

Prescription Drug Abuse: It's *Not* What the Doctor Ordered



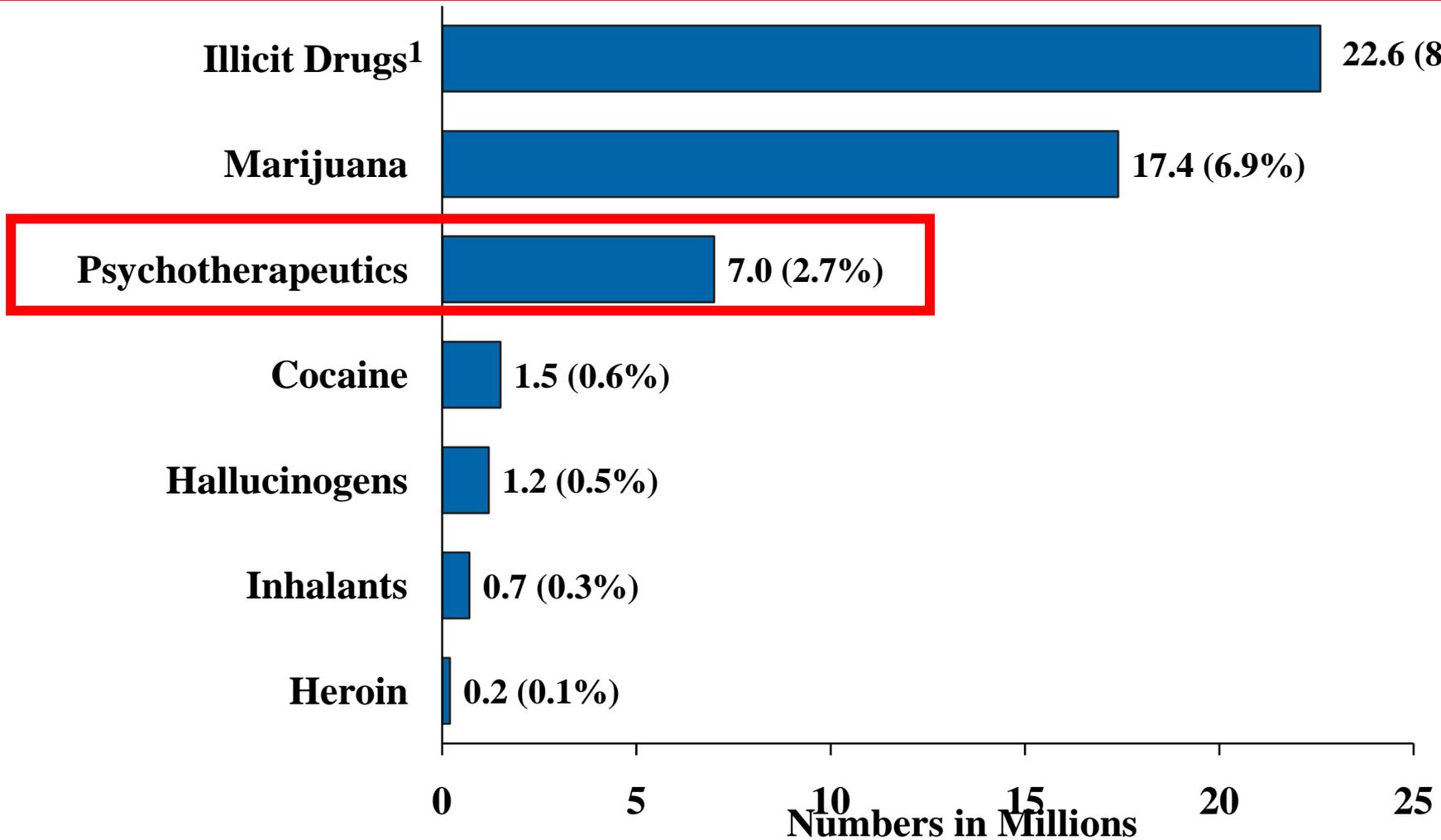
*Harold Rogers Prescription Drug Monitoring Program
National Meeting*

Wilson M. Compton, M.D., M.P.E.

Director, Division of Epidemiology, Services and Prevention Research
National Institute on Drug Abuse



Prescription Drug Misuse/Abuse is a Major Problem in USA: Current Drug Use Rates in Persons Ages 12+



Source: SAMHSA, 2010 National Survey on Drug Use and Health

¹ Illicit Drugs include marijuana/hashish, cocaine (including crack), heroin, hallucinogens, inhalants, or prescription-type psychotherapeutics used nonmedically.

Medications Frequently Abused by Teens

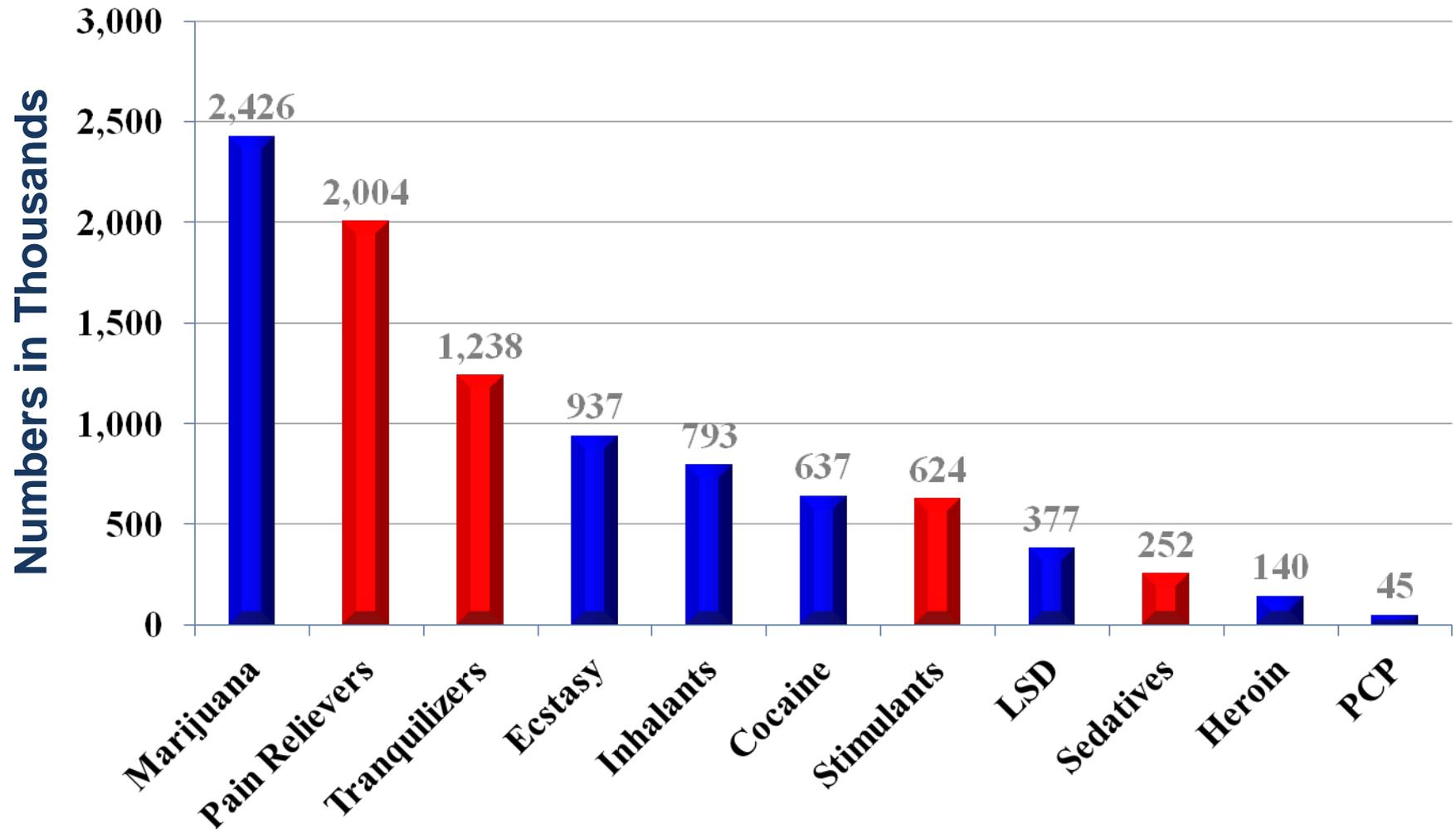
Prevalence of Past Year Drug Use Among 12th graders in the 2011 Monitoring the Future Study

Drug	Prev.	Drug	Prev.
Alcohol	63.5	OxyContin*	4.9
Marijuana/Hashish	36.4	Sedatives*	4.3
Synthetic Marijuana	11.4	Hall other than LSD	4.3
Amphetamines*	8.2	Inhalants	3.2
Vicodin*	8.1	Cocaine (any form)	2.9
Adderall*	6.5	LSD	2.7
Salvia	5.9	Ritalin*	2.6
Tranquilizers*	5.6	Ketamine	1.7
Cough Medicine*	5.3	Provigil	1.5
MDMA (Ecstasy)	5.3	GHB	1.4
Hallucinogens	5.2	Methamphetamine	1.4

* Nonmedical use

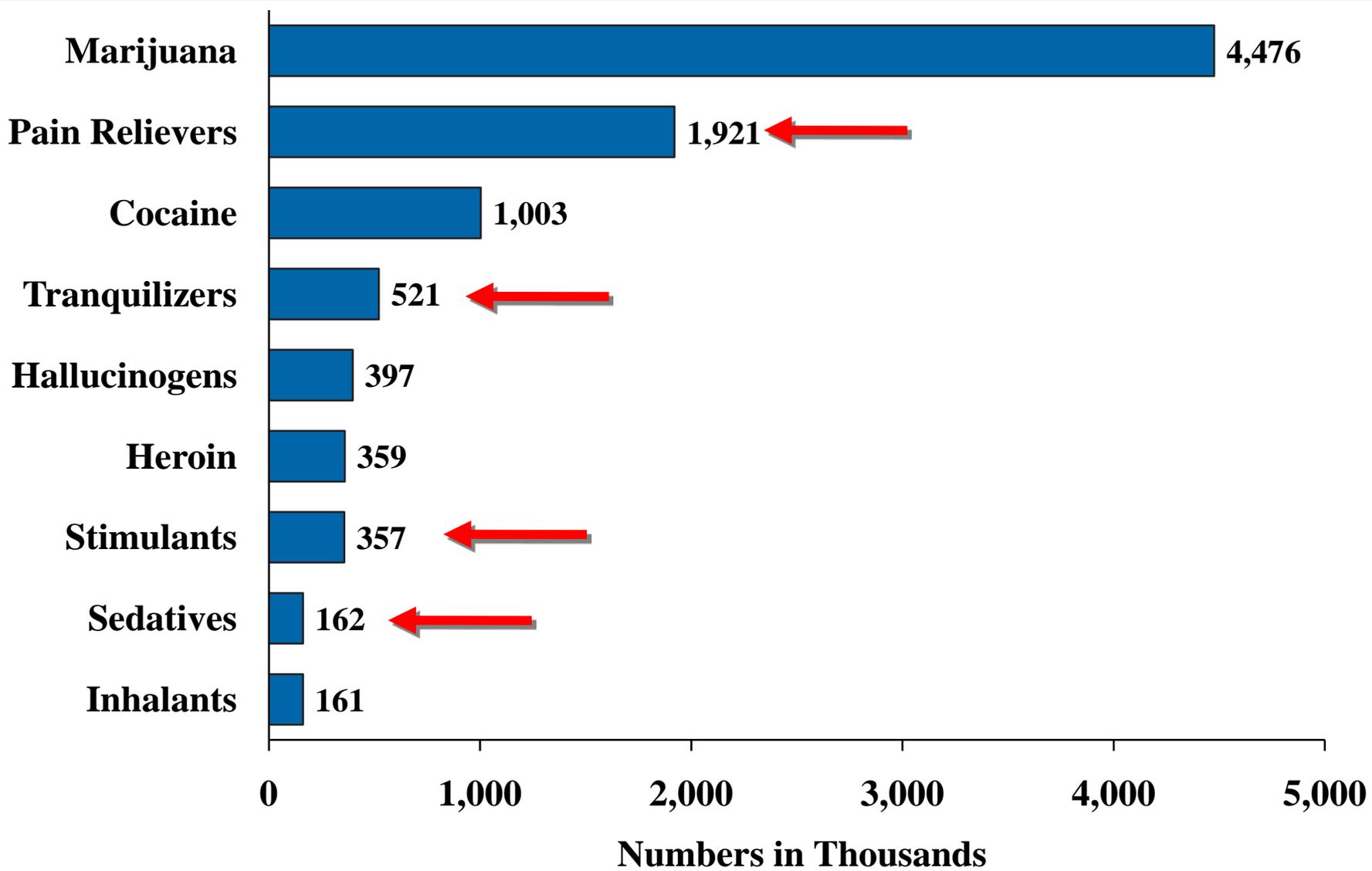
Categories not mutually exclusive

Large Number of Past Year Initiates of Pharmaceuticals: Persons Aged 12 or Older, 2010



