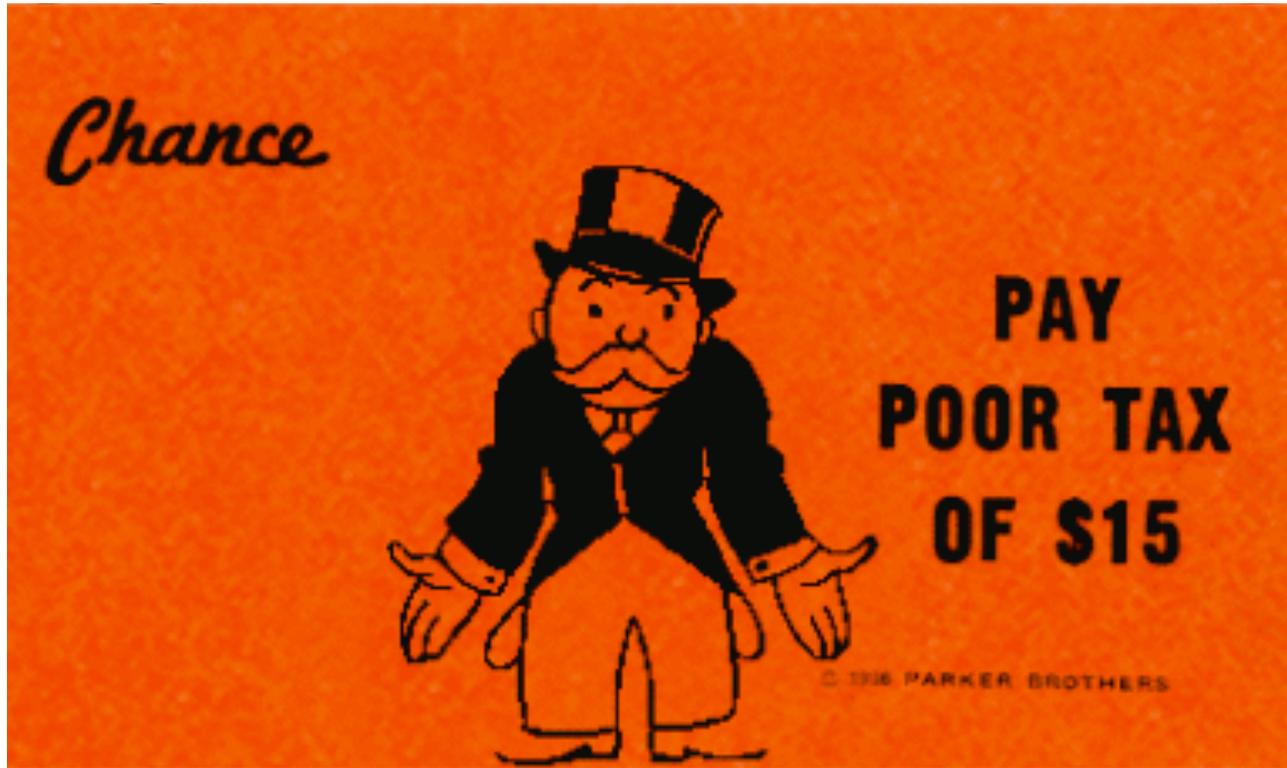


Adolescent Drug Abuse: Pills, Poppies, and Parties

Dan Rusyniak
drusynia@iu.edu

Disclosures



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**AVAILABLE
NOW**



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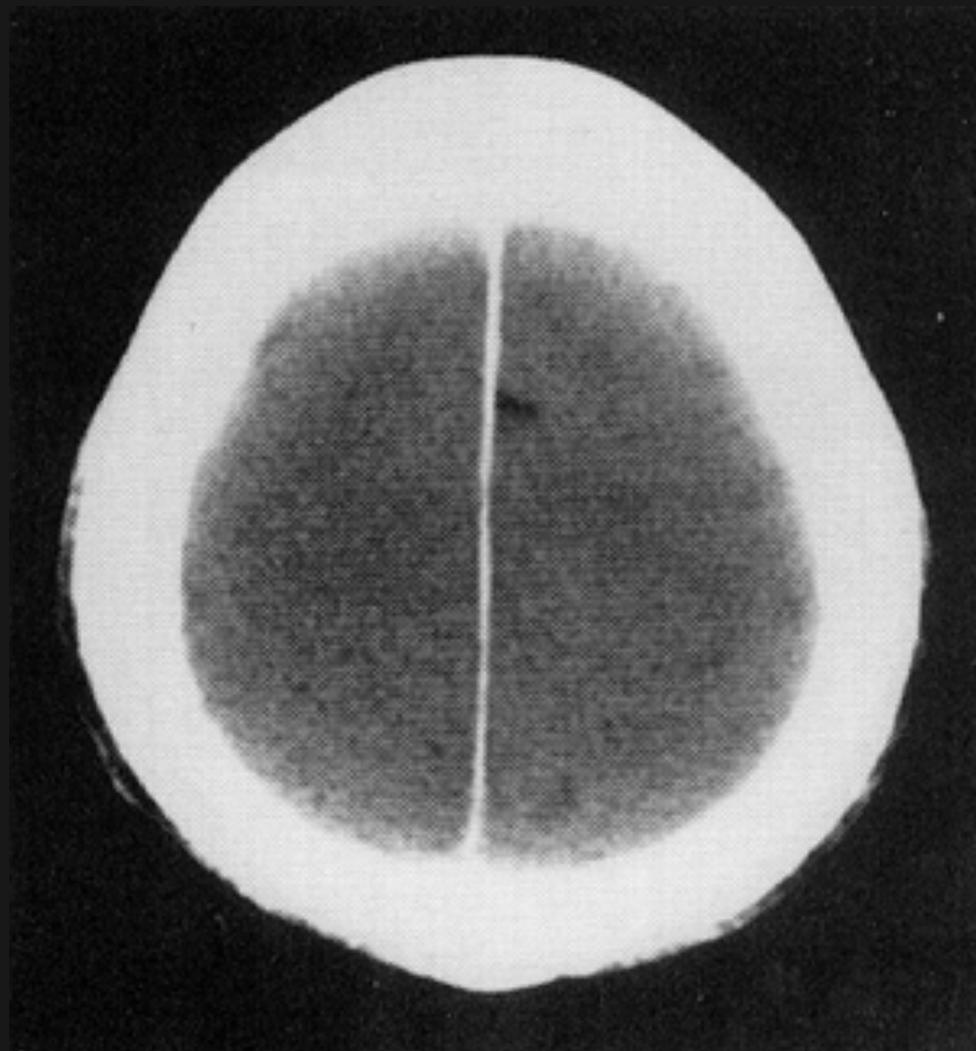
**SNIFFING CORRECTION FLUID
CAN STOP YOUR HEART.**

If you sniff to get high, you're inhaling poisons that do definite damage. So stop. Before your heart does.  Texas Prevention Partnership
1-800-269-4237

Prescription Drugs







IPC Methadone Calls



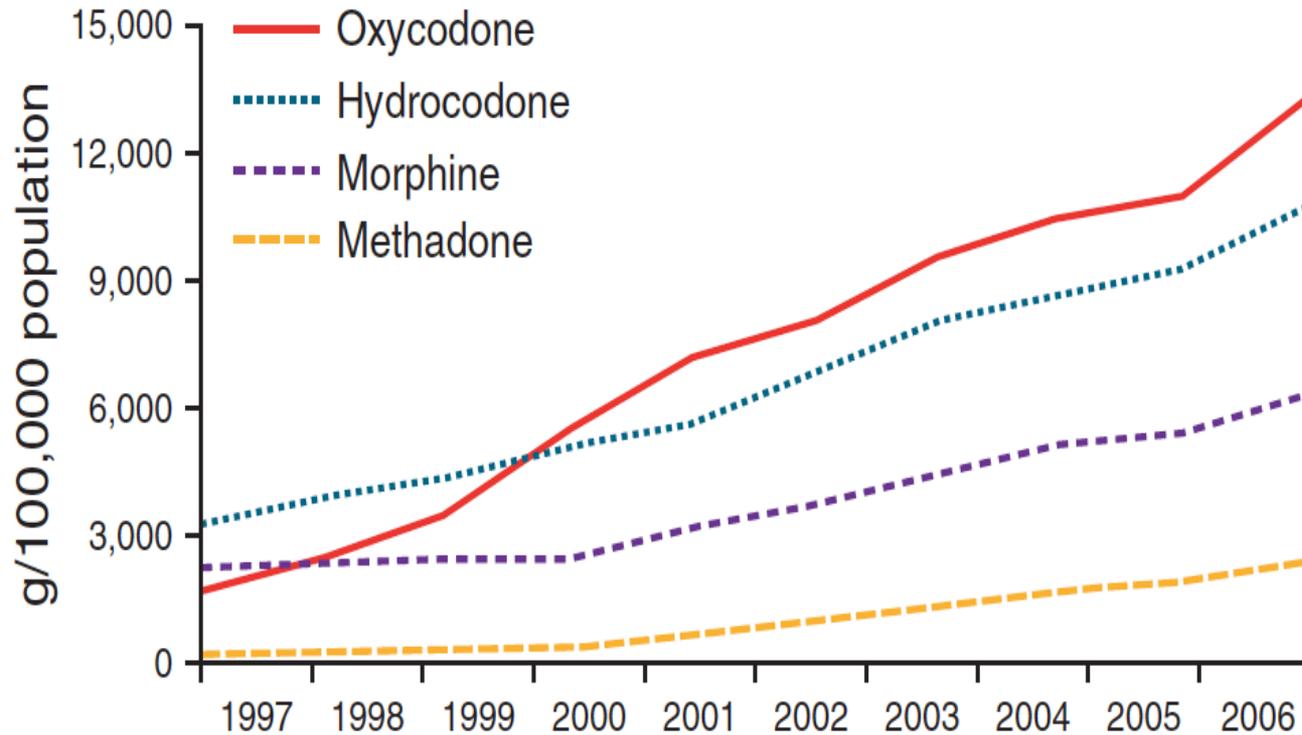
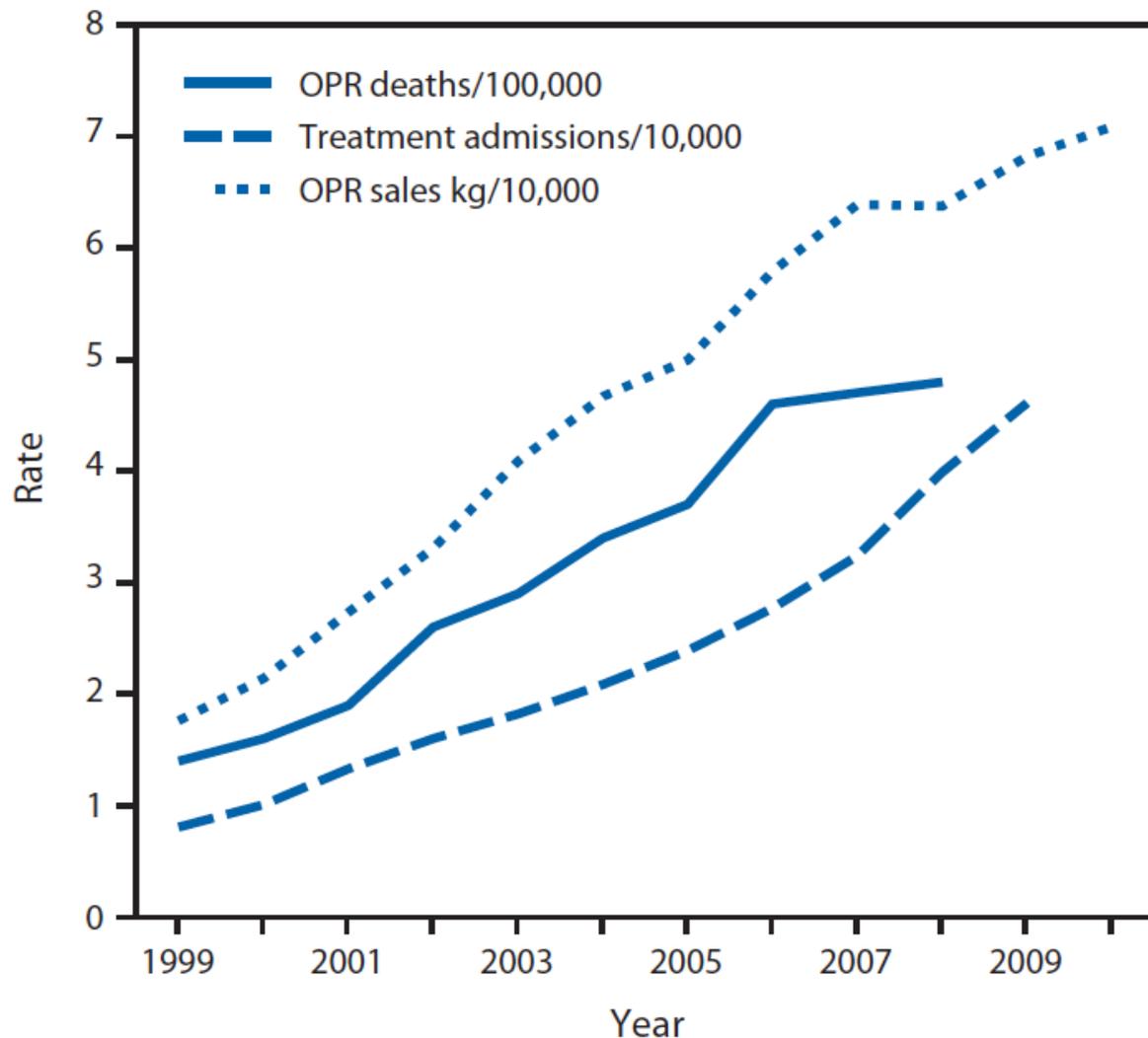


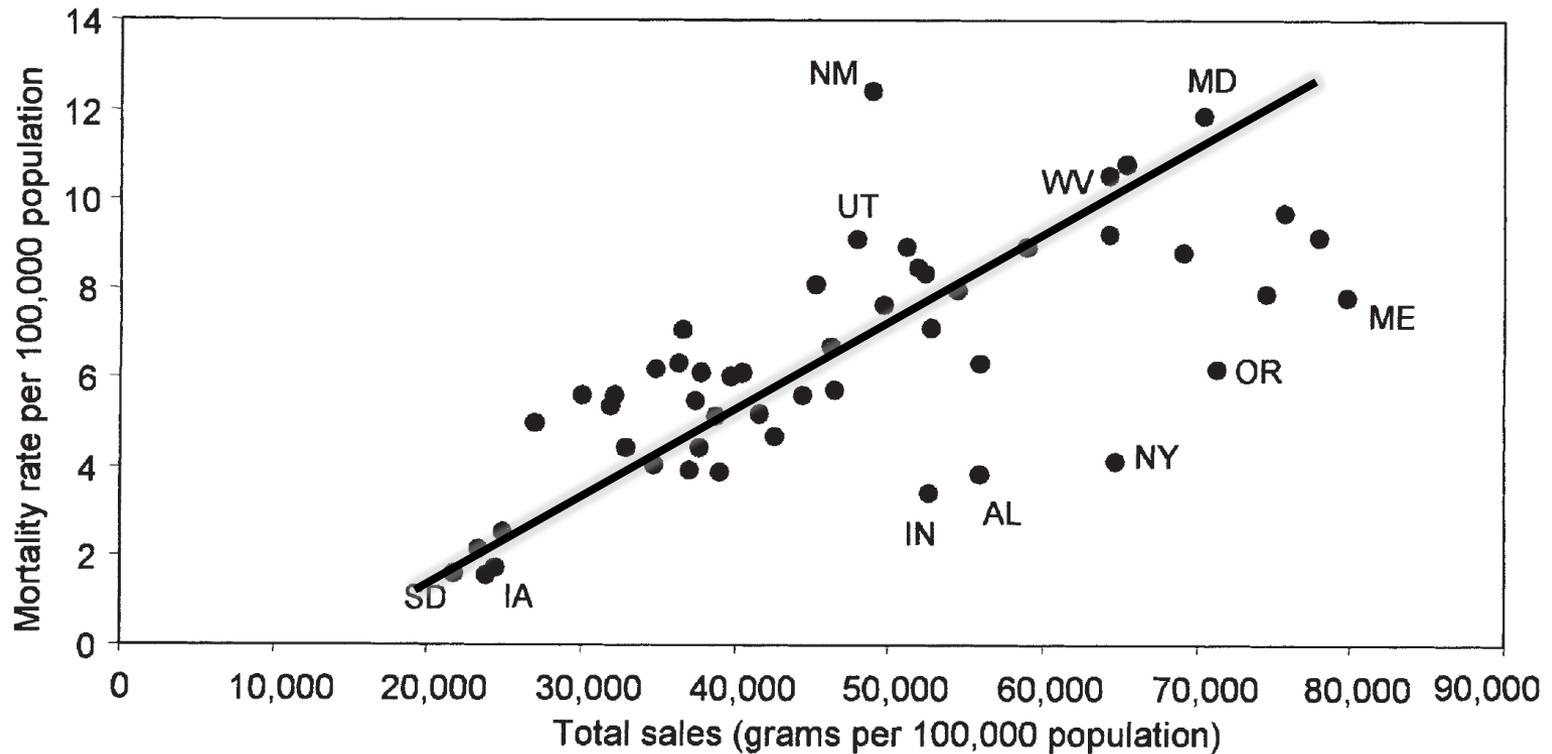
Figure 1. The increase in therapeutic opioid use in the United States (g/100,000 population) from 1997 to 2006. Reproduced from Manchikanti and Singh (9). On the basis of the data from US Drug Enforcement Administration (10).

