
  – Intentionally administering drugs/EtOH to victim

• Opportunistic
  – Taking advantage, or preying upon, an intoxicated person who has voluntarily ingested drugs/EtOH
  • “Easy targets”


Opportunistic DFSA

• Victims of DFSA more likely than non-drug facilitated sexual assaults to have **willingly**:
  – Used EtOH immediately before assault (*OR 4.00*)
  – Used OTC meds in 72 hours before presentation for medical care (*OR 3.97*)
  – Used street drugs in 72 hours before presentation for medical care (*OR 1.71*)

DFSA Study – Hurley 2006

- 76 DFSA cases – all had drug screens
  - Voluntary EtOH 77%
  - Voluntary Rx drugs 49%
  - Voluntary recreational drugs 26%
  - *Unexpected drugs not knowingly consumed 20%*

Regardless of consumption route, the inability to consent was universal in these cases.
DFSA Statistics

• Roofie Foundation 2010 survey
  – 1% of 12-14 year olds reported DFSA
  – 4% of 15-17 year olds reported DFSA
  – Adolescents made up 7.3% of total DFSA cases

• Canada 10 year study (1990-2000)
  – 15.4% of sexual assaults were DFSAs
  – Adolescents had highest incidence of 59/100,000 (or 1/1,686)
90% of these rapes will be perpetrated by acquaintances

12% of college rape survivors will report their experience to law enforcement authorities

SOURCE: 2007 Campus Sexual Assault Study funded by the National Institute of Justice

95% of on-campus sexual assaults go unreported.

50% are alcohol-related
55% happened at a party

1 in 5 women 1 in 10 men
are victims of completed or attempted sexual assault while in college

ONE IN FIVE women experience rape during college, according to research by the National Institute of Justice.

It is estimated 3% of college men account for 90-95% of rapes on college campuses. The average number of rapes for each one of these serial offenders is six.


ONE IN 10 CHILDREN WILL BE SEXUALLY ABUSED BEFORE AGE 18

Survivors of SEXUAL ASSAULT

26x more likely to abuse drugs
3x more likely to suffer from depression
4x more likely to contemplate suicide
6x more likely to suffer from PTSD
13x more likely to abuse alcohol
Drug-Facilitated Sexual Assault (DFSA)

• Difficulties in proving DFSA
  – Victims can’t provide reliable history
    • Frustrating for investigation
    • Fearful, Anxious child/family
  – Often delay in reporting incident
    • Delay affects drug screens
    • Drugs administered in smallest effective dose
    • Use rapidly eliminated substances

Drug-Facilitated Sexual Assault (DFSA)

- Difficulties in proving DFSA
  - Voluntary consumption of alcohol
    - Additional credibility issues
    - Extrapolated blood alcohol concentration from time tested often sufficient to explain amnesia

Desired Drug Effects

- Desired effects of drugs used:
  - Sedation or induction of sleep
  - Alteration of the victim’s behavior
  - Antegrade amnesia
  - Creation of helpless state, of which perpetrator can exploit
  - Increasing sexual desire
  - Lowering inhibitions
    - Amphetamines, cocaine

**Same drugs used to facilitate other crimes, such as robbery, which is more common than sex crimes**
Drugs Most Commonly Detected

- Ethanol
- Marijuana
- Cocaine
- Benzodiazepines
- Opiates
What about GHB and Roofies?

- Very publicized
  - Anecdotal evidence
- True incidence is < 5%
  - GHB: 4% of samples
  - Rohypnol: 0.5%
Described Symptomatology

Symptoms described by victims
− Nauseating, bitter taste—in previously unremarkable drink
− Confusion
− Dizziness
− Light-headedness
− Sleepiness
− Impaired consciousness or Unconsciousness
− Memory disturbance/amnesia
− Feeling as though not in charge of own actions
− Nausea or vomiting
− Behavioral disinhibition
− Loss of muscular control
− Slow heart rate, low muscle tone
# Utah Toxicology Lab Testing for DFSA

