Pain Management – The Good, the Bad, and the Ugly

Opioid Epidemic

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Associate Director Addiction Medicine
Medical Director MOTIVATE
Virginia Commonwealth University

ACP VA 2018
Disclosures

• Addiction Medicine Consultant for Virginia Medicaid
• Consultant for National Center Substance Abuse and Child Welfare
Opioids and
The Poppy Goddess
Demeter
History

- c3400 BC – poppy cultivated in Lower Mesopotamia “Hul Gil” “joy plant” (Sumerian)
- c1300 BC – Egyptian cultivation – traded into Europe
- c460 Hippocrates
- 1300-1500 disappears from European historical record
- 1527 Paracelsus reintroduces opium as laudanum: black pills opium, citrus and gold – prescribed as painkillers “stones of immortality”
- 1680 Syndeham’s Laudanum introduced – opium, sherry and herbs
- 1803 morphine isolated from poppy
- 1821 De Quincey “Confessions of an English Opium-eater”
- 1843 syringe invented
- 1874 heroin synthesized marketed in 1890s
19th Century Medicinal Uses

- Analgesia (Civil War)
- Cough Suppressant
- Anti-Diarrhea
- Treatment of “Female Conditions”: menstrual pain, labor pain, “hysteria”, etc
Eugene Grasset, La Morphinomane, 1897 color lithograph
Eugene Grasset, La Morphinomane, 1897 color lithograph
Turn of the century treatment: Addiction is a disease

- Addiction – seen as a medical condition and treated like one
  - Short acting opioids
  - Specialty clinics – detoxification and maintenance
  - NAS described

Dr Benjamin Rush
The current opioid crisis
Drug Overdose Deaths Are Outpacing Other Public Health Epidemics

Drug overdose deaths per year compared to past epidemic death peaks.

- Car crashes (1972)
- HIV (1995)
- Firearm homicide peak (1993)
- Drug overdoses

Source: CDC, NHTSA

The Huffington Post
Rising morbidity and mortality in midlife among white non-Hispanic Americans in the 21st century

Anne Case and Angus Deaton

Fig. 1. All-cause mortality, ages 45–54 for US White non-Hispanics (USW), US Hispanics (USH), and six comparison countries: France (FRA), Germany (GER), the United Kingdom (UK), Canada (CAN), Australia (AUS), and Sweden (SWE).

Fig. 2. Mortality by cause, white non-Hispanics ages 45–54.
A new divide in American death

Change in mortality rate, urban vs. rural

White women and men in small cities and rural areas are dying at much higher rates than in 1990, while whites in the largest cities and their suburbs have steady or declining death rates.

Since 2010
Prescription opioid overdose deaths increased
237% for men
400% for women

Source: Washington Post analysis of Centers for Disease Control and Prevention mortality data
Figure 3

Over Four in Ten Americans Know Someone Who Has Been Addicted to Prescription Painkillers

Do you personally know anyone who has ever been addicted to prescription painkillers, or not?

Yes 44%

No 55%

Don't know/Refused 1%

ASKED OF THE 44% WHO SAY THEY KNOW SOMEONE WHO HAS BEEN ADDICTED: Who do you know that has ever been addicted to prescription painkillers? (percentages based on total)

- An acquaintance 26%
- A close friend 21%
- A family member 20%
- Yourself 2%

SOURCE: Kaiser Family Foundation Health Tracking Poll (conducted April 12-19, 2016)
Communities Impacted by Addiction

Source: Department of Medical Assistance Services – claims/encounter data (November 3, 2016) and 2010 U.S. Census Bureau Population.
Circles % of Medicaid recipients whose claims/encounter data included an addiction related diagnosis respective to the total population in that zip code.
Trends in Opioid Analgesic Abuse and Mortality in the United States

Richard C. Dart, M.D., Ph.D., Hilary L. Surratt, Ph.D., Theodore J. Cicero, Ph.D., Mark W. Parrino, M.P.A., S. Geoff Severtson, Ph.D., Becki Bucher-Bartelson, Ph.D., and Jody L. Green, Ph.D.

