What Every Provider Should Know About Adolescent Substance Abuse

William E. Tankersley M.D.
Medical Director of Children’s Recovery Center
Mathew Louie M.D.
Chief Psychiatry Resident
Financial Disclosures

• We received no funds from the manufacturers of alcohol, tobacco, or methamphetamine.
Dependence Criteria
(3 or more during a 12 month period)

• Tolerance
• Withdrawal
• Use in larger amounts than intended
• Desire or unsuccessful attempts to cut down
• Chronic behaviors with excessive time: obtaining, using or recovering from the effects of the substance
• Reduced social, occupational, or recreational activities because of substance
• Continued use despite knowledge of physical or psychological effects of the substance
Abuse Criteria
(one or more during a 12 month period)

• Failure to fulfill work, school, home obligations
• Frequent use in potentially hazardous situations. (e.g. driving while impaired)
• Frequent legal problems
• Continued use despite recurrent social or interpersonal problems
DSM-5 Substance Use Disorders
Mild 2-3 Sx, Moderate 4-5 Sx, severe 6 or more

- Tolerance
- Withdrawal
- Use in larger amounts than intended
- Desire or unsuccessful attempts to cut down
- Chronic behaviors with excessive time: obtaining, using or recovering from the effects of the substance
- Reduced social, occupational, or recreational activities because of substance
- Continued use despite knowledge of physical or psychological effects of the substance
- Use in hazardous situations
- Cravings
- Failure to fulfill obligations
- Continued use despite social/interpersonal problems
Adolescent Risk Factors for Substance Abuse--Individual

- Family History of Addition
- Perinatal complications
- Temperament: poor self control, high sensation seeking
- ADHD
- Conduct behaviors
- Alienation
- Rebelliousness
Adolescent Risk Factors for Substance Abuse--Family

- Parents who involve children in their substance using behaviors
- Older siblings using
- Lack of supervision
- Excessively severe or inconsistent punishment
- Poor family relationship quality
- Family conflict
Adolescent Risk Factors for Substance Abuse—School/peer

- Lack of involvement in activities
- Poor academic performance
- Peers who use
Psychiatric Co-morbidities

- Mood Disorders
- Anxiety Disorders
- ADHD
- Conduct Disorders
- Personality Disorders
- Suicide Attempts/Behaviors
Substance use within last 30 days
(NIDA 2012)

Alcohol
• 12\textsuperscript{th} graders 41.5%
• 10\textsuperscript{th} graders 27.6%
• 8\textsuperscript{th} graders 11.0%

Illicit drugs
• 12\textsuperscript{th} graders 25.2%
• 10\textsuperscript{th} graders 18.6%
• 8\textsuperscript{th} graders 7.7%
Nicotine use within last 30 days
(NIDA 2012)

• $12^{th}$ graders 17.1%
• $10^{th}$ graders 10.8%
• $8^{th}$ graders 4.9%
Substance use within last 30 days
High School Seniors (NIDA 2012)

- Adderal  7.6%
- Vicodin   7.5%
- Cold meds  5.6%
- Oxycontin 4.5%
- Ritalin  2.6%
- Marijuana 36.4%
- Cocaine  2.7%
- Crack   1.2%
- Meth    1.1%
- Heroin  0.6%
Adolescent Substance Use Trends
(NIDA 2012)

• Alcohol, nicotine, illicit drug use trending down.
• Marijuana use trending up.
• Daily MJ users increased from 5.1% to 6.5%
• Increased Adolescent substance use rates are associated with decreased perception of harm
Oklahoma Adolescent Substance use within the last year (13-17)
(NSDUHS-SAMSA 2010-2011)

- Alcohol 12.79%
- Cannabis 13.6%
- Rx Opiates 7.04%
- Cocaine 0.84%
- Nicotine 14.38%
- 3.08% met criteria for alcohol dependence or abuse
- 4.13% met criteria for illicit substance dependence or abuse
Risk of Addiction
(Anthony et al, 1994)

- Tobacco 31.9%
- Heroin 23.1%
- Cocaine 16.7%
- Alcohol 15.4%
- Cannabis 9.1%
Substance Classes

