Pain Medicine and Adolescents: Special Considerations

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Learning outcomes

• Understand the neurobiology of opioids action on the brain
• Discuss appropriate use of medication assisted therapy for opioid use disorders
• Identify the role of parents and medical providers in prevention of opioid addiction
Opiates

Opioids

Oxycodone
20 mg
Opioid Pharmacology

- Mimic endorphins
- Bind to mu-opioid receptors
- Well-being, satisfaction, pleasure

Opioid μ-receptor and agonist
Opioid Neurobiology

**PREFRONTAL CORTEX:** Executive Functions

**LIMBIC SYSTEM:** Pleasure, reward

**BRAIN STEM:** Respiration

**SPINAL CORD:** Analgesia
Increase in Opiate Rx, 1991-2013

Rates of opioid misuse by 12th graders

• Misuse/Non-medical use

• Substance Use Disorder

• Addiction
11.1% of 12th graders have misused opioids in their lifetime. There are two main reasons for misuse:

- **Self-medication for pain**
- “Recreationally” (for euphoria)

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Impact on Brain Development

Adolescent milestones: impulse control

Planning, Organizing, Impulse control

School age milestones: achievement

Motivation

Preschool milestones: emotional regulation

Emotion

Toddler milestones: balance, walking, coordination

Physical coordination, Sensory processing

Prefrontal cortex

Nucleus Accumbens

Amygdala

Cerebellum

Slide adapted from Ken Winters, PhD.
Addiction: A chronic, relapsing medical condition resulting from neurological changes in the brain’s reward system leading to compulsive use of a substance.
Heroin

- Very rapid delivery of morphine to the central nervous system
- Potent and relatively inexpensive
- Snorting or smoking as practical alternatives to injecting
Heroin Epidemiology

# Treatment for Opioid Use Disorder

<table>
<thead>
<tr>
<th>Pharmacologic</th>
<th>Non-pharmacologic</th>
</tr>
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<tbody>
<tr>
<td><strong>Detox</strong></td>
<td></td>
</tr>
<tr>
<td>methadone, buprenorphine, clonidine, “comfort meds”</td>
<td>Outpatient individual or group</td>
</tr>
<tr>
<td><strong>Antagonist therapy</strong></td>
<td></td>
</tr>
<tr>
<td>Naltrexone PO or IM</td>
<td>Intensive outpatient/partial</td>
</tr>
<tr>
<td><strong>Agonist therapy</strong></td>
<td></td>
</tr>
<tr>
<td>Methadone, buprenorphine</td>
<td>Acute or Long Term Residential</td>
</tr>
<tr>
<td></td>
<td>Sober home/half-way house</td>
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</table>
Detoxification

Adult studies have recurrently found high relapse rates after detoxification without subsequent treatment. An NIH consensus statement regarding treatment of opioid dependent adults indicated detoxification alone is insufficient treatment.


Medication Assisted Treatment
Agonist Therapy: Buprenorphine

• Partial agonists form an imperfect fit
• Less reinforcing and less commonly abused than full agonists.
• The potential for misuse is not zero
Drug Abuse Treatment Act of 2000
• MAT is first line therapy for patients with opioid use disorders.

• Expanding access to MAT is a top priority.
AMA Opioid Task Force

5 goals of the task force:

• Increase physicians’ registration and use of effective PDMPs
• Enhance physicians’ education on effective, evidence-based prescribing
• Reduce the stigma of pain and promote comprehensive assessment and treatment
• **Reduce the stigma of substance use disorder and enhance access to treatment**
• Expand access to naloxone in the community and through co-prescribing

Research Trials with Adolescents

Comparison of pharmacological treatments for opioid-dependent adolescents: A randomized controlled trial

Study design

- buprenorphine vs. clonidine for 28-day detox
- Randomized controlled trial; double-blind, double-dummy design
- Participants 13-18 years old, N=36
- All participants received counseling in addition to meds
  - Individual and family therapy
  - Contingency Management
  - Outreach component

Research Trials with Adolescents

Extended vs. Short-term Buprenorphine-Naloxone for Treatment of Opioid-Addicted Youth: A Randomized Trial

Study design

—Participants 15-21 years old, N=152
—Randomly assigned to 1 of 2 groups:
  • 2-week detox
  • 12-week treatment
—All participants received group and individual counseling

Research Trials with Adolescents

*Extended vs. Short-term Buprenorphine-Naloxone for Treatment of Opioid-Addicted Youth: A Randomized Trial*

**Summary of Findings**

- **Fewer Opioid positive urine screens** in 12-week-treatment group

- **Higher retention rates** in 12-week-treatment group

Antagonist Therapy

- Block euphoric effect
- Suppress cravings
- Monthly injectable dosing can help with compliance
- Patients who used naltrexone had less opioid use, better treatment retention and fewer cravings.
- Efficacy or adverse effects profile in children?

