Assessing the Relationship Between Prescription Opioid Nonmedical Use and Heroin Use

Christopher M. Jones, PharmD, MPH

CDR, US Public Health Service

Director, Division of Science Policy

Office of the Assistant Secretary for Planning and Evaluation



U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

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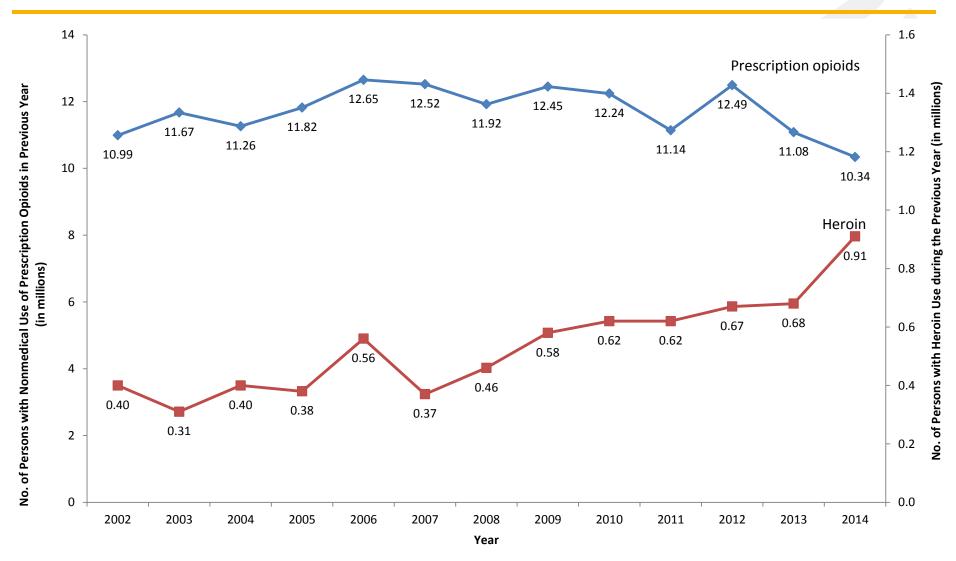
Overview

- Trends in Rx opioid and heroin use
- Heroin use among nonmedical users of Rx opioids
- Influence of Rx opioid abuse prevention policies
- Policy response
- Conclusions

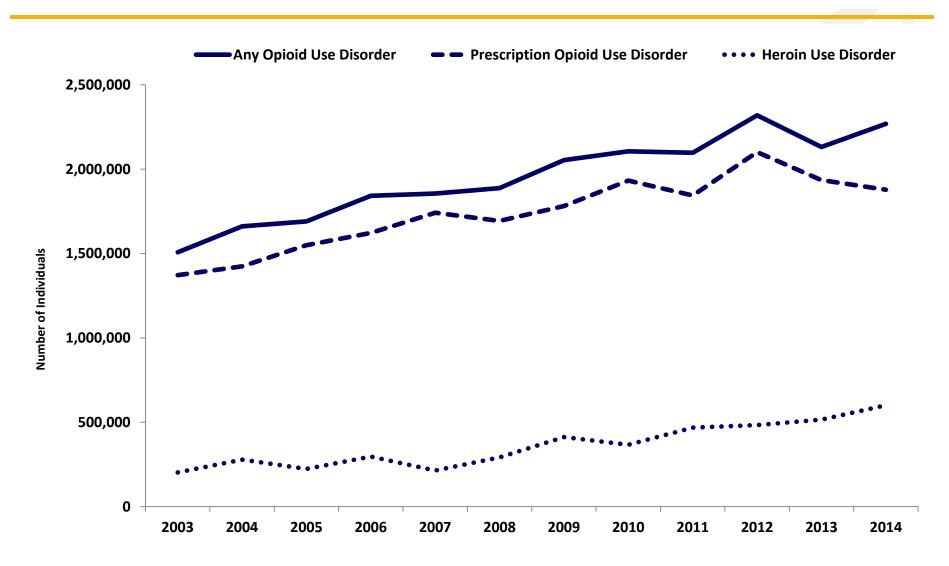
RX OPIOID AND HEROIN USE TRENDS

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Past year nonmedical use of prescription opioids and heroin use



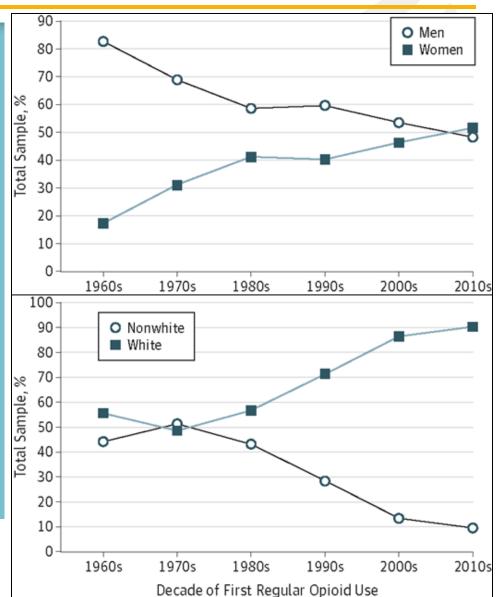
Past year opioid use disorders, US, 2003-2014



