



**The *Other* Opioid Crisis: Fentanyl and Heroin**

Kevin L. Zacharoff, MD, FACIP, FACPE, FAAP

---

---

---

---

---

---

---

**Disclosures**

- Nothing to disclose



---

---

---

---

---

---

---

**Learning Objectives**

- Describe the opioid overdose crisis in the United States today
- Discuss common beliefs and inconsistencies about the role of prescription opioids in the opioid crisis
- Identify the intersection of illicit drug use and clinical pain practice in today's "opioid epidemic"
- Provide clinically relevant recommendations for navigating the current landscape without depriving pain care to patients in need



---

---

---

---

---

---

---



Is There More than one Opioid Crisis?

---

---

---

---

---

---

---

The Facts



---

---

---

---

---

---

---

The Facts: No Lack of Media Attention



---

---

---

---


---

---

---

### The Facts

- People are dying...
- People are angry and reacting
- People are scared
- Overdoses from drugs (**ALL** drugs, legally prescribed or not) including opioids, hallucinogens, cocaine, etc.
  - ~ 72,000 deaths nationwide in 2017
  - ↑ 12% from 2016
  - More than 42,000 (66%) involved some type of opioid
  - \*\*\*\*Now there are questions about accuracy regarding CDC data and opioid analgesics\*\*\*\*



**PainWeek** There is More Than One Opioid Crisis. To better tackle the epidemic, Kentucky needed to know which drugs were causing lethal overdoses. By Kathryn Caswell  
Published Jan. 17, 2018. <https://www.painweek.com/news/how-to-know-which-one-opioid-crisis/>. Accessed January 18, 2018.

---

---

---

---

---

---

---

---

---

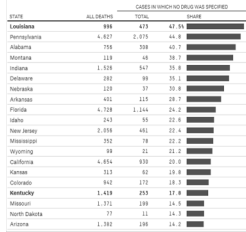
---

### The Facts

- Drug(s) Responsible May be Unknown
  - Overdose is usually about **RESPIRATORY DEPRESSION**
- Sometimes causes are not reported
  - May depend on the state
  - Trends can be difficult to identify
- This may lead to a lack of focus

**Identifying drugs in overdose deaths**  
in each state, 2016

STATE	ALL DEATHS	TOTAL	PERCENT
Louisiana	898	479	47.1%
Mississippi	4,127	2,079	49.9%
Alabama	705	329	46.7%
Montana	119	48	39.5%
Indiana	1,124	547	48.7%
Delaware	282	89	31.5%
Nebraska	129	37	28.7%
Arkansas	442	123	27.8%
Florida	4,728	1,144	24.2%
Idaho	243	55	22.6%
New Jersey	2,195	482	22.0%
Mississippi	392	79	20.2%
Wyoming	99	21	21.2%
California	4,854	929	19.1%
Kansas	313	62	19.8%
Colorado	342	179	52.3%
Kentucky	1,418	293	20.7%
Missouri	1,371	199	14.5%
North Dakota	77	11	14.3%
Arizona	1,392	198	14.2%



**PainWeek** There is More Than One Opioid Crisis. To better tackle the epidemic, Kentucky needed to know which drugs were causing lethal overdoses. By Kathryn Caswell  
Published Jan. 17, 2018. <https://www.painweek.com/news/how-to-know-which-one-opioid-crisis/>. Accessed January 18, 2018.

---

---

---

---

---

---

---

---

---

---

### The Facts: Kentucky as an Example

The most common drugs found in Kentucky's overdose victims  
Based on an analysis of 1,471 drug overdose deaths in 2016

DRUG	SHARE	DRUGS	SHARE	DRUGS	SHARE
Morphine	45.6%	Heroin, morphine	24.1%	Heroin, morphine, codeine	16.6%
Fentanyl	37.0%	Fentanyl, morphine	23.7%	Heroin, morphine, fentanyl	11.6%
Gabapentin	32.6%	Codeine, morphine	20.0%	Morphine, codeine, fentanyl	9.3%
Alprazolam	25.5%	Heroin, codeine	16.8%	Heroin, morphine, THC-COOH	7.9%
THC-COOH	24.9%	Gabapentin, morphine	14.2%	Heroin, codeine, fentanyl	7.6%
Heroin	24.7%	Morphine, THC-COOH	12.8%	Fentanyl, morphine, THC-COOH	7.3%
Codeine	20.7%	Alprazolam, morphine	12.8%	Alprazolam, heroin, morphine	9.3%
Etizolam	19.4%	Methamphetamine, amphetamine	12.0%	Gabapentin, heroin, morphine	7.1%
Oxycodone	17.2%	Heroin, fentanyl	11.7%	Gabapentin, fentanyl, morphine	6.8%
Methamphetamine	17.1%	Oxycodone, oxycodone	11.5%	Alprazolam, codeine, morphine	6.6%

**PainWeek** There is More Than One Opioid Crisis. To better tackle the epidemic, Kentucky needed to know which drugs were causing lethal overdoses. By Kathryn Caswell  
Published Jan. 17, 2018. <https://www.painweek.com/news/how-to-know-which-one-opioid-crisis/>. Accessed January 18, 2018.

