

The Opioid Epidemic

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How did it all begin?

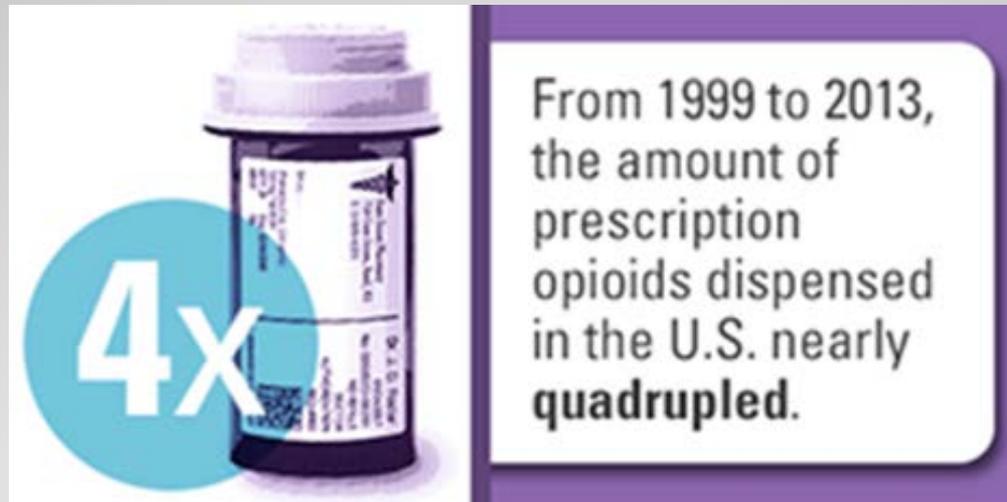
**Why are the 1990s
so important?**



OXYCONTIN

The pharmaceutical industry's contribution to the War On Drugs.

- Nearly a quarter billion opioid prescriptions written in 2013
 - Enough for every American to have their own bottle



- As many as one in four patients receiving long-term opioid therapy in a primary care setting struggles with opioid addiction.
 - Anyone prescribed opioids can become addicted





Risk Factors for Prescription Opioid Pain Reliever Abuse and Overdose



Obtaining overlapping prescriptions from multiple providers and pharmacies.



Taking high daily dosages of prescription opioid pain relievers.

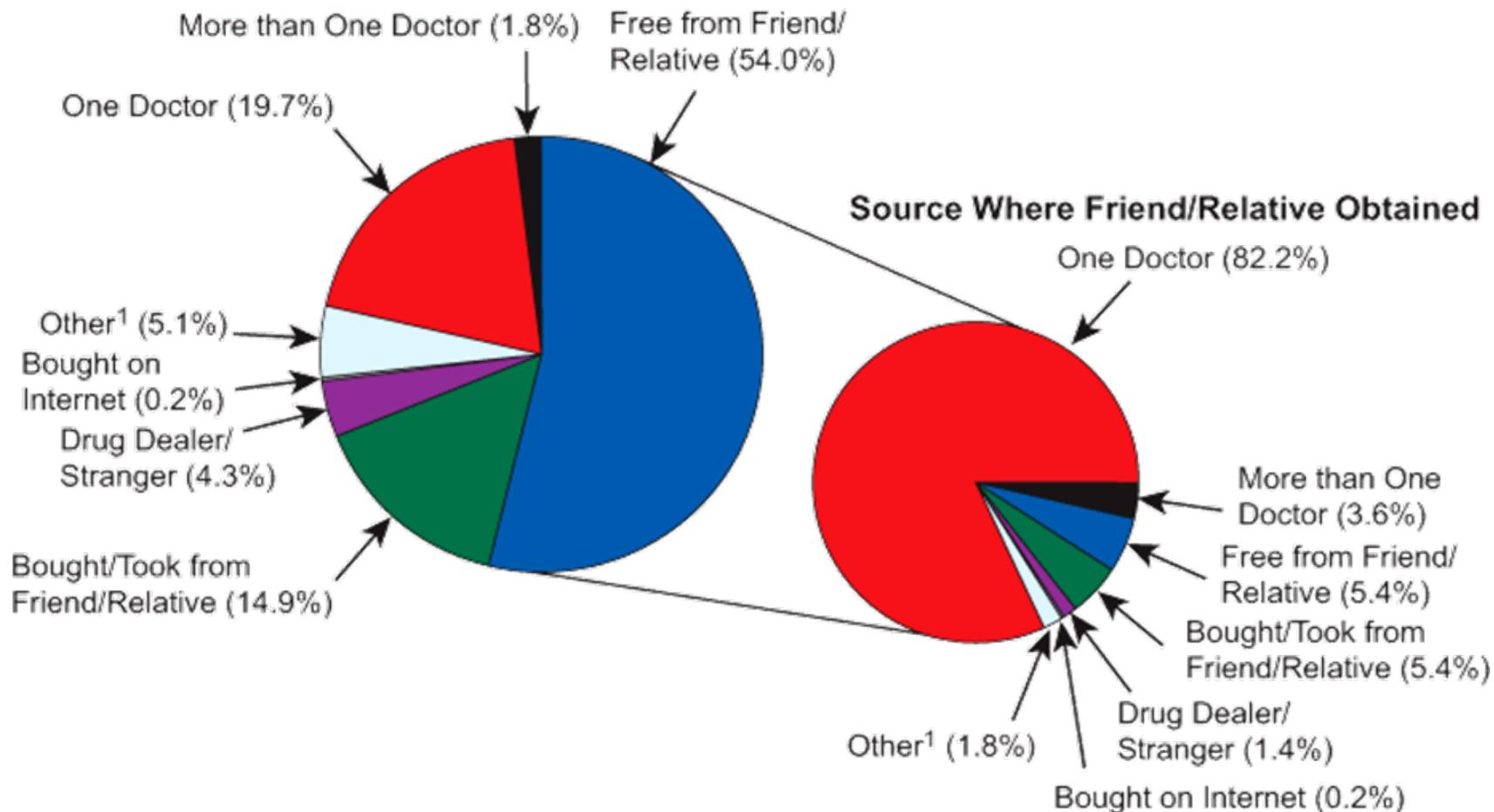


Having mental illness or a history of alcohol or other substance abuse.



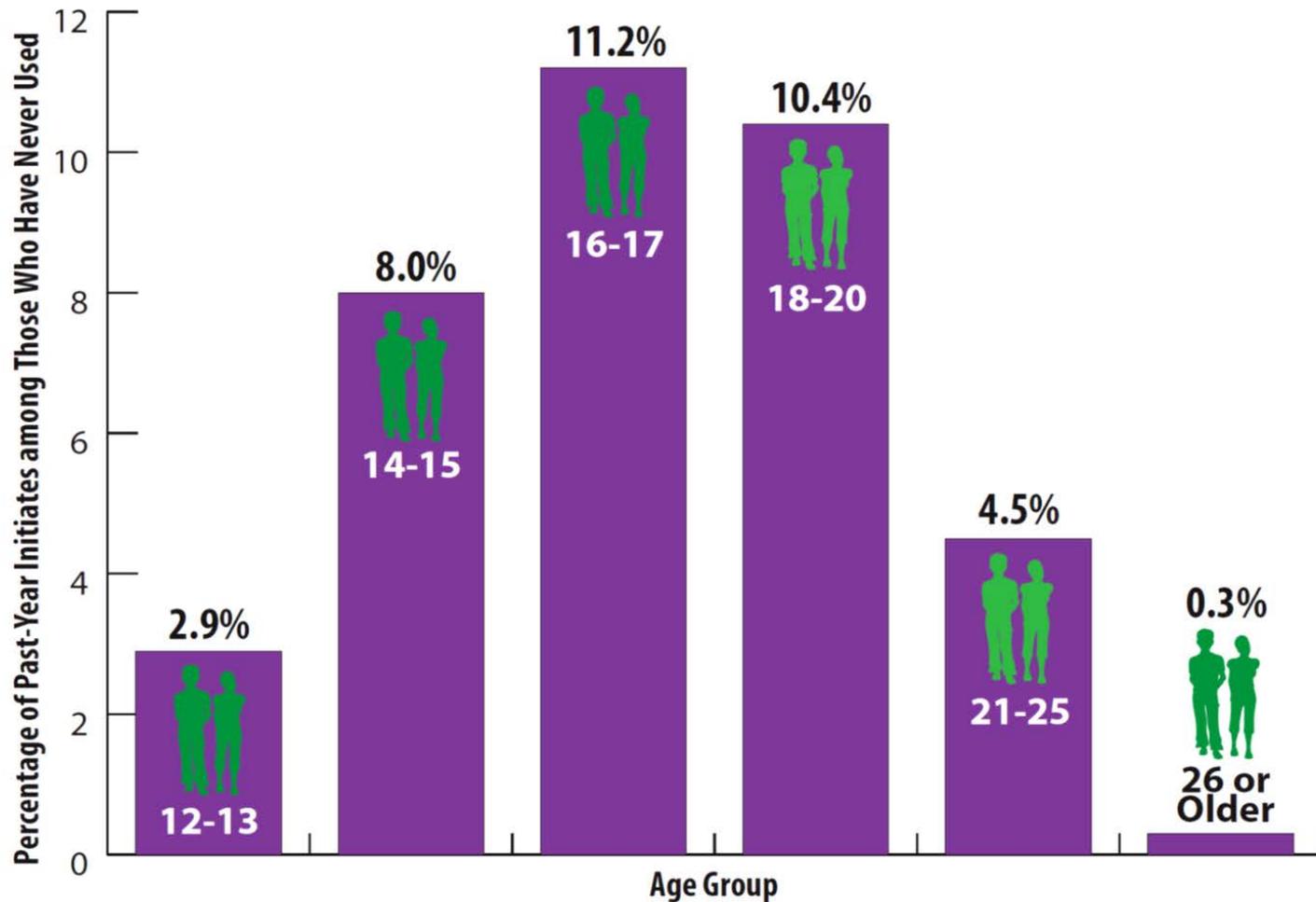
Living in rural areas and having low income.