<table>
<thead>
<tr>
<th>What to collect</th>
<th>What to test for</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Urine</strong> is preferred if collected within 120 hrs of incident (100 mL)</td>
<td>Ethanol &amp; metabolites</td>
</tr>
<tr>
<td><strong>Blood</strong> is useful if collected within ~24 hrs of incident (10 mL)</td>
<td>GHB</td>
</tr>
<tr>
<td><strong>Both are better</strong></td>
<td>Benzodiazepines</td>
</tr>
<tr>
<td><strong>Hair</strong> is possible, but controversial &amp; and currently not at the Lab</td>
<td>Barbiturates</td>
</tr>
<tr>
<td></td>
<td>Antipsychotics</td>
</tr>
<tr>
<td></td>
<td>Antidepressants (TCAs, SSRIs)</td>
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<td></td>
<td>Muscle relaxants</td>
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<tr>
<td></td>
<td>Antihistamines</td>
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<tr>
<td></td>
<td>OTC sleep aids, cold Rx</td>
</tr>
<tr>
<td></td>
<td>Hallucinogens</td>
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<tr>
<td></td>
<td>Opioids</td>
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<tr>
<td></td>
<td>Any CNS depressant/dissociative</td>
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</tbody>
</table>
Ethanol (EtOH)

- Most common
- Easiest to test
- Most reliable
- Most accurate
EtOH Testing

• Can test
  – Breath
  – Blood
    • Serum/plasma
    • Whole blood
ETOH: Breath Testing

- Non-invasive
- Easy to do
  - Good cooperation needed
- Good for repeat testing
- Correlates well with blood test
- Less expensive than blood test
- Gives whole blood not serum levels*
Whole Blood vs Serum ETOH

• Health Care measure serum
• Law measures whole blood
• Difference
  – WB 1.15x less than serum
  – 80 mg/dL (0.08 g/L) WB
  – 92 mg/dl (0.092 g/L) S
ETOH: Blood/Serum

- Invasive but easy to perform
- Less interference than breath
- Alcohol wipes do NOT add to ETOH level
- More expensive
Drug of Abuse (DOA) Screens

• Can screen
  – Urine
  – Blood
  – Hair
Urine DOA Screen

- Non-invasive
- Easy to perform
- Qualitative (+) or (-)
  No level
- False (+) and (-)s
- Confirmation required for quant
Screen Basics

- Screen a specific drug or class
  - Drug must be similar in structure
  - Limits to concentration

<table>
<thead>
<tr>
<th>Drug Name</th>
<th>Cut-Off Level</th>
<th>Approximate Detection Time in Urine</th>
<th>Approximate Detection Time in Saliva</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amphetamine AMP</td>
<td>1000 ng/mL</td>
<td>2 - 4 Days</td>
<td>1 - 3 Days</td>
</tr>
<tr>
<td>Amphetamine 300 AMP300</td>
<td>300 ng/mL</td>
<td>2 - 4 Days</td>
<td></td>
</tr>
<tr>
<td>Barbiturates BAR</td>
<td>300 ng/mL</td>
<td>4 - 7 Days</td>
<td></td>
</tr>
<tr>
<td>Benzodiazepine BZO</td>
<td>300 ng/mL</td>
<td>3 - 7 Days</td>
<td></td>
</tr>
<tr>
<td>Buprenorphine BUP</td>
<td>10 ng/ml</td>
<td>2 - 4 Days</td>
<td>1 - 3 Days</td>
</tr>
<tr>
<td>Cocaine COC</td>
<td>300 ng/mL</td>
<td>2 - 4 Days</td>
<td>1 - 3 Days</td>
</tr>
<tr>
<td>Cocaine 150 COC150</td>
<td>150 ng/mL</td>
<td>2 - 4 Days</td>
<td></td>
</tr>
<tr>
<td>Ecstasy Methylenedioxymethamphetamine MDMA</td>
<td>500 ng/mL</td>
<td>1 - 3 Days</td>
<td></td>
</tr>
<tr>
<td>Marijuana Tetrahydrocannabinol THC</td>
<td>50 ng/mL</td>
<td>15 - 30 Days</td>
<td>6-12 Hours</td>
</tr>
<tr>
<td>Drug Class</td>
<td>Cut-off (ng/mL)</td>
<td>Detection Interval</td>
<td>False (+) &amp; (-)</td>
</tr>
<tr>
<td>------------------</td>
<td>-----------------</td>
<td>--------------------</td>
<td>-------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Amphetamines</td>
<td>1000</td>
<td>2-4 days</td>
<td>Decongestants, Anti-depressants</td>
</tr>
<tr>
<td>Barbiturates</td>
<td>200</td>
<td>2-4 days</td>
<td></td>
</tr>
<tr>
<td>Benzodiazepines</td>
<td>100-300</td>
<td>1-30 days</td>
<td>NSAIDS, Famotidine, Metabolite</td>
</tr>
<tr>
<td>THC</td>
<td>20-50</td>
<td>3-30 days</td>
<td>Metabolite</td>
</tr>
<tr>
<td>Cocaine</td>
<td>300 (BE)</td>
<td>2-7 days</td>
<td>Metabolite</td>
</tr>
<tr>
<td>Opiates</td>
<td>200-300</td>
<td>2-4 days</td>
<td>Synthetics</td>
</tr>
<tr>
<td>PCP</td>
<td>25</td>
<td>4-30 days</td>
<td>DXM, diphenhydramine, ketamine, SSRI</td>
</tr>
</tbody>
</table>
Example: Cross-reaction