**Figure 1.** Prescriptions Dispensed for Opioid Analgesics and Rates of Abuse and Diversion, RADARS System, 2002–2013.

### Heroin Use Has INCREASED Among Most Demographic Groups

<table>
<thead>
<tr>
<th>SEX</th>
<th>2002-2004</th>
<th>2011-2013</th>
<th>% CHANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>2.4</td>
<td>3.6</td>
<td>50%</td>
</tr>
<tr>
<td>Female</td>
<td>0.8</td>
<td>1.6</td>
<td>100%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AGE, YEARS</th>
<th>2002-2004</th>
<th>2011-2013</th>
<th>% CHANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>12-17</td>
<td>1.8</td>
<td>1.6</td>
<td>--</td>
</tr>
<tr>
<td>18-25</td>
<td>3.5</td>
<td>7.3</td>
<td>109%</td>
</tr>
<tr>
<td>26 or older</td>
<td>1.2</td>
<td>1.9</td>
<td>58%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>RACE/ETHNICITY</th>
<th>2002-2004</th>
<th>2011-2013</th>
<th>% CHANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Hispanic white</td>
<td>1.4</td>
<td>3</td>
<td>114%</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
<td>1.7</td>
<td>--</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ANNUAL HOUSEHOLD INCOME</th>
<th>2002-2004</th>
<th>2011-2013</th>
<th>% CHANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than $20,000</td>
<td>3.4</td>
<td>5.5</td>
<td>62%</td>
</tr>
<tr>
<td>$20,000-$49,999</td>
<td>1.3</td>
<td>2.3</td>
<td>77%</td>
</tr>
<tr>
<td>$50,000 or more</td>
<td>1</td>
<td>1.6</td>
<td>60%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HEALTH INSURANCE COVERAGE</th>
<th>2002-2004</th>
<th>2011-2013</th>
<th>% CHANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>4.2</td>
<td>6.7</td>
<td>60%</td>
</tr>
<tr>
<td>Medicaid</td>
<td>4.3</td>
<td>4.7</td>
<td>--</td>
</tr>
<tr>
<td>Private or other</td>
<td>0.8</td>
<td>1.3</td>
<td>63%</td>
</tr>
</tbody>
</table>

**Heroin Addiction and Overdose Deaths are Climbing**

**Heroin-Related Overdose Deaths** (per 100,000 people)

**Heroin Addiction** (per 1,000 people)

**Sources:**
- National Survey on Drug Use and Health (NSDUH), 2002-2013
- National Vital Statistics System, 2002-2013
Increased use of heroin as an initiating opioid of abuse

Theodore J. Cicero, Matthew S. Ellis, Zachary A. Kasper

Washington University in St. Louis, Department of Psychiatry, Campus Box 8124, 660 S. Euclid Avenue, St. Louis, MO 63110, United States

Fig. 1. First opioid of regular use among opioid initiates from 2005 to 2015 (N = 5885). Cochran-Armitage trend tests showed significant changes for heroin (p < .001), hydrocodone (< 0.001), other prescription opioids (< 0.001), but not oxycodone (p = 0.13).

Table 1

<table>
<thead>
<tr>
<th>Initiate Cohort, No. (%)</th>
<th>Heroin (n = 631)</th>
<th>Prescription opioid (n = 5254)</th>
<th>Sig. a</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age at survey completion (SE)</td>
<td>27.0 (0.28)</td>
<td>28.9 (0.11)</td>
<td>&lt; 0.001 b</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td>0.82</td>
</tr>
<tr>
<td>Male</td>
<td>299 (47.8%)</td>
<td>2519 (48.3%)</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>327 (52.2%)</td>
<td>2701 (51.7%)</td>
<td></td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
<td>0.01</td>
</tr>
<tr>
<td>White</td>
<td>479 (78.0%)</td>
<td>4262 (82.2%)</td>
<td></td>
</tr>
<tr>
<td>Non-white</td>
<td>135 (22.0%)</td>
<td>922 (17.8%)</td>
<td></td>
</tr>
<tr>
<td>Urbanicity of residence</td>
<td></td>
<td></td>
<td>0.01</td>
</tr>
<tr>
<td>Urban</td>
<td>280 (51.6%)</td>
<td>2095 (46.1%)</td>
<td></td>
</tr>
<tr>
<td>Suburban/rural</td>
<td>263 (48.4%)</td>
<td>2454 (53.9%)</td>
<td></td>
</tr>
<tr>
<td>Highest completed education</td>
<td></td>
<td></td>
<td>&lt; 0.001 b</td>
</tr>
<tr>
<td>Some college or more</td>
<td>204 (32.7%)</td>
<td>2141 (41.0%)</td>
<td></td>
</tr>
<tr>
<td>Education lower than college</td>
<td>409 (65.5%)</td>
<td>2994 (57.3%)</td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>11 (1.8%)</td>
<td>90 (1.7%)</td>
<td></td>
</tr>
</tbody>
</table>
Original Investigation

