

Heroin Resurgence in America: Implications for Policy and Practice



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Outline

- Background and Epidemiology
- Understanding Addiction
- Prescribing practices
- Physicians Role in Identification and Referral to treatment
- Treatment



BACKGROUND AND EPIDEMIOLOGY

History of opioids

- Opiate derived from opium
- “Opos” Greek word for “juice”
 - Liquid collected from unripe seed capsule of *Papaver somniferum* aka Opium Poppy
- Referenced in Sumerian clay tablets in 3000 B.C
- Expanded to Asia and Europe in Middle Ages
- Considered a cure for all ailments



Opium to morphine

1803: Pharmacy Apprentice
Friedrich Wilhelm Adam
Sertürner Isolated
Morphium from the poppy
seed

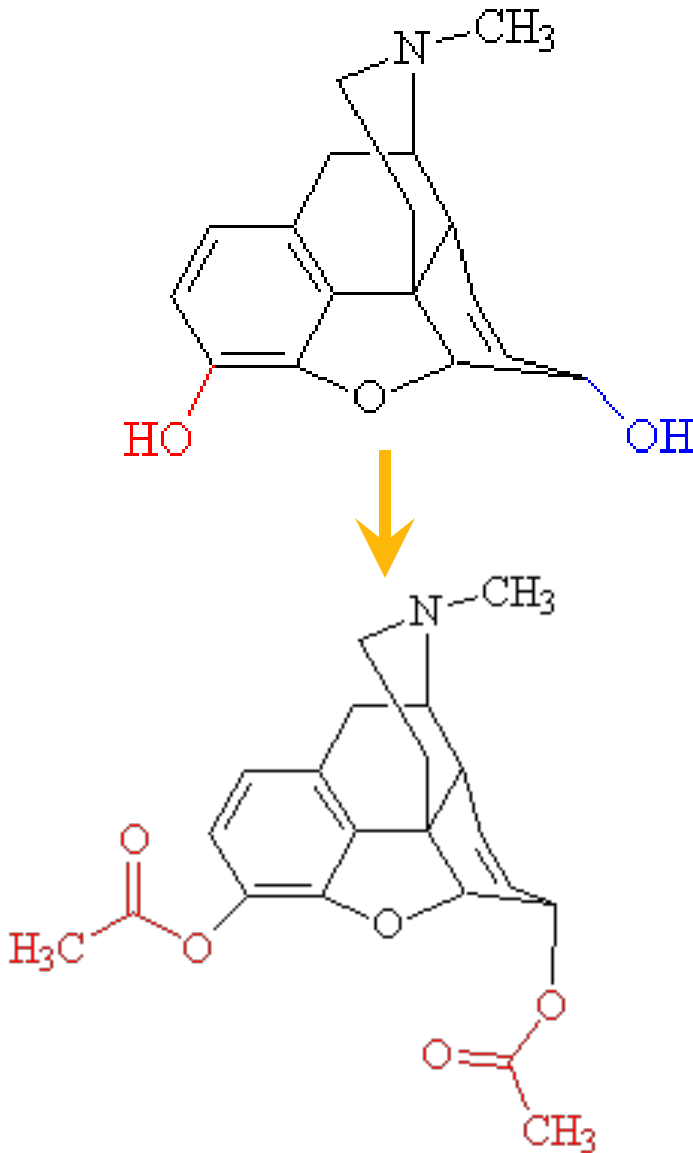
Named Morphine after
Morpheus the Greek god of
dreams



Morphine in the 1850's-60's

- Eliminated severe pain associated with trauma and medical operations
- Eliminated danger of overdose associated with raw poppy juice
- “Wonder drug” with euphoric side effects
- In time, tens of thousands civil war soldiers became morphine addicts

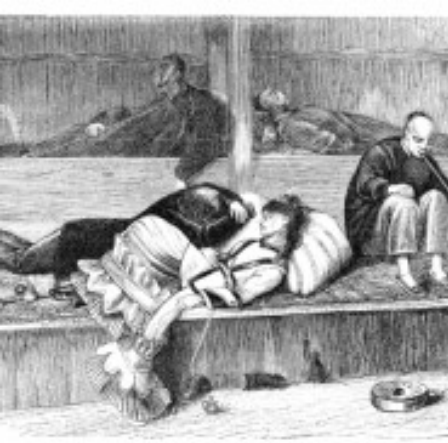
Morphine to heroin



- 1874: Heroin first isolated from morphine and marketed as the safe effective alternative to morphine
- Produced and marketed by Bayer Company
- 1900's: heroin abuse and addiction common

Drug regulating laws

- Early 1900's: congress and many states began to pass laws regulating sale and use of cocaine and opiates
- 1906: Pure Food and Drug Act of 1906
 - Requiring OTC meds to label if contents include morphine, cocaine, cannabis or chloral hydrate
- 1914: Harrison Narcotic Act
 - Narcotics and cocaine illegal
- 1956: Federal Narcotics Control Act
 - Minimum mandatory sentences for violation of law
- 1970: Controlled Substances Act
 - schedules drugs according to potential for addiction



America's heroin history

- Significant majority of American heroin addicts in the mid-1800's were middle- and upper-class women who bought the drug for their medicine cabinet
- Public perception of opiate addicts: depraved, poor, and foreign
- Harlem jazz scene in 1930-40's rejuvenated heroin
- Supplied through "French connection" collaboration between gangsters in Marseille and Sicilian Mafia

America's heroin history

- 1960's concerns for rampant abuse by Vietnam war servicemen
 - 10-15% addiction rate
- By late 60's, three-quarters of a million Americans were addicted
 - predominantly young minority urban men
- 1980's-90's purity of street heroin led to more effective snorting and smoking
- 1990's rate increased significantly with south American cartels getting into the heroin game

Heroin today

- Afghanistan
 - 80% of world production
 - 4% of US supply
- Mexico and Colombia
 - Biggest US suppliers (Office of National Drug Control Policy)
- Saturation of heroin on the market has overall impact on lowered global prices
 - Heroin \$5/bag vs 1 vicodin \$5/pill (Surratt H)
 - Cheap and accessible alternative to prescription opioids!

