OPIOID USE DISORDERS:
AN OVERVIEW

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Summary

• What are opioids?
• What are opioid use disorders?
• What are the treatment options?
• Why methadone?
• How successful is methadone replacement?
• What about pregnant women and their babies?
• What is new in Indiana for the treatment of opioid use disorders?
Opiates

- Prescription pills: morphine/morphine like substances (e.g., OxyContin, Percocet, Vicodin, Lortab, Opana, methadone)
- Pills are ingested, snorted or injected
- Heroin: Street drug, derived from morphine
- 23% who try will become addicted
- Powder is injected, snorted, smoked
- Produce euphoria and then sedation
Opiates & Opioids

**Opiates** = naturally present in opium
- e.g. morphine, codeine, thebaine

**Opioids** = manufactured
- Semisynthetics are derived from an opiate
  - heroin from morphine
  - buprenorphine from thebaine
- Synthetics are completely man-made to work like opiates
  - methadone
Since 1990, the number of Americans who have died every year from drug overdoses...
The number who die each year from...

- Drug overdoses: 52,404
- Car accidents: 37,757
- Guns: 35,763
- H.I.V.: 6,465
Opioid dependence is costly

- **Medical Costs**
  - Mental illness
    - An environmental and disease stressor
    - Co-morbid interactions
  - Trauma and infections
  - Hepatitis and HIV
  - $20 billion per year total costs
  - $1.2 billion per year health care costs

- **Non-medical costs** - work, legal, prison
What the opioid dependent patient feels...

Diagrammatic summary of functional state of typical "mailine" heroin user. Arrows show the repetitive injection of heroin in uncertain dose, usually 10 to 30 mg but sometimes much more. Note that addict is hardly ever in a state of normal function ("straight").

From "Narcotic Blockade," by V. P. Dole, M. E. Nyswander, and M. J. Kreek, 1966, Archives of Internal Medicine, 118, p. 305.

Dole, Arch Int Med, 1966
Stabilization by Blockade Treatment

Stabilization of patient in state of normal function by blockade treatment. A single daily oral dose of methadone prevents him from feeling symptoms of abstinence ("sick") or euphoria ("high"), even if he takes a shot of heroin. Dotted line indicates course if methadone is omitted.

From "Narcotic Blockade," by V. P. Dole, M. E. Nyswander, and M. J. Kreek, 1966, Archives of Internal Medicine, 118, p. 305.
Opioid Use Disorders: DSM-5
“Opioid Addiction”
• Take more than intended
• Desire/unsuccessful efforts to cut back or quit
• Time spent using, obtaining or recovering
• Craving
• Failure to fulfill work, school, home obligations
• Continued use despite problems (social, psychological, physical)
• Activities given up
• Use in hazardous situations
• Tolerance
• Withdrawal
Signs and Symptoms of opioid intoxication

- Analgesia
- Euphoria
- Miosis (‘pinned’ pupils)
- Constipation
- Sedation
- Itching, red eyes (histamine release)
- Respiratory depression and reduced cough reflex
- Decreased level of consciousness (‘on the nod’)
- Hypotension/bradycardia
Signs of an Opioid Overdose

- Blue lips or nails
- Dizziness and confusion
- Can't be woken up
- Choking, gurgling or snoring sounds
- Slow, weak or no breathing
- Drowsiness or difficulty staying awake
Emergency Response for Opioid Overdose

Try to wake the person up
- Shake them and shout.
- If they respond, great! Keep breathing until they resume normal breathing and they feel better.

Call 911
If you suspect an overdose, call 911 for medical help. Do not wait for the person to respond. Call 911 immediately.

Administer nasal naloxone
- If they are not breathing, insert the nasal tube into the person's nose and spray the medicine up the nose.
- Repeat after 5 minutes until they start breathing.

Check for breathing
- Blow CPR if you have been trained, or do rescue breathing.
- Fill the nasal tube, open the mouth, and pinch the nose.
- Start with a breath into the mouth. Then, breathe every 5 seconds.
- Continue until help arrives.

