“COMBATING 21ST CENTURY DRUGS WITH SUCCESSFUL OUTCOMES”

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Fentanyl and its correlation to fatal overdoses in Ohio, a relatively new threat called Flakka, CBD oils and how to incorporate these drugs into an effective drug testing program.

THE SUPREME COURT OF OHIO SPECIALIZED DOCKETS CONFERENCE

Thursday, October 11, 2018
11:45 a.m. – 1:00 p.m.

Friday, October 12, 2018
1:15 p.m. – 2:30 p.m.
Fentanyl is an opioid which is used as a pain medication and together with other medications for anesthesia or to relieve pain in terminally ill cancer patients.

- Fentanyl is available in a number of forms including by injection, as a skin patch, and to be absorbed through the tissues inside the mouth.

- Fentanyl about 75 times stronger than morphine for a given amount. Some fentanyl analogues may be as much as 10,000 times stronger than morphine.
FENTANYL

- Fentanyl was created in 1959 by Paul Jannsen, founder of Jannsen Pharmaceutical and first used medically as anesthetic in 1968.

- Fentanyl patches were first introduced in the mid 1990's as a pain management treatment for Opiate-tolerate patients.

- Fentanyl was first used for pain management in cancer patients in 2009.
Recreational use of Fentanyl started in the mid 1970's among medical professionals.

The use of Fentanyl – especially from the illegal manufacturing of the drug has increased exponentially over the past three years.

Since 2012 Fentanyl related overdoses and deaths have produced staggering statistics in almost every state in the U.S.
THERE WERE 4,050 OVERDOSE DEATHS IN OHIO IN 2016.

58% OF THOSE DEATHS REVEALED FENTANYL IN THE TOXICOLOGY REPORTS.

Ohio Department of Health
DRUG TESTING CLIENTS FOR FENTANYL: THE CHALLENGES
# Fentanyl’s Major Pharmacological Analogues

<table>
<thead>
<tr>
<th>4-ANPP</th>
<th>Carfentanil</th>
</tr>
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<tbody>
<tr>
<td>4-Methoxybutyryl Fentanyl</td>
<td>Furanyl Fentanyl</td>
</tr>
<tr>
<td>4-Methylphenethyl Acetyl Fentanyl</td>
<td>MT-45</td>
</tr>
<tr>
<td>AH-7921; Acryl Fentanyl</td>
<td>Valeryl Fentanyl</td>
</tr>
<tr>
<td>Beta-hydroxythiofentanyl</td>
<td>alpha-Methyl Fentanyl</td>
</tr>
<tr>
<td>Butyryl Fentanyl/Isobutyryl Fentanyl</td>
<td>ortho-Fluorofentanyl</td>
</tr>
<tr>
<td>4-Methylphenethyl Fentanyl</td>
<td>para-Fluorobutyryl Fentanyl/FIBF</td>
</tr>
<tr>
<td>ortho-Fluorofentanyl</td>
<td>para-Fluorofentanyl</td>
</tr>
</tbody>
</table>

Each fentanyl pharmacological analogue has its own molecular structure which requires laboratories and “instant” tests manufactures to develop a chemical re-agent to accurately identify the specific analogues.
“STREET” CHEMIST AND THE DRUG CARTELS HAVE PRODUCED 520 CHEMICALLY UNIQUE VARIATIONS OF FENTANYL

* Dr. Mike McCormick, Science Officer, US Customs & Border Protection Laboratories
FORENSIC LABORATORIES TYPICALLY TEST FOR FEWER THAN A DOZEN (12) COMMERCIAL FENTANYL ANALOGUES *

* Dr. Bert Toivola, Scientific Director, Cordant Health Services
THE WINDOW OF DETECTION FOR SOME FENTANYL ANALOGUES IS LESS THAN 12 HOURS *

* Dr. Bert Toivola, Scientific Director, Cordant Health Services
Instant Tests for Fentanyl

Instant testing devices typically tests only for Fentanyl and Norfentanyl. *

* Abbott Laboratories

The limitation of Instant testing devices is limited number of analogues and the changing molecular structure created by the “bad guys.”

Laboratory Tests for Fentanyl

Laboratory testing typically includes Fentanyl and most pharmacological analogues.
WHAT DOES FENTANYL LOOK LIKE?
FENTANYL MAY LOOK LIKE THIS ...
OR … IT MAY LOOK LIKE THIS.
Fentanyl is now commonly “laced” into heroin, cocaine, methamphetamine, and marijuana.
FENTANYL IS NOW INFUSED INTO HYDROCODONE, OXYCODONE AND OTHER PRESCRIPTION MEDICATIONS
Fentanyl Nicknames

- Apache
- China Girl
- China Town
- China White
- Dance Fever
- Friend
- Goodfellas
- Great Bear
- He-Man
- Jackpot
- King Ivory
- Murder 8
- TNT
- Tango & Cash
Fentanyl is not just deadly to users.

Several law enforcement and first responders have overdosed during investigations.

In 2016, the DEA urged officers to limit drug testing to lab settings because of the possibility of exposure.