The Problem

- An estimated 22.1 million people aged 12 or older have a diagnosable alcohol or illicit drug use disorder (SAMHSA, 2011)
- Drug overdose was the leading cause of injury death in 2012 – age group 25-64 (CDC, 2014)
- Nearly 15,000 people die every year of overdoses involving prescription painkillers
 - 70% of overdose deaths involve opioids
- 2012 an estimated 600,000 people reported heroin use in the past year, up from 300,000 in 2007 (SAMHSA, 2013)

Cost of Addiction

- 559 Billion USD annually for all substances (NIDA 2011)
- 181B USD for illicit drugs
 - health care, productivity loss, crime, incarceration and drug enforcement
- 72.5B for opioid abuse alone (Volkow 2014)
 - health and economic costs are similar to those associated with other chronic diseases such as asthma and HIV infection

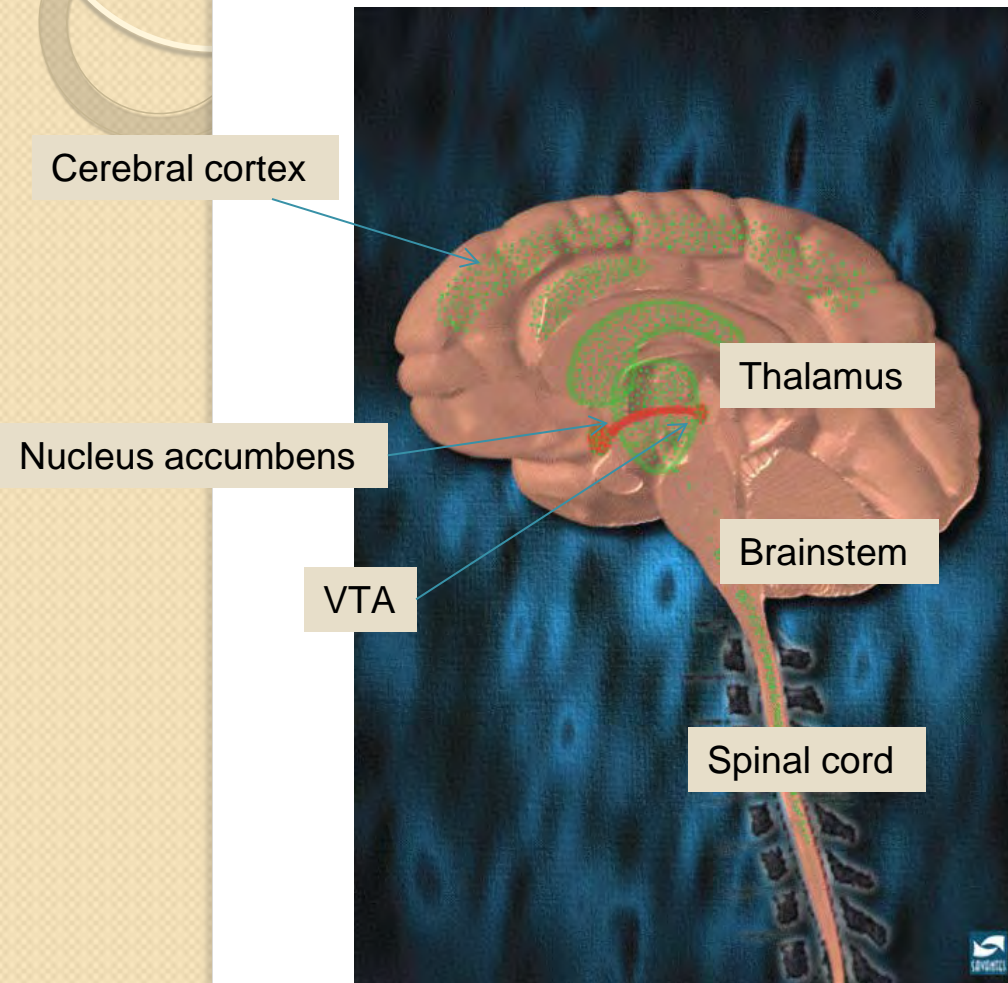
Addiction Big Pharma Crime DEA Deaths doctors
doctor shopping drug monitoring program education FDA Heroin
hydrocodone methadone naloxone Narcan narcotics OP
Opana opiates opioid overdose
overdoses OXY oxy-to-heroin oxycodone
Oxycontin pain clinics painkillers pain
medication Percocet pharmaceutical pharmacy pill mills
pills pills-to-heroin polictics prescription drug
abuse prescription drug monitoring program
prescriptions Purdue Pharma roxycodone Schedule II Narcotics Teen
deaths Vicodin Xanax

UNDERSTANDING ADDICTION

How opioids affect the brain and body

- Mu, Delta, and Kappa receptors in brain, spinal cord, GI, other parts
- When activated: Euphoria, Analgesia , Confusion, Constipation, Respiratory depression
- Hypoxia: short and long term psychological and neurological effects, including coma and permanent brain damage
- Long-term effects of opioid addiction on the brain less clearly known
 - Studies have shown some deterioration of the brain's white matter due to heroin use
 - May affect decision-making abilities, the ability to regulate behavior, and responses to stressful situations (Wollman et al 2015)

