The Teen Idea of ‘Safe’ Substance Abuse

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Disclosure

Neither I nor any member of my immediate family has a financial relationship or interest with any proprietary entity producing health care goods or services related to the content of this CME activity.

I do not intend to discuss an unapproved or investigative use of commercial products or devices.

Objectives:

The learner will be able to…

- recount the normal maturational behavior and neuropsychological development changes that occur during adolescence.
- recognize the spectrum of substances and substance use teens are likely to consider ‘safe’ to use.

Objectives:

The learner will be able to…

- outline the state of the art pediatric practice techniques for substance use screening, brief intervention and referral to treatment (SBIRT).

Brief background:

- 5-year SAMHSA contract to expand medical training about SBIRT
- Chair, American Academy of Pediatrics COSA:
  - Policy Statements, Clinical Reports, Technical Reports: Role of the Pediatrician, Inhalant Abuse, Tobacco, Alcohol, SBIRT (in review), FASD, others
  - Patient education brochures
  - Legislative & policy work: Support 21 legislation; FDA tobacco product regulation/packaging, DXM regulation testimony, etc.
Stages of Adolescence: Years of Age

- **EARLY:** Ages 10 – 14
- **MIDDLE:** Ages 15 - 17
- **LATE:** Ages 18 until 30?

Goals of Adolescence

- **SELF-IDENTITY**
- **SEXUAL IDENTITY**
- **VOCATION**
- **EMANCIPATION**

Developmental Processes to Achieve the Goals of Adolescence

- Behavioral Experimentation
- Testing Authority
- Rejection Of Parental Values
- Struggle For Independence
Nervous System Growth & Development

- Ongoing research: Myelination & brain growth occurs well into the third decade
- Brain development progresses inferior to superior & posterior to anterior.
- Sequence: brainstem, cerebellum, then cerebral hemispheres, & frontal lobes last.
- Parietal, temporal & occipital lobes: little maturational change between adolescence & adult

Brain development progresses inferior to superior & posterior to anterior. Sequence: brainstem, cerebellum, then cerebral hemispheres, & frontal lobes last. Parietal, temporal & occipital lobes: little maturational change between adolescence & adult.

Summary of Neurodevelopment during Adolescence

- Significant neuronal maturation & myelination occurring through the 20s
- Last to develop = prefrontal/frontal cortex, controlling:
  - Response inhibition (Impulsivity)
  - Abstract thinking
  - Emotional regulation
  - Organizational skills & planning

Use of alcohol, tobacco & other drugs...... poses an available albeit unhealthy means to try to fulfill the developmental processes of adolescence in order to achieve the goal of transitioning from complete dependence to AUTONOMY.

How do we know so much about adolescent substance use?

- Regular national monitoring of trends:
  - Monitoring the Future survey
  - CDC: Youth Risk Behavior Survey
  - National Survey on Drug Use and Health
- Selected other monitoring:
  - Partnership for a Drug-Free America
  - National Poison Control Center databases

"Well, what if you knew... I'm a follower, too!"
**Monitoring the Future Annual Survey**

- U Michigan Inst. of Social Research/NIDA
- Since 1975, annual survey U.S. h.s. seniors
  - In 1991, added 8th & 10th graders
- Long-term follow up of subset thru age 40
- **Ask:**
  - **Reported use:** life-time, annual, last 30 days, daily
  - **Perceived availability**
  - **Perceived risk:** primary predictor of use trends

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**2009 Monitoring the Future (MTF)**

- Sample of 46,097 students in 389 schools
  - Voluntary, anonymous/confidential survey
- 12th grader use: White > Hispanic >> Black
- Those staying in school use less drugs.
  - MTF results show 'best case scenario.'
- Males > females: illicit drugs, steroids, smokeless tobacco, heavy drinking

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**2009 MTF:**

- 46.7% of 12th graders have ever used an illicit drug; 24% when excluding marijuana.
  - 23.3% in the past 30 days; 8.6% other then MJ
- 7 of top 10 drugs abused in the past year by 12th graders were Rx meds or OTC
- Drunk in last 30 days: 8th graders - 5.4%, 10th - 15.5%, 12th - 27.4%
- Ever used flavored alcoholic beverages: 8th graders - 29.4%, 10th - 51.4%, 12th - 67.4%