---

---

---

---

---

---

---

---

---

---

**THE DENVER POST**

NEWS HEALTH

**Colorado's opioid and heroin overdose deaths outnumbered homicides in 2015**

Opiate deaths are catching up to alcohol-related liver disease deaths

By JOHN HIGOLD | jhigold@denverpost.com | The Denver Post  
PUBLISHED: January 3, 2017 at 11:55 am | UPDATED: October 31, 2017 at 12:39 pm

**The Facts**

Deaths in Colorado from opiate drugs vs. motor vehicle accidents

■ All opiates (including Rx and heroin) ■ Motor vehicle injuries

**Drug poisoning deaths in Colorado**

■ Opiates ■ Cocaine ■ All Drug Poisoning

**PainWeek**

---

---

---

---

---

---

---

---

---

---

**THE DENVER POST**

NEWS HEALTH

**Colorado's opioid and heroin overdose deaths outnumbered homicides in 2015**

Opiate deaths are catching up to alcohol-related liver disease deaths

By JOHN HIGOLD | jhigold@denverpost.com | The Denver Post  
PUBLISHED: January 3, 2017 at 11:55 am | UPDATED: October 31, 2017 at 12:39 pm

**The Facts**

Natural = prescription opioids

Deaths in Colorado from "natural" prescription opioids vs. homicides

■ Natural prescription opioids ■ Homicide

Opiate overdose deaths in Colorado in 2015

■ Nat. opiates ■ Synth. opiates ■ Methadone ■ Heroin

**PainWeek**

---

---

---

---

---

---

---

---

---

---

**THE DENVER POST**

POLITICS COLORADO POLITICS

**Here's how Colorado is combating the prescription opioid and heroin epidemic**

Colorado is exploring opioid prescription limits, prescriber report cards and new treatment options.

By JOHN FRANK | jfrank@denverpost.com | The Denver Post  
PUBLISHED: November 5, 2017 at 12:01 am | UPDATED: November 6, 2017 at 11:02 am

**The Facts**

The nation's drug epidemic kills someone in Colorado about every 9 hours and 36 minutes, a fact that rings like a siren for state leaders who are combating the leading driver: prescription and illicit opioids.

The most alarming trend is the rate of heroin deaths. The number of overdoses caused by heroin, an opioid, continues to skyrocket, contributing to 228 deaths last year, compared with just 79 five years earlier, according to state health officials.

**PainWeek**

---

---

---

---

---

---

---

---

---

---

**THE DENVER POST**

### The Facts

- "The state tracks opioid prescriptions, but doctors aren't required to check the database"
- "The vast majority of states require clinicians to check the Prescription Drug Monitoring Program (PDMP) database before writing most opioid prescriptions"

**Colorado drug-related hospitalization**  
Rates per 100,000 for 2015

Drug Category	Rate per 100,000
Prescription-opioid related	15.24
Benzodiazepine related	14.56
Heroin related	2.98
Cocaine related	2.12

Source: Colorado Dept. of Public Health and Environment  
The Denver Post

By JOHN FRANK | jfrank@denverpost.com | The Denver Post  
PUBLISHED: November 5, 2017 at 12:01 am | UPDATED: November 6, 2017 at 11:02 am

**PainWeek**

---

---

---

---

---

---

---

---

---

---

**THE DENVER POST**

### The Facts

A crackdown on overprescribing isn't enough — drug treatment options remain a challenge.

According to policymakers, Colorado's initial efforts to restrict opioid prescriptions may have an unintended effect: pushing addicts to opioids such as heroin or fentanyl. The trend is spotlighting the limited treatment options for drug users who want help.

**Colorado heroin-related overdose deaths**  
Heroin deaths have increased by more than 500 percent since 2006.

Year	Deaths
2006	37
'07	39
'08	45
'09	68
'10	46
'11	79
'12	91
'13	118
'14	151
'15	160
'16	228

Source: Colorado Dept. of Public Health and Environment  
The Denver Post

By JOHN FRANK | jfrank@denverpost.com | The Denver Post  
PUBLISHED: November 5, 2017 at 12:01 am | UPDATED: November 6, 2017 at 11:02 am

**PainWeek**

---

---

---

---

---

---

---

---

---

---

**THE DENVER POST**

### The Facts

Doctors will soon get opioid prescription "report cards."