Disease of addiction



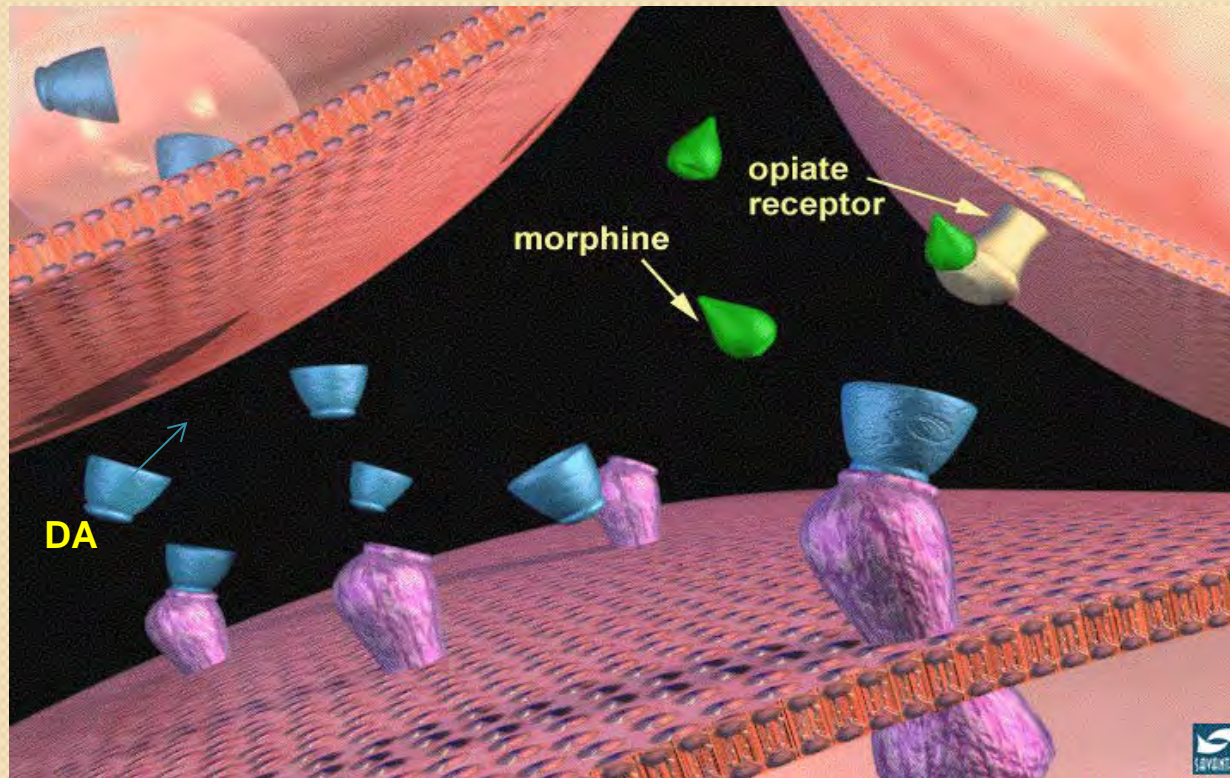
- Opioid travels quickly to the brain through the bloodstream
- Converted to morphine
- Morphine binds to opiate receptors within reward pathway
 - VTA, NA, cortex
- Morphine also binds to areas in the pain pathway
 - Thalamus, brainstem, and spinal cord

Receptors up close: NA synapse

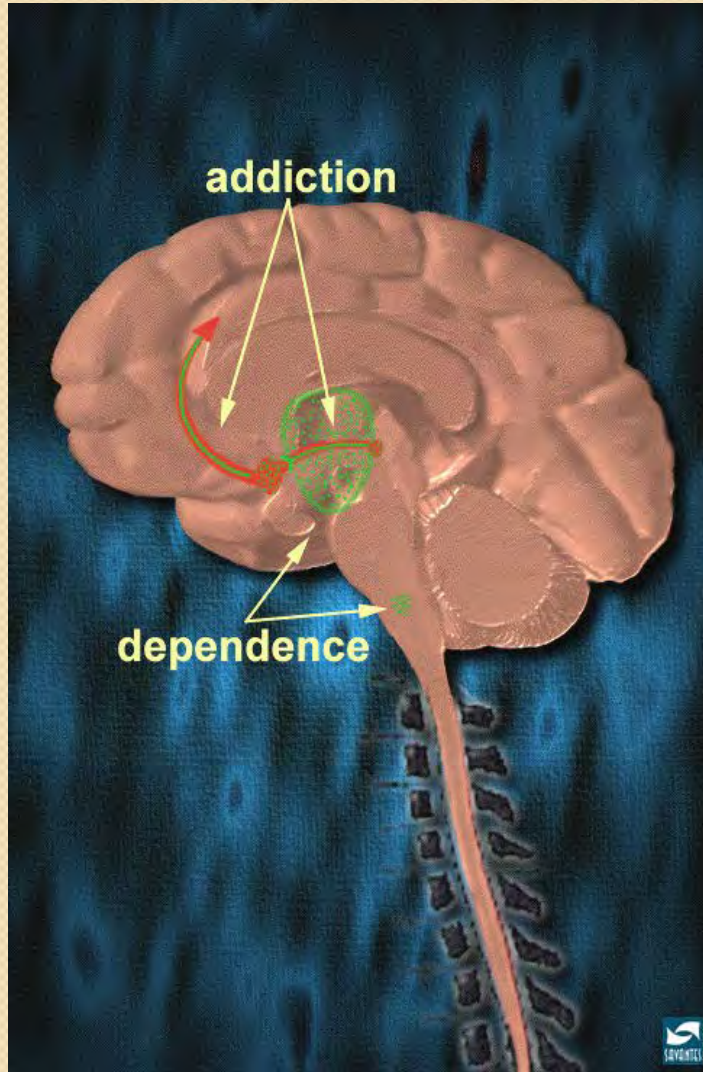
Opiates bind to opiate R on the neighboring terminal