Source Where User Obtained



In 2012, persons aged 12 or older who misused or abused opioids received the medication in the following ways: **54.0 percent obtained the drug from a friend or relative for free**; **19.7 percent were prescribed the drug by a physician**; 10.9 percent bought the drug from a friend or relative; 4.3 percent purchased from a drug dealer or other stranger; 0.2 percent bought them on the Internet.^[47]

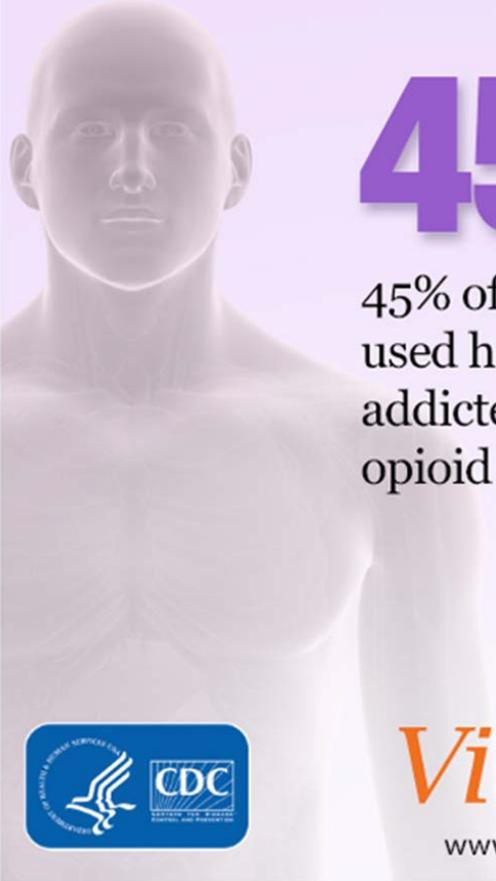
The Drug Danger Zone: Most Illicit Drug Use Starts in the Teenage Years



Source: SAMHSA, Center for Behavioral Health Statistics and Quality,
National Survey on Drug Use and Health, 2011 and 2012.

Around one-third of people first try drugs by age 20

- 24% of teens admitted to misusing/abusing prescription drug at least once
 - 33% Increase from 2008 to 2012
- 1 in 5 that abused prescription meds did so before age 14
- Many teens and parents incorrectly believe abuse of prescriptions is safer and less addicting than “street” drugs
- Most start with swallowing pills then progress to crushing medication and snorting and/or injecting it
- 1 in 15 will try heroin within 10 years, either by snorting or injection
 - Heroin much cheaper than prescription meds
- Heroin much more addictive: 14% of non medical prescription pain reliever users are dependent; 54% of heroin users are dependent



45%

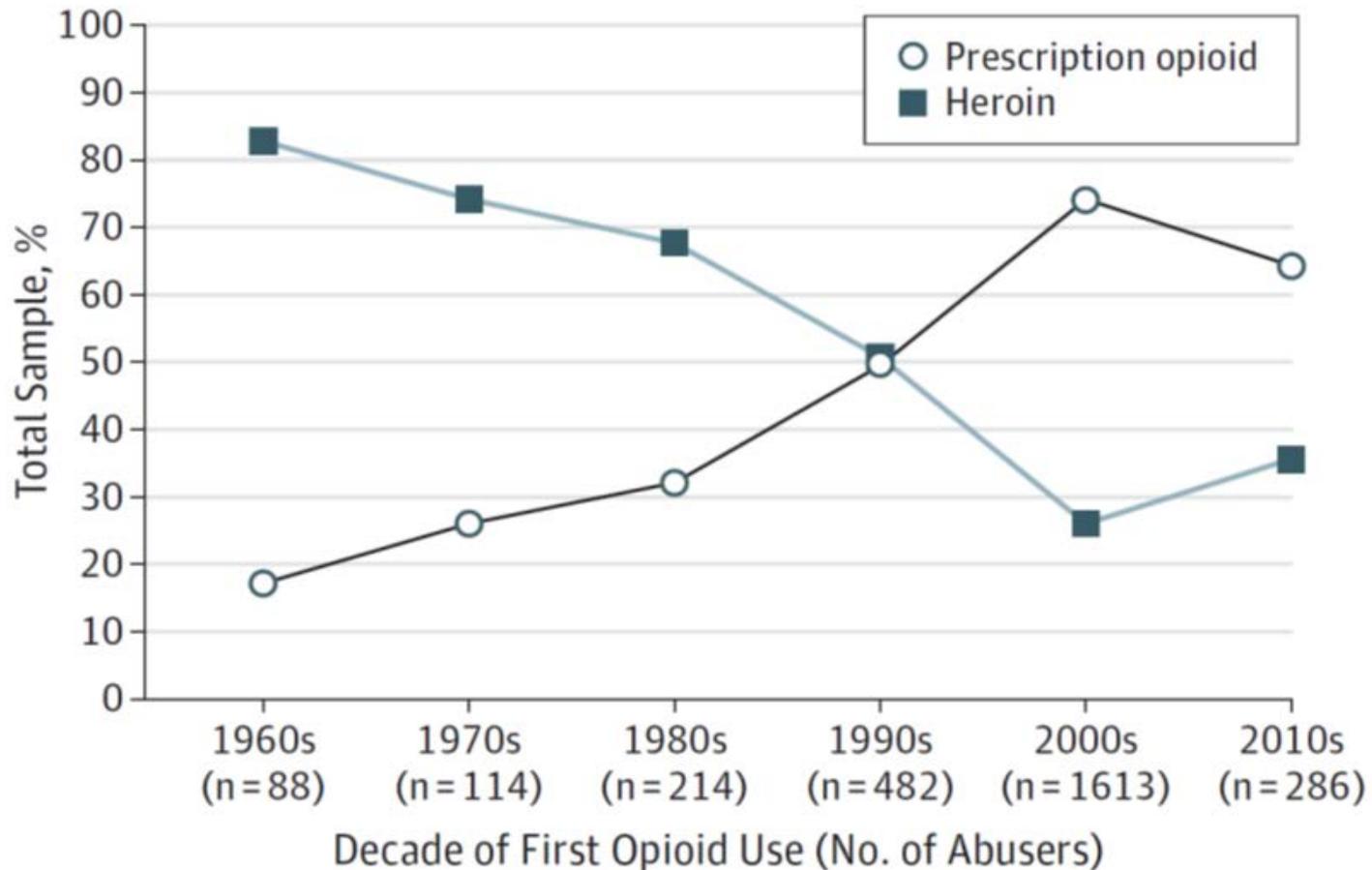
45% of people who used heroin were also addicted to prescription opioid painkillers.