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**2009 National YRBS**

**Within 30 days of the survey:**

- 28.3% rode once or more in car driven by another who had been drinking
- 9.7% drove car once or more when had been drinking
- 24% met binge drinking definition at least once
- 4.5% had at least one alcohol drink on school property once or more

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**Percentage Use on at Least 1 Day during the prior 30 Days**


![Graph showing percentages of use](chart.png)
Which substances do adolescents perceive as ‘safe’ & why?
- Alcohol, tobacco, over-the-counter drugs, prescription drugs, marijuana, inhalants
- Why ‘safe’?
  - Perceived low risk
  - Low cost
  - High availability
  - Parents/society condone
  - Real or perceived medical use

Which drug is the most physically harmful?

<table>
<thead>
<tr>
<th>Drug</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heroin</td>
<td>21%</td>
</tr>
<tr>
<td>Methamphetamine</td>
<td>15%</td>
</tr>
<tr>
<td>Ecstasy</td>
<td>14%</td>
</tr>
<tr>
<td>Marijuana</td>
<td>9%</td>
</tr>
<tr>
<td>Crack</td>
<td>8%</td>
</tr>
<tr>
<td>LSD</td>
<td>6%</td>
</tr>
<tr>
<td>Cocaine</td>
<td>5%</td>
</tr>
<tr>
<td>Inhalants</td>
<td>5%</td>
</tr>
<tr>
<td>Prescription drugs</td>
<td>4%</td>
</tr>
</tbody>
</table>

Partnership for a Drug-Free America. The Partnership Attitude Tracking Study (2005): N = 7,216; grades 7th to 12th Teens in grades 7 through 12.

Alcohol & U.S. Youth
- Most widely used substance of abuse
- Higher percentage of 12 - 20 year olds use alcohol than use tobacco or illicit drugs
- Highest prevalence of alcohol dependence in any age group is among 18 -20 year olds!
- Alcohol use involved in over 33% of the top 3 causes of teen death: accidents, homicide, suicide
- Easily available; mostly from adults/family

ALCOHOL (Any Use)
2009 Monitoring The Future Survey

<table>
<thead>
<tr>
<th>Grade</th>
<th>Lifetime</th>
<th>Last Year</th>
<th>Last 30 days</th>
</tr>
</thead>
<tbody>
<tr>
<td>8th graders</td>
<td>36.6%</td>
<td>30.3%</td>
<td>14.9%</td>
</tr>
<tr>
<td>10th graders</td>
<td>59.1%</td>
<td>52.8%</td>
<td>30.4%</td>
</tr>
<tr>
<td>12th graders</td>
<td>72.3%</td>
<td>66.2%</td>
<td>43.5%</td>
</tr>
</tbody>
</table>

Of course, prehistoric neighborhoods always had that one family whose front yard was strewn with del mancino remains.
**Alcohol & U.S. Youth**

- Binge drinking down (1979 peak): 2009 MTF
  - 8th grade: 42%; 10th: 28%; 12th: 20%
  - Heavy episodic drinking ('binge') = 5 or more drinks within a couple hours (adult definition)
  - Risk of alcohol poisoning
- Drunk driving declined.
- Increases in minimum drinking age in the 1980s were followed by less drinking and greater perceived risk.

**Acute Alcohol Effects**

- Alcohol is a CNS depressant.
- Alcohol is a neurotoxin.
- Low blood level: impairs brain regulatory & inhibitory control mechanisms
  - ↓ anxiety; poor judgment, attention, short-term memory, thought processing
- Poor motor coordination & reaction time
- High levels: stupor, coma, respiratory arrest

**Latest Alcohol Marketing**

- Alcoholic ‘energy’ drinks
  - 23.5 oz fruit flavored, $2.49
  - 12% alcohol & 156 mg caffeine
- FDA now deciding whether or not legal
  - Phusion Projects: Four Loko; United Brands: Joose
  - Anheuser-Busch & MillerCoors: stopped 2 yrs. ago
- Healthy 19 yr/o: heart attack
- NJ college students to ED: University ban & possible state ban.