Stay with the person
- Naloxone may cause nausea or vomiting.
- If the person vomits, put them in recovery position.
- If the person wakes up, explain what happened.
- If you need to leave, have the person sit for at least 5 minutes to prevent choking.
Consequences of Opiate Use Disorder

- Overdose: respiratory depression
- Use of narcotic analgesics resulted in nearly ½ million visits to U.S. ED’s in 2007
- Injection: HIV and Hepatitis
- Overdose mortality has been reported with both methadone and buprenorphine
- Parenting deficits
Treatment Options

- Naltrexone (Vivitrol) Program
- Buprenorphine Detox/Maintenance Program
- Methadone Detox/Maintenance Program
## Treatment vs. Addiction

<table>
<thead>
<tr>
<th></th>
<th>Methadone</th>
<th>Buprenorphine</th>
<th>Heroin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Route</td>
<td>Oral or SL</td>
<td>IV, IN</td>
<td></td>
</tr>
<tr>
<td>Onset</td>
<td>30 minutes</td>
<td>Immediate</td>
<td></td>
</tr>
<tr>
<td>Duration</td>
<td>24-36 hours</td>
<td>3-6 hours</td>
<td></td>
</tr>
<tr>
<td>Euphoria</td>
<td>Absent</td>
<td>Marked</td>
<td></td>
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</tbody>
</table>
History of Methadone

- Synthesized in Germany: Less addictive than morphine 1930s
- Used in US for pain 1947
- Research demonstrated efficacy for heroin addiction 1964
- Federal regulations developed for methadone maintenance treatment 1971
- Federal regulations updated to allow more effective and consistent use 2001

http://www.cesar.umd.edu/cesar/drugs/methadone.asp
Federal and State Rules for OTPs

Wednesday,
January 17, 2001

IC 12-23-18
Chapter 18. Methadone Diversion Control and Oversight Program

IC 12-23-18-0.5
Opioid treatment program; requirements for operation
Sec. 0.5. (a) An opioid treatment program shall not operate in Indiana unless:
(1) the opioid treatment program is specifically approved and the opioid treatment facility is certified by the division; and
(2) the opioid treatment program is in compliance with state and federal law.
(b) Separate specific approval and certification under this chapter is required for each location at which an opioid treatment program is operated.

IC 12-23-18-1
Rules
Sec. 1. (a) Subject to federal law and consistent with standard medical practice in opioid treatment of drug abuse, the division shall adopt rules under IC 4-22-2 to establish and administer an opioid treatment diversion control and oversight program to identify individuals who divert opioid treatment medications from legitimate treatment use and to terminate the opioid treatment of those individuals.
Methadone Maintenance

• Maintenance=help avoid negative consequences of illicit opiate misuse
• Dosed once daily
• <80-100 mg daily
• When properly managed, reduce narcotics related deaths, users' involvement in crime, the spread of AIDS, and helps users gain control of their lives
• If used correctly, few side effects, no high
Methadone: Does it work?

• 11 clinical trials
• More effective than non-methadone treatments at keeping people in treatment, staying off of opiates

(Cochrane Review, 2009)
Methadone Effectiveness
Gunne & Gronbladh, 1984

Baseline

Methadone

Regular Outpatient
Methadone Effectiveness

Gunne & Gronbladh, 1984

After 2 Years

Methadone

No Methadone

1- Sepsis & endocarditis
2- Leg amputation
3- Sepsis
Methadone Effectiveness
Gunne & Gronbladh, 1984

After 5 Years

Methadone

No Methadone

P
H
H

P
P

H

H

P
Relapse to intravenous drug use after methadone maintenance treatment for 105 male patients who left treatment.

Methadone (must be administered through a registered narcotic treatment program)

**Characteristics**

- Long acting mu agonist
- Duration of action: 24-36 h
- Dose: important issue and philosophical issue for many programs
- 30-40 mg will block withdrawal, but not craving
- Illicit opiate use decreases with increasing methadone dose
- 80-100 mg is more effective at reducing opioid use than lower doses (e.g.: 40-50 mg/d)

Strain et al. 1999
Opioid Treatment Programs (OTPs)

- Only source of methadone for maintenance
- (Reminder: Also prescribed by physicians for pain)
- Provide a multi-modal approach including medication, counseling, and other supportive services, to treat opioid addiction
- Heavily regulated by state and federal agencies
“Take Homes”

• Privilege earned through clean drug screens
• Incentive for “good behavior”
• Improves compliance, sobriety from other drugs
PROS

- Close supervision: daily dosing
- Enforce therapy
- Incentivize “take homes”
- Most effective treatment