Changing demographics of heroin use

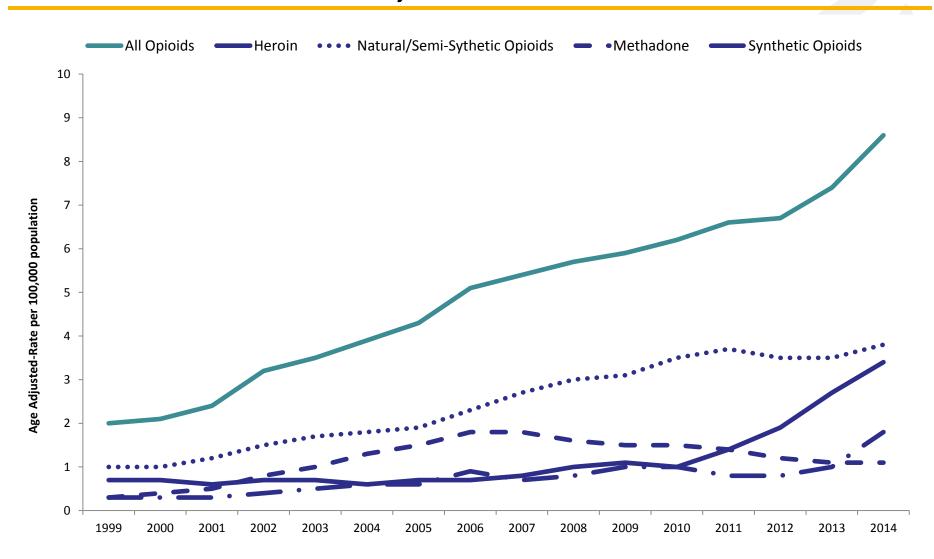
Heroin Use Has INCREASED Among Most Demographic Groups

	2002-2004*	2011-2013*	% CHANGE	
SEX				
Male	2.4	3.6	50%	
Female	8.0	1.6	100%	
AGE, YEARS				
12-17	1.8	1.6		
18-25	3.5	7.3	109%	
26 or older	1.2	1.9	58%	
RACE/ETHNICITY				
Non-Hispanic white	1.4	3	114%	
Other	2	3 1.7		
ANNUAL HOUSEHOLD	INCOME			
Less than \$20,000	3.4	5.5	62%	
\$20,000-\$49,999	1.3	2.3	77%	
\$50,000 or more	1	1.6	60%	
HEALTH INSURANCE C	OVERAGE			
None	4.2	6.7	60%	
Medicaid	4.3	4.7		
Private or other	0.8	1.3	63%	

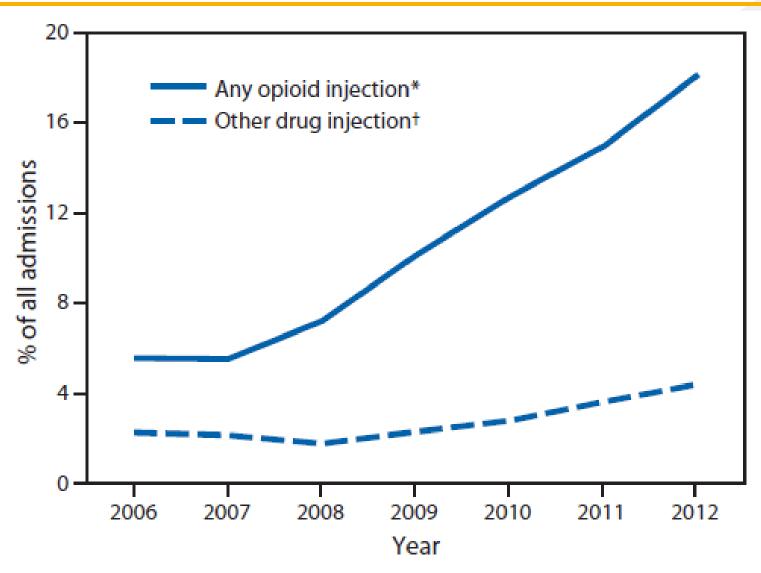


Source: Jones CM et al. MMWR 2016; Cicero et al JAMA Psychiatry 2014.

Opioid-related overdose deaths, US, 1999-2014



Injection drug use increasing in the U.S.



