Nonmedical Use of Prescription Opioids by Adolescents and Young Adults: Strategies for Pharmacists

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Learning Objectives

• Assess an adolescent or young adult patient using appropriate screening tools for opioid misuse or opioid use disorder and determine whether brief intervention or referral for treatment is needed.
• Develop a treatment approach for detoxification and medication-assisted recovery in an adolescent or young adult with opioid use disorder.
• Recommend co-prescribing of naloxone with a prescription opioid and provide caregiver training on naloxone administration.
• Recommend school- and home-based opioid misuse prevention strategies for adolescent and young adult patients and their families.
Disclosures

• All planners, presenters, and reviewers of this session report no financial relationships relevant to this activity.
Numbers of Past Year Prescription Psychotherapeutic Users among People Aged 12 or Older: 2015

The national opioid prescribing rate declined from peak (81.3/100) in 2012 to (66.5/100) in 2016. In some counties, opioids were dispensed at 7 TIMES the national rate.

Source Where Pain Relievers Were Obtained for Most Recent Misuse among People Aged 12 or Older Who Misused Prescription Pain Relievers Past Year, 2015

- Given by, Bought from, or Took from a Friend or Relative (53.7%)
- From Friend or Relative for Free (40.5%)
- Bought from Friend or Relative (9.4%)
- Took from Friend or Relative without Asking (3.8%)
- Got through Prescription(s) or Stole from a Health Care Provider (36.4%)
- Some Other Way (4.9%)
- Bought from Drug Dealer or Other Stranger (4.9%)
- Prescription from One Doctor (34.0%)
- Stole from Doctor’s Office, Clinic, Hospital, or Pharmacy (0.7%)
- Prescriptions from More Than One Doctor (1.7%)
1. Which of the following age groups had both the highest rate of prescription opioid misuse in the past month and opioid use disorder?

- [ ] A < 12 yr
- [ ] B 12-17 yr
- [ ] C 18-25 yr
- [ ] D ≥ 26 yr
Past Year Misuse of Prescription Psychotherapeutics among People Aged 12 or Older, by Drug Type and Age Group: Percentages, 2015


* Difference between this estimate and the 18 to 25 estimate is statistically significant at the .05 level.
Main Reason for Rx Opioid Misuse, Age ≥12 yr, 2015

<table>
<thead>
<tr>
<th>Reason</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relieve Physical Pain</td>
<td>62.6%</td>
</tr>
<tr>
<td>Feel Good or Get High</td>
<td>12.1%</td>
</tr>
<tr>
<td>Relax or Relieve Tension</td>
<td>10.8%</td>
</tr>
<tr>
<td>Help with Sleep</td>
<td>4.4%</td>
</tr>
<tr>
<td>Help with Feelings or Emotion</td>
<td>3.3%</td>
</tr>
<tr>
<td>Experiment of See What It’s Like</td>
<td>2.5%</td>
</tr>
<tr>
<td>Because I am Hooked or Have to Have It</td>
<td>2.3%</td>
</tr>
<tr>
<td>Some Other Reason</td>
<td>1.2%</td>
</tr>
</tbody>
</table>

Any Use and Misuse of Prescription Psychotherapeutics in the Past Year among Individuals Aged 12 or Older, by Demographic Characteristics

<table>
<thead>
<tr>
<th>Demographic</th>
<th>Psychotherapeutics Any Use (%)</th>
<th>Psychotherapeutics Any Misuse (%)</th>
<th>Pain Reliever Any Use (%)</th>
<th>Pain Reliever Misuse (%)</th>
<th>Past Month Misuse (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>44.5</td>
<td>7.1</td>
<td>36.4</td>
<td>4.7</td>
<td>1.4</td>
</tr>
<tr>
<td>12-17 yr</td>
<td>28.1</td>
<td>5.9</td>
<td>22.7</td>
<td>3.9</td>
<td>1.1</td>
</tr>
<tr>
<td>≥ 18 yr</td>
<td>46.1</td>
<td>7.2</td>
<td>37.8</td>
<td>4.7</td>
<td>1.4</td>
</tr>
<tr>
<td>18-25 yr</td>
<td>44.3</td>
<td>15.3</td>
<td>34.8</td>
<td>8.5</td>
<td>2.4</td>
</tr>
<tr>
<td>≥ 26 yr</td>
<td>46.4</td>
<td>5.8</td>
<td>38.3</td>
<td>4.1</td>
<td>1.3</td>
</tr>
<tr>
<td>Male</td>
<td>40.9</td>
<td>7.8</td>
<td>33.9</td>
<td>5.3</td>
<td>1.6</td>
</tr>
<tr>
<td>Female</td>
<td>47.8</td>
<td>6.4</td>
<td>38.8</td>
<td>4.0</td>
<td>1.2</td>
</tr>
</tbody>
</table>

Source Where Pain Relievers Were Obtained for Most Recent Misuse for People Aged 12 or Older Who Misused Prescription Pain Relievers in the Past Year, by Past Year Initiation Status and Pain Reliever Disorder Status: Percentages, 2015

Percent Misusing in Past Year

<table>
<thead>
<tr>
<th>Source of Pain Relievers</th>
<th>Past Year Initiate without Disorder¹</th>
<th>Past Year Misuser without Disorder and Not Past Year Initiate²</th>
<th>Past Year Misuser (Including Initiates) with Disorder³</th>
</tr>
</thead>
<tbody>
<tr>
<td>Got through Prescription(s) or Stole from a Health Care Provider</td>
<td>41.4 %</td>
<td>43.7 %</td>
<td>57.4 %</td>
</tr>
<tr>
<td>Given by, Bought from, or Took from a Friend or Relative</td>
<td>53.5 %</td>
<td>39.0 %</td>
<td></td>
</tr>
<tr>
<td>Bought from Drug Dealer or Other Stranger</td>
<td>1.9</td>
<td>3.5</td>
<td>13.4</td>
</tr>
<tr>
<td>Some Other Way</td>
<td>3.2</td>
<td>5.5</td>
<td>3.9</td>
</tr>
</tbody>
</table>

2. Select the correct trends: Among ages < 24 yr, heroin deaths are___ and perception of risk of harm from heroin is ____.

A. Increasing, increasing
B. Decreasing, decreasing
C. Increasing, decreasing
D. Decreasing, increasing
Trends in % Use of Heroin and Other Narcotics in past 12 months, by Year

## % Prevalence Heroin Use, 2006, 2016

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>8th grade</td>
<td>1.4</td>
<td>0.5</td>
<td>0.8</td>
<td>0.3</td>
<td>0.3</td>
<td>0.2</td>
</tr>
<tr>
<td>10th grade</td>
<td>1.4</td>
<td>0.6</td>
<td>0.9</td>
<td>0.3</td>
<td>0.5</td>
<td>0.2</td>
</tr>
<tr>
<td>12th grade</td>
<td>1.4</td>
<td>0.7</td>
<td>0.8</td>
<td>0.3</td>
<td>0.4</td>
<td>0.2</td>
</tr>
<tr>
<td>College students</td>
<td>0.7</td>
<td>0.5</td>
<td>0.3</td>
<td>0.2</td>
<td>0.2</td>
<td>0.2</td>
</tr>
<tr>
<td>Young adults (19-28 yr)</td>
<td>1.9</td>
<td>1.6</td>
<td>0.4</td>
<td>0.4</td>
<td>0.2</td>
<td>0.3</td>
</tr>
</tbody>
</table>

### % Prevalence Narcotics (not Heroin) Use, 2006, 2016

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>12&lt;sup&gt;th&lt;/sup&gt; grade</td>
<td>13.4</td>
<td>7.8</td>
<td>9.0</td>
<td>4.8</td>
<td>3.8</td>
<td>1.7</td>
</tr>
<tr>
<td>College students</td>
<td>14.6</td>
<td>7.4</td>
<td>8.8</td>
<td>3.8</td>
<td>3.1</td>
<td>1.1</td>
</tr>
<tr>
<td>Young adults</td>
<td>18.7</td>
<td>14.3</td>
<td>9.1</td>
<td>5.2</td>
<td>3.2</td>
<td>1.9</td>
</tr>
</tbody>
</table>

Trends in % Availability of Heroin and Other Narcotics in past 12 months, by Year

Trends in % Perceived Risk and Disapproval of Heroin in past 12 months, by Year

Risk (trying 1 or 2 X)

Disapproval

Age-Adjusted Rate of Drug Overdose Deaths, 2010-2015

- Total drug overdoses at all-time high: 52,404 deaths in 2015
- Opioid OD 33,091 (63% of total), ↑15% from 2015
- Largest change in deaths from synthetic opioids other than methadone: MA, NH, OH, RI, WV
- Drug Enforcement Administration (DEA) Nov 2016: Rx drugs, heroin, and fentanyl most significant drug-related threats in U.S.