CONS

- Hassle: interfere with employment, parenting, etc.
- Expensive
- Societal consequences for take homes
Treatment Options

- Buprenorphine Maintenance Program
- Naltrexone (Vivitrol) Program
- Methadone Maintenance Program

Opiate Addiction
Buprenorphine/Naloxone

- Semi-synthetic partial agonist (limited effects) + antagonist
- Does not require daily dispensing
- Safer in overdose = much less regulation
- Easier to stop than methadone, milder withdrawal
Drug Abuse Treatment Act (DATA) of 2000

- Allowed “Qualified” physicians to treat opioid dependence outside methadone facilities
  1. Addiction certification from approved organization, or
  2. Physician in clinical trial of qualifying medication, or
  3. Complete 8-hour course from approved organization
- DEA issues (free) to qualifying physicians a new DEA number to use medication for opioid dependence
- As of today, only one medication formulation is approved for this use
Buprenorphine: Reduces Other Drug Use

No. of Samples Tested
For cocaine or benzodiazepines 824 667 632 563 537 494 448 449 408 383 361 323 178
For opiates 943 675 633 564 537 494 449 449 408 383 361 323 178

Fudala, NEJM 2003
Sublingual Film
Figure 1. Average Number of Cases of Abuse of Buprenorphine Products, Methadone, Tramadol, and Oxycodone per Drug-Abuse Expert.

The arrow indicates the launch date of buprenorphine for use in office-based treatment of opioid dependence. Q denotes quarter.

Cicero, NEJM 2005
PROS

• Convenient
• Safer to have at home
• Easier to stop

CONS

• $$$$(now generic)
• Still on an opiate
• Hard to find qualified providers
• Less effective than methadone
Treatment Options

- Buprenorphine Maintenance Program
- Naltrexone (Vivitrol) Program
- Methadone Maintenance Program

Opiate Addiction
Naltrexone

- Vivitrol (monthly intramuscular injection)
- FDA approved for alcohol, opiate use disorders
- Opiate antagonist: blocks receptor
- Must be opioid free for 7-10 days to start
**PROS**

- Non-narcotic
- Cannot decide to “miss a dose”

**CONS**

- $$$$$
- Can cause liver damage
- Occasional overdoses
- Must be off opiates for 2 weeks to start
Opiate Use Disorders and Pregnancy

- Detoxification is associated with high rates of spontaneous abortions in the first trimester and premature delivery in the third trimester
- Babies exposed to heroin have lower birth weights
- Babies exposed to heroin were more likely to require morphine than those with methadone treated mothers (40% vs. 19%)

- **Current recommendations:** Treat with Methadone or Buprenorphine
Neonatal Abstinence Syndrome

• “Neonatal abstinence syndrome is an expected and treatable condition that follows prenatal exposure to opioid agonists.”

-American College of Obstetricians and Gynecologists
Risks: side effects, costs, take home doses

Benefits: Decrease drug use, improve health, reduce high risk behaviors, increase employment
Opioid Treatment Programs (OTPs) in INDIANA

- Currently 13 clinics (3 CMHCs) + 5 new
- Serve approximately 15,000 people
- Can also administer buprenorphine
- Moratorium on new programs
- Opioid use disorders are widespread and Indiana is still underserved
We need to advocate for a full continuum of care.

<table>
<thead>
<tr>
<th>Service Type</th>
<th>Duration</th>
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<tbody>
<tr>
<td>Acute Treatment Services</td>
<td>(ATS or Detox) 3-5 Days</td>
</tr>
<tr>
<td>Clinical Stabilization Services</td>
<td>(CSS or Rehab) 2 Weeks or Longer</td>
</tr>
<tr>
<td>Transitional Support Services</td>
<td>(TSS or Holding) 2-4 Weeks</td>
</tr>
<tr>
<td>Residential Treatment or Halfway House</td>
<td>4-6 Months</td>
</tr>
<tr>
<td>Alcohol and Drug Free Housing or Sober Homes</td>
<td>Time Varies</td>
</tr>
<tr>
<td>Outpatient Services</td>
<td>Time varies, may last a year or longer</td>
</tr>
</tbody>
</table>

Medication Assisted Treatment

Can be used at any point in the continuum of treatment and recovery from opiate addiction.
Questions?