



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

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**Disclosures**

- Nothing to disclose



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**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



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# PainWeek

Is There More than one Opioid Crisis?

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The Facts



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The Facts: No Lack of Media Attention

Opioid **CRISIS**

**COMMUNICATION MEDIA**

**OPIOID EPIDEMIC**

**HEROIN EPIDEMIC**

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### Important Societal Questions

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### 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.

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### 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, these 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.



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**CDC** Centers for Disease Control and Prevention  
 CDC 24/7: Saving Lives, Protecting People™  
 Understanding the Epidemic

**The Clinical Implications**

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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

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**CDC** Centers for Disease Control and Prevention  
 CDC 24/7: Saving Lives, Protecting People™  
 Understanding the Epidemic

**The Facts**

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Statistically significant drug overdose death rate increase from 2015 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 2015 to 2016

DATA SOURCE: CDC/NCHS, National Vital Statistics System, Mortality  
<https://www.cdc.gov/drugoverdose/data/statedeaths.html>, Accessed January 20, 2018.

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**The “Other” Epidemic**

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## The Facts

**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



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

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## 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>

	2002-2007	2010-2017	% Increase
<b>SEX</b>			
Male	2.4	3.6	50%
Female	0.8	1.6	100%
<b>AGE YEARS</b>			
12-17	1.8	1.9	—
18-24	3.5	7.5	109%
25 or older	1.2	1.9	58%
<b>RACE/ETHNICITY</b>			
Not Hispanic, white	1.4	3	114%
Other	2	1.7	—
<b>ANNUAL HOUSEHOLD INCOME</b>			
Less than \$20K	3.4	5.5	62%
\$20K-\$40K	1.3	2.3	77%
\$40K or more	1	1.6	60%
<b>HEALTH INSURANCE COVERAGE</b>			
None	4.2	6.7	60%
Medicaid	0.3	0.7	—
Private or other	0.8	1.3	63%

<sup>1</sup>Annual average rate of heroin use per 1,000 people in each group

**PainWeek** <sup>1</sup> 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 Baldwin GT. Understanding the Relationship between Prescription Opioid and Heroin Abuse. NEJM.

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## The Facts

**CDC Vital Signs July 2015**

▪ 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.

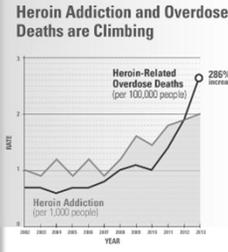
Heroin is a highly addictive opioid drug with a high risk of overdose and death for users.

**People who are addicted to...**

ALCOHOL 2x, MARIJUANA 3x, COCAINE 15x, OXYGEN PAINKILLERS 40x

...more likely to be addicted to heroin.

**Heroin Addiction and Overdose Deaths are Climbing**



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 **NIH** 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"

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1. <https://www.drugabuse.gov/publications/research-reports/relationship-between-prescription-drug-abuse-heroin-use/introduction>. Accessed January 30, 2018.  
2. [https://id14mgwct5a.cloudfront.net/sites/default/files/nix\\_and\\_heroin\\_rs\\_layout\\_final.pdf](https://id14mgwct5a.cloudfront.net/sites/default/files/nix_and_heroin_rs_layout_final.pdf). Accessed January 30, 2018.

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 **NIH** 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

**PainWeek** 1. <https://www.drugabuse.gov/publications/research-reports/relationship-between-prescription-drug-abuse-heroin-use/introduction>. Accessed January 30, 2018.  
2. [https://id14mgwct5a.cloudfront.net/sites/default/files/nix\\_and\\_heroin\\_rs\\_layout\\_final.pdf](https://id14mgwct5a.cloudfront.net/sites/default/files/nix_and_heroin_rs_layout_final.pdf). Accessed January 30, 2018.

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 **NIH** 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**



**PainWeek** 1. <https://www.drugabuse.gov/publications/research-reports/relationship-between-prescription-drug-abuse-heroin-use/introduction>. Accessed January 30, 2018.  
2. [https://id14mgwct5a.cloudfront.net/sites/default/files/nix\\_and\\_heroin\\_rs\\_layout\\_final.pdf](https://id14mgwct5a.cloudfront.net/sites/default/files/nix_and_heroin_rs_layout_final.pdf). Accessed January 30, 2018.