To educate doctors about the dangers of overprescribing opioids, Colorado is testing a relatively new idea that is showing early results — prescriber report cards.

The reports, also known as scorecards, will give clinicians a summary of their prescriber history and how they rank with their peers in the same specialty in terms of dosage, duration and type of drug.

**Colorado opioid-related deaths**  
Rates per 100,000 for 2015

Category	Rate per 100,000
Male	11.3
Female	6.1
15 to 24 years	4.7
25 to 34 years	11.0
35 to 44 years	36.3
45 to 64 years	35.2
65+ years	11.8
White, non-Hispanic	9.6
White, Hispanic	9.2
Black/African American	4.0
American Indian/Alaskan	1.2
American Indian	4.7

Source: Colorado Dept. of Public Health and Environment  
The Denver Post

- "The idea is that prescribers might be prescribing more than average for their particular specialty"
- "They'll say 'Oh, I better look at things more closely'"
- "What we are hoping to see is a change in prescriber behavior"

By JOHN FRANK | jfrank@denverpost.com | The Denver Post  
PUBLISHED: November 5, 2017 at 12:01 am | UPDATED: November 6, 2017 at 11:02 am

**PainWeek**

---

---

---

---

---


---

---

---

---

---



**Important Societal Questions**

**PainWeek**

---

---

---

---

---

---

---

---

**PainWeek**

**Is the Current Climate Living up to Promises Made in the Past?**  
Does the chronic pain patient still have rights?

Is this a problem about chronic pain patients abusing prescription pain medications?

*Bill of Rights for People with Chronic Pain*

- The right to have your report of pain taken seriously and to be treated with dignity and respect by doctors, nurses, pharmacists and other healthcare professionals.
- The right to have your pain thoroughly assessed and promptly treated.
- The right to be informed by your doctor about what may be causing your pain, possible treatments, and the benefits, risks and costs of each.
- The right to participate actively in decisions about how to manage your pain.
- The right to have your pain re-assessed regularly and your treatment adjusted if your pain has not been eased.
- The right to be referred to a pain specialist or other healthcare provider if your pain persists.
- The right to get clear and prompt answers to your questions, take time to make decisions, and refuse a particular type of treatment if you choose.

---

---

---

---

---

---


---

---

**THE DENVER POST**

NEWS HEALTH

**Chronic pain patients say they are hurt by Colorado's opioid prescription guidelines**  
Some Colorado doctors are refusing to prescribe opioids to chronic pain sufferers



Now, across Colorado and the rest of the nation, those policies intended to address opioid abuse have unexpectedly harmed patients who depend on the drugs to treat chronic conditions, pain specialists and patient advocates say. The policies are supposed to offer guidance — helpful advice to doctors to be cautious in prescribing more than a certain amount of opioids to any one patient.

Officials at the Colorado Department of Regulatory Agencies are looking at revising the guidelines. The Colorado Consortium for Prescription Drug Abuse Prevention, a group of medical and drug experts, is also working on ideas to protect pain patients while cracking down on opioid abuse.

**PainWeek**

---

---

---

---

---

---

---

---

**CDC** Centers for Disease Control and Prevention  
CDC 24/7 Saving Lives. Protecting People™

Understanding the Epidemic **The Facts**

Record Overdose Deaths | Heroin Use | Preventing Overdose Deaths

Drug overdose deaths in the United States continue to increase in 2015

- The majority of drug overdose deaths involve an opioid<sup>1</sup>
- Since 1999 the # of overdose deaths quadrupled<sup>2</sup>
  - Prescription opioids
  - Heroin
- 108 Americans die every day from an opioid overdose

1. World SA, Smith P, David F, et al. Increases in Drug and Opioid-Involved Overdose Deaths — United States, 2010–2015. MMWR Morbidity and Mortality Weekly Report. 2016; 65(18):405–410. DOI: http://dx.doi.org/10.15585/mmwr.mm6505a1  
 2. CDC. Trends in opioid overdose data for epidemiologic research (OENDER). Atlanta, GA: CDC, National Center for Health Statistics; 2016. Available at: http://ndcenter.cdc.gov.

**PainWeek**

---

---

---

---

---

---

---

---

---

---

---

---

**CDC** Centers for Disease Control and Prevention  
CDC 24/7 Saving Lives. Protecting People™

Understanding the Epidemic **The Facts**

Record Overdose Deaths | Heroin Use | Preventing Overdose Deaths

Heroin use is trending up

- From 2002-2013, past month/year heroin use and addiction have all increased among 18-25 year olds<sup>1</sup>
- Among new heroin users, 75% report abusing prescription opioids prior to using heroin<sup>2</sup>
- Heroin-related deaths more than tripled from 2010-2015
  - The largest increase was for those heroin-related deaths involving synthetic opioids - FENTANYL

1. Centers for Disease Control and Prevention. Demographic and Substance Use Trends Among Heroin Users — United States, 2002–2013. MMWR 2015; 64(28):718–722  
 2. Murnighan PE, O'Connor JC, Davies C. Associations of nonmedical pain reliever use and initiation of heroin use in the United States. CBHSQ Data Review. 2013.