Death rates from Rx opioids, heroin, & synthetic opioids

↑2.6%  ↑20.6%  ↑72.2%

Trend: Number of U.S. Opioid Overdose Deaths: Age 0-24, 25-44


1999-2007: Rate Doubled
2008-2014: Declined 26%
2014-2015: Increased 3.7%

Majority Unintentional

Drug Overdose Death Rates ages 15-19, by Type of Drug Involved, 1999-2015

Heroin:
- Highest death rates

Synthetic opioids (i.e. fentanyl):
- Second highest death rate
- Highest rate of increase


Statistically significant changes in drug overdose death rates involving natural and semi-synthetic opioids by select states, U.S. 2014 to 2015
Statistically significant changes in drug overdose death rates involving heroin by select states, United States, 2014 to 2015

Statistically significant changes in drug overdose death rates involving synthetic opioids (excluding methadone) by select states, United States, 2014 to 2015

National rate of opioid-related inpatient stays and Emergency Department (ED) visits by patient age, 2005-2014

### Annual Prevalence (%) of Opioid Use, Misuse, and Opioid Use Disorder Among U.S. Adults, 2015

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Any use of Rx Opioids (n=51,200)</th>
<th>Rx Opioid Use without Misuse (n=19,000)</th>
<th>Rx Opioid Misuse without Disorder</th>
<th>Rx Opioid Use Disorder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>37.8</td>
<td>87.5</td>
<td>10.4</td>
<td>2.1</td>
</tr>
<tr>
<td>Age 18-29 yr</td>
<td>35.7</td>
<td>76.4</td>
<td>20.1</td>
<td>3.5</td>
</tr>
<tr>
<td>Age 30-49 yr</td>
<td>37.0</td>
<td>85.4</td>
<td>11.8</td>
<td>2.8</td>
</tr>
<tr>
<td>Age ≥50 yr</td>
<td>39.5</td>
<td>93.7</td>
<td>5.3</td>
<td>1.0</td>
</tr>
<tr>
<td>Male</td>
<td>35.3</td>
<td>84.3</td>
<td>12.8</td>
<td>2.9</td>
</tr>
<tr>
<td>Female</td>
<td>40.2</td>
<td>90.1</td>
<td>8.5</td>
<td>1.4</td>
</tr>
</tbody>
</table>

Substance Use Disorder in Past Year by Substance and Age Group, 2015

Primary Opiates other than Heroin Treatment Admission Rates, 2005-2015, per 100k, aged > 12 yr

Primary Heroin Treatment Admission Rates, 2005-2015, per 100k, aged ≥ 12 yr

Need for substance use treatment in the past year among people aged 12 or older, by age group: 2015

Heroin use is part of a larger substance abuse problem.

Nearly all people who used heroin also used at least 1 other drug.

Most used at least 3 other drugs.

Heroin is a highly addictive opioid drug with a high risk of overdose and death for users.

People who are addicted to...

- Alcohol: 2x
- Marijuana: 3x
- Cocaine: 15x
- Rx Opioid Painkillers: 40x

...more likely to be addicted to heroin.

Rhode Island (RI) Admissions Aged 12 and older, By primary substance of abuse: 2005-2015

RI Rate of Opioid-related ED visits, 2014 (per 100k by age group (yr))

<table>
<thead>
<tr>
<th>Ages</th>
<th>1-24</th>
<th>25-44</th>
<th>45-64</th>
<th>&gt; 65</th>
<th>Total (rank)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ages 1-24</td>
<td>166.0</td>
<td>625.2</td>
<td>294.4</td>
<td>64.7</td>
<td>298.3 (3rd)</td>
</tr>
</tbody>
</table>

RI Rate of Opioid-related Inpatient stays, 2014 (per 100k by age group (yr))

<table>
<thead>
<tr>
<th>Ages</th>
<th>1-24</th>
<th>25-44</th>
<th>45-64</th>
<th>&gt; 65</th>
<th>Total (rank)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ages 1-24</td>
<td>86.9</td>
<td>623.6</td>
<td>540.1</td>
<td>281.2</td>
<td>377.4 (4th)</td>
</tr>
</tbody>
</table>


State-specific Data

• Rate and trends of ED and inpatient visits related to opioids
• State substance use disorder treatment admission rate trends
3. Which of the following is not a risk factor for nonmedical prescription opioid use in adolescents and young adults?

- A. Availability of prescription opioids
- B. Lack of parental/caregiver monitoring
- C. Male gender
- D. Perceived stress
Risk and Protective Factors

Substance Misuse and Use Disorder

• **RISK**
  
  — Increase the likelihood of:
    — Beginning substance use
    — Ongoing and harmful use
    — Other behavioral health problems associated with use

• **PROTECTIVE**
  
  — Directly decrease the likelihood of substance use and behavioral health problems
  — Reduce the impact of risk factors on behavioral health problems

Risk and Protective Factors

Substance Misuse and Use Disorder

• Influential at different times during development
• Relate to physiological changes that occur over the course of development or to factors in a person’s environment
  – Puberty
  – Attending new school
  – Parental divorce
  – Military deployment
  – Graduation

# Individual/Peer

## Substance Misuse and Use Disorder

<table>
<thead>
<tr>
<th>Risk Factors</th>
<th>Definition</th>
<th>Adolescent Substance Use</th>
<th>Young Adult Substance Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early initiation of substance use</td>
<td>Engaging in alcohol or drug use at a young age</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Early and persistent problem behavior</td>
<td>Emotional distress, aggressiveness, and “difficult” temperaments in adolescents</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Rebelliousness</td>
<td>High tolerance for deviance and rebellious activities</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Favorable attitudes towards substance use</td>
<td>Positive feelings towards alcohol or drug use, low perception of risk</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Misperception of prevalence</td>
<td>Not understanding normative use</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Peer substance use*</td>
<td>Friends and peers who engage in alcohol or drug use</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Genetic predictors</td>
<td>Genetic susceptibility to alcohol or drug use</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

*One of the strongest and most consistent risk factors for nonmedical use of prescription drugs.

# Family Substant Misuse and Use Disorder

<table>
<thead>
<tr>
<th>Risk Factors</th>
<th>Definition</th>
<th>Adolescent Substance Use</th>
<th>Young Adult Substance Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family management problems</td>
<td>Poor management practices, including parents’ failure to set clear expectations for children’s behavior, failure to supervise or monitor children, and excessively severe, harsh or inconsistent punishment</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Family conflict</td>
<td>Conflict between parents or between parents and children, including abuse or neglect</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Favorable parental attitudes</td>
<td>Parental attitudes that are favorable to drug use and parental approval of drug use</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Family history of substance misuse</td>
<td>Persistent, progressive, and generalized substance use, misuse, and use disorders by family members</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

Trajectories of Substance Use Among Teens

• Adolescents surveyed for exposure to substance use in parents, siblings, and peers in primary care setting (n = 860)
  – Baseline and 12-month follow-up for alcohol and drug use among teens

<table>
<thead>
<tr>
<th></th>
<th>Remain Abstinent (OR)</th>
<th>Rapid Escalation of Use (OR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parents Used</td>
<td>0.59 (95% CI: 0.48-0.72)</td>
<td>NS (95% CI: 0.92-1.62)</td>
</tr>
<tr>
<td>Siblings Used</td>
<td>0.47 (95% CI: 0.39-0.55)</td>
<td>1.68 (95% CI: 1.35-2.08)</td>
</tr>
<tr>
<td>Peers Used</td>
<td>0.43 (95% CI: 0.35-0.52)</td>
<td>2.15 (95% CI: 1.55-2.98)</td>
</tr>
</tbody>
</table>

OR = odds ratio; NS = non-significant; CI: confidence interval

## School

### Substance Misuse and Use Disorder

<table>
<thead>
<tr>
<th>Risk Factors</th>
<th>Definition</th>
<th>Adolescent Substance Use</th>
<th>Young Adult Substance Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic failure beginning in late elementary school</td>
<td>Poor grades in school; low Grade Point Average (GPA)</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Lack of commitment to school</td>
<td>When a young person no longer considers the role of the student as meaningful and rewarding, or lacks investment or commitment to school</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Fraternity and sorority life</td>
<td>Student’s affiliation with fraternity or sorority</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Attending a 4-year competitive university</td>
<td>Function of admission criteria competitiveness</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>