- Alcohol
- Sedatives, Hypnotics, Anxiolytics
- Cannabinoids
- Stimulants
- Opiates
- Hallucinogens
- Dissociatives
- Inhalants
- Nicotine
- Other
Alcohol

- Beer 3-8% (ethanol by volume)
- Wine 11-13%
- Hard liquor >30%
Alcohol (FAQs)

- CNS Depressant
- $\text{GABA}_A$ and glycine receptor enhancement
- Zero order kinetics
- Medicinal uses: disinfectant, solvent, beverage.
Alcohol

**Intoxication**
- Euphoria
- Disinhibition
- Impaired Judgment
- Sexual Dysfunction
- Coordination Problems
- Ataxia
- Confusion
- Respiratory Depression
- Coma/Death

**Withdrawal**
- Nausea & Vomiting
- Tremors
- Weakness
- Autonomic Hyperactivity
- Anxiety
- Irritability
- Insomnia
- Hallucinations
- Delirium
- Seizures
Alcohol: Findings suggestive of use

- Enlarged Liver
- Increased LFTs
- HTN
- Smell
Sedatives, Hypnotics, Anxiolytics

• **Benzodiazepines**: Xanax/alprazolam (zannies, footballs, bars) ativan/lorazepam, midazolem/versed, temazepam/restoril, clonazepam/klonopin, valium/diazepam, librium/chlordiazepoxide, rohypnol/flunitrazepam (rufilin, roofies)

• **Barbituates**: Phenobarbital, Secobarbiatal, (Quaaludes)

• **Non-Benzodiazepine Hypnotics**: Eszopiclone/lunesta, zolpidem/ambien, Zaleplon

• **Other**: Meprobamate, Methaqualone, GHB
Sedatives, Hypnotics, Anxiolytics (FAQ)

- CNS depressants
- $\text{GABA}_A$ receptor enhancement
- Medicinal uses: insomnia, anxiety, seizure, spasticity, conscious sedation, alcohol/sedative withdrawal.
Sedatives, Hypnotics, Anxiolytics

**Intoxication**
- Similar to alcohol
- Memory Impairment (anterograde amnesia)
- Slurred Speech
- Incoordination
- Unsteady Gait
- Stupor
- Coma

**Withdrawal**
- Similar to Alcohol
- Nausea & Vomiting
- Tremors
- Weakness
- Autonomic Hyperactivity
- Rebound Anxiety
- Irritability
- Insomnia
- Hallucinations
- Seizures
- May present as a life threatening delirium
Sedatives, Hypnotics, Anxiolytics
Potential Findings Suggestive of use

• Sleep Difficulties
• Anxiety
• Personality Changes
• Seizures
Opiates

• Heroin, Morphine, Oxycodone/Percocet, Oxycontin (Oxy’s, roxy’s), Hydrocodone/Lortabs (tabs), meperidine/demerol, Codeine (lean), Methadone, Fentanyl, Buprenorphine/suboxone, subutex, loperamide, *Desomorphine* (Krocodile)
Opiates (FAQs)

- CNS depressants
- Mu receptor agonist
- Medicinal uses: pain control, cough suppression, anti-diarrhea.
Opiates

**Intoxication**
- Euphoria
- Miosis
- Drowsiness
- Slurred Speech
- Memory Impairments
- Respiratory Depression
- Coma

**Withdrawal**
- Anxiety/Restlessness
- Lacrimation
- Rhinorrhea
- Pupillary Dilation
- Tachycardia/mild HTN/Fever
- GI Dysfunction

*Treat with naloxone (Narcan)*
Opiates
Potential Findings Suggestive of use

• Abscesses
• Cellulitis/Phlebitis
• Track Marks
• Chronic Constipation
• Constricted pupils
Cross Tolerance

• Alcohol and sedative hypnotics are cross tolerant
• Opiates and sedative hypnotics are not
Cannabinoids

• Marijuana: Tetrahydrocannabinol (THC), 60+ psychoactive cannabinoids

• Synthetic cannabinoids: JWH-018 (John W. Huffman), JWH-073, JWH-200, CP-47,947, etc (K2, K3, Spice, incense, Black Magic, legal, etc)
Cannabinoids (FAQs)