Source: Zibbell et al. MMWR May 8, 2015 / 64(17);453-458

Emerging issues

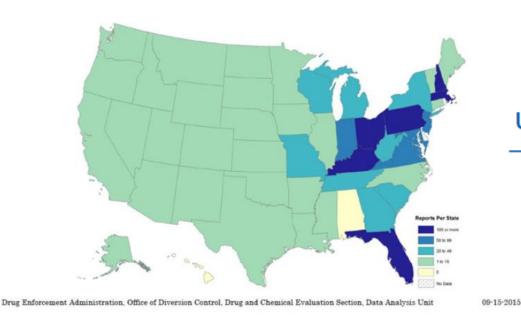
Morbidity and Mortality Weekly Report

Community Outbreak of HIV Infection Linked to Injection Drug Use of Oxymorphone — Indiana, 2015

Fentanyl reports in NFLIS, by State July - December 2014

Morbidity and Mortality Weekly Report

May 8, 2015

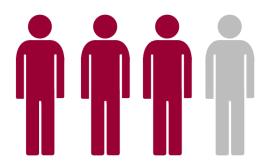


Increases in Hepatitis C Virus
Infection Related to Injection Drug
Use Among Persons Aged ≤30 Years
— Kentucky, Tennessee, Virginia, and
West Virginia, 2006–2012

HEROIN USE AMONG NONMEDICAL USERS OF RX OPIOIDS

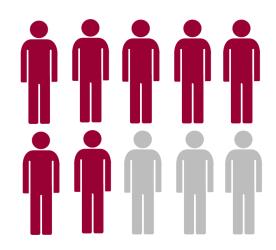
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Nonmedical use of Rx opioids significant risk factor for heroin use



3 out of 4 people

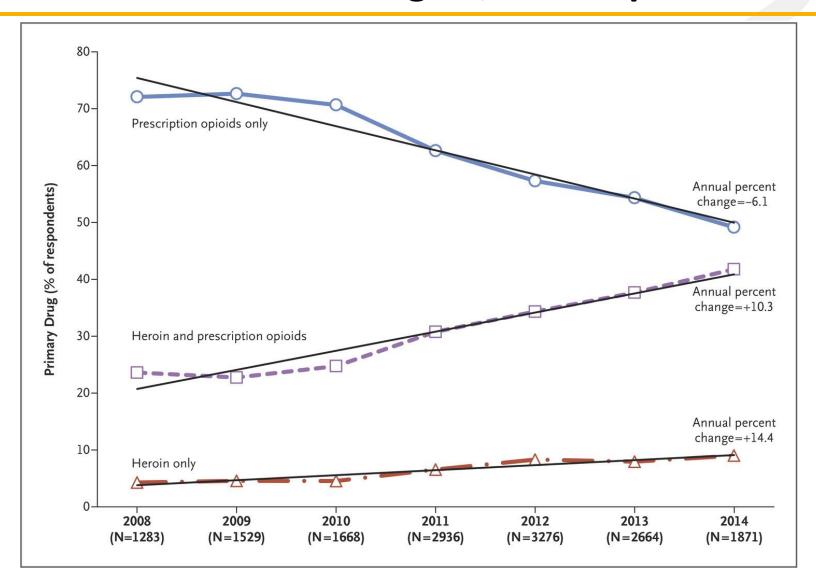
who used heroin in the past year misused opioids first



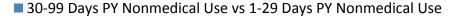
7 out of 10 people

who used heroin in the past year also misused opioids in the past year

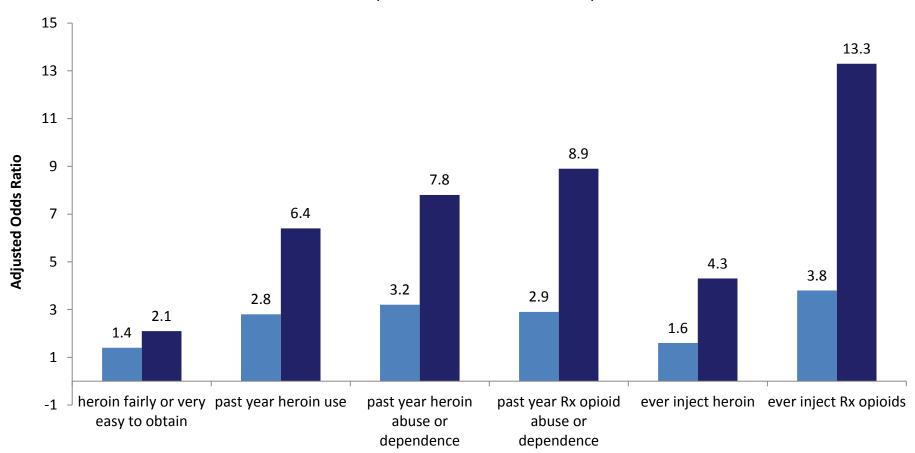
National Rates of Abuse of Opioids in the Previous Month among 15,227 Respondents



Risk of heroin use and high-risk behaviors by frequency of Rx opioid nonmedical use