# Community

## Substance Misuse and Use Disorder

<table>
<thead>
<tr>
<th>Risk Factors</th>
<th>Definition</th>
<th>Adolescent Substance Use</th>
<th>Young Adult Substance Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ease of access</td>
<td>Increased availability of drugs</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Media portrayal of substance use</td>
<td>Exposure to actors or musicians using/singing about substance use</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Low neighborhood attachment</td>
<td>Low level of bonding to the neighborhood</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Community disorganization</td>
<td>Living in neighborhoods with high population density, lack of natural surveillance of public places, physical deterioration and high rates of adult crime</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Low socioeconomic status</td>
<td>A parent’s low socioeconomic status, as measured through a combination of education, income, and occupation</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Transition and mobility</td>
<td>Communities with high rates of mobility within or between communities</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

Adolescent Risk Factors for Nonmedical Use of Prescription Drugs

- Nonmedical use of *pain relievers* was more prevalent than for stimulants, sedatives, and tranquilizers
  - Female gender
  - Older age
  - White race
  - Illicit drug use
  - Delinquency
  - Substance use disorder/dependence

Adverse Childhood Experience (ACE) Study

• Ten categories of adverse childhood experiences
• Each ACE increased the likelihood of early initiation of illicit drug use 2- to 4-fold and likelihood of lifetime use
• Compared with persons with no ACEs, children with ≥ 5 ACEs were 7- to 10-fold more likely to report addiction, parenteral drug use, or substance use disorder

Adolescent and Young Adult Risk Factors for Nonmedical Use of Prescription Drugs

• Mental health issues*
  – Poor self-reported health
  – Major depressive disorder
  – Stress disorder (higher levels of perceived stress)
  – Anxiety or mood disorder
  – Post traumatic stress order (PTSD)
    – Pain reliever use has been associated with sexual victimization

* Female > male

Young A et al. J Addict Dis 2012; 31: 332-341.
Motives for Nonmedical Use of Prescription Medications

• Recreational use
  – Intentionally got high or used to increase other drug or alcohol effects
  – Associated with increased risk for substance use disorder

• Self-medication
  – To treat physical pain
    – Migraines and menstrual cramps were motives for self-treatment using pain relievers in females
  – To treat anxiety/depression
  – Not associated with increase risk for substance use disorder

Medical Opioid Use and Future Use

• Monitoring the Future Study Data
  – Early studies suggested no increase in risk of nonmedical use in adolescents who were prescribed opioid for medical purpose
    – Small studies with only few years of data
  – Miech et al 2015
    – Legitimate use of opioids for medical purpose before high school graduation associated with 33% increase in risk for future nonmedical opioid use as young adults
      – Association concentrated among persons with little to no history of drug use and strong disapproval of illegal drugs at baseline
      – 1990-2012 data; 6220 individuals surveyed

Diversion and Sources of Prescription Medications

• One’s own prescription is a common source followed by friends
• Adolescents
  – Nearly 24% had loaned and 27% had borrowed pain relievers
• College students
  – New England public university
    – Of students surveyed, 27% had loaned and 41% had borrowed pain relievers

Heroin Use Predictors

• Regional (Ohio) and national sample data
  – Prior history of nonmedical use of prescription opioids as an adolescent strongly associated with heroin initiation in young adulthood
    – Early age increased risk of transition
    – Using nonmedical prescription opioids to “get high”
    – Lifetime nonmedical use of prescription opioids

## Individual/Peer

### Substance Misuse and Use Disorder

<table>
<thead>
<tr>
<th>Protective Factors</th>
<th>Definition</th>
<th>Adolescent Substance Use</th>
<th>Young Adult Substance Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social, emotional, behavioral, cognitive, and moral competence</td>
<td>Interpersonal skills that help youth integrate feelings, thinking, and actions to achieve specific social and interpersonal goals</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Self-efficacy</td>
<td>An individual’s belief that they can modify, control, or abstain from substance use</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Perceived harm</td>
<td>Individual’s fear of damage to physical or mental health</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Spirituality</td>
<td>Belief in a higher being, or involvement in spiritual practices or religious activities</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Resiliency</td>
<td>An individual’s capacity for adapting to change and stressful events in healthy and flexible ways</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Peer disapproval of substance use</td>
<td>Friends and peers who disapprove of misuse</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

## Family, School, and Community

### Substance Misuse and Use Disorder

<table>
<thead>
<tr>
<th>Protective Factors</th>
<th>Definition</th>
<th>Adolescent Substance Use</th>
<th>Young Adult Substance Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opportunities for positive social involvement</td>
<td>Developmentally appropriate opportunities to be meaningfully involved with the family, school, or community</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Recognition for positive behavior</td>
<td>Parents, teachers, peers, and community members providing recognition for effort and accomplishments to motivate individuals to engage in positive behaviors in the future</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Bonding</td>
<td>Attachment and commitment to, and positive communication with, family, schools and communities</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Marriage or committed relationship</td>
<td>Married or living with a partner in a committed relationship who does not misuse drugs</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Healthy beliefs and standards for behavior</td>
<td>Family, school, and community norms that communicate clear and consistent expectations about not misusing drugs</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

Prevention Strategies

• **Education**
  – Increase awareness of prescription drug misuse dangers for the public and health care providers
  – Opportunities to teach individuals how to properly dispense, store, and dispose of controlled substances

• **Tracking and monitoring**

• **Proper medication disposal**
  – Limit access and availability, as well as raise awareness of prescription drug misuse

• **Harm reduction**
  – Combine overdose education and naloxone distribution

• **Multi-component**
  – Programs combine more than one type of strategy to address multiple risk factors

Education IS Prevention

• Pharmacists are key to education
  – Appropriate pain management education for prescribers and management of patients under collaborative agreements
  – Prescriber and parents education about alternative agents
  – Advocate proper medication storage and disposal
    – Most adolescents and young adults initiate misuse with own prescription
  – Serve as medication safety experts for schools, families, and communities

Arria AM. Presentation at APhA Institute on Alcoholism and Drug Dependencies June 2016, Salt Lake City, UT.
Tommasello AC. Harm Reduct J. 2004; 1:3.
Medication Take-Back

- **Findlay, OH**
  - Seven take-back days
  - N = 60,320 analgesics (50% opioids)

- **East Greenwich, RI**
  - Disposal box (3-month review)
  - N = 8995 dosage forms
  - 8.15% controlled medications
    - Opioids most commonly returned medications
Prevention Strategies

• Interim Report of the White House Commission on Combating Drug Addiction and the Opioid Crisis
  – Evidence-based prevention programs for schools and tools for teachers and parents to enhance youth knowledge of the dangers of use, as well as early intervention strategies for children with environmental and individual risk factors (trauma, foster care, adverse childhood experiences and developmental disorders)

Issued Monday, July 31, 2017
Prevention is Cost Effective

• Substance use disorder is a pediatric disease
• For every $1 invested in youth prevention
  – $4 savings in health care costs
  – $7 savings in law enforcement and other criminal justice costs

4. Of the following programs, which is considered an effective universal, school-based prevention strategy?

A. Drug Abuse Resistance Education (D.A.R.E.)
B. Preventure/Adventure
C. Brief Alcohol Screening and Intervention for College Students (BASICS)
D. Life Skills Training
Types of Prevention Interventions

• Universal
  – Designed to deter or delay the onset of a condition by reducing risk factors and promoting broad range of protective factors

• Selective
  – Target selected high-risk group

• Indicted
  – Directed to those already involved in a risky behavior

Universal Prevention

• Prevention Paradox
  – *A large number of people at a small risk may give rise to more cases of disease than the small number who are at a high risk*

• Universal intervention rather than to those only at the highest risk is likely to have greater benefits
  – School
  – Family
  – Community

School-Based Strategies

• Life Skills Training (LST) Program (Grades 7, 8, 9)
  – Drug resistance skills
  – Personal self-management skills
  – General social skills

• Mixed results
  – Botvin et al 2000, 6.5 year follow-up study (NY schools)
    – Reduction in marijuana use (p < 0.05)
    – Reduction in heroin and other narcotic use (p < 0.001)