Vital^{CDC}signs™

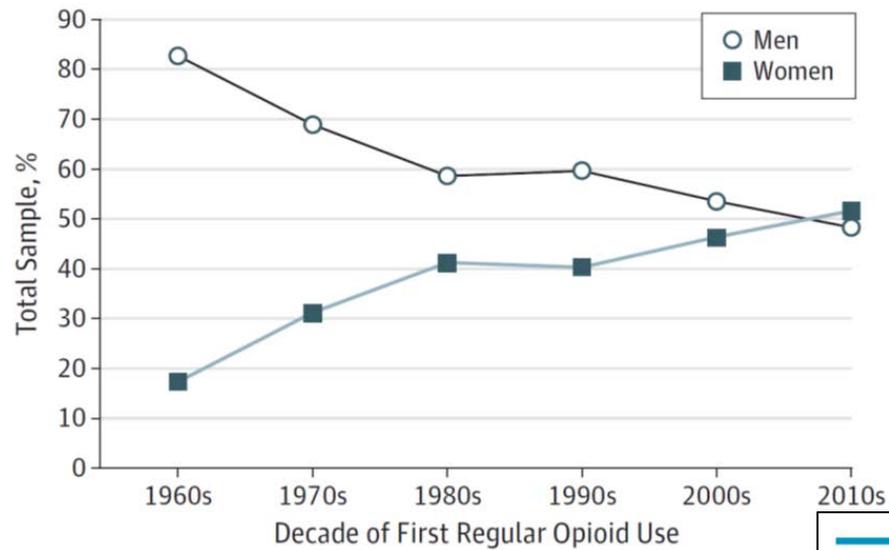
www.cdc.gov/vitalsigns/heroin

Figure 1. Percentage of the Total Heroin-Dependent Sample That Used Heroin or a Prescription Opioid as Their First Opioid of Abuse



Data are plotted as a function of the decade in which respondents initiated their opioid abuse.

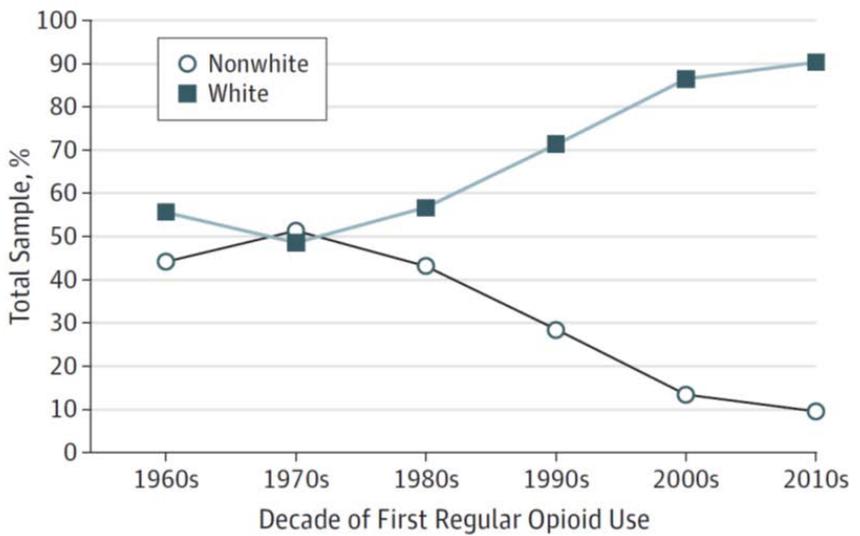
Figure 2. Sex Distribution of Respondents Expressed as Percentage of the Total Sample



Opioid users used to primarily be inner city men from minority groups

Now the problem is expanding to lower and middle-class women and men living outside of urban areas

Figure 3. Racial Distribution of Respondents Expressed as Percentage of the Total Sample of Heroin Users



Overdoses

- More deaths from drug overdoses in 2014 than any other year on record
- Majority of OD deaths – over 60% - involved opioid
- Since 1999, number of OD deaths involving opioid has quadrupled
- Heroin-related deaths more than tripled between 2010 and 2014
 - Heroin mixed with illicitly manufactured fentanyl (50-100 times stronger than morphine) or carfentanil (10,000 times stronger than morphine) greatly increases risk for overdose

Message

Carfentanil Sample Most Likely Identified in Kent County...

Actions

Message Details

Date Sent: **09/15/2016 10:10 AM EDT**

Sender: **Michigan Health Alert Network**

Subject: **Carfentanil Sample Most Likely Identified in Kent County, Michigan**

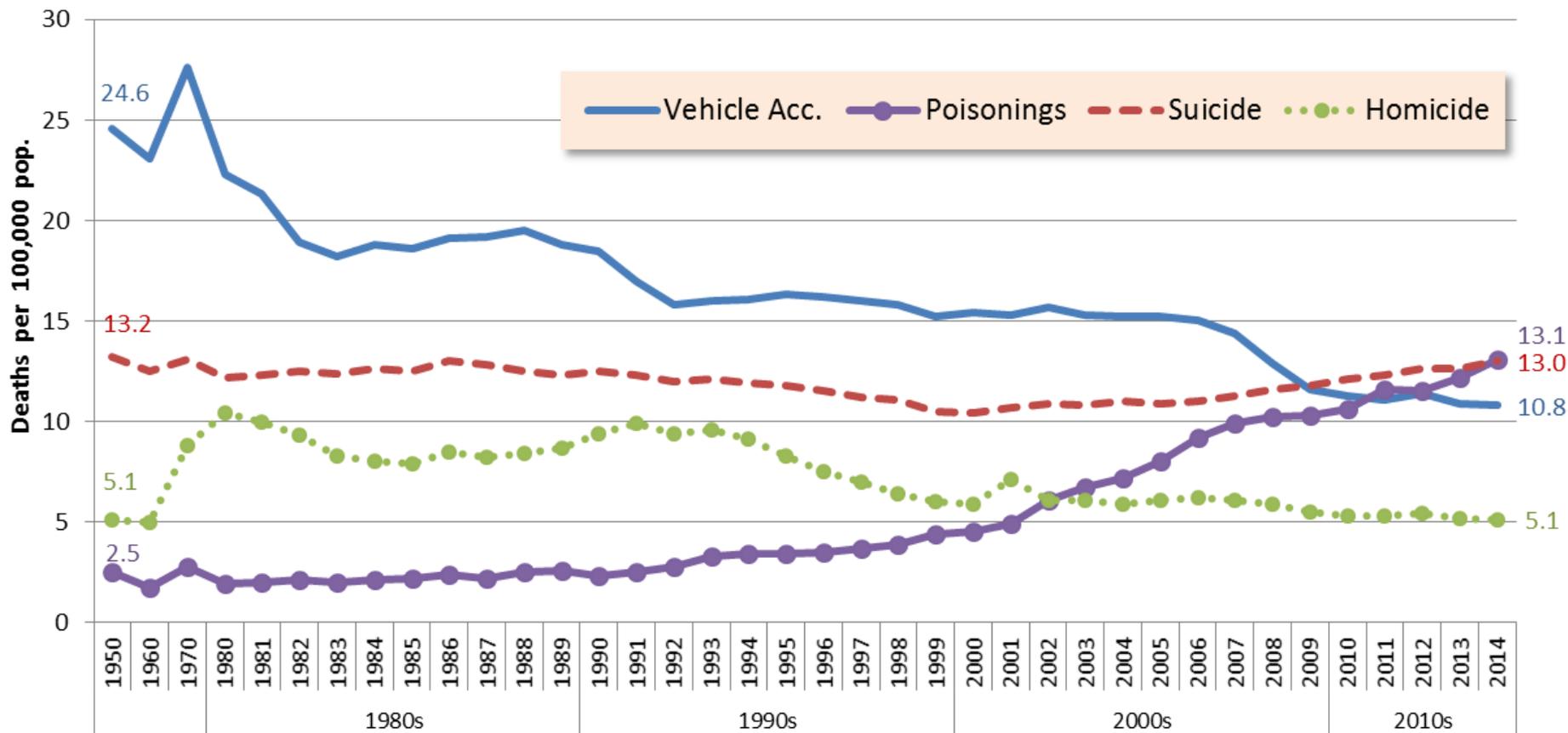
Message:

The Michigan State Police (MSP) laboratory in Grand Rapids, Michigan, received an unknown powder from law enforcement in Kent County, Michigan, for testing and identification purposes. The MSP Forensic Science Division examined the chemical composition of the unknown substance and determined the substance matched the chemical composition of Carfentanil.

This puts Michigan residents, first responders, and public health personnel at great risk of accidental overdose and death due to the extremely potent opioid. The Michigan Intelligence Operations Center (MIOC) recommends first responders and public health officials treat unknown chemicals and substances with extreme caution. People and animals such as canine units may absorb carfentanil, fentanyl, and other opioids via skin contact, inhalation, oral exposure, or ingestion. According to the 2016 Drug Enforcement Agency (DEA) warning about fentanyl, "The onset of adverse health effects, such as disorientation, coughing, sedation, respiratory distress or cardiac arrest is very rapid and profound, usually occurring within minutes of exposure."

Mortality Trends, Injuries, U.S.