Touching or accidentally inhaling fentanyl is enough to cause an overdose.
THIS IS HOW MUCH FENTANYL IT TAKES TO KILL YOU.
<table>
<thead>
<tr>
<th>House Checks, Vehicle Searches and Searches of Persons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assume ALL Heroin contains Fentanyl or Fentanyl Analogues</td>
</tr>
<tr>
<td>Balance Practicality with Risk (Large Quantities – Get Out)</td>
</tr>
<tr>
<td>Carry or Keep Handy Personal Protection Equipment (Black Nitrile Gloves)</td>
</tr>
<tr>
<td>Constant Risk Assessment</td>
</tr>
<tr>
<td>Recognize Opiate Intoxication and How to Treat It (Narcan)</td>
</tr>
<tr>
<td>Know the Science (Inhalation or Absorption through Mucus Membranes)</td>
</tr>
</tbody>
</table>

You are 30 times more likely to absorb Fentanyl across Mucus Membranes (Mouth, Eyes and Nose) than through your skin.
WHAT ABOUT DERMAL (SKIN) EXPOSURE TO FENTANYL?
**Dermal (Skin) Exposure to Fentanyl**

| Exposure Not Likely to be Significant |
| Effects of Skin Exposure Might be Delayed |
| Wash Off Exposed Skin ASAP to Significantly Reduce Exposure & Effects |
| Alcohol-based Products (Hand Sanitizer) **INCREASES** absorption |
| Dermal (Skin) Exposure is Effectively Blocked by **Nitrile** Gloves (Black) |
| Latex gloves may not protect you. |
| Exposure is Reduced When Wearing Long Sleeves |

**STAY AWARE OF YOUR SURROUNDINGS (CLIENT’S HOUSE, VEHICLE, CLOTHES AND DO NOT HANDLE THE DRUG).**
FLAKKA
WHAT IS FLAKKA?

Flakka is made from the chemical alpha-PVP, a synthetic version of the stimulant cathinone.

Cathinones are derived from the khat plant, found in the Middle East and Somalia.

Cathinones also used in bath salts.

Nickname “$5 insanity.”
FLAKKA IS ALSO KNOWN AS “GRAVEL” BECAUSE OF IT’S CRYSTALIZED FORM.

FLAKKA IS DETECTABLE IN URINE FOR 24 TO 48 HOURS, BUT THE SPECIMEN MUST BE WRAPPED IN FOIL DUE TO SENSITIVITY TO LIGHT.

TO TEST FOR FLAKKA, REQUEST ALPHA PVP. (TYPICAL COSTS IS $30 TO $40)
FLAKKA:

Flakka is taken via injection, snorting, smoking or swallowing.

As potent as crystal meth, bath salts and cocaine.

Users can become erratic, uncontrollable and dangerous.

Users become psychotic, while the body goes into hyperthermia and can reach up to 105 degrees.
CBD PRODUCTS:
THE MYSTERY AND THE MYSTIQUE
WHAT DOES “CBD” STAND FOR AND WHAT IS CBD OIL?

- CBD stands for **cannabidiol**, one of over 100 cannabinoids found in cannabis or hemp.
- By botanical standards, *marijuana and hemp* are both **cannabis**.
- In common terms, *marijuana is cannabis with Tetrahydrocannabinol (THC)*. Strains without THC are often classified as hemp.
- CBD oil is also known as **hemp oil**.
ALCOHOL EXTRACTION: PLANT IS SOAKED IN SOLVENT. THE LIQUID IS FULL OF CANNABIDIOLE (CBD). EVAPORATION PRODUCES CBD OIL.
CO2 EXTRACTION: CARBON DIOXIDE IS FORCED THROUGH THE PLANT. TEMPERATURE AND PRESSURE FORCE THE SEPARATION OF MATERIALS. CANNABIDIOIL (CBD) IS EXTRACTED.

How is CBD Oil Made?

Extraction Methods
### How do People Use CBD Products?

<table>
<thead>
<tr>
<th>Method</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sprays</strong></td>
<td>New product on the CBD market.</td>
</tr>
<tr>
<td><strong>Vapes</strong></td>
<td>The most popular and widely used in vaping pens</td>
</tr>
<tr>
<td><strong>Danger:</strong></td>
<td><em>Cuticle Waxes may cause serious respiratory hazards</em></td>
</tr>
<tr>
<td><strong>Tinctures</strong></td>
<td>Liquid</td>
</tr>
<tr>
<td></td>
<td>Tinctures combine CBD hemp oil into a liquid, making it easy to consume using a dropper or pump bottle</td>
</tr>
<tr>
<td><strong>Concentrates</strong></td>
<td>Most potent form of CBD</td>
</tr>
<tr>
<td></td>
<td>Extracted from the cannabis plant and filtered down to the highest concentrations of cannabidiol (CBD).</td>
</tr>
<tr>
<td><strong>Capsules</strong></td>
<td>The least popular method to use CBD</td>
</tr>
<tr>
<td></td>
<td>Easy to use and digest. Typically mixed with coconut oil</td>
</tr>
<tr>
<td><strong>Topicals</strong></td>
<td>Oils and Cremes</td>
</tr>
</tbody>
</table>

*Cuticle waxes are basically the oily, fatty outer layer of lipids that cover the surface of most flowering cannabis plants, including hemp.*
WILL CBD PRODUCTS RESULT IN A POSITIVE DRUG TEST?