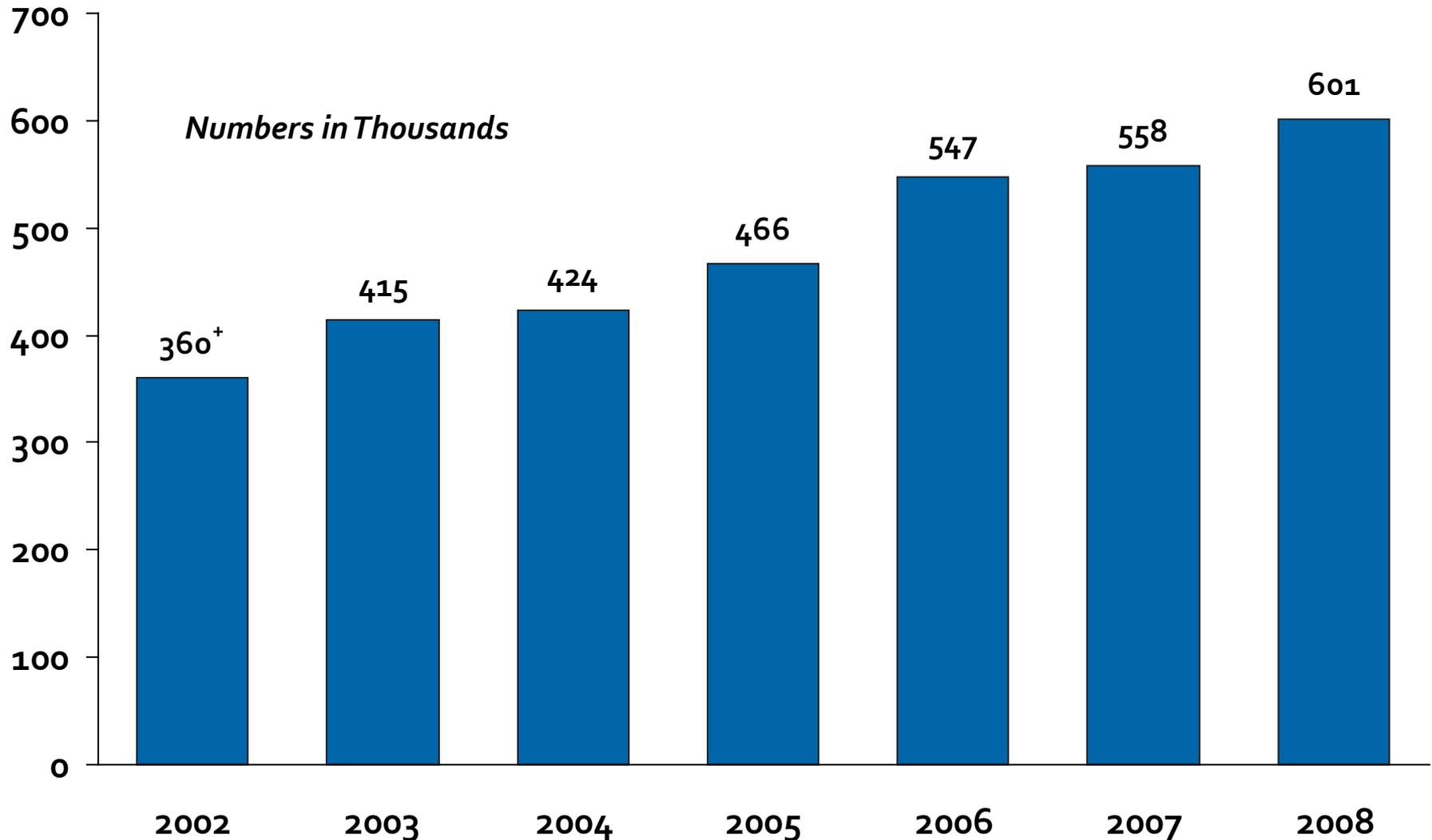
Source: 2010 National Survey on Drug Use and Health, SAMHSA, 2011.

Dependence on or Abuse of Specific Illicit Drugs in the Past Year among Persons Aged 12 or Older, 2010



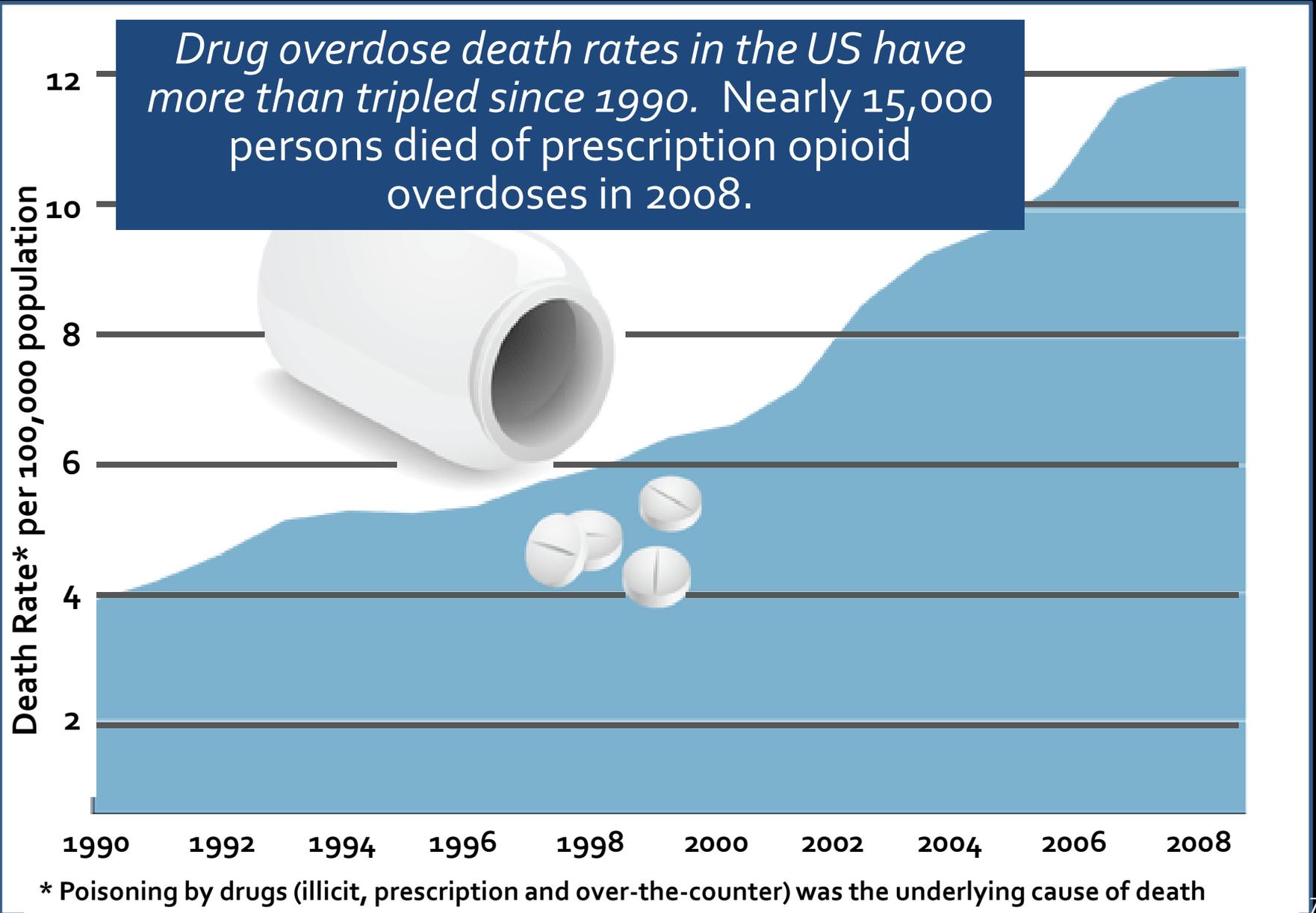
Source: SAMHSA, 2010 National Survey on Drug Use and Health 5

66% Increase in Treatment Admissions Increasing for Pharmaceutical Opioids: Ages 12+ in USA



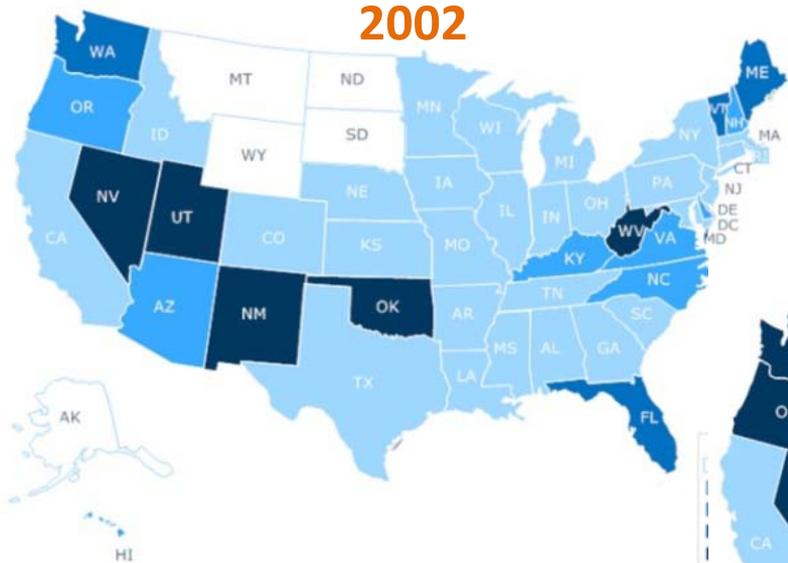
+ Difference between this estimate and the 2008 estimate is statistically significant at the .05 level.