The Changing Face of Heroin Use in the United States
A Retrospective Analysis of the Past 50 Years

Theodore J. Cicero, PhD, Matthew S. Ellis, MPE, Hilary L. Surratt, PhD, Steven P. Kurtz, PhD

Published online May 28, 2014.
Opioids: A Public Health Crisis

• All VA institutions, public and private, needed to respond
How did we get here?
The United States has <5% of the world’s population, but consumes >80% of all opioids.
Pain: The 5th Vital Sign

• History
  – Introduced by president of American Pain Society 1995
  – Embraced by VA system late 1990s
  – Became Joint Commission standard 2001
    • Bill of Rights for People with Pain

• Because
  – Recognition pain undertreated
  – Untreated pain leads to chronic pain
  – Chronic pain interferes with quality of life, is costly, and common
Screening: The Pain Scale
Treatment of Pain: Opioids

Applied to non-cancer pain

- Opioid addiction rare in pain patients
- Opioids are safe and effective for chronic pain
- Opioid therapy can easily be discontinued
- Physicians needlessly allowing patient to suffer because of “opiophobia”
Education: OxyContin

• Approved 1995; Sales:
  – 1996 $45 million
  – 2000 $1.1 billion
  – 2010 $3.1 billion (30% of painkiller market)
• 1996-2002 Purdue Pharma funded >20,000 pain-related educational programs
• Provided financial support to: American Pain Society, the American Academy of Pain Medicine, the Federation of State Medical Boards, the Joint Commission
• 2007 – Settlement: plead guilty to “criminal charges that they misled regulators, doctors and patients about the drug’s risk of addiction and its potential to be abused” $600M
• Sackler Family (Purdue Pharma) 16th richest in US (Forbes 2015)
Perceptions of Risk – 8th Graders 2013

“How much do you think people risk harming themselves (physically or in other ways), if they…”

<table>
<thead>
<tr>
<th>Activity</th>
<th>Risk Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occasional use of heroin without a needle</td>
<td>73%</td>
</tr>
<tr>
<td>Occasional Vicodin</td>
<td>26%</td>
</tr>
<tr>
<td>Occasional OxyContin</td>
<td>33%</td>
</tr>
<tr>
<td>Occasional Marijuana</td>
<td>37%</td>
</tr>
<tr>
<td>Smoke 1-5 cigarettes/day</td>
<td>43%</td>
</tr>
</tbody>
</table>
Chronic pain, opioids and addiction: Where’s the Evidence?
ADDICTION RARE IN PATIENTS TREATED WITH NARCOTICS

To the Editor: Recently, we examined our current files to determine the incidence of narcotic addiction in 39,946 hospitalized medical patients who were monitored consecutively. Although there were 11,882 patients who received at least one narcotic preparation, there were only four cases of reasonably well documented addiction in patients who had no history of addiction. The addiction was considered major in only one instance. The drugs implicated were meperidine in two patients, Percodan in one, and hydromorphone in one. We conclude that despite widespread use of narcotic drugs in hospitals, the development of addiction is rare in medical patients with no history of addiction.

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Boston Collaborative Drug Surveillance Program
Boston University Medical Center

Waltham, MA 02154

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Chronic pain, opioids and functional improvement: Where’s the Evidence?
Chronic Use of Opioid Analgesics in Non-Malignant Pain: Report of 38 Cases

Russell K. Portenoy and Kathleen M. Foley

Summary

Thirty-eight patients maintained on opioid analgesics for non-malignant pain were retrospectively evaluated to determine the indications, course, safety and efficacy of this therapy. Oxycodone was used by 12 patients, methadone by 7, and levorphanol by 5; others were treated with propoxyphene, meperidine, codeine, pentazocine, or some combination of these drugs. Nineteen patients were treated for four or more years at the time of evaluation, while 6 were maintained for more than 7 years. Two-thirds required less than 20 morphine equivalent mg/day and only 4 took more than 40 mg/day. Patients occasionally required escalation of dose and/or hospitalization for exacerbation of pain; doses usually returned to a stable baseline afterward. Twenty-four patients described partial but acceptable or fully adequate relief of pain, while 14 reported inadequate relief. No patient underwent a

- 11 (29%) adequate pain relief
- 13 (34%) partial relief
- No improvements in social function, employment
- Conclusion: “Opioid maintenance therapy initiated for the treatment of chronic non-malignant pain can be safely and often effectively continued for long periods of time”
Poor Science Widely Cited
The current opioid crisis
Not everyone who uses drugs becomes addicted
Likelihood of addiction from chronic opioid use

Rates of misuse 12-29% (95% CI: 13-38%)
Rates of addiction averaged between 8-12% (95% CI: 3-17%)
Why do some people become addicted and not others?
Why do some people become addicted and not others?
Why do some people become addicted and not others?

