Adolescents
Nonmedical Use of Opioid Analgesics

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Definitions
• Defines the *abuse* of prescription *drugs* as
  
  – “any intentional use of a medication with intoxicating properties outside of a physician’s prescription for a bona fide medical condition, excluding accidental misuse”

Drug Enforcement Agency

Defines nonmedical abuse as the use of a Schedule 1 through V medication in a manner or amount that is inconsistent with the medical or social patterns of a culture.

Also asserts that the medication/drug has been used outside the scope of medical practice.
Medicinal Value and Abuse Liability

Scheduling (PROXY for abuse potential)
- Controlled Substances Act (CSA) of 1970: categorizes drugs “based upon the substance's medicinal value, harmfulness, and potential for abuse or addiction” [www.dea.gov]

<table>
<thead>
<tr>
<th>Schedule</th>
<th>Criteria</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>C-I</td>
<td>High abuse potential, no medical use, can be used for research</td>
<td>Heroin, Marijuana</td>
</tr>
<tr>
<td>C-II</td>
<td>High abuse potential, medical use</td>
<td>Stimulants for ADHD, Oxycodone, morphine</td>
</tr>
<tr>
<td>C-III</td>
<td>Moderate abuse potential, medical use</td>
<td>Opioid combination products (e.g., Vicodin)</td>
</tr>
<tr>
<td>C-IV</td>
<td>Less abuse potential, medical use</td>
<td>Benzodiazepines, Zolpidem</td>
</tr>
<tr>
<td>C-V</td>
<td>Limited abuse potential, medical use</td>
<td>Codeine products (e.g., antitussives)</td>
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</table>
Coming to Terms …

- The term “nonmedical use” has been used to include such varied behaviors as medication misuse, medication adherence and medication noncompliance, as well as prescription drug abuse;

- *Medical and nonmedical misuse of prescription medications will be used in this talk…*

Key Definitions

• **Medical misuse of prescription medications**
  – Use of Rx medicine by person (& for purpose) intended by prescribing clinician;
  – Yet the medication is not:
    • used in prescribed dose
    • taken within a prescribed time interval

• **Nonmedical misuse of Rx medication**
  – Use of Rx medication without a prescription
Key Definitions

• Motivation to engage in misuse
  – Sensation seeking versus self-treatment reasons

• Prescription Drug Abuse and Dependence
  – Person meets the diagnostic criteria for substance abuse or dependence with prescription medications
  – Exhibits symptoms of tolerance and withdrawal with prescription medications
Key Definitions

• Diversion of Rx medications (illegal drug distribution)
  – Exchange of controlled/scheduled medications that leads to use of these medicines
    • by people other than whom the prescribing clinician intended
    • under conditions associated w/ “doctor shopping”/ misrepresentation
    • by theft or drug dealing
Background
Background

– Nonmedical misuse of prescription medications is most prevalent among adolescents and young adults (SAMHSA, 2008)

– In 2007, past-year Nonmedical misuse of prescription opioids:
  • ages 12-17 (6.7%)
  • ages 18-25 (12.1%)
  • ages 26+ (3.6%)

Past-Year Initiates: Substances by Age Group (NSDUH)

Prevalence: Age of First Nonmedical Misuse of Rx Drugs
(includes opioid, stimulant, sedative and sleeping medications)

Estimated Prevalence of Lifetime Prescription Drug Use Disorder (%)

Age at First Nonmedical Misuse of Prescription Drugs
(error bars represent +/- 1 SE)
Student Life Survey
Student Life Survey

- Data collected annually since 1999 (college/secondary)
- Random samples or total populations drawn each year
- Modal response rates: 68% college, 89% secondary
  - Follow-up phone study of nonresponders showed minimal bias
- The average time to complete the survey was about 20 minutes and the completion rate was 97%
Methods

• Student Life Survey (College & Secondary)
  – Measures assessed several areas:
    • Demographic information (e.g., gender, race)
    • School involvement (e.g., clubs, organizations)
    • Medical use (e.g., Stimulant medication (Ritalin®, Dexedrine®, Adderall®, Concerta®, etc…for ADHD))
    • Nonmedical misuse (e.g., Pain medication (Vicodin®, OxyContin®, Percocet®, etc…not prescribed to you))
      – Key characteristics (e.g., motive, co-ingestion, route)
    • Drug use related problems (e.g., DAST-10, CAGE)
Methods

- Drug Abuse Screening Test, Short Form (DAST-10) (Skinner, 1982)
  - Polydrug use
  - Inability to stop using drugs
  - Blackouts or flashbacks
  - Felt bad or guilty
  - Complaints about drug use
  - Avoidance of family
  - Illegal activities to obtain drugs
  - Withdrawal symptoms
  - Medical problems (e.g., convulsions, bleeding)
Past Year Medical Use and Nonmedical Misuse of Prescription Medications, College

McCabe, 2008
Drug Abuse Screening Test Results based on Lifetime Use of Prescription Medications, College

- **No use**
- **Medical use**
- **Medical use & nonmedical misuse**
- **Nonmedical misuse**

% reporting three or more DAST-10 items


*** p < 0.001 based on logistic regression using “no use” as reference group

McCabe, 2008
Diversion
## Teens’ Perceived Availability of Prescription Medications

<table>
<thead>
<tr>
<th>Agree strongly/somewhat</th>
<th>Percentage</th>
</tr>
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<tbody>
<tr>
<td>Rx drugs are easier to get than illegal drugs</td>
<td>56%</td>
</tr>
<tr>
<td>Most teens get Rx drugs from their own families’ medicine cabinets</td>
<td>62%</td>
</tr>
<tr>
<td>It is easy to get Rx drugs from parents’ medicine cabinets</td>
<td>63%</td>
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</table>

