Adolescents’ Misuse and Diversion of Opioid Analgesics.

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NO CONFLICTS OF INTEREST TO REPORT
Purpose

At the conclusion of this presentation, participants should be able to:

• Cite the general trends in adolescents’ opioid misuse, including diversion of opioid analgesics.

• Distinguish between sub-types of adolescent prescription drug users.

• Identify the limitations of the current knowledge relative to opioid analgesic misuse by adolescents, and make evidence-based suggestions for clinicians.
Adolescents prescription drug use is an undeniable public health problem, often described as an epidemic.
Key Definitions

- **Medical misuse of controlled medications (prescription drugs):** use of scheduled medications (II-V) by the person and for the purpose intended by the prescribing clinician; however, the medication is:
  - NOT used in the prescribed dose, route and/or not taken within a prescribed or presumed time interval.

- **Nonmedical use of controlled medications (prescription drugs):** use of scheduled medications (II-V) by people other than whom the prescribing clinician intended.

- **Diversion of controlled medications (prescription drugs):** exchange of scheduled medications (II-V) that leads to people using in one or more of the following:
  - without their own prescription
  - under conditions associated with misrepresentation (e.g., doctor shopping, forged “scripts”, etc.),
  - theft
  - drug dealing.
Prescription Drug Abuse:

- Controlled medications are widely marketed, efficacious, often prescribed and common in households, although the consequences from their abuse are as devastating as with the illicit drugs.

- Emergency room visits, overdoses and transition to street drugs are disproportionately related to prescription drug abuse, particularly the use of opioid analgesics. Bonar et al., 2014; Bohnert, et al., 2013; Jann et al., 2014; Manchikanti & Singh, 2008; McCabe, et al., 2007.

- Twenty-two percent of high school seniors in the US state they have used a controlled medication without a prescription. Monitoring the Future, Johnston, et al. 2015

- The NSDUH estimates the annual prevalence for prescription drug abuse among adolescents is almost twice the pooled prevalence of cocaine, heroin and methamphetamine combined. Substance Abuse and Mental Health Services Administration
Adolescent Prescription Drug Misuse: 2016

Past Year: U.S. High School Seniors 2016

- Sedatives: 3.0%
- Opioid Analgesics: 4.8%
- Tranquilizers: 4.9%
- Amphetamines: 6.7%
Rx Drug Polysubstance Use

Past-year Rx anxiolytics & polysubstance use
- Polysubstance use: 7%
- No polysubstance use: 93%

Past-year Rx opioids & polysubstance use
- Polysubstance use: 4%
- No polysubstance use: 96%

Past-year Rx stimulants & polysubstance use
- Polysubstance use: 3%
- No polysubstance use: 97%

Slides prepared by McCabe, S.
Data from Monitoring the Future
Rx Opioid Co-Ingestion by Motive

- **Relieve physical pain only (n=46)**
- **Pain relief and other motives (n=294)**
- **Motives other than pain relief (n=419)**

<table>
<thead>
<tr>
<th>Motive</th>
<th>% Report</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relieve physical pain only</td>
<td>16%</td>
<td>46</td>
</tr>
<tr>
<td>Pain relief and other motives</td>
<td>65%</td>
<td>294</td>
</tr>
<tr>
<td>Motives other than pain relief</td>
<td>79%</td>
<td>419</td>
</tr>
</tbody>
</table>

Slides prepared by McCabe, S. Data from Monitoring the Future
Rx Opioid Co-Ingestion & SUDs

2+ SUD Symptoms (Age 35)

% reporting 2+ SUD symptoms (age 35):

- No nonmedical Rx opioid use (age 18): Ref 27
- Nonmedical use w/o co-ingestion (age 18): NS 34
- Nonmedical use w/ co-ingestion (age 18): 54

Slides prepared by McCabe, S. Data from Monitoring the Future
Adolescents: Opioid Drug Use Behaviors
Case Example #1

A 16 year old teen broke his leg playing high school football. He was prescribed 1-2 hydrocodone tablets prn for pain. The young man wanted to play in an upcoming football game, so he took 4 hydrocodone tablets at one time, believing this would treat his pain and allow him to play in the game.
On a Friday afternoon, a 16 year old teen, an honor student, is planning to attend “Homecoming” with her new boyfriend. Four hours before the event, she develops a severe migraine headache and is nauseated and dizzy. In tears, she asks her mother for help. Her mother gives her two hydrocodone tablets (left over from her own surgery). The teen went to the event and “had a great time.”
Case Example #3

A girl with a history of alcohol abuse is given an opioid tablet by a friend; she wants to experiment to see “what it does”. She crushes and snorts the pill. The girl continues to purchase the “Oxy” from friends when she wants to party.
Case Example #4

A 16 year old teen broke his leg playing high school football. He was prescribed 1-2 oxycodone tablets (prn) for pain. His friends told him that he could get a good buzz if he snorted the pills. Since he could not play in the game, and his leg was hurting, he decided to try snorting the pills.