DEATHS: Marked Increase in Unintentional Drug Overdose

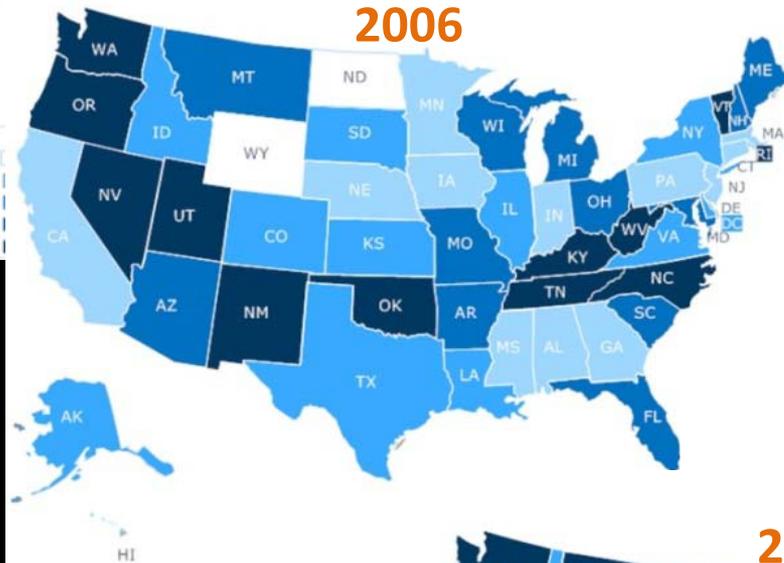


Source: CDC Vital Signs, November 2011

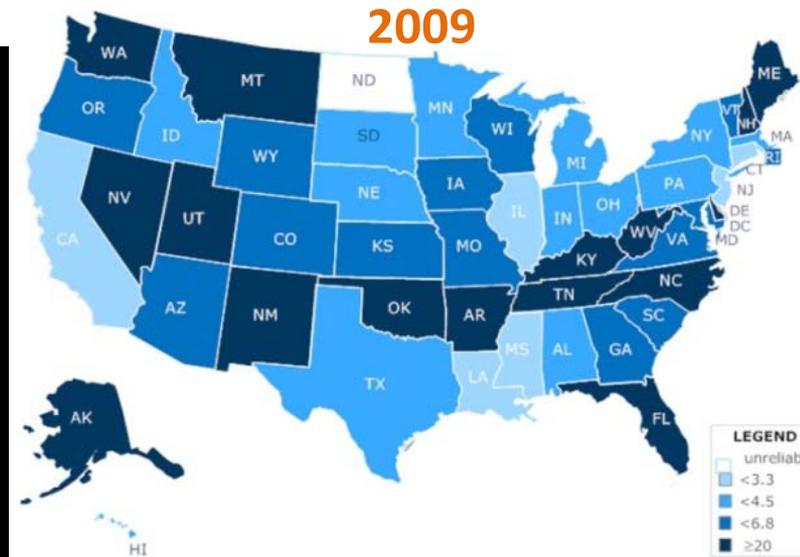
2002



2006



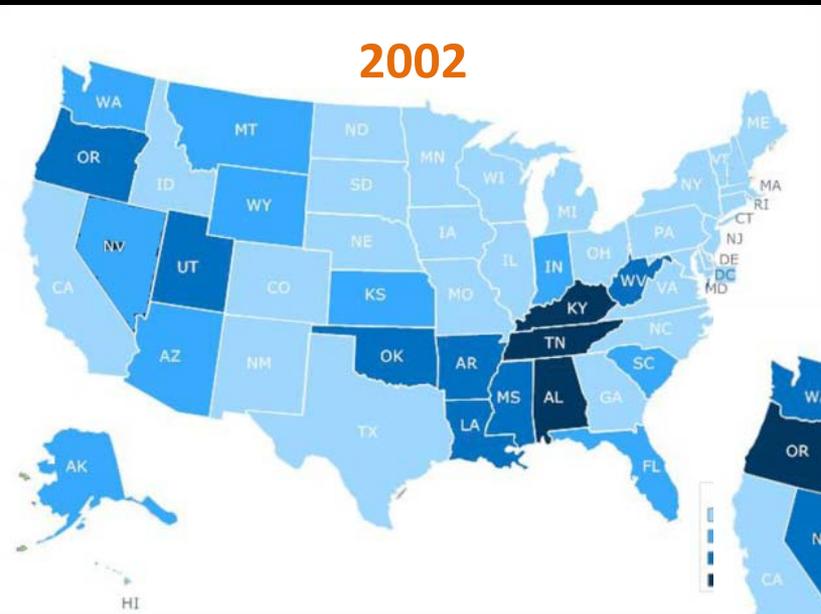
2009



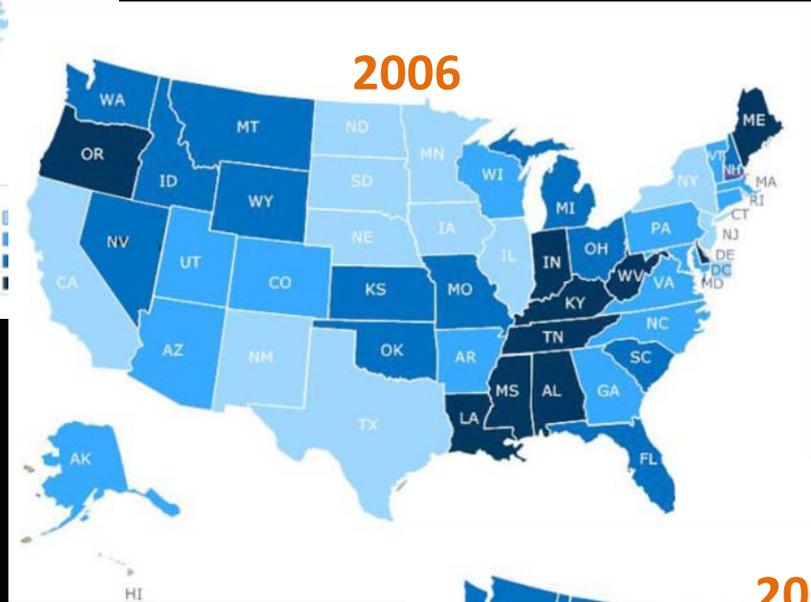
**Deaths from Overdose
Vary by State:
Unintentional Overdose
Deaths (*per 100,000 pop'n*) in
U.S. States 2002, 2006, 2009**

Source: IMS Vector One National , CDC Wonder, & the US Census

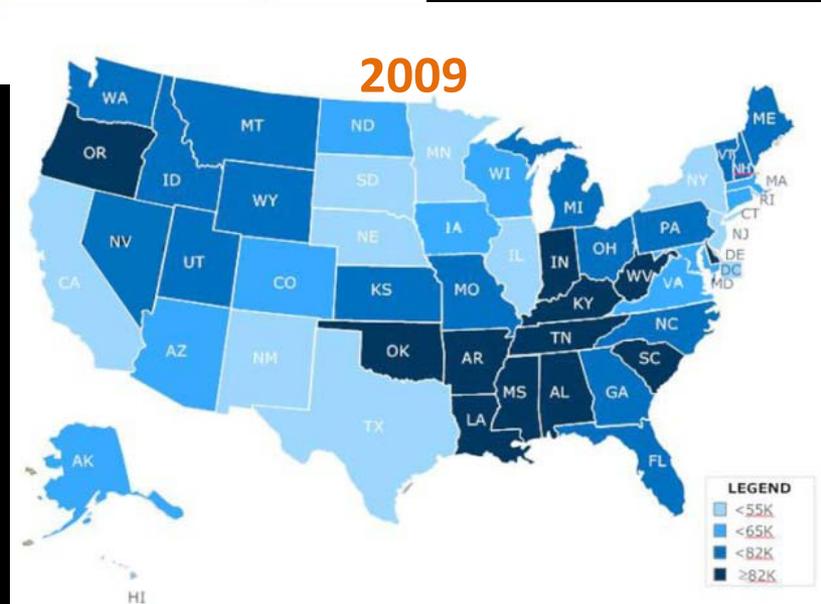
2002



2006



2009

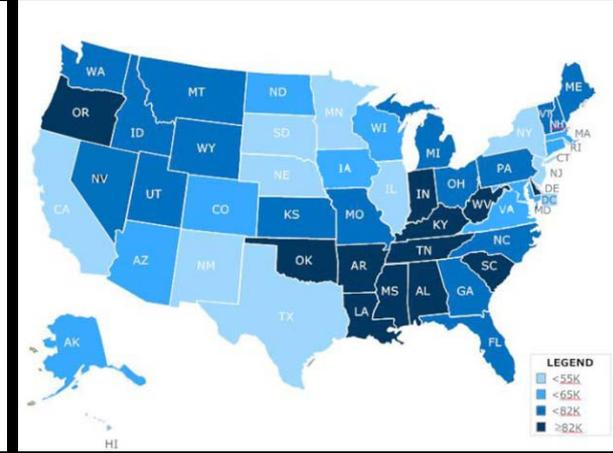
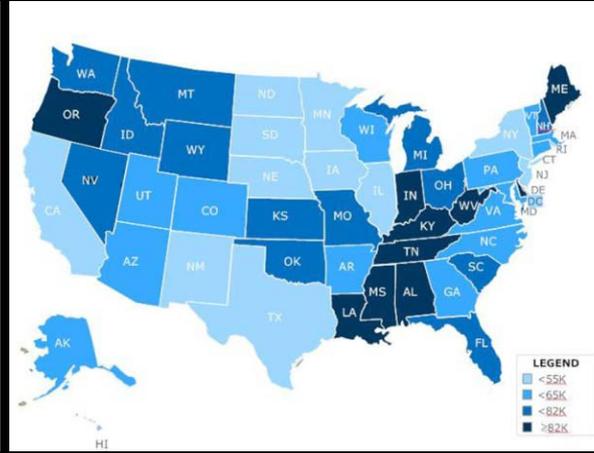
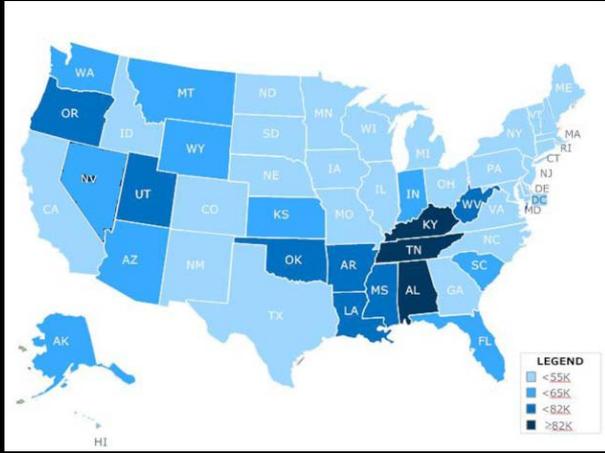


**Prescribing of Opioids
Vary by State:
Overall Opioid-type Prescriptions
(per 100,000 pop'n) in U.S. States
2002, 2006, 2009**

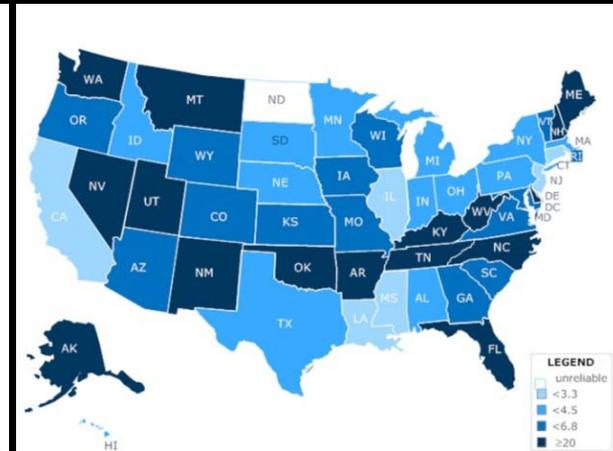
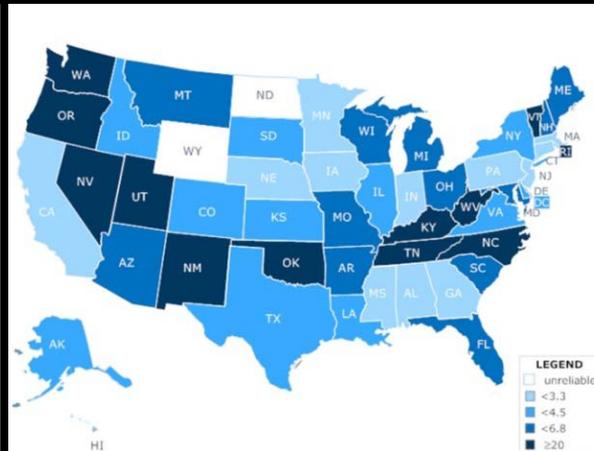
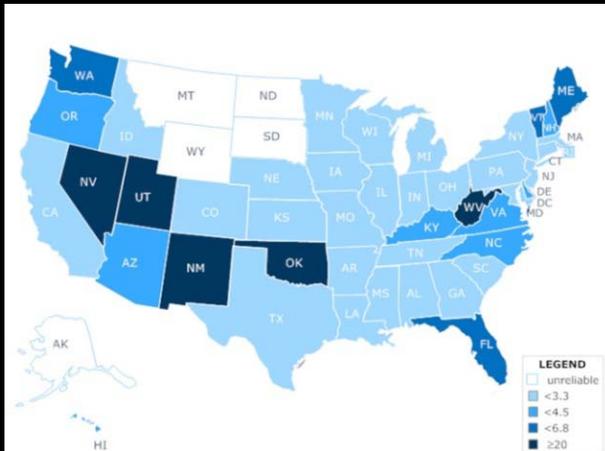
Source: IMS Vector One National , CDC Wonder, & the US Census