**PainWeek**

---

---

---

---

---

---

---

---

---

---

---

---

**The Facts: Times are Changing** The New York Times Short Answers to Hard Questions About the Opioid Crisis

- Characteristics of Opioid Drug Overdoses:
  - Fast
  - Deadly
  - Scary
  - Socioeconomic status – neutral
  - Abuse-history – neutral
  - Increasing exponentially

Source: National Center for Health Statistics, Centers for Disease Control and Prevention

**PainWeek**

---

---

---

---

---

---

---

---

---

---

---

---

**CDC** Centers for Disease Control and Prevention  
CDC 24/7: Saving Lives. Protecting People™

Understanding the Epidemic

Record Overdose Deaths    Heroin Use    **Preventing Overdose Deaths**

- Improved opioid prescribing
- Expanded access to substance abuse treatment
- Naloxone
- Prescription Drug Monitoring Programs (PDMPs)
- State-level strategies to prevent high risk prescribing and opioid overdoses
- Improved detection of illegal opioid use by law enforcement

**PainWeek**

---

---

---

---

---

---

---

---

---

---

**CDC** Centers for Disease Control and Prevention  
CDC 24/7: Saving Lives. Protecting People™

Understanding the Epidemic

**The Facts**

Statistically significant drug overdose death rate increase from 2013 to 2016, US states

- Opioids (prescription *and* illicit) are main drivers
- 5 highest states:
  - West Virginia
  - Ohio
  - New Hampshire
  - Pennsylvania
  - Kentucky

Statistically significant increase

Statistically significant increase from 2013 to 2016

Yes No

SOURCE: CDC/NCHS, National Vital Statistics System, Mortality

**PainWeek**

https://www.cdc.gov/drugoverdose/data/meddeaths.html | Accessed January 31, 2018.

---

---

---

---

---

---

---

---

---

---

**PainWeek**

**The “Other” Epidemic**

---



---

---

---

---

---

---

---

---

---


---



### Heroin

- Highly addictive
- It is an opioid
- Made from morphine
  - ~3 times more potent
- A natural substance
  - Extracted from the opium poppy plant
    - Asia
    - Mexico
    - Colombia

### The Facts



**PainWeek** https://www.drugabuse.gov/publications/factsheets/heroin. Accessed January 22, 2018.

---

---

---

---

---

---

---

---

---

---

CDC Centers for Disease Control and Prevention  
CDC 247: Saving Lives, Protecting People®  
Understanding the Epidemic

### The Facts

- Heroin use has been increasing<sup>1</sup>
  - Men
  - Women
  - Most age groups
  - All income levels
- Past misuse/abuse of prescription opioids is the strongest risk factor for starting heroin<sup>2</sup>

SEX	2002-2007	2010-2017	% CHANGE
Male	2.4	3.6	50%
Female	0.8	1.6	100%
AGE YEARS	2002-2007	2010-2017	% CHANGE
15-17	1.8	1.6	-11%
18-24	3.5	3.3	-6%
25-34	1.2	1.9	58%
35-44	2	3	50%
45-54	1.4	2	43%
55-64	1	1.7	70%
ANNUAL HOUSEHOLD INCOME	2002-2007	2010-2017	% CHANGE
< \$10,000	2.4	3.6	50%
\$10,000-\$14,999	1.3	2.3	77%
\$15,000+	1	1.6	60%
HEALTH INSURANCE COVERAGE	2002-2007	2010-2017	% CHANGE
None	2.2	3.2	45%
Medicaid	4.3	4.7	11%
Private/other	0.6	1.3	67%

1. Centers for Disease Control and Prevention. Vital Signs: Today's Heroin Epidemic - More People at Risk, Multiple Drugs Abused. MMWR 2015. Compton WM, Jones CM, and Ballew GT. Understanding the Relationship between Prescription Opioid and Heroin Abuse. NEJM.

**PainWeek**

---

---

---

---

---

---

---

---

---

---

CDC Centers for Disease Control and Prevention  
CDC 247: Saving Lives, Protecting People®  
CDC Vital Signs July 2015

### The Facts

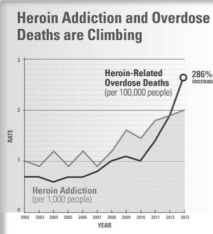
**The Heroin Epidemic**  
Heroin use is part of a larger substance abuse problem.

