Prescription Drug Abuse: It’s Not What the Doctor Ordered

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NIH National Institute on Drug Abuse
Key Points:

1. Prescription drug abuse is a major problem in USA
   - Opioids
   - Stimulants
   - Sedatives

2. The source of these drugs is often family or friends

3. Behavioral and pharmacokinetic factors differentiate pharmaceutical use from abuse

4. Interventions can be effective--both primary prevention and targeting overdose or addiction

5. Clinician education is essential

6. There are multiple research needs
Prescription Drug Abuse is a Major Problem in USA: Current Drug Use Rates in Persons Ages 12+

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

Prescription Drug Abuse is a Major Problem in USA:

- Current Drug Use Rates in Persons Ages 12+

  - **Psychotherapeutics**: 6.1 million (2.4%)
  - **Marijuana**: 18.1 million (7.0%)
  - **Illicit Drugs**: 22.5 million (8.7%)
  - **Cocaine**: 1.4 million (0.5%)
  - **Hallucinogens**: 1.0 million (0.4%)
  - **Inhalants**: 0.6 million (0.2%)
  - **Heroin**: 0.3 million (0.1%)

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

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1. Illicit Drugs include marijuana/hashish, cocaine (including crack), heroin, hallucinogens, inhalants, or prescription-type psychotherapeutics used nonmedically.
Large Number of *Past Year Initiates* of Pharmaceuticals: Persons Aged 12 or Older, 2011

**Source:** 2011 National Survey on Drug Use and Health, SAMHSA, 2012.
<table>
<thead>
<tr>
<th>Drug Category</th>
<th>Prevalence (%)</th>
<th>Additional Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol</td>
<td>63.5%</td>
<td></td>
</tr>
<tr>
<td>Tranquilizers*</td>
<td>5.3%</td>
<td></td>
</tr>
<tr>
<td>Marijuana/Hashish</td>
<td>36.4%</td>
<td>Cough Medicine*</td>
</tr>
<tr>
<td>Cough Medicine*</td>
<td>5.6%</td>
<td></td>
</tr>
<tr>
<td>Small Cigars</td>
<td>19.9%</td>
<td>Hallucinogens</td>
</tr>
<tr>
<td>Hallucinogens</td>
<td>4.8%</td>
<td></td>
</tr>
<tr>
<td>Hookah</td>
<td>18.3%</td>
<td>Sedatives*</td>
</tr>
<tr>
<td>Sedatives*</td>
<td>4.5%</td>
<td></td>
</tr>
<tr>
<td>Synthetic Marijuana</td>
<td>11.3%</td>
<td>Salvia</td>
</tr>
<tr>
<td>Salvia</td>
<td>4.4%</td>
<td></td>
</tr>
<tr>
<td>Snus (tobacco)</td>
<td>7.9%</td>
<td>MDMA (Ecstasy)</td>
</tr>
<tr>
<td>MDMA (Ecstasy)</td>
<td>3.8%</td>
<td></td>
</tr>
<tr>
<td>Prescription Opioids*</td>
<td>7.9%</td>
<td>Inhalants</td>
</tr>
<tr>
<td>Inhalants</td>
<td>2.9%</td>
<td></td>
</tr>
<tr>
<td>Amphetamines*</td>
<td>7.9%</td>
<td>Cocaine (any form)</td>
</tr>
<tr>
<td>Cocaine (any form)</td>
<td>2.7%</td>
<td></td>
</tr>
</tbody>
</table>

* Nonmedical use

Categories not mutually exclusive
What Has Raised Our Attention to the Problem of Prescription Drug Abuse?
Increases in Past Year Dependence or Abuse on Pain Relievers among Persons Aged 12 or Older: 2002-2011

Numbers in Millions

<table>
<thead>
<tr>
<th>Year</th>
<th>Illicit Drugs</th>
<th>Marijuana</th>
<th>Cocaine</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>7.1</td>
<td>4.3</td>
<td>1.5</td>
</tr>
<tr>
<td>2003</td>
<td>6.8</td>
<td>4.2</td>
<td>1.5+</td>
</tr>
<tr>
<td>2004</td>
<td>7.3+</td>
<td>4.5</td>
<td>1.6+</td>
</tr>
<tr>
<td>2005</td>
<td>6.8</td>
<td>4.1</td>
<td>1.5+</td>
</tr>
<tr>
<td>2006</td>
<td>7.0</td>
<td>4.2</td>
<td>1.7+</td>
</tr>
<tr>
<td>2007</td>
<td>6.9</td>
<td>3.9</td>
<td>1.6+</td>
</tr>
<tr>
<td>2008</td>
<td>7.0</td>
<td>4.2</td>
<td>1.7</td>
</tr>
<tr>
<td>2009</td>
<td>7.1+</td>
<td>4.3</td>
<td>1.9</td>
</tr>
<tr>
<td>2010</td>
<td>7.1</td>
<td>4.5</td>
<td>1.9</td>
</tr>
<tr>
<td>2011</td>
<td>6.5</td>
<td>4.2</td>
<td>1.8</td>
</tr>
</tbody>
</table>