The Dynamic relationship between rates of opioid prescriptions and rates of opioid-related overdose deaths in the US – 2002, 2006, 2009

Prescriptions



Overdose Deaths

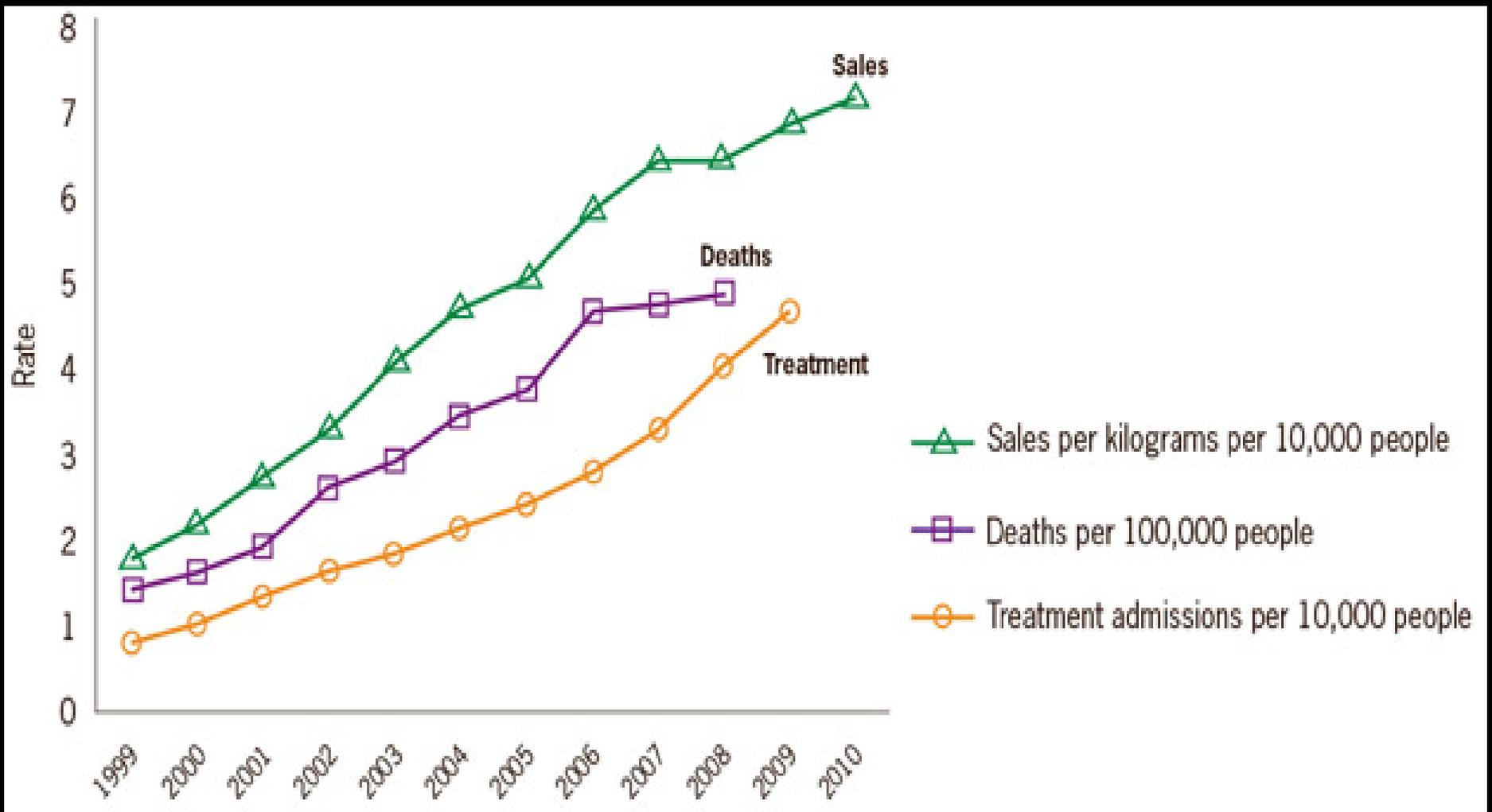


2002

2006

2009

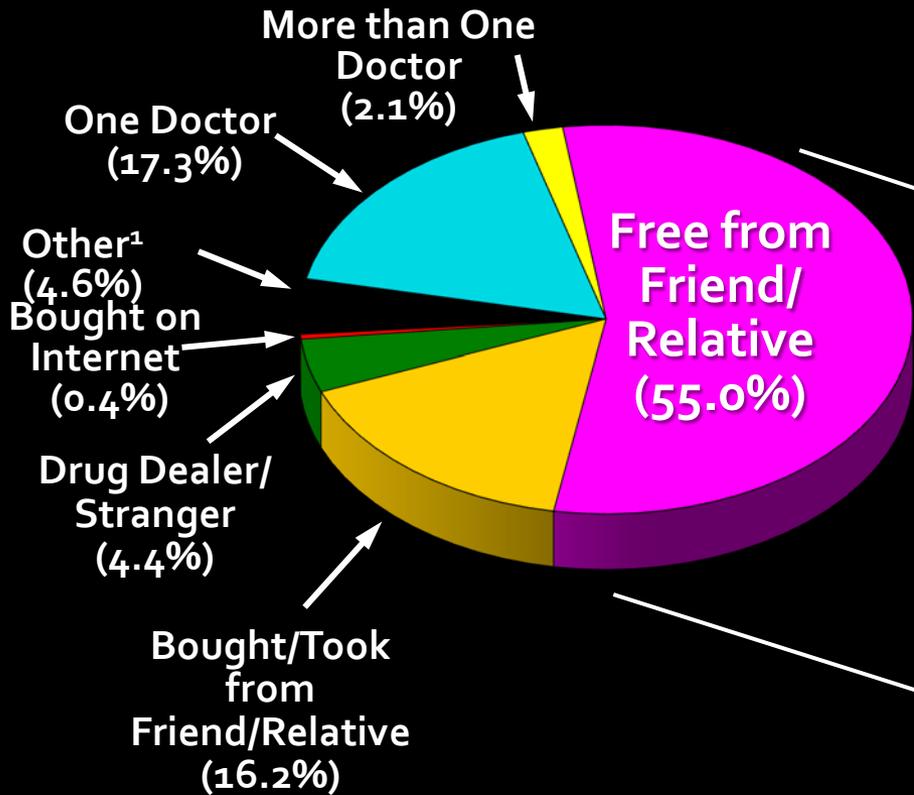
Increases in deaths parallel opioid sales increases as well as prescription opioid treatment admissions



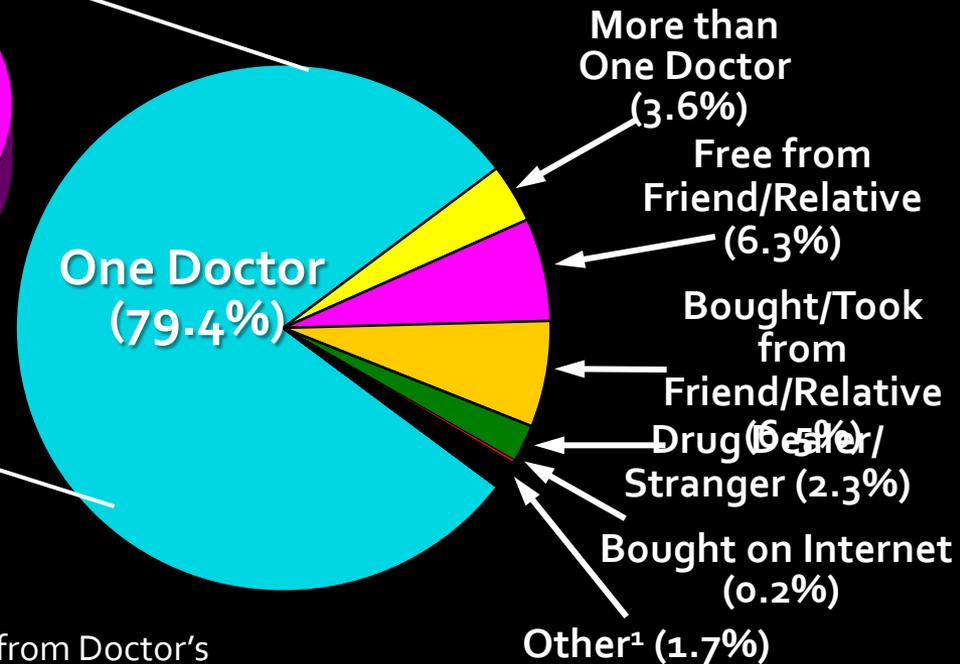
Source: CDC Vital Signs, November 2011

People Abusing Analgesics INDIRECTLY obtain them by Prescription: *Most Recent Source for Ages 12+*