Nearly all people who used heroin also used at least 1 other drug.  
Most used at least 3 other drugs.

Heroin is a highly addictive opioid drug with a high risk of overdose and death for users.

People who are addicted to...  
 ALCOHOL are 2x more likely to be addicted to heroin.  
 MARIJUANA are 3x more likely to be addicted to heroin.  
 COCAINE are 15x more likely to be addicted to heroin.  
 IN OPIOID PRESCRIPTIONS are 40x more likely to be addicted to heroin.

**Heroin Addiction and Overdose Deaths are Climbing**



SOURCES: National Survey on Drug Use and Health (NSDUH), 2002-2013; National Vital Statistics System, 2002-2013.

**PainWeek**

---

---

---

---

---



---

---

---


---

---



 National Institute on Drug Abuse | Research Report Series

“The relationship between prescription opioid abuse and increases in heroin use in the U.S. is under scrutiny. These substances are all part of the same opioid drug category and overlap in important ways”

---



1. <http://www.drugabuse.gov/publications/research-reports/relationship-between-prescription-drug-abuse-heroin-use/introduction>. Accessed January 30, 2018.  
2. <http://dx.doi.org/10.1038/nrn3646a1>. Accessed January 30, 2018.

---

---

---

---

---



---

---

---


---

---



 National Institute on Drug Abuse | Research Report Series | **The Facts**

■ “Current” ~ 2013-2015 research regarding prescription opioids and heroin shows:

- Prescription opioid abuse *is* a risk factor for heroin use
- Heroin use is *rare* in prescription drug abusers (<4% start within 5 years)
- Although similar effects, risk factors are different
- A subset of people who abuse prescription opioids may progress to heroin use
- Availability of drug(s) is associated with increased use and overdose
- Heroin use is driven by cost advantage and availability
- Emphasis is needed on prevention and treatment


1. <http://www.drugabuse.gov/publications/research-reports/relationship-between-prescription-drug-abuse-heroin-use/introduction>. Accessed January 30, 2018.  
2. <http://dx.doi.org/10.1038/nrn3646a1>. Accessed January 30, 2018.

---

---

---

---

---



---

---

---

---

---




 National Institute on Drug Abuse | Research Report Series | **The Facts**


■ And...

– “Analyses suggest that those who transition to heroin use tend to be frequent users of **multiple substances** (polydrug users)”

– Jones CM. Heroin use and heroin use risk behaviors among nonmedical users of prescription opioid pain relievers – United States, 2002-2004 and 2008-2010. Drug Alcohol Depend. 2013;132(1-2):95-100.

**A + B ≠ C**




1. <http://www.drugabuse.gov/publications/research-reports/relationship-between-prescription-drug-abuse-heroin-use/introduction>. Accessed January 30, 2018.  
2. <http://dx.doi.org/10.1038/nrn3646a1>. Accessed January 30, 2018.

---

---

---

---

---

---

---

---

---

---

**CDC** Centers for Disease Control and Prevention  
CDC 247: Saving Lives. Protecting People™

## The Clinical Implications

**CDC Vital Signs July 2015**

- Recommendations that impact us:
  - Screen and identify high-risk individuals
  - Treat people with substance abuse disorders
  - Naloxone

### Responding to the Heroin Epidemic

**PREVENT**  
People From Starting Heroin

**REDUCE**  
Heroin Addiction

**REVERSE**  
Heroin Overdose

*Reduce prescription opioid painkiller abuse. Improve opioid painkiller prescribing practices and identify high-risk individuals early.*

*Ensure access to Medication-Assisted Treatment (MAT). Treat people addicted to heroin or prescription opioid painkillers with MAT which combines the use of medications (methadone, buprenorphine, or naltrexone) with counseling and behavioral therapies.*

*Expand the use of naloxone. Use naloxone, a life-saving drug that can reverse the effects of an opioid overdose when administered in time.*

**PainWeek** © 2015 CDC/PHSA 442975

---

---

---

---

---

---

---

---

---

---

## The Facts – The “F” Word

- Fentanyl
  - Originally developed as an anesthetic
    - One of the safest opioids
    - High LD50/ED50 ratio
  - More potent than morphine
    - 100 times more potent
  - More potent than heroin
    - 20-50 times more potent
  - NOT NEW

### 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.

**50-100x MORE POTENT THAN MORPHINE**

**196% INCREASE IN Synthetic Opioid Deaths From 2012 to 2015**

**73% INCREASE IN Synthetic Opioid Deaths From 2012 to 2015**

**264% INCREASE IN Illicitly Manufactured Fentanyl From 2012 to 2015**

**ILICITLY MANUFACTURED FENTANYL**

Although prescription sales have fallen, counterfeiters associated with heroin and pain counterfeiting are manufacturing a large supply of synthetic opioid tablets.