PCP (phencyclidine)

Benadryl (diphenhydramine)
Blood DOA

- Quantitative level
- Invasive
- Therapeutic Rx
- Some DOA metabolites
- Better argument for what DOA are “in your system”
- *Very* useful for DFSA
- *Rarely* used for routine drug screening
Hair DOA

• Newest technique
• Marketed to parents
• Longer period of time (90 days)
• Interpretation?
• Harder to beat test
• Tests hair content – not levels on hair surface
• Must have at least 120 strands, 1.5 in long
DOA Not Routinely Tested

- Opioids: fentanyl, synthetic fentanyl, methadone, oxycodone, oxycontin, suboxone
- Synthetic marijuana: K2, Spice, Cloud 9
- Synthetic amphetamines: “Bath salts”
- GHB: Gaba hydroxybutyrate
- Rohypnol: Flunitrazepam
Drug Class Effects
Potential Routes of Administration

• **Drink**
  – Tablet, ice, liquid in dropper

• **Smoke**
  – Applied to cigarette or joint

• **Ingestion**
  – Brownies, gelatin, fruit

• **Vaginal/Anal syringe**
  – Drug within contraceptive gel

• **Intravenous** – heated administered pure or in saline

• **Misrepresentation as another drug**
Alcohol EtOH

• MOST common (up to 80% of DFSA cases)

• EtOH intoxication:
  • Clinical effects: impaired judgment, loss of coordination, cognitive slowing, amnesia, nausea, vomiting, ataxia, loss of consciousness
  • Decreased inhibition
  • Can not assume only EtOH involved (compounded effects)

• Pharmacokinetics
  • Zero-order kinetics (saturable = constant rate of metabolism)
    • Will be faster rate in chronic users
Marijuana and Synthetics  
(THC, weed, hash, grass, pot) and (Spice, K2, K3, etc)

• TetraHydroCannabinol (THC)

• Effects
  – Increased heart rate, bloodshot eyes
  – Fatigue, somnolence, decreased coordination

• Detection: urine, blood, hair, saliva, sweat
  – Fat soluble - chronic build up in fat stores
  – Positive tests for weeks or months in chronic users

• New legalization – increased incidence of accidental child ingestions
Opioids & the Opidemic
(fentanyl, Vicodin, oxycodone, Percocet, Lortab, hydrocodone)

• **Effects**: pain control & anesthesia
  – Receptor upregulation = higher tolerance
  – Withdrawal symptoms: nausea, vomiting, sweating, aches, shakes, chills

• **Higher dosing**: somnolence, fatigue, drowsiness, loss of consciousness, decreased breathing, death

• **Detection**: Average 2-5 days in urine

• **Treatment**: Naloxone and weaning off

• [www.UtahNaloxone.org](http://www.UtahNaloxone.org)
Benzodiazepines
(Xanax, Valium, Ativan, Klonopin)

- **Flunitrazepam = most well-known**
  - Aka Rohypnol, Hypnodorm, Ruffies, Roofies, Forget-Me-Pills
  - Formerly tasteless & colorless: now changed to be bitter taste, discolor drinks, & precipitate in solution

- **Effects:**
  - **Anterograde AMNESIA**
  - Dizziness, disorientation, lack of coordination, slurred speech (***similar to EtOH intoxication***)

- **Pharmacokinetics**
  - Onset: 20 minutes (T1/2 = 20hrs)

- **Detection:**
  - Blood 4-12 hours
  - Urine ≤ 48 hours
Barbiturates
(Nembutal, -barbital)

• Aka: Barbies, Sleepers, Blue Bullets, Pink Ladies, Red Devils

• Effects (wide range):
  – Somnolence, fatigue, ataxia, loss of consciousness
  – Hypothermia, decreased respiratory drive
  – Hypotension, hypoglycemia

• Pharmacokinetics
  – Depends on which one is used
    • Ultra-short-acting (thiopental)—urine detection x 1-4 days
    • Long-acting (phenobarbital)—urine detection x 2-3 weeks
  – Standard immunoassay screening will detect almost all barbiturates
Gamma-Hydroxybutyric Acid (GHB)