+ Difference between this estimate and the 2011 estimate is statistically significant at the .05 level.
Doubling of Treatment for Pain Reliever Use 2002 - 2011: Most Recent Treatment in the Past Year for the Use of Pain Relievers among USA Persons Aged 12 or Older, 2002-2011

Numbers in Thousands

<table>
<thead>
<tr>
<th>Year</th>
<th>Estimate (in Thousands)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>360+</td>
</tr>
<tr>
<td>2003</td>
<td>415+</td>
</tr>
<tr>
<td>2004</td>
<td>424+</td>
</tr>
<tr>
<td>2005</td>
<td>466+</td>
</tr>
<tr>
<td>2006</td>
<td>547</td>
</tr>
<tr>
<td>2007</td>
<td>565</td>
</tr>
<tr>
<td>2008</td>
<td>604</td>
</tr>
<tr>
<td>2009</td>
<td>736</td>
</tr>
<tr>
<td>2010</td>
<td>761</td>
</tr>
<tr>
<td>2011</td>
<td>726</td>
</tr>
</tbody>
</table>

+ Difference between this estimate and the 2011 estimate is statistically significant at the .05 level.
Data in Several States Show That Hepatitis C Virus Among Adolescents and Young Adults Has Increased in Recent Years

Of cases with available risk data, injection drug use was most common risk factor for HCV transmission

From a small number of cases who responded to further investigation.....

- 92% reported opioid analgesic abuse
- 89% reported heroin use
- 95% used opioid analgesics before switching to heroin

CDC, MMWR, October 28, 2011/60(42):1457-1458
CDC, MMWR, May 6, 2011/60(17): 537-541;
Drug Overdose Death Rates in USA More Than Tripled Since 1990. Nearly 17,000 Died of Rx Opioid Overdose in 2010.

More OD Deaths than Motor Vehicle Deaths Since 2009

Motor vehicle traffic, poisoning, and drug poisoning (overdose) death rates: United States, 1980-2010
2010 Mortality Statistics Overview

- 38,329 Drug overdose deaths (37,004 in 2009)
- 22,134 Prescription drug overdose deaths (20,848 in 2009)
- 16,651 Prescription opioid overdose deaths (15,597 in 2009)
- 6,497 Benzodiazepine overdose deaths (5,567 in 2009)
- 4,183 Cocaine overdose deaths (4,350 in 2009)
- 3,036 Heroin overdose deaths (3,278 in 2009)

2010 NVSS Mortality File.
Drug overdose deaths by major drug type:
USA, 1999-2010

Increases in deaths parallel opioid sales increases as well as prescription opioid treatment admissions.
3-Fold Increases in Number of Opioid Prescriptions Dispensed by U.S. Retail Pharmacies, Years 1991-2011

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

Source: IMS Vector ©One National, TPT 06-30-10 Opioids Rate 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
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
People Abusing Analgesics DIRECTLY & INDIRECTLY Obtain Them by Prescription: *Most Recent Pill Source*

Source Where Respondent Age 12+ Obtained Analgesics:

- **More than One Doctor (2.1%)**
- **One Doctor (17.3%)**
- **Drug Dealer/Stranger (4.4%)**
- **Bought/Took from Friend/Relative (16.2%)**
- **Other\(^1\) (4.6%)**
- **Bought on Internet (0.4%)**

Source Where Friend/Relative Obtained:

- **Free from Friend/Relative (55.0%)**
- **One Doctor (79.4%)**
- **More than One Doctor (3.6%)**
- **Bought/Took from Friend/Relative (6.5%)**
- **Drug Dealer/Stranger (2.3%)**
- **Bought on Internet (0.2%)**
- **Other\(^2\) (1.7%)**

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\(^1\) Other category includes "Wrote Fake Prescription," "Stole from Doctor’s Office/Clinic/Hospital/Pharmacy," and "Some Other Way."

Source: SAMHSA, 2009 and 2010 National Survey on Drug Use and Health
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*
Rate of Drug Uptake Into the Brain

- Slower uptake of oral Ritalin permits effective treatment with less intrinsic reward (perceived “high”)

**iv cocaine**

**iv methylphenidate**

**oral methylphenidate**
Glucose Metabolism Was Greatly Increased By the *Expectation* of the Drug

Increases in Metabolism Were About 50% Larger When MP Was Expected Than Unexpected

Prescription Drug Abuse:  
*What can be done?*

- Primary Prevention
- Overdose Intervention
- Clinician Information and Education
- Improved Addiction Treatment
Universal Drug Abuse Prevention
Reduces Prescription Drug Misuse

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.
Prevention: 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: 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: Public Education

• Increase patient, lay public, and policy makers’ awareness of the potential risks for abuse inherent in all opioid analgesics
Prevention: Overdose Intervention

• **Naloxone Distribution** for administration to opioid overdose victims. The *potential* for direct intervention to save lives.
Focus on Minimizing Diversion and Abuse of Prescription Medications
Doctors (and other clinicians) Need to Know…
What Prescriptions Have Been Given to Their Patients By Other Practitioners

