The Opioid Crisis in the U.S.

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Disclosures

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• Consultant for National Center Substance Abuse and Child Welfare
Objectives

• Discuss information about opioids
• Discuss the epidemiology of addiction
• Describe how addiction varies across gender and sex – unique vulnerabilities of women, and
• Discuss lessons from the opioid crisis
Opioids, Reproduction and Gender: Demeter
Within a few years many authorities have pointed out the danger of morphinism in women who come under treatment for gynecologic disorders. The impulse to secure relief from pain and to induce sleep is so imperative that morphin is taken without regard to its perils. The patient is both physiologically and psychologically impressed with the intense satisfaction of rapid relief, and ever after this impression becomes dominant in pain and suffering. All control of the will, feelings, and emotions is overcome by it. The desire to escape pain and suffering becomes in many cases a mania.

Capriciousness of mind, irritability, selfishness, restlessness, and excitability are the natural characteristics of many women, who quickly become morphinists, especially if under treatment for disorders of the generative organs. Such persons
Eugene Grasset, La Morphinomane, 1897 color lithograph
Turn of the Century Treatment: Addiction is a disease

- Addiction – seen as medical condition and treated like one
  - Short acting opioids
  - Specialty clinics – detoxification and maintenance
  - Neonatal Abstinence Syndrome first described (and treated)

Dr Benjamin Rush
The Current Opioid Crisis: iatrogenic

MMWR 11/4/11
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
44% of Americans say they know someone who’s been addicted to Rx painkillers.

26% say it’s an acquaintance
21% say it’s a close friend
19% say it’s a family member
3% say it’s themselves

20% of Americans say they know someone who has died from a Rx painkiller overdose.

13% say it’s an acquaintance
8% say it’s a close friend
6% say it’s a family member

SOURCE: Kaiser Family Foundation Health Tracking Poll (conducted November 8-13, 2017)
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.
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

Deaths per 100,000 population

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 8134, 660 S. Broadway 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 (< .001), hydrocodone (< .001), other prescription opioids (< .001), but not oxycodone (p = 0.13).
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 8234, 660 S. Euclid Avenue, St. Louis, MO 63110, United States

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

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 (< .0001), hydrocodone (< .0001), other prescription opioids (< 0.001), but not oxycodone (p = 0.13).

Figure 2. Sex Distribution of Respondents Expressed as Percentage of the Total Sample

Sex and Gender Differences

CAUTION
MEN AT WORK

Women work all the time-
Men have to put up signs when they work.
Women and Pain

- Pain related to reproductive anatomy/physiology
  - Menstrual, Pregnancy, Endometriosis,

- Pain (syndromes) not related but more common in women
  - Fibromyalgia, Migraines, Multiple Sclerosis, Rheumatoid Arthritis
## Gender and Behavioral Health Burden

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Percent Reporting</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Female</td>
</tr>
<tr>
<td><strong>Serious Psychological Distress</strong> (past month)</td>
<td>6.0%</td>
</tr>
<tr>
<td><strong>Any Mental Illness</strong> (past year)</td>
<td>26.2%</td>
</tr>
<tr>
<td><strong>Serious Mental Illness</strong> (past year)</td>
<td>5.0%</td>
</tr>
<tr>
<td><strong>Major Depressive Episode</strong> (past year)</td>
<td>8.5%</td>
</tr>
</tbody>
</table>

National Survey on Drug Use and Health 2014, 2015
Gender and Prescription Drug Use and Misuse

- 2.1 million Past Year Initiates Opioid Misuse
  - 0.9 million males (0.7%)
  - 1.2 million females (0.9%)
  - 3300 women per day

<table>
<thead>
<tr>
<th>Past Year</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prescription psychotherapeutic drugs</td>
<td>40.9%</td>
<td>47.8%</td>
</tr>
<tr>
<td>“Pain Relievers”</td>
<td>33.9%</td>
<td>38.8%</td>
</tr>
<tr>
<td>Tranquilizers</td>
<td>11.3%</td>
<td>17.9%</td>
</tr>
<tr>
<td>Sedatives</td>
<td>5.6%</td>
<td>8.2%</td>
</tr>
<tr>
<td>Stimulants</td>
<td>6.5%</td>
<td>6.3%</td>
</tr>
</tbody>
</table>