FIGURE 2. Rates* of opioid pain reliever (OPR) overdose death, OPR treatment admissions, and kilograms of OPR sold — United States, 1999–2010



* Age-adjusted rates per 100,000 population for OPR deaths, crude rates per 10,000 population for OPR abuse treatment admissions, and crude rates per 10,000 population for kilograms of OPR sold.

Total opioid analgesic sales versus unintentional and undetermined drug deaths 2002



Oligoanalgesia

- Wilson JE. Pendleton JM. Oligoanalgesia in the ED. Am J Emed. 1989
- Melzack R. The tragedy of needless pain. Sci Am. 1990
- Hill CS. Government regulatory influences on opioid prescribing and their impact on the treatment of pain of nonmalignant origin. J Pain Symp Manag. 1996
- Practice guidelines for chronic pain management: a report by the American Society of Anesthesiology. 1997
- The Use of Opioids for the Treatment of Chronic Pain. A consensus statement from the American Academy of Pain Medicine and the American Pain Society. 1997



Pain:

Current Understanding of
Assessment, Management,
and Treatments



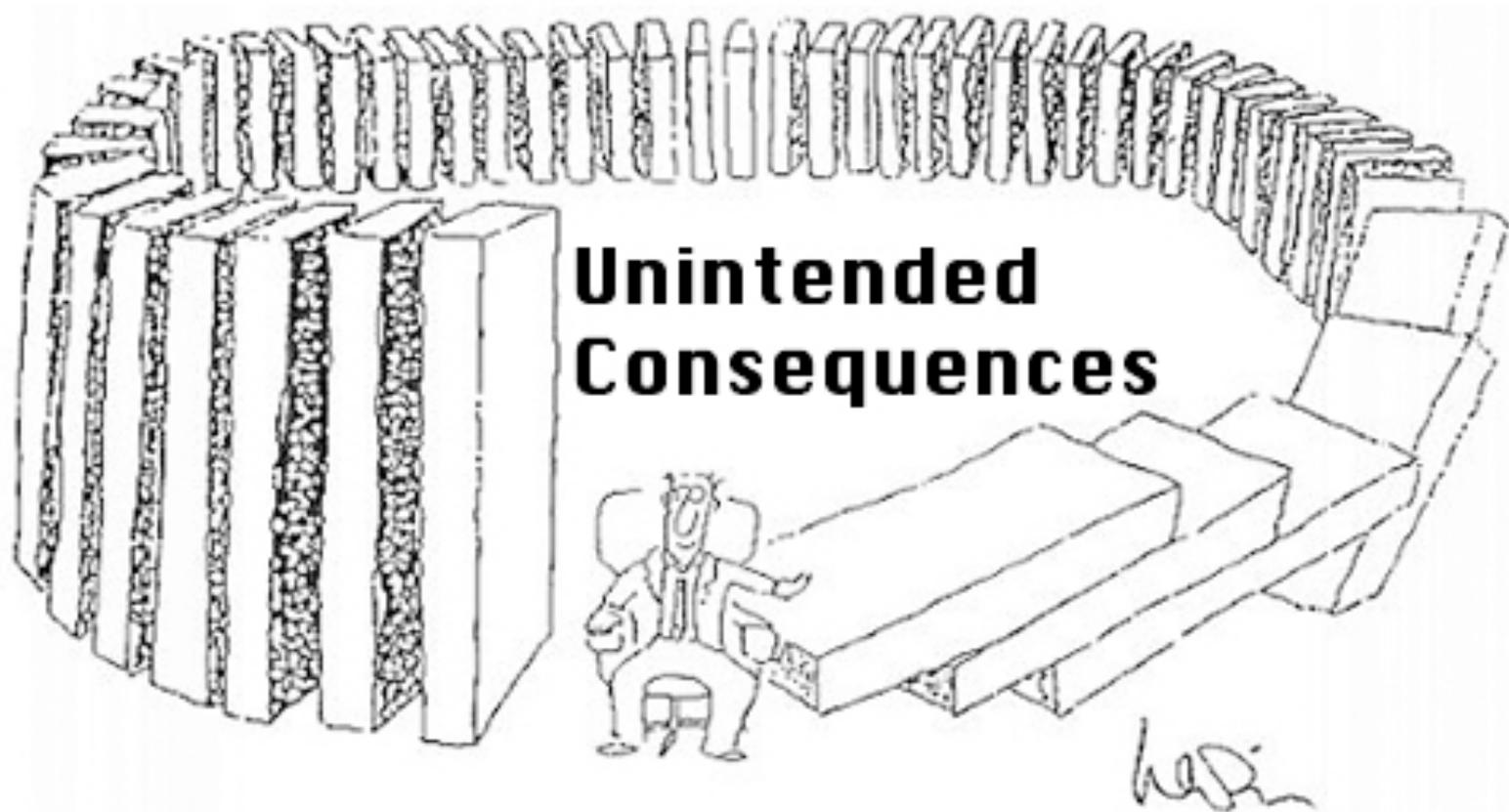
NATIONAL
PHARMACEUTICAL
COUNCIL, INC



Joint Commission
on Accreditation of Healthcare Organizations

This monograph was developed by NPC as part of a collaborative project with JCAHO.

December 2001



**Unintended
Consequences**

hadin

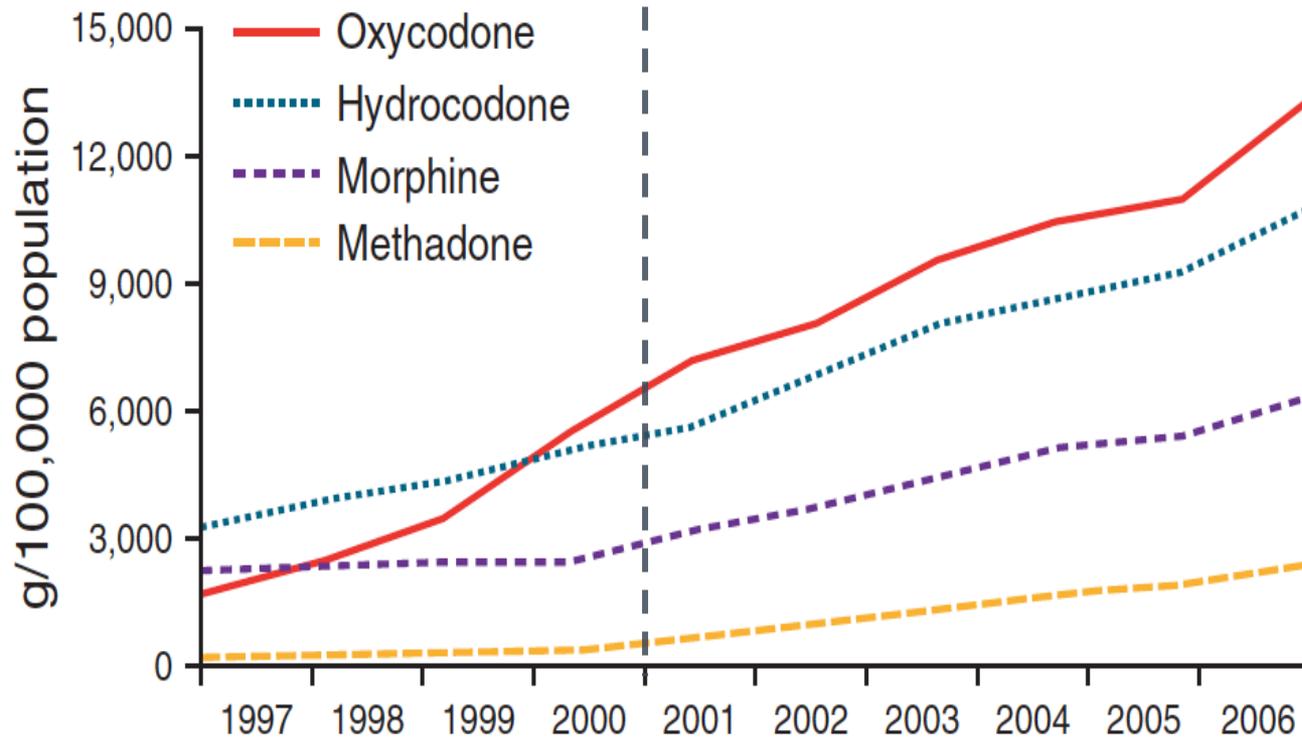
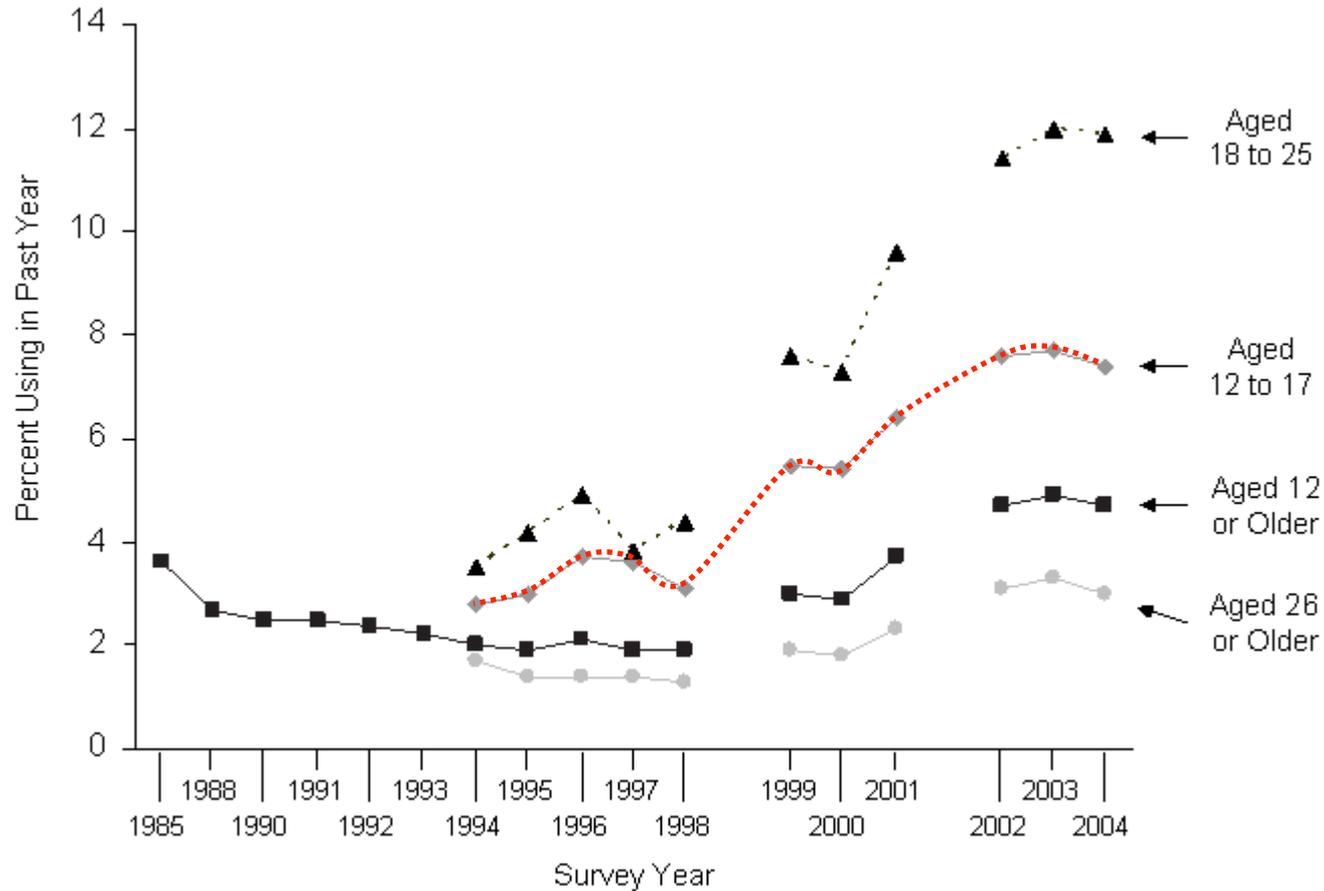


Figure 1. The increase in therapeutic opioid use in the United States (g/100,000 population) from 1997 to 2006. Reproduced from Manchikanti and Singh (9). On the basis of the data from US Drug Enforcement Administration (10).