**Alcohol & Pregnancy**

- Harm to fetus: teratogen
  - One of leading preventable causes of birth defects, mental retardation, neurodevelopmental disabilities
- No safe level of use. Binge is high risk.
- Fetal Alcohol Spectrum Disorders (FASD):
  - Fetal Alcohol Syndrome: in US 0.2 - 1.5/1,000 live births
  - Alcohol-Related Birth Defects, Alcohol-Related Neuro-developmental Disorder
- May interfere with bonding/parenting
  - Alcohol also transmitted in breast milk

**2009 MTF Tobacco Use**

- 44% have tried cigarettes by 12th grade & 20% current smokers
  - 8th grade: 20% tried & 7% current
- For 12th, lowest use level in any MTF study year
- Since 1996, steady rise smoking disapproval
- All grades: increase smokeless tobacco use
  - About half of peak use levels in mid-1990s
  - 30-day prevalence: 12th – 8.4%; 8th – 3.7%
TOBACCO USE

- Leading preventable cause of disease, disability and death in the U.S.
- Cause 443,000 or 1 in 5 deaths/yr in U.S.
- Nicotine = most addictive substance known
- All tobacco harmful: smoked/smokeless
  - cigarettes, cigars, pipe & hookah tobacco;
  - ‘chew,’ ‘snuff’ or ‘snus’ (spit tobacco)

Tobacco smoking leads to....

- One-third of all cancers. 90% of lung cancers
- Lung disease: chronic bronchitis, emphysema
- Higher risk of heart disease: stroke, heart attack, vascular disease, aneurysm
- Leukemia, cataracts, pneumonia
- On average, adults who smoke, die 14 years earlier than nonsmokers.

Tobacco & Nicotine Delivery

- As unhealthy, possibly worse:
  - Bidis: hand-rolled, often flavored from India
  - Clove/clove-flavored cigarettes (kreteks)
- Electronic or e-cigarettes (a smokeless nicotine delivery device) are not safe.
- The tobacco industry is already marketing newer smokeless tobacco products:
  - lozenges, tablets, tabs, strips, sticks

Smokeless Tobacco

- User more likely to become smoker
- Leukoplakia, various oral cancers:
  - Gum, mouth, pharynx, larynx, esophagus
- Periodontal disease: gingivitis, recession
- Tooth & filling staining, tooth abrasion, caries, halitosis
- Hypertension, vasoconstriction

Smoking & Pregnancy Outcome

- Smoking during pregnancy increases risk of:
  - Miscarriage; placenta previa or abruptio
  - Stillborn baby; premature rupture membranes
  - Premature baby; low birth weight
  - Infant SIDS
  - Child having learning & behavioral problems
- Smoking > 1 pack cigarettes/day during pregnancy nearly doubles risk that child will become nicotine addicted if starts smoking.
Marijuana
- Most widely used illicit drug in MTF history
- Mostly as ‘joints,’ in pipes or ‘blunts’
- Peak 1979, then 1997, up again last 2 yrs
- Perceived risk closely predicts trends
- 30-day prevalence:
  - 12th grade: 20.6%; daily: 5.2%
  - 8th grade: 6.5%; daily: 1.0%

Inhalants
- Only ‘drugs’ classified by route of use:
  - Volatile solvents, fuels, anesthetics
  - Nitrous oxide
  - Volatile alkyl nitrites
- Use declines with age (2009 MTF)
  - Lifetime/30 day use 8th grader: 15% / 4%
  - 12th graders: 9.5% / 1.2%
- Few think great risk in using once or twice
- Sudden sniffing death risk with every use.

Prescription medications are misused by adolescents more than any other drugs except alcohol, tobacco & marijuana.

Rx Drugs are ‘safe’.
- Have legitimate medical indications:
  - User believes is ‘safe’ to self-medicate.
- Are manufactured with specifications:
  - Known ingredients, so ‘safer’ than ‘street drugs’
  - Same predictable dose & effects each pill
- Are ‘legal’ & available nearby, often ‘free’:
  - Legal & available = ‘safe’

Reason for Misusing Rx Pain Meds

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

Partnership for a Drug-Free America. The Partnership Attitude Tracking Study (2005): N = 7,216; grades 7th to 12th Teens in grades 7 through 12.
Source of Abused Rx Pain Relievers:
Past year use by >12 yrs old, NSDUH 2007-2008 compared with 2009 MTF
- 55.9% from friend or relative for free
  - 81.7% of them got from just one doctor
  - Given/taken from home medicine cabinet
- 66% ‘got, bought or took’ from friend or relative
- 18% (19%) by prescription from one doctor
- 4.3% (8%) from drug dealer or stranger
- 0.4% (<1%) bought on Internet