- Binds to endocannabinoid receptors, CB1, CB2.
- Involved in neuroplasticity???, pruning???
- Medicinal uses: antiemetic, appetite stimulation, anticonvulsant, spasticity, neuropathic pain, glaucoma
Cannabinoids

**Intoxication**
- Euphoria/Dysphoria
- Conjunctival Injection
- Increased appetite
- Dry Mouth
- Tachycardia
- Paranoia
- Impaired Judgment
- Sensation of slowed time
- Social Withdrawal

**Withdrawal**
- Irritability
- Aggression
- Nervousness/Anxiety
- Insomnia
- Decreased appetite
- Depressed Mood
- Stomach Pain, Sweating, tremors, fever, Chills
Cannabinoids
Potential Findings Suggestive of use

• Chronic Cough
• Wheezing
• New Onset Attention/Concentration Deficits
• Amotivational Syndrome
Examples of Cannabinoids

- Marijuana
- K2/Spice (Synthetic THC)
Stimulants

- Plant Derived Stimulants: Caffeine, Cocaine, Ephedra, Khat
- Prescription Synthetic Stimulants: Amphetamines, Adderall, Ritalin, Vyvanse, Concerta, Dextroamphetamine
- Illicit Synthetic Stimulants: Methamphetamine, MDPV, Mephedrone, (Bath salts)
Stimulants (FAQs)

- Dopamine reuptake blockade and presynaptic release
- Direct stimulation of peripheral sympathetic nerves
- Medicinal uses: alertness, arousal, narcolepsy, weight loss, ADHD, topical anesthetic (cocaine)
Stimulants

**Intoxication**
- Euphoria
- Tachycardia/HTN
- Hypervigilance/Alertness
- Restlessness/Talkativeness
- Confusion
- Impaired Judgment
- Seizures/CVA/MI

**Withdrawal**
- Dysphoria/Depression
- Irritability/Anxiety
- Fatigue
- Insomnia/Hypersomnia
- Vivid Dreams
- Increased appetite
Stimulants

Potential Findings Suggestive of use

- Erosion of dental Enamel/ Gingival Ulceration
- Chronic Rhinitis
- Dilated pupils
- Perforated Septum
- Paranoia/Psychosis
- Choreoathetoid Movements
- Skin Picking/Ulcerations
- Cardiac Arrhythmia/HTN
Hallucinogens

- Plant Derived: LSD (acid), Mescaline, Peyote, Psilocybin (mushrooms)
- Synthetic: 2C class (2C-E’s, 2C-B’s (Bromo-dragonfly, 2C-I’s), Tryptamine class (DMT, DIPT, Foxy)
- Enantiomers: MDMA (ecstasy/Molly), MDE (Eve)
Hallucinogens (FAQs)

• 5HT (serotonin) receptor agonists
• Medicinal uses: psychotherapy, depression, drug withdrawal, spiritualism
• Most ecstasy tabs in Oklahoma are Meth based
Hallucinogens

**Intoxication**
- At lower doses, similar to Cannabis intoxication
- Anxiety
- Panic
- Dysphoria
- Paranoia
- Culminating in suicidal ideation

**Withdrawal**
- Limited evidence to support withdrawal syndrome
- Fatigue, depression, irritability, anhedonia???
- Flashbacks
- Tracers
Suggestive of use

- Psychosis
- Depression
- Personality Changes
Dissociatives

- Ketamine (special K), Phencyclidine (PCP), Nitrous Oxide (whip hits, laughing gas), Dextromethorphan (DXM, Triple C’s, Robo tripping)
Dissociatives (FAQs)

• NMDA receptor antagonists
Dissociatives

- Ketamine
- Phencyclidine
Dissociatives

**Intoxication**
- Aggression
- Altered Perception
- Confusion
- HTN
- Muscular Rigidity
- Analgesia/Numbness
- Ataxia
- Seizures
- Respiratory Depression/Coma

**Withdrawal**
- No recognized withdrawal syndrome
- Depression, irritability, anxiety, hypersomnolence, diaphoresis, tremor
- Flashbacks
Findings Suggestive of Dissociative Use