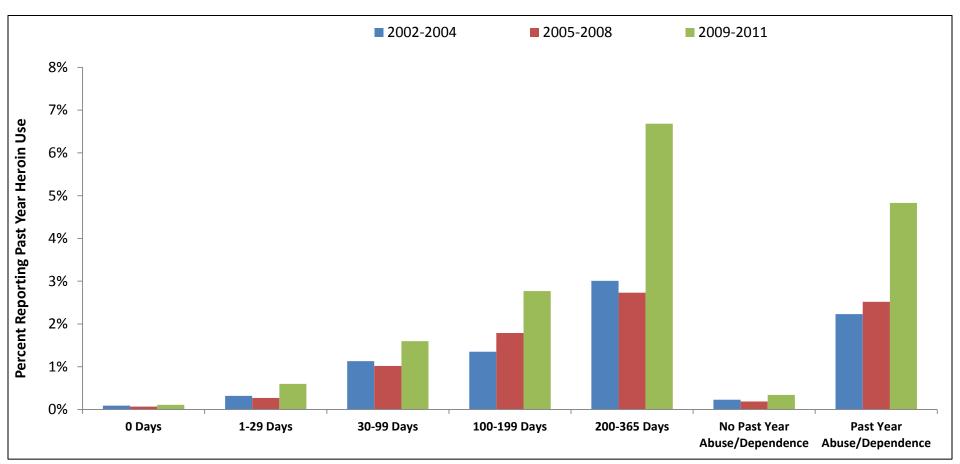




Source: Jones, C.M., Heroin use and heroin use risk behaviors among nonmedical users of prescription opioid pain relievers – United States, 2002–2004 and 2008–2010. Drug Alcohol Depend. (2013). Slide credit – Grant Baldwin, CDC

Frequent nonmedical users of Rx opioids and those with abuse/dependence most likely to initiate heroin

- 3.6% of nonmedical users of Rx opioids had initiated heroin use within 5 years of initiating nonmedical use
- Initiation rate of <1.0 per year

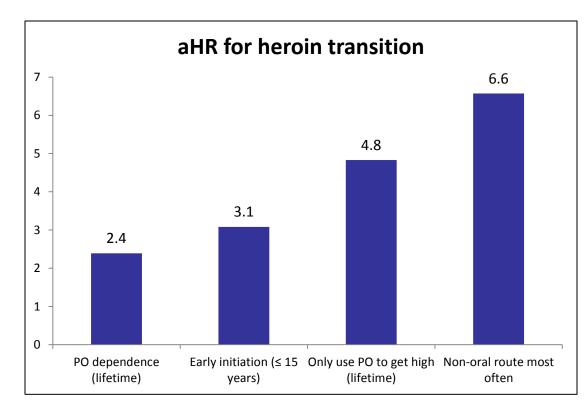


Source: Muhuri et al., Associations of Nonmedical Pain Reliever Use and Initiation of Heroin Use in the United States. SAMHSA, 2013

Heroin initiation rates among people nonmedically using Rx opioids

- Carlson et al 2016
- Columbus, Ohio
- Age 18-23 at recruitment in 2009-2010
- NMU of Rx opioids ≥ 5 day in past 90 days
- No Hx of lifetime opioid dependence
- No Hx of heroin use or IDU
- Not involved in CJ system or SUD Tx in past 30 days
- Followed for 3 years

- 27 of 362 (7.5%) initiated heroin use during 36 months of study
- Transition rate of 2.8% per year



Circumstances of Rx opioid nonmedical use and heroin initiation

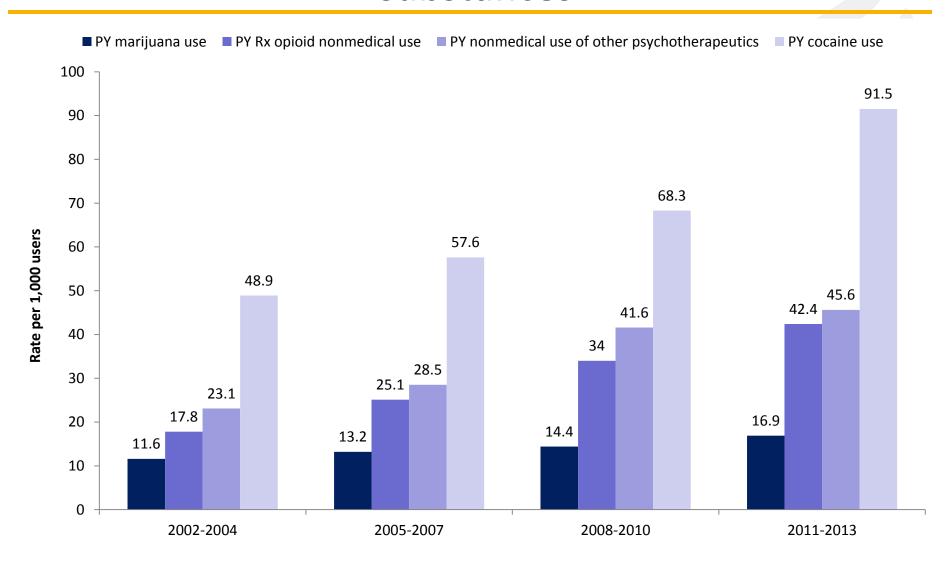
Inciardi et al., 2009

- Interviews in 12/2006
- Rx opioids preceded heroin
- Rx opioid dependence, social context, economics, and availability major factors in heroin initiation