- Biology/Genes: 30%
- Environment: 50-70%
- Brain Mechanisms
- Addiction
Why do some people become addicted and not others?

Demand: Adverse Childhood Experiences

Supply: War on Drugs
Adverse Childhood Experiences (ACES)

Kaiser ACE Study (CDC funded)
Adverse Childhood Experiences (ACES)

The Lifespan Impact
Adverse Childhood Experiences (ACES)

Experienced more by girls than boys

**TABLE 1.** Prevalence of Each Category of ACE and ACE Score by Gender

<table>
<thead>
<tr>
<th>Category of ACE</th>
<th>Women (n = 4665)</th>
<th>Men (n = 3948)</th>
<th>Total (n = 8613)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abuse</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emotional</td>
<td>12.2</td>
<td>7.8</td>
<td>10.2</td>
</tr>
<tr>
<td>Physical</td>
<td>25.1</td>
<td>27.9</td>
<td>26.4</td>
</tr>
<tr>
<td>Sexual</td>
<td>24.3</td>
<td>17.1</td>
<td>21.0</td>
</tr>
</tbody>
</table>

*Childhood Abuse, Neglect, and Household Dysfunction and the Risk of Illicit Drug Use: The Adverse Childhood Experiences Study*  
Shanta R. Dube, Vincent J. Felitti, Maxia Dong, Daniel P. Chapman, Wayne H. Giles and Robert F. Anda  
*Pediatrics* 2003;111:564
Adverse Childhood Experiences (ACES)

Drug Use and Addiction

“The compulsive use of nicotine, alcohol and drugs increases proportionally in a strong, graded, dose response manner that closely parallels the intensity of adverse life experiences during childhood” (Felitti 2003 Praxis)

<table>
<thead>
<tr>
<th>ACE Score‡</th>
<th>N</th>
<th>Ever Had Drug Problem</th>
<th>Ever Addicted to Drugs</th>
<th>Ever Injected Drugs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>%</td>
<td>OR*</td>
<td>%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>2812</td>
<td>1.3</td>
<td>1.0 (Referent)</td>
<td>0.8</td>
</tr>
<tr>
<td>1</td>
<td>2205</td>
<td>3.0</td>
<td>1.9 (1.3–2.9)</td>
<td>2.1</td>
</tr>
<tr>
<td>2</td>
<td>1338</td>
<td>3.9</td>
<td>2.0 (1.3–3.2)</td>
<td>3.1</td>
</tr>
<tr>
<td>3</td>
<td>849</td>
<td>5.0</td>
<td>2.5 (1.6–4.0)</td>
<td>4.1</td>
</tr>
<tr>
<td>4</td>
<td>507</td>
<td>7.5</td>
<td>4.2 (2.6–6.9)</td>
<td>3.9</td>
</tr>
<tr>
<td>≥5</td>
<td>902</td>
<td>12.0</td>
<td>6.5 (4.3–9.6)</td>
<td>9.2</td>
</tr>
<tr>
<td>Total</td>
<td>8613</td>
<td>4.0</td>
<td>—</td>
<td>2.9</td>
</tr>
</tbody>
</table>
Prevention of ACES

1) Prevent Exposure to Trauma (primary prevention)
   • Loving, nurturing and stable home environment during school years
   • Absence of violence
   • (Borrowed from CDC protective factors to reduce effects of FASDs)

2) Promote Resilience at risk by exposure to adversity (secondary prevention)
   • Trauma-informed care
   • Treat people with dignity and respect: Humanizing Discourse
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2) Promote Resilience at risk by exposure to adversity (secondary prevention)
   • Trauma-informed care
   • Treat people with dignity and respect: Humanizing Discourse

Language of Empathy vs Shame
US Drug Policy = The War on Drugs

A Costly Failure – By Any Metric

1 Trillion (\$1,000,000,000,000,000)

Since first declared in 1970 by President Nixon, the United States' war on drugs has cost \$1 trillion and hundreds of thousands of lives.
US Drug Policy = Mass Incarceration

Racial Inequities in Policing, Prosecution and Imprisonment

---

**STATE AND FEDERAL PRISON POPULATION, 1925-2010**

Source: Bureau of Justice Statistics Prisoner Series.