School-Based Strategies

• Think Smart
  – Weekly interactive program for 5th and 6th graders
  – Teaches alternatives to drug use and how to refuse drug offers
  – N = 460 Alaskan youth
    – Less likely to use drugs immediately after intervention
    – No effect on past 30-day use

Rx for Addiction and Medication Safety (RAMS): Evaluation of Teen Education for Opioid Misuse

- University of Rhode Island, College of Pharmacy pilot project
  - A 4-week, 3-hour interactive curriculum to target 9th grade students
    - Medication Safety (Safe Use and Storage, Disposal Education)
    - Signs and Symptoms and Risk Factors for Opioid Misuse and Withdrawal
    - Opioid Overdose Identification and Response
    - Treatment and Recovery Resources
  - Delivery by trained pharmacy students and college faculty
  - Pilot tested in eight, Rhode Island public high schools

Matson KL and Bratberg JP (Unpublished data).
RAMS Demographics

• Pre- and post-surveys collected in 459 matched participants
  – Female (50.5%)
  – Male (48.6%)
  – Other (0.9%)

Matson KL and Bratberg JP (Unpublished data).
RAMS Results

1. Addiction is a chronic brain disease or disorder YES
2. Drug misuse is accepting prescription medication from a friend YES
3. Drug misuse is use of a prescription medication exceeding the recommended dose YES
4. Nonmedical use is using a prescription medication without a prescription YES
5. Risk factors for substance abuse
6. Withdrawal symptoms from OPIOIDs (prescription pain relief pills or heroin)

Matson KL and Bratberg JP (Unpublished data).
RAMS Results

1. Drug users are responsible for their addiction. **NO**
2. Drug users can stop using drugs whenever they want to. **NO**
3. People use drugs to avoid dealing with their own inadequacies. **NO**
4. Drug users have a weak character. **NO**
5. Have you ever heard of naloxone? **NO**

Matson KL and Bratberg JP (Unpublished data).

Opioid Overdose Knowledge:

<table>
<thead>
<tr>
<th>Number of Incorrect Responses</th>
<th>Pre</th>
<th>Post</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>342</td>
<td>283</td>
</tr>
<tr>
<td>2</td>
<td>142</td>
<td>144</td>
</tr>
<tr>
<td>3</td>
<td>70</td>
<td>103</td>
</tr>
<tr>
<td>4</td>
<td>220</td>
<td>356</td>
</tr>
<tr>
<td>5</td>
<td>322</td>
<td></td>
</tr>
</tbody>
</table>

Graph showing the comparison of pre and post knowledge of opioid overdose.
RAMS Results

• Opioid Misuse
  – Lifetime use – 15.4%
  – Past-year use – 13%
    – Of those, 30.5% used in past month
• Follow-up (3 months)
  – No significant change

• Increased confidence to recognize and response to overdose and refer victims to treatment (p<0.001)
• 31.5% of teens reported an increase in awareness of availability of recovery groups

Matson KL and Bratberg JP (Unpublished data).
RAMS Video
College-Based Strategies

• No universal student-based approach at college or university level
  – Drug education about risks and consequences of nonmedical use
  – Drug diversion awareness

• Universal parent-based program (Parent Handbook)
  – Alcohol-related problems only
  – Reduction in alcohol consumption and alcohol-related consequences

• BASICS
  – Program indicated for college students who drink alcohol heavily and have had or are at risk for alcohol-related problems

Arria AM. Presentation at APhA Institute on Alcoholism and Drug Dependencies June 2016, Salt Lake City, UT.
Family-Based Strategies

• Guiding Good Choices
• Strengthening Families Program (SFP): For Parents and Youth 10-14
  – Widely used seven-session, family-focused program
    – Enhances parenting skills—nurturing, setting limits, and communicating
    – Adolescent substance refusal skills
  – 33 Midwestern public schools
    – Reductions in tobacco, alcohol, and drug use up to 9 years after the intervention (i.e., to age 21) compared with youth not assigned to SFP

Family-Based Strategies

SFP: PRESCRIPTION OPIOID AND OVERALL DRUG MISUSE, 1993-2008

Percent of Misuse

- Prescription Opioid Misuse
- Prescription Drug Misuse Overall

Age 25 years

SFP vs Control

P < 0.01

School and Family Strategies

LST + SFP: PRESCRIPTION OPIOID AND OVERALL DRUG MISUSE, 1998-2011

* p< 0.05

Multicomponent Strategies

- Communities That Care
- Icelandic Model
- PROmoting School-community-university Partnerships to Enhance Resilience (PROSPER)
- Project Lazarus
- Red Ribbon Week


Substance Abuse and Mental Health Services Administration's Center for the Application of Prevention Technologies. Preventing Rx drug misuse: programs and strategies, 2016.

Communities That Care

• 24 Communities in 7 U.S. States
  – 4407 students in grade 5
  – By grades 10 and 12, no significant difference past-month or past-year use in prescription or illicit drug use
  – However, 25-33% reduction in alcohol, tobacco, and delinquent behavior initiation

Icelandic Model

• Collaboration between policy makers, behavioral scientists, field-based practitioners, and community residents in Iceland
  – National funding for recreational activities
  – Parental organization established in every school, along with school councils with parent representatives by law
  – Law prohibiting children aged 13-16 years to be “outside” after 10 pm and midnight in winter and summer, respectively

PROSPER

Schools
Resource generation and coordination
Integrate with accountability and incentive structures

Linking Agents
School-based community members (e.g., school committee) OR
School-based agents at Department of Education/Health or state university

State University, Department of Education/Health, and Community
Sustained intervention training and technical assistance resources
Sustained intervention evaluation resources
Services for special needs youth and families

PROSPER

• 28 Pennsylvania and Iowa small towns and rural communities
  – 10,849 students in grade 6
  – SPF + 1 school-based program
  – Lifetime Illicit Substance Use
    – Relative reduction rate was 18.8% lower in intervention group vs. control at grade 11 ($p<0.01$) and 15% lower at grade 12 ($p<0.01$)
    – Prescription opioid misuse reduced by intervention from 27.8% to 22.1% by grade 12

Prevention Resources

• DEA Operation Prevention
• Medication Abuse Project (Partnership for Drug-Free Kids)
• SAMHSA Opioid Overdose Prevention Toolkit

• NIDA teens, parents, and teachers resources
• Generation Rx

SAMHSA Opioid Overdose Prevention Toolkit: Safety Advice for Patients & Family Members.
https://store.samhsa.gov/shin/content/SMA16-4742/SafetyAdviceforPatientsAndFamilyMembers.pdf.
HOW WOULD YOU GUIDE IMPLEMENTATION OF PREVENTION STRATEGIES IN CLINICAL PRACTICE OR COMMUNITY?
5. Which of the following assessment tools should not be used for evaluating opioid misuse?

A. Car, Relax, Alone, Friends/Family, Forget, Trouble (CRAFFT)
B. Alcohol Use Disorder Identification Test (AUDIT)
C. Alcohol, Smoking, and Substance Abuse Involvement Screening Test (ASSIST)
D. Drug Abuse Screening Test (DAST) - 10
Early Identification

*Substance Use and Prescription Medication Misuse*

- Delay initiation
- Improve immediate patient outcomes
- Prevent negative long-term consequences
  - Decrease risk of transition to heroin
  - Screen for household dysfunction and forms of abuse
- Cost-effective approach

Conversation Starters

• HEEADSSS*
  – Psychosocial interview
    – Do any of your friends smoke or drink alcohol? Use other drugs?
    – Have you ever tried smoking, alcohol, or drugs with your friends?

• SSHADESS
  – Strength- and resiliency-based tool
    – Same questions as HEEADSSS with additional question “When/if you smoke, drink or get high, how does it make you feel or what does it do for you?”