Harocops et al., 2016

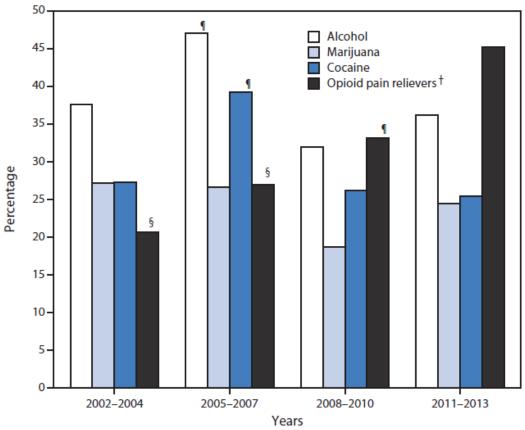
- Interviews between 8/2013 and 1/2015
- Cycle of oral to intranasal to injection
- Dependence, social context, economics, and availability all factors in heroin initiation
- Median time from first Rx opioid misuse to heroin use was 3 years
- Among those with no Hx of IDU prior to heroin initiation, median time between intranasal and IV heroin use was six months

Rate of heroin use among users of other substances



Past year substance abuse or dependence among past year heroin users

FIGURE 1. Annual average percentage of past-year heroin users* with past-year selected substance abuse or dependence, by time interval — United States, 2002–2013



^{*} Past-year heroin use defined as any use of heroin in the 12 months preceding the National Survey on Drug Use and Health survey interview.

[†] p-value for trend <0.05.

[§] Rate is statistically significantly different from 2011–2013 rate; p<0.001.

Rate is statistically significantly different from 2011–2013 rate; p<0.05.

Groups at increased risk for heroin abuse or dependence

	Past-year heroin abuse or dependence			
Characteristic	aOR	(95% CI)		
Sex				
Male	2.1†††	(1.4-3.0)		
Female	1.0			
Age (yrs)				
12–17	0.3 ^{††}	(0.1-0.6)		
18-25	1.0			
26	0.6 ^{††}	(0.4-0.9)		
Race/Ethnicity				
Non-Hispanic white	3.1 ^{†††}	(1.8-5.1)		
Other	1.0			
Geography				
Residing in CBSA with	2.4 ^{†††}	(1.5-3.6)		
≥1 million persons				
Residing in other area	1.0			
Household income (annual)				
<20,000	1.0			
\$20,000-\$49,999	0.5 ^{††}	(0.3-0.7)		
≥\$50,000 or more	0.6†	(0.3-0.9)		
Insurance coverage				
None	3.1†††	(2.2-4.3)		
Medicaid	3.2 ^{†††}	(1.9-5.4)		
Private or other	1.0			
Past-year substance abuse				
or dependence [§]				
Alcohol	1.8††	(1.2-2.9)		
Marijuana	2.6 ^{††}	(1.5-4.6)		
Cocaine	14.7†††	(7.4–29.2)		
Opioid pain relievers	40.0 ^{†††}	(24.6-65.3)		
Other psychotherapeutics ¶	1.6	(0.8–3.2)		

Abbreviations: aOR = adjusted odds ratio; CBSA = core based statistical area; CI = confidence interval.

- Abuse or dependence on other substances significant predictors of heroin abuse or dependence
- Alcohol; aOR=1.8**
- Marijuana; aOR=2.6**
- Cocaine; aOR=14.7***
- Rx opioids; aOR=40.0***

^{*} Past-year heroin abuse or dependence is based on diagnostic criteria contained in the Diagnostic and Statistical Manual of Mental Disorders, 4th Edition.

 $^{^{\}dagger}$ Statistically significant finding; † p<0.05; †† p<0.01; ††† p<0.001.