Sharing and Giving

- **Rx medication sharing is a public health problem**
  - Self-reported by 1/5 of US adolescents (Goldsworthy, 2009)
  - 27.5% of girls & 17.4% of boys frequently gave away their scheduled medications (Boyd et al, 2008)
  - Canadian youth gave away (14.7%) or sold (7.3%) some of their Rx stimulants (Poulin, 2001)
  - NSDUH results indicate that most diversion occurs w/ friends & family, w/ only 1 prescription involved (SAMHSA, 2009)

Gender & Sources of Rx Opioids for Misuse By Adolescents

Based on analysis of NSDUH 2005 & 2006 data
*Adolescents who purchased misused medication had the worst risk profile

Source of Misused Rx Opioids
Grade 12 Students Using in Past Year

CASE EXAMPLES
Case Example #1

A full-time 21 year old young man is a line-cook in a restaurant. He slices-off the tip of his finger. The manager takes the young man to the nearest ED; on the drive to the hospital the manager gives him a Vicodin® saying, “you will be waiting a long time, you will need this”. He takes the pill. The young man is treated in the ED. The ED physician gives the young man a prescription for Vicodin® for pain and tells him to see his primary care provider in one week.
Case Example #2

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. In tears, she asks her mother for help. Her mother gives her a hydrocodone tablet (left over from her own surgery). The teen went to the event and “had a great time.”
Case Example #3

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

A 17 year old suburban teen is told he must have his wisdom teeth extracted. His mother wants a second opinion so she makes appointments with two oral surgeons. The first oral surgeon saw the young man, schedules the surgery and gives the 17 yr old a prescription for 30 Vicodin®. The surgeon tells him to fill it before the extraction. The young man decides to go to the second surgeon for the procedure but still has the first prescription.
## Subtypes of Misuse

<table>
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<tr>
<th>Person does not possess legal prescription</th>
<th>Person does possess legal prescription</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problem behavior motivated by the desire to</td>
<td></td>
</tr>
<tr>
<td><strong>Sensation-seeking:</strong> get high, experiment, or create altered state (w/ someone else’s meds)</td>
<td><strong>Sensation-seeking:</strong> get high, experiment, or create altered state (w/ own meds)</td>
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<tr>
<td><strong>Self-treating:</strong> self-treat symptoms of actual or perceived health condition (w/ someone else’s meds)</td>
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IS THIS CONCEPTUALIZATION SUPPORTED BY DATA?

SECONDARY STUDENT LIFE SURVEY
Secondary Student Life Survey

• Administered to grades 7-12 (912 respondents in 2007) southeastern Michigan school district
  – Random sample, Web-based, self-administered

“On how many occasions in past 12 months have you used the following types of drugs, not prescribed to you?” (also asked about lifetime use)

  – Sleeping medication
  – Sedative/anxiety medication
  – Stimulant medication
  – Pain medication

Hypothesis

• Adolescents who engage in nonmedical use for sensation-seeking more likely to report other problem behaviors vs. those who are:
  – non-users (had never been prescribed an opioid)
  – medical users (were prescribed but used correctly)
  – self-treaters (engaged in nonmedical use for self-treatment)

Characteristics of Respondents
Past-Year Use All 4 Rx Gps

Secondary Student Life Survey

Prevalence of Nonmedical Misuse
Secondary Student Life Survey

**Medical use**
- Anxiety: 2.5%
- Stimulants: 3.1%
- Pain*: 32.5%
- Sleep: 7.4%

**Nonmedical use**
- Anxiety: 1.3%
- Stimulants: 2%
- Pain: 10%
- Sleep: 2.5%

*Often for third molar extractions

Past-yr Problem-Behaviors
Medical & Nonmedical Users

Secondary Student Life Survey: multivariate analysis

* *P<.05 vs. all 3 other gps
† †P<.05 vs. nonusers & medical users

Non-users: reference gp set to “0”

Study Conclusions

• Sensation-seekers look like adolescents with many problem behaviors
• Self-treaters appear different from sensation-seekers
• **Questions to consider:**
  – Do self-treaters become sensation-seekers?
  – Why are teens self-treating?
  – What is the role of DTC marketing?
  – What role prescribers play?

Focus on Solutions

Pharma, Prescribers and Parents
## Pharma: Opioid Abuse-Deterrent

<table>
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<th>Category</th>
<th>Features</th>
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</table>
| Pharmacologic                   | • Sequestered antagonist  
• Bioavailable antagonist  
• Pro-drug                   |
| Aversive component             | • Capsaicin: burning sensation  
• Ipecac: emetic  
• Bitrex: bitter taste |
| Physical barrier               | • Difficult to crush  
• Difficult to extract                                |
| Deterrent packaging            | • RFID protection  
• Tamper-proof bottle                                   |
| Prescription monitoring        | • State electronic databases collect data on designated substances dispensed |

### Increasing direct abuse deterrence

Prescriber

- Patient history (past substance use problems, externalizing behaviors, family history, etc.)

- Validated screening tools
  - Assess current alcohol &/or drug abuse
    - CUGE
    - CAGE
    - DAST
  - Patients considered for long-term opioid therapy
    - ORT
    - SOAPP®
    - DIRE

Parents/Family Members

Be aware of medications teens abuse
- Red flags parents/caregivers should be alert to

Communicate w/ young family members
- Dispel belief that medicines can be abused safely
- Act as good role model: follow safe guidelines w/ own meds

Safeguard medications
- Monitor
- Secure
- Dispose

QUESTIONS?

THANK YOU