- Aka: G, Georgia Home Boy, Liquid Ecstasy, G-rrific, Easy Lay
  - Colorless, tasteless
  - DEA Schedule I drug in U.S. (narcolepsy, alcoholism)

- Effects:
  - Low dose—fatigue, amnesia, disinhibition
  - Mid-level dose—drowsiness, increased somnolence
  - High dose — delirium, seizures, sedation, vomiting, incontinence, loss of consciousness

- Pharmacokinetics
  - Onset: 10-15 minutes, T1/2 = <1hr

- Detection
  - Blood 4-8 hours
  - Urine ≤ 12 hours
Stimulants

- **Cocaine/Crack** (snow, blow, powder, candy)
- **Amphetamines** (crank, crystal, glass, meth, speed, white cross, ice)
- **Ecstasy** (X, Adam, E, MDMA)

**Effects that are risky for DFSA:**
- Increase libido/sexual desire
- Decrease inhibition
- Eventual exhaustion—profound fatigue
Ketamine

- Cat valiums, Special-K, Super-K, Vitamin K, Kit-Kat, Kiddie

- Effects:
  - Rapid-acting dissociative anesthetic/psychodelic
    - Episode of intense mind-body dissociation referred to as the “K-hole”
  - Delirium, amnesia
  - Hypersalivation, hypertension

- Pharmacokinetics
  - Onset: 5-15 mins snorted/inhaled, 20 mins when ingested (T1/2 = 2-3 hour)

- Oral doses
  - Prepared from a powder
    - Stirring to solution with hot tap water
    - Adding acid (i.e. orange juice)
    - “Ketamine itself tastes quite bad”
  - Powder can be smoked (by sprinkling on tobacco or arijuana)
Antihistamines

- Diphenhydramine (Benadryl), Promethazine (Phenergan)

- Effects:
  - Antihistamine, sedation, confusion, agitation, hallucinations
  - Readily enters the central nervous system

- Pharmacokinetics:
  - Onset: 15-60 minutes
  - Duration of symptoms: 4-6 hours
Medical Evaluation and Evidence

• Immediate Urine & Blood drug screens
• Stabilization of patient
• Pediatric Sexual Assault Exam
• Rape Evidence Collection
  – Unknown history – more comprehensive collection
• Screen for other forms of exploitation
  – Human Trafficking
  – Labor Trafficking
<table>
<thead>
<tr>
<th>Resource</th>
<th>Contact</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Emergency</strong></td>
<td><strong>911</strong></td>
<td></td>
</tr>
<tr>
<td>NHTH (hotline) Answered 24/7</td>
<td>888.3737.888 or Text ‘Help’ to BeFree</td>
<td>NGO dedicated to eradicating HT and restoring freedom to survivors – Utah resources</td>
</tr>
<tr>
<td>Utah Tip Line for Human Trafficking</td>
<td>801-200-3443</td>
<td>Not for emergencies. Leave message and you will be contacted.</td>
</tr>
<tr>
<td>Washington County Children’s Justice Center</td>
<td>435-634-1134</td>
<td>Forensic Interviewing, Medical Evaluation, MDT coordination, patient/family resources</td>
</tr>
<tr>
<td>Safe &amp; Healthy Families</td>
<td>801-662-3600</td>
<td>Medical evaluation, education, and trauma-focused counseling programs and services for minor survivors of abuse and neglect, including sex trafficking.</td>
</tr>
<tr>
<td>Corey J. Rood, MD</td>
<td><a href="mailto:Corey.Rood@hsc.utah.edu">Corey.Rood@hsc.utah.edu</a></td>
<td>Safe &amp; Healthy Families Primary Children’s Hospital University of Utah</td>
</tr>
</tbody>
</table>
Case 1

• 9 yo Female
Case 2

• 17 yo Female, mother of infant
Suggested References


• [www.UtahNaloxone.org](http://www.utahnaloxone.org)

• [www.erowid.org](http://www.erowid.org)

• [https://youtu.be/Lq09VT3zaww](https://youtu.be/Lq09VT3zaww)

• [https://www.youtube.com/redirect?event=desc&q=https%3A%2F%2Fwww.facebook.com%2FLifestylesCenter&redir_token=fN3FNq-cGCJO6AhEoPjFz5ab3V18MTUwNjAyNTczNkAxNTA1OTM5MzM2](https://www.youtube.com/redirect?event=desc&q=https%3A%2F%2Fwww.facebook.com%2FLifestylesCenter&redir_token=fN3FNq-cGCJO6AhEoPjFz5ab3V18MTUwNjAyNTczNkAxNTA1OTM5MzM2)