* Home environment, education and employment, eating, peer-related activities, drugs, sexuality, suicide/depression, and safety from injury and violence


Universal Screening

• Screening to Brief Intervention (S2BI)
  – “In the past year, how many times have you used...”*
    – Tobacco, Marijuana, Alcohol, (never, once or twice, monthly, weekly or more)
  – STOP if all above answers were “never”
  – If yes to above, continue in same manner
    – Prescription and illegal drugs, inhalants, herbs or synthetic drugs
  – Efficacious identification of Diagnostic and Statistical Manual of Mental Disorders, 5th Edition: DSM-5 substance use disorder
    – Discriminates clinically relevant use-risk categories

*Alternative approach: “Use anything else to get high? Including prescription or illegal drugs and things that you sniff or huff”

Williams JF et al. Association for Medical Education and Research in Substance Abuse (AMERSA) Conference 2009.
Universal Screening

• Brief Screener for Tobacco, Alcohol and Other Drugs (BSTAD)
  – Asks questions about friends’ use and personal use of substances
  – “Which of the following medications have you used in the past year that were not prescribed for you or you took more of than you were supposed to take?”
    – Prescription pain relievers, sedatives, stimulants, and over-the-counter medications
    – If used, inquire about duration of use

Brief Assessment Tools

- Car, Relax, Alone, Friends/Family, Forget, Trouble (CRAFFT)
- Global Appraisal of Individual Needs (GAIN)†
- Problem Oriented Screening Instrument for Teenagers (POSIT)
- CAGE-AID
- DAST-10†
- NIDA-Quick Screen and Modified-ASSIST*

†Adolescents and young adults   *Young adults

## Stage of Use and Intervention

<table>
<thead>
<tr>
<th>Stage</th>
<th>Description</th>
<th>Goals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abstinence</td>
<td>Time before individual uses drugs</td>
<td>Prevent or delay initiation</td>
</tr>
<tr>
<td>Substance use without a disorder</td>
<td>Limited use, generally social situations, without related problems</td>
<td>Advise to stop. Provide counseling for risk reduction</td>
</tr>
<tr>
<td>(experimentation)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mild-moderate SUD</td>
<td>Use in high-risk situations; use associated with problem or for emotional regulation</td>
<td>Brief assessment to explore patient-perceived problems; motivational interviewing</td>
</tr>
<tr>
<td>Severe SUD</td>
<td>Loss of control or compulsive drug use</td>
<td>Motivational interviewing; referral to treatment</td>
</tr>
</tbody>
</table>

SUD: Substance Use Disorder

Motivational Interviewing

Express Empathy
Build rapport

Develop Discrepancy
Elicit pros and cons

Roll with Resistance
Respect patient autonomy

Support Self-Efficacy
Communication of patient’s capacity to change

Motivational Interviewing: Key Skills

• Use open-ended questions

• Affirming and Supportive
  – Actively listen for patient strengths, values, aspirations, positive qualities
  – Reflect those to client in affirming manner

• Reflective Listening
  – Collaborative and nonjudgmental
  – Deepens the conversation

• Summarizing

No Use
Positive Reinforcement

Once or Twice
Brief Assessment
Counseling about medical harms of substance use; promote strengths

Monthly Use
Assess problems, Advise to Quit, Make a Plan
Counseling of medical harms, negotiate behavior change to quit or cut down
Close follow-up: consider referral to treatment and breaking confidentiality

Weekly Use
Assess problems, Advise to Quit, Make a Plan
Counseling of medical harms, negotiate behavior change to quit or cut down
Referral to treatment; involve parents in treatment planning


ALL MUST HAVE MEDICAL HOME FOLLOW-UP
Screening, Brief Intervention, and Referral to Treatment (SBIRT): Practice Case

A 16-year-old female is seen in the pediatric asthma clinic for medication review following asthma exacerbation.
Screen: Ask and Assess

• She reports weekly use of marijuana and prescription opioids
  – Uses marijuana to help her relax when she is stressed
  – Mixes substances to experience better effect
  – States mother knows about her marijuana use, but would be upset if she found out about the hydrocodone/acetaminophen that she is buying from her cousin
6. What is the patient’s DAST-10 score?

A 1
B 2
C 3
D 4
### Screen: Ask and Assess

<table>
<thead>
<tr>
<th>DAST-10</th>
<th>0</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>In the past 12 months</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Have you used drugs other than those required for medical reasons?</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>2. Do you abuse more than one drug at a time?</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>3. Are you always able to stop using drugs when you want to?</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>4. Have you ever had “blackouts” or “flashbacks” as a result of drug use?</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>5. Do you ever feel bad or guilty about your drug use?</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>6. Does your partner (or parents) ever complain about your involvement with drugs?</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>7. Have you neglected your family (or friends) because of your use of drugs?</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>8. Have you engaged in illegal activities in order to obtain drugs?</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>9. Have you ever experienced withdrawal symptoms (felt sick) when you stopped taking drugs?</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>10. Have you had medical problems as a result of your drug use?</td>
<td>N</td>
<td>Y</td>
</tr>
</tbody>
</table>

Motivational Interviewing Vignette

• “I’d like to know more about your use of hydrocodone/acetaminophen and marijuana. Help me to understand what you enjoy about using those drugs” – Pharmacist
  – “My friends know I get anxious, so we smoke together to chill out. My mom is cool with it as long as I do it at home” – Patient

• “Your mom doesn’t know about your hydrocodone/acetaminophen use. Why?”
  – “She would flip out. She thinks my cousin is an addict and would think I am too if she knew.”

• “Do you ever feel guilty about not telling her about it or regret using hydrocodone/acetaminophen”
  – “No. However, my grades are not great and we keep arguing about it. I wish I could tell her about how stressed I am, but I just can’t talk about it with her”
Motivational Interviewing Vignette

• “So it seems using marijuana and hydrocodone/acetaminophen helps manage your stress, but your grades are suffering as well as your relationship with your mom. I need to tell you that the health risks of using are serious”
  – (Silence)
• “Mixing drugs can really get you into trouble even if taking a couple of pills. You could overdose. I need you to stop using before you flunk out of school”
  – (Silence)
• “Given what we have been talking about, help me better understand how you feel about making a change in your drug use. On a scale from 0-10, how ready are you to change your use. A 10 would mean fully ready to change”
  – “7”
• “Why did you choose that number and not a lower one like 1 or 2”
  – “I use to be a good student, but the stress was too much...so I started using. I would like to go to college and I’m not sure I can if my grades don’t improve”
Motivational Interviewing Vignette

- “Do you think you can quit? How confident are you that you can quit?
  — “I think I could do it”

- “Good! What needs to happen for you to feel more confident? Tell me something that you have done in the past that you were successful at. What methods did you use?”
  — “I need a way to deal with my stress. Before I went running when I was anxious about school, but since my asthma has been worse I don’t run anymore”

- “Would it be okay for me to discuss what we have talked about with your doctor? I think he or she could help give you ideas to help with your stress. But in the meantime, I can help you with your asthma medications and hopefully get you back to running. Can you show me how you use your inhaler?”
BRIEF INTERVENTION BREAKOUT
7. What principles and skills of motivational interviewing did the pharmacist fail to use in the vignette?

- Reflective listening
- Roll with resistance
- Develop discrepancy
- Summarize and negotiate goal
Additional Diagnostic Assessments

• Abstinence challenge or controlled-use trial
  – Assessment of certain DSM-5 criteria
    – Unsuccessful efforts to cut down or quit
    – Continued use despite problems
    – Craving or strong desire to use
    – Tolerance
    – Withdrawal

SBIRT Settings

- SBIRT practice can be applied across a variety of practice settings and clinicians providing health care to adolescents and young adults, including pharmacists
  - Primary and ambulatory care
  - Emergency departments

- Ohio pharmacist survey
  - Pharmacists felt more confident than prescribers to identify SUD (76% vs. 67%, respectively)
    - Pharmacists felt comfortable in counseling (34%) and referral to treatment (28%) for patient with SUD
    - Use of validated screening instruments among pharmacists less than 5%

Tommasello AC. Harm Reduct J. 2004; 1:3.

Adhikari. Screening, intervention and referral practices among prescribers and pharmacists treating patients with substance abuse disorder in Ohio.
http://mha.ohio.gov/LinkClick.aspx?fileticket=4UwEbO9WaFs%3D&portalid=0
SBIRT Settings

• Schools
  – 2 urban New York schools (n=248, grades 6-12)
    – Feasibility study for SBIRT in school health clinic
  – 13 New Mexico high schools (n=629, 14-17 years of age)
    – Universal screening by health center staff for students seen in clinic
    – Brief intervention (85%), brief treatment or referral to treatment (15%)
      – At 6-month follow up, decrease in drug use (p < 0.001)
  – Screen U (University-based SBIRT)

American Society of Addiction Medicine (ASAM) Definitions

- **Opioid Use Disorder (OUD)** – Chronic, relapsing disease with significant personal, economic, and public health consequences; individual continues use despite harm
- **Addiction** – primary, fundamental chronic disease and dysfunction of brain reward, motivation, and memory
- **Detoxification** – safe withdrawal of psychoactive substances from a person
- **Treatment** – scheduled pharmacotherapy to mitigate pathological pursuit of reward and withdrawal relief for harm reduction and/or long-term recovery
- **Recovery** – Sustained action addressing biological, psychological, social, and spiritual disturbances from addiction

Overall Outcomes from OUD Pharmacotherapy

- Increased
  - Overall survival
  - Treatment retention

- Decreased
  - Opioid use
  - Overdose deaths
  - HIV /Hepatitis C virus (HCV) transmission
  - Criminal behavior
  - Incarceration

ASAM National Practice Guideline: Adolescents

• Treat adolescents with OUD using full range of treatment options, including pharmacotherapy
  – Methadone
  – Buprenorphine
  – Naltrexone
• Consider FDA and federal laws for < 18 yr; confidentiality
• Psychosocial treatment is recommended
• Reduce sexually-transmitted infections (STIs) and bloodborne infections (BBIs)
• Consider specialized treatment facilities
• Overall evidence is limited: guidance by consensus, no comparisons

Eighteen percent of adults in the United States have a mental, behavioral, or emotional disorder.