NSDUH 2015
Prevalence of long-term opioid use for noncancer pain among adult members of (a) Kaiser Permanente Northern California and (b) Group Health Cooperative, by gender and year: 1997–2005
Gender Differences

• Telescoping:
  – Substance use in women progresses more quickly to addiction
  – Women tend to enter treatment at later stage of addiction

• Women can have more severe withdrawal and have higher risk of opioid overdose
  – Smaller body mass, and higher fat-to-water ratio
  – Differences in metabolism, absorption, and elimination
  – Less likely to receive naloxone (only 45% of women c/w 77% men)

Sumner SA et al, “Use of Naloxone by Emergency Medical Services...” Prehosp Emerg Care 2016, 20(2)
Gender and Development of Addiction

• Healthcare professionals tend to miss signs of addiction in women
  – Especially in older women and younger girls

• ADVISe Study: RCT SBIRT implementation into primary care:
  – 640,000 adult patients
  – Women less likely to be screened (OR=0.78)
  – Among those screened, women less likely to receive BI/RT (OR=0.60)

casacolumbia.org/articlefiles/380-Formative_Years_Pathways_to_Substance_Abuse.pdf
who.int/mental_health/prevention/genderwomen/en/
Public Health Response to the Opioid Crisis

Prescribing Guidelines are Gender Blind
Unused Opioids Following Surgery
Rate of persistent opioid use following surgery 5-10%
Lessons from the Opioid Crisis:

1. Reduce Opioid Exposure

• Opioid Prescribing Guidelines are effective in both:
  – 1) Reducing opioid exposure in community – thereby reduce misuse/overdose/addiction
  – 2) Reducing opioid exposure in individual patient – thereby reduce misuse/overdose/addiction
Figure 1. Source of prescription pain relievers for the most recent nonmedical use among past year users aged 12 or older: annual averages, 2013 and 2014.

- From one doctor: 22.1%
- From a friend or relative for free: 50.5%
- Bought from friend or relative without asking: 4.4%
- Bought from drug dealer or other stranger: 4.8%
- From more than one doctor: 3.1%
- Other: 4.1%

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Surveys on Drug Use and Health (NSDUHs), 2013 and 2014.
Safer and more appropriate opioid prescribing: a large healthcare system’s comprehensive approach

Jan L. Losby PhD, MSW\textsuperscript{1} | Joel D. Hyatt MD\textsuperscript{3} | Michael H. Kanter MD, CPPS\textsuperscript{4} | Grant Baldwin PhD, MPH\textsuperscript{2} | Denis Matsuoka PharmD\textsuperscript{5}

Guidelines Decrease Prescribing

FIGURE 1  Number of opioid-acetaminophen prescriptions greater than 200 pills per prescription by month

FIGURE 2  Opioid prescribing greater than or equal to 120 morphine milligram equivalent per day, per 1000 members per month
Prescription Opioid Epidemic Peaked in 2012

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.
What is the risk of opioid addiction among individuals prescribed opioids for pain?
Likelihood of addiction from chronic opioid use

Rates of opioid misuse, abuse, and addiction in chronic pain: a systematic review and data synthesis

Kevin E. Vowles, Mindy L. McEntee, Peter Siyanhan Julnes, Tessa Frohe, John P. Ney, David N. van der Goes

April 2015 • Volume 156 • Number 4

Rates of misuse 12-29% (95%CI:13-38%)
Rates of addiction averaged between 8-12% (95% CI: 3-17%)
Not everyone who uses drugs becomes addicted.
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?

