The Opioid Epidemic
The Researcher Perspective
Use & Abuse

The Fall Learning Event
The Opioid Epidemic
A Dangerous Prescription for the Workplace
Tuesday, October 17, 2017

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UT Health San Antonio

The Researcher Perspective
Use & Abuse

Terminology

Tolerance
Response to a drug diminishes with subsequent use.

Physical Dependence –
Patient functions normally in presence of drug. When drug is taken away, drug-specific symptoms of withdrawal manifest as physical disturbances.

Drug Abuse –
Use of illegal drugs or the inappropriate use of prescription drugs.

Substance Use Disorder –
Less stigmatizing term for addiction, recognized as a chronic disease. When chronic drug use leads to compulsive drug-seeking and drug abuse regardless of harmful consequences.

Funding:
Current – NIMH/NHLBI007446 (T32 – ADB); Former – NIDCR/DE14318 (T32 - ADB), NIDCR/DE025551 (F31 NRSA - ADB)

National Institute on Drug Abuse
Pain in America

- #1 reason people seek medical attention

- Chronic pain affects more Americans than diabetes, coronary heart disease, stroke and cancer combined

- Costs our society $635 billion annually

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Institute of Medicine (U.S.) Committee on Advancing Pain Research Care and Education, 2011

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Pain Management

Mild Pain

- Over-the-counter
  - Acetaminophen, Non-steroidal anti-inflammatory drugs (NSAIDs), Topical

- Prescription
  - Muscle relaxants, Anti-anxiety, Antidepressants, NSAIDs

Severe Pain

- Steroidal injection
- Opioid analgesics
  - Morphine, Fentanyl, Percocet, Codeine, Vicodin
“Opioids” bind to opioid receptors to produce analgesia. They are prescribed following surgery, injury, or for certain health conditions.

Although effective at treating pain, prescription opioids come with risks and side effects, even when taken as directed.

- Tolerance
- Physical dependence
- Addiction/Substance Use Disorder
- Increased sensitivity to pain
- Constipation
- Itching and sweating
- Nausea, vomiting, and dry mouth
- Sleepiness and dizziness
- Confusion
- Low levels of testosterone
- Respiratory Depression

They can even act as a gateway drug to the illicit opioid drug heroin.

Rosenblum A et al., Exp Clin Psychopharmacol. 2008

Inflammatory Pain

10/17/17 6
Spinal cord or brainstem

Thalamus

Cortex

Tissue Injury

Bradykinin

NGF

Histamine

PGE

2

H

+

ATP

Ca

2+

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Depolarization

Nociception

K

+

Afferent C-fiber

Dorsal Horn or Trigeminal Nucleus

Pain transmission at the nociceptor

K

+

Opioid

Dorsal Horn or Trigeminal Nucleus

Opioid relief at the nociceptor
Opioids do not selectively target a particular area in the body. Opioid response is largely dependent on location!
Prescription pain relievers are the most commonly used and misused psychotherapeutics.

### Table B.1 – Any Use and Misuse of Prescription Psychotherapeutics in the Past Year among Individuals Aged 12 or Older

<table>
<thead>
<tr>
<th>Prescription Psychotherapeutic</th>
<th>% Any Use</th>
<th>% Misuse among Total Population</th>
<th>% Misuse among Individuals Who Reported Any Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain Relievers</td>
<td>44.5 (0.33)</td>
<td>7.1 (0.14)</td>
<td>15.9 (0.31)</td>
</tr>
<tr>
<td>Tranquilizers</td>
<td>14.7 (0.23)</td>
<td>2.3 (0.08)</td>
<td>5.4 (0.09)</td>
</tr>
<tr>
<td>Stimulants</td>
<td>6.4 (0.11)</td>
<td>2.0 (0.07)</td>
<td>3.0 (0.06)</td>
</tr>
<tr>
<td>Sedatives</td>
<td>6.9 (0.16)</td>
<td>0.6 (0.04)</td>
<td>1.8 (0.05)</td>
</tr>
</tbody>
</table>

NOTE: Estimates shown are percentages with standard errors included in parentheses.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

### Use

- ↑ with age
- ↑ in females

### Rank by demographic:

- Mixed race
- White
- Am. Indian or Alaska Native
- Black
- Hawaiian or Pacific Islander
- Hispanic or Latino
- Asian

### Misuse

- ↑ in individuals age 18-25
- ↑ in males

### Rank by demographic:

- Mixed race
- Am. Indian or Alaska Native
- Hawaiian or Pacific Islander
- Hispanic or Latino
- White
- Black
- Asian

Sources:

- SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.
**Rx Pain Relievers**

The most used pain prescriptions are **also the most misused**.