12-month prevalence of any mental illness among adults ages 18+, by gender, age, and race, 2015

*NH/OPI=Native Hawaiian/Other Pacific Islander
**AI/AN =American Indian/Alaska Native
Psychosocial Interventions for OUD: Adolescents

- Contingency management
- Motivational incentives
- 12-step facilitation therapy
- Vocational support
- Evidence-based interventions
  - Reduce infections (BBIs, STIs)
  - Treat comorbid psychiatric conditions (depression, anxiety, personality disorders, PTSD)
- Family Therapy
  - Better outcomes from treatment and prevention
  - Decreased frequency of and consequences of opioid use
  - Financial/social/medication support
  - Family health related to OUD health – primary care
- Stigma

Considerations in Using SUD Pharmacotherapy in Adolescents

**Considering Medication**
- Severity of SUD
- Comorbid psychiatric disorders
- Failed/lack of improvement from psychosocial interventions
- High risk of morbidity/mortality
- Family engagement

**Choosing Medication**
- Effects of previous medications
- Family/patient wishes
- Comorbidities
- Contraindications/interactions
- Likelihood of adherence

American Academy of Pediatrics

- Spontaneous remission rates are low; improved with therapies
- Effective medications and counseling are underused
- Access to treatment is severely restricted
- New treatments, access required to save lives
  - Primary care integration
  - Developmentally appropriate counseling
  - DATA2000 waiver course for pediatricians

- Consider offering medications or referrals to youths with severe OUD
Significant Treatment Gaps

• 1.4 million people in gap between OUD diagnosis and treatment capacity
  – 53% of U.S. counties lack ANY DATA2000 waivered prescriber
  – 30 million people lack access to OUD treatment
• 23% of publicly funded treatment programs offer effective pharmacotherapy
• Widespread health professional stigma

• 2013 Treatment Episode Data Set (TEDS)
  – N=139,092 treatment episodes
  – Heroin treatment with Medications for Addiction Treatment (MAT)
    – 2.4% adolescents
    – 26% adults
  – Prescription misuse treatment w/MAT
    – 0.4% adolescents
    – 12% adults

Trends in Receipt of Buprenorphine (BUP) and Naltrexone (NTX) for Opioid Use Disorder Among Adolescents & Young Adults, 2001-14

• Objective: Identify disparities in OUD pharmacotherapy in youth (13-25 yr) within 6 months after diagnosis
• Adolescents have more difficulty accessing care than adults, only 1/13 in specialty care
• Retrospective cohort analysis of commercial insurance database (Optum)
• N=20822; mostly white males; females, younger less likely to receive treatment
• OUD diagnosis rate increased 600% 2001-2014; highest 21-25 yr
• 90% BUP / 10% NTX – despite approval of extended-release(XR)-NTX
• 2009-2014: insurance coverage increased, OUD diagnoses increased, yet MAT receipt decreased from peak of 31.8% in 2009 to 27.5% in 2014
• Overall MAT receipt was 26.8% between 2001-2014

8. Which of the following medications has the greatest evidence for efficacy and safety among adolescents with opioid use disorder?

A. Buprenorphine/naloxone
B. Methadone
C. Naloxone
D. Naltrexone
9. Which of the following medications has the highest risk of opioid-induced respiratory depression?

A. Buprenorphine/naloxone
B. Methadone
C. Naloxone
D. Naltrexone
10. Which of the following medications could be administered by a community pharmacist?

A. Buprenorphine/naloxone  
B. Methadone  
C. Naloxone  
D. Naltrexone
Adolescent Buprenorphine Trial Summaries

- Marsch et al. (Arch Gen Psych 2005)
  Buprenorphine/naloxone vs. clonidine for detoxification
  - N=36
  - Psychosocial and negative urine test incentives
  - @ 28 days - 72% BUP retained in treatment vs. 39% clonidine
  - Buprenorphine/naloxone
    - More likely to transition to naltrexone
    - Fewer HIV risk behaviors
    - Higher % negative urine tests

- Woody et al. (JAMA 2008)
  - Groups: 2-week buprenorphine/naloxone detoxification vs 12-week maintenance
  - n=152
  - Both groups received behavioral therapies
  - Primary outcome: negative urines @ 4, 8, 12 weeks
  - Results: Fewer positive 4- and 8 -week urine tests in maintenance group
  - Relapse rate at 12 months
    - 53% maintenance
    - 72% detox / 2 week
  - Predictors for maintenance success: IV use, severe OUD, psych predicted lower opioid use

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Buprenorphine</th>
<th>Methadone</th>
<th>Naltrexone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mechanism of Action</td>
<td>Partial opioid agonist</td>
<td>Full opioid agonist</td>
<td>Full opioid antagonist</td>
</tr>
<tr>
<td>Misuse/diversion potential</td>
<td>Moderate (pharmacy); less w/ co-</td>
<td>Minimal (Opioid Treatment Program (OTP)-based)</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>formulations w/naloxone</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Routes of Administration</td>
<td>Buccal Film</td>
<td>Oral Liquid (daily dosing)</td>
<td>380 mg IM monthly into gluteal muscle</td>
</tr>
<tr>
<td></td>
<td>Oral</td>
<td></td>
<td>25 mg by mouth daily initially, then 50</td>
</tr>
<tr>
<td></td>
<td>Sublingual</td>
<td></td>
<td>mg/day weekdays and</td>
</tr>
<tr>
<td></td>
<td>Transdermal</td>
<td></td>
<td>100 mg Saturday OR</td>
</tr>
<tr>
<td></td>
<td>Long-acting implant</td>
<td></td>
<td>100 mg by mouth every other day</td>
</tr>
<tr>
<td></td>
<td>Long-acting injection</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(under FDA review)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
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<th>Methadone</th>
<th>Naltrexone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access (source)</td>
<td>Age 16 (FDA) Only by waived prescribers Can be managed collaboratively and dispensed by pharmacists</td>
<td>Age 18 OR 2 unsuccessful attempts at withdrawal management + parental consent Dispensed only through OTP</td>
<td>Age 18 (FDA) Can be managed collaboratively, dispensed, and administered by pharmacists</td>
</tr>
<tr>
<td>DEA Schedule</td>
<td>III</td>
<td>II</td>
<td>none</td>
</tr>
<tr>
<td>Overdose risk</td>
<td>Very rare (more often with benzodiazepines)</td>
<td>Present</td>
<td>None</td>
</tr>
<tr>
<td>Frequency/Duration</td>
<td>Daily for OUD; many months</td>
<td>Daily for OUD; 1 year minimum</td>
<td>Daily oral; Monthly IM (XR-NTX); unknown</td>
</tr>
</tbody>
</table>