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**INCARCERATION RATE**

(PER 100,000)

*Chart depicts a sampling of nations*

Source: International Center for Prison Studies; Prison Policy Initiative; Bureau of Justice Statistics (2010)

U.S. figure is inclusive of black Americans.
Every 25 Seconds: Drug Arrest in US

Rates of arrest for drug possession range from 700 per 100,000 (Maryland) to 77 per 100,000 (Vermont)

Virginia 380 per 100,000
US Drug Policy = Mass Incarceration

Gender Inequities in Policing, Prosecution and Imprisonment

- 1977-2007: 832% increase in number of women in prison – double rate of increase for men

- When a woman is incarcerated – often a child is displaced
The War on Drugs – Causes ACES

**HOUSEHOLD CHALLENGES**

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>13%</td>
<td>Mother treated violently</td>
</tr>
<tr>
<td>27%</td>
<td>Substance abuse</td>
</tr>
<tr>
<td>19%</td>
<td>Mental illness</td>
</tr>
<tr>
<td>23%</td>
<td>Separation/divorce</td>
</tr>
<tr>
<td>5%</td>
<td>Incarcerated household member</td>
</tr>
</tbody>
</table>
The War on Drugs and ACES: A Perverse Cycle

### HOUSEHOLD CHALLENGES

<table>
<thead>
<tr>
<th></th>
<th>0%</th>
<th>25%</th>
<th>50%</th>
<th>75%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother Treated Violently</td>
<td>13%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Substance Abuse</td>
<td>27%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mental Illness</td>
<td>19%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Separation/Divorce</td>
<td>23%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incarcerated Household Member</td>
<td>5%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Decriminalization as Public Health

Consider Portugal

A Stark Difference: Drug-Related Deaths

<table>
<thead>
<tr>
<th>Country</th>
<th>Drug-Related Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Portugal</td>
<td>6</td>
</tr>
<tr>
<td>France</td>
<td>7</td>
</tr>
<tr>
<td>Italy</td>
<td>8</td>
</tr>
<tr>
<td>Belgium</td>
<td>9</td>
</tr>
<tr>
<td>Spain</td>
<td>15</td>
</tr>
<tr>
<td>Netherlands</td>
<td>16</td>
</tr>
<tr>
<td>Germany</td>
<td>22</td>
</tr>
<tr>
<td>Austria</td>
<td>26</td>
</tr>
<tr>
<td>Luxembourg</td>
<td>31</td>
</tr>
<tr>
<td>Finland</td>
<td>43</td>
</tr>
<tr>
<td>Denmark</td>
<td>58</td>
</tr>
<tr>
<td>Britain</td>
<td>60</td>
</tr>
<tr>
<td>Ireland</td>
<td>71</td>
</tr>
<tr>
<td>Norway</td>
<td>76</td>
</tr>
<tr>
<td>Sweden</td>
<td>100</td>
</tr>
<tr>
<td>United States</td>
<td>312</td>
</tr>
</tbody>
</table>

Portugal has the lowest rate of drug-induced death in Western Europe, a small fraction of the American toll.

Deaths per million people ages 15 to 64.

Drug-Related H.I.V. Infections

Percentage of Portugal H.I.V. cases associated with drug addiction.

By The New York Times | Source: European Monitoring Center for Drugs and Drug Addiction
Policies in Opposition

Cognitive Dissonance
The Opioid Epidemic Will Wane
There will be other drug epidemics
Unless We Address Root Causes
• Our response to the Opioid Crisis must not be Opioid Exclusive

• Truly treat addiction as a disease - decriminalize drug use:
  – Roll back the War on Drugs
• Stop discriminating against people with addiction:
  – Humanize our discourse, our language
• Make sure that systems are in place assess and treat patients and their families with the highest quality of care and with dignity and compassion
Thank You

• Mishka Terplan
• @do_less_harm
• Mishka.Terplan@vcuhealth.org
Among people taking opioids long term, rates of carefully diagnosed addiction have averaged roughly 10 percent in published studies.

Answer = 3 – 10% -- From systematic review/synthesis data, rates of addiction averaged between 8% and 12% (range, 95% CI: 3%-17%).