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### 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 • DEPARTMENT OF JUSTICE  
OFFICE OF DIVERSION CONTROL  
**NFLIS** NATIONAL FORENSIC LABORATORY INFORMATION SYSTEM  
Special Report: Opiates and Related Drugs Reported in NFLIS, 2009–2014  
Revised February 2015

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### Fentanyl The Facts

- Drug seizures involving fentanyl are going up dramatically

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OFFICE OF DIVERSION CONTROL  
**NFLIS** NATIONAL FORENSIC LABORATORY INFORMATION SYSTEM  
NFLIS Brief: Fentanyl, 2001–2015  
In partnership with the U.S. Drug Enforcement Administration, this report is published periodically by NFLIS.

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### 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 imputed.  
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 • DEPARTMENT OF JUSTICE  
OFFICE OF DIVERSION CONTROL  
**NFLIS** NATIONAL FORENSIC LABORATORY INFORMATION SYSTEM  
NFLIS Brief: Fentanyl, 2001–2015  
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### 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 100% NPP, 25 grams of which can be bought from China for about \$87. NPP can be combined with about \$720 of other chemicals to produce fentanyl. The resulting 25 grams of fentanyl cost about \$800, and the equivalent is up to 100 times more potent than morphine.

Illustration adapted from CNN.com; Photos from U.S. Customs and Border Protection; Source: ABC, Inc., Drug Enforcement Administration; Chicago Tribune. 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

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### 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



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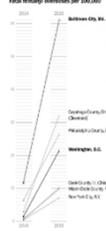
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### The Implications

#### A Fentanyl Crisis

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

**The Washington Post**  
 Fentanyl linked to thousands of urban overdose deaths  
 In two dozen of the nation's largest cities, fentanyl is becoming a major part of the national opioid crisis.  
 By Nicole Lurie, Benno Schmidt, and Fisherbeck and Walker Lerner  
 Aug. 15, 2017

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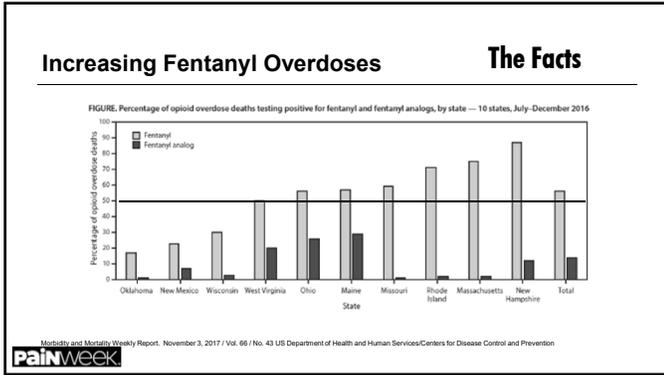
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- ### Different Types of Fentanyl and Presentations
- Different formulations and varying potencies:
    - Fentanyl
    - Analogs
      - Acetyl Fentanyl
      - Oxycodone
      - Carfentanyl
      - Remifentanyl
      - Alfentanil
      - Sufentanyl
      - Fentanyl/fentanyl
  - Presentations
    - Powder
    - Counterfeit pills
    - Etc.
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### 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

**The Washington Post**

By Lynh Bui and Peter Hermann April 26, 2017

**Elephant tranquilizer is the latest lethal addition to the heroin epidemic**



Illustration of the Russian theater. The Washington Post is a leading news organization in the United States. For more information, visit www.washingtonpost.com. © 2017 The Washington Post. All rights reserved. This article is published under the Creative Commons Attribution-NonCommercial-ShareAlike license.