<table>
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<tr>
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<th>Methadone</th>
<th>Naltrexone</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Potential populations</strong></td>
<td>Comorbid psychiatric illness(es)</td>
<td>Comorbid psychiatric illness(es)</td>
<td>Shorter duration opioid misuse</td>
</tr>
<tr>
<td></td>
<td>Pregnancy</td>
<td>Injection opioid use</td>
<td>Concomitant alcohol use disorder</td>
</tr>
<tr>
<td></td>
<td>Oral Rx opioid use</td>
<td>Risk for treatment dropout (unstable housing and/or lack of social support)</td>
<td>Poor adherence</td>
</tr>
<tr>
<td></td>
<td>Benzodiazepine use</td>
<td></td>
<td>Justice-involved</td>
</tr>
<tr>
<td></td>
<td>QTc-prolonging drug use</td>
<td></td>
<td>Diversion</td>
</tr>
<tr>
<td></td>
<td>Lack of OTP access (rural)</td>
<td></td>
<td>Occupational (Healthcare Worker (HCW), Law Enforcement Officer (LEO), drivers)</td>
</tr>
<tr>
<td></td>
<td>Occupational need for alertness</td>
<td></td>
<td>Risk for treatment dropout</td>
</tr>
<tr>
<td></td>
<td>Existing primary care need</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Buprenorphine</th>
<th>Methadone</th>
<th>Naltrexone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advantages</td>
<td>Fewer positive urine screens for opioids</td>
<td>Better treatment program retention (dose-related)</td>
<td>No physical dependence</td>
</tr>
<tr>
<td></td>
<td>Treatment program retention dose-related; Most data in adolescents</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disadvantages</td>
<td>Few waived physicians</td>
<td>OTP clinic only Age 18 mostly</td>
<td>Lack of overall efficacy data Age 18 only</td>
</tr>
</tbody>
</table>

Social Risk Factors for Opioid Overdose

- Using alone
- Rural area
- Multiple pharmacies (> 4)
- Multiple providers (> 4)
- Past overdose
- Incarceration release
- Detoxification release
- Unemployment
- Medicaid (non-private insured)

Drug Risk Factors for Opioid Overdose

- Route of administration (IV)
- Duration of use (> 3 months)
- Dose (Daily 100 MME > 50 MME > 20 MME)
- Drug (methadone, oxycodone)
- Lack of purity (fentanyl-contaminated heroin)
- Long-acting formulations
- OUD Treatment (buprenorphine)

- Combinations
  - Long + short-acting opioids
  - Antidepressants
  - Benzodiazepines (current/past)
  - ”Holy Trinity” (opioid+benzodiazepine+skeletal muscle relaxant)

Benzodiazepines and Opioids

- Benzodiazepines are present in 31% of opioid-related overdose deaths.
- Opioids are present in 75% of benzodiazepine-related overdose deaths.
- Among people prescribed opioids, the risk of overdose deaths is 3.8 times higher for people prescribed benzodiazepine also.

Citizen Petition: Black Box Warnings

**Opioids Black Box Warning**

WARNING: Concurrent use with benzodiazepines reduces the margin of safety for respiratory depression and contributes to the risk of fatal overdose, particularly in the setting of misuse.

**Benzodiazepines Black Box Warning**

WARNING: Concurrent use with opioids reduces the margin of safety for respiratory depression and contributes to the risk of fatal overdose, particularly in the setting of misuse.

Requires medication guides for both classes of medications that specifically warn patients of the potential dangers of combined use of opioids and benzodiazepines.

Disease / Demographic Risk Factors for Opioid Overdose

- Chronic pain
- Psychiatric disorders
- Substance use disorder
  - Opioid use disorder
  - Alcohol use disorder
- Male
- White
- Age 35-44 yr vs. 18-24 yr
- Chronic comorbid diseases
  - Renal
  - Pulmonary
  - Hepatic

For Pharmacists: Assessing Risk

- Multiple psychoactive or sedating medications?
- Dispensing buprenorphine or methadone?
- Multiple prescribers and/or multiple pharmacies?
- Are prescribers aware of all prescriptions?
- Is patient aware of risks?
- Other children or pets at home?
- Patient, friends, and family know how to respond to signs/symptoms of overdose?
- Does patient/do family members have naloxone?

Naloxone Co-prescribed to Patients on Long-term Opioid Therapy for Noncancer Pain

- Retrospective cohort study funded by NIDA
- Six primary care safety-net clinics in San Francisco, CA
- 1985 racially diverse patients
- Morphine Equivalent Dose (MED) < 60 mg/day in 54.3% of subjects
- Naloxone co-prescribed to 38.2% of subjects
  - More likely opioid-related ED visit in past year
  - More likely > 60 mg/mg MED

Naloxone Co-Prescribed to Patients on Long-term Opioid Therapy for Noncancer Pain

• Regression modeling demonstrated a statistically significant DECREASE in opioid-related ED visits in subjects with co-prescribed naloxone
  – 47% ↓ in 6 months
  – 63% ↓ in 12 months

• No change in opioid dose in both study arms
• No naloxone-related adverse events reported
• Conclusions
  – Primary care naloxone co-prescribing is feasible
  – High risk patients may derive greater benefit from co-prescribing naloxone

Naloxone Co-Prescribing as a Universal Precautions Model for Patients on Chronic Opioid Therapy

- Goal: Universal Precautions approach to naloxone co-Rx for chronic [noncancer] pain patients in one New Mexico ambulatory interdisciplinary pain clinic
- N=164 patients > 18 yr
- Exclusions: naloxone allergy, pregnancy, acute pain
- Opioid only n=128 (78.0%)
- Opioid and benzodiazepine n=36 (22.0%)
- Comorbid depression n=93 (57%)
- Median MED = 90 mg/day; Median Current Opioid Misuse Measure (COMM) = 5.0 (≥ 9 = ↑risk)
- Opioid overdose = 0

Naloxone Co-Prescribing as a Universal Precautions Model for Patients on Chronic Opioid Therapy

• Overdose prevention messaging (safe use and safe storage)
• Recognition of opioid overdose
• Response to overdose with rescue breathing
• Intranasal naloxone administration (assembly and administration)
• Calling 911 to ensure emergency medical system response
• Review of New Mexico Good Samaritan Law relative to activation of 911 in the event of suspected drug overdose.

Co-Prescribing Naloxone Does not Increase Liability Risk

• The legal risk associated with prescribing naloxone is no higher (and may be lower) than that associated with any other medication
• **No instance** in which prescribing or dispensing of naloxone was grounds for a lawsuit
• Liability associated with prescribing naloxone in good faith to patient at risk of overdose is either extremely low or absent entirely
• Co-prescribing naloxone is a prudent clinical and legal decision
• **No clinician should fail or refuse to issue such a prescription based on liability concerns**

11. How long does overdose education and naloxone administration training take?

A. 5 minutes – new inhaler technique demonstration
B. 15 minutes – Immunization including observation time
C. 30 minutes – Rapid HIV testing and risk counseling
D. 45 minutes – Medication Therapy Management (MTM) Comprehensive Medication Review (CMR)
How to Respond to an Opioid Overdose

1. Recognize overdose
2. Call/text 911 for help
3. Administer naloxone
4. Rescue breathe/chest compressions
5. Stay until help arrives
   - Place in recovery position if breathing

Methods:
- Multi-step nasal spray
- Intramuscular injection
- Auto-injector
- Single-step nasal spray

How to Recognize an Opioid Overdose

**Common Signs to Look For**

- **Breathing slowly**: A person may have very slow, shallow breaths, make gurgling noises, or stop breathing.
- **Can't be woken up**: They may be awake but unable to talk or may not respond when you try to wake them up.

**Turning blue**: They could look very pale or have blue fingernails and lips.

**What to do next**

- Call 911, give naloxone, and begin rescue breathing if the person doesn’t wake up.

Call/Text 9-1-1

- People are often scared to call or text 911 in the event of a suspected overdose
  - Police notified of a 911 call involving an overdose often come to the scene
  - People may be hesitant to call if they are on parole or have outstanding arrest warrants
  - Some Good Samaritan laws provide immunity only for minor crimes, not immunity from prosecution for possession or distribution of illicit drugs
  - Some bystanders use home remedies are used instead of calling 911 or using naloxone
  - Calling 911 is estimated to occur only 10-56% of the time when an overdose is suspected
  - Key part of education to ensure definitive medical care and access to treatment and recovery services

Give Naloxone

A. MULTI-STEP NASAL SPRAY
   DIRECTIONS: Spray 1 mL (half of the syringe) into each nostril.
   NO BRAND NAME/GENERIC
   COST: $-$$

B. SINGLE-STEP NASAL SPRAY
   DIRECTIONS: Spray full dose into one nostril.
   BRAND NAME: Narcan
   COST: $$$

C. INTRAMUSCULAR INJECTION
   DIRECTIONS: Inject 1 mL in shoulder or thigh.
   NO BRAND NAME/GENERIC
   COST: $-$$

D. AUTO-INJECTOR
   DIRECTIONS: Use as directed by voice-prompt. Press black side firmly on outer thigh.
   BRAND NAME: Evzio
   COST: $$$$*

