Opioids 101: An Introduction and Overview

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Welcome and Introduction
Goals

- Provide an introduction to Opioids for professionals from multiple disciplines
- Review background information on heroin and opioids
- Address the causes of addiction
- Discuss treatment options
- Overview outcomes
Introduction to Opioids
What are Opioids?

- Opioids: a type of pain medicine that is man made (oxycodone, Percocet)

- Opiates: a type of pain medicine that is naturally occurring (morphine, heroin)
Where do Opioids Come From?

- All Naturally Occurring Opioids Come From the Opium Poppy...
Where Does the Opium Poppy Come From?

- Three Primary Places
  1. Afghanistan
  2. The “Golden Triangle”
  3. Xalisco, Mexico (newer)
Afghanistan

- Thought to produce 80% of the world’s opium
- Recent estimate of $4 BILLION in export value
The Golden Triangle
Xalisco, Mexico

- Newer source of "Black Tar Heroin"
What Happens Next?

- Processing of Opium into Heroin and Transport to Markets Worldwide
What are Some Examples?

- Opiates (naturally occurring)
  - opium, morphine, heroin
## Examples of Synthetic Opioids

<table>
<thead>
<tr>
<th>Generic Name</th>
<th>Brand Name</th>
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</thead>
<tbody>
<tr>
<td>Codeine</td>
<td>(only generic available)</td>
</tr>
<tr>
<td>Fentanyl</td>
<td>Actiq, Duragesic</td>
</tr>
<tr>
<td>Hydrocodone</td>
<td>Zohydro</td>
</tr>
<tr>
<td>Hydrocodone/Tylenol</td>
<td>Lorcet, Vicodin, Lortab</td>
</tr>
<tr>
<td>Hyromorphone</td>
<td>Dilaudid</td>
</tr>
<tr>
<td>Methadone</td>
<td>Dolophine</td>
</tr>
<tr>
<td>Oxycodone</td>
<td>OxyContin</td>
</tr>
</tbody>
</table>
Medical Uses of Opioids

- **Prescribed Indication:** Important and essential medications for pain relief
- **Other Effects on the Brain:** Lethargy, euphoria, well-being, relaxation
- **Toxic Effects:** Respiratory depression, overdose, death
So How Did We Get from Medical Treatment to Abuse and Dependence with Opioids?
Why Do Some Drugs Lead to Abuse/Dependence?

- Because of their effect on the brain
- Many drugs have no abuse potential
  - Examples include aspirin, antibiotics and high blood pressure medicine
- Others can lead to abuse and dependence including opioids and sedatives (like benzodiazepines)
What Happens in the Brain that can Lead to Addiction?
Let’s Start With, How Do Opioids Work in the Brain?
Basic Model of Nerve Cell Communication
Endorphins and Opioids in the Brain

- First discovered in 1970’s
- The brain has both receptors for opioids and it makes its own opioids
- Called Endorphins
- What do they do?
- How does this figure into addiction?
Endorphins and Opioid Receptors

Heroin
What Happens to Endorphins in Heroin Users Over Time?
The Longer Heroin (or other opioids) are Present, the Less Need there is for the Brain to Make Endorphins
Eventually.....

Heroin
Other Implications:
Narcan – An Opioid Blocker
The Role of Chronic Pain and Opioid Prescribing

- Chronic pain was identified by many medical groups as undertreated in the 1990s.
- Numerous medical societies endorsed the increased use of pain medication including:
  - American Academy of Pain Medicine
  - American Pain Society
  - American Geriatric Society
  - The Pain Society
The Role of Chronic Pain and Opioid Prescribing

- Pain was called the “Fifth Vital Sign”
  - Along with pulse, blood pressure, breathing and temperature
- Physicians were strongly urged to assess every person’s pain level
- And...prescribe more pain medicines
- Evidence for the safety of widely prescribing powerful prescription pain medicines was lacking
- And powerful new drugs were coming on the market....
“Only four cases of addiction among 11,882 patients treated with opioids.”


Cited 693 times (Google Scholar)
OxyContin

- Sustained release form of oxycodone
- Very powerful slow release pain killer
- Approved by FDA in 1995
- Marketed as “non-addictive”
Total Sales & Prescriptions for OxyContin (1996-2002)

<table>
<thead>
<tr>
<th>Year</th>
<th>Sales</th>
<th>Percentage increase</th>
<th>Number of prescriptions</th>
<th>Percentage increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>1996</td>
<td>$44,790,000</td>
<td>N/A</td>
<td>316,786</td>
<td>N/A</td>
</tr>
<tr>
<td>1997</td>
<td>125,464,000</td>
<td>180</td>
<td>924,375</td>
<td>192</td>
</tr>
<tr>
<td>1998</td>
<td>286,486,000</td>
<td>128</td>
<td>1,910,944</td>
<td>107</td>
</tr>
<tr>
<td>1999</td>
<td>555,239,000</td>
<td>94</td>
<td>3,504,827</td>
<td>83</td>
</tr>
<tr>
<td>2000</td>
<td>981,643,000</td>
<td>77</td>
<td>5,932,981</td>
<td>69</td>
</tr>
<tr>
<td>2001</td>
<td>1,354,717,000</td>
<td>38</td>
<td>7,183,327</td>
<td>21</td>
</tr>
<tr>
<td>2002</td>
<td>1,536,816,000</td>
<td>13</td>
<td>7,234,204</td>
<td>7</td>
</tr>
</tbody>
</table>

Facts on Opioid Addiction

- 1.9 million Americans live with prescription opioid abuse or dependence
- Opioid Addiction occurs in every state, every county and every socio-economic and ethnic group in the US
- Over 100 people in the US die from overdose deaths each day. Half of these are from prescription opioids (this works out to 2 every hour)