Nonmedical use of Rx Pain Meds by age groups: 1985-2004



Modified from SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 1985-2004

POISONS CENTRE

Increased adolescent opioid use and complications reported to a poison control center following the 2000 JCAHO pain initiative

LAURA M. TORMOEHLLEN¹, JAMES B. MOWRY², JEFFREY D. BODLE³, and DANIEL E. RUSYNIAK⁴

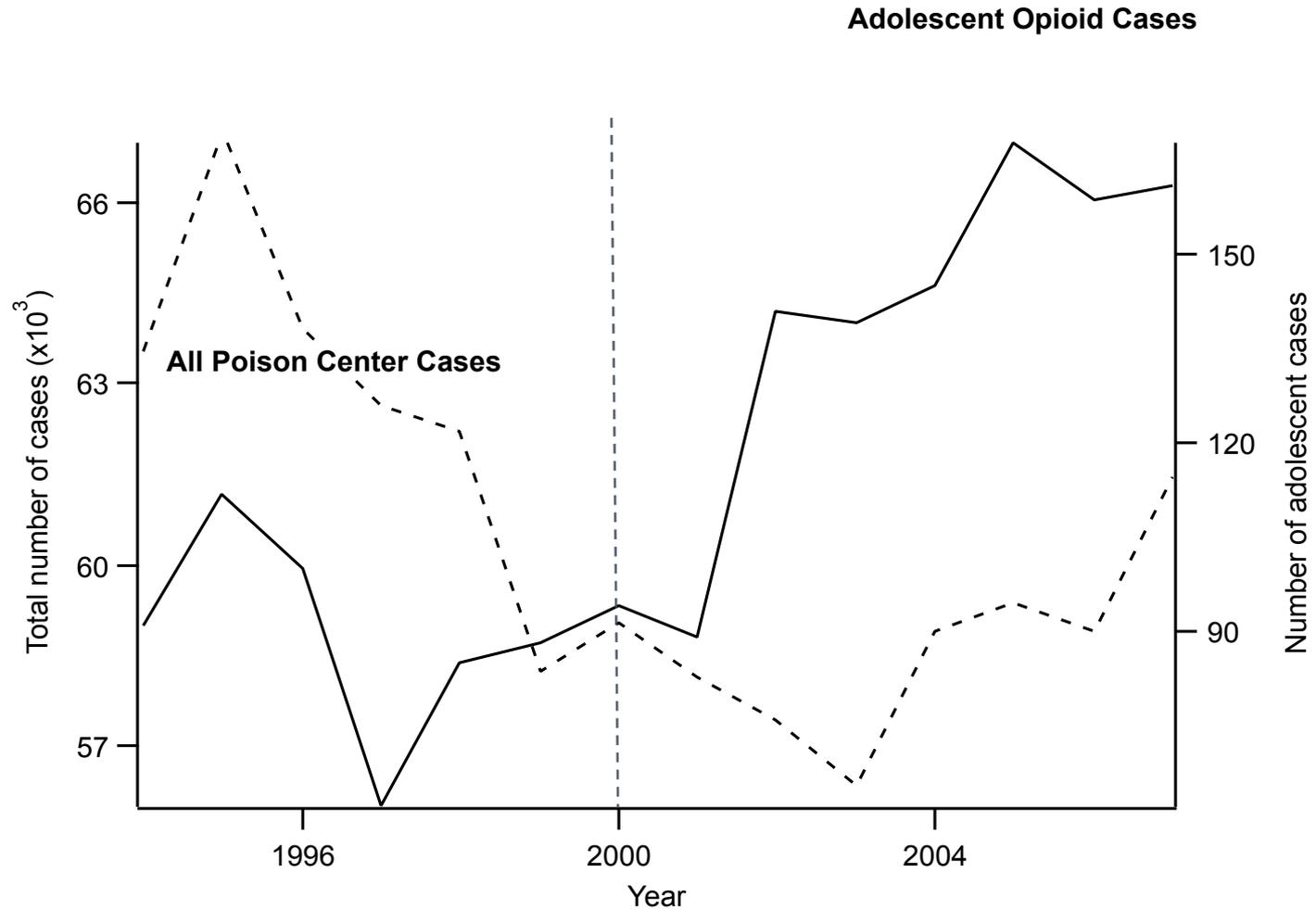
¹*Departments of Neurology and Emergency Medicine, Indiana University School of Medicine, Indianapolis, IN, USA*

²*Indiana Poison Center, Indianapolis, IN, USA*

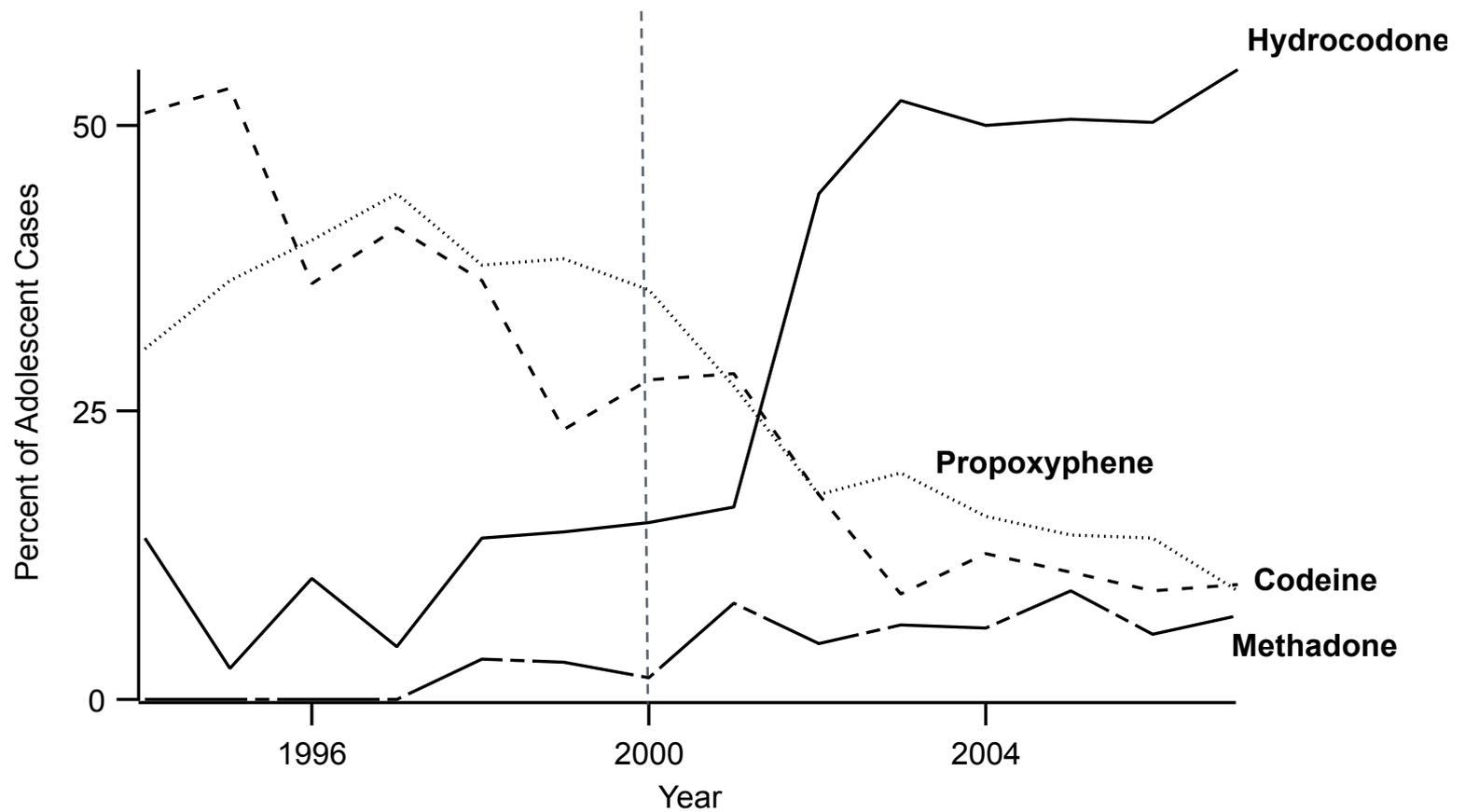
³*Indiana University School of Medicine, Indianapolis, IN, USA*

⁴*Departments of Emergency Medicine, Pharmacology and Toxicology, and Neurology, Indiana University School of Medicine, Indianapolis, IN, USA*

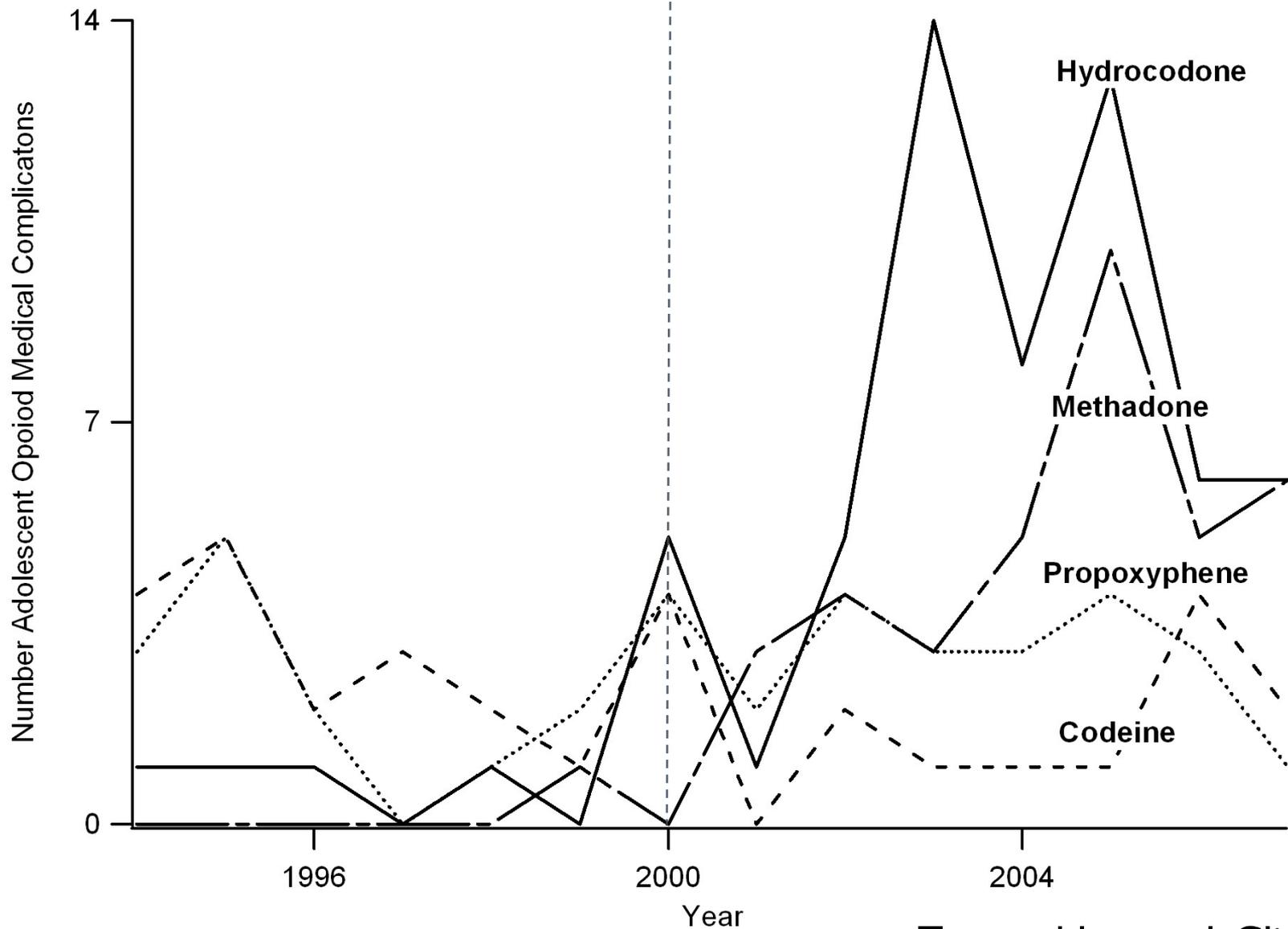
Adolescent opioid calls occurred 1.7x more frequently after JCAHO



Calls involving potent opioids increased while those involving less potent ones decreased



Adolescent opioid complications complications occurred occurred 3x more frequently after JCAHO



Deaths before and after JCAHO

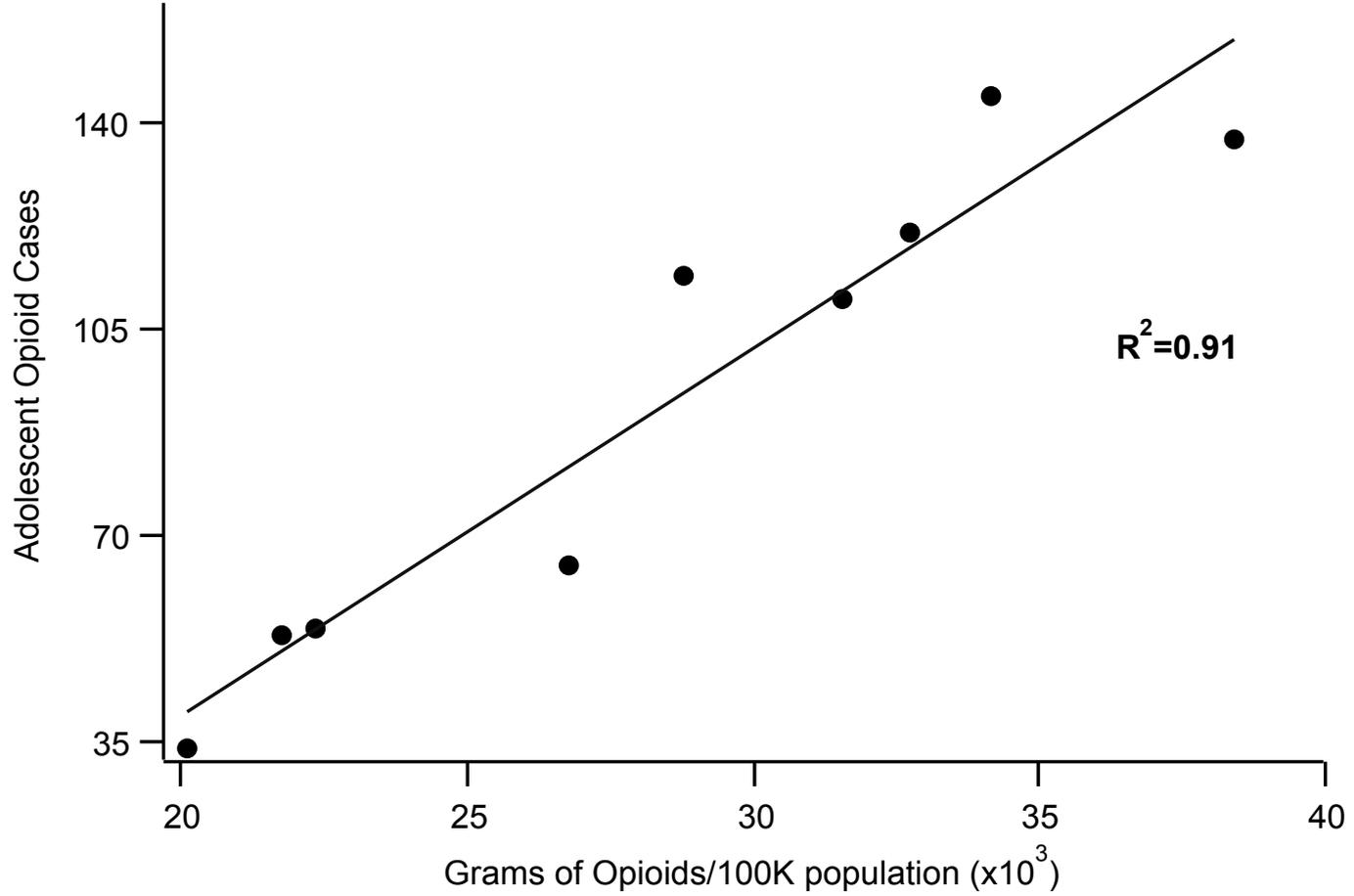
0

v

15

- (p= 0.013)
- Six related to methadone use
- Anoxic brain injury in 10 cases

1997-2006





90%
**OF PRESCRIPTION
DRUG ADDICTIONS**
start in teenage years



TIME

They're the most **powerful painkillers** ever invented.

And they're creating the worst addiction crisis America has ever seen.

By Massimo Calabresi



Narcotic pain relievers now cause or contribute to nearly
3 OUT OF 4
Prescription Drug overdoses and about
15,500 DEATHS
- Centers for Disease Control and Prevention



**She gets her hair from her mom. Her eyes from her dad.
And her drugs from her grandma's medicine cabinet.**

70% of people 12 and older who abuse prescription drugs get them from family or friends. Prevent your children from abusing your own medication by securing your meds in places your child cannot access.

BE AWARE. DON'T SHARE.