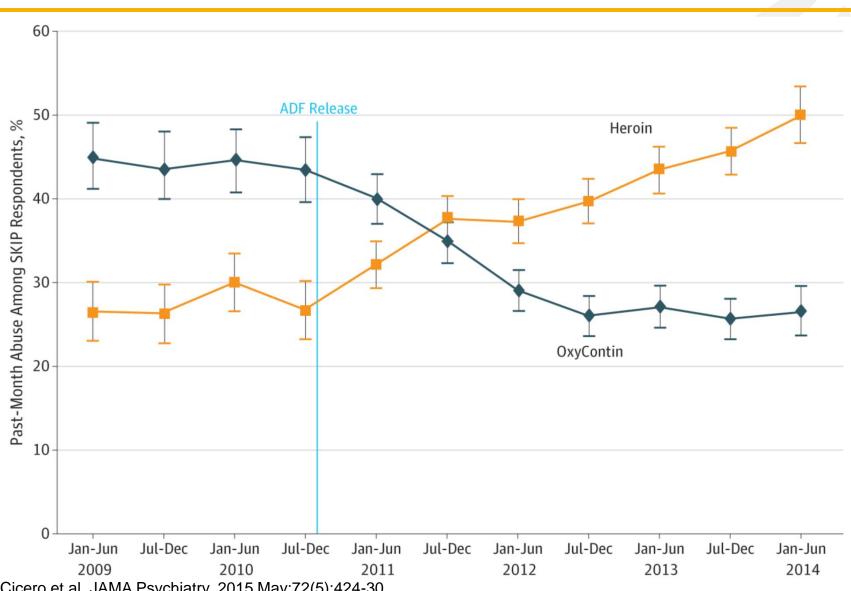
Referent group is no past-year abuse or dependence.

Other psychotherapeutics includes tranquilizers, sedatives, and stimulants.

INFLUENCE OF PRESCRIPTION OPIOID ABUSE PREVENTION POLICIES U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

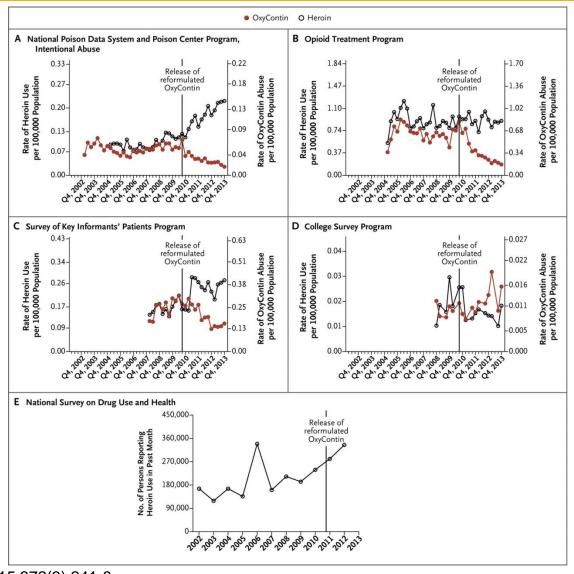
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Reformulation of OxyContin



Source: Cicero et al. JAMA Psychiatry. 2015 May;72(5):424-30.

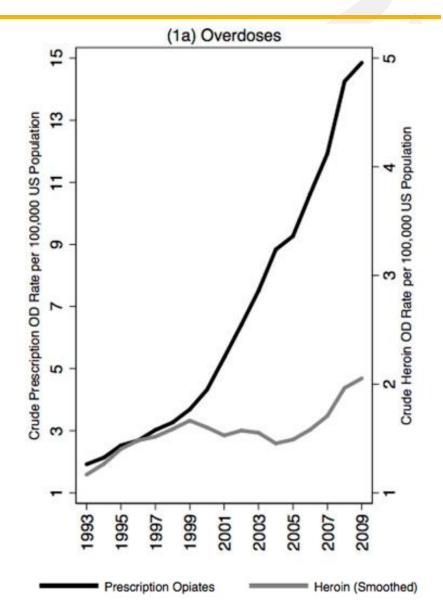
Reformulation of OxyContin



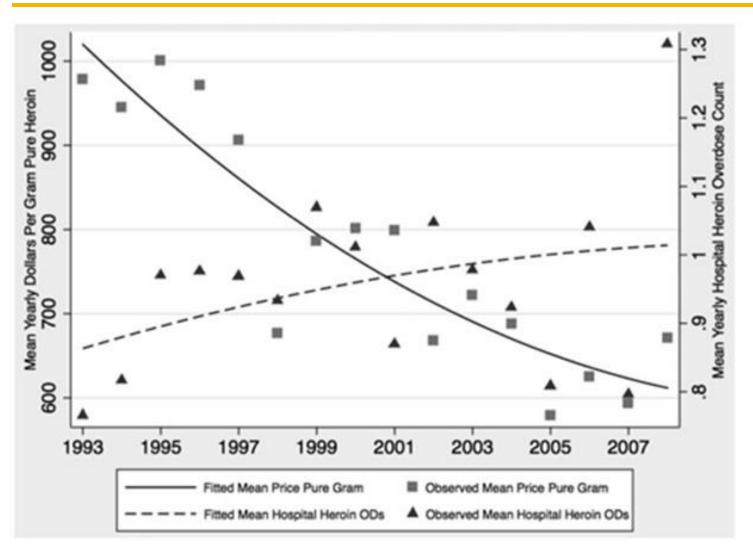
Source: Dart et al. NEJM 2015;372(3):241-8...