Sends signal to DA terminal to release more DA

→ DA surge = pleasure

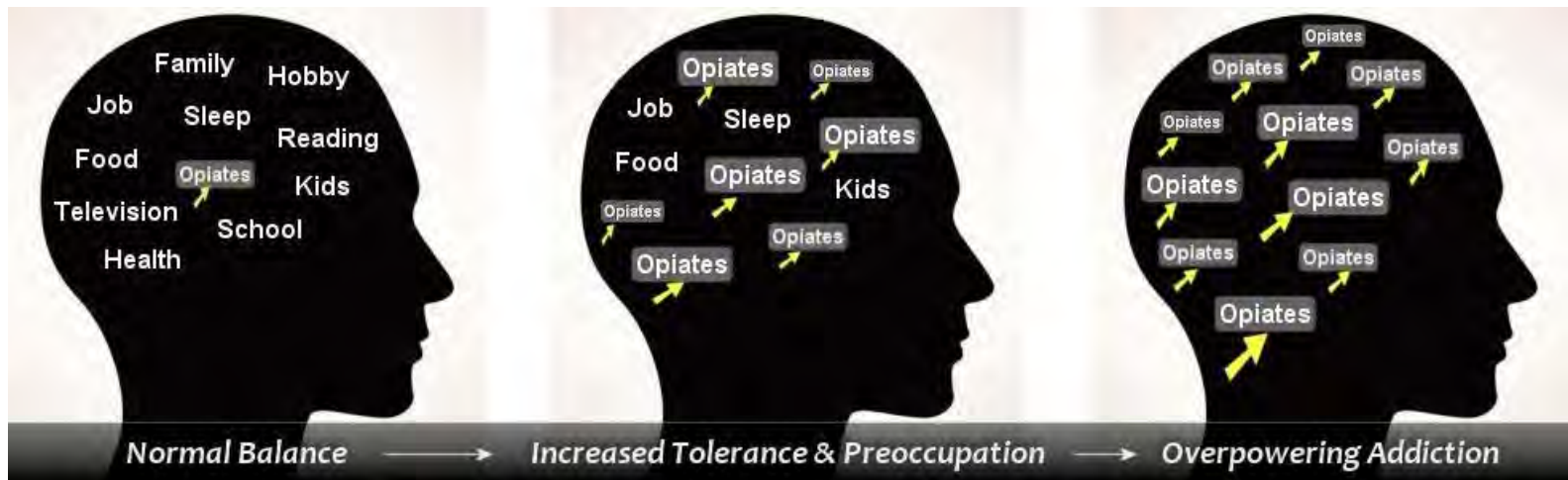


Relationship between addiction and dependence



- 2 different areas responsible for addiction and dependence
- Addiction: reward pathway
- Dependence: pain pathway
- Possible to be dependent without addiction
- Acute pain control post op is unlikely to lead to addiction

The Addicted Mind



DSMV: Opiate Use Disorder

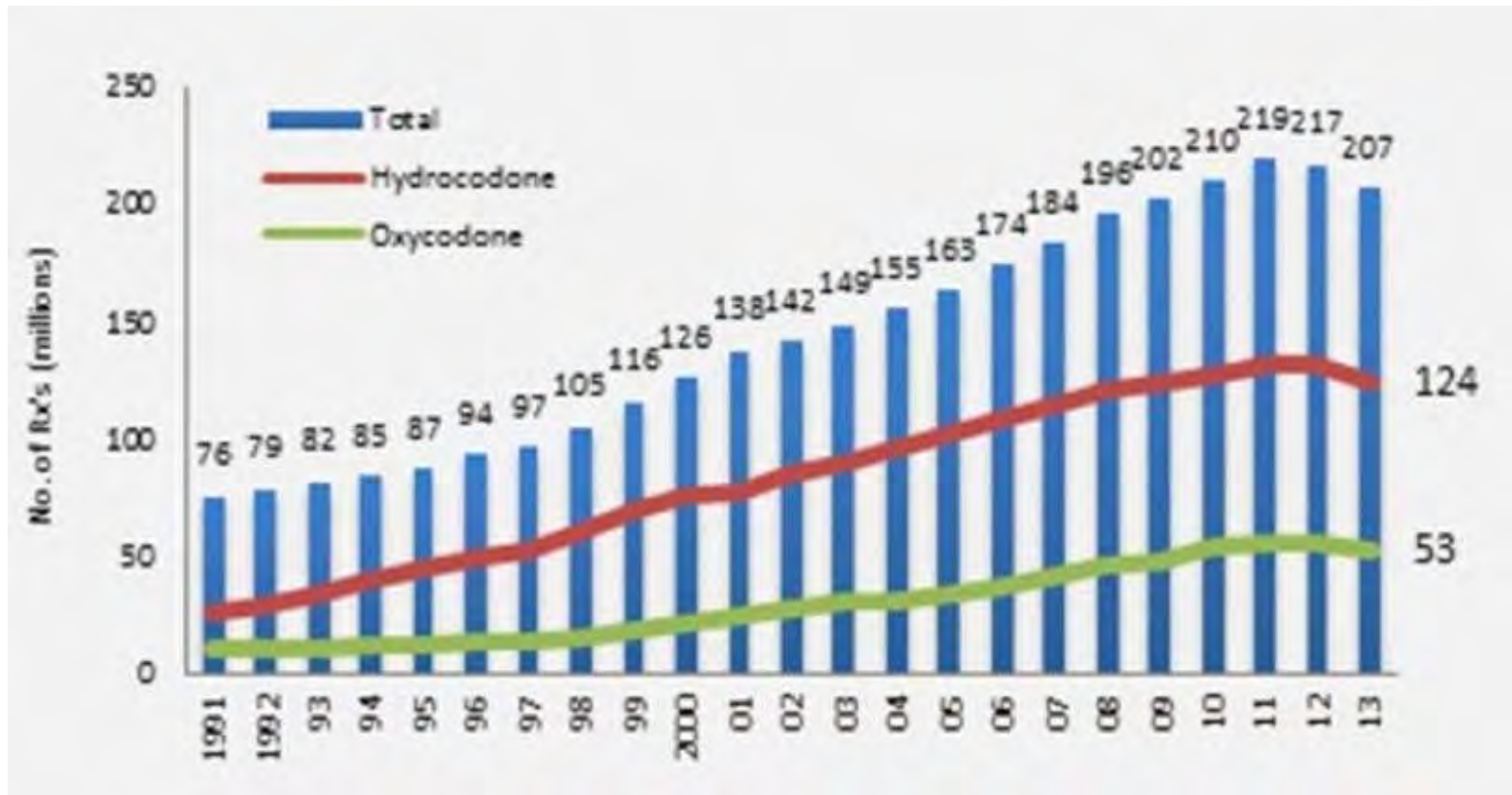
- DSM-IV substance abuse and substance dependence now a single disorder measured on a continuum from mild to severe (DSM V 2013)
- A problematic pattern of opioid use leading to clinically significant impairment or distress, as manifested by at least 2/11 criteria within a 12-month period
- Criterion A criteria fit within overarching groups:
 - Impaired control, social impairment, risky use, and pharmacological criteria