Selected Years, 1950 - 2014, age-adjusted rates

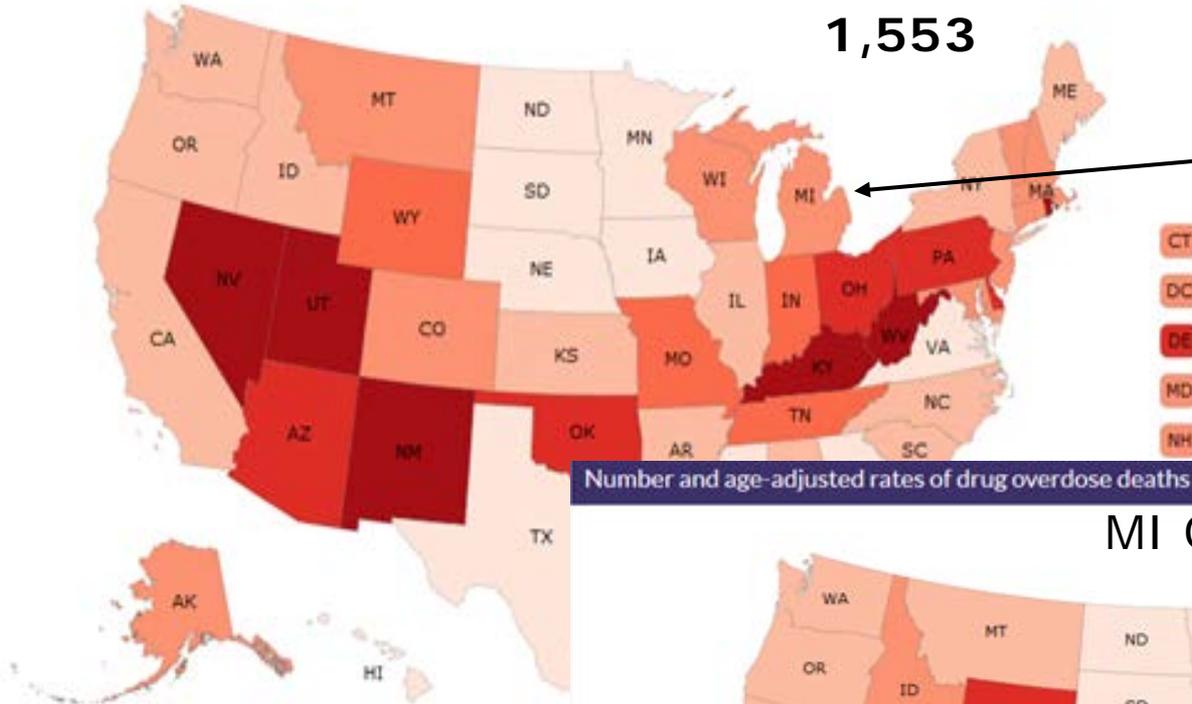


Poisoning (overdose) and suicide rates have overtaken vehicular fatality rate

*RATES, not numbers of deaths

Number and age-adjusted rates of drug overdose deaths by state, US 2013

MI OD Deaths 2013:
1,553



Age Adjusted Rate

2.8 to 11.0

11.1 to 13.5

13.6 to 16.0

16.1 to 18.5

