


Emerging Drug Threat April 09, 2018

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"THAT GUILT SHALL NOT ESCAPE, NOR"

Drugs Overview

Factors Affecting Rate of Drug Use

1. Price
 - The lower the price, the greater number of users
2. Availability
 - The more available, the shorter search time, the greater number of users
3. Perception of Risk
 - The lower the perception of risk, the higher the use
4. Public Attitude
 - The more accepting the public is of drug use, the greater the use

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Drug Overview – Consumption of Opioids

The United States was the country with the highest consumption of the following drugs:

DRUG	2012	2013	2014
HYDROCODONE	99%	99%	99%
OXYCODONE	82%	78%	73%
MORPHINE	57%	57%	53%
HYDROMORPHONE	42%	51%	53%
METHADONE	49%	51%	48%
FENTANYL	37%	31.5%	30%

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How did we get here?




The Perfect Storm

- Industry producing a wider variety of controlled substance pharmaceuticals – Aggressive marketing to practitioners
 - Inadequate Pain Control
 - Opioids safe and effective for non-cancer pain
 - Risk of addiction rare
 - Opioid use can be easily discontinued
- Practitioners prescribing more drugs
- Use of Medicare / Medicaid or insurance to fund drug habits
- Information / Electronic Era.
- Belief that everything can be solved with a pill – immediately
- Fifth Vital Sign.... Patient Survey
- Culture - The way we view PAIN

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Where are we going?



- “The Opioid Epidemic”
 - IT didn’t happen overnight... Not going to fix it overnight!
- Tremendous Progress made...
 - Controlled Substance Monitoring Database (CSMD), Chronic Pain Guidelines, Education, Multi discipline partnership and information sharing...
- Addiction Treatment Resources / Guidelines , REDLINE & Anti-Drug Coalitions
- Narcan / Naloxone
- Consequences... Intended and Unintended Opioid to Heroin

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Tennessee Household Pill Take Back Program DEA, TDEC, TDMHSAS, Sheriff's, & Chiefs




- TDDTF Partnership initiative- DEA, TDEC, TDMHSAS, Anti-Drug Coalitions, TBI, Sheriff's, and Chiefs
- Permanent Pill Take Back
- 237 collection bins in all 95 counties
- Collection Totals
- 2016 – 81,827 pounds / 49,153 by TDDTF
- 2017 - 81,161 pounds / 63,000 by TDDT
- Total - 162,988 pounds
- TDDTF picked up and transported for incineration 68.81% or 112,153 pounds of the total 162,988 pharmaceuticals collected statewide.
- 397% increase in participating Law Enforcement agencies from 2016 to 2017




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National Opioid Overdose Deaths




Tennessee Drug Trends - Heroin


2011 - 207 Heroin Incidents




2012 - 415 Heroin Incidents




2013 - 569 Heroin Incidents

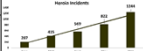


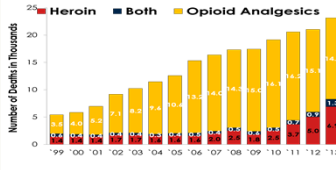
2014 - 822 Heroin Incidents



2015 - 1,244 Heroin Incidents








Year	Heroin	Both	Opioid Analgesics
1999	0.5	0.5	0.5
2000	0.5	0.5	0.5
2001	0.5	0.5	0.5
2002	0.5	0.5	0.5
2003	0.5	0.5	0.5
2004	0.5	0.5	0.5
2005	0.5	0.5	0.5
2006	0.5	0.5	0.5
2007	0.5	0.5	0.5
2008	0.5	0.5	0.5
2009	0.5	0.5	0.5
2010	0.5	0.5	0.5
2011	0.5	0.5	0.5
2012	0.5	0.5	0.5
2013	0.5	0.5	0.5

Source: Tennessee Incident Based Reporting System (IBRS)


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Drugs - Fighting on Several Fronts Prescription Opiate Diversion & Heroin




- The transition from prescription opioids to heroin
 - 5 of 10 recently initiated young heroin users reported abusing prescription-type opioids (particularly OxyContin TM) prior to their first heroin use.
- Heroin trafficking organizations relocated to areas where prescription drug abuse is on the rise.
- Heroin traffickers pave the way for increasing crime and violence
- Drug Trafficking Organizations are Poly-Drug
- Mexican Meth and Cocaine

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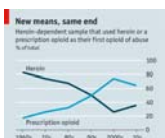
By 2013, the heroin market was changing. Price plummeted.

Decentralized drug distribution networks pushed heroin and counterfeit pharmaceuticals into suburban and rural areas.