American Society on Addiction Medicine
More Facts on Opioid Addiction

- In 2012, 259 million opioid pain medication prescriptions were written
- Enough for every adult in America to have their own bottle of pills
- 75% of prescription opioid-dependent individuals switch to heroin because it is cheaper

American Society on Addiction Medicine
Teens and Opioids

- Every day, 2500 American youth (12-17) abuse a prescription pain pill for the first time
- Nearly 1 in 20 high school students has taken Vicodin
- 1 in 30 have taken Oxycontin
- Most of them got their pills from a friend or relative
- The number of opioids prescribed to young adults (15-29) doubled between 1994 and 2007

American Society on Addiction Medicine
Women and Prescription Opioids

- Prescription opioid overdoses killed 5 times as many women in 2010 than in 1999
- More than 6600 women died from prescription opioid overdoses in 2010 (18 per day)
- Every 3 minutes, a woman goes to an ED for prescription opioid abuse (or misuse)

American Society on Addiction Medicine
Rates of prescription painkiller sales, deaths and substance abuse treatment admissions (1999-2010)

<table>
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<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>336,753</td>
<td>443,980</td>
<td>485,911</td>
<td>581,809</td>
<td>663,540</td>
<td>729,607</td>
<td>778,923</td>
<td>835,275</td>
<td>148 %</td>
</tr>
</tbody>
</table>

Primary non-heroin opiates/synthetics admission rates, by State (per 100,000 population aged 12 and over)

1999 (range 1 - 50)

SOURCE: Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration, Treatment Episode Data Set (TEDS). Data received through 11.03.10.
Primary non-heroine opiates/synthetics admission rates, by State (per 100,000 population aged 12 and over)

2001
(range 1 – 71)

< 8
15 - 18
45 or more

8 - 14
19 - 44
Incomplete data

SOURCE: Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration, Treatment Episode Data Set (TEDS). Data received through 11.03.10.
Primary non-heroin opiates/synthetics admission rates, by State (per 100,000 population aged 12 and over)

2003
(range 2 – 139)

SOURCE: Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration, Treatment Episode Data Set (TEDS). Data received through 11.03.10.
Primary non-heroin opiates/synthetics admission rates, by State
(per 100,000 population aged 12 and over)

2005
(range 0 – 214)

SOURCE: Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration, Treatment Episode Data Set (TEDS). Data received through 11.03.10.
Primary non-heroin opiates/synthetics admission rates, by State (per 100,000 population aged 12 and over)

2007 (range 1 – 340)

SOURCE: Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration, Treatment Episode Data Set (TEDS). Data received through 11.03.10.
Primary non-heroin opiates/synthetics admission rates, by State
(per 100,000 population aged 12 and over)

2009
(range 1 – 379)

< 8
8 - 14
15 - 18
19 - 44
45 or more
Incomplete data

SOURCE: Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration, Treatment Episode Data Set (TEDS). Data received through 11.03.10.
Stigma and Drug Addiction

- The stigma associated with drug addiction keeps many people from entering treatment.
- Typical thoughts about “drug addict”
  - Poor, undesirable, anti-social, “low-life”, etc.
- Next slides contain some examples of real life “drug addicts”
Heath Ledger
1979 - 2008
Cory Monteith
The Truth about Drug Addiction

- It affects people from all walks of life
- It affects people from all age groups
- It affects people from all races and religions
- There is no “typical drug addict”
- Key Aspect of Treatment: de-stigmatize addiction and get people into treatment!
Treatment for Opioid Addiction

- Drug Free Treatment
- The Importance of Treatment Matching
  - Pennsylvania Client Placement Criteria
  - ASAM Patient Placement Criteria
- Medication Assisted Treatment
  - Methadone
  - Suboxone
  - Vivitrol and ReVia
Outcomes

- Drug Free
- Medication Assisted Treatment
What Can Other Health Professionals Do?

- Be alert for signs of addiction on all health care settings
- Be ready to ask about drug use and have a discussion about it
- Make referrals to drug treatment professionals
- Don’t be judgmental
- Be optimistic and reassuring
How Do You Break an Epidemic?

- Think influenza, ebola, West Nile Virus
- Same principles
- These are not being implemented very effectively due to a lack of recognition of this epidemic and the stigma against individuals with drug addiction
Breaking an Epidemic: A 3 Pronged Approach

1. Primary Prevention: prevent new cases of opioid dependence. Education, outreach, community opinion, etc.

2. Secondary Prevention: provide interventions and ready access to treatment for people who are dependent.

3. Tertiary Prevention or Supply Control: law enforcement and medical board interventions to reduce over-prescribing and black-market availability
Other Resources

- The best selling book about the real story behind the American Opioid Epidemic
- By Sam Quinones
- Available on Amazon
References

- Center for Substance Abuse Treatment, Medication-Assisted Treatment for Opioid Addiction in Opioid Treatment Programs. Treatment Improvement Protocol Series 43. HHS Publication No. (SMA) 08-4214. SAMHSA
- Center for Substance Abuse Treatment, Clinical Guidelines for the Use of Buprenorphine in the Treatment of Opioid Addiction. Treatment Improvement Protocol Series 40. HHS Publication No. (SMA) 07-3939. SAMHSA
- Federal Guidelines for Opioid Treatment Programs. HHS Publication No. (SMA) PEP 15-FEDGUIDEOTP. SAMHSA
- Substance Abuse and Mental Health Services Administration (SAMHSA), www.samhsa.gov

- Substance Abuse and Mental Health Services Administration (SAMHSA), [www.samhsa.gov](http://www.samhsa.gov)
- American Society of Addiction Medicine (ASAM); [www.asam.org](http://www.asam.org)
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