<table>
<thead>
<tr>
<th>Pain Reliever Subtype</th>
<th>Use, Percentage</th>
<th>Misuse, Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ANY PRESCRIPTION PAIN RELIEVER</strong></td>
<td>36.4 (0.32)</td>
<td>4.7 (0.11)</td>
</tr>
<tr>
<td>Hydrocodone Products</td>
<td>21.8 (0.26)</td>
<td>2.7 (0.09)</td>
</tr>
<tr>
<td>Zolpidem**</td>
<td>0.1 (0.00)</td>
<td>0.0 (0.00)</td>
</tr>
<tr>
<td>Oxycodone Products</td>
<td>10.0 (0.19)</td>
<td>1.4 (0.08)</td>
</tr>
<tr>
<td>OxyContin®</td>
<td>3.4 (0.11)</td>
<td>0.7 (0.02)</td>
</tr>
<tr>
<td>Tramadol Products</td>
<td>6.9 (0.16)</td>
<td>0.7 (0.02)</td>
</tr>
<tr>
<td>Morphine Products</td>
<td>2.7 (0.10)</td>
<td>0.3 (0.02)</td>
</tr>
<tr>
<td>Percocet Products</td>
<td>0.7 (0.05)</td>
<td>0.1 (0.00)</td>
</tr>
<tr>
<td>Buprenorphine Products</td>
<td>0.9 (0.05)</td>
<td>0.1 (0.00)</td>
</tr>
<tr>
<td>Oxycodone Products</td>
<td>0.3 (0.00)</td>
<td>0.1 (0.00)</td>
</tr>
<tr>
<td>Demerol®</td>
<td>0.5 (0.00)</td>
<td>0.0 (0.00)</td>
</tr>
<tr>
<td>Hydromorphone Products</td>
<td>0.9 (0.00)</td>
<td>0.1 (0.00)</td>
</tr>
<tr>
<td>Methadone</td>
<td>0.6 (0.05)</td>
<td>0.2 (0.02)</td>
</tr>
<tr>
<td>Any Other Prescription Pain Reliever®</td>
<td>8.9 (0.10)</td>
<td>0.3 (0.02)</td>
</tr>
</tbody>
</table>

**Rx Pain Relievers**

Frequency of misuse **significantly increases with age**.

<table>
<thead>
<tr>
<th>Days of Misuse of Prescription Pain Relievers among Individuals Aged 12 and Older</th>
<th>12 or Older</th>
<th>12 to 17</th>
<th>18 or Older</th>
<th>18 to 25</th>
<th>26 or Older</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANY PAST MONTH MISURE OF PAIN RELIEVERS</td>
<td>1.4 (0.08)</td>
<td>1.1 (0.12)</td>
<td>1.4 (0.08)</td>
<td>2.4 (0.13)</td>
<td>1.3 (0.07)</td>
</tr>
<tr>
<td>NUMBER OF DAYS MISUSED IN PAST MONTH AMONG PAST MONTH MISUSERS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-2 Days</td>
<td>41.3 (2.13)</td>
<td>51.6 (4.97)</td>
<td>40.2 (2.26)</td>
<td>45.7 (3.15)</td>
<td>38.2 (2.87)</td>
</tr>
<tr>
<td>3-5 Days</td>
<td>26.6 (1.91)</td>
<td>27.9 (4.22)</td>
<td>26.8 (2.04)</td>
<td>31.7 (2.83)</td>
<td>25.3 (2.37)</td>
</tr>
<tr>
<td>6-9 Days</td>
<td>20.6 (1.73)</td>
<td>17.8 (3.28)</td>
<td>20.8 (1.84)</td>
<td>16.5 (2.29)</td>
<td>22.2 (2.42)</td>
</tr>
<tr>
<td>20 or More Days</td>
<td>11.4 (1.30)</td>
<td>2.7 (1.26)</td>
<td>12.2 (1.44)</td>
<td>8.2 (1.66)</td>
<td>13.3 (1.84)</td>
</tr>
</tbody>
</table>

**The most commonly reported reason for misuse is “to relieve physical pain,” followed by “to get high” and “to relax.”**

SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.
Pain Relievers

The most misused pain prescriptions come from a family member, followed by physicians.