Source Where Respondent Obtained

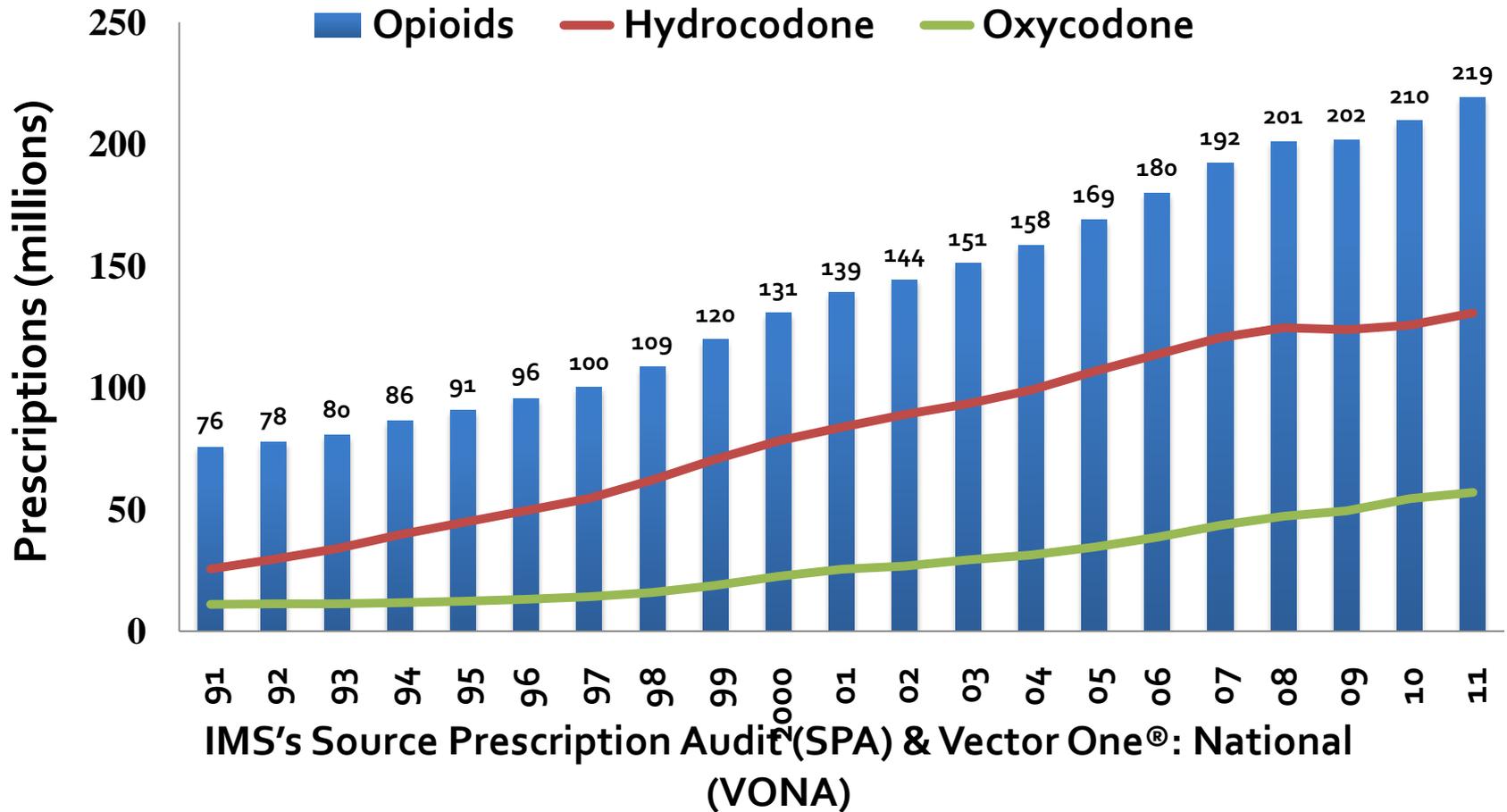


Source Where Friend/Relative Obtained



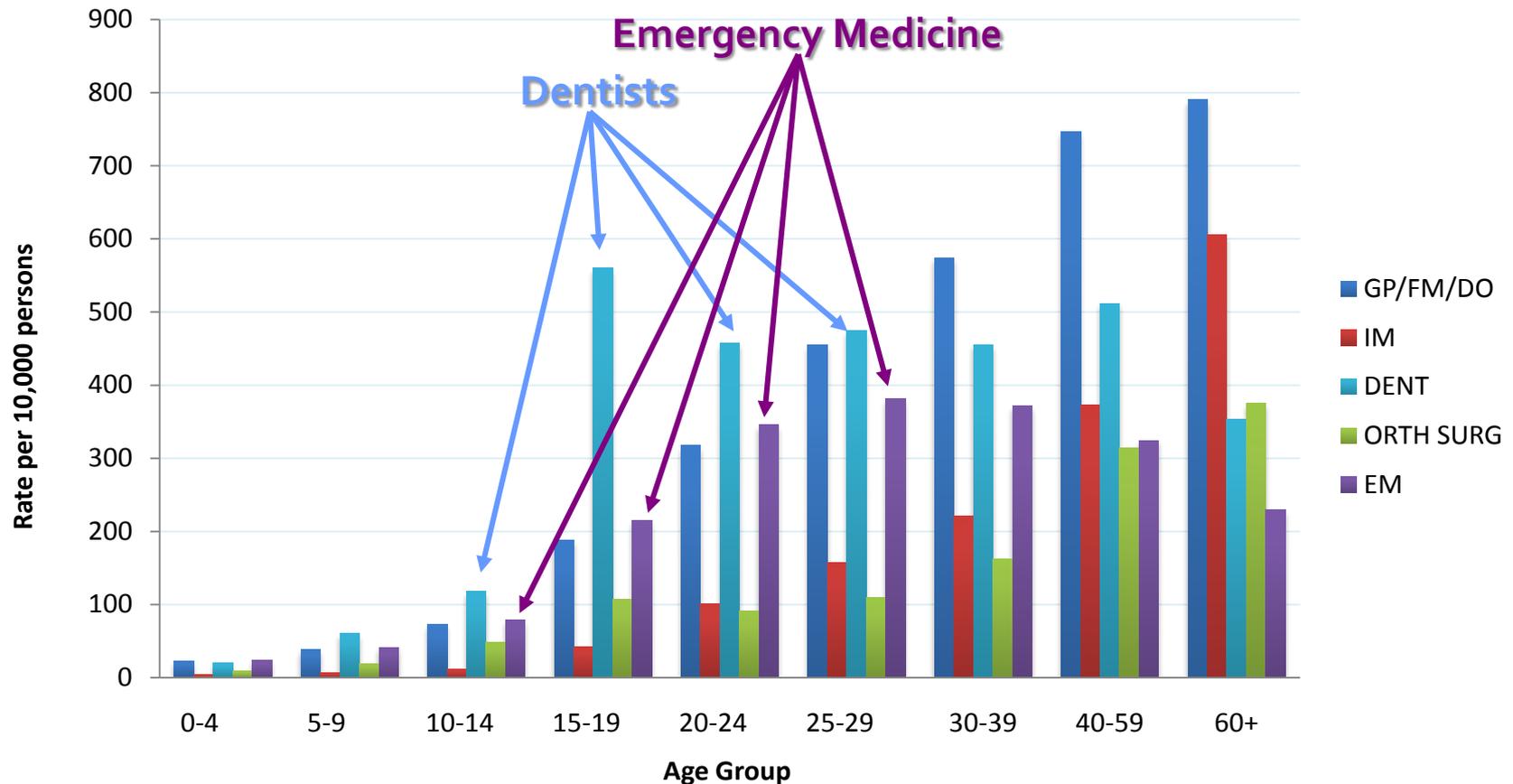
¹Other category includes "Wrote Fake Prescription," "Stole from Doctor's Office/Clinic/Hospital/Pharmacy," and "Some Other Way."

3-Fold Increases in Number of Opioid Prescriptions Dispensed by U.S. Retail Pharmacies, Years 1991-2011

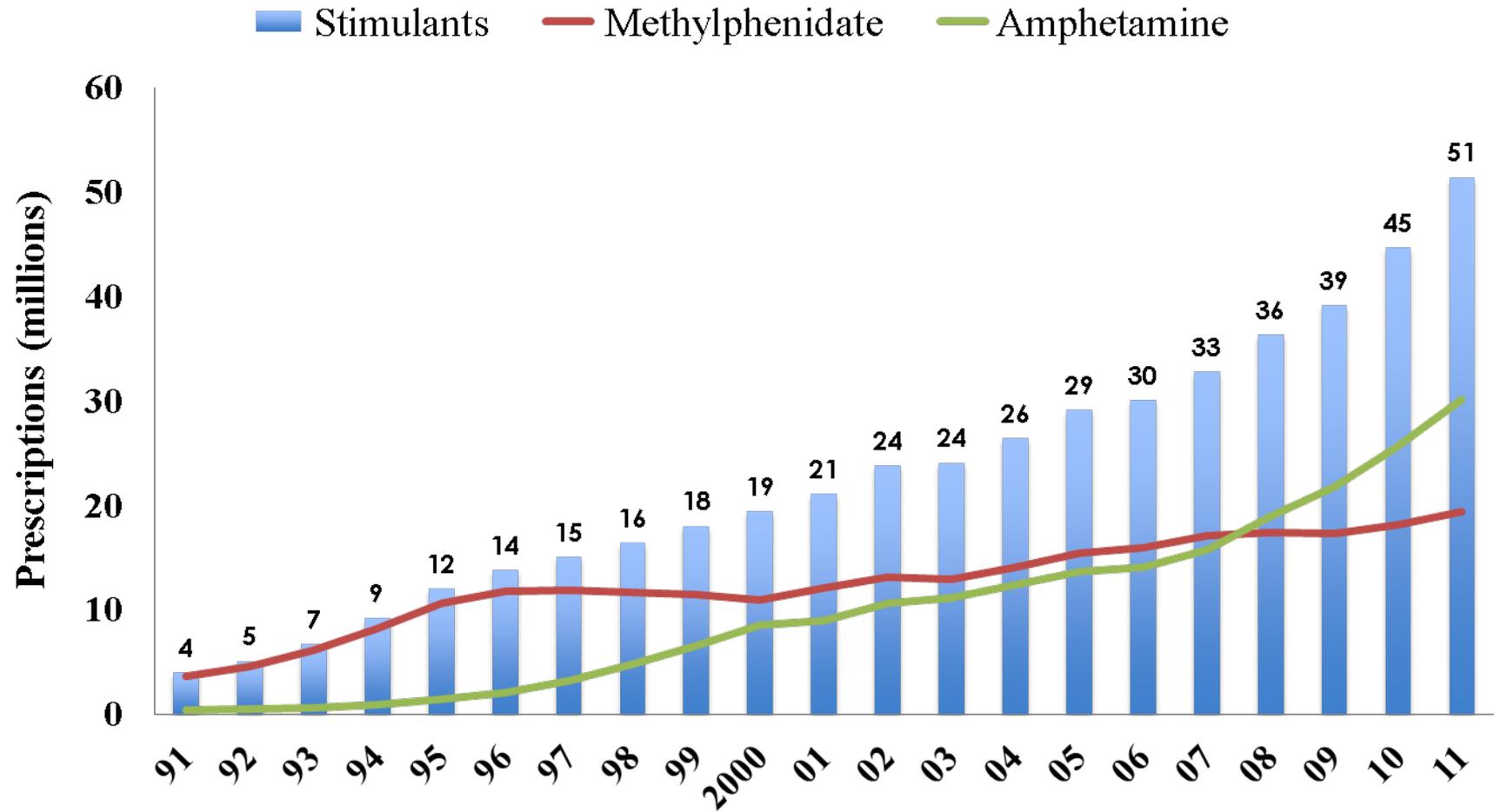


Dentists and Emergency Medicine Physicians were the main prescribers for patients 5-29 years of age

5.5 million prescriptions were prescribed to children and teens (19 years and under) in 2009



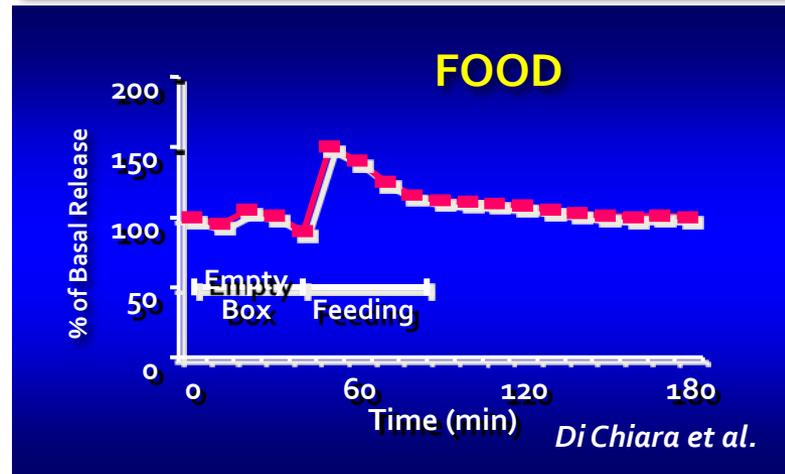
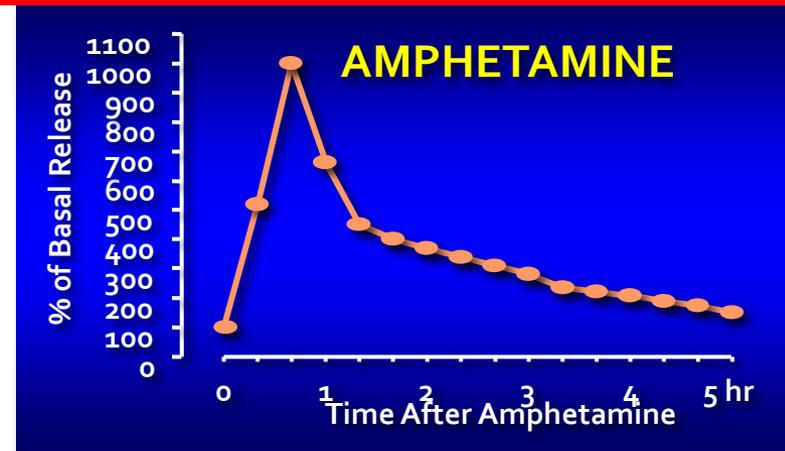
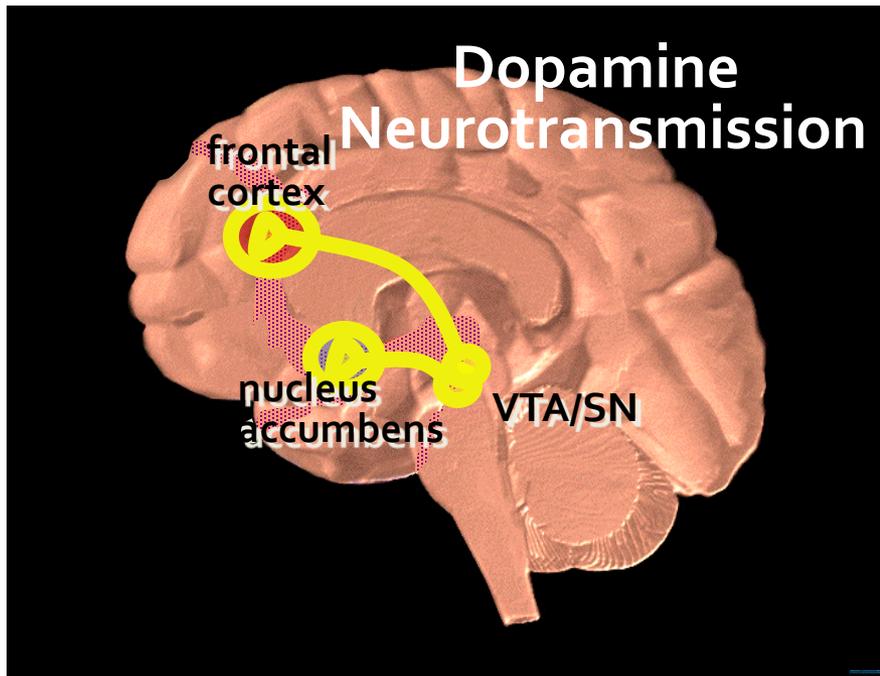
10-Fold Increases in Stimulant Prescriptions Dispensed by U.S. Retail Pharmacies 1991-2011



IMS's Source Prescription Audit (SPA) & Vector One®: National (VONA)

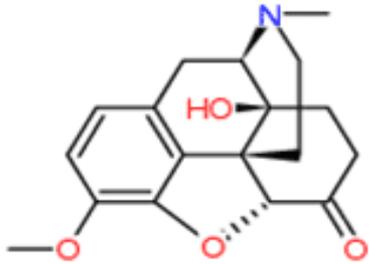
Why Do People Abuse Prescription Drugs?