For more information, visit www.lockyourmeds.org and www.mydsac.org



Brought to you by:



Dorchester Substance Abuse Coalition
Neponset Health Center
398 Neponset Avenue Dorchester, MA 02122
617-533-2234
www.MyDSAC.org





Unused Medications?

Don't
Trash
Them



Don't
Flush
Them

D.U.M.P. THEM!

PREVENT DRUG ABUSE

PROTECT OUR CHILDREN

PRESERVE THE ENVIRONMENT

DISPOSE OF UNUSED MEDICATIONS AT
D.U.M.P. BOX LOCATIONS

DO NOT DISPOSE OF SYRINGES IN THE D.U.M.P. BOXES



DISPOSE OF
UNUSED
MEDICATIONS
PROPERLY

Medina County Drug Abuse Commission
Preserving Public Safety • Promoting Healthy Choices
D.U.M.P. Boxes Funded By Medina County ANTI-DRUG LEVY
www.mcdac.com

D.U.M.P. BOX LOCATIONS

- CITY OF BRUNSWICK POLICE DEPT.
4095 Center Rd., Brunswick
- BRUNSWICK HILLS TOWNSHIP POLICE DEPT.
505 Substation Rd., Brunswick Hills
- HINCKLEY TOWNSHIP POLICE DEPT.
1410 Ridge Rd., Hinckley
- VILLAGE OF LODI POLICE DEPT.
110 Ainsworth St., Lodi
- MEDINA COUNTY SHERIFF'S OFFICE
555 Independence Dr., Medina
- MEDINA TOWNSHIP POLICE DEPT.
3801 Huffman Rd., Medina
- MONTEVILLE TOWNSHIP POLICE DEPT.
6665 Wadsworth Rd., Medina
- VILLAGE OF SEVILLE POLICE DEPT.
120 Royal Crest Dr., Seville
- VILLAGE OF SPENCER POLICE DEPT.
109 North Main St., Spencer
- WADSWORTH CITY HALL
120 Maple St., Wadsworth
- VILLAGE OF WESTFIELD POLICE DEPT.
6701 Greenwich Rd., Westfield Center

National Take-Back Day

Discard of Unused Rx Drugs

Oct. 26 | 8A-Noon | 303-450-8819

Northglenn City Hall Parking Lot

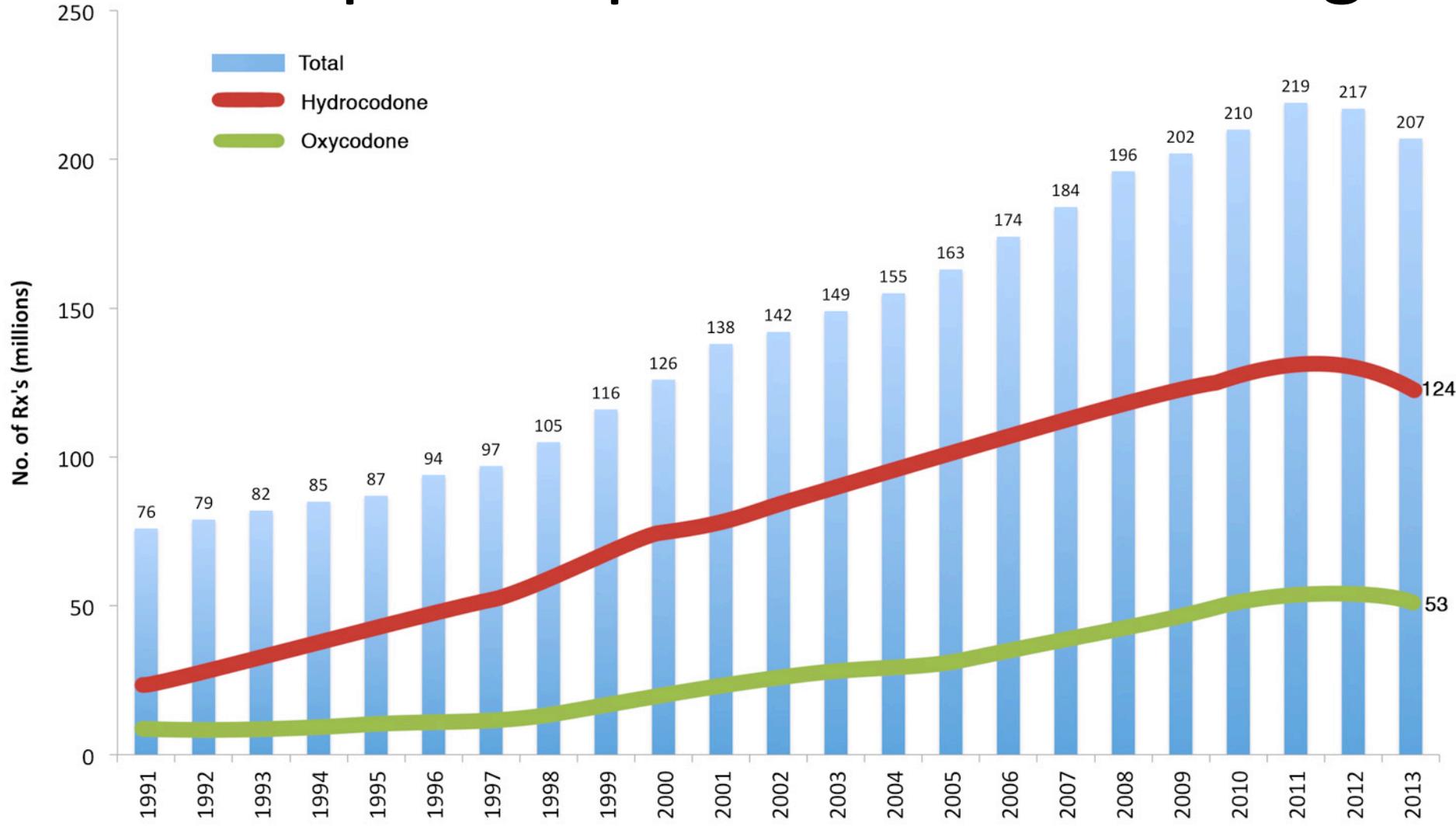
Got Drugs?

Turn in your
unused or expired
medication for safe disposal
Saturday, Sept. 25th

Click here
for a collection
site near you.