PRESCRIBING PRACTICES



Precipitous increase in Opioid Rx

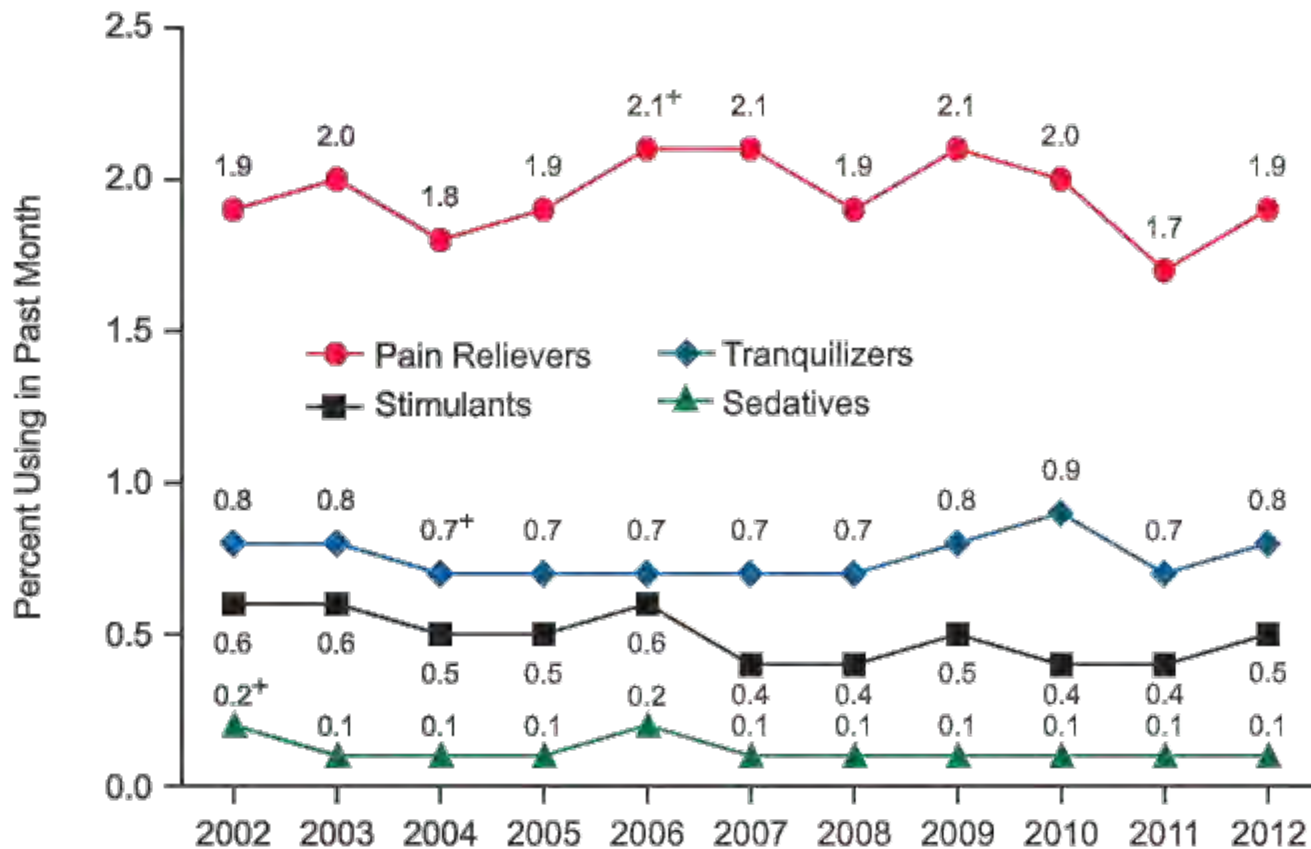
Opioid Prescriptions Dispensed by US Retail Pharmacies 1991-2013



IMS Health, Vector One: National, years 1991-1996, Data Extracted 2011. IMS Health, National Prescription Audit, years 1997-2013, Data Extracted 2014.

