Over the Counter or Prescription Drugs Does Not Mean Safe: How Teens are Using These Medications to Get High

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Johns Hopkins School of Medicine
PRESENTATION OVERVIEW

- Magnitude of the problem
- Prescription medications and over-the-counter products
- Identification of problem users
- Strategies for parents and the role of health professionals
Adolescent Substance Abuse Is a Major National Health Problem

- Although surveys indicate a leveling off of substance use, current rates of use remain high.
- A major challenge is identifying early, youth who are at-risk or in need of prevention, intervention or treatment that is specific to the needs of adolescents.
- Only 1 out of 10 youth who need treatment receives it.
- Most youth who enter substance abuse treatment programs, do so through the juvenile justice system.

*Monitoring the Future, National Survey on Drug Use and Health, Youth Risk Behavior Survey*
THE GOOD NEWS/AOD USE IN YOUTH

• Among 10th and 12th grade students, in 2008, there was a gradual decline in the proportion who reported any illicit drug use.
• Among 8th graders, there has been a one third decline in the annual prevalence of illicit drug use from 1996 to 2005.
• Among 8th, 10th and 12th graders, there has been a consistent decline in marijuana use since the mid-1990s.
• Cigarette smoking among youth continues to fall to some of the lowest rates seen.
THE BAD NEWS/ AOD USE IN YOUTH

- Alcohol & drugs are readily available to youths.
- One out of 2 seniors has tried an illicit drug; 8 out of 10 have used alcohol at some time.
- Students as young as those in grades 3 and 4 have used alcohol and tobacco; many even younger have been exposed to illicit drugs by peers, older siblings and parents.
- Inhalant use has consistently been highest among 8th graders.
More Bad News: Prescription and Over-the-Counter Medications

- Continued high rates of prescription drug abuse with little decline over the past six years
- Seven of the top 10 drugs abused by twelfth graders in the past year were prescribed or purchased over-the-counter.
Prescription and OTC Drugs

Although illicit drug use by teens is declining, now there is a new threat, the family medicine cabinet.
Epidemiology

Magnitude of the Problem
Non-medical Use of Prescription Medications

More than 6.3 Million Americans Reported Current Use of Prescription Drugs for Nonmedical Purposes in 2003

- Stimulants
- Sedatives and Tranquilizers
- Opioid Pain Relievers

Nonmedical Use of Pain Relievers in the Past Year among Persons Aged 12 or Older, by Substate Region*: Percentages, Annual Averages Based on 2004, 2005, and 2006 NSDUHs

National Survey on Drug Use and Health, 2008
Dependence on or Abuse of Specific Illicit Drugs in the Past Year among Persons Aged 12 or Older: 2008

- Marijuana: 4,199
- Pain Relievers: 1,716
- Cocaine: 1,411
- Tranquilizers: 451
- Hallucinogens: 358
- Stimulants: 351
- Heroin: 282
- Inhalants: 175
- Sedatives: 126

Numbers in Thousands
Specific Drug Used When Initiating Illicit Drug Use among Past Year Initiates of Illicit Drugs Aged 12 or Older: 2008

- Marijuana (56.6%)
- Pain Relievers (22.5%)
- Inhalants (9.7%)
- Tranquilizers (3.2%)
- Hallucinogens (3.2%)
- Stimulants (3.0%)
- Cocaine (0.8%)
- Sedatives (0.8%)
- Heroin (0.1%)

2.9 Million Initiates of Illicit Drugs

NSDUH
Past Year Initiates for Specific Illicit Drugs among Persons Aged 12 or Older: 2008

- Marijuana: 2,208
- Tranquilizers: 2,176
- Ecstasy: 1,127
- Inhalants: 894
- Cocaine: 729
- Stimulants: 722
- LSD: 599
- Sedatives: 394
- Heroin: 181
- PCP: 114
- Opioids: 53

Numbers in Thousands
Percent of Students Reporting Past Month Use of Any Illicit Drug Has Decreased

**19% Decline 2001 to 2005**

P < .05

Source: University of Michigan, 2005 Monitoring the Future Study
Issues of Concern

Percent of 12th Graders Reporting Nonmedical Use of OxyContin and Vicodin in the Past Year Remained High

<table>
<thead>
<tr>
<th>Year</th>
<th>OxyContin</th>
<th>Vicodin</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>4.0%</td>
<td>9.6%</td>
</tr>
<tr>
<td>2003</td>
<td>4.5%</td>
<td>10.5%</td>
</tr>
<tr>
<td>2004</td>
<td>5.0%</td>
<td>9.3%</td>
</tr>
<tr>
<td>2005</td>
<td>5.5%*</td>
<td>9.5%</td>
</tr>
</tbody>
</table>

* Between 2002 and 2005 the abuse of OxyContin by 12th graders increased significantly.