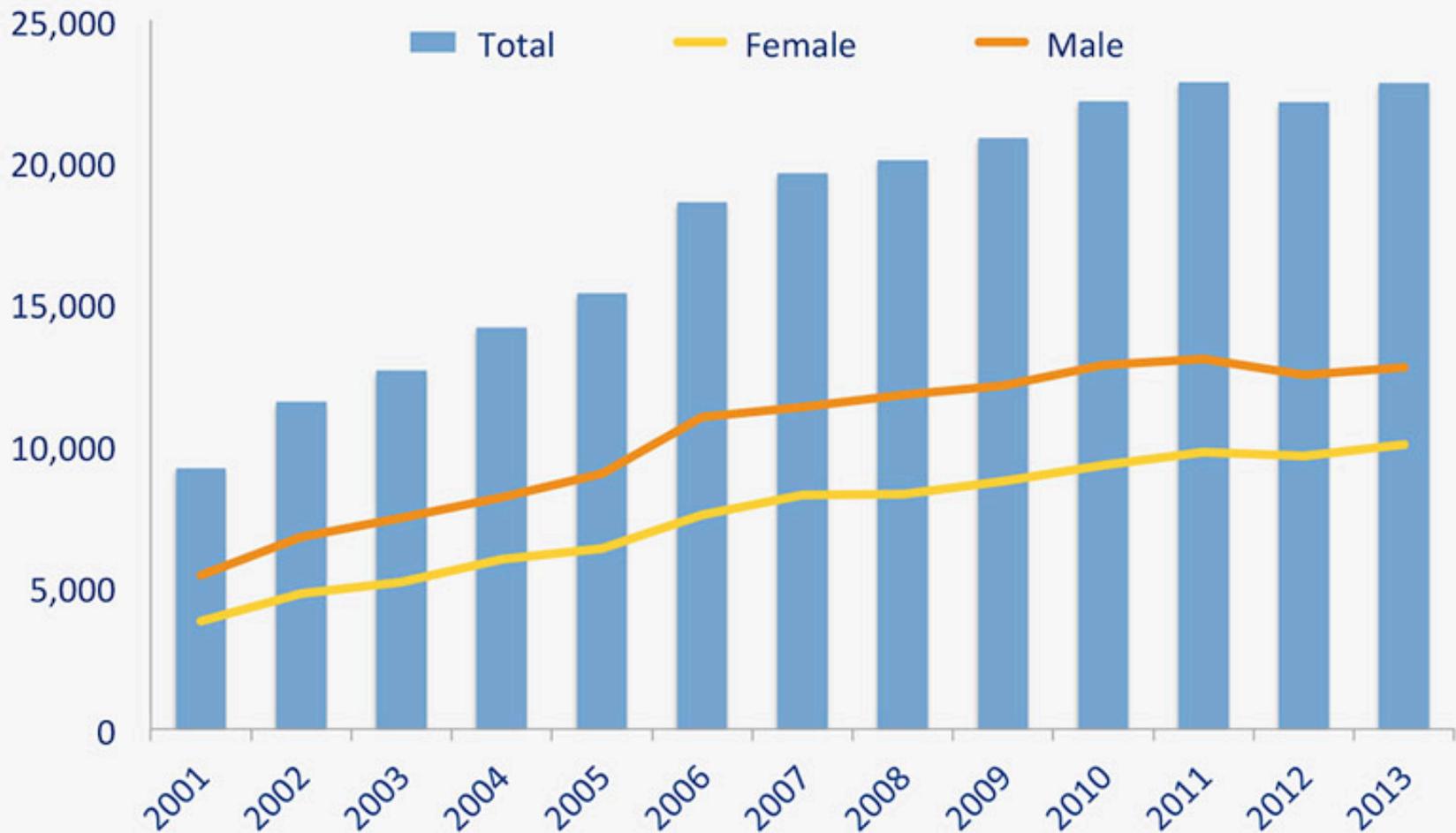
Prescription opioid use decreasing



IMS Health, National Prescription Audit, years 1997-2013, Data Extracted 2014

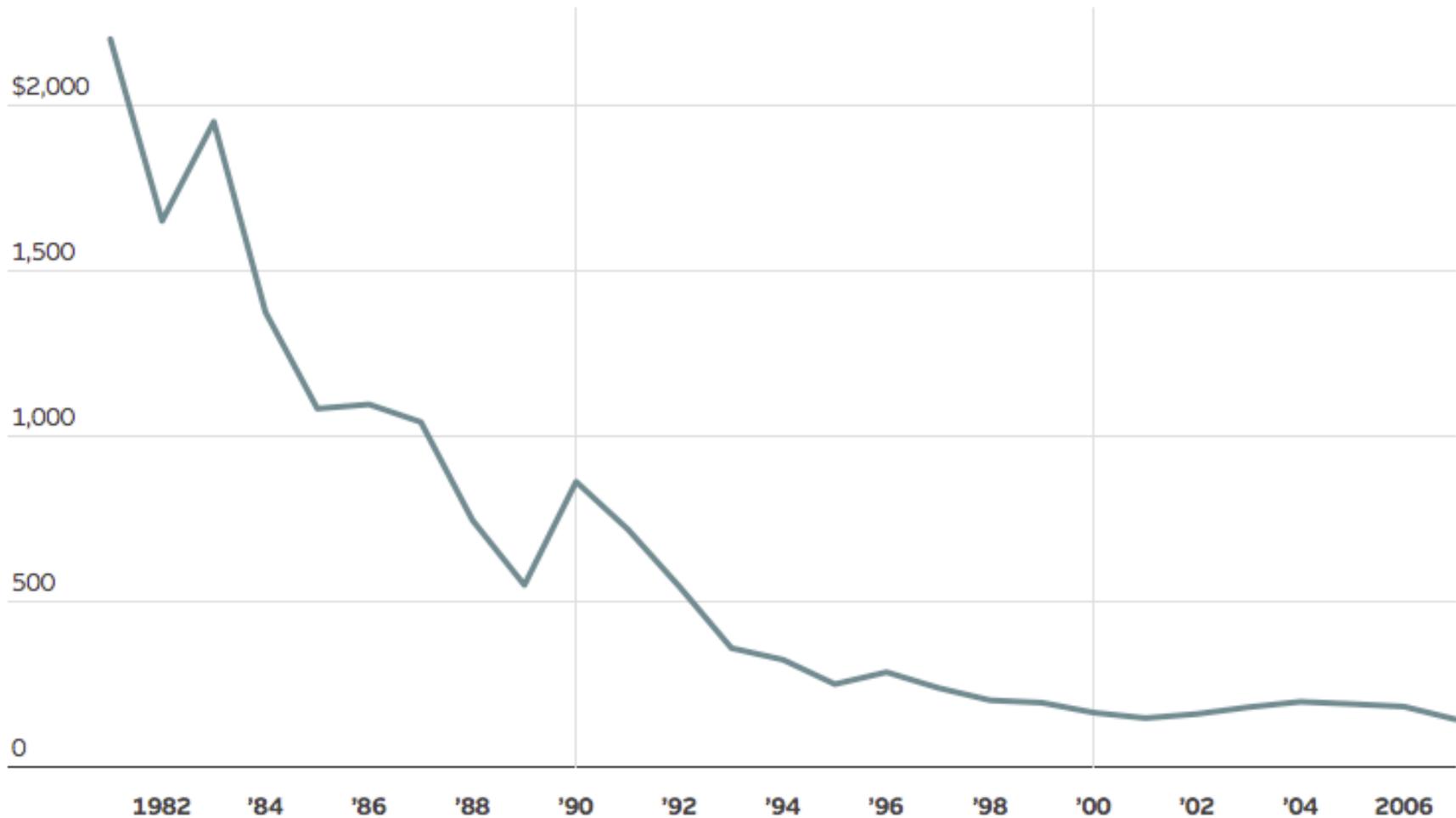
National Overdose Deaths

Number of Deaths from Prescription Drugs



Source: National Center for Health Statistics, CDC Wonder

Median bulk price of heroin per pure gram



Source: Office of National Drug Control Policy

Current Worldwide Illicit Cultivation of Opium Poppy and Production of Opium

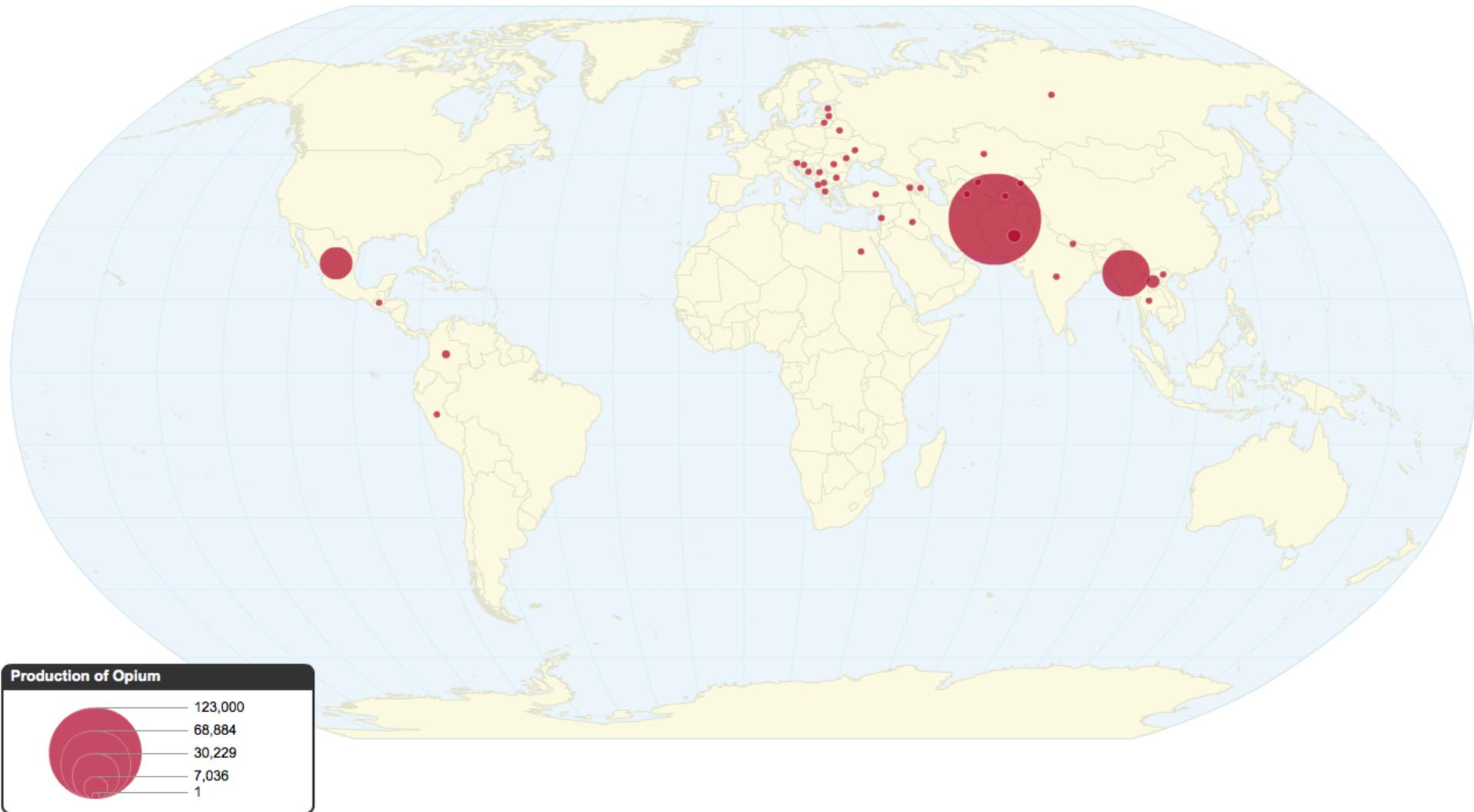
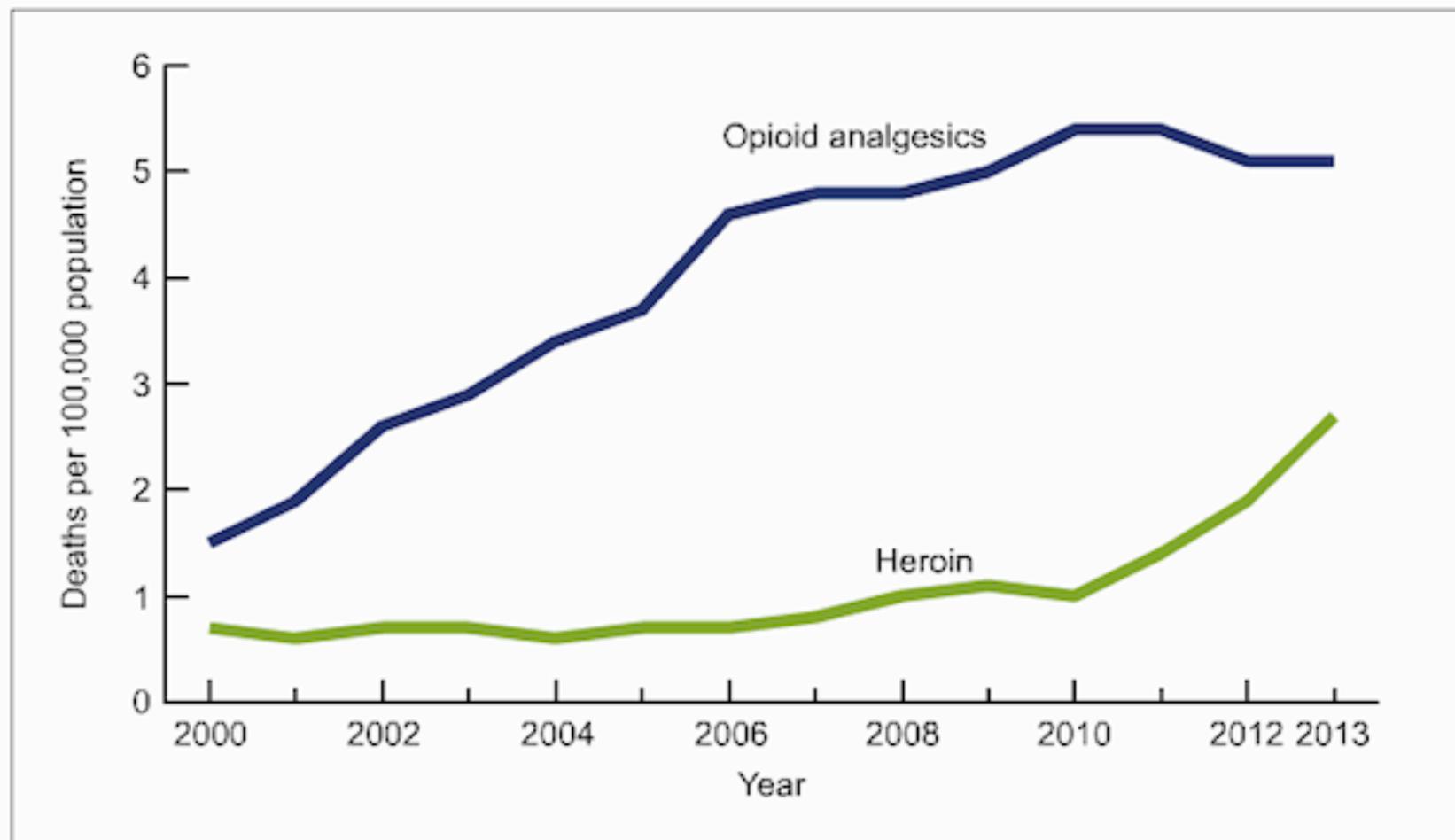


Figure 1. Age-adjusted rates for drug-poisoning deaths, by type of drug: United States, 2000–2013

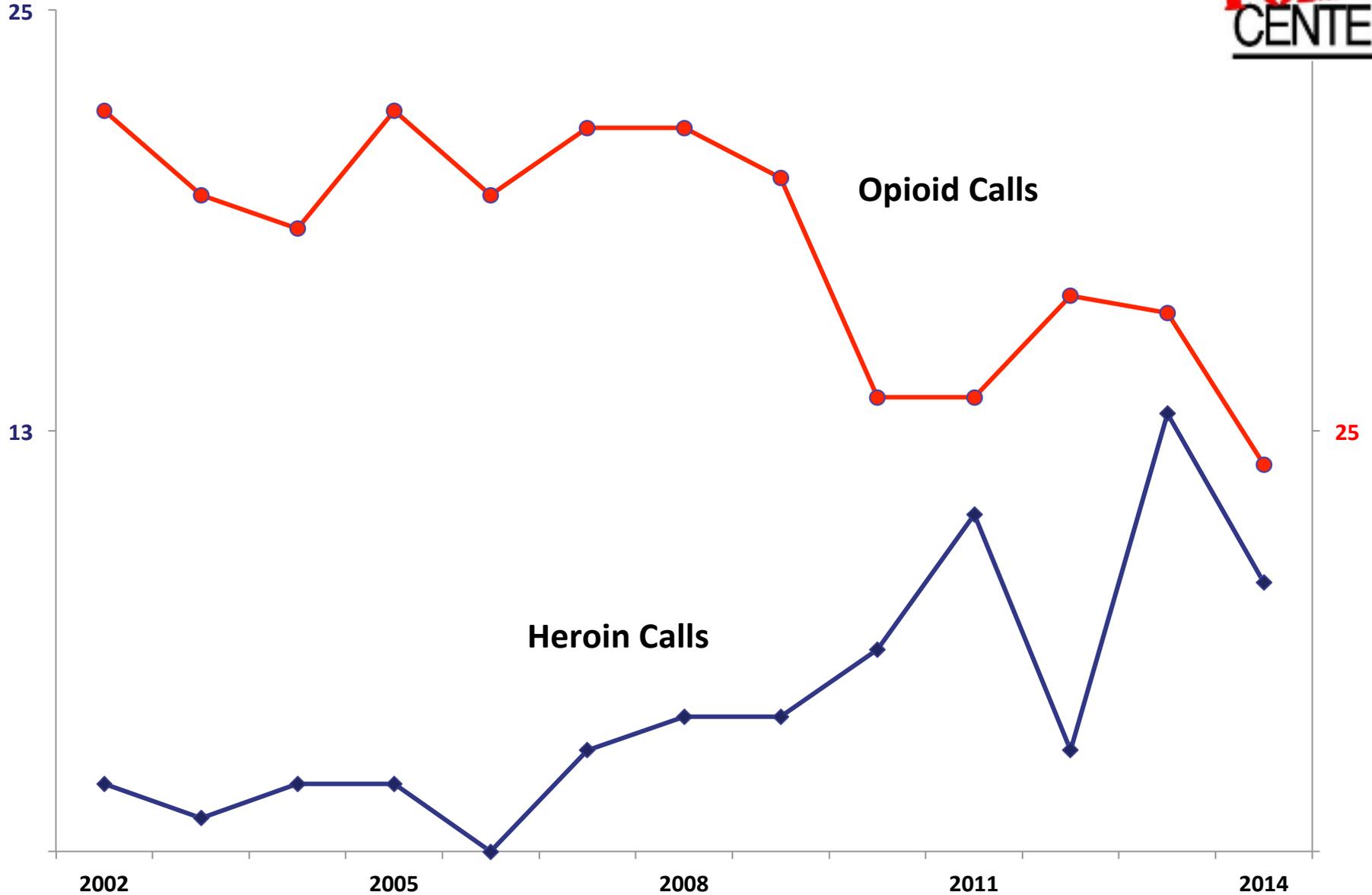


NOTES: The number of drug-poisoning deaths in 2013 was 43,982, the number of drug-poisoning deaths involving opioid analgesics was 16,235, and the number of drug-poisoning deaths involving heroin was 8,257. A small subset of 1,342 deaths involved both opioid analgesics and heroin. Deaths involving both opioid analgesics and heroin are included in both the rate of deaths involving opioid analgesics and the rate of deaths involving heroin. Access data table for Figure 1 at: http://www.cdc.gov/nchs/data/databriefs/db190_table.pdf#1.

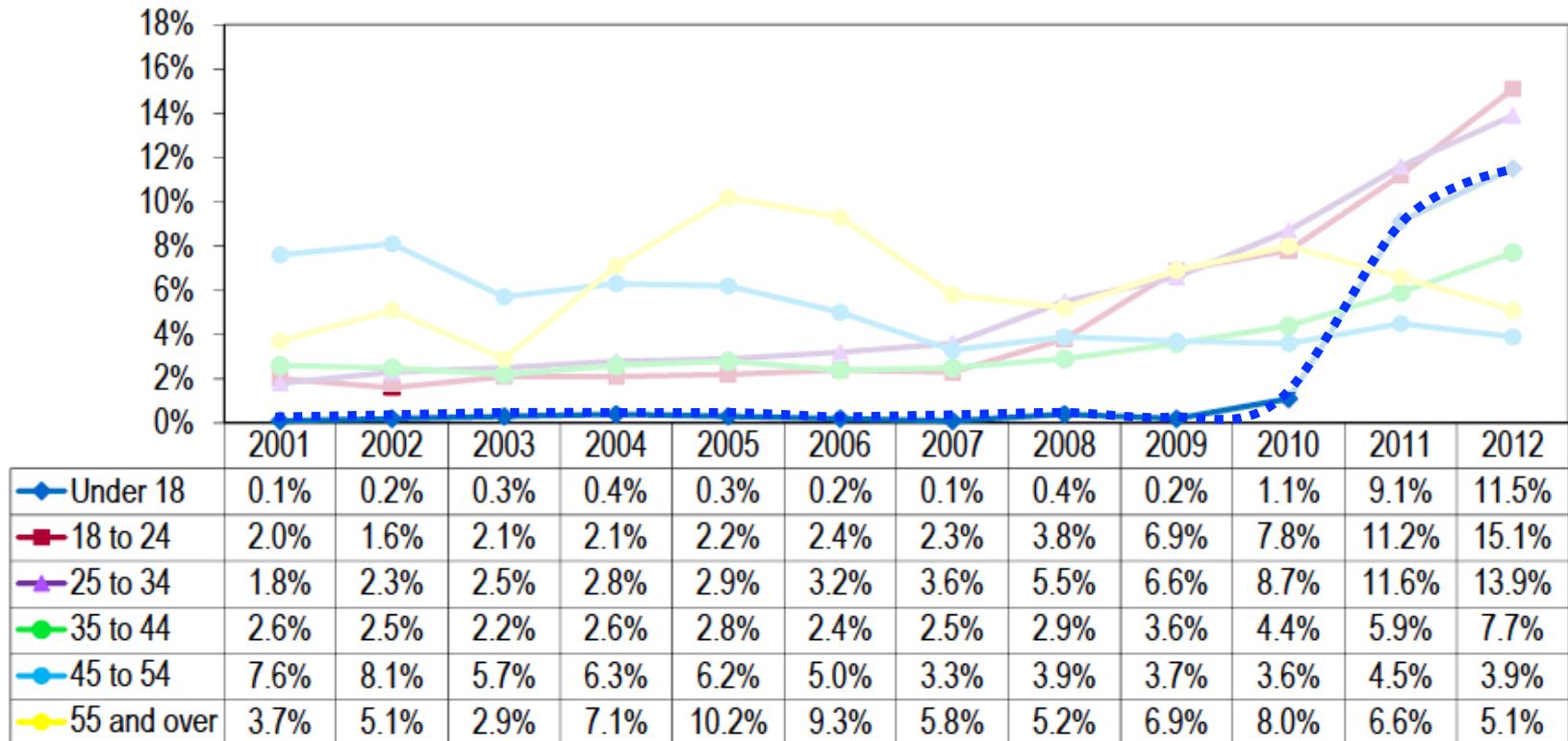
SOURCE: CDC/NCHS, National Vital Statistics System, Mortality.