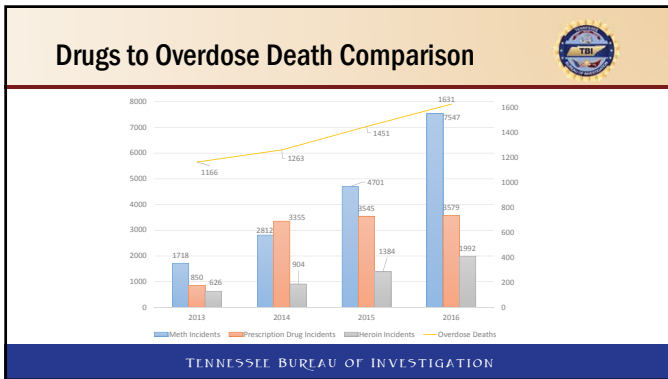


Source: United Nations Office on Drugs and Crime

New means, same end
Heroin-dependent people that used heroin as a prescription opioid as their first opioid of abuse



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What is Fentanyl


- Narcotic Analgesic
- Synthetic
- Schedule II Controlled Substance
- Medicinal Use
 - Anesthesia
 - Analgesia

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Drugs – Legitimate Fentanyl vs. Clandestinely Produced Synthetic Opioids


- Pharma Fentanyl is a Sch. II
 - 80-100 times more potent than Morphine
 - 15-20 times more potent than Heroin
 - can be diluted more than Heroin
- Analogue to fentanyl is a Sch. I
 - Synthetic – China/Mexico Clandestine labs
 - Original concept – produce/sell drugs not regulated
 - Cheap and easy to ship in small quantities
 - Typical dosage by IV for fentanyl is 125 ug
 - More Profitable and Easier to conceal
 - Recreational dose & Lethal overdose-Very SM Window

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Dangers of Fentanyl 


- Direct substitute for heroin or opioid addiction
- Dose require for euphoric effect also induces respiratory depression
- Requires and “accurate cut” which is almost impossible clandestinely.
- Utilized as cutting agent for Heroin, Methamphetamine, Cocaine and counterfeit
- Physical Characteristics present significant hazards

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The Good, Bad and Ugly to Fentanyl Cocktail 

- Just an effort for drug dealers to achieve a cheap yet desirable product. Combining narcotics can produce a more desired effect... Same as synthetic cannabinoids (Spice), substituted cathinones (bath salts).
- Increase Profits
- Product unique to Producer
- Fentanyl and other opioids bind to the same opioid receptors
- Benefits of adding fentanyl to heroin, the effects of both drugs are amplified and the user may experience a more intense high and feeling of euphoria.
- Due to the synergistic effects of taking both drugs together, trying to guess the proper dose becomes extremely difficult, inconsistent and often results in an overdose.

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Fentanyl to Stimulants 

- Nothing new... often referred to as ‘SpeedBall’ and has been around since the 80’s.
- 80’s – Heroin mixed with Cocaine.
- Today – Fentanyl mixed with Cocaine or Methamphetamine.
- Opioid slow heart rate while Cocaine or Meth increase...
- Combined or mixed together may allow for a higher dose of each drug, mask some side effects, however increase risk of overdose due to elevated dose.

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POTENCY AT EXTREMELY LOW LEVELS



- Since the isolation and use of morphine in the early 1800s, scientist have continually modified the morphine molecule in an effort to produce better, less addictive pain medications. In the process of developing new compounds, some extremely potent opiate drugs were discovered including fentanyl and some analogs of fentanyl, like carfentanil. What makes these drugs so dangerous is the **potency at extremely low levels and the physical characteristics of the drugs which allow them to be transdermal**. In fact, some of these compounds could be considered **toxins** rather than drugs due solely to the risk to human exposure.

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Fentanyl- A Clear and Present Danger to the Public and Law Enforcement



- Fentanyl can become air borne and absorbed through the skin
- Clandestine Lab Level A (full containment suit) is only DEA-approved suit to offer sufficient protection for handling fentanyl
- Most current field test require LE officers will handle drugs (fentanyl) with just gloves, not realizing what they are handling
 - Hand-held spectrometers are able to test for fentanyl through clear packaging
- Opiate overdose treated with Naloxone HCl
- Canine units are at extreme risk of immediate death from fentanyl exposure via inhalation



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Fentanyl Exposure Adverse Health Effects



- **Disorientation**
- **Coughing**
- **Sedation**
- **Respiratory distress**
- **Cardiac arrest**


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Fentanyl Analogs



• 12 fentanyl analogs identified


<u>Analog</u>	<u>Potency related to Fentanyl</u>
Alfentanyl	1/10
Sufentanyl	5-10x
Remifentanyl	= Fentanyl
Carfentanyl **	100x
Lofentanyl	≈100x
3-Methyl Fentanyl*	10-15x
Acetyl Fentanyl	1/3



*3-methylfentanyl – most potent of the illicit analogs, - 3,000 times more potent than morphine
 Carfentanyl – Elephant tranquilizer, most powerful analog , - 10,000 times more potent than morphine

Like bath salts and other synthetic drugs, fentanyl analogs are constantly evolving and DEA is constantly working toward identifying and Scheduling these substances.