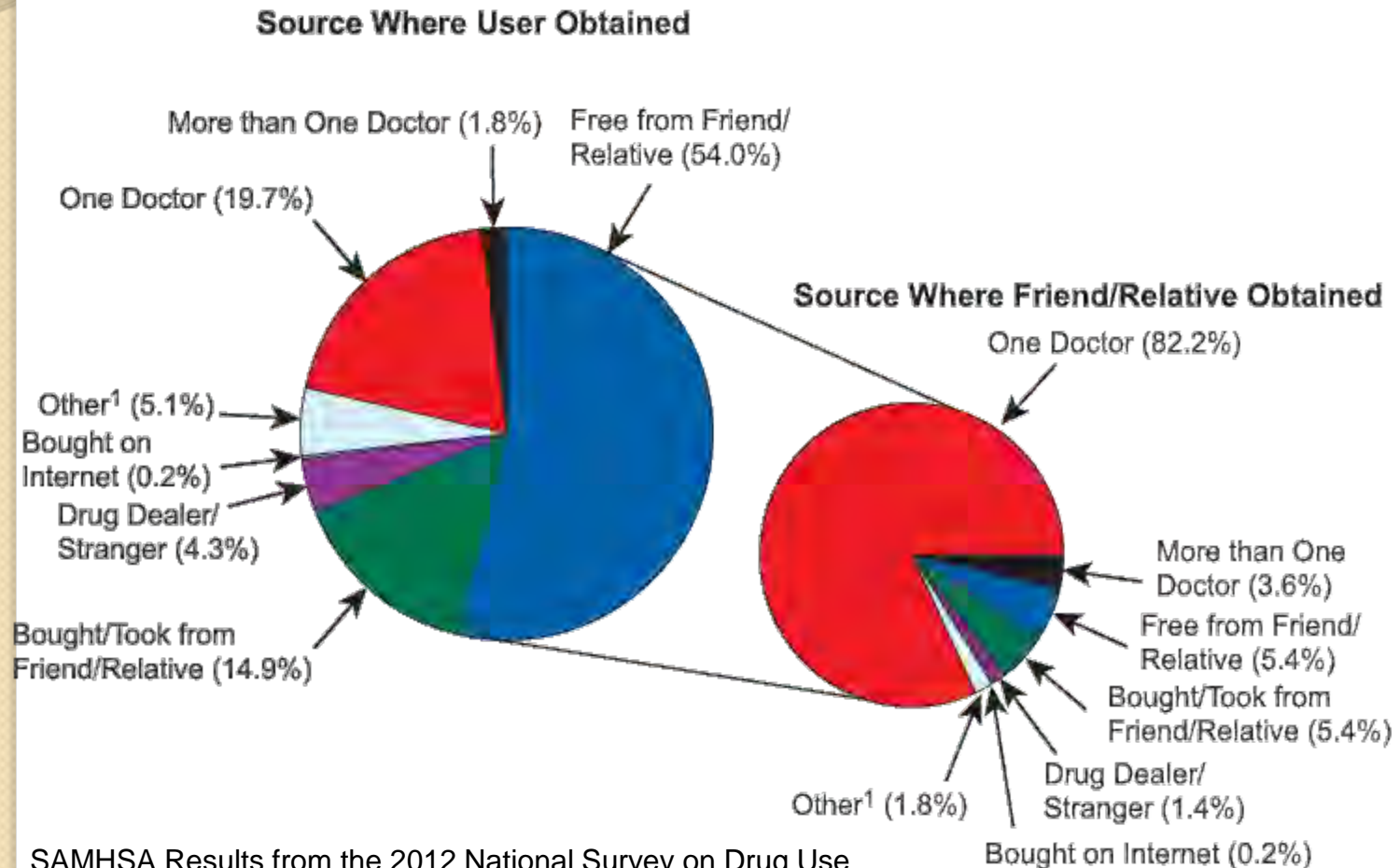
Pain relievers exceed other non medical prescription drug use

Past Month Nonmedical Use of Types of Psychotherapeutic Drugs among Persons Aged 12 or Older: 2002-2012



Where do the opioids come from?

**Source Where Pain Relievers Were Obtained for Most Recent Nonmedical Use
among Past Year Users Aged 12 or Older: 2011-2012**



SAMHSA Results from the 2012 National Survey on Drug Use and Health: Summary of National Findings

No shortage of options

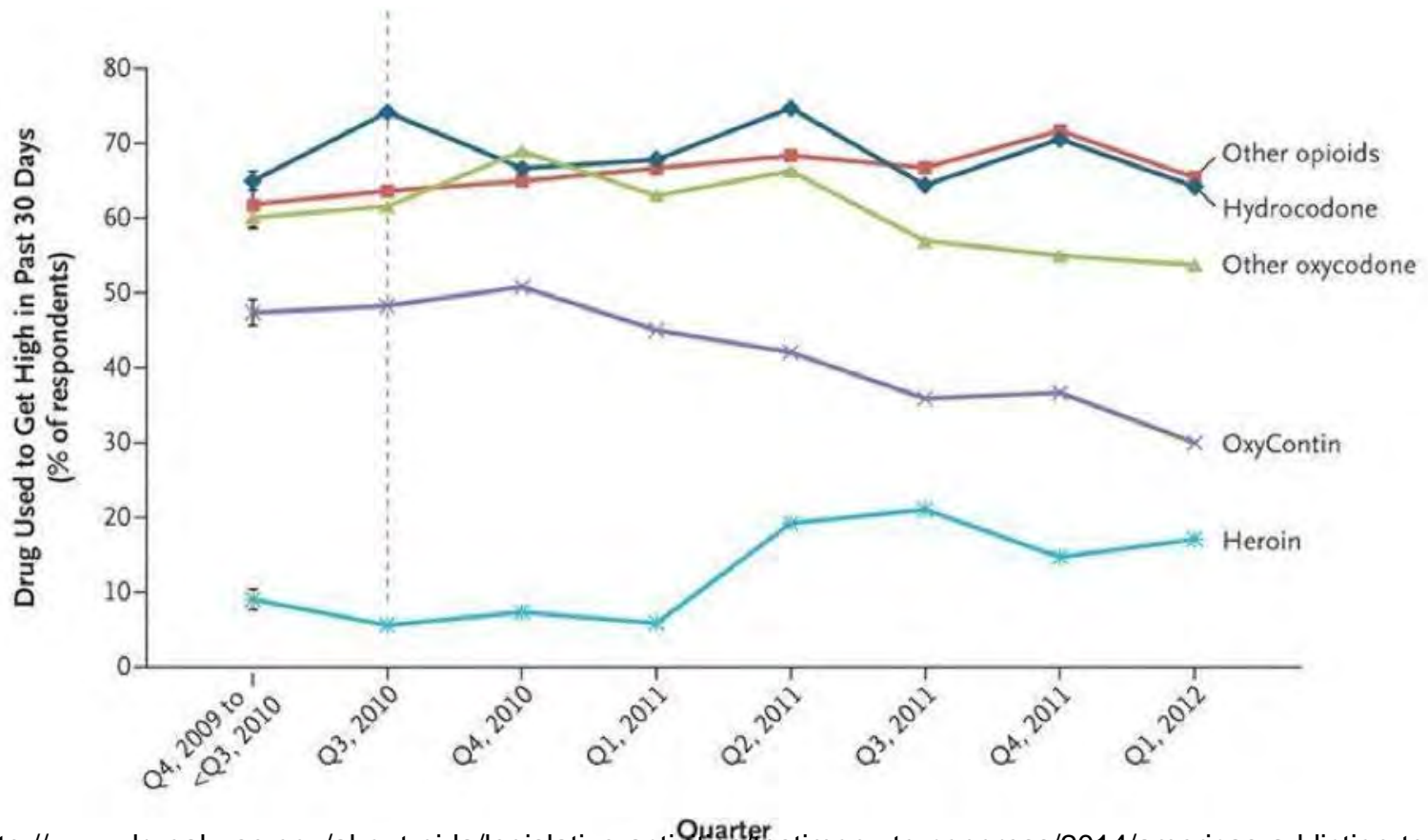
Name	Commercial & Street Names
Codeine	<i>Empirin with Codeine, Fiorinal with Codeine, Robitussin A-C, Tylenol with Codeine</i> ; Captain Cody, Cody, schoolboy; (with glutethimide: doors & fours, loads, pancakes and syrup)
Morphine	<i>Roxanol, Duramorph</i> ; M, Miss Emma, monkey, white stuff
Methadone	<i>Methadose, Dolophine</i> ; fizzies, amidone, (with MDMA: chocolate chip cookies)
Fentanyl and analogs	<i>Actiq, Duragesic, Sublimaze</i> ; Apache, China girl, China white, dance fever, friend, goodfella, jackpot, murder 8, TNT, Tango and Cash
Opioid pain relievers: Oxycodone, Hydrocodone, Hydromorphon, Oxymorphone, Meperidine, Propoxyphene	<i>Tylox, Oxycontin, Percodan, Percocet</i> : Oxy, O.C., oxycotton, oxycet, hillbilly heroin, percs <i>Vicodin, Lortab, Lorcet</i> ; Vike, Watson-387 <i>Dilaudid</i> ; juice, smack, D, footballs, dillies <i>Opana, Numporphan, Numorphone</i> ; biscuits, blue heaven, blues, Mrs. O, octagons, stop signs, O bomb <i>Demerol, meperidine hydrochloride</i> ; demmies, pain killer <i>Darvon, Darvocet</i>