Source: University of Michigan, 2005 Monitoring the Future Study
Past Month Use of Selected Illicit Drugs among Youths Aged 12 to 17: 2002-2008
Past Month Non-Medical Use of Types of Psychotherapeutic Drugs among Persons Aged 12 or Older: 2002-2008
As Prescriptions Have Increased, Emergency Room Visits For Non-Medical Abuse Have Also Increased

Source: SAMHSA, DAWN, 2002
Past Year Non-Medical Use of Prescription Drugs by Drinking Status

Prescription drug misuse rises with drinking severity. Increases are most pronounced in those aged 18-24.
Alcohol Dependence or Abuse in Past Year among Adults Aged 21 or Older, by Age at First Use of Alcohol: 2008

- 14 or Younger: 15.1%
- 15 to 17: 9.3%
- 18 to 20: 4.7%
- 21 or Older: 2.6%
Over-the-Counter and Prescription Drugs

- Prescription (Rx) drugs (pain relievers, tranquilizers, stimulants, sedatives)
- OTC drugs (antitussives, CNS stimulants, antihistamines)
- Inhalants (inhaled fumes)
- Caffeinated Energy Drinks
Prescription/Over-the-Counter Drugs Account for 7 Out of 11 of the Most Frequently Abused Drugs

Prevalence of Past Year Drug Use Among 12th Graders

In 2008, 15.4% of 12th graders reported abusing prescription drugs within the past year.

SOURCE: University of Michigan, 2008 Monitoring the Future Study
What’s in your Medicine Cabinet: Prescription Pain Medications
Prescription Drugs and Accidental Celebrity Deaths

• Marilyn Monroe: Nembutal, chloral hydrate
• Elvis Presley: Placidyl, Dexedrine
• Judy Garland: Seconal
• Howard Hughes: Valium, codeine
• Heath Ledger: OxyContin, Vicodin, Xanax, Valium, Restoril
## Prescription Medicine Abuse: Attitudes

<table>
<thead>
<tr>
<th>Agree Strongly/Somewhat</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prescription drugs are easier to get than illegal drugs</td>
<td>56</td>
</tr>
<tr>
<td>Prescription drugs, even if they are not prescribed by a doctor, are much safer than</td>
<td>40</td>
</tr>
<tr>
<td>to use illegal drugs</td>
<td></td>
</tr>
<tr>
<td>There is nothing wrong with using prescription drugs without a doctor’s prescription</td>
<td>31</td>
</tr>
<tr>
<td>once in a while</td>
<td></td>
</tr>
<tr>
<td>Prescription pain relievers, even if they are not prescribed by a doctor, are not</td>
<td>29</td>
</tr>
<tr>
<td>addictive</td>
<td></td>
</tr>
</tbody>
</table>

Almost 2 out of 5 teens (37%) report having friends that abuse pain relievers and nearly 3 out of 10 report having friends that abuse prescription stimulants.

Partnership for a Drug-Free America, Attitude Tracking Survey, 2005
**Prescription Pain Medication Abuse**

<table>
<thead>
<tr>
<th>Reasons for Use</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Easy to get from parents medicine cabinets</td>
<td>62</td>
</tr>
<tr>
<td>Are available everywhere</td>
<td>52</td>
</tr>
<tr>
<td>Easy to get through other people’s prescriptions</td>
<td>50</td>
</tr>
<tr>
<td>Teens can claim they have a prescription if caught</td>
<td>49</td>
</tr>
<tr>
<td>They are cheap</td>
<td>43</td>
</tr>
<tr>
<td>Easy to purchase over the internet</td>
<td>32</td>
</tr>
<tr>
<td>They are not Illegal drugs</td>
<td>51</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>Fewer side effects than street drugs</td>
<td>32</td>
</tr>
<tr>
<td>Can be used as study aids</td>
<td>25</td>
</tr>
<tr>
<td>Parents don’t care as much if you get caught</td>
<td>21</td>
</tr>
</tbody>
</table>

*Partnership for a Drug-Free America, Attitude Tracking Survey, 2005*
Pharm Bowl

Today’s youth attend Pharm parties, admittance requires providing pharmaceuticals. They are combined in a bowl or bag and referred to as trail mix. Many times handfuls of pills are washed down with alcohol, producing lethal drug combinations.
Use and Misuse of Stimulant Medications
Age of Methylphenidate Treatment Initiation in Children With ADHD and Later Substance Abuse

![Bar graph showing lifetime rates of substance use disorder in ADHD and Non-ADHD children.](image)