Prevention of Addiction

- **Biology/Genes**: 30%
- **Environment**: 50-70%

**Demand:**
- Adverse Childhood Experiences

**Supply:**
- War on Drugs

**Brain Mechanisms**

**Addiction**
Adverse Childhood Experiences (ACES)

Kaiser ACE Study (CDC funded)
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)
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*
Sexual Violence in Female Youth (<18yo)

- 6% (7 million) girls experience rape
- 4% (4 million) experience rape involving drugs or alcohol
- 2% (2.6 million) experience attempted rape
Predicting Aberrant Behaviors in Opioid-Treated Patients: Preliminary Validation of the Opioid Risk Tool

Lynn R. Webster, MD, and Rebecca M. Webster
Utah Pain Clinic and Clinical Research, Salt Lake City, Utah, USA

ABSTRACT

Objective. To provide clinicians with a brief screening tool to predict accurately which individuals may develop aberrant behaviors when prescribed opioids for chronic pain.

Design. One hundred and eighty-five consecutive new patients treated in one pain clinic took the self-administered Opioid Risk Tool (ORT). The ORT measured the following risk factors associated in scientific literature with substance abuse: personal and family history of substance abuse; age; history of preadolescent sexual abuse; and certain psychological diseases. Patients received scores of 0-3 (low risk), 4-7 (moderate risk), or ≥8 (high risk), indicating the probability of their displaying opioid-related aberrant behaviors. All patients were monitored for aberrant behaviors for 12 months after their initial visits.

Results. For those patients with a risk category of low, 17 out of 18 (94.4%) did not display an aberrant behavior. For those patients with a risk category of high, 40 out of 44 (90.9%) did display an aberrant behavior. The authors used the χ² statistic to validate the ORT, because it simultaneously assesses sensitivity and specificity. The ORT displayed excellent discrimination for both the male (κ = 0.82) and the female (κ = 0.85) prognostic models.

Conclusion. In a preliminary study, among patients prescribed opioids for chronic pain, the ORT exhibited a high degree of sensitivity and specificity for determining which individuals are at risk for opioid-related, aberrant behaviors. Further studies in a variety of pain and nonpain settings are needed to determine the ORT’s universal applicability.

Key Words: Assessment; Screening; Chronic Pain; Opioids; Abuse; Addiction

Opioid Risk Tool (ORT)

Mark each box that applies

<table>
<thead>
<tr>
<th></th>
<th>Female</th>
<th>Male</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Family Hx of substance abuse</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alcohol</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Illegal drugs</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Prescription drugs</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>2. Personal Hx of substance abuse</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alcohol</td>
<td>3</td>
<td>3</td>
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<tr>
<td>Illegal drugs</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Prescription drugs</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>3. Anti-narcotic medication</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>4. Hx of preadolescent sexual abuse</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>5. Psychologic disease</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ADD, OCD, bipolar, schizophrenia</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Depression</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Scoring Totals:

- Administer
  - On initial visit
  - Prior to opioid therapy

Scoring (risk)

- 0-3: low
- 4-7: moderate
- ≥8: high
Lessons from the Opioid Crisis:
2. Prevent 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

Language of Empathy vs Shame
Why do some people become addicted and not others?

Prevention: Punitive vs. Public Health

Biology/Genes 30%

Environment 50-70%

DRUG

Brain Mechanisms

Addiction

Demand: Adverse Childhood Experiences

Supply: War on Drugs
US Drug Policy = The War on Drugs

A Costly Failure – By Any Metric

- **US Drug Control Spending FY2017 CR**
  - Budget Authority in Millions. Source: ONDCP, May 2017
  - 6% Treatment
  - 17% Prevention
  - 39% Domestic Law Enforcement
  - 34% Interdiction
  - 5% International

- **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.
  - 450 billion
    - To lock those people up in federal prisons
  - 20 billion
    - To fight the drug gangs in their home countries
  - 49 billion
    - Law enforcement along America’s borders
  - 215 billion
    - Other costs: an overburdened justice system, a strained healthcare system, lost productivity, and environmental destruction
  - 33 billion
    - In marketing "Just Say No"-style messages to America’s youth and other prevention programs
  - 121 billion
    - To arrest more than 37 million nonviolent drug offenders
US Drug Policy = Mass Incarceration

Racial Inequities in Policing, Prosecution and Imprisonment

Most Prisoners are Parents

Nixon Launches War on Drugs

Source: Bureau of Justice Statistics Prison Series.