**AT LEAST 10% OF HEROIN OR LOCINE DEATHS INVOLVE THIS POWERFUL OPIOID**

**PainWeek**

---

---

---

---

---

---

---


---

---

---

## Case 1

- 42 year-old Hispanic male
  - Addicted to heroin
  - Comes to the same street corner every day to buy heroin
    - First dose usually free
  - He's actually buying heroin laced with fentanyl
  - "It's a new epidemic" he says
  - "If you catch a bag of pure fentanyl, that Narcan ain't bringing you back"**
  - "I just watched my friend die from fentanyl"



**PainWeek**

---

---

---

---

---

---

---

---

---

---

### Heroin and Fentanyl: A "Perfect" Pair The Facts

- The overwhelming majority of the time fentanyl is paired with heroin
- To get a better "high"
- "Better" economic profile

Note: Percentages may not sum to total because of rounding.

U.S. DEPARTMENT OF JUSTICE - FEDERAL BUREAU OF INVESTIGATION  
OFFICE OF DIVERSION CONTROL  
**NFLIS** NATIONAL FORENSIC LABORATORY INFORMATION SYSTEM  
Special Report: Opiates and Related Drugs Reported in NFLIS, 2009-2014  
PainWeek

---

---

---

---

---

---

---

---

---

---

### Fentanyl The Facts

- Drug seizures involving fentanyl are going up dramatically

U.S. DEPARTMENT OF JUSTICE - FEDERAL BUREAU OF INVESTIGATION  
DIVERSION CONTROL DIVISION  
**NFLIS** NATIONAL FORENSIC LABORATORY INFORMATION SYSTEM  
NFLIS Brief: Fentanyl, 2001-2015  
PainWeek

---

---

---

---

---

---

---

---

---

---

### Fentanyl The Facts

- Defined geographic distribution

Figure 2 NFLIS regional trends in fentanyl reported per 100,000 persons aged 15 or older, January 2001–December 2015<sup>1</sup>

Note: U.S. census 2015 population data by age were not available for this publication. Population data for 2015 were requested.  
<sup>1</sup>A dashed trend line indicates that estimates did not meet the criteria for precision or reliability, including the 2002 estimate in the West and the 2001 estimate in the Northeast.

U.S. DEPARTMENT OF JUSTICE - FEDERAL BUREAU OF INVESTIGATION  
DIVERSION CONTROL DIVISION  
**NFLIS** NATIONAL FORENSIC LABORATORY INFORMATION SYSTEM  
NFLIS Brief: Fentanyl, 2001-2015  
PainWeek

---

---

---

---

---

---

---

---

---

---

### The Facts

**The Chinese Connection Fueling America's Fentanyl Crisis**

A vast network, beginning in China feeds fentanyl, a deadly synthetic opioid, to the U.S., Mexico and Canada.

BY JEANNE WHALEN and BRIAN SPIEGEL  
Updated June 23, 2016 1:44 a.m. ET

**Criminal Chemistry**  
Traffickers manufacturing fentanyl often purchase the key ingredient from China, which doesn't regulate its sale. Here's how the chemical building blocks become a highly profitable street drug.

The key ingredient is 1-(1-**N**-phenethyl-4-piperidinone)propanone, or NPP, 25 grams of which can be bought from China for about \$57.

NPP can be combined with about \$250 of other chemicals to produce fentanyl.

The resulting 25-gram batch of fentanyl can sell for \$10,000 or more on the black market.

Manufactured under strict U.S. Department of Justice, FBI, and Drug Enforcement Administration regulations.

THE WALL STREET JOURNAL

- Fentanyl can be manufactured anywhere
  - Synthetic
- N-Phenethyl-4-piperidinone is NPP
  - Intermediate precursor to fentanyl
- It is cheap
- It is not going anywhere

---

---

---

---

---

---

---

---


---

---

### The Facts

**Terminology**

- A very small amount of fentanyl is potentially fatal
- This applies to **licit or illicit** fentanyl
  - Illicitly manufactured fentanyl is likely no more dangerous than legally manufactured fentanyl
- Fentanyl label:
  - FENTANYL CITRATE SHOULD BE ADMINISTERED ONLY BY PERSONS SPECIFICALLY TRAINED IN THE USE OF INTRAVENOUS ANESTHETICS AND MANAGEMENT OF THE RESPIRATORY EFFECTS OF POTENT OPIOIDS
  - AN OPIOID ANTAGONIST, RESUSCITATIVE AND INTUBATION EQUIPMENT AND OXYGEN SHOULD BE READILY AVAILABLE
  - Fentanyl may cause muscle rigidity, particularly involving the muscles of respiration
  - DIMINISHED SENSITIVITY TO CO2 STIMULATION MAY PERSIST LONGER THAN DEPRESSION OF RESPIRATORY RATE



---

---

---

---

---

---

---

---

---

---

### The Implications

**A Fentanyl Crisis**



**Fatal fentanyl overdoses by county**

**In 24 of the nation's largest cities fatal fentanyl-related overdoses increased 600% from 2014-2016**



**Fatal fentanyl overdoses per 100,000**

**The Washington Post**

Fentanyl linked to thousands of white overdose deaths

As the number of white people who die from fentanyl rises, some part of the national opioid crisis is being overlooked.