National perspective

- 69% increase in heroin overdose hospitalizations between 1993-2006
- Sharper increase, 44%
 between 2005-2009
- These increases
 occurred in the context
 of continued increase in
 Rx opioid overdose
 hospitalizations



The role of economics

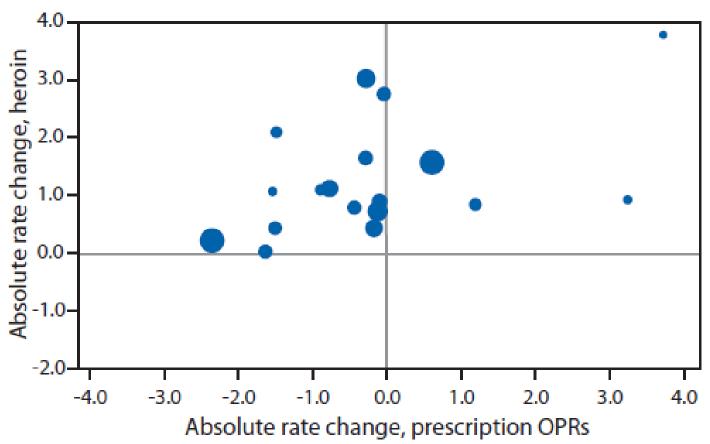


Every \$100 decrease in price of pure gram of heroin resulted in a 2.9% increase in number heroin overdose hospitalizations

Source: Unick G. et al., Addiction. 2014;109:1889-98.

State policies

Absolute change in heroin overdose death rates compared with change in Rx opioid overdose death rates — 18 states, 2010 to 2012

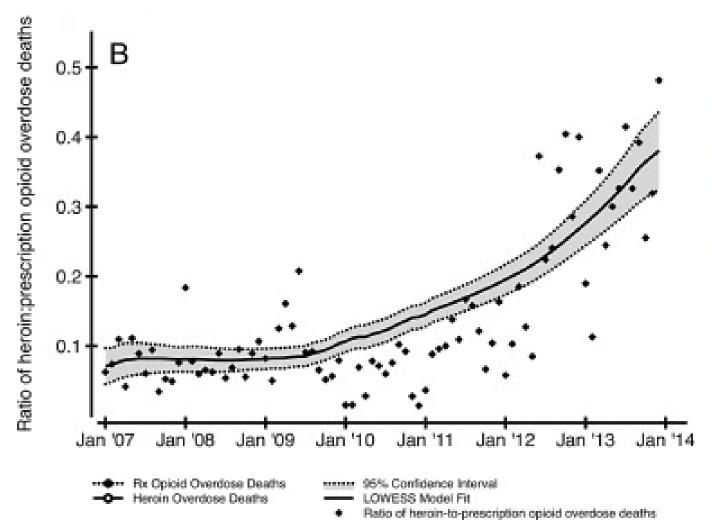


Rate change per 100,000 persons (r = 0.47, p = 0.05).

Source: Rudd RA et al., MMWR 2014.

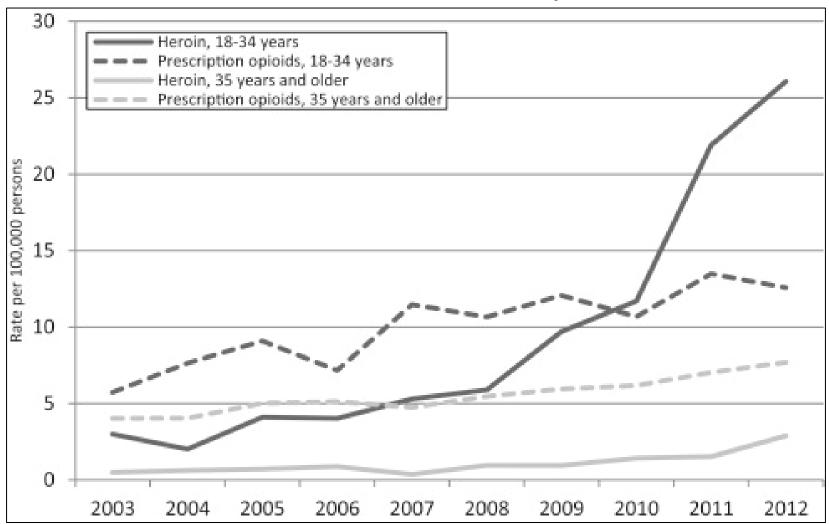
State policies

Shift towards heroin deaths started in 2009 in NC



State policies

Heroin ED visits in Wisconsin increased as Rx opioid ED visits increased



Source: Meiman J, et al. Drug Alcohol Depend. 2015.