These prescription drugs, like other drugs of abuse (cocaine, heroin, marijuana) raise brain dopamine levels

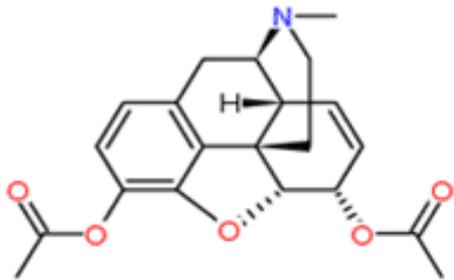


BUT dopamine is also elevated by natural reinforcers

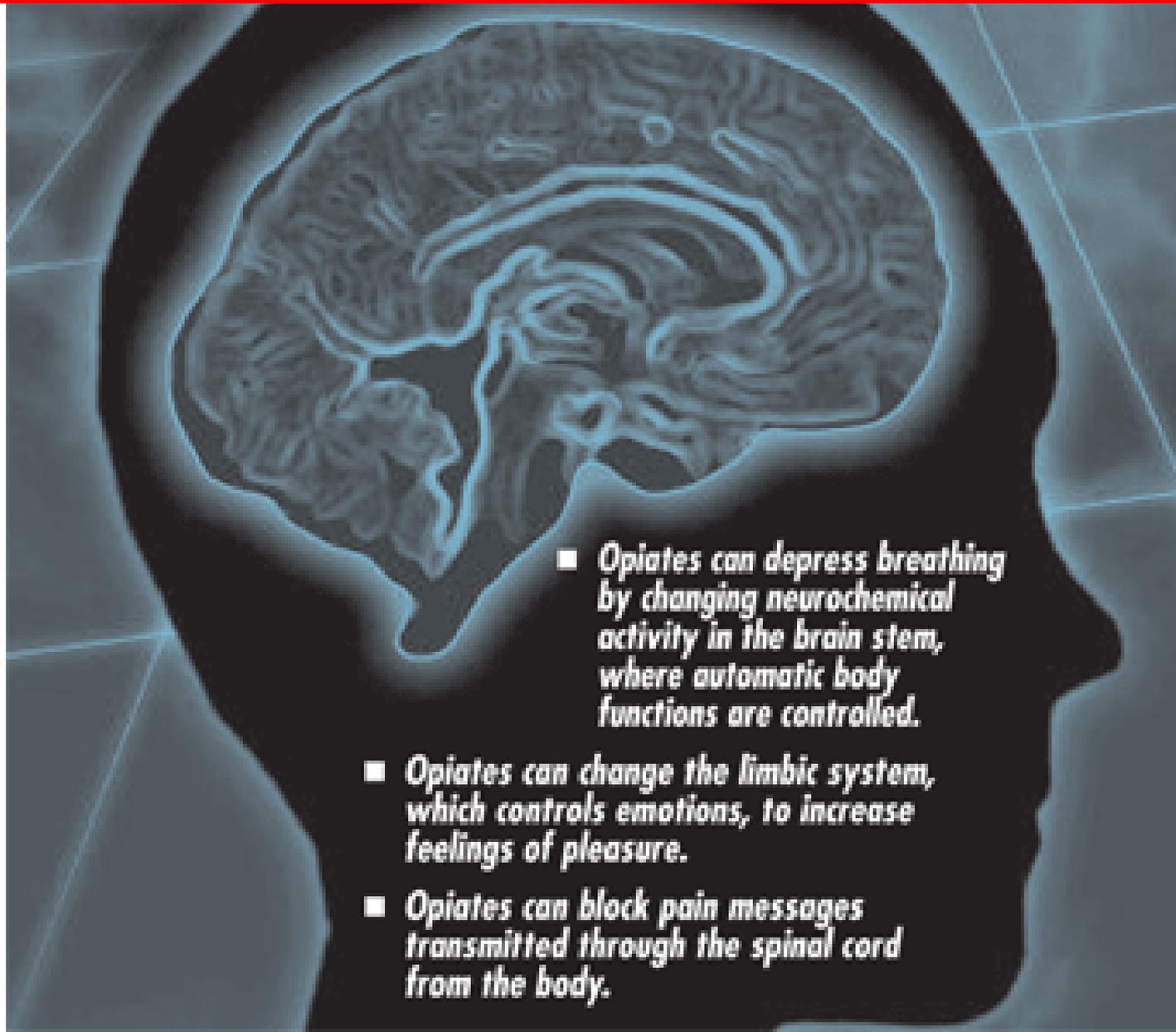
Similarities Between Illicit & Prescription Drugs



OXYCONTIN (OXYCODONE)



HEROIN



- *Opiates can depress breathing by changing neurochemical activity in the brain stem, where automatic body functions are controlled.*
- *Opiates can change the limbic system, which controls emotions, to increase feelings of pleasure.*
- *Opiates can block pain messages transmitted through the spinal cord from the body.*

Opioids

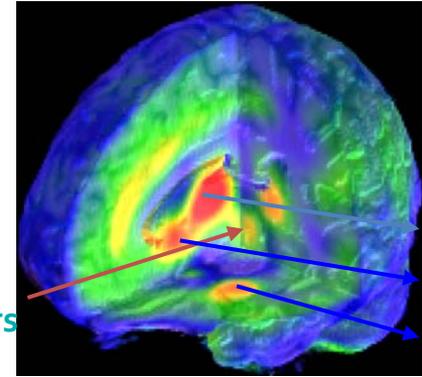
Examples: OxyContin, Vicodin

How They Work...

Attach to opioid receptors in the brain and spinal cord, blocking the transmission of pain messages and causing an increase in the activity of dopamine

Opiate Receptors
Activate
Dopamine Cells

Activate Opiate Receptors,
which Modulate Pain & Reward



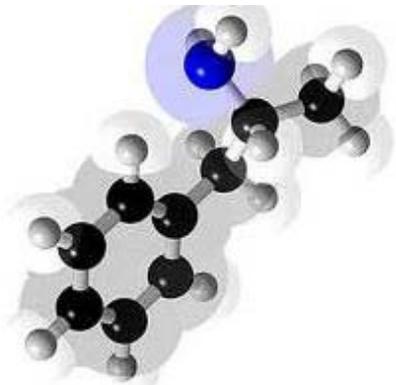
Thalamus
(pain)
NAc
(reward)
Amygdala
(reward)

Opioids are Generally Prescribed for:

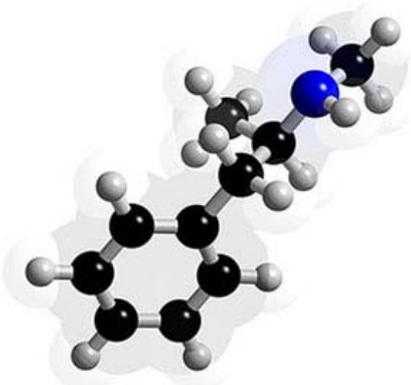
- Postsurgical pain relief
- Management of acute or chronic pain
- Relief of coughs and diarrhea



Similarities Between Illicit & Prescription Drugs



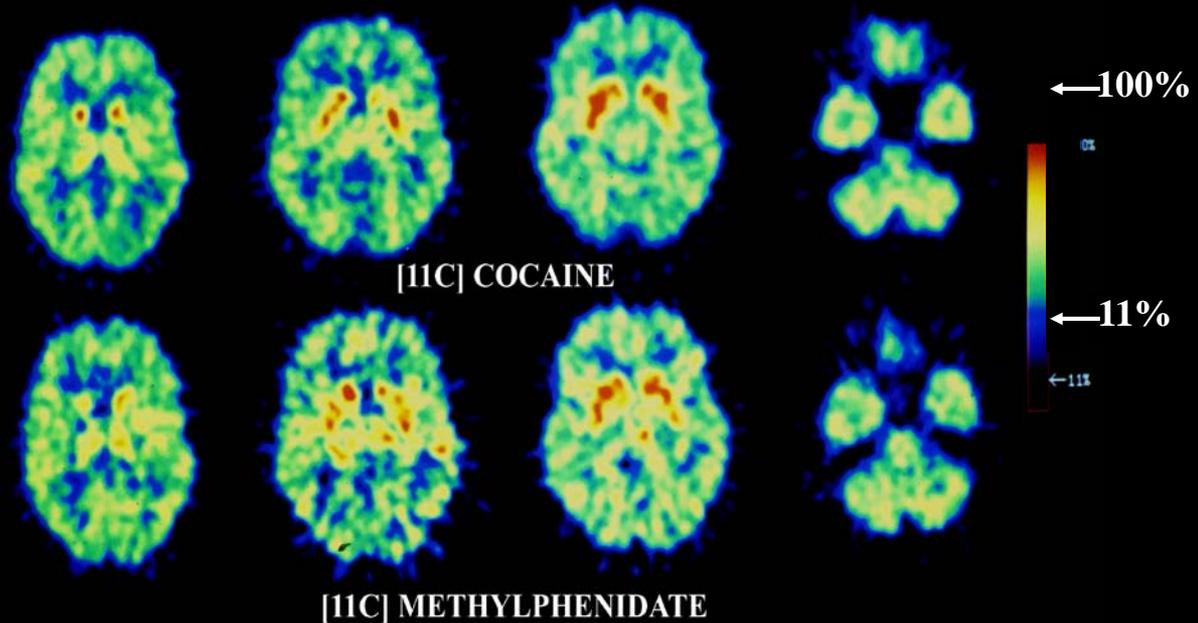
Adderall



Methamphetamine

Cocaine and Ritalin Act on the Same Sites in the Brain

Distribution of Dopamine Transporter in the Human Brain



Volkow, et al. (BNL)

Stimulants

Example: Ritalin (methylphenidate)

How They Work...

