



NCOIL 2022 Annual Meeting



Fentanyl: Its Journey from Licit to Illicit Drug

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Fentanyl: Its Journey from Licit to Illicit Drug

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Agenda

- Opioids: Definitions
- Brief History of Fentanyl
- Story of George Marquadt
- IMFs
- Potency
- Overdoses
- Special Considerations for First Responders
- Questions

What are Opioids?

Opioids are a class of drugs that bind to opioid receptors in the brain. There are three broad classes: natural, semi-synthetic, and synthetic.

Natural Opioids: Derived from naturally-occurring opiates found in the opium resin of the opium poppy.

Examples: morphine (*MS Contin, Avinza*) & codeine (*Tylenol 3*).

Semi-synthetic Opioids: Hybrid opioids resulting from chemical modifications to naturally-occurring opium alkaloids.

Examples: Hydrocodone (*Vicodin, Lortab*), hydromorphone (*Dilaudid*), oxycodone (*OxyContin, Percocet*) & oxymorphone (*Opana*). Heroin (Diacetyl morphine) is in this class of drugs.

Synthetic Opioids: made from other chemicals and molecules unrelated to opium alkaloids.

Examples: methadone and **fentanyl** (*Actiq*).

Brief History of Fentanyl

Belgian physician and scientist named Paul Janssen synthesized fentanyl hydrochloride in 1960.

Dr. Janssen also founded the present day drug company Janssen Pharmaceuticals, Inc.

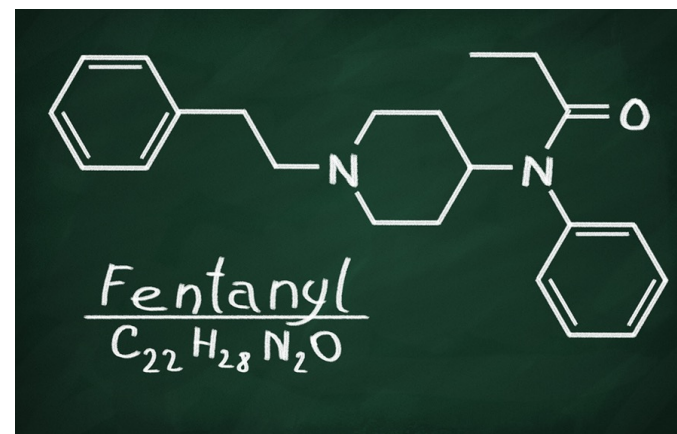
Fentanyl citrate (the salt form combination of fentanyl HCl and citric acid) entered medical use in 1968 as an aqueous solution for intravenous or intramuscular injection. It was FDA-approved for use as a surgical anesthetic marketed under the trade name Sublimaze. For this purpose, fentanyl citrate fit the utility criteria better than morphine because it had a faster onset of action, shorter duration of action, and was better tolerated (e.g., fewer side effects such as nausea, vomiting and histamine reactions).

To broaden its utility beyond surgical anesthesia, Janssen Pharmaceuticals introduced the Duragesic patch in the 1990s. The Duragesic patch was a technological enhancement that circumvented the short duration of action of fentanyl by allowing the drug to be slowly absorbed through the skin (transdermal) over a 48 to 72-hour period.

The pharmaceutical industry then found a therapeutic purpose for fentanyl's rapid acting and short duration of action: breakthrough cancer pain.

Actiq was the first product developed for this purpose - a solid form of fentanyl citrate produced as a berry-flavored lozenge attached to a handle. Commonly referred to as the Actiq lollipop, it was designed to be partially absorbed through the oral mucosa, which allows for the fast onset of action (5-15 minutes)

Fentanyl is purely synthetic, which means that it can be made by one person in a lab.

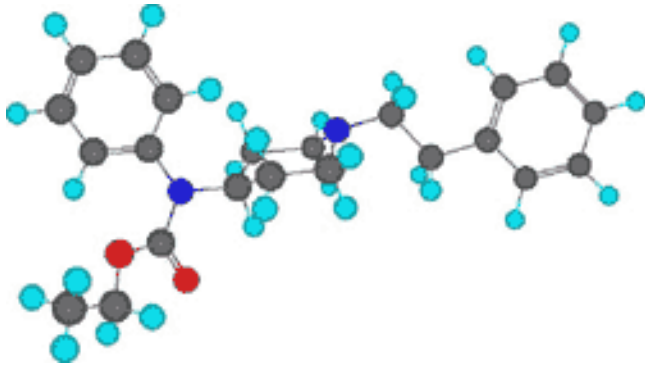


And that's exactly what happened . . .

George Marquardt is credited with being the first person in America to illegally synthesize fentanyl.

He has been described as a genius, self-taught chemist who was also a high school dropout. Marquardt began to make heroin in his parents' basement when he was just 15 years old. Marquardt flooded the East Coast with illegally synthesized fentanyl and was eventually sentenced to 25 years in prison. At the time of his arrest in 1993, authorities linked at least 126 deaths to his product.