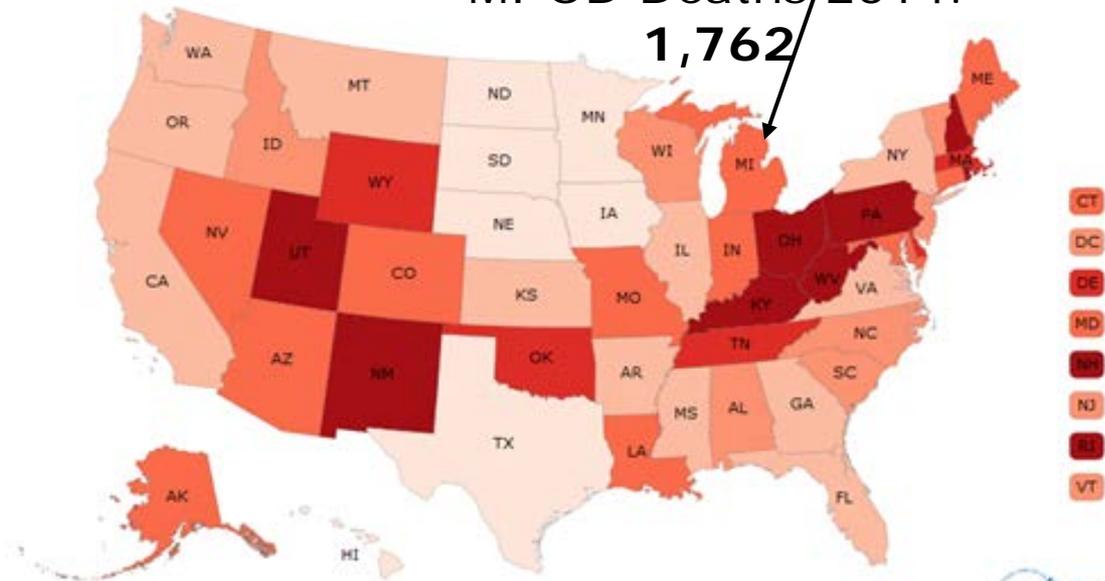
18.6 to 21.0

21.0 to 35.5

2013 Age-adjusted rate

Number and age-adjusted rates of drug overdose deaths by state, US 2014

MI OD Deaths 2014:
1,762



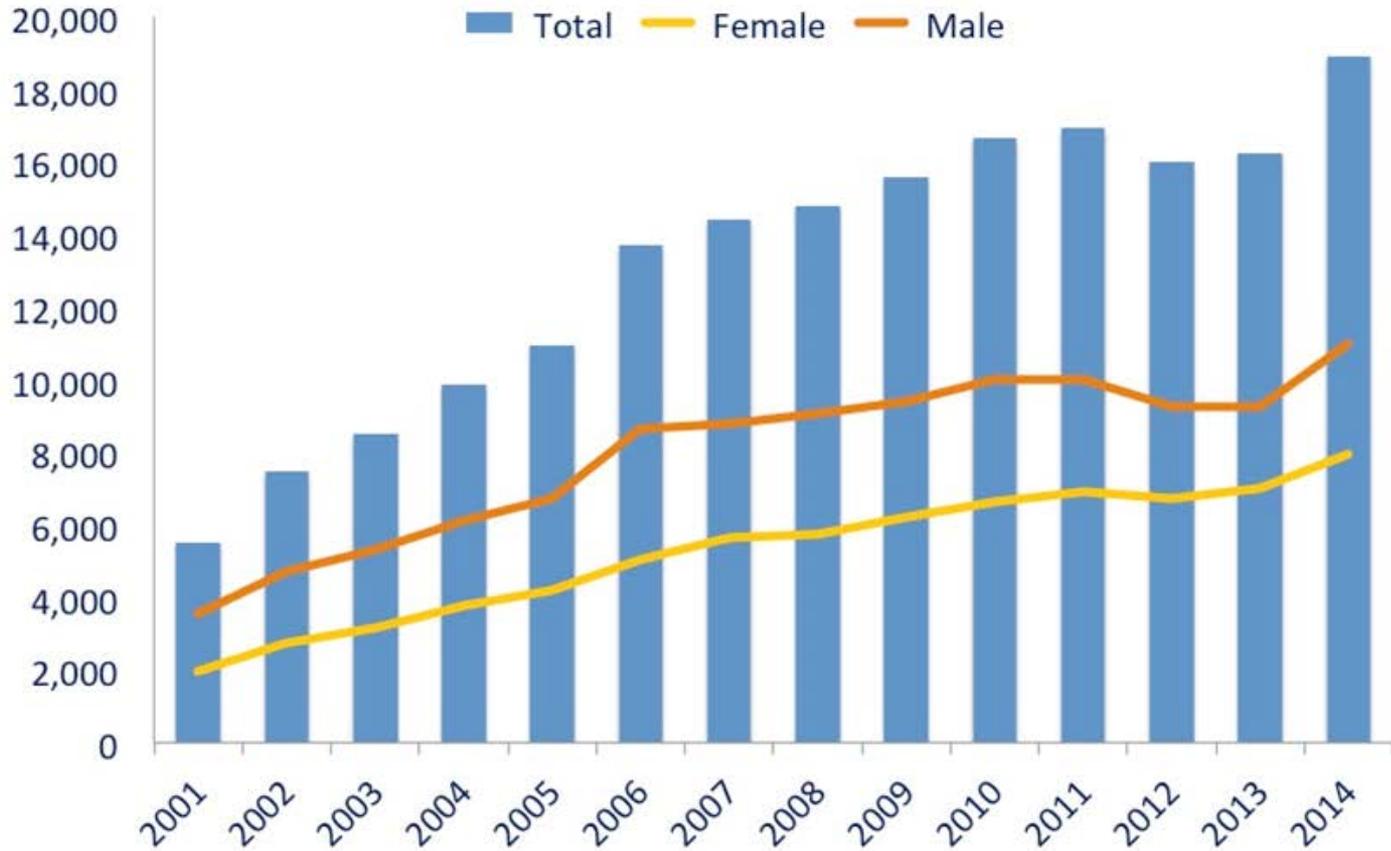
2014 Age-adjusted rate





National Overdose Deaths

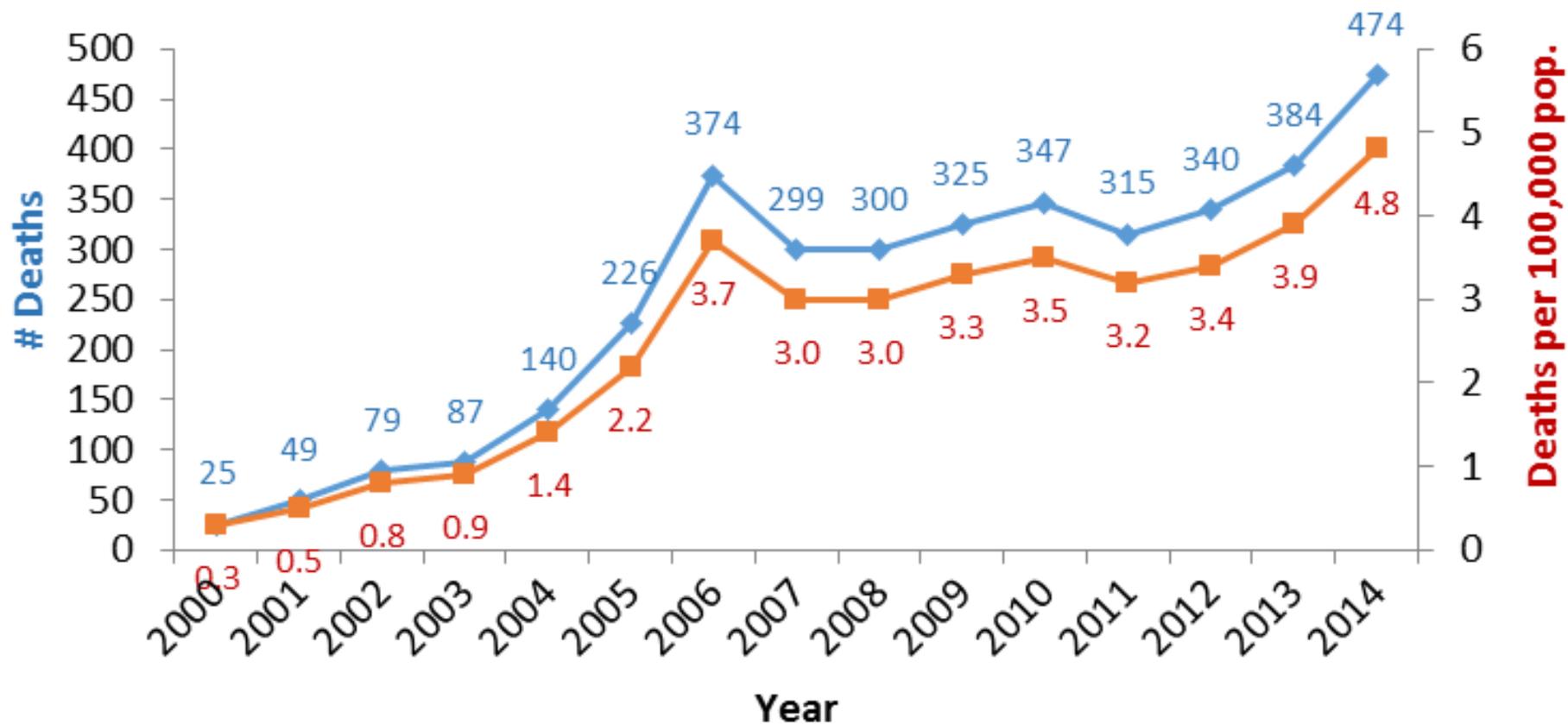
Number of Deaths from Prescription Opioid Pain Relievers