Fentanyl Facts



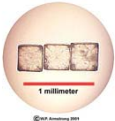
- Is absorbed into the body via inhalation, oral exposure or ingestion, or skin contact
- Depresses the central nervous system and respiratory function
- A 100 – 150 microgram (0.1 – 0.15mg) dose can be deadly. Visibly, that amount is about the size of a few grains of table salt

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Dangers of Fentanyl



- Single dose of fentanyl by IV is approximately 125 micrograms
- Approximate weight of 1 grain of salt is 60 micrograms



Fentanyl



Counterfeit Pill Lab Memphis HSI March 2017



10 Kilograms Seizure I-40 West TN 24th DTF April 2017



Carfentanil Mid-TN TBI May 2017

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Drugs- Fentanyl and Heroin

2016 Case Study from Middle Tennessee

- Over the Independence Day weekend there were 24 overdoses in Rutherford County. 3 resulted in death.




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Drugs- Fentanyl and Heroin

- Level A protective gear is required when handling the materials from the pill press lab. Fentanyl can cause an overdose by it touching the skin or inhaling it.
- A person can overdose from just 2-3 granules of fentanyl. Should the subject miscalculate the pills ratio of compounds by a few extra granules the size of table salt, the pill can cause an overdose. Dilution or blending with any degree of accuracy is almost impossible.
- One particulate of Carfentanil which has the consistency of flower could cause an overdose
- A pill press machine is capable of producing between 1,000 and 16,000 pills per hour depending on whether it is hand cranked or motorized.




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Fentanyl in Tablet



Clandestine tablets



Legitimate oxycodone tablets

- Four exhibits of M/30 tablets obtained February – March 2014, Webster, MA
- Found to contain fentanyl, dipyrone, and acetaminophen (low levels of ibuprofen in two exhibits)

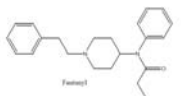
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Fentanyl vs. Carfentanil

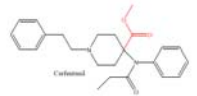
Carfentanil is an analog of fentanyl with only slight structural differences between the two compounds, but the differences result in a large difference in potency.

Carfentanil is 100 times more potent than fentanyl w/ activity in the body as low as a 1ug dose (1 particle of baking soda). The lethal dose is estimated to be approx. 20ug (1/3 of a grain of salt)


Not approved for human use and banned from war.



Fentanyl



Carfentanil



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NVES Brian Escamilla, NES
Dennis Lowe, Commander Major Crime Unit Chief

Carfentanil Seizure April, 2017








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If so Dangerous... Why so Popular? 

- **Transportation** – rather than smuggle a kilogram of heroin, **one gram of carfentanil can be shipped and diluted to one kilogram** once at the destination.
- **Product** – carfentanil can be used as a substitute for many opiate drugs. As a white powder it will mimic China White (purest form of heroin w/ highest street value). Or it can be diluted and put into counterfeit tablets to mimic oxycodone, hydrocodone, etc.

NES Brian Escamilla, NES
Dennis Lowe, Commander Major Crime Unit Ohio


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Why So Popular? 

- **Half-life** – depending on the dose and route, carfentanil has a **half-life of 7.7 hours** allowing for a longer narcotic effect for the user. The half-life for **fentanyl is 1 to 6 hours**.
- **Profit** – If a distributor is diluting carfentanil to a **2ug street dose**, one gram of carfentanil (\$360 on the internet) could be diluted into **500,000 doses** of street level narcotics. Thus, a \$360 investment could be worth **1 to 2 million dollars** of counterfeit oxycodone, hydrocodone, heroin, or any other opiate drug.

NES Brian Escamilla, NES
Dennis Lowe, Commander Major Crime Unit Ohio

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Other Risk to Carfentanil 

- Primary source: China via internet for \$2750 kilogram
- Carfentanil **can be aerosolized as a gas** (Russia: 2002 Moscow theater incident), dispensed as a powder, or simply added to a food supply, all of which create an extreme risk to law enforcement and first responders responding to a scene.
- **Numerous doses of naloxone** that would be necessary in such an event.
- Diversion into **other criminal or terrorist acts** creates an elevated risk to law enforcement, first responders, and to the public.

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Dennis Lowe, Commander Major Crime Unit Ohio

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Carfentanil is way to Dangerous



- Another threat is from carfentanil being **mixed with other opiate drugs** like heroin or one or more of the fentanyl analogs; the end product may be **unpredictable due to the synergistic effects of the combined narcotics.**
- Agencies should have contingency plans for personnel exposed. If release, Level A response to mitigate is required.
- Given the potency, **trying to cut carfentanil to a street level dose using blenders, coffee grinders is next to impossible.**

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Law Enforcement Naloxone (Narcan) TDMHSAS & TDDTF



- Partnering with the Tennessee Department of Mental Health Services and Anti-Drug Coalitions across Tennessee to reduce fatal overdoses and save lives by assisting, promoting, training, and tracking the use of life saving antidote Naloxone by state and local law enforcement.



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