Incarceration Rate (per 100,000)

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

U.S. figure is inclusive of black Americans.
‘Sesame Street’ introduces first-ever muppet with a parent in prison

https://www.sesamestreet.org/toolkits/incarceration
The War on Drugs – Causes ACES

**HOUSEHOLD CHALLENGES**

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Challenge</th>
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</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

- **War on Drugs**
- **ACES**
- **Drug Use**
- **Addiction**

<table>
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<th>Household Challenges</th>
<th>Percentage</th>
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</tr>
<tr>
<td>Incarcerated household member</td>
<td>5%</td>
</tr>
</tbody>
</table>
Policies in Opposition

Cognitive Dissonance
Lessons from the Opioid Crisis:

3. Roll Back the War on Drugs

Decriminalization as Public Health - Portugal
Lessons from the Opioid Crisis:
3. Roll Back the War on Drugs

At recent rate of de-carceration: it will take 75 YEARS to cut the prison population in half.

Figure 1: Historical and projected U.S. federal and state prison populations, based on 2009-2016 rate of decline

Lessons from the Opioid Crisis:
4. Focus on Treatment
Treatment works but most individuals with addiction don’t receive any treatment.

**Treatment Gap**
Use of pain relievers or heroin in the past month 2012

- **28% = 1.5 million** opioid and heroin patients receiving medications
- **72% = 3.7 million** no treatment received

5,197,000 total users surveyed

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**Figure 7.A**
Individuals with Select Medical Conditions Who Receive Treatment

<table>
<thead>
<tr>
<th>Condition</th>
<th>Treatment Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypertension*</td>
<td>77.2%</td>
</tr>
<tr>
<td>Diabetes²</td>
<td>73.2%</td>
</tr>
<tr>
<td>Major Depression³</td>
<td>71.2%</td>
</tr>
<tr>
<td>Addiction² (excluding Nicotine³)</td>
<td>10.9%</td>
</tr>
</tbody>
</table>

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2. All ages; Centers for Disease Control and Prevention. (2011).
3. Ages 12 and older; CASA Columbia analysis of The National Survey on Drug Use and Health (NSDUH), 2010.
4. Due to data limitations.
Treatment Gap > 1 million

FIGURE 1—Trends in past-year opioid abuse or dependence and opioid agonist medication-assisted treatment capacity: United States, 2003-2012.

FIGURE 2—Comparison of state rates of past-year opioid abuse or dependence and capacity for opioid agonist medication-assisted treatment: United States, 2012.
Overall provision of women-centered services in drug treatment facilities declined 2002-2009 (43%-40%, p<0.001)

AJPH 2015

Treatment Gap Greater for Women
“Overprescribing was not the sole cause of the problem. While increased opioid prescribing for chronic pain has been a vector of the opioid epidemic, researchers agree that such structural factors as lack of economic opportunity, poor working conditions, and eroded social capital in depressed communities, accompanied by hopelessness and despair, are root causes of the misuse of opioids and other substances.”

To Turn the Tide – Focus on Suffering
Opioid addiction and abuse is commonly happening to those being treated for acute pain, such as a broken bone or wisdom tooth extraction.

Popular narratives focus on opioid over-prescribing (physician behavior): Not on social determinants

“Opioid addiction and abuse is commonly happening to those being treated for acute pain, such as a broken bone or wisdom tooth extraction.”
The Opioid Crisis Will Wane
There will be other drug epidemics

Unless We Address Root Causes
(Prevent ACES)

Our response to the Opioid Crisis must not be Opioid Exclusive
Gender and the Public Health Response to the Opioid Crisis

- Truly treat addiction as a disease - decriminalize drug use
- Understand (better) gender and pain and the unique vulnerabilities of women to addiction
  – “Guidelines” should not be gender blind
- Make sure that systems are in place assess and treat women 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