- Psychosis
- Depression
- Personality Changes
Inhalants

• Volatile alkyl nitrates: Amyl nitrate, Butyl nitrate (poppers)
• Organic Solvents, fuels: -anes (e.g. propane, ethane, gasoline), Ethers, Esters, ketones, toluene/xylene (glue, paint remover), trichloroethane (spray paints), Difluoroethane/tetrafluoroethane, dichlorodifluoromethane (airduster)
• Freon
Inhalants (FAQs)

- Wide range of compounds with multiple not fully known effects
- Intoxication through anoxia and some similar alcohol receptor effects
Inhalants

**Intoxication**
- Euphoria (Partly due to asphyxiation)
- Dizziness/Blurred Vision
- Nystagmus
- Slurred Speech
- Unsteady Gait
- Tremor
- Lethargy
- Stupor/Coma

**Withdrawal**
- Cravings
- Tachycardia
- Diaphoresis
- Anxiety/Irritability
- Nausea/Vomiting
- Insomnia
- Aggression
- Excessive Sweating
- Hand Tremors
- Hallucinations/Psychosis
Findings Suggestive of Inhalant Use

- Irritation of mucus membranes
- Neurological Changes
Nicotine

- Cigarettes
- Cigars
- Dip/Chew
- SNUS
- Patches Gum
Nicotine

**Intoxication**
- N/A

**Withdrawal**
- Dysphoria
- Depressed Mood
- Insomnia
- Irritability
- Insomnia
- Increased Appetite
- Weight Gain
- Almost identical to cannabis withdrawal with the exceptions of increased appetite and weight gain
Findings Suggestive of Nicotine Use

- Chronic Cough
- Wheezing
- Smells of tobacco
- Round circle in back pocket
Other Drugs of Adolescent Abuse

- Steroids
- Antihistaminergic agents: benadryl, trazadone, seroquel
- Cold meds: Sudafed
- Salvia (Kappa agonist)
- Choke out game
Prevention

• Social Resistance Skills
• Normative education
• Competence Enhancement
Screening Adolescents for Substance Use

• Interview without parent or guardian
• Nonjudgmental
• Empathetic
• Open ended questions
• Focus more on the problems associated with use than the amount or frequency of use
Screening Adolescents for Substance Use

• CAGE: Effective tool for adults but data does not support use with adolescents.

• HEADSS: Adolescent psychosocial screening tool with wide range of high risk behaviors

• CRAFFT: Adolescent substance screening tool
Screening Adolescents for Substance Use: HEADSS

• Home, Education, Activities/Alcohol, Drugs, Sex, Suicidality

• Drugs section 3 questions:
  – Have you ever drunk alcohol?
  – Have you ever smoked marijuana?
  – Have you ever used anything else to get high: Illicit drugs, Rx drugs, OTC drugs or inhalants
Screening Adolescents for Substance Use: CRAFFT

• Have you ever ridden in a Car driven by someone including yourself who was high or had been using drugs or alcohol?
• Have you ever used drugs or alcohol to Relax, feel better about yourself, or fit in?
• Have you ever used alcohol or drugs while you are by yourself, Alone?
• Have you ever Forgotten things you did while using drugs or alcohol?
• Have you ever had your Friends or Family tell you that you should cut down your drinking or drug use?
• Have you ever gotten into Trouble while using drugs or alcohol?
Screening Adolescents for Substance Use: CRAFFT

• If no positives, provide praise and encouragement for not using.
• If only one positive, provide brief advice to stop using drugs and/or alcohol.
• If 2 or more are positive, either provide or refer for a more thorough substance assessment.
• If Car +, provide risk reduction advice. Example SADD contract for life
Examples of Brief Advice
(Randal 2009)

- My advice is for you to stop using drugs and alcohol at all, because they can pose a serious risk to your health.
- Smoking MJ damages your lungs and can affect your sports performance.
- MJ directly effects your brain and can hurt your school performance and your future.
- MJ can cause life long problems in some people.
- Alcohol can cause high blood pressure, heart problems and liver problems.
- Alcohol can cause accidents.
- Drug and alcohol use can lead to sexual assault, sexually transmitted diseases, and unintended pregnancies.