Source: National Center for Health Statistics, CDC Wonder

Opioid Analgesic Deaths (Unintentional) Michigan, 2000-14

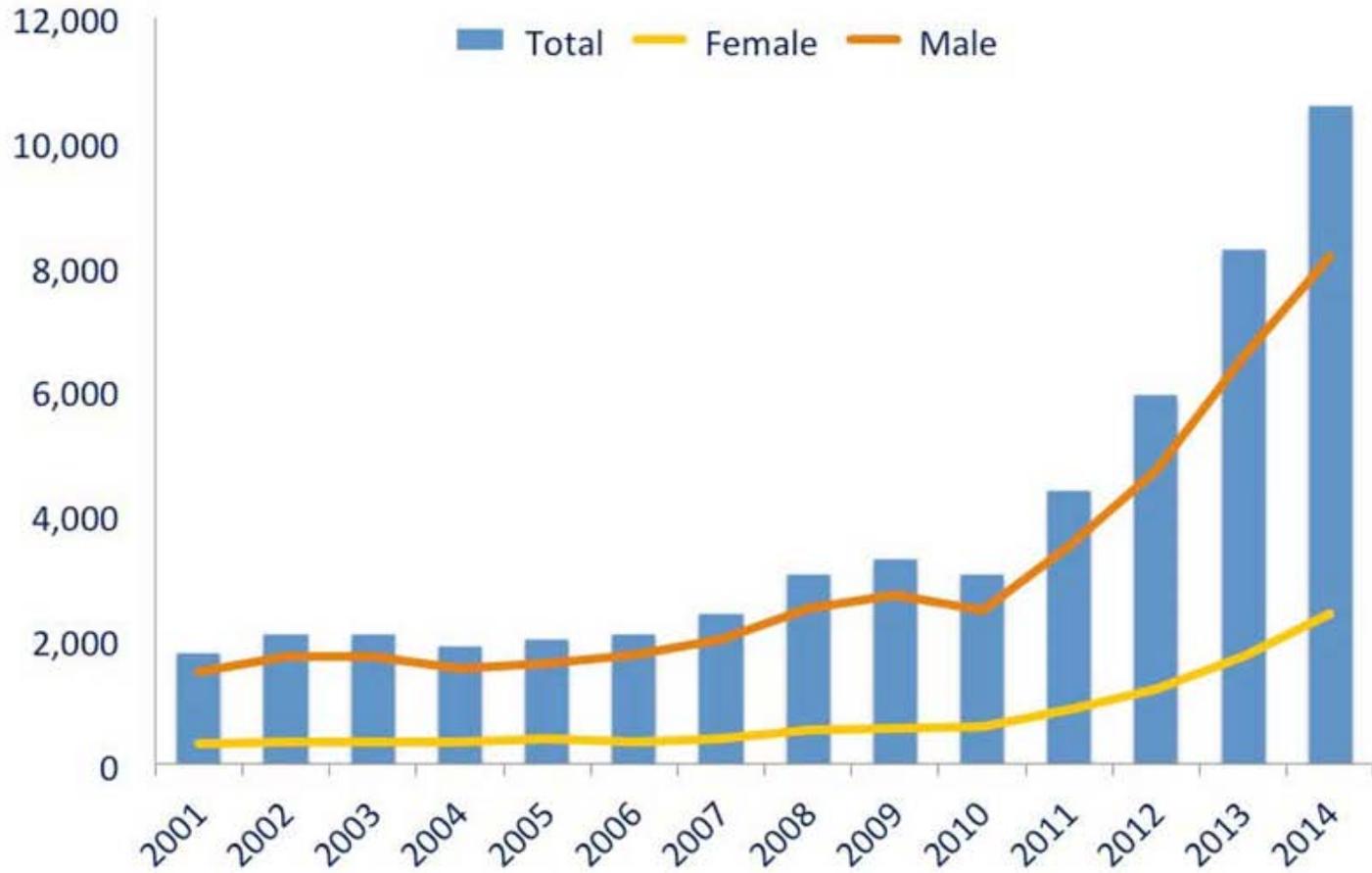
◆ # Deaths ■ Crude Rate





National Overdose Deaths

Number of Deaths from Heroin



Source: National Center for Health Statistics, CDC Wonder

Heroin Deaths (Unintentional) Michigan, 2000-14

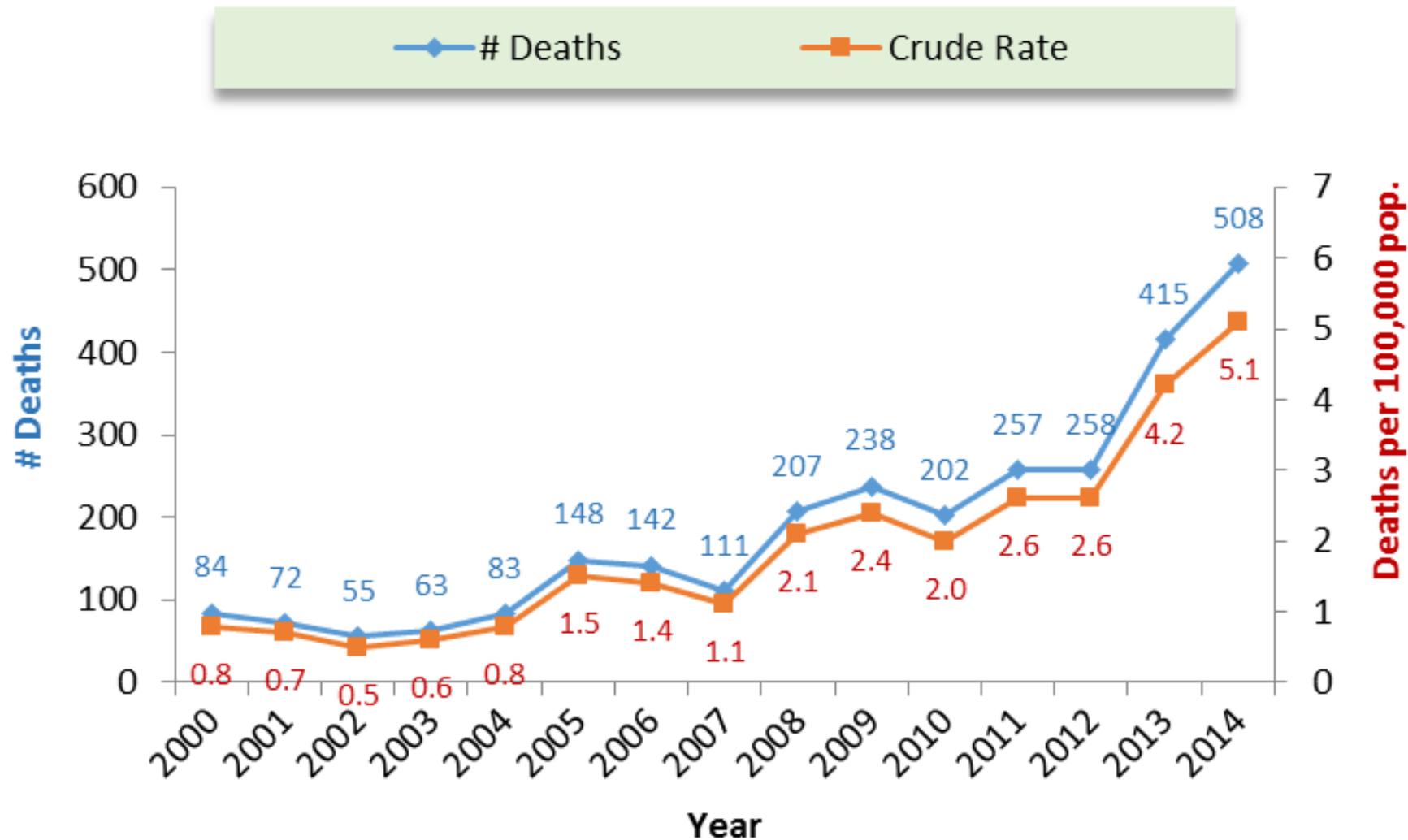
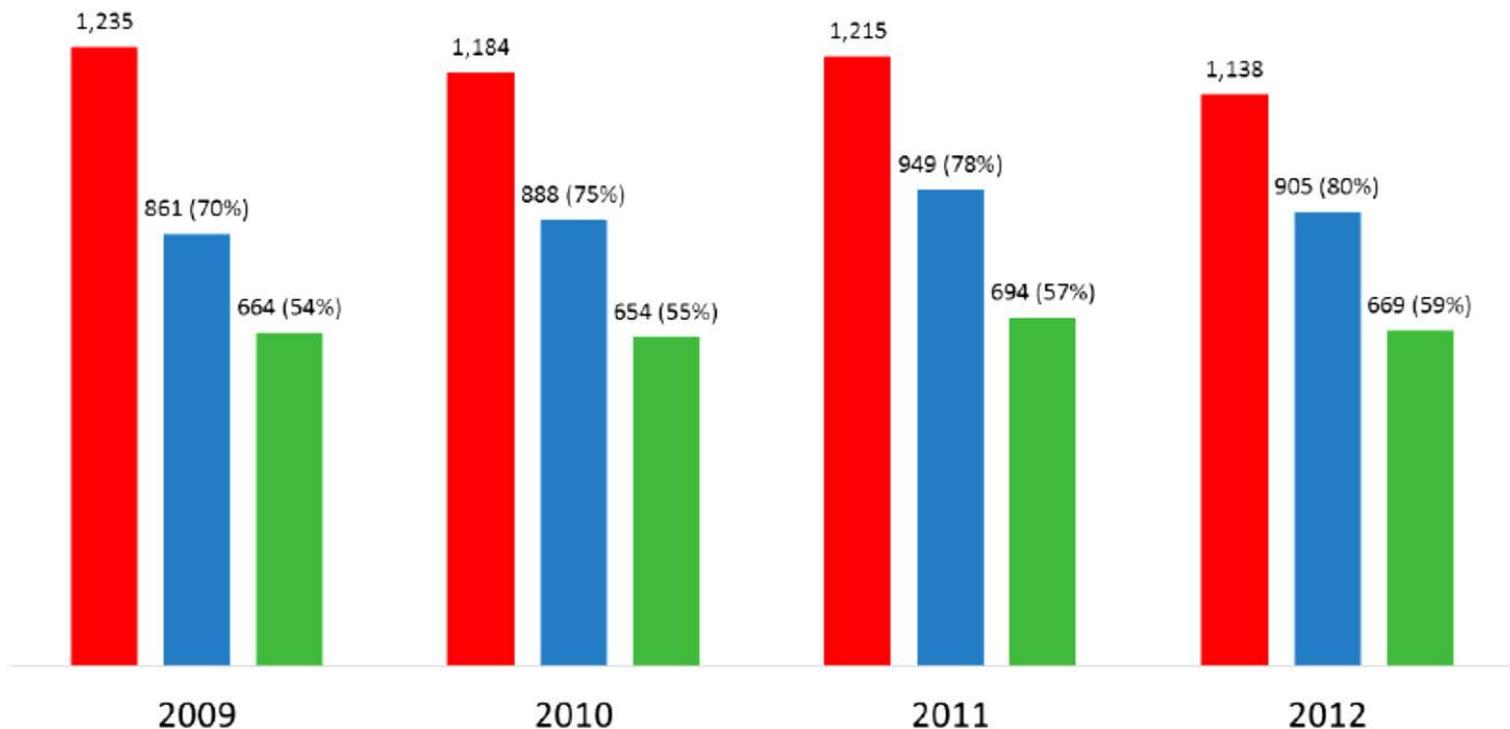


Figure 4. Total Unintentional and Undetermined Intent Drug Poisoning Deaths¹ with Prescription History: MI Residents, 2009-2012

■ Number of of drug poisoning deaths

■ Number and percent of drug poisoning deaths who filled prescription within 364 days of death

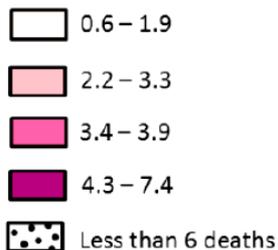
■ Number and percent of drug poisoning deaths who filled prescription within 30 days of death



1. Unintentional and undetermined intent drug poisoning death defined as ICD-10 code "X40-X44" and "Y10-Y14", respectively.