- **ADHD (N=176)**
  - Late Treated: 44%
  - Early Treated: 27%*

- **Non-ADHD (N=176)**
  - Late Treated: 44%
  - Early Treated: 29%*

* p<0.02

Nonmedical Use of Adderall® in the Past Year among Full-Time College Students and Other Persons Aged 18 to 22, by Age Group and Gender: 2006 and 2007

Source: 2006 and 2007 SAMHSA National Surveys on Drug Use and Health (NSDUHs).
Stimulants (Ritalin, Adderall) Act like Cocaine Directly in the Dopamine Cells

Distribution in the Human Brain of Cocaine and Ritalin

Cocaine and Ritalin Act on the Same Sites in Brain

Volkow, et al. (BNL)
Other Drug Use in the Past Year among Full-Time College Students Aged 18 to 22, by Past Year Nonmedical Use of Adderall®: 2006-2007

- Marijuana: 79.9%
- Cocaine: 28.9%
- Hallucinogens: 32.2%
- LSD: 14.8%
- Ecstasy: 9.4%
- Inhalants: 8.7%
- Pain Relievers: 8.6%
- OxyContin®: 1.0%
- Tranquilizers: 24.5%
- Methamphetamine: 3.0%
- Sedatives: 2.2%

Source: 2006 and 2007 SAMHSA National Surveys on Drug Use and Health (NSDUHs).
Alcohol Use in the Past Month among Full-Time College Students Aged 18 to 22, by Past Year Nonmedical Use of Adderall®: 2006-2007

Source: 2006 and 2007 SAMHSA National Surveys on Drug Use and Health (NSDUHs).
OTC Cough & Cold Preparations

More Than 120 Cough & Cold Remedies Contain DXM
Percentages of Use of Specific Over-the-Counter (OTC) Cough or Cold Medications in the Past Year among Past Year OTC Cough and Cold Medication Misusers Aged 12 to 25: 2006

- NyQuil® Products: 30.5%
- Coricidin® Products: 18.1%
- Robitussin® Products: 17.8%
- Other OTC Medications: 38.6%

NSDUH, 2008
Dextromethorphan (DXM)

- Approved by FDA in the 1950s.
- Dextromethorphan is a safe and effective ingredient found in well over 100 over-the-counter cough and cold medicines.
- DXM is most widely used cough suppressant in the U.S.
- Dextromethorphan abuse involves taking extreme—well beyond the recommended doses—amounts of cough medicine to get high.
Dextromethorphan (DXM)

- Over 125 over-the-counter medicines include this compound
- Chemically is similar to morphine
- Drug manufacturers began putting in cough syrups in 1970s as a replacement for codeine
“Code names” for DXM or Specific Products

“Dex, DXM, Robo, Triple Cs or CCC, Skittles, Syrup, Tussin, Velvet”
“Code names” for Users

“Syrup heads” or “robotards"

The Experience

“Robotripping”
Administration of DXM

- Swallowed liquid very quickly
- Consumption of large quantities of cough syrup induces vomiting
- Must drink quickly to allow the body to absorb the DXM before vomiting
- Snort the powder
- Swallow pills/capsules
Coricidin

- Used to treat aches, pains, headaches, fever
- Manufactured by Schering-Plough
- Teens use Coricidin HBP Cough and Cold
- Red colored tablets
- Taken orally
- AKA-Triple C, CCC, Red Devils, Cory
A Normal Dose of Cough Medicine is 15-30 Milligrams

- Mind-altering effects can occur at doses of 100 milligrams;
- Users consume enough pills or syrup to equal 240-360 milligrams, or 25-50 times beyond the recommended doses.
OTC – DXM Cold Medicine Abuse
Symptoms/ Adverse Effects

- nausea and vomiting
- Slurred speech
- drowsiness
- loss of coordination
- disorientation
- dizziness/vertigo
- hypertension
- tachycardia
- double or blurred vision
- agitation
- lethargy

NSDUH, 2008
Trends in the Annual Prevalence of Use of Inhalants by 8th, 10th and 12th Graders

Monitoring the Future, 2009
Short-term Effects
INHALANTS

- Heart palpitations
- Breathing difficulty
- Dizziness
- Headaches
Percentages of Recent Inhalant Initiates Aged 12 to 17 Reporting Cigarette, Alcohol, and Marijuana Use Prior to Their Initiating Inhalant Use: 2002, 2003, and 2004
Caffeinated Energy Drinks