Enhance brain activity by increasing the activity of brain excitatory chemical messengers, such as norepinephrine and dopamine, leading to mental stimulation

Stimulants Are Generally Prescribed For:

- ADHD
- Narcolepsy
- Depression that does not respond to other treatments
- Asthma that does not respond to other treatment



CNS Depressants

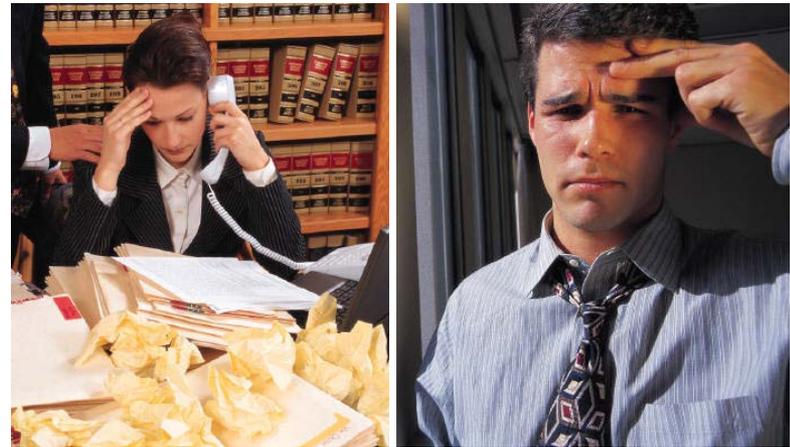
Examples: Valium, Xanax

How They Work...

Cause an increase in gamma-aminobutyric acid (GABA), an inhibitory chemical messenger leading to a decrease in brain activity

CNS Depressants are Generally Prescribed for:

- Anxiety
- Tension
- Panic attacks
- Acute stress reactions
- Sleep disorders
- Anesthesia (at high doses)



What is the Difference Between *Therapeutic Use* and *Abuse*?

- **Dose and Frequency of Dosing**

Lower, fixed regimes vs higher, escalating use

- **Route of Administration**

Oral vs injection, smoking, snorting

- **Expectation of Drug Effects**

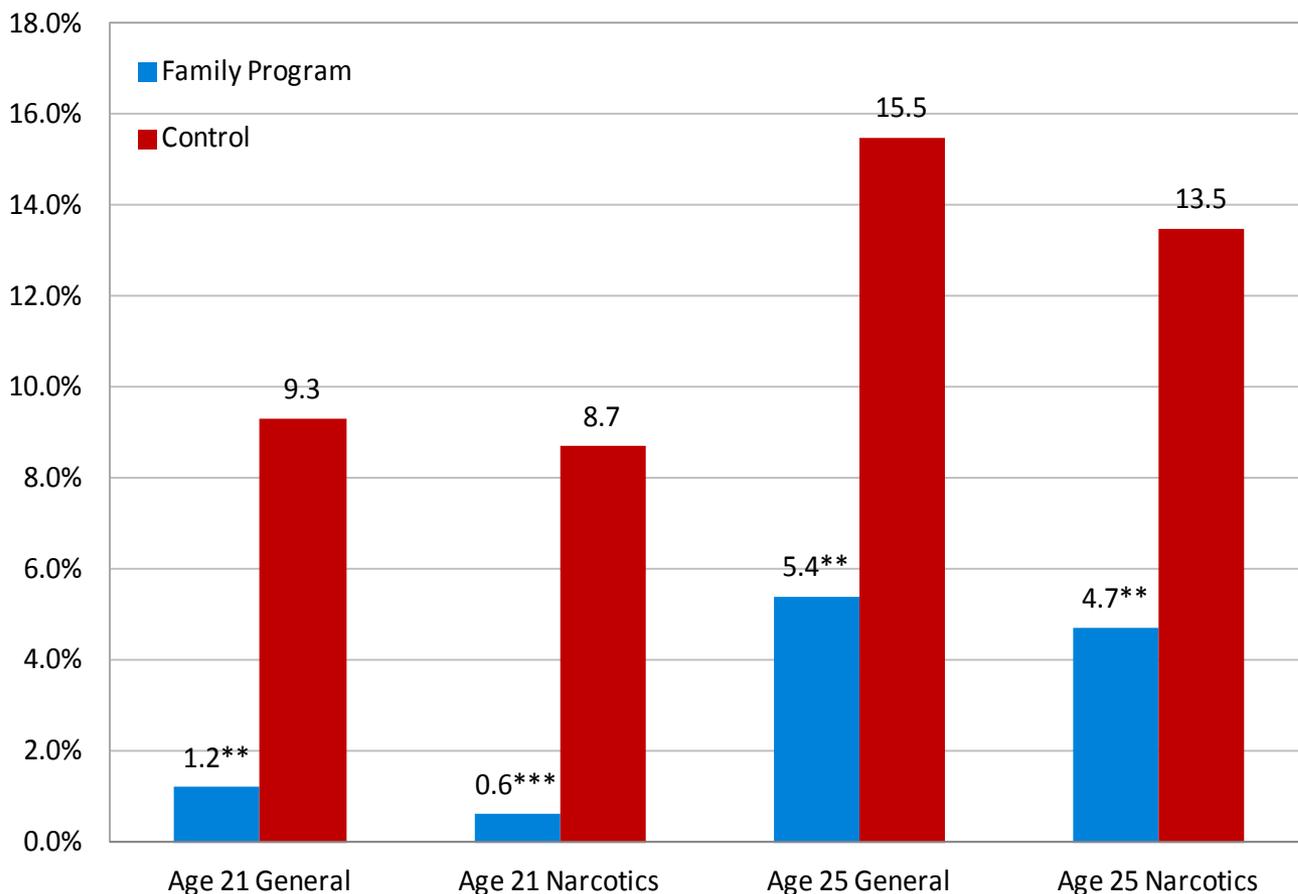
Expectation of clinical benefits vs euphoria “high”

- **Context of Administration**

School, clinic, home vs bar, party



Universal Drug Abuse Prevention May Reduce Prescription Drug Misuse



p<.01; *p<.001; Relative Reduction Rates (RRRs)= 65-93%

In this study, for 100 young adults in general population starting Rx abuse, only 35 young adults from an intervention community started. Overall, three studies now suggest the impact of universal prevention on prescription drug abuse.

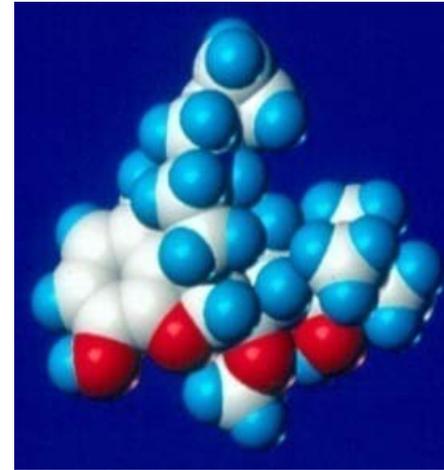
Notes: General=Misuse of narcotics or CNS depressants or stimulants.

Sources: Spoth, Trudeau, Shin, Redmond. *Addiction* 2008;103(7):1160-1168.

Spoth, Redmond, Clair, Shin, Greenberg, Feinberg *AJPM* 2011;40(4):440-447

Medical Treatment May Improve Prescription Opioid Addiction

Buprenorphine for the Treatment of Addiction to Opioid Medication



Related to morphine (**partial agonist**)

Uses **same receptors** as morphine but **does not produce the same high**

Long-lasting, less likely to cause respiratory depression

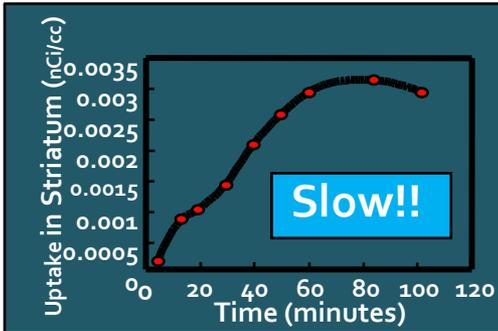
ONLINE FIRST

Adjunctive Counseling During Brief and Extended Buprenorphine-Naloxone Treatment for Prescription Opioid Dependence

A 2-Phase Randomized Controlled Trial

Roger D. Weiss, MD; Jennifer Sharpe Potter, PhD; David A. Fiellin, MD; Marilyn Byrne, MSW; Hilary S. Connery, MD, PhD; William Dickinson, DO; John Gardin, PhD; Margaret L. Griffin, PhD; Marc N. Gourevitch, MD, MPH; Deborah L. Haller, PhD; Albert L. Hasson, MSW; Zhen Huang, MS; Petra Jacobs, MD; Andrzej S. Kosinski, PhD; Robert Lindblad, MD; Elinore F. McCance-Katz, MD; Scott E. Provost, MSW; Jeffrey Selzer, MD; Eugene C. Somoza, MD, PhD; Susan C. Sonne, PharmD; Walter Ling, MD

Need for New Medications



- Develop medications with **lower abuse potential** including drugs that don't cross the *Blood-Brain-Barrier* (*i.e.*, CbR2 agonist)
- Develop **slow release formulations** (low dose and long duration)
- Develop novel formulations to **reduce abuse liability** including mixture formulations (e.g., naloxone and buprenorphine)

Prevention Strategies – Community Efforts

Prescription Intervention—A Coalition Planning Tool for Painkiller Misuse (Kimberly Trudeau, Inflexxion)

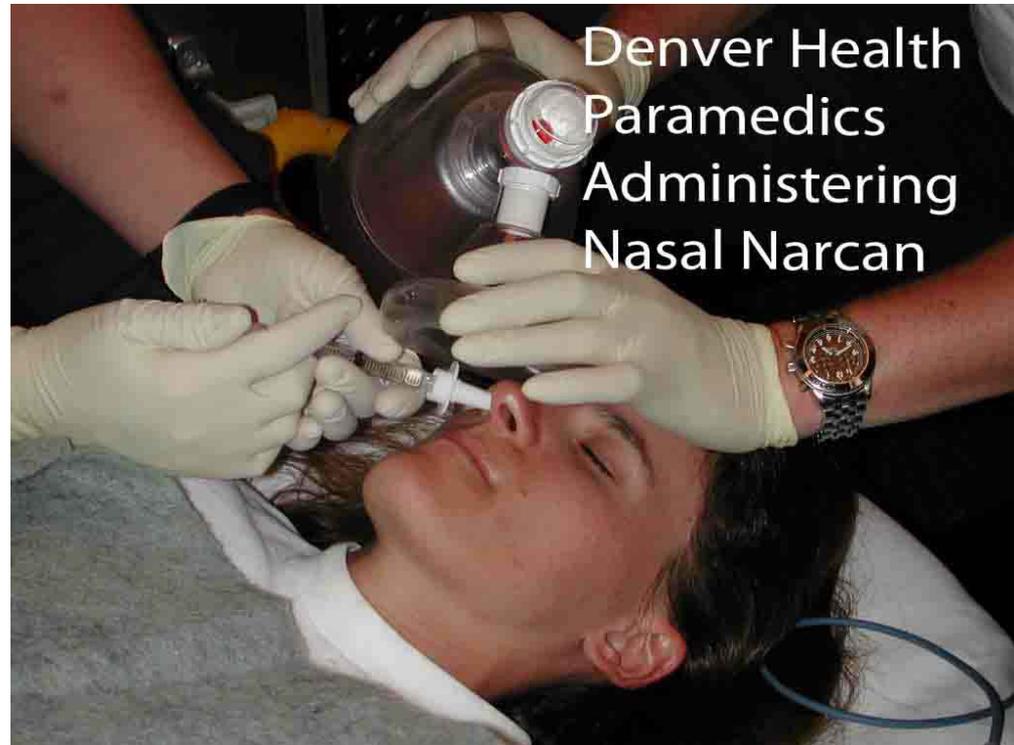
- Funding to develop Coalition Action Planner (CAP), which provides resources for community coalitions to respond

Mobilizing the Community to Reduce Teen Prescription Drug Abuse (David Collins, *Pacific Institute for Research and Evaluation*)

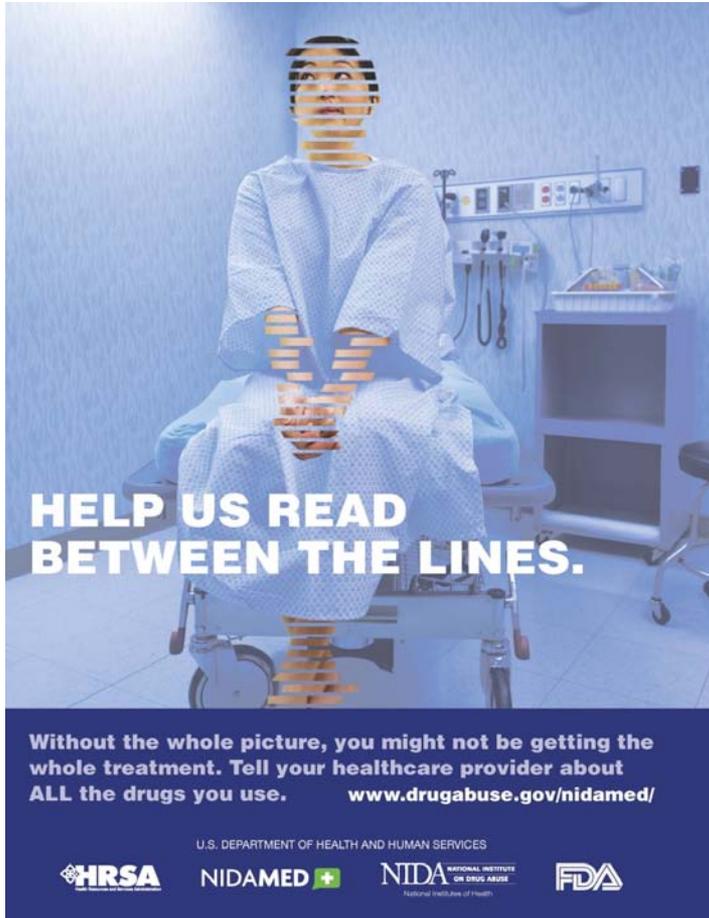
- Integrated community prevention model including community mobilization strategy, home environment strategy and medical environment strategy
- Teens in the community will be surveyed to assess perceived availability of prescription drugs

Prevention Strategies – Overdose Intervention

- **Naloxone Distribution** for administration to opioid overdose victims. The *potential* for direct intervention to save lives.