Local policies

20	011	20	2012)13	% rate change from
Borough of residence Total	(Rate)	Total	(Rate)	Total	(Rate)	2011 to 2013
	•					
567	-8.5	660	-9.8	672	-9.9	+16.4¶
253	-3.8	339	-5	352	-5.2	+36.8¶
201	-3	181	-2.7	197	-2.9	-3.3
69	-18.4	74	-19.9	64	-17.6	-4.3¶
22	-6.2	36	-10.1	32	-8.6	+38.7¶
40	-10.7	37	-10	28	-7.6	-29.0¶
498	-7.9	586	-9.3	608	-9.5	+20.3¶
231	-3.7	303	-4.8	320	-5	+35.1¶
161	-2.6	144	-2.3	169	-2.6	0
	567 253 201 69 22 40 498 231	567 -8.5 253 -3.8 201 -3 69 -18.4 22 -6.2 40 -10.7 498 -7.9 231 -3.7	Total (Rate) Total 567 -8.5 660 253 -3.8 339 201 -3 181 69 -18.4 74 22 -6.2 36 40 -10.7 37 498 -7.9 586 231 -3.7 303	Total (Rate) Total (Rate) 567 -8.5 660 -9.8 253 -3.8 339 -5 201 -3 181 -2.7 69 -18.4 74 -19.9 22 -6.2 36 -10.1 40 -10.7 37 -10 498 -7.9 586 -9.3 231 -3.7 303 -4.8	Total (Rate) Total (Rate) Total 567 -8.5 660 -9.8 672 253 -3.8 339 -5 352 201 -3 181 -2.7 197 69 -18.4 74 -19.9 64 22 -6.2 36 -10.1 32 40 -10.7 37 -10 28 498 -7.9 586 -9.3 608 231 -3.7 303 -4.8 320	Total (Rate) Total (Rate) Total (Rate) 567 -8.5 660 -9.8 672 -9.9 253 -3.8 339 -5 352 -5.2 201 -3 181 -2.7 197 -2.9 69 -18.4 74 -19.9 64 -17.6 22 -6.2 36 -10.1 32 -8.6 40 -10.7 37 -10 28 -7.6 498 -7.9 586 -9.3 608 -9.5 231 -3.7 303 -4.8 320 -5

Source: Office of Chief Medical Examiner, New York City.

Source: Paone D. MMWR 2015.

^{*} Age-adjusted rates are calculated using intercensal estimates updated in December 2014, and are weighted to U.S. Census Standard 2000.

[†] The drug types are not mutually exclusive; most overdoses involved more than one substance.

[§] Analysis limited to residents of Staten Island and the other four New York City boroughs (Bronx, Brooklyn, Manhattan, and Queens), based on data reported on death certificates.

[¶] Statistically significant rate change (p<0.05), determined by z-tests and 95% confidence interval comparisons based on gamma confidence intervals distribution.

POLICY RESPONSE

HHS Opioid Initiative

- Launched by Secretary
 Burwell in March 2015
- Three focus areas
 - Improve opioid prescribing
 - Increase use of naloxone to reverse opioid overdose
 - Expand use of Medication Assisted Treatment (MAT) for opioid use disorders



ASPE Issue Brief

Opioid Abuse in the U.S. and HHS Actions to Address Opioid-Drug Related
Overdoses and Deaths

March 26, 2015

Introduction

The abuse of and addiction to opioids is a serious and challenging public health problem. Deaths from drug overdose have risen steadily over the past two decades and have become the leading cause of injury death in the United States. Prescription drugs, especially opioid analgesics—a class of prescription drugs such as hydrocodone, oxycodone, morphine, and methadone used to treat both acute and chronic pain— have increasingly been implicated in drug overdose deaths over the last decade. From 1999 to 2013, the rate for drug poisoning deaths involving opioid analgesics nearly quadrupled. Deaths related to heroin have also increased sharply since 2010, with a 39 percent increase between 2012 and 2013. Given these alarming trends, it is time for a smart and sustainable response to prevent opioid abuse and overdose and treat people with opioid use disorder.

The U.S. Department of Health and Human Services (HHS) has made addressing the opioid abuse problem a high priority and is committed to accelerating its work towards two broad goals: 1) decreasing opioid overdoses and overall overdose mortality and 2) decreasing the prevalence of opioid use disorder. Priority areas for action were identified through a Department wide effort that tapped all the scientific, analytical and programmatic expertise contained in HHS agencies. The development effort also relied on discussions with states and other stakeholder organizations.

The Secretary's initiative targets three priority areas to combat opioid abuse:

- Opioid prescribing practices to reduce opioid use disorders and overdose
- Expanded use and distribution of naloxone
- Expansion of Medication-assisted Treatment (MAT) to reduce opioid use disorders and overdose

A wide variety of possible interventions exists; however, Secretary Burwell directed officials and staff leading the initiative's development to identify a small but targeted set of actions that have

Conclusions

- Trends in Rx opioid and heroin-related morbidity and mortality continue to change
- More research needed to track patterns of use and overdose and the impacts (intended and unintended) of policy and practice change on prescribing, use, and health outcomes
- Data support a comprehensive approach that focuses on improving prescribing practices, expanding access to evidence-based treatment for opioid use disorders, and increasing use of naloxone



THANK YOU

QUESTIONS?

CHRISTOPHER.JONES@HHS.GOV