By STEVE COHEN, PHILIP DODDAMAN, JOEL ACHENBACH and FRANK COHENY

Aug. 15, 2017

---

---

---

---

---

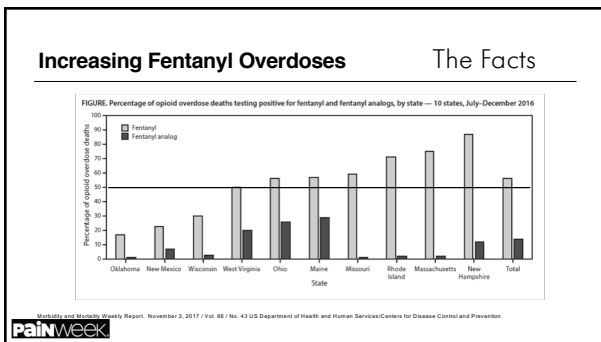
---

---

---

---

---




---

---

---

---

---

---

---

---

---

---

### Different Types of Fentanyl and Presentations

- Different formulations and varying potencies:
  - Fentanyl
  - Analogs
    - Acetyl Fentanyl
    - Oxycodone
    - Carfentanyl
    - Remifentanyl
    - Alfentanil
    - Sufentanyl
    - Furanylfentanyl
- Presentations
  - Powder
  - Counterfeit pills
  - Etc.

**PainWeek**

---

---

---

---

---

---

---

---

---

---

### Carfentanyl      The Facts

- Synthetic
- Large animal anesthetic
- 100 times more potent than fentanyl
- 10,000 times more potent than morphine
- Airborne/skin exposure often fatal
  - 2012 Moscow Theater Hostage Crisis

Members of the Russian Special Forces in the Moscow theater crisis, 2002. Photo: AP/Wide World

**PainWeek**

---

---

---

---

---

---

---

---

---

---

### The Facts

- Fentanyl in the wrong hands is deadly
- Potentially contributing significantly to overdose/fatal overdose risk
- Analogs not often tested for in routine toxicology testing
- Naloxone is a **bridge** to survival but not a final solution
  - Re-narcotization from fentanyl is common
  - Blunting of CO<sub>2</sub> response **will persist**
  - Diminished hypoxic drive may persist



PainWeek

---

---

---

---

---

---

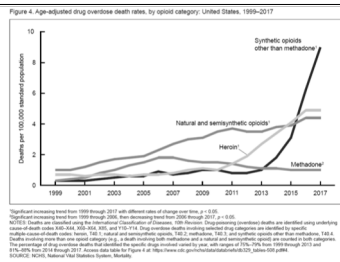
---

---

---

---

### New CDC Data for 2017




---

---

---

---

---

---

---

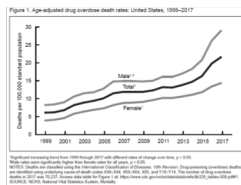
---

---

---

### New CDC Data for 2017

- The age-adjusted rate of drug overdose deaths involving synthetic opioids other than methadone (drugs such as fentanyl, fentanyl analogs, and tramadol) increased by **45%** between 2016 and 2017, from 6.2 to 9.0 per 100,000




---

---

---

---

---

---

---

---

---

---

### Fentanyl Has Taken Over the Lead...

National Vital Statistics Reports  
 Volume 67, Number 9  
 December 12, 2016

#### Drugs Most Frequently Involved in Drug Overdose Deaths: United States, 2011–2016

By Holly Hedquist, M.S., M.P.H., and Benjamin A. Sorenson, D.S., National Center for Health Statistics; James P. Tinkoff, M.P.H., M.S., D.S., Food and Drug Administration; Marcaine Spencer, M.P.H., and Margaret Warner, Ph.D., Tobacco Center for Regulatory Science

■ **“More than 66% of overdose deaths due to fentanyl also involved one or more other drugs”**

**Fentanyl Surpasses Heroin As Drug Most Often Involved in Deadly Overdoses**

Heroin-related overdoses increased for 2011–2016, at a 0.5% significant increasing trend for 2011–2016, with different rates of change over time, at 0.1%.

Oxycodone increasing trend for 2011–2016, at a 0.5% significant increasing trend for 2011–2016, at a 0.5%.