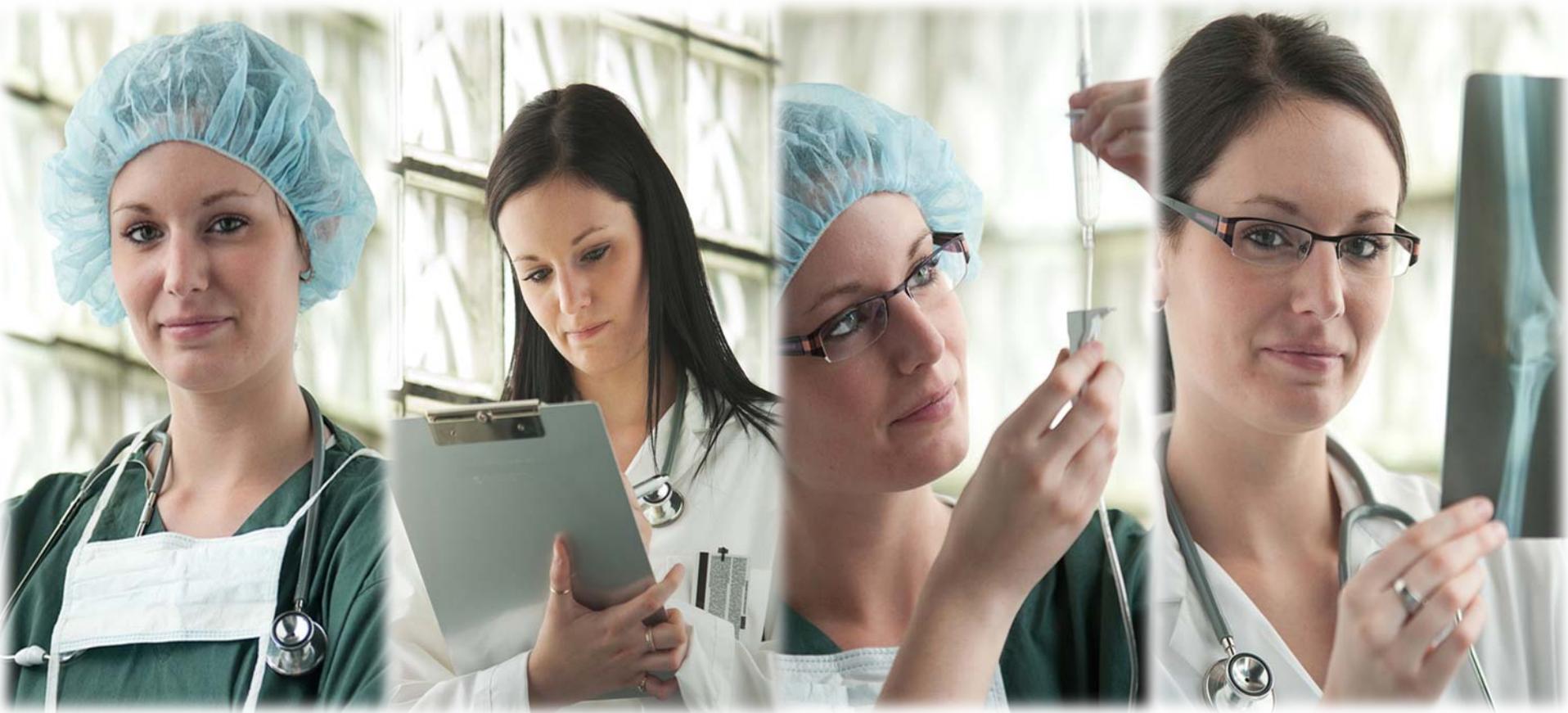
Prevention Strategies – Public Education



- Increase patient, lay public, and policy makers' awareness of the potential risks for abuse inherent in all opioid analgesics

How to Minimize the Diversion and Abuse of Prescription Medications

Engage the Healthcare System





Screening Tools and Resources Include Assessment of Prescription Drugs

[Hide Instructions](#) | [Print this Page](#)

NIDA QUICK SCREEN

Clinician's Screening Tool for Drug Use in General Medical Settings*

Note: This website collects no personally identifiable information and does not store your responses to any of the following questions.

Instructions: Ask your patient each question, then mark answers affirmative when appropriate (the default setting is a negative response). At the end of the survey, the screening tool will tally the responses to generate a substance involvement score, determine risk and recommended level of intervention, and provide additional resources.

Quick Screen

Start

Quick Results

1

2

3

4

5

6

7

8

Results

In the *past year*, how many times have you used the following?

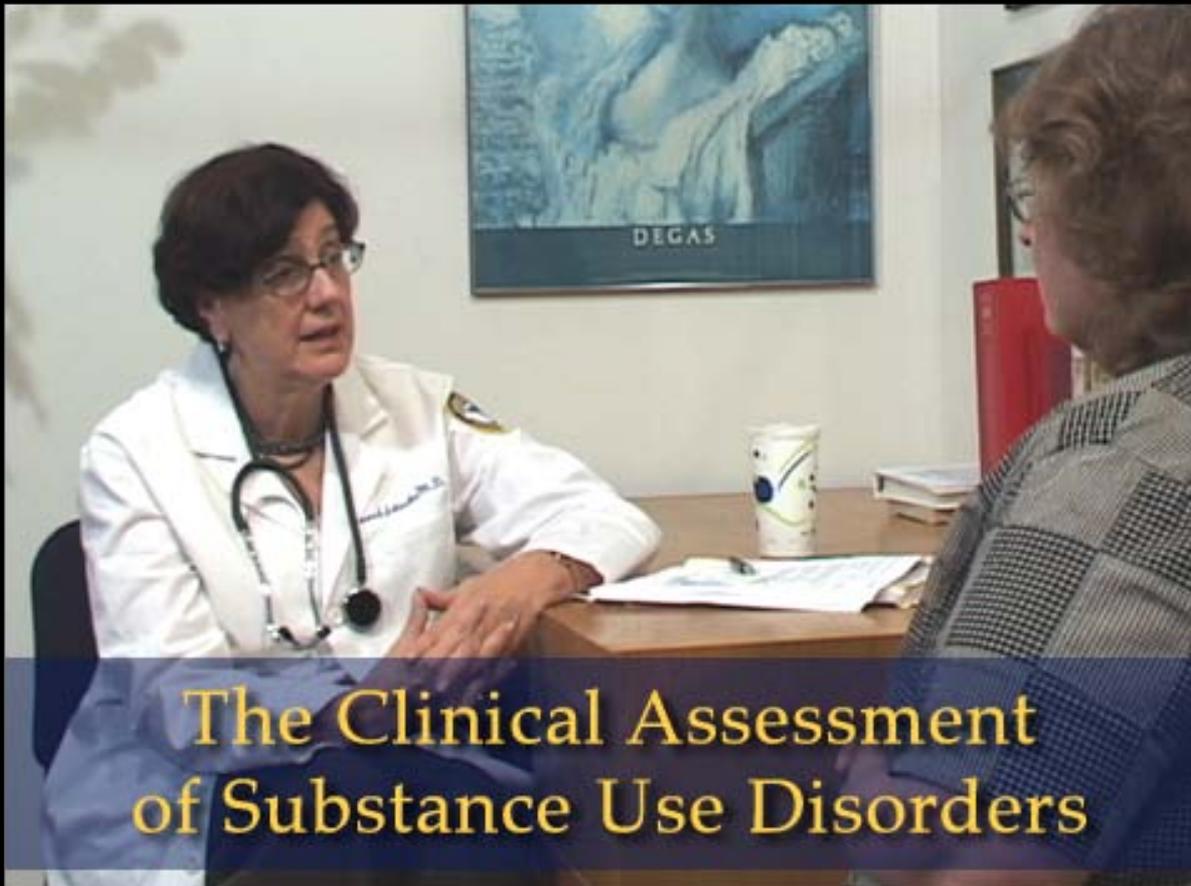
Drug Type	Never	Once or Twice	Monthly	Weekly	Daily or Almost Daily
Alcohol For gender: Men ▾, 5 or more drinks in a day	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tobacco products	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Prescription Drugs for Nonmedical Reasons	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Illegal drugs	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

[Give Feedback](#)

Next 



Interactive teaching video on
www.doc.com



The Clinical Assessment
of Substance Use Disorders





Fall 2012: *E-Learning Tools and Innovative Rx Drug Abuse CME*

Two interactive, self-paced, on-line CME programs focusing on managing pain in the age of opioid abuse.

- Interactive, self-paced, and available online
- Available on hand-held/mobile devices
- Free of charge and will award up to 2 credit hours

Designed to help professionals:

- Assess, prevent, and manage prescription drug abuse
- Conduct substance abuse screenings, brief interventions, and referrals to treatment

Summary: *The Urgent Problem of Prescription Drug Abuse*

Coordinated federal, state and local responses are necessary.

Yet, when used properly, opioid, sedative and stimulant pharmaceutical agents have many benefits. Balancing these competing issues is necessary.

www.drugabuse.gov

Now NIDA resources are with you wherever you go!

We're connecting communities with a new mobile Web site that gives you drug-related information by topic, audience, and format—when you need it, where you need it.

The new mobile site (m.drugabuse.gov) provides:

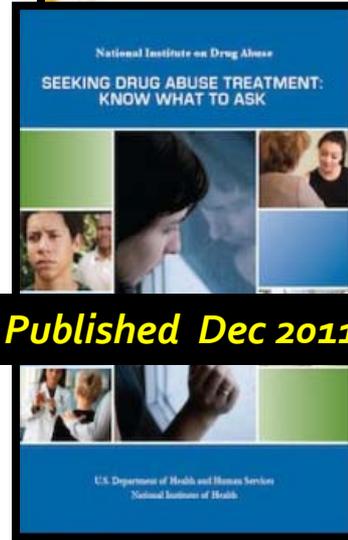
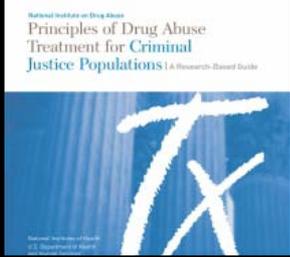
- ✓ Easy access to NIDA's resources through iPhone, Android, iPad, and other smartphones and tablets.
- ✓ A convenient way to find, view, request, and share publications—right in the palm of your hand.
- ✓ E-books of all publications to allow offline reading on all major e-readers, including Kindle and NOOK.
- ✓ New Spanish-language content on drugs of abuse and related topics.



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Revised Jan 2012



Published Dec 2011



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