IN – Changes Trends in Adolescent Opioid Use

30



Heroin treatment increasing in adolescents



Note: Heroin use reported at treatment admission

Source: Treatment Episode Data System, 2000-2011 [7]

Adapted from Talk by Marion Greene

Naloxone/Narcan

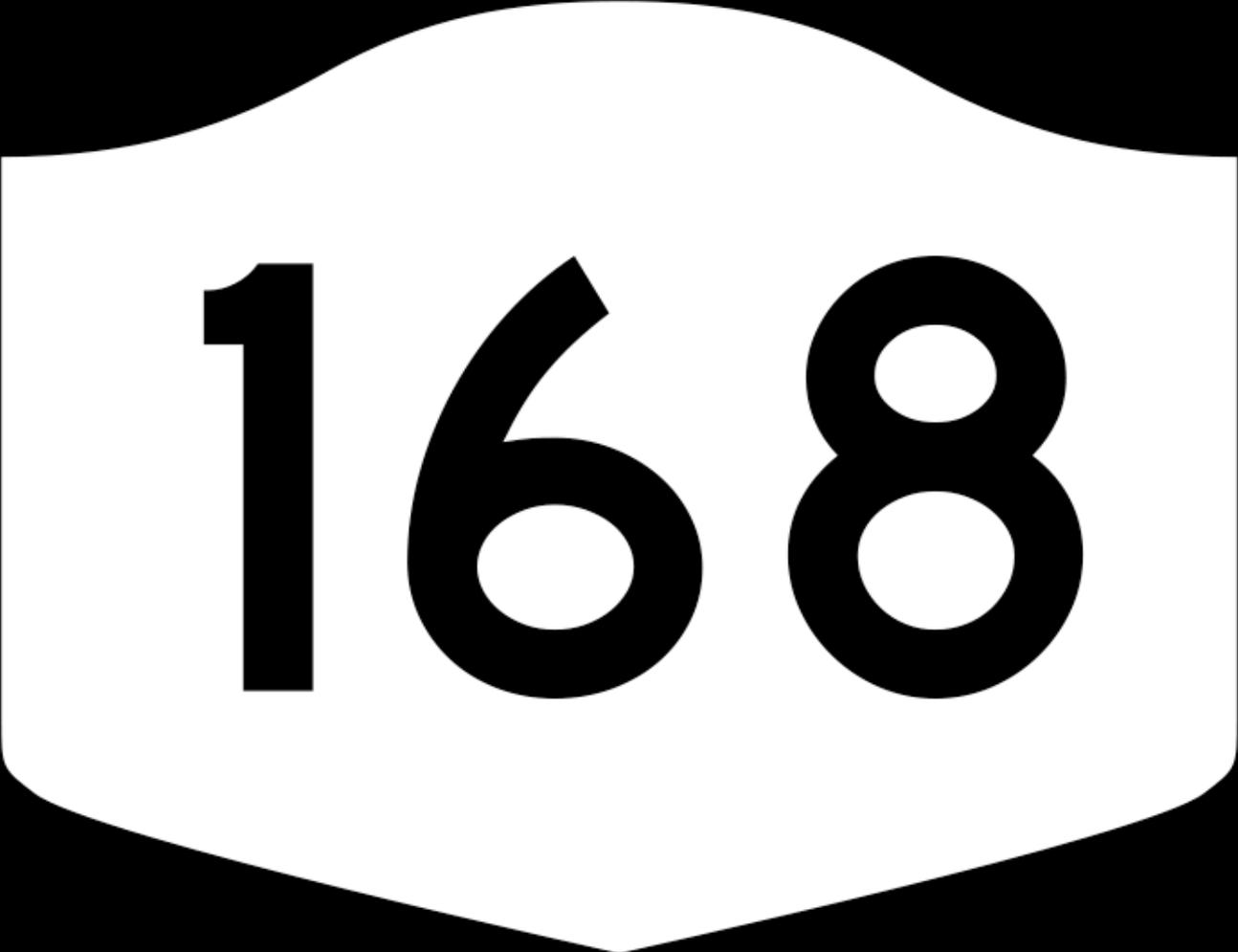
- Opioid antagonist
- Rapid reversal
- Numerous routes



1st Responder Naloxone



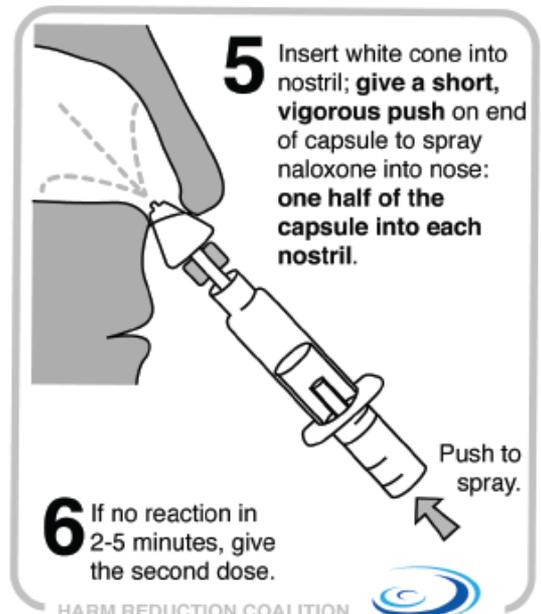
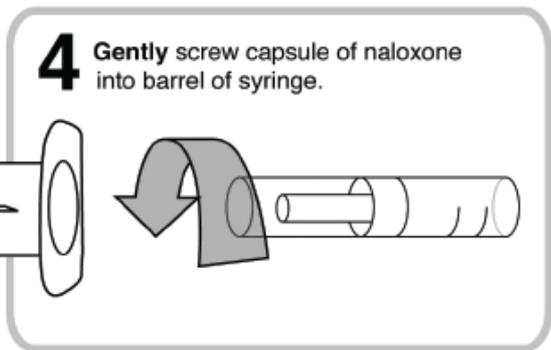
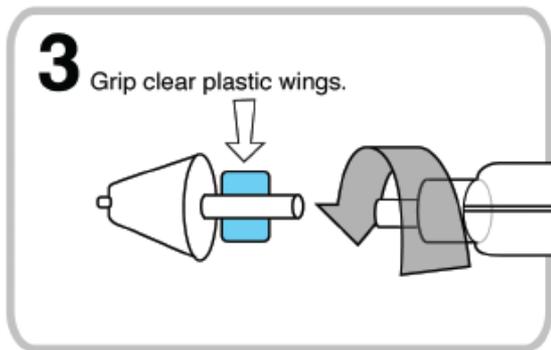
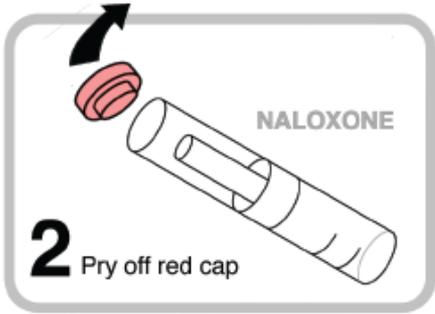
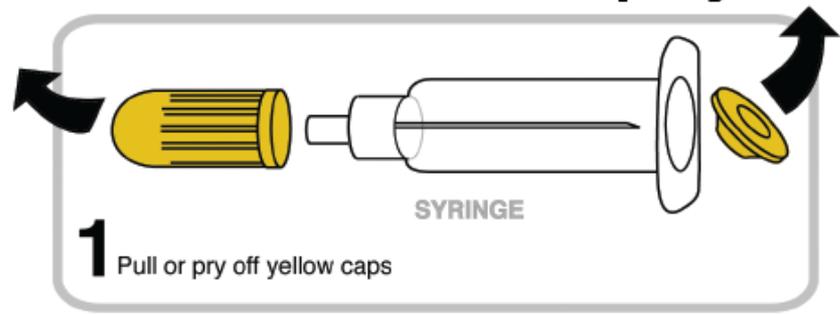
12 months



168

Aaron's Law

How to Give Nasal Spray Naloxone



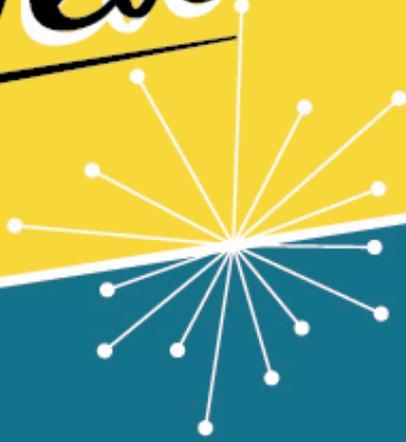
6 If no reaction in 2-5 minutes, give the second dose.

HARM REDUCTION COALITION
22 WEST 27TH ST, NEW YORK, NY 10001 (212) 213-6376





New & Improved



19-yo woman developed a tonic clonic seizure after smoking spice with friends. On EMS arrival she was agitated and nonverbal. By the time she arrived at ED could only say “Is this real”



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- Tachycardia
- Hypertensive
- Mydriasis
- Diaphoretic
- Inappropriate laughter
- Hyperreflexia
- UDS negative



Marijuana!



HEY, AT LEAST IT'S NOT CRACK!

Synthetic Cannabinoids

[Pediatr Emerg Care, 2005 Aug;21\(8\):527-8.](#)

Ataxia and shaking in a 2-year-old girl: acute marijuana intoxication presenting as seizure.

[Bonkowsky JL¹, Sarco D, Pomeroy SL.](#)

Synthetic Cannabinoid–Related Illnesses and Deaths

Jordan Trecki, Ph.D., Roy R. Gerona, Ph.D., and Michael D. Schwartz, M.D., M.P.H.



[MMWR Morb Mortal Wkly Rep, 2013 Feb 15;62\(6\):93-8.](#)

Acute kidney injury associated with synthetic cannabinoid use--multiple states, 2012.

[Centers for Disease Control and Prevention \(CDC\).](#)

Cannabinoid Hyperemesis Syndrome

Mayo Clin Proc. 2012 Feb;87(2):114-9. doi: 10.1016/j.mayocp.2011.10.005.

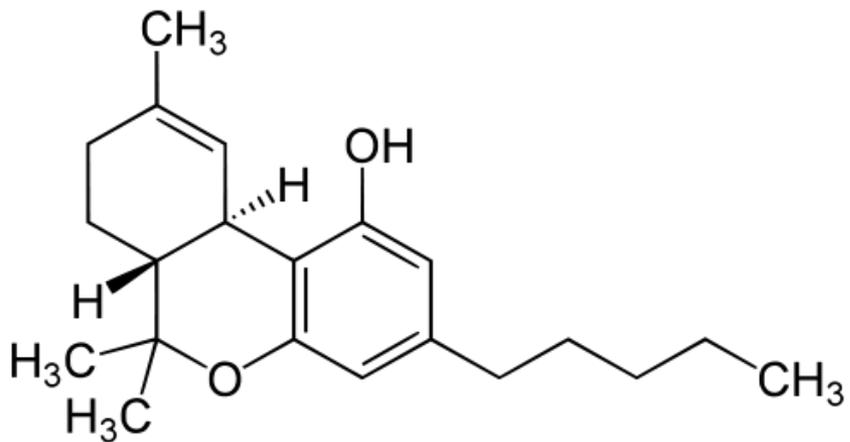
Cannabinoid hyperemesis: a case series of 98 patients.

Simonetto DA¹, Oxentenko AS, Herman ML, Szostek JH.

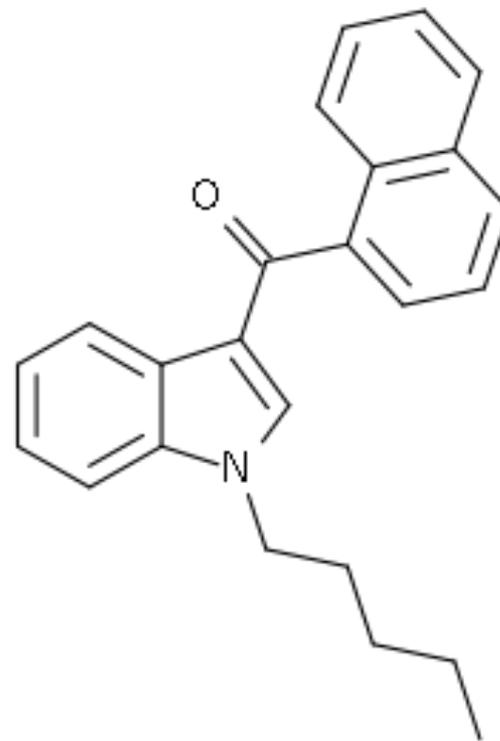
Case Rep Emerg Med. 2014;2014:167098. doi: 10.1155/2014/167098. Epub 2014 Apr 29.

A Gut Gone to Pot: A Case of Cannabinoid Hyperemesis Syndrome due to K2, a Synthetic Cannabinoid.

Ukaigwe A¹, Karmacharya P¹, Donato A¹.



Δ⁹-THC



JWH-018

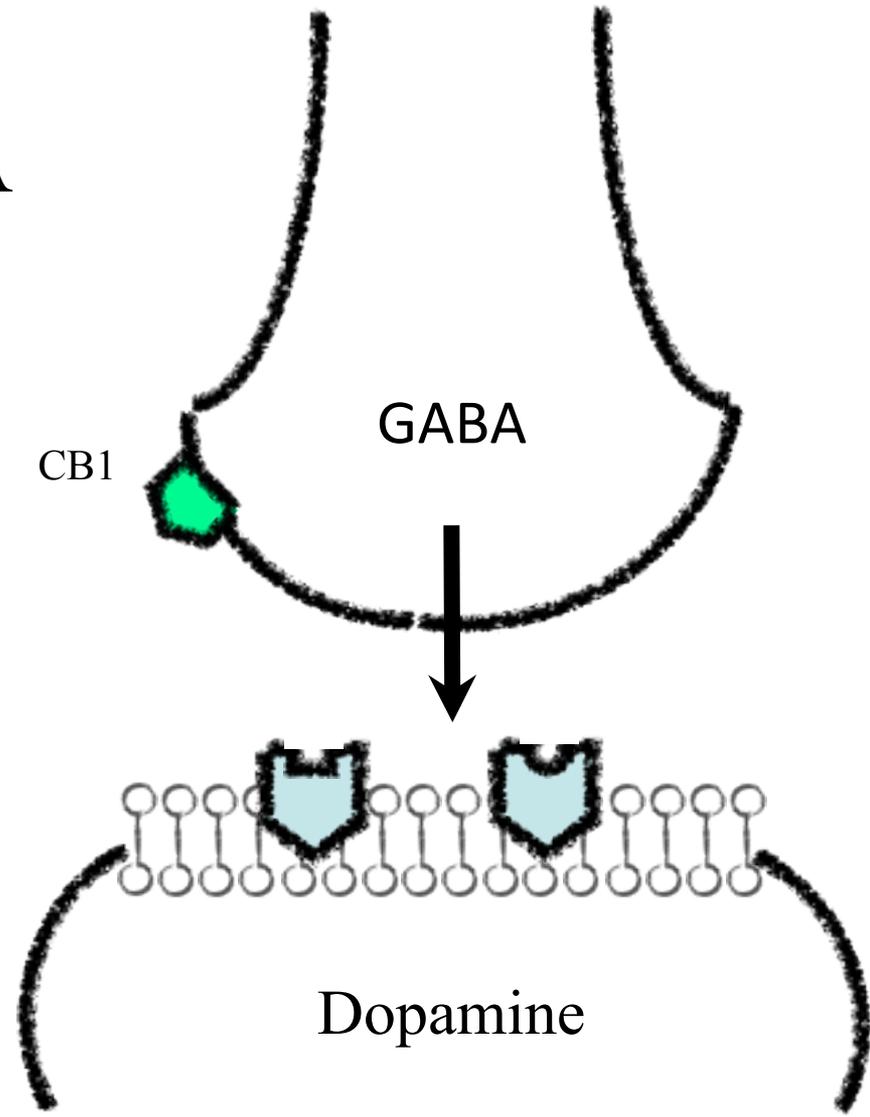
UDS



Clinical Effects

Inhibit release GABA

Inhibit MAO



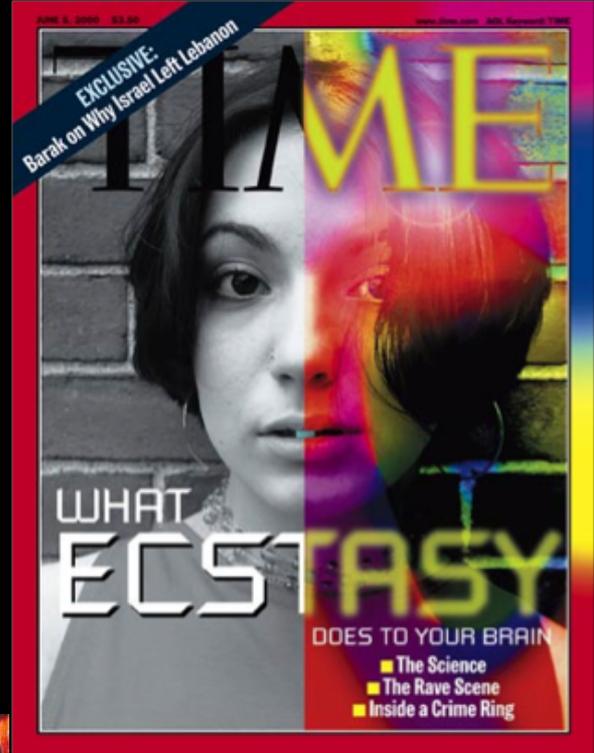
17 year old male is convinced people are trying to kill him and have been spying on him from his neighbors roof. Extremely frightened he breaks a window and runs out of the house.