Encourage Abstinence

I agree to stop using all drugs.

I understand that it is dangerous to mix buprenorphine with alcohol or other sedatives.

I agree to cooperate with urine drug testing whenever requested.

PATIENT SIGNATURE AND DATE:
Monitor
Psychosocial Support
Ancillary Treatment
Funding for these initiatives was made possible (in part) by Providers’ Clinical Support System for Opioid Therapies (grant no. 1H79TI025595) and Providers’ Clinical Support System for Medication Assisted Treatment (grant no. 5U79TI024697) from SAMHSA. The views expressed in written conference materials or publications and by speakers and moderators do not necessarily reflect the official policies of the Department of Health and Human Services; nor does mention of trade names, commercial practices, or organizations imply endorsement by the U.S. Government
Two Projects. One Mission

Helping to end the opioid overdose epidemic.


- **PCSS-MAT** is a collaborative effort led by American Academy of Addiction Psychiatry in partnership with: American Osteopathic Academy of Addiction Medicine, American Psychiatric Association, American Society of Addiction Medicine and Association for Medical Education and Research in Substance Abuse.
PCSS Projects Training Modalities

The PCSS Projects offer no-cost training activities with CME to health professionals through the use of:

- **Webinars** (Live and Archived)
- Online Modules
- Case Vignettes
- One-on-one and Small Group Discussions—coaching for clinical cases

In addition, the projects offer a comprehensive library of resources:

- Clinical Guidances and other educational tools
- Community Resources
- Buprenorphine waiver training via PCSS-MAT
- Listserv - Provides a “Mentor on Call” to answer questions about content presented through PCSS-MAT and PCSS-O. To join email: pcssmat@aaap.org or pcss-o@aaap.org
Buprenorphine Waiver Training: The Half and Half Course – specifically for Pediatricians and Family Physicians in addressing adolescent specific issues

http://www.cvent.com/d/l4q2mj
Prevention for Pediatricians
Changes in Prescribing Controlled Meds to Adolescents, 1994-2007

Maximize Non-Opioid Therapy
Screen before prescribing
Caution when prescribing opioids

Anticipatory guidance
Alcohol and Marijuana use precede opioid use

Teens that use alcohol or marijuana
- more likely to misuse opioids
- much more likely to misuse opioids for recreational purposes.

Teenagers Are Right—Parents Do Not Know Much: An Analysis of Adolescent–Parent Agreement on Reports of Adolescent Substance Use, Abuse, and Dependence


<table>
<thead>
<tr>
<th>Behavior</th>
<th>Child Report</th>
<th>Parent Report</th>
</tr>
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<tbody>
<tr>
<td>Consumed at least 1 drink</td>
<td>54%</td>
<td>30.5%</td>
</tr>
<tr>
<td>Have been intoxicated</td>
<td>23.6%</td>
<td>8.1%</td>
</tr>
<tr>
<td>Tobacco Use</td>
<td>44%</td>
<td>27%</td>
</tr>
<tr>
<td>Marijuana Use</td>
<td>22.9%</td>
<td>13.2%</td>
</tr>
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## Reasons for Misusing Opioids

<table>
<thead>
<tr>
<th>Reason</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Easy to get from medicine cabinet</td>
<td>62%</td>
</tr>
<tr>
<td>Available everywhere</td>
<td>52%</td>
</tr>
<tr>
<td>Not illegal</td>
<td>51%</td>
</tr>
<tr>
<td>Easy to get through other people’s prescription</td>
<td>50%</td>
</tr>
<tr>
<td>Can claim you have a prescription if caught</td>
<td>49%</td>
</tr>
<tr>
<td>Cheap</td>
<td>43%</td>
</tr>
<tr>
<td>Safer to use than illegal drugs</td>
<td>35%</td>
</tr>
<tr>
<td>Less shame attached to using</td>
<td>33%</td>
</tr>
<tr>
<td>Easy to purchase over the Internet</td>
<td>32%</td>
</tr>
<tr>
<td>Fewer side effects than street drugs</td>
<td>32%</td>
</tr>
<tr>
<td>Parents don’t care as much if you get caught</td>
<td>21%</td>
</tr>
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Non-Specific Signs of SUD
Non-Specific Signs of SUD
Suggestions for practice

• Opioids are a very good treatment for acute pain AND also very addictive. They have a role but should be used sparingly.

• Pharmacotherapy is an important component of successful treatment of opioid use disorders. Consider offering medication assisted treatment in the primary care setting. Available resources can help to build a successful program.

• Parents and medical professionals are an important line of defense against opioid addiction. Screen to identify and make interventions to prevent or delay substance use.
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