Changes in the drug scene

- Abuse deterrent oxycontin introduced Aug 2010
 - “Tamper deterrent” not crushable
 - Slow acting formulation eliminates euphoria
 - Subsequent decrease in poison control cases was seen
- Increase in state and national efforts to combat prescription abuse
 - Prescription drug monitoring programs (49 states, and DC)
 - Drug diversion control efforts
 - Expanded guidelines for responsible opioid prescribing
 - Feb 2015: Rescheduling of hydrocodone combination drugs from III to II
- Quarterly Opioid Rx rates peaked in 2012 at 62 million, now trending down to 60mil in 4th Q of 2013. (Dart et al 2015)

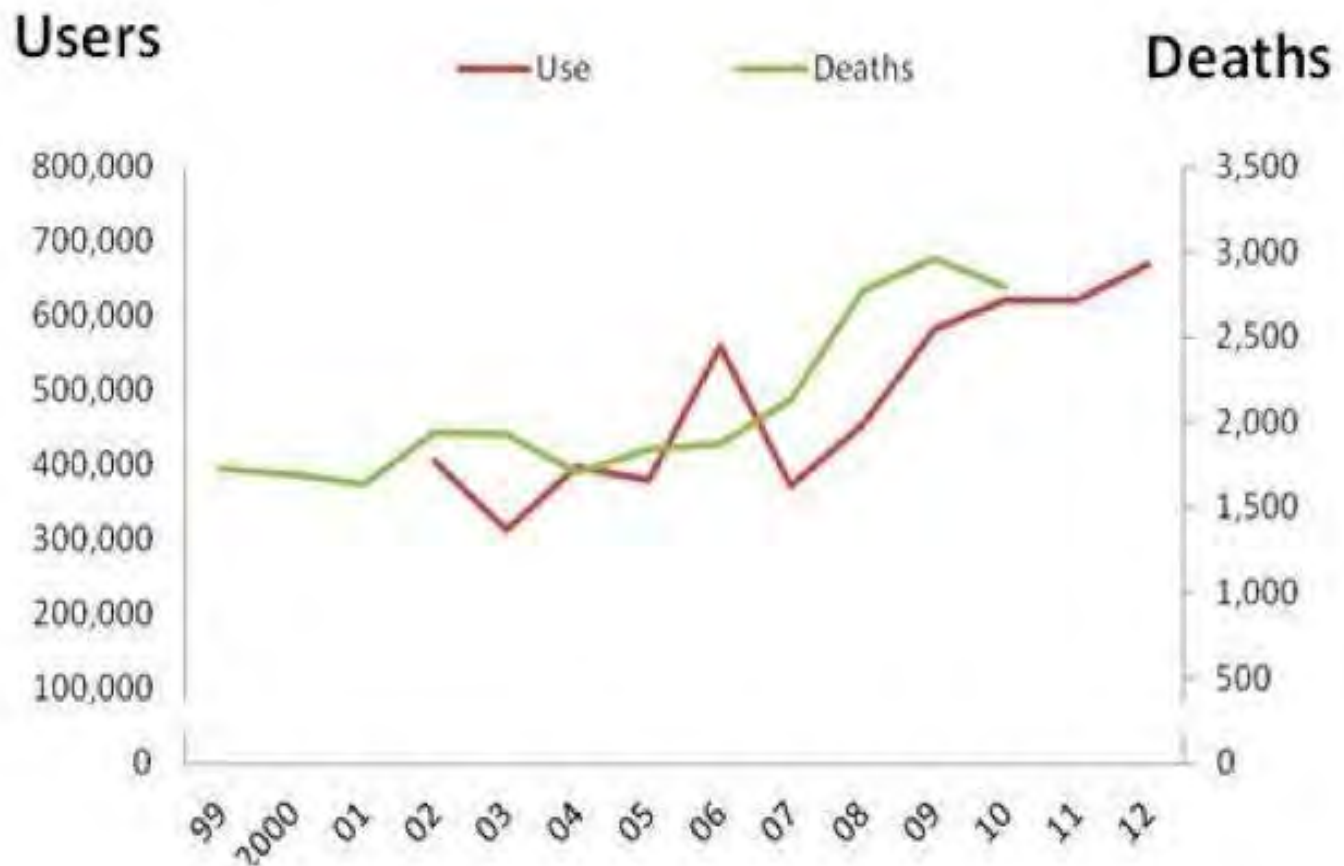
Unintended consequences

Rx opioid abusers shift to heroin as Rx drugs become less available



Heroin use and mortality on the rise

Trend in Prevalence of Heroin Use and Heroin Related Overdose Death in the US (1999-2012)



SAMSHA: 2012 National Survey on Drug Use and Health: Summary of National Findings, 2013

Has the face of the heroin epidemic changed?