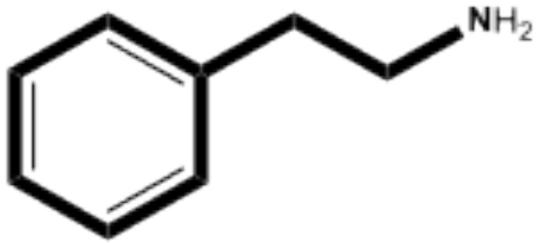
Police are called when he is spotted running down the street naked with bleeding hands



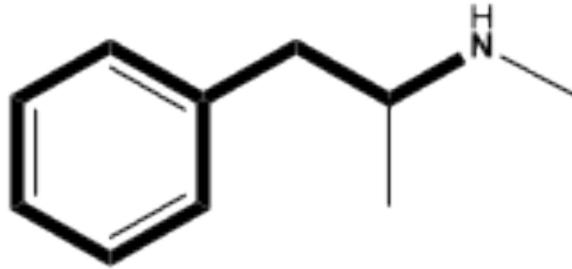
- Agitated, confused, frightened
- Tachycardia
- Hyperthermia- 104.3°C
- Diaphoretic
- Dilated pupils
- Hyper-reflexia
- Kidney injury
- Rhabdomyolysis



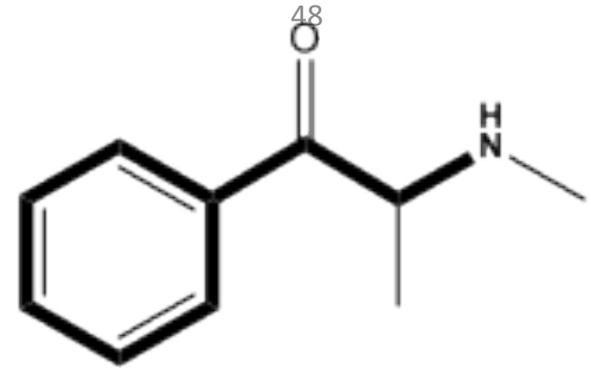




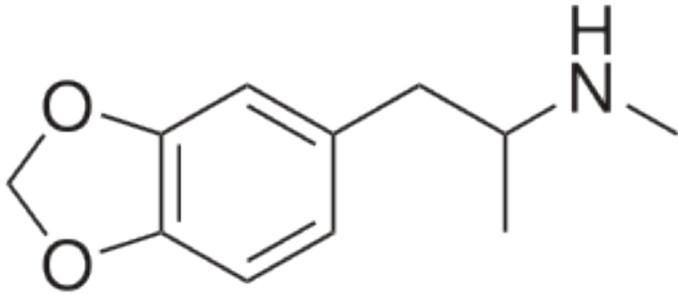
Phenethylamine



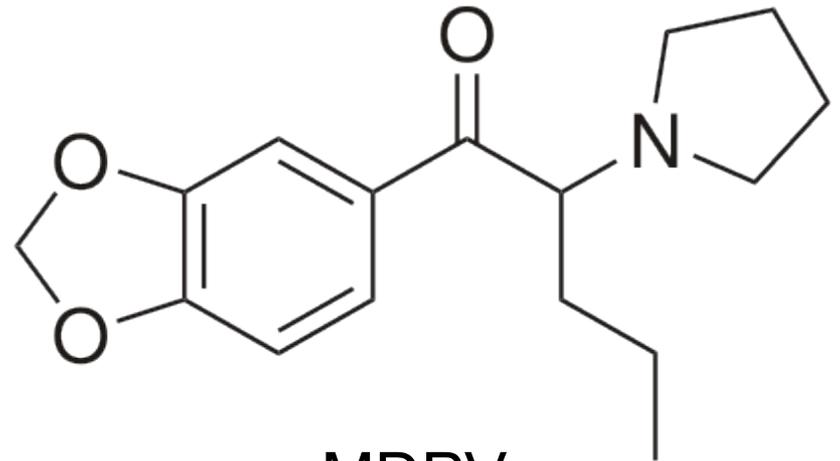
Methamphetamine



Methcathinone



MDMA



MDPV



Locally Made
Bath Salts
Only \$1.99



Bath Salts

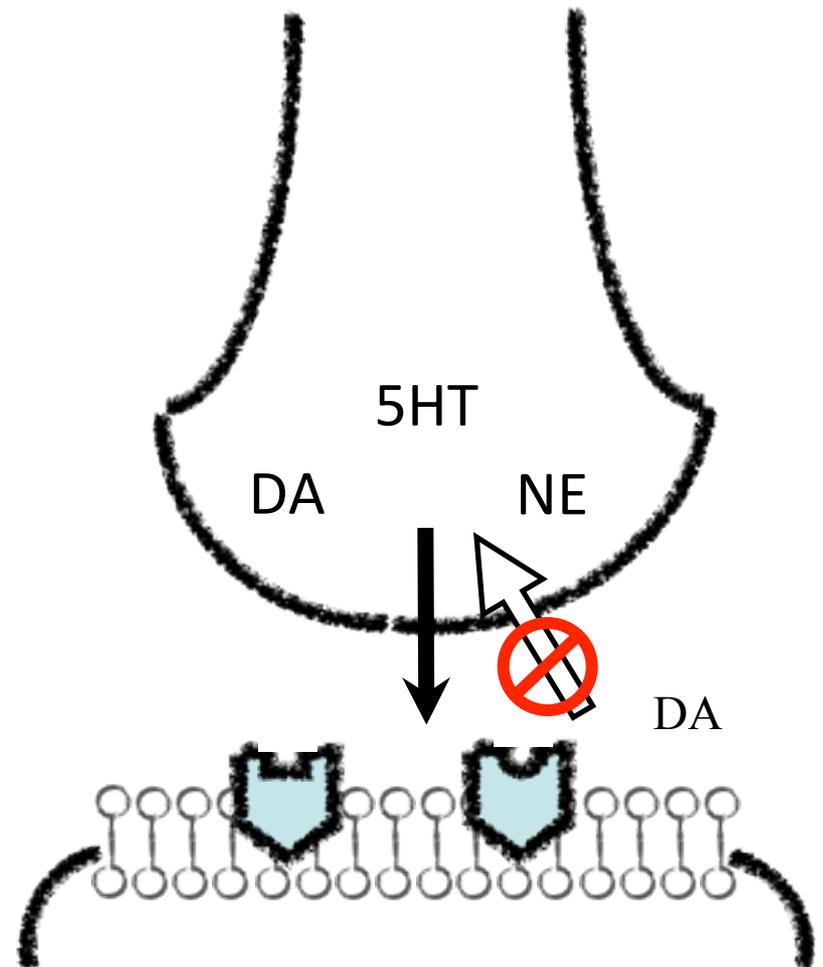


≠



Clinical Effects

Increase Release
Prevent Reuptake
Inhibit Metabolism





Tachycardia
Hypertension
Diaphoresis
Mydriasis
Locomotion
Aggression
Tachypnea
Bruxism

Sustained Clonus



Hypokalemic
Hyponatremic
Hypo/Hyperglycemic
Leukocytosis
PT/PTT
Creatinine
CPK
UDS (neg)



Isolated Renal Failure
Rhabdomyolysis
Multi Organ Failure

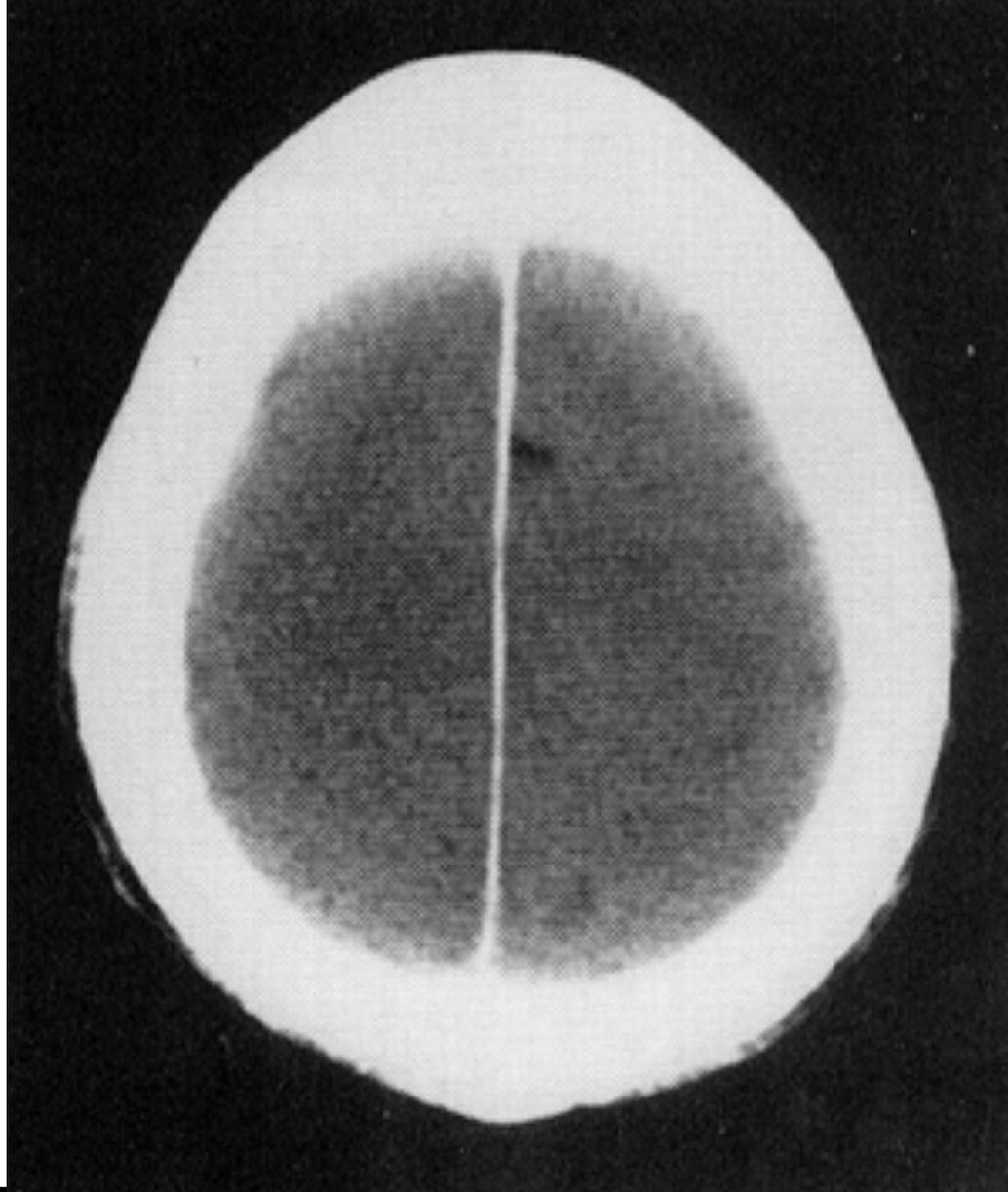


Hyperthermia

DIC
CV collapse
Death



Cerebral Edema Hyponatremia



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Psychosis



<http://www.cnn.com/2012/06/03/us/bath-salts-interview>



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Psychological Bulletin

Amphetamine Models of Paranoid Schizophrenia: An Overview and Elaboration of Animal Experimentation

Larry Kokkinidis
University of Saskatchewan
Saskatoon, Saskatchewan, Canada

Hymie Anisman
Carleton University
Ottawa, Ontario, Canada

The neurochemical and behavioral changes induced by acute and chronic amphetamine treatment were evaluated, particularly as they pertained to drug-induced psychosis and paranoid schizophrenia. It was suggested that although some behaviors may be mediated by dopamine (DA) and that other behaviors are largely subserved by noradrenergic mechanisms, the elicitation of a given behavior by amphetamine may be influenced by the interaction among several transmitters. It was hypothesized that behaviors that involve norepinephrine (NE) activity are stimulus bound and are related to attentional processes, whereas behaviors primarily subserved by DA appear to be motorically based. Behavioral augmentations frequently observed following repeated drug treatment were postulated to reflect alterations in DA activity, whereas the reduction of the drug's effect was ascribed to changes in attentional processes owing to variations in NE activity. The acute and chronic effects of *d*-amphetamine on attentional and arousal processes were related to current views of drug-induced psychosis in humans, as well as to endogenous disorders.