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### 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



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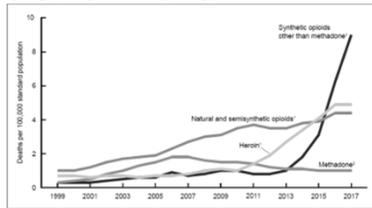
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### New CDC Data for 2017

Figure 4. Age-adjusted drug overdose death rates, by opioid category, United States, 1999–2017



Significant increasing trend from 1999 through 2017 with different rates of change over time, p < 0.05. Significant increasing trend from 1999 through 2006, then decreasing trend from 2006 through 2017, p < 0.05. Deaths are classified using the "modified" Classification of Drugs and Poisons. Drug poisoning (overdose) deaths are identified using underlying cause of death codes 860-869, 950-959, 980, and 990-999. Drug poisoning deaths involving combined drug categories are identified by specific multiple cause of death codes (e.g., T40.1 mixed or semisynthetic opioids, T40.2 methadone, T40.3 and synthetic opioids other than methadone, T40.4 deaths involving more than one opioid category). In a death involving both methadone and a natural and semisynthetic opioid, the natural and semisynthetic opioid is the primary drug category. The percentage of drug poisoning deaths that classified as synthetic drug poisoning (category 860) was 68% (77% from 1999 through 2013 and 81% from 2014 through 2017). Source data table for Figure 4 at [http://www.cdc.gov/nchs/data/tables/drugs/drug\\_poisoning\\_2017.pdf](http://www.cdc.gov/nchs/data/tables/drugs/drug_poisoning_2017.pdf). SOURCE: NCHS, National Vital Statistics System, Mortality.

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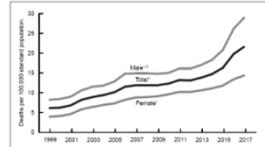
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### New CDC Data for 2017

- 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

Figure 1. Age-adjusted drug overdose death rates, United States, 1999–2017



Significant increasing trend from 1999 through 2017 with different rates of change over time, p < 0.05. Significant increasing trend from 1999 through 2006, then decreasing trend from 2006 through 2017, p < 0.05. Deaths are classified using the "modified" Classification of Drugs and Poisons. Drug poisoning (overdose) deaths are identified using underlying cause of death codes 860-869, 950-959, 980, and 990-999. The number of drug poisoning deaths involving combined drug categories is identified by specific multiple cause of death codes (e.g., T40.1 mixed or semisynthetic opioids, T40.2 methadone, T40.3 and synthetic opioids other than methadone, T40.4 deaths involving more than one opioid category). In a death involving both methadone and a natural and semisynthetic opioid, the natural and semisynthetic opioid is the primary drug category. The percentage of drug poisoning deaths that classified as synthetic drug poisoning (category 860) was 68% (77% from 1999 through 2013 and 81% from 2014 through 2017). Source data table for Figure 1 at [http://www.cdc.gov/nchs/data/tables/drugs/drug\\_poisoning\\_2017.pdf](http://www.cdc.gov/nchs/data/tables/drugs/drug_poisoning_2017.pdf). SOURCE: NCHS, National Vital Statistics System, Mortality.

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### 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




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### 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"*




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### Who and What is Our Responsibility?

We Are Involved Like it or Not

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

- We are not alone
- This *is* a global issue
- In 2015, approximately ¼ 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



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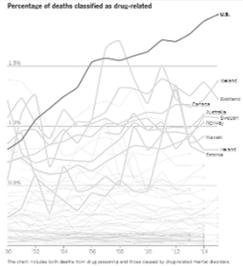
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### However...

### The Facts

Percentage of deaths classified as drug-related

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



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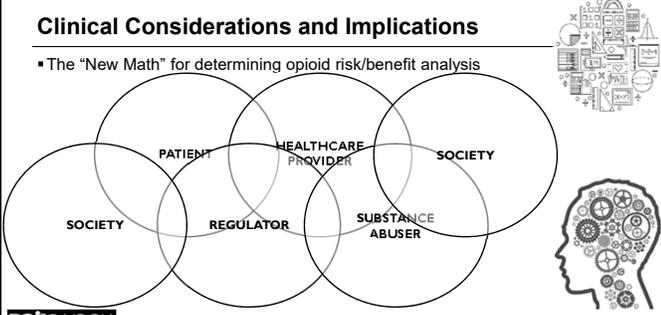
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### Clinical Considerations and Implications

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



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**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




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**Final Thoughts**

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




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

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**Questions?**

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