Rescue Breathing

• Make sure airway is clear
• Place one hand on chin
• Tilt head back to open airway
• Pinch nose closed
• Give two slow rescue breaths into mouth
• Make sure chest rises with each breath
• Give 1 breath every 5 seconds until person can breathe on own
• If the person is still unresponsive with slow or no breathing after 2-3 min, administer another dose of naloxone
• Continue rescue breathing until help arrives
Stay Until Help Arrives, Place in Rescue Position

- **Do not leave the person alone** after giving naloxone
- If the person took a long-acting opioid, his or her condition could worsen after the effects of naloxone wear off
- Make sure the person does not take any more opioids
- If the responder needs to leave at anytime – to call/text 911 or get naloxone – use the rescue position
- Put the person on his or her side with their top leg and arm crossed over their body
- This position makes it difficult for the person to roll over and lessens the chance of aspiration in the event of vomiting caused by withdrawal

Implementing Models in the Field

Three approaches to patient selection for naloxone prescribing for overdose risk reduction:

- **Self-selection**: patient or family member requests based on self-assessment of risk
- **Risk-based**: provider assesses individual risk and prescribes based on criteria
- **Universal**: all patients prescribed an opioid, independent of risk characteristics

Each approach has different implications for policies and procedures, staffing, supply, and cost
8 Focus Groups (n=61) Results: Pharmacy Naloxone

“...[You can take] the stigma away [from naloxone] by making it...as common as ...'Do you want fries with that?’” – Caregiver, MA

- Very few had attempted to obtain naloxone at a pharmacy, mostly because they did not know it was there, or how to ask for it
- Generally see pharmacists as knowledgeable, helpful but very busy
- Automatic opt-out “corporate/state policy” offering naloxone is universally endorsed, considered LEAST stigmatizing

- Pharmacists: Very uncomfortable, stigmatizing
- Standardized, opt-out naloxone offer policies would reduce concerns

Perpetuating stigma or reducing risk? Perspectives from naloxone consumers and pharmacists on pharmacy-based naloxone in 2 states (RI/MA)

“If it was up to me, every single opiate prescription that was being filled would also be dispensed with Narcan. Even if the patients aren’t using them or the families aren’t using it, it would help, I think, to over time kind of reduce the stigma and that Narcan is only for heroin.” – RI Pharmacist in Focus Group ‘16

“[W]e can say, you know, I have to hand this out to you on any prescription refill, and this is just to let you know there is a little section here on Narcan and if you have any questions, please feel free to ask and leave it at that and move on.” – MA Pharmacist in Focus Group ‘16

Pharmacists’ willingness to participate in dispensing naloxone

<table>
<thead>
<tr>
<th>Survey Question, willingness to: (n=1282)</th>
<th>Very willing (5 or 6)</th>
<th>Not Willing (1 or 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dispense naloxone by prescription</td>
<td>54%</td>
<td>13%</td>
</tr>
<tr>
<td>Attend education on overdose prevention</td>
<td>50%</td>
<td>11%</td>
</tr>
<tr>
<td>Educate patients to recognize overdose and administer naloxone</td>
<td>46%</td>
<td>13%</td>
</tr>
<tr>
<td>Initiate naloxone dispensing under a protocol</td>
<td>37%</td>
<td>28%</td>
</tr>
<tr>
<td>Proactively identify individuals for naloxone</td>
<td>33%</td>
<td>21%</td>
</tr>
</tbody>
</table>

Pharmacists’ willingness to participate in dispensing naloxone

• Multivariate analyses revealed significant findings
  • Women pharmacists more willing to initiate naloxone than men
  • As confidence in educating patients about naloxone increased, the willingness to initiate naloxone increased

• Barriers to implementation (more prominent in community practice settings)
  • Inadequate time
  • Lack of knowledge of naloxone laws

Integrate Naloxone into Standard Medication Counseling

• Maximize close relationships with patients by incorporating naloxone into your usual counseling points for new and refill opioid prescriptions
  – Bowel regimen for the common risk of constipation, and naloxone for the rare risk of overdose / breathing emergency
  – Overdose education and naloxone dispensing have been shown to take < 5 minutes to complete, similar to inhaler counseling

• Videos for each naloxone product can be downloaded: prescribetoprevent.org

Naloxone Conversation Starters

“Opioids can cause bad reactions that make your breathing slow or even stop. This can happen if your body can’t handle the opioids you take that day, or if you take opioids with alcohol or other drugs. Naloxone is a lifesaver, just like a seatbelt or a fire extinguisher.”

“These medications can be helpful but have a range of side effects, like slowing down or even stopping breathing completely. Naloxone can help if this happens by restoring breathing.”

“Opioid medications increase the risk of breathing emergency. Naloxone is needed in case of emergency.”

“Let’s keep you and your family as healthy as possible while this powerful medication is in your house. Just in case, get naloxone.”
Case

You are asked to counsel a 16-year-old African-American boy in a family medicine clinic about his pain medications. He is currently taking extended-release morphine sulfate 30 mg by mouth twice daily and immediate-release morphine sulfate 5 mg by mouth every 4-6 hours as needed for breakthrough pain for joint and chest pain related to sickle cell disease. He lives with his mother, who is present for the session.
Naloxone Offer Vignette

“I see that you’ve been taking opioid pain relievers for a while, did you you know that they could cause you to stop breathing, even if you took them as prescribed?” –Pharmacist

“No, no one every told me that. My mom makes sure that I take them at exactly the same time every day, and I rarely take the other pills, only when I’m having an episode.” –Patient

“How do you store them? What do you think would happen if someone accidentally took your pain pills and stopped breathing?”

“My little sister is only 10, I would feel horrible if something happened to her. That’s one reason why we keep the pills in a locked box in a high kitchen cabinet.”

“That’s a great idea. Another idea is to have naloxone, an antidote to opioids that helps you breathe in an overdose, in your house, in case of this kind of emergency. You can pick it up at any pharmacy, and your insurance will cover the cost besides the co-pay. Would you like me to go over the steps of how to use it, now?”

“Yes, please. I’m glad my mom is here, she would be the person to help me or my sister if something happened like an overdose.”
Naloxone and Overdose Educational Vignette

“We’re going to review this instructional sheet on how to recognize and respond to a breathing emergency using naloxone. There are four types of naloxone, two injection and two forms you spray into your nose. Which form would you like?”

(Mom) “I don’t want any needles around the house, so I would feel more comfortable with the intranasal.”

“That’s great, I’ll call your pharmacy and make sure that it’s in stock, and talk to your insurance company about which intranasal form is the least expensive for you.”

“Thank you, that’s very helpful.”

“The first step is to recognize an overdose – a person will be snoring or breathing very slowly, have blue or gray skin and lips, and won’t wake up if you yell their name, shake them, or even if you use your knuckle and rub the center of their chest. If they don’t wake up, you need to call 911 and tell the dispatcher your location and that someone is not breathing. Do you have any questions?”

“No, I think I can do that.”
Naloxone and Overdose Educational Vignette

“Now you need to get your naloxone. It’s important to always have it with you, or in place that’s easily accessed in your house. You will either assemble it and spray half the contents in each nostril, or use the one-step formulation and spray it into one nostril. If the person doesn’t start breathing or wake up, you should start rescue breathing until rescue personnel arrive. If the person doesn’t start breathing in 2-3 minutes, you should give the other dose of naloxone. Let’s review the steps in recognizing and responding to an overdose, Mom, can you tell me the steps?”

(Mom) “Yeah, I think so. If he’s blue and not breathing, I should rub my knuckle on his chest. If he doesn’t wake up, I should call 911 and get naloxone. I give him the naloxone in his nose, and if he doesn’t wake up, I should breathe into his mouth for him for 2 minutes, and give another dose of naloxone then.”

“Almost perfect. When you call 911, tell them where you are and what’s happening, your son isn’t breathing. Be sure to pinch his nose when you breathe into his mouth, and do this every 5 seconds.”
Key Takeaways

• Pharmacists should serve as medication safety experts for patients, families, communities, and prescribers to increase awareness of opioid misuse, encourage opioid misuse prevention, use SBIRT practices to identify patients with or at risk for OUD, and make treatment referrals as needed

• Naloxone should be co-prescribed for adolescents and young adults who receive opioids to optimize opioid safety and reduce risk of overdose, an approach accepted by patients, caregivers, and providers when communicated in terms of safety, not overdose

• Medications for treatment of OUD are safe and effective and reduce the risk of and deaths from overdose, but they are underused by adolescents and young adults, who have the highest prevalence of OUD
Questions?