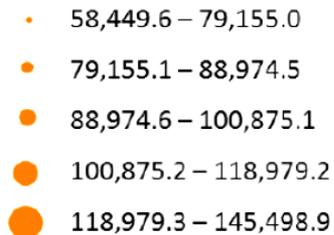
Figure 9. Opioid-related Drug Poisoning Death Rates and Opioid Prescriptions Written, by County of Residence: MI Overdose Decedents, 2009-2012

Opioid-related Poisoning Death Rates Per 100,000 MI Residents

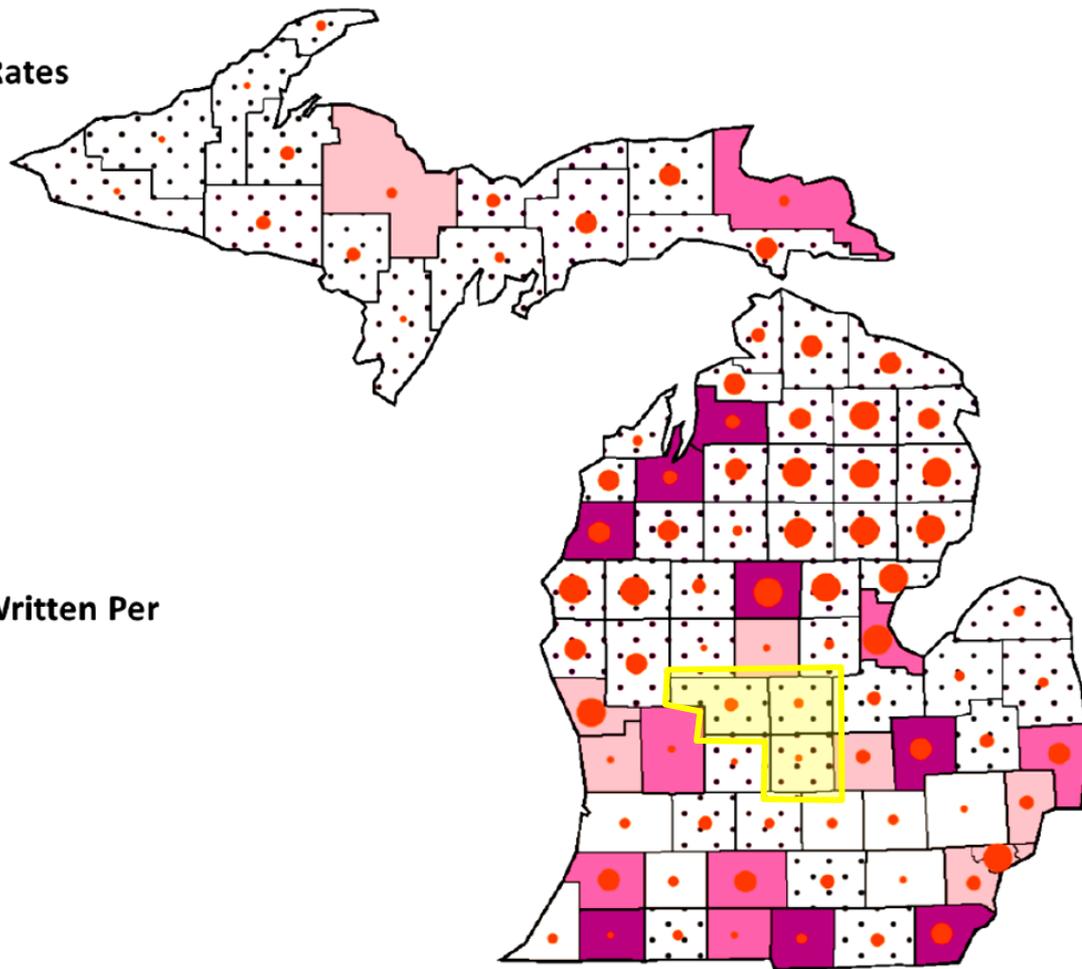


Overall MI rate: 2.3 (95% CI: 2.2 – 2.5)

Number of Opioid Prescriptions Written Per 100,000 MI residents



Overall MI Rate: 92,792.7



Sources

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- Centers for Disease Control and Prevention. Injury Prevention and Control: Opioid Overdose. Prescribing Data. <http://www.cdc.gov/drugoverdose/data/prescribing.html>
- Centers for Disease Control and Prevention. Injury Prevention and Control: Opioid Overdose. State Data. <http://www.cdc.gov/drugoverdose/data/statedeaths.html>

- Born and raised in Montcalm County
- Physician Assistant from Montcalm Care Network (CMH)
 - Core Mental Health and Health 360 Clinic services
 - 2/3 of primary care patients meet criteria for past or present substance abuse diagnosis
 - Co-occurring mental health and substance abuse is “the norm”
- Active in community-based initiatives targeting opioid abuse and overdose
 - PA-2 Grants
 - community-based naloxone distribution (through MCN, tx sites, sober living homes)
 - Montcalm law enforcement intranasal naloxone (Sheriff dept, local law enforcement officers)
 - Participation in community-based coalitions
 - Ionia/Montcalm Families Against Narcotics
 - YOUTHINK Montcalm



"Fruits and Roots"



The problem we see vs the problems that caused it

Addiction: Definition

*A primary, chronic **disease** of reward pathways, motivation, and memory –which affects the neurotransmission and interactions with reward structures. These neurobiological changes result in altered motivation hierarchy (overcoming the drive for healthy and self-care behaviors); altered impulse control, judgment, and pursuit of rewards.*

Addiction is characterized by an inability to constantly abstain, impaired control of behaviors, increased craving, or “hunger” for substances and/or other rewarding experiences, dysfunctional emotional response, and decreased recognition of significant problems with a patient’s own behaviors and interpersonal relations.

[American Society of Addiction Medicine]

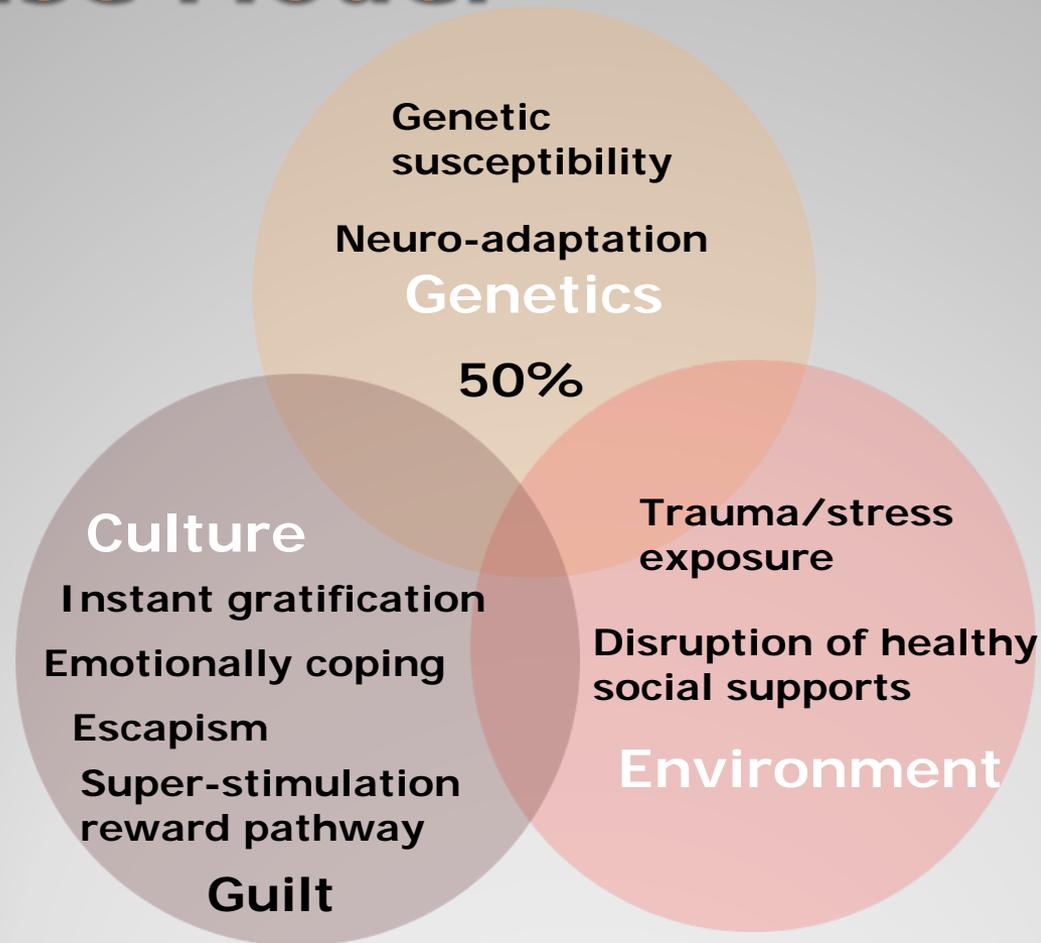
Simply put:

At the most basic level, chemical changes in the brain enforce that the drug is important to survival – more important than food, water, or family responsibilities.