YES?  NO?
CBD INDUSTRY LARGELY UNREGULATED.

SOME CBD PRODUCTS ARE THC FREE. SOME CONTAIN UP TO 0.05% THC.

SCREENS MAY BE POSITIVE. CONFIRMATION TESTS MAY BE NEGATIVE OR POSITIVE.
MUCH DEBATE AT STATE AND LOCAL LEVELS ABOUT CBD PRODUCTS

THE 9TH U.S. CIRCUIT COURT OF APPEALS LAST WEEK TURNED DOWN AN APPEAL FROM CBD MANUFACTURES THAT LEFT CANNABIDIOL ON THE DEA’S LIST OF CONTROLLED SUBSTANCES
WHAT DOES A POT FIELD SOBRIETY TEST LOOK LIKE
My client smokes Marijuana. Several recent tests have been positive for THC. How do I know if a positive result is from new or previous use?
Let’s compare two positive THC results.

SPECIMEN 1:
THC level = 698 ng/mL

SPECIMEN 2:
THC level = 535 ng/mL

DOES SPECIMEN 2 REFLECT NEW OR PREVIOUS USE?
Determination of New or Previous Use is based upon the “Normalized” level of THC.

THC is “Normalized” by dividing the “raw” THC level by the Creatinine level and multiplying the result by 100.

RESULTS MUST BE “CONFIRMED.”

EXAMPLE: (Specimen # 1)
- Raw THC level = 698 ng/mL
- Creatinine level = 114.8 mg/dL
- Normalized THC = \( \frac{698}{114.8} \times 100 = 608.01 \)
Let’s compare two positive THC results.

**SPECIMEN 1:**
- Raw THC level = 698 ng/mL
- Creatinine level = 114.8 mg/dL
- Normalized THC = \( \frac{698}{114.8} \times 100 = 608.01 \text{ ng/mL} \)

**SPECIMEN 2:**
- Raw THC level = 535 ng/mL
- Creatinine level = 48.6 mg/dL
- Normalized THC = \( \frac{535}{48.6} \times 100 = 1,100.82 \text{ ng/mL} \)
NOW, what do we do?

Divide the later Normalized THC level by the former Normalized THC level

EXAMPLE 1:

Normalized THC level = 608.01 ng/mL
Normalized THC level = 1,100.82 ng/mL
1,100.82/608.01 = 1.81

IS THIS NEW OR PREVIOUS USE OF THC?
New or Previous Use of THC is based upon the “New Use Ratio” established by labs and accepted by NADCP.

NEW USE RATIOS:
- Ratio of 0.01 – 0.49 = Previous Use
- Ratio of 0.50 – 0.99 = Questionable
- Ratio of 1.00 – 1.49 = Indicative of New Use
- Ratio of 1.50 and above = Definitively New Use
  & Legally Defensible with Reasonable & Scientific Certainty.
THE DEA CALLS KRATOM A "DRUG OF CONCERN"
KRATOM:

A TREE IN THAILAND AND SOUTHEAST ASIA

ACTIVE COMPOUNDS ARE MITRAGYNINE AND 7-OH MITRAGYNINE

POPULAR IN THE UNITED STATES AS AN HERBAL REMEDY

STIMULANT AS WELL AS SEDATIVE PROPERTIES
KRATOM:
LOW DOSES PRODUCES STIMULANT EFFECTS
HIGHER DOSES THE EFFECT IS SIMILAR TO OPIOIDS
LEGAL IN THE U.S., BUT BANNED IN TENNESSEE, VERMONT, LOUISIANA AND INDIANA
NO LEGITIMATE MEDICAL USE.
KRATOM: 
WIDELY AVAILABLE ON THE INTERNET AND IN HERBAL SHOPS

STREET NAMES INCLUDE:

THANG  
KAKUAM  
KETUM  
HERBAL SPEEDBALL  
BIAK.
KRATOM:

DETECTABLE IN URINE

REQUIRES LC/MS/MS CONFIRMATION

WINDOW OF DETECTION IS UNKNOWN

NAUSEA, ITCHING, SWEATING, DRY MOUTH, CONSTIPATION, INCREASED URINATION, AND LOSS OF APPETITE.
THE DEA HAS WARNED THAT KRATOM CAN BE ADDICTIVE.

SYMPTOMS INCLUDE PSYCHOSIS, HALLUCINATIONS, DELUSION AND CONFUSION.

DEA IS TESTING KRATOM AFTER THE U.S. FOOD AND DRUG ADMINISTRATION ISSUED A PUBLIC HEALTH ADVISORY ABOUT DEADLY RISKS ASSOCIATED WITH THE SUBSTANCE.

DEA WILL DECIDE LATER THIS YEAR WHETHER TO CLASSIFY IT AS A SCHEDULE 1 NARCOTIC LIKE HEROIN.
“I KNOW MY RIGHTS!”