He liked the way the pills made him feel, told his friends about it, and shared a couple with them.
## Subtype Typology (controlled medication)

<table>
<thead>
<tr>
<th>NONMEDICAL USE</th>
<th>MEDICAL MISUSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Person <strong>does not</strong> possess legal prescription</td>
<td>Person <strong>does</strong> possess legal prescription</td>
</tr>
</tbody>
</table>

### Sensation-seeking:
- get high, experiment, or create altered state (w/ someone else’s meds)
- get high, experiment, or create altered state (w/ own meds)

### Self-treating:
- self-treat symptoms of actual or perceived health condition (w/ someone else’s meds)
- self-treat symptoms of actual or perceived health condition (w/ own meds)

National Institute on Drug Abuse
DA018272 & DA024678 (PI: Boyd)
DA018239 ,DA019492 & DA 031160 (PI: McCabe)
T32 DA007267 (Co-Directors: Gnegy & Boyd)

University of Michigan
Office of the Vice President for Research
Institute for Research on Women & Gender
UM Substance Abuse Research Center
UM Addiction Research Center

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Staff: Kitty Lunquist, Janie Slayden and Kelly Simion
Schools: We thank the staff, parents, and students of the schools involved in my studies.

BRIEF REVIEW OF 7 OPIOID ABUSE STUDIES
Methods

• The studies briefly reviewed today use various cohorts, including the longitudinal panel of adolescents who attended five secondary public schools in Southeast Michigan during the 2009-10 through 2012-13 school years.

• Annual web-based surveys were conducted in each of the schools over four years. We used the Secondary Student Life Survey for data collection. (Takes about 25-35 minutes to complete).

• Average response rate was 68% (across four years) and increased over the four years to 70%. Retention rate was 75%.

• Samples used for the studies here:
  • 2009-10 (n = 2528)
  • 2010-11 (n = 2802)
  • 2011-12 (n = 2831)
  • 2012-13 (n = 2745)
Sample Characteristics Across the Waves

- **Sex**
  - 49.8% male
  - 50.2% female

- **Grade**
  - 14% 7th grade (12 years old)
  - 16% 8th grade (13 years old)
  - 19% 9th grade (14 years old)
  - 18% 10th grade (15 years old)
  - 17% 11th grade (16 years old)
  - 16% 12th grade (17 years old)

- **Race**
  - 64% White
  - 30% Black
  - 2% Hispanic
  - 3% Asian
  - 1% Other Race
On how many occasions in your lifetime (past 12 months) has a doctor, dentist, or nurse prescribed the following types of medicine for you?

(a) Prescribed sleeping medication (e.g., Ambien®, Lunesta®, Restoril®, temazepam, triazolam);

(b) Prescribed anti-anxiety medication (e.g., Ativan®, Xanax®, Valium®, Klonopin®, diazepam, lorazepam);

(c) Prescribed stimulant medication (e.g., Ritalin®, Dexedrine®, Adderall®, Concerta®, methylphenidate);

(d) Prescribed pain medication (e.g., Vicodin®, OxyContin®, Tylenol 3® with codeine, Percocet®, Darvocet®, morphine, hydrocodone, oxycodone).
On how many occasions in your lifetime (past 12 months) have you used the following types of medicine, not prescribed to you?

(a) Prescribed sleeping medication (e.g., Ambien®, Lunesta®, Restoril®, temazepam, triazolam);

(b) Prescribed anti-anxiety medication (e.g., Ativan®, Xanax®, Valium®, Klonopin®, diazepam, lorazepam);

(c) Prescribed stimulant medication (e.g., Ritalin®, Dexedrine®, Adderall®, Concerta®, methylphenidate);

(d) Prescribed pain medication (e.g., Vicodin®, OxyContin®, Tylenol 3® with codeine, Percocet®, Darvocet®, morphine, hydrocodone, oxycodone).
Summary of Data

Review of several studies
Summary of Findings

• Nonmedical users of opioids usually get controlled medications free from family and same-sex friends.

• Substance use differs by motivation to non-medically use prescription medications, with using “to get high” or experiment being associated with higher CRAFFT scores. Self-treatment is associated with lower scores.

• CRAFFT can be used to identify a subgroup of nonmedical users at the highest risk for a substance use disorder as well as a subgroup who would benefit from better pain management.

Summary of Findings

- Nonmedical use for non-pain relief (e.g. get high) at Time 1 is associated with positive CRAFFT scores.
- Approximately 1 in 5 nonmedical users of opioids at Time 1 will continue at Time 2, endorsing their motivation as pain relief.
- Approximately 1 in 10 medical misusers of opioids at Time 1 will engage in nonmedical use at Time 2, endorsing the motivation as pain relief.
- Nonmedical users who used opioids for sensation-seeking motivations had greater odds of having psychological symptoms and drug use.

Summary of Findings

• There appear to be subtypes of nonmedical users with self-treaters having more problem behaviors, somatic complaints, being anxious and depressed and having experienced sexual abuse. Sensation-seekers look like most adolescents drug users.
• Sensation-seeking motivations to engage in nonmedical use is highly associated with other forms of drug use, and other behaviors such as gambling, etc.)

McCabe SE, West BT, Boyd CJ. Medical use, medical misuse, and nonmedical use of prescription opioids: Results from a longitudinal study. *Pain*. 2013;154:708-713.
1) The relationship between medical use, medical misuse and nonmedical use of controlled medications among adolescents.

2) The characteristics of diversion and availability, particularly among peers.

3) The role health providers play in their prescribing practices.

4) The ABC’s of Medication Management
THANK YOU