- 3 Things Required for Survival
 - Food
 - Water
 - Dopamine (chemical in the brain; motivation, pleasure, love, ability to bond)
- Addiction Alters Dopamine Regulation
 - Certain level of dopamine naturally made in brain
 - Substances (opiates, alcohol, marijuana, nicotine) flood the “pleasure center” of the brain at higher level than we can naturally make
 - Brain wants to feel good and craves that release of dopamine
 - After even just a few months, structures in the brain change
 - Once these changes occur, that flood of dopamine (opiate) becomes synonymous with survival
 - Brain may never be able to make normal amount of dopamine

Let's talk Biology

Disease Model



Current Crisis

- CDC has labeled the opiate crisis an epidemic
- Michigan death rate due to opiates exceeds that of car crashes (since 2006)
- Prescription opiates are the leading cause of drug-related deaths in MI and across country
- Prescribers are dropping patients instead of connecting them with evidence-based addiction treatment
- Fentanyl and other new synthetic opiates are increasing the lethality of heroin

Governor's Opioid Task Force

- Prevention
 - Educate providers about appropriate prescribing
 - Increase medication-drop off sites
- Treatment
 - Increase availability of naloxone
 - Increase access to evidence-based treatment
- Policies
 - Improve current responses to provide better patient care
 - Replace the MAPS database for better function



Addressing the Crisis

Harm Reduction

- Decrease complications and prevent death
 - Does not encourage reckless using
 - Keep people alive until ready to change
 - Keep others safe
 - Decrease total cost to system
- Example: Driving
 - Risks of getting into a car: injury, death
 - Avoid risk totally: don't get in car
 - Wear seatbelt: Decrease risk of serious injury, death
 - Encouraging seatbelt use does not encourage reckless driving (educates about dangers, provides safety, etc)

Responding with Narcan (naloxone)

- Michigan Public Act 313 of 2014: laypersons are protected from criminal liability for administration of naloxone
 - Nationwide, programs have existed since 1990s
 - Michigan programs dramatically increased in past 2-3 years
- Michigan Public Act 462 of 2014: allows peace officers to carry naloxone for the purpose of aiding in opioid overdose rescue response
 - Over 220 law enforcement agencies in 24 states
 - Michigan has seen a dramatic increase in programs

Data Regarding Narcan Programs

- Pro
 - Decrease stigma (ripple effect...)
 - Reduced overdose death significantly (decrease use)
 - Cost-effective
 - Engages people at their level
 - Improves entrance into treatment
- Con
 - May not seek emergency treatment
 - May have complications from administration (rare)

Intake for Substance Abuse Treatment: Clinton County

Primary Drug	Client Count	Percentage
Alcohol	28	34.6%
Heroin	19	23.5%
Marijuana/hashish	12	14.8%
Other opiates/synthetics	11	13.6%
Cocaine/crack	7	8.6%
Other sedatives/hypnotics	2	2.5%
Methamphetamines	1	1.2%
Benzodiazepines	1	1.2%
Total Drug Use	81	100%

Intake for Substance Abuse Treatment: Gratiot County

Gratiot	Client Count	Percentage
Other opiates/synthetics	32	31.1%
Alcohol	31	30.10%
Heroin	15	14.6%
Marijuana/hashish	13	12.6%
Methamphetamines	7	6.8%
Cocaine/crack	2	1.9%
Other sedatives/hypnotics	1	1.0%
Non-prescription methadone	1	1.0%
Barbituates	1	1.0%
Total Drug Use	103	100%

Intake for Substance Abuse Treatment: Montcalm County

Primary Drug	Client Count	Percentage
Alcohol	32	26.2%
Heroin	28	23.0%
Marijuana/hashish	28	23.0%
Other opiates/synthetics	26	21.3%
Methamphetamines	4	3.3%
Cocaine/crack	2	1.6%
Benzodiazepines	1	0.8%
Other amphetamines	1	0.8%
Total Drug Use	122	100%

For every **1** death there are...



10 treatment admissions for abuse⁹

32 emergency dept visits for misuse or abuse⁶

130 people who abuse or are dependent⁷

825 nonmedical users⁷

Montcalm County Initiatives Thus Far

- Community-based naloxone distribution
 - 10 trainers trained
 - 50+ kits distributed since June
 - No reported reversals as of yet
- Law enforcement naloxone distribution
 - 36 law enforcement officers trained
 - 75 more to go! (including MSP Lakeview Post)
- Emergency Dep't naloxone project (planning stage)



Questions?



Year	Significance
3400 B.C.	Opium poppy is cultivated in lower Mesopotamia; it is referred to it as Hul Gil, or the 'joy plant'
460 B.C.	Hippocrates dismisses opium as magical but acknowledges it as medically useful
400 A.D.	Opium is first introduced to China by Arab traders
1300s	Disappears for two hundred years from European record; taboo during Holy Inquisition, anything from the East considered linked to the Devil
1527	Reintroduced in European medical literature as painkiller ("Stones of Immortality": black pills made of opium, citrus juice and gold)
1600s	Persian/Indian residents eat and drink opium mixtures for recreation; Queen Elizabeth I charter ships to purchase finest Indian opium
1729	Chinese emperor prohibits sale/use of opium except under license as medicine
Mid/late 1700s	British assumes control of opium growing districts of India, establishes monopoly on opium trade
1799	China's emperor bans all opium
1803	German scientist discovers active ingredient of opium: morphine; physicians feel opium has been "tamed"
1827	Commercial manufacture of morphine starts by E. Merck & Company
1839-1841	First Opium War: Chinese force foreign traders to surrender opium; British attack; British defeat Chinese and Hong Kong is ceded to the British
1843	Invention of syringes with hollow needles and injecting of morphine
1856	Second Opium War: British and French against China; opium is legalized in China
1874	Heroin synthesized; in early 1900s, heroin samples are mailed to morphine addicts to help them quit
1878	Britain passes Opium Act hoping to reduce opium consumption
1890	U.S. Congress imposes tax on opium and morphine
1900s	U.S. heroin addiction rises at alarming rates
1905	U.S. Congress bans nonmedical opium
July 1, 1973	DEA is formed

Pushes for Pain Management

- Pain *was* often undertreated, especially in Emergency Departments
 - American Pain Society*, American Pain Foundation* and others called it an 'epidemic of untreated pain'
- Paper published in *Pain* 1986 titled "Chronic Use of Opioid Analgesics in Non-Malignant Pain: Report of 38 Cases" by Portenoy* and Foley concluded on flawed and little evidence that *opioid maintenance therapy can be a safe alternative to no treatment or surgery to those with non-malignant pain*
 - Paper was frequently cited and opened door to broader prescribing of opioids
- 1995, American Pain Society* campaigned to make pain "the Fifth Vital Sign" due to its importance, to monitor alongside blood pressure, temperature, heartbeat and breathing
 - June 2016, the American Medical Association voted to remove pain as a fifth vital sign and remove it from professional standards

*Portenoy was director/president of these organizations and has disclosed relationships with more than a dozen companies, most of which produce opioid painkillers

Pushes for Pain Management, cont.

- 1996: Purdue Pharmacy introduces OxyContin (more to come...)
- 1998: Federation of State Medical Boards (FSMB) released policy reassuring doctors they wouldn't face regulatory action for prescribing large amount of narcotics if in the line of treatment
 - 2004: FSMB called on state medical boards to make under treatment of pain punishable
- 2000: the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) sets standards on pain assessment and management for healthcare organizations
 - The original publication from JCAHO, *Pain Assessment and Management: An Organizational Approach*, was sponsored by Purdue Pharma (manufacture of OxyContin)
 - This April, due to the rising opioid problems, JCAHO released a statement clarifying they never said they required the use of drugs to manage patient's pain, along with clarifying 5 other misconceptions
 - The latest JCAHO guide, *Pain Management: A Systems Approach to Improving Quality and Safety* is sponsored by Janssen Pharmaceuticals, Inc. (producers of Duragesic patch and Ultram)

OxyContin

- OxyContin was introduced to market by Purdue Pharma in 1996
 - 12 hour, sustained release form of oxycodone
- FDA concluded OxyContin had not been shown to have significant advantage over conventional , immediate-release oxycodone other than decreased dosing
- OxyContin was aggressively marketed and highly promoted
 - Marketing was targeted at physicians with highest opioid prescribing habits
 - Purdue claimed the risk of addiction from OxyContin “extremely small”; sales reps message was risk was <1% (reality: up to 50%)
 - Purdue has been sued and paid millions in fines for misbranding
- Sales grew from \$48 million in 1996 to almost \$1.1 billion in 2000
- Between 1996 and 2002, Purdue funded over 20,000 pain educational programs
- Drug abusers quickly learned how to crush the controlled-release tablet to create a quick high
 - Purdue’s own testing in 1995 showed 68% of oxycodone is released by crushing
- Higher prescribing of OxyContin correlated with higher levels of abuse, diversion, addiction and increasing overdoses
- Nonmedical use of OxyContin doubled between 2002 and 2004
- The richest newcomer to Forbes 2015 list of America’s Richest Families was the Sackler family, owners of Purdue Pharma, coming in at a stunning \$14 billion.