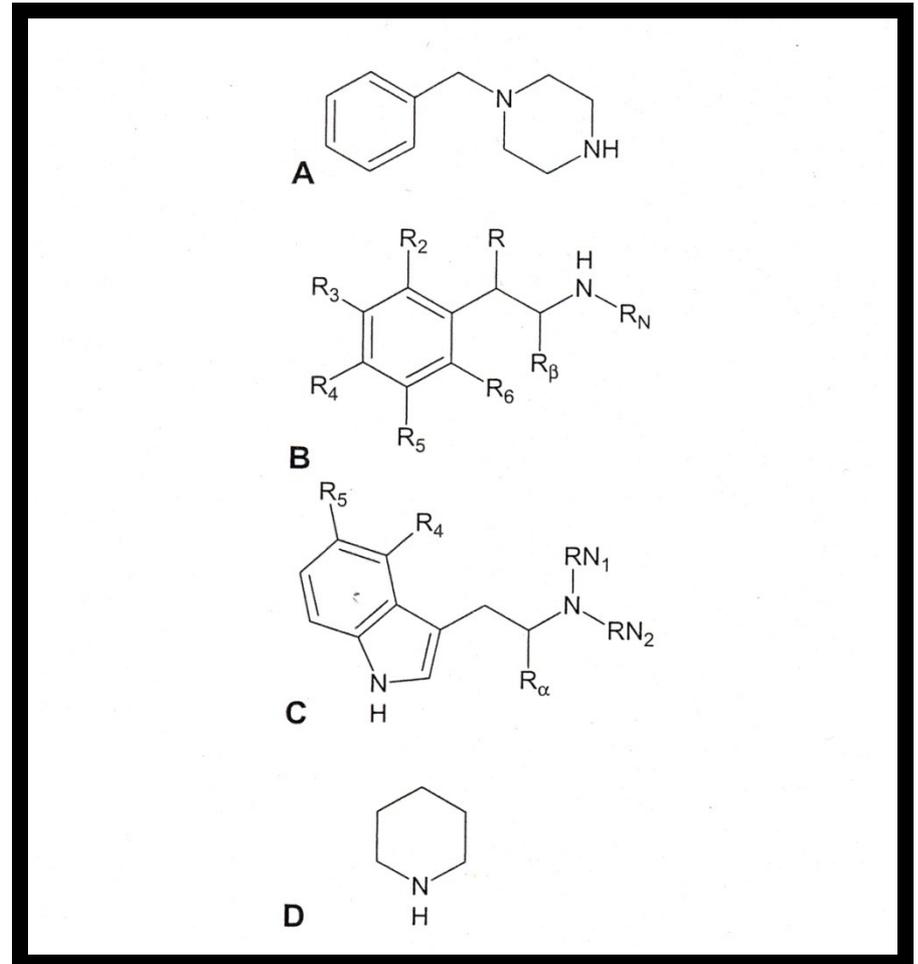
Other Stimulants

Piperazines

Phenethylamines

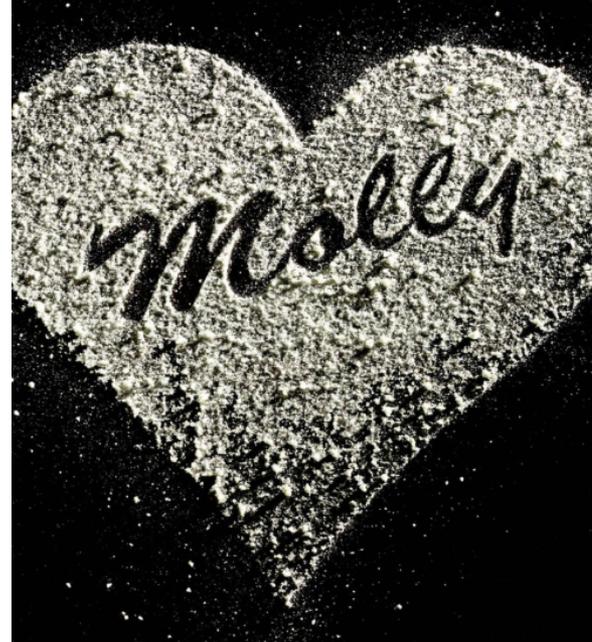
Tryptamines

Piperidines

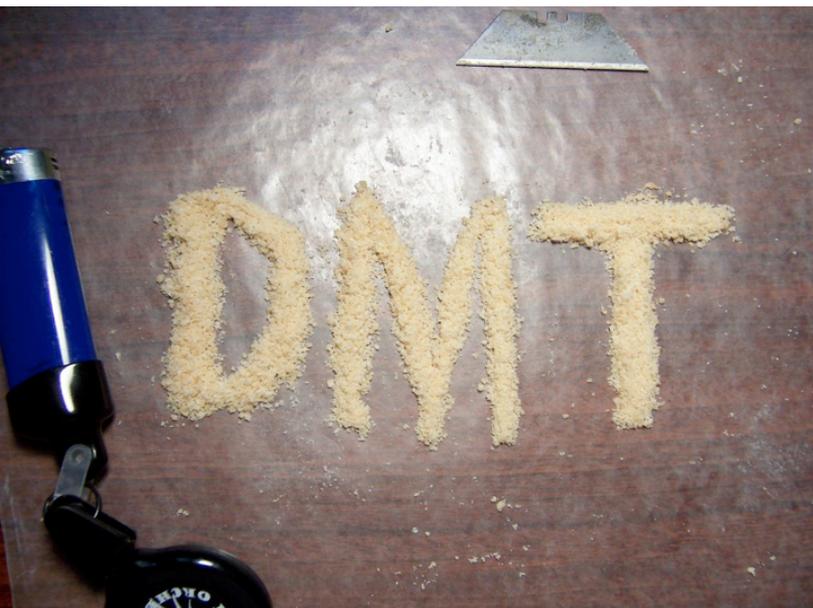




PMA



BZP/Phenyl Piperazines



DMT



2-DPMP

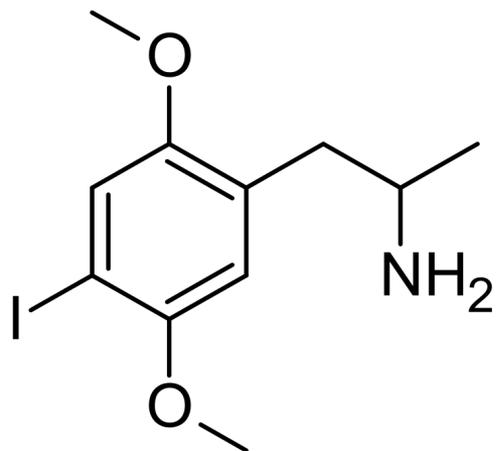
16 yo male insufflated a powder to get high. He developed hallucinations describing animals and shapes running around him. Shortly after this he developed a tonic clonic seizure.



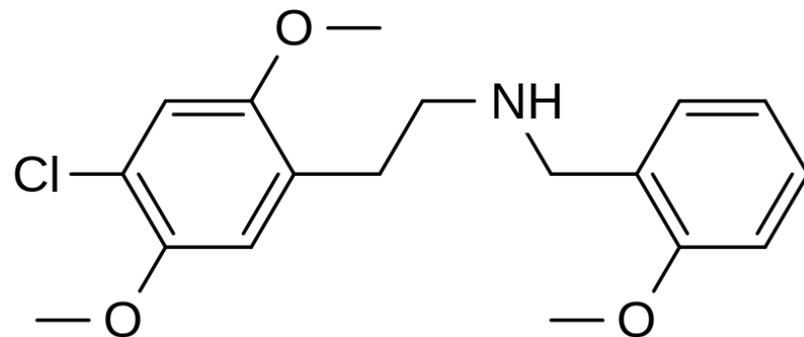
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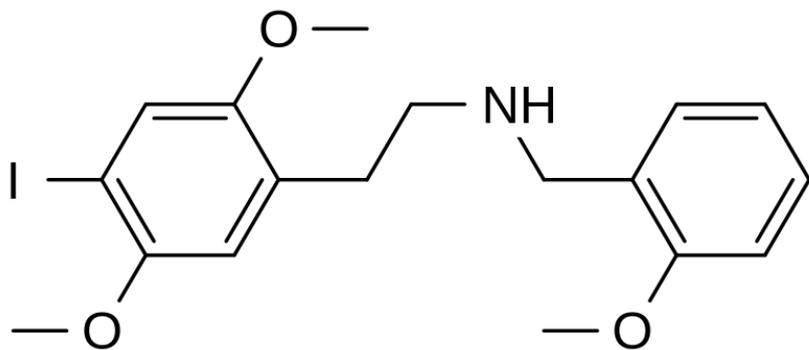




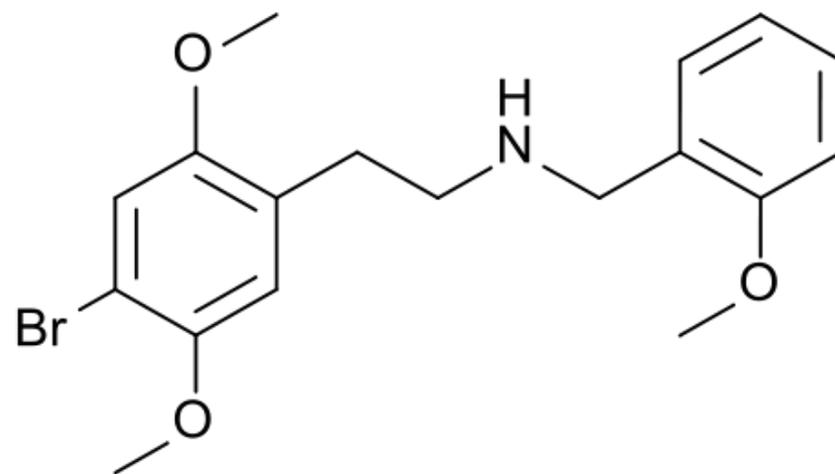
DOI



2C-NBOMe



25I-NBOMe



25B-NBOMe

MOA and Effects

- Potent 5-HT_{2A} (serotonin) agonist
- Hallucinations
- Seizures
- Hyperthermia and Death

a business imperative.

New synthetic drug NBOME suspected in third death this year

POSTED 10:43 PM, MAY 15, 2014, BY [JILL GLAVAN](#) AND [JILL GLAVAN](#)

[f FACEBOOK](#) 38

[TWITTER](#) 8

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JOHNSON COUNTY – A new synthetic drug just on the radar of narcotics detectives is now suspected in a third central Indiana death, two of them teenagers.

Genius™ 3D Mammography™ exams:

- **Better** detection of invasive breast cancers
- **Fewer** anxiety inducing callbacks



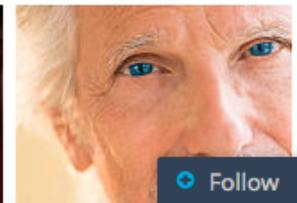
[FIND ONE NEAR YOU](#)

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3D MAMMOGRAPHY

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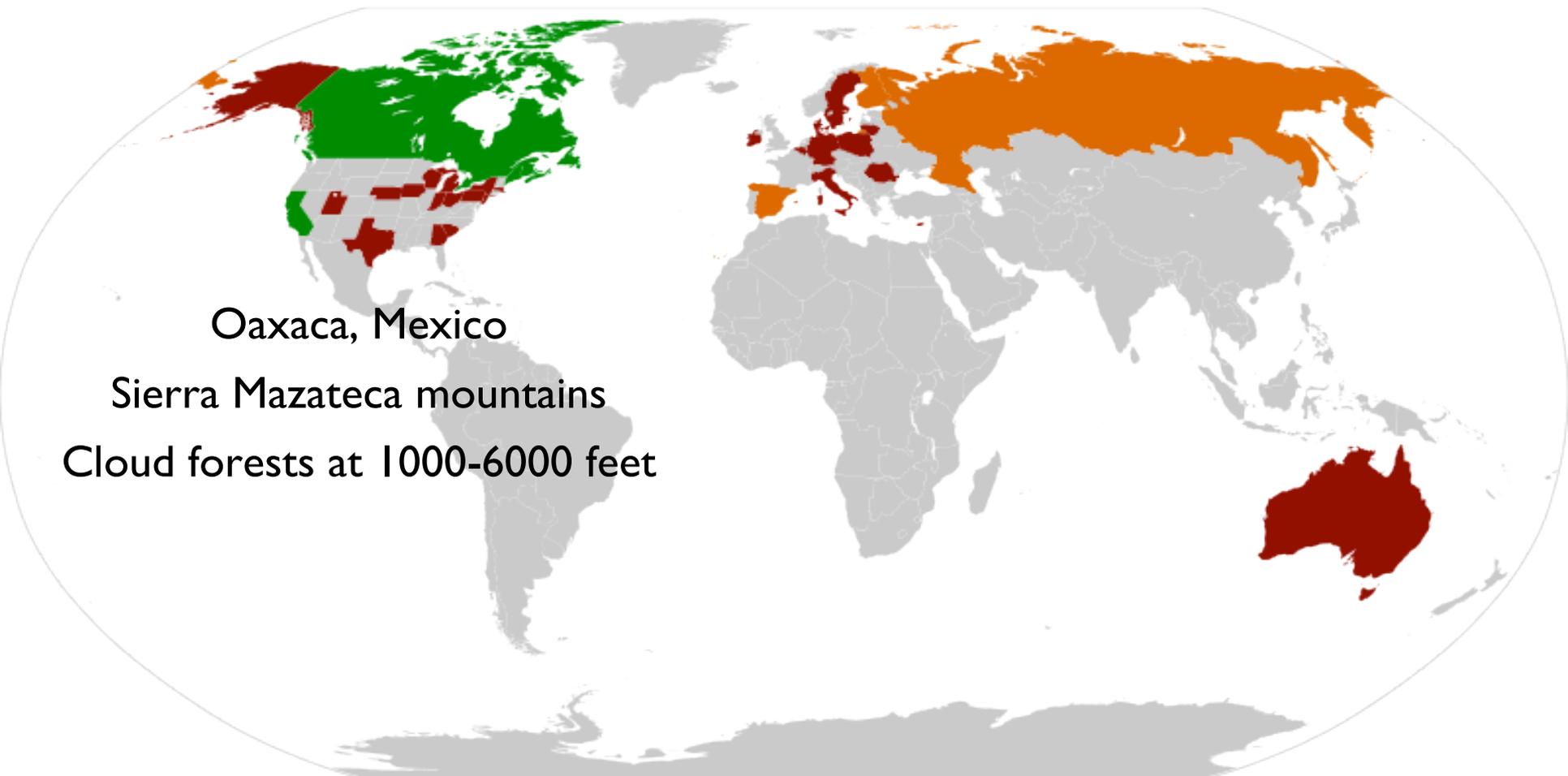
Standardized Salvia Extract

Lab tested quality assurance

Must be 18 or older

100% Money Back Guarantee

2-4 day shipping via usps first class mail with delivery confirmation and tracking

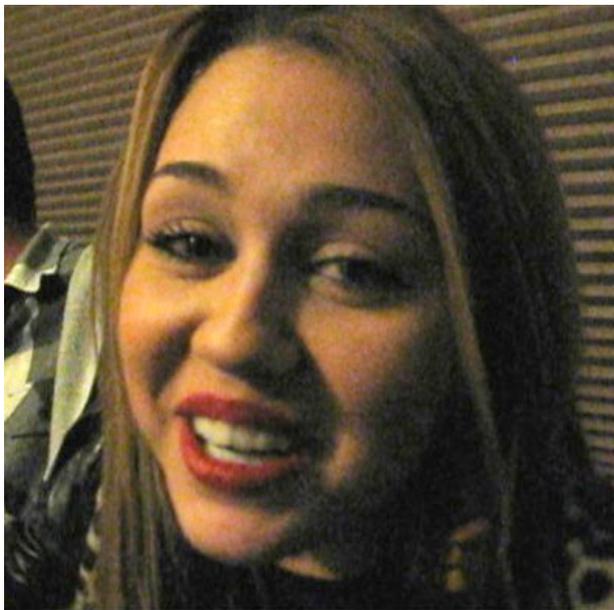


Oaxaca, Mexico
Sierra Mazateca mountains
Cloud forests at 1000-6000 feet

Banned by law
Import/sales prohibited
Sales to minors prohibited

Salvia Divinorum

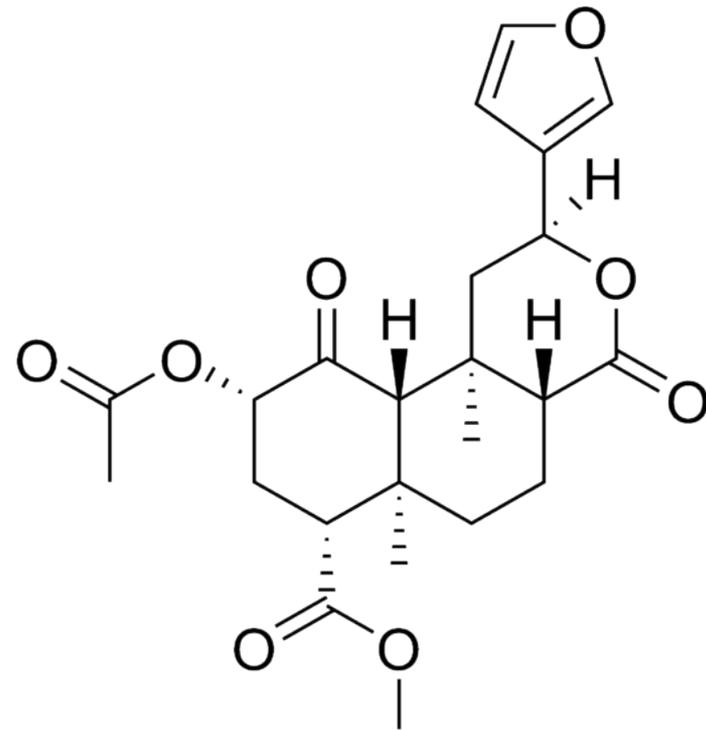
- Traditional use by Mazatec shamans
- Recollection of past memories
- Glossolalia (Speaking in tongues)
- Meditation



Driving on Salvia



Potent K-opioid Receptor Antagonist



Salvinorin-A



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WHAT'S
AVAILABLE

INDIANA
POISON
CENTER



THE NEW YORKER



“Meth doesn’t upset my stomach the way coffee does.”