Illegally manufactured fentanyl is easier to produce and more profitable than heroin and is also driving the spike in overdose deaths. According to the CDC, drug seizures of fentanyl rose 426% from 2013 to 2014. During this same period, deaths involving synthetic opioids rose by 79%



There are 42 known *illicitly* manufactured fentanyl analogs on the market.

Fentanyl has been detected in counterfeit pills, powder, blotter paper, heroin, cocaine, crack cocaine, and crystal methamphetamine

Fentanyl can be swallowed, snorted, injected or absorbed in the mouth

The latest is known as *Para*-fluorofentanyl



Fentanyl is 50 times more potent than heroin and 100 times more potent than morphine.

Carfentanil, a legal Schedule II controlled substance normally used as an elephant tranquilizer, is 100 times more potent than fentanyl and has been linked to spikes in overdoses in the Midwest.

RISE IN OPIOID OVERDOSE DEATHS IN AMERICA

A Multi-Layered Problem in Three Distinct Waves

MORE THAN
564,000
PEOPLE DIED FROM AN
OPIOID OVERDOSE
(1999-2020)



1990s

mark a rise in prescription
opioid overdose deaths

Rx OPIOIDS

Includes natural, semi-synthetic,
and methadone and can be
prescribed by doctors



2010

marks a rise in heroin
overdose deaths

HEROIN

An illegal opioid



2013

marks a rise in synthetic
opioid overdose deaths

SYNTHETIC OPIOIDS

Includes illicitly made fentanyl

www.cdc.gov

Learn more about the evolving opioid overdose crisis: www.cdc.gov/drugoverdose

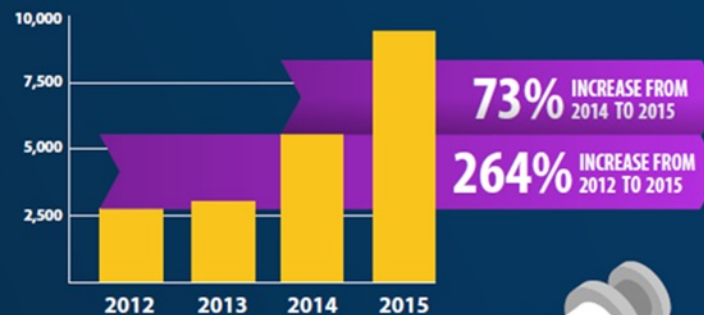
FENTANYL: Overdoses On The Rise



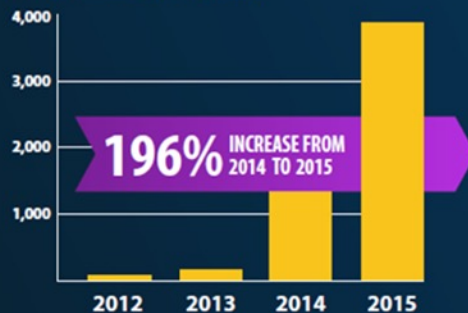
Fentanyl is a synthetic opioid approved for treating severe pain, such as advanced cancer pain. Illicitly manufactured fentanyl is the main driver of recent increases in synthetic opioid deaths.



SYNTHETIC OPIOID DEATHS ACROSS THE U.S.

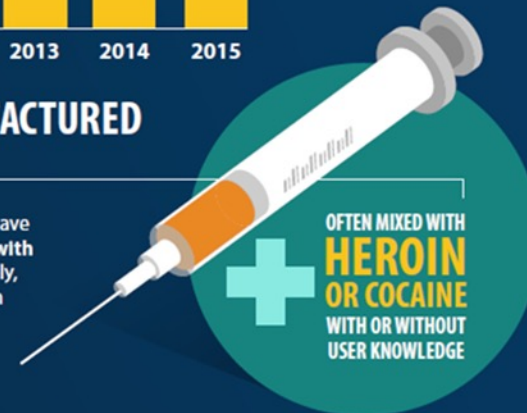


Ohio Drug Submissions Testing Positive for Illicitly Manufactured Fentanyl



ILLICITLY MANUFACTURED FENTANYL

Although prescription rates have fallen, overdoses associated with fentanyl have risen dramatically, contributing to a sharp spike in synthetic opioid deaths.



Opioid Overdose Signs And Symptoms

<p>Breathing will be slow or gone</p>		<p>Lips and nails are blue</p>	
<p>Person is not moving</p>		<p>Person may be choking</p>	
<p>You can hear gurgling sounds or snoring</p>		<p>Can't be woken up</p>	
<p>Skin feels cold and clammy</p>		<p>Pupils are tiny</p>	

OHRDP
Established with grant funding from the North Carolina Office of the State Auditor

Concern for First Responders

Because of fentanyl's strength and increasing prevalence there is growing concern about fentanyl exposure for *first responders* and others who might be potentially exposed.