- Quantitative and qualitative survey of 2811 opioid users in drug treatment across 48 states (Cicero et al 2014)
- Compared to heroin users 50 years ago
 - Recent heroin users are older (23 vs 16) white men, women, suburban
 - Introduced to opioids through prescription drugs
 - Using heroin as a cheaper and more accessible alternative to preferred prescription opioid

The Physicians Role



Intervention

SBIRT

- **S**creening **B**rief **I**ntervention and **R**eferral to **T**reatment (Ghitza 2014, Madras 2009)
 - Evidence based early intervention strategy
 - Identify and intervene with at risk and high risk drug and/or alcohol users in clinical setting
 - Goal is to deliver a brief intervention OR
 - Make referral for treatment

SBIRT

- Developed by SAMSHA following IOM recommendation calling for community-based screening for health risk behaviors, including substance use.
- Quick Screening Tools:
 - **NIAA** (National Institute on Alcohol Abuse and Alcoholism) 3 question screen for alcohol
 - Proceed to longer screening tool e.g. AUDIT (Alcohol use disorder Identification test)
 - **NIDA** (National Institute on Drug Abuse)
 - Proceed to longer screening tool e.g. ASSIST (Alcohol Smoking and Substance Involvement Screening Test)

NIDA Quick Screen

Quick Screen Question: In the past year, how often have you used the following?	Never	Once or twice	Monthly	Weekly	Daily or almost daily
Alcohol For men, 5 or more drinks a day For women, 4 or more drinks a day					
Tobacco Products					
Prescription drugs for Non-Medical Reasons					
Illegal drugs					

If yes to use of illegal drugs or prescription drugs for non medical reasons proceed to Question 1 of the NIDA modified Assist



ASSIST

Question 1 of 8, NIDA Modified ASSIST	Yes	No
In your <i>LIFETIME</i>, which of the following substances have you ever used? * Note for Physicians: For prescription medications, please report non medical use only.		
Cannabis		
Cocaine		
Prescription Stimulants		
Methamphetamine		
Inhalants		
Sedatives or Sleeping pills		
Hallucinogens		
Street Opioids		
Prescription Opioids		
Other – Specify		

NIDA Modified Assist: Risk Stratification

Score
0-3

Score
4-26

Score
27+

Low Risk

Moderate Risk

High Risk

Provide feedback
Reinforce abstinence
Offer continuing support

Provide feedback
Advise, Assess and Assist
Consider referral based on clinical judgment
Offer continuing support

Provide feedback on the screening results
Advise assess and Assist
Arrange referral
Offer continuing support

Other Drug Screening Tools

- DAST: Drug Abuse screening tool
 - 28 questions: Exhibited valid psychometric properties and sensitive screening instrument for drugs other than alcohol (Yudko 2007)
 - Sample questions
 - Have you ever been in trouble at work because of drug abuse?
 - Have you ever been in a hospital for medical problems related to your drug use?
 - Has drug abuse ever created problems between you and your spouse?

CRAFFT: Adolescent Screen

2 positive items is 80% specific and 92% sensitive for dependence (Knight et al 2002)

- **C** Have you ever ridden in a **CAR** driven by someone (including yourself) who was “high” or had been using alcohol or other drugs?
- **R** Do you ever use alcohol or other drugs to **RELAX**, feel better about yourself, or fit in?
- **A** Do you ever use alcohol or other drugs while you are **ALONE**?
- **F** Do you ever **FORGET** things you did while using alcohol or other drugs?
- **F** Do your family or **FRIENDS** ever tell you that you should cut down on your drinking or drug use?
- **T** Have you ever gotten into **TROUBLE** while you were using alcohol or other drugs?

sBI/RT

- Brief Intervention
 - Non confrontational encounter between health professional and patient
 - Improve chance that patient will reduce risky drug use behavior
 - *Goes beyond sharing of simple advice*
 - Give the patient tools to change beliefs about their substance use and coping skills for situations that exacerbate use



STAGES OF CHANGE

Brief Intervention

- Advise: Recommend quitting, give specific medical reasons
 - Educate on risk of even small amount of drug use, impaired judgment leading to risky behaviors, and refer or address co-morbid psychiatric conditions
- Assess: *Given what we've talked about, do you want to change your drug use?"*
 - Leave the door open for patients who are not ready
- Assist: Develop a change plan. Prescribe support meds as appropriate. Follow up in 1-2 weeks.

SBI RT

- Brief treatment:
 - moderate to high risk user
 - Emphasizing motivation to change and patient empowerment
 - Limited number of highly focused and structured clinical sessions
- Referral to treatment:
 - High risk user
 - Unable to limit use
 - Specialized treatment for substance use disorder

Does it work?

- NIDA and SAMSHA analysis of 459,599 patients 6 month follow up referred for brief intervention (16%) or treatment (4%) (Madras 2009)
- Decrease in illicit drug use rates by 67.7% ($p < 0.001$)
 - 64% fewer arrests, 45% reduction in homelessness, 31% with fewer emotional problems
- Can be implemented in multiple health setting by various levels of health care providers

Where do we go from here?

- Education at medical school and residency level
- Routine screening and monitoring for substance abuse and mental health problems
- Prescribing opioids only when other treatments have not been effective for pain
- Prescribing only the quantity of painkillers needed based on the expected length of pain
- More robust *national* prescription drug monitoring program
- Expanded access to substance abuse treatment programs and medication assisted therapies
- Expanded access to naloxone to prevent death by overdose

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