- Amp - 75 mg per 8.4 ounces (8.9 mg/oz)
- Brewed coffee (average) – 77 mg per 6 ounce cup (12.8 mg/oz)
- Coca-Cola Classic – 34.5 mg per 12 ounce can (2.9 mg/oz)
- Cocaine Energy Drink – 280 mg per 8.4 ounces (33.3 mg/oz)
- Fixx – 500 mg per 20 ounces (25 mg/oz)
- Jolt Cola – 280 mg per 23.5 ounce can (11.9 mg/oz)
- Monster and Rockstar – 160 mg per 16 ounce can (10 mg/oz)
- Powershot – 100 mg per 1 ounce shot (100 mg/oz)
- RedBull – 80 mg per 8.3 ounce can (9.6 mg/oz)
- SoBe Adrenaline Rush – 79 mg per 8.3 ounces (9.5 mg/oz)

Even habitual coffee drinkers have been found to suffer adverse effects from energy drinks. Toxicity and overdose can mimic mental disorders. Caffeine intoxication includes:

- anxiety
- nervousness
- insomnia
- gastrointestinal problems
- tremors (being jittery)
- irregular heartbeat.
Warning Signs of Rx or OTC Drug Abuse

- Personality changes
- Mood swings
- Irritability
- Excessive energy
- Sleepiness or avoiding sleep
- Loss of appetite
- Forgetfulness
- Clumsiness

- Secretiveness
- Loss of interest in personal appearance
- Borrowing money or having extra cash
- Decline in school performance
- Pills missing, lost or too early prescription refills
- Empty containers in trash
What Can Parents Do?

• Safeguard all drugs at home. Monitor quantities and control access.

• Set clear rules for teens about all drug use, including not sharing medicine and always following the medical provider’s advice and dosages.

• Be a good role model by following these same rules with your own medicines.

• Properly conceal and dispose of old or unused medicines in the trash.

• Ask friends and family to safeguard their prescription drugs as well.

Parents The Anti Drug
Tips for Preventing OTC and Prescription Drug Abuse

- Properly store or lock medications
- Take inventory and check regularly
- Set clear rules and monitor behavior
- Properly dispose of old and unused medications
- Encourage family and friends to follow the same guidelines.

*Parents The Anti Drug*
Proper Disposal of Prescription Drugs

• Do not flush prescription drugs down the toilet or drain unless the label or accompanying patient information specifically instructs you to

• Take advantage of a community take-back program

• If no program available:
  – Take out of original container
  – Mix with an undesirable substance, kitty litter, used diaper, coffee grounds
  – Put in a disposable container, such as empty margarine container or sealable bag
  – Conceal an information from container, black out, remove
  – Place in regular trash

Office of National Drug Control Policy
What We Can Do?

• Talk to teens about the dangers of prescription and over-the-counter drugs.
• Educate ourselves and our patients.
• Be available to assist patients and families who have a need for further assessment or evaluation, referral and/or treatment.
Past Year Perceived Need for and Effort Made to Receive Specialty Treatment among Persons Aged 12 or Older Needing But Not Receiving Treatment for Illicit Drug or Alcohol Use: 2008

- Did Not Feel They Needed Treatment: 95.2%
- Felt They Needed Treatment and Did Not Make an Effort: 3.7%
- Felt They Needed Treatment and Did Make an Effort: 1.1%

20.8 Million Needing But Not Receiving Treatment for Illicit Drug or Alcohol Use
Reasons for Not Receiving Substance Use Treatment among Persons Aged 12 or Older Who Needed and Made an Effort to Get Treatment But Did Not Receive Treatment and Felt They Needed Treatment: 2005-2008 Combined

- No Health Coverage and Could Not Afford Cost: 37.4%
- Not Ready to Stop Using: 29.3%
- Able to Handle Problem without Treatment: 13.0%
- No Transportation/Inconvenient: 10.6%
- No Program Having Type of Treatment: 8.3%
- Did Not Feel Need for Treatment at the Time: 8.2%
- Did Not Know Where to Go for Treatment: 8.1%
- Might Cause Neighbors/Community to Have Negative Opinion: 7.7%
- Might Have Negative Effect on Job: 7.4%
Locations Where Past Year Substance Use Treatment Was Received among Persons Aged 12 or Older: 2008

- Self-Help Group: 2,187
- Outpatient Rehabilitation: 1,455
- Outpatient Mental Health Center: 1,054
- Inpatient Rehabilitation: 743
- Hospital Inpatient: 675
- Private Doctor’s Office: 672
- Emergency Room: 374
- Prison or Jail: 343

Numbers in Thousands
Substance abuse is a preventable behavior. Addiction is a treatable disease.

Partnership for a Drug Free America.
References/Information

- www.whitehousedrugpolicy.gov
- www.drugfree.org
- www.nida.nih.gov
- www.drugabusestatistics.samhsa.gov
- http://monitoringthefuture.org
- www.nfp.org

- www.jhuleah.wordpress.com (slides will be posted here)