Rx Drugs: Pattern of Nonmedical Use
(MTF 2009)
- **Opioids**: Treat pain. Use ↑ last 5 years.
- **CNS depressants**: Treat anxiety, insomnia
  - Tranquilizers, sedatives: Less use 5 - 6%?
- **Stimulants**: Treat ADHD, narcolepsy
  - Ritalin: In 2001, 5% abusing; now 2%
  - Provigil (modafinil) abuse: 1.8%

Rx Drug Abuse Pattern:
MTF 2009 12th Grader Past Year Use
- **Opioid analgesics**: highly addictive
  - ‘Narcotics other than heroin’ as a class remain at peak prevalence rates for last 6 years: 9.2%
- **Vicodin** (hydrocodone) use unchanged - 10%
- **OxyContin** (oxycodone) use steady - 5%
  - Take oral pills; crush & snort or IV
- Key 2002 MTF Survey change: Asked about Vicodin, OxyContin, Percocet instead of Talwin, laudanum, paregoric.
Pattern of Misuse: OTC Drugs

- Cough & cold medications:
  - Dextromethorphan (DXM)
    - 8 studies (5 flawed): No better than placebo
  - Effects like ketamine and PCP because affect similar brain sites: impaired motor function, numbness, nausea, vomiting, ↑HR, ↑BP
  - ↑↑ dose: lethal respiratory depression
- 2009 MTF: 'Annual' use 4-6%

Dextromethorphan (DXM)

- DXM News

What brings adolescent substance use to medical attention?

- Acute medical needs
- Chronic medical needs
- Specific routine SCREENING
  - Well child visits
  - Pain control
  - Other prescribing: eg. ADHD
Consistent Interview Routine

- Confidential care & interview routine to cover key areas: strengths & health risks
- Structured interview of adolescent

**HEADSS:**
- **H** – Home
- **E** – Education, Employment, Eating
- **A** – Activities, Ambitions, Anger
- **D** – Drugs
- **S** – Sexuality, Safety, Savagery
- **S** – Suicide/Mental health

Substance Use SCREENING

- Skilled interview of adolescent using the CRAFFT questions
- Not body fluid ‘screening’
- Drug Testing most useful in acute or emergency settings
- The ‘S’ of SBIRT: Screening, Brief Intervention, Referral to Treatment

CRAFFT: 3 Opening Questions

**During the PAST 12 MONTHS, did you:**
1. Drink any alcohol (more than a few sips)?
2. Smoke any marijuana or hashish?
3. Use anything else to get high?
   ("anything else" includes illegal drugs, OTC & Rx drugs, & things that you sniff or "huff")

Answers direct SBIRT algorithm pathways to CRAFFT use & most effective next steps.

Yes to 0 or 1

Give Brief Advice: "I recommend you stop (drinking/smoking) entirely & now is the best time."
Offer medical facts: Alcohol/drug use kills brain cells; alcohol damages the liver; smoking damages the lungs.
Risks: sexual, safety. Promote strengths: "You are such a good (student/athlete/friend). I would hate to see anything threaten your future." Give brief guidance: "Never drive or ride after alcohol or drug use." Discuss a safety plan. F/U.

Yes to ≥ 2

High risk for substance use disorder
Yes to $\geq 2$

*High risk for substance use disorder*

BRIEF ASSESSMENT: "Tell me about your use. Caused problems? Tried to quit?" **Acute Danger:** ($\geq 8$ drinks, mixing sedatives, danger while impaired, etc.) Refer to Tx NOW! Break confidentiality; involve parents to help with monitoring & insure follow through.

Red Flags for addiction: ($\leq 14$ yrs, daily use, IV use, etc.) Refer to Addiction Tx ASAP! Ask if parents know. If so, share Dx & Tx recommendations & insure Tx connection. If not, consider breaking confidentiality to insure parental help with follow through to Tx.


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Online Bexar County Substance Abuse Resources Directory

www.bexarlist.com

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Social morays