Source of Misused Prescription Pain Relievers among Individuals Aged 12 and Older

<table>
<thead>
<tr>
<th>Source for Most Recent Misuse</th>
<th>Past Year Initiates without Disorder</th>
<th>Past Year Misuser without Disorder and Not Past Year Initiates</th>
<th>Past Year Misuser (Including Initiates) with Disorder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Got Through Prescription(s) or Stole From a Health Care Provider</td>
<td>41.4 (2.92)</td>
<td>39.6 (1.57)</td>
<td>43.7 (1.10)</td>
</tr>
<tr>
<td>Prescription from One Doctor</td>
<td>36.7 (2.91)</td>
<td>31.8 (1.53)</td>
<td>39.0 (1.07)</td>
</tr>
<tr>
<td>Prescriptions from More Than One Doctor</td>
<td>1.4 (0.68)</td>
<td>1.3 (0.38)</td>
<td>3.7 (1.62)</td>
</tr>
<tr>
<td>Stole from Doctor's Office, Clinic, Hospital, or Pharmacy</td>
<td>1.3 (0.70)</td>
<td>0.5 (0.17)</td>
<td>1.0 (0.57)</td>
</tr>
<tr>
<td>Given By, Bought From, or Took From a Friend or Relative</td>
<td>55.3 (2.92)</td>
<td>57.4 (1.58)</td>
<td>39.2 (2.67)</td>
</tr>
<tr>
<td>From Friend or Relative for Fine</td>
<td>45.5 (2.87)</td>
<td>43.0 (1.53)</td>
<td>22.1 (2.66)</td>
</tr>
<tr>
<td>Bought from Friend or Relative</td>
<td>5.6 (1.00)</td>
<td>3.5 (0.85)</td>
<td>13.8 (1.72)</td>
</tr>
<tr>
<td>Took from Friend or Relative without Asking</td>
<td>2.5 (0.59)</td>
<td>4.2 (0.60)</td>
<td>3.1 (0.76)</td>
</tr>
<tr>
<td>Bought from Drug Dealer or Other Stranger</td>
<td>1.9 (0.56)</td>
<td>3.5 (0.46)</td>
<td>13.4 (1.71)</td>
</tr>
<tr>
<td>Some Other Way</td>
<td>3.2 (0.84)</td>
<td>2.5 (0.74)</td>
<td>5.9 (1.01)</td>
</tr>
</tbody>
</table>

Over time, misuse leads to an increase in seeking pain prescriptions from drug dealers.

SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

Pain Relievers

Across age groups, most misused pain prescriptions come from a family member, followed by physicians.

Young teens are the most likely age group to steal a prescription.

Source of Misused Prescription Pain Relievers among Individuals Aged 12 and Older

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<td>26.5 (1.96)</td>
<td>0.8 (1.76)</td>
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<tr>
<td>Prescription from One Doctor</td>
<td>34.0 (1.27)</td>
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<td>1.7 (0.39)</td>
<td>1.7 (0.39)</td>
<td>1.7 (0.42)</td>
<td>0.9 (0.26)</td>
<td>2.0 (0.55)</td>
</tr>
<tr>
<td>Stole from Doctor’s Office, Clinic, Hospital, or Pharmacy</td>
<td>0.7 (0.17)</td>
<td>2.3 (0.81)</td>
<td>0.5 (0.17)</td>
<td>0.7 (0.26)</td>
<td>0.5 (0.21)</td>
</tr>
<tr>
<td>Given By, Bought From, or Took From a Friend or Relative</td>
<td>53.7 (1.23)</td>
<td>56.2 (2.67)</td>
<td>33.6 (1.32)</td>
<td>59.5 (1.56)</td>
<td>51.5 (1.70)</td>
</tr>
<tr>
<td>From Friend or Relative for Fine</td>
<td>46.3 (1.46)</td>
<td>37.4 (2.70)</td>
<td>40.8 (1.28)</td>
<td>42.5 (1.88)</td>
<td>40.2 (1.62)</td>
</tr>
<tr>
<td>Bought from Friend or Relative</td>
<td>9.4 (0.66)</td>
<td>9.7 (1.24)</td>
<td>9.9 (0.50)</td>
<td>13.6 (1.68)</td>
<td>8.0 (0.88)</td>
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<tr>
<td>Took from Friend or Relative without Asking</td>
<td>3.8 (0.45)</td>
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<tr>
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<td>11.5 (1.82)</td>
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<td>5.6 (0.83)</td>
<td>4.0 (0.70)</td>
</tr>
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SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.
The Opioid Epidemic

#1 injury death adults = Drug overdose

- Over 1/2 Opioid-related
- Over 1/3 Prescription Opioids

Today, drug overdose kills MORE Americans than guns or car accidents.