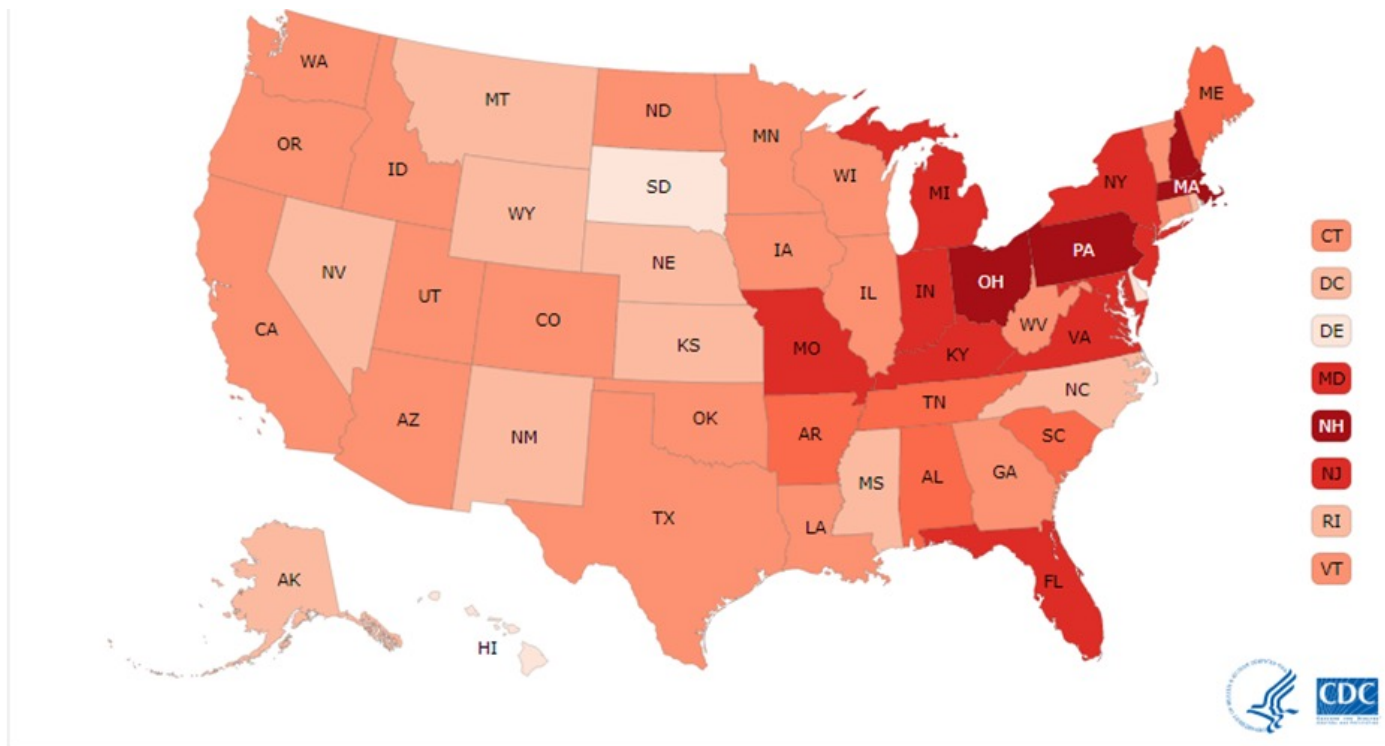
First responders may find themselves exposed to opioids during operational situations such as.....

- traffic stops,
- overdose calls and
- other first responder duties.

A first responder can be exposed to fentanyl in one of **five ways**:

1. skin contact,
2. inhalation,
3. ingestion,
4. contact with a mucous membrane (eyes, nose, etc), or
5. a needlestick.

Fentanyl Encounters



Change in Reported Law Enforcement Fentanyl Encounters 2014-2015

- No reports for at least one year
- 20 to 0
- 0 to 50
- 50 to 100
- 100 to 500
- Greater than 500

Fentanyl: Preventing Occupational Exposure to Emergency Responders.

- Activities that cause fentanyl to become **airborne** require higher levels of Personal Protective Equipment (PPE) and should be conducted by appropriately trained personnel and in accordance with agency policies and procedures.
- Wash hands with soap and water immediately after a potential exposure and after leaving a scene where fentanyl is known or suspected to be present to avoid potential exposure and to avoid cross contamination.
- Do not use hand sanitizers or bleach solutions to clean contaminated skin.

**During the assessment
assume any white powder is fentanyl.**

Due to the potency of fentanyl, a person may need multiple doses of naloxone until breathing has returned to normal.

Those who do not improve with naloxone should receive airway support.

Exposure to Fentanyl can be TEMPORARILY interrupted by the administration of [Naloxone](#).



Disposal of PPE

All disposable personal protective equipment must be placed and sealed into an exhibit bag and clearly marked "Fentanyl contaminated" OR "Possibly Fentanyl Contaminated" and sent for incineration.

These items include:

- gloves,
- masks
- filters
- disposable items



- Fentanyl. National Institute on Drug Abuse. NIH.
- <https://www.drugabuse.gov/publications/drugfacts/fentanyl>
- <https://www.fentanylsafety.com/naloxone/>
- Fentanyl: Preventing Occupational Exposure to Emergency Responders. The National Institute for Occupational Safety and Health (NIOSH). CDC.
<https://www.cdc.gov/niosh/topics/fentanyl/risk.html>

Thank you