This information should be:

1) included in the patients’ electronic health care records

2) accessible through a Prescription Drug Monitoring Program (PDMP) that provides immediate information
Doctors Need to Know How to Treat Pain:
Education on Pain in Medical Schools

<table>
<thead>
<tr>
<th>Number of Hours of Pain Education</th>
<th>Number of Schools</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-5</td>
<td>0</td>
</tr>
<tr>
<td>5-10</td>
<td>10</td>
</tr>
<tr>
<td>10-15</td>
<td>15</td>
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<td>15-20</td>
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<td>20-25</td>
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<tr>
<td>25-30</td>
<td>30</td>
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<tr>
<td>&gt;30</td>
<td>&gt;30</td>
</tr>
</tbody>
</table>

USA (median: 7 hours)
Canada (median: 14 hours)
Veterinarian schools: 75 hours on pain

Mezei, L and Murinson, BB., J Pain, 12, 1199 -1208, 2011.
NIH Pain Consortium Activities

- **Centers of Excellence in Pain Education (12 CoEPE)**
  - ICs Involved:
    - ORWH
    - NIA
    - OBSSR
    - NINR
    - NIDA
    - NICHD
    - NIDCR
    - NIAMS
    - NINDS
    - NCCAM

- **Consensus Workshop on Opioids for Chronic Pain**
Screening Tools and Resources Include Assessment of Prescription Drugs

NIDA QUICK SCREEN
Clinician’s Screening Tool for Drug Use in General Medical Settings*

Quick Screen

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

<table>
<thead>
<tr>
<th>Drug Type</th>
<th>Never</th>
<th>Once or Twice</th>
<th>Monthly</th>
<th>Weekly</th>
<th>Daily or Almost Daily</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>For gender: Men, 5 or more drinks in a day</td>
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<td></td>
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<tr>
<td>Tobacco products</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prescription Drugs for Nonmedical Reasons</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Illegal drugs</td>
<td></td>
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</tr>
</tbody>
</table>

Give Feedback
Interactive teaching video on
www.doc.com

The Clinical Assessment of Substance Use Disorders
Innovative E-Learning Rx Drug Abuse CME: Course by NIDA and Medscape, Funded by ONDCP, October 2012

Safe Prescribing for Pain

Skills and tools clinicians can use to screen for and prevent opioid medication abuse in patients with pain.

Managing Pain Patients Who Abuse Rx Drugs

Learn opioid addiction symptoms in patients with chronic pain, and how to screen, prevent and treat it.
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

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

Arch Gen Psychiatry. 2011 Dec;68(12):1238-46
Medical Treatment May Reduce Deaths

Project ED Health III: Tx for Opioid Patients in ED

4/1/2009 to 1/30/2013

Patients in ED during recruitment
n=112,632

HQ Administered
n=60,417 (75%)

Opioid Dependent
n=941 (2%)

Eligible
n=342 (36%)
Randomized
n=295 (86%)
SC
n=93
SBIRT
n=103
SBI+BUP
n=99

Not Eligible
n=599 (64%)
Not Randomized
(14%)
Refused n=32
Missed n=15

Reasons Not Eligible
22% in formal SA treatment
21% refused randomization or f/u
12% mini SCID –
10% urine test –
6% in pain management
3% cannot contact
3% other

Overt Ineligible
N=32,392 (29%)
24% to be admitted
18% unable to consent
17% acute psychiatric visit (psychotic, SI homicidal, etc)
14% no English
9% nursing home
8% acute/life threatening medical issue
4% pregnant
2% other (deceased, isolation, etc)
2% age < 18
2% police custody
<1% already in formal SA treatment
<1% already enrolled

No HQ Administered
N=19,823 (25%)
96% Missed
4% Refused

Gail D’Onofrio MD, MS
Department of Emergency Medicine
Yale University
WHAT:  Prescription Drug Abuse: A Forum with President Bill Clinton Commissioner Ray Kelly NYU President John Sexton Dr. Nora Volkow

Hosted by the Clinton Foundation’s Clinton Health Matters Initiative

WHEN:  Monday, May 6, 2013

WHERE:  New York University School of Law
Prescription Drug Abuse: A Need for New Thinking

• Direct and indirect pathways from MDs (especially in homes and from friends/family)
  – Policy and regulatory Approaches
  – Clinical education
  – Practice-based research

• Abuse and “misuse” as intervention targets
  – Patient and clinician education
  – Development of safer/novel approaches to abuse resistance
Prescription Drug Abuse: A Need for New Thinking

- Direct overdose treatment (naloxone)
  - Need for research and practice developments
- Relaxed attitudes and misperceptions about prescription drugs
  - Public and clinician education
- Effective drug abuse prevention and treatment
  - Need for research and practice developments
Coordinated national and local responses are necessary. Yet, when used properly opioid, sedative and stimulant medications have many benefits. Balancing therapeutic benefits versus risks is necessary and complicated.
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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NATIONAL INSTITUTE ON DRUG ABUSE
U.S. Department of Health and Human Services