Opioid Overdose Deaths in the US 2000-2015

In 2015, more than 15,000 Americans died from prescription opioid overdose.

Highest rates:
- 25-54 yrs
- Men more likely to die from overdose
- Non-Hispanic whites, American Indian, Alaskan Natives

Most Commonly Overdosed Opioids:
- Hydrocodone (Vicodin®)
- Oxycodone (OxyContin®)

Centers for Disease Control and Prevention, National Center for Health Statistics. Multiple Cause of Death 1999-2014 on CDC WONDER Online Database, released 2015. Wide-ranging online data for epidemiologic research (WONDER). Atlanta, GA: CDC, National Center for Health Statistics; 2016

Ossierder EM. Am J Epidemiol 2014
Heroin use has more than doubled in young adults in the past decade.

↑ Heroin Use

- Men and women
- Most age groups
- All income levels

Heroin & Concurrent Drug Abuse

Heroin use has more than doubled in young adults in the past decade.

9 out of 10 people who use heroin also use at least 1 other drug.
Heroin use has more than doubled in young adults in the past decade.

9 out of 10 people who use heroin also use at least 1 other drug.

45% of people who use heroin are also addicted to prescription painkillers.

Rx Opioids can be gateway drugs to heroin use.

More likely to develop addiction to heroin.

Rx Opioids can be gateway drugs to heroin use.

More likely to develop addiction to heroin.

Skyrocketing Heroin ODs

Heroin use has more than doubled in young adults in the past decade.

9 out of 10 people who use heroin also use at least 1 other drug.

45% of people who use heroin are also addicted to prescription painkillers.

From 2010 to 2015, heroin overdose deaths quadrupled.
Although not “ground zero” of the epidemic, Texas is not immune.

Drug Overdose Deaths in Texas

Heat map animation by AD Brackley

Data visualization source:


Estimated Age-adjusted Death Rate per 100,000:
- 0-2
- 2-14
- 4-16
- 6-18
- 8-1-10
- 10-1-12
- 12-1-14
- 14-1-16
- 18-1-20

10/17/17
Although not “ground zero” of the epidemic, **Texas is not immune.**

**Drug Overdose Deaths in Texas**

Heat map animation by AD Brackley


10/17/17

**Although not “ground zero” of the epidemic, **Texas is not immune.**

Texas is in the **top 5 states** for **total number of opioid related deaths**.

In a state-by-state analysis of the societal costs of prescription opioid abuse, **Texas has the 2nd highest opioid abuse-related health care costs** totaling over **$1.9 Billion**

Of the 47 states that reported state spending on mental health agencies, Texas lagged behind the rest of the nation, ranking in the **bottom 5 states** for **mental health agency expenditures per capita... for the last 10 years**.

Opioid-related overdose deaths in San Antonio are higher than the national average.

Medical Examiner’s Office confirmed that opioid-related overdose deaths are on the rise in Bexar County.

**Prescription opioids or heroin?**


In Bexar County opioid-related overdose deaths attributed to heroin are on the rise.

**2014**
- More than 1/3 of all overdose deaths were opioid-related. (34%)
  - 18% Prescription vs. 16% Heroin

**2015**
- Almost 1/2 of all overdose deaths were opioid-related. (47%)
  - 11% Prescription vs. 21% Heroin

Marquez RJ & Loyd R. How opioid use has impacted overdose in Bexar County in 2014-15, Heroin overdose deaths increase from 2014 to 2015. KSAT. 2016
Lifesaving drug **Narcan**, also known as **Naloxone**, **reverses opioid drug overdose.**

**2016**
- SAFD Fire-EMS personnel had **2089 individual patient encounters** where naloxone was given.
  - EMS Naloxone Breakdown
    - **114 individuals had at least two encounters**
    - **12 individuals had three encounters**
    - **5 individuals had four encounters**
    - **1 individual had eight encounters**
  - **58%** of patients treated with naloxone were **transported to the hospital.**
  - **Cost of each dose is $36.21**

[Image: Doses of Narcan administered to patients in San Antonio last year, SAFD says. News 4 San Antonio, 2017]

Importantly, it can be purchased OTC at CVS, Walgreens, and most local drug stores for ~$15-35 depending on route of administration.
Contact Information

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