Morphine increasing trend for 2011–2016, at a 0.1%.

Methadone increasing trend for 2011–2016, at a 0.1%.

Hydrocodone increasing trend for 2011–2016, at a 0.1%.

Fentanyl increasing trend for 2011–2016, at a 0.5% significant increasing trend for 2011–2016, with different rates of change over time, at 0.1%.

Other drugs including more than one drug in a death involving heroin and oxycodone are included in both lists. Cocaine should be used when comparing numbers across years. The reporting of most new specific drugs in the drug and equipment lists 70% of drug overdose deaths in 2011 to 61% of drug overdose deaths in 2016.

Source: NCHS, National Vital Statistics System. Monthly data based on death certificate reports, 2011–2016.

**PainWeek**

---

---

---

---

---

---

---

---

---

---

### SUMMARY

**PainWeek**

---

---

---

---

---

---

---

---

---

---

### The Co-existing Opioid Crises

#### The Facts

**PAIN MANAGEMENT AND THE OPIOID EPIDEMIC**  
 BALANCING SOCIETAL AND INDIVIDUAL BENEFITS AND RISKS OF PRESCRIPTION OPIOID USE  
 Committee on Pain Management and Public Policy Strategies to Address the Opioid Epidemic  
**FDA U.S. FOOD & DRUG ADMINISTRATION**

**PainWeek**

---

---

---

---

---

---

---

---

---

---



### We didn't Start the Fire...Or did We?

▪ Significant controversy exists to the relationship between prescription opioids and the heroin/fentanyl epidemic

– Tracking back to prescribers

- The 1990s when opioid prescribing increased
- Pain being designated as the “fifth vital sign” in 2000
- Pain Bill of Rights
- Evolution of “pill mills”

– Related to cost and availability

- Heroin and fentanyl are cheaper and stronger




---

---

---

---

---

---

---

---

### Case 2

▪ 26 year-old white female

- Has 2 children ages 4 & 7 who live with their godmother
- Became addicted to opioids after being prescribed oxycodone post C-Section
- Addiction to oxycodone transitioned to heroin
- Addiction to heroin transitioned to heroin/fentanyl
- *“If there’s no fentanyl in it, I don’t want it at all”*
- Tried 14-day rehab without success
  - *“This is all I know anymore...It’s all I know”*




---

---

---

---

---

---

---

---



### Who and What is Our Responsibility?

We Are Involved Like it or Not

---

---

---

---

---


---

---

---

### Does the United States Own The Problem??

- We are not alone
- This is a global issue
- In 2015, approximately 1/4 billion people abused/misused drugs
  - ~ 29.5 million (0.6% of global adult population) engaged in problematic use/suffered from substance use disorder
- 70% of the global burden of disease caused by drug use disorders attributable to opioid use



**World Drug Report 2017**  
EXECUTIVE SUMMARY  
CONCLUSIONS AND  
POLICY IMPLICATIONS

**1**

**PainWeek**

---

---

---

---

---

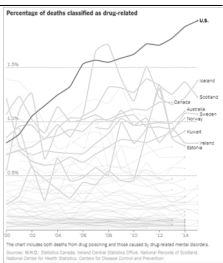
---

---

---

### However... The Facts

Drug-related deaths remain highest in the U.S.



Percentage of deaths classified as drug-related

**PainWeek**

---

---

---

---

---

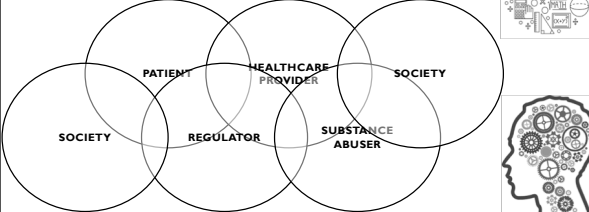
---

---

---

### Clinical Considerations and Implications

- The "New Math" for determining opioid risk/benefit analysis



**PainWeek**

---

---

---

---

---

---

---

---

### Final Thoughts

- We must consider the parallel "opioid" crises that exist today
  - Our role in these problems
- Heroin and fentanyl are not going anywhere
- Remember the "New Math"
- Naloxone is likely something to keep top of mind
- Avoidance of "risky" situations is critical
- Strongly consider and document appropriate candidates for fentanyl-based therapies
- Everyone is looking at us as an integral part of solving the "other" opioid crisis
- Everyone is looking to us to be a part of the solution to both crises



---

---

---

---

---

---

---

---



### Final Thoughts

But... Let's not make patients "pay" for the other crisis



---

---

---

---

---

---

---

---



*"Cure sometimes, treat often, comfort always."*  
— Hippocrates

---

---

---

---

---

---

---

---

Questions?

---

